

**DOCKET****08-AFC-6**

DATE _____

RECD. MAR 05 2009

March 4, 2009

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814

RE: Willow Pass Generating Station
Application for Certification 08-AFC-06

On behalf of Mirant Willow Pass, LLC, the applicant for the above-referenced Willow Pass Generating Station AFC, we are pleased to submit the enclosed document:

- Three print copies and two CD's of Appendix 10 (Results of Transient Stability Analysis) to the Updated System Impact Study. The Updated System Impact Study was previously submitted to the CEC on February 12, 2009.

Please include this document in the AFC record.

URS Corporation

Kathy Rushmore
Project Manager

Enclosures

CC: Ivor Benci-Woodward



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE **WILLOW PASS**
GENERATING STATION

Docket No. 08-AFC-6
PROOF OF SERVICE

(Revised 2/23/2009)

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DECLARATION OF SERVICE

I, Catherine Short, declare that on March 4, 2009, I served and filed copies of the attached Updated System Impact Study: Appendix 10. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[<http://www.energy.ca.gov/sitingcases/willowpass/index.html>]**. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

☐ sent electronically to all email addresses on the Proof of Service list;

☒ by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

☐ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

☒ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

C Short

Updated System Impact Study: Appendix 10

Application for Certification (08-AFC-6)

for

WILLOW PASS GENERATING STATION Pittsburg, California

March 2009

Prepared for:



Prepared by:

URS



Printed on 100%
Recycled Paper

System Impact Study

Study Report

Mirant Willow Pass, LLC
Willow Pass Generating Station
Interconnection into PG&E's Pittsburg Substation

APPENDIX 10 – Results of Transient Stability Analysis

March 2 2009

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Introduction & Findings

Mirant Willow Pass, LLC (Willow Pass) has requested that a comprehensive third-party system interconnection study (SIS) be conducted for and submitted to the California Energy Commission (CEC). *This updated document is submitted under separate cover as Appendix 10 to the Updated SIS report submitted to the CEC in February 2009. This study incorporates the information requested by the CEC in their November 12, 2008 Data Request 38 (c) regarding transient stability analysis for selected critical Category B (N-1) and Category C (N-2 and B-1) contingencies of the PG&E bulk power transmission grid.*

The transient stability analysis concludes that the interconnection of the Willow Pass Generating Station (WPGS) to the PG&E power system grid will not degrade existing transient system performance, nor contribute to power system instability. All simulations performed exhibited positive damping and were within Western Electricity Coordinating Council (WECC) Disturbance Performance Criteria.

APPENDIX 10 – Results of Transient Stability Analysis

1. Summary of the Stability Studies

Transient stability studies were conducted using a 2013 Summer Peak Full-Loop Base Case, (developed from PG&E's 2008 Assessment base case series and reviewed by the CAISO) to determine if the addition of WPGS Interconnection into PG&E's Pittsburgh 230 kV Substation would result in any adverse impact on the stable operation of the PG&E transmission system (i.e., a critical contingency does not result in excessive oscillations or system collapse as a result of a new generator interconnecting to the Grid).

Transient stability analysis was performed using the General Electric Positive Sequence Dynamics Simulation (PSDS) Program.

Transient stability analysis is a time-based simulation that assesses the performance of the power system during (and shortly following) a contingency. Transient stability studies were performed to ensure system stability following a critical fault on the system. Transient stability simulations were performed out to 20 seconds. Select N-1 (single contingencies), selected B-1 (bus section outages) and N-2 (double contingencies) received transient stability evaluation. This analysis simulated over 100 contingencies per scenario (pre-project and post-project).

Subsequent to a system disturbance, the power system exhibits an oscillatory response. Simulations must exhibit positive or marginal damping. In other words, system oscillations must not perpetually increase, causing a local or regional system collapse.

In addition to damping, the WECC requires that the following Disturbance Performance Criteria be met:

After a Category 'B' disturbance (N-1), the transmission system performance should meet the following criteria:

- Transient voltage dip should not be below 25 percent at load buses or 30 percent at non-load buses at any time.
- The duration of the transient voltage dip greater than 20 percent should not exceed 20 cycles at load buses.
- The minimum transient frequency should not fall below 59.6 Hz for more than 6 cycles at load buses.

After a Category 'C' disturbance (N-2), the transmission system performance should meet the following criteria:

- Transient voltage dip should not be below 30 percent at any bus at any time.
- The duration of a transient voltage dip greater than 20 percent should not exceed 40 cycles at load buses.
- The minimum transient frequency should not fall below 59.0 Hz for more than 6 cycles at load buses.

2. Details Regarding Reliability Criteria

A system reliability evaluation consists primarily of determining if there would be thermal overloads, that voltages are within criteria (not too high or low), and that the system is stable (the system should not oscillate excessively and generators should remain synchronized with one another). Additional criteria may include assurance that there is sufficient reactive power available. The evaluation of these criteria must be conducted for credible 'emergency' conditions that the system might sustain, such as the loss of a single or double circuit line, a transformer, or a combination of these facilities. Performance of the transmission system is measured against the following planning criteria: the California ISO Reliability Criteria, the Western Electricity Coordinating Council (WECC) Reliability Criteria, and the North American Electric Reliability Council (NERC) Planning Standards.

Table W-1 and Figure W-1, excerpts from the NERC/WECC Planning Standards, are transcribed below.

WECC Disturbance-Performance Table Of Allowable Effects On Other Systems¹

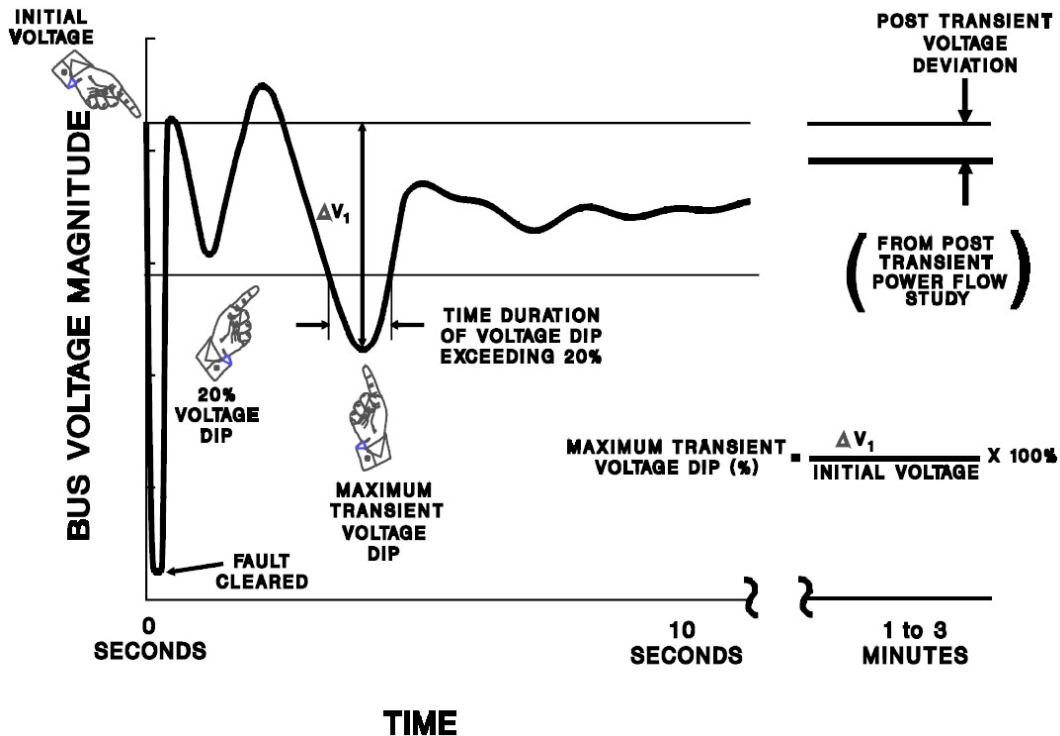
NERC and WECC Categories	Outage Frequency Associated with the Performance Category (outage/year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post Transient Voltage Deviation Standard (See Note 2)
A	Not Applicable	Nothing in addition to NERC		
B	≥ 0.33	Not to exceed 25% at load buses or 30% at non-load buses. Not to exceed 20% for more than 20 cycles at load buses.	Not below 59.6Hz for 6 cycles or more at a load bus.	Not to exceed 5% at any bus.
C	0.033 – 0.33	Not to exceed 30% at any bus. Not to exceed 20% for more than 40 cycles at load buses.	Not below 59.0Hz for 6 cycles or more at a load bus.	Not to exceed 10% at any bus.
D	< 0.033	Nothing in addition to NERC		

Notes:

1. The WECC Disturbance-Performance Table applies equally to either a system with all elements in service, or a system with one element removed and the system adjusted.
2. As an example in applying the WECC Disturbance-Performance Table, a Category B disturbance in one system shall not cause a transient voltage dip in another system that is greater than 20% for more than 20 cycles at load buses, or exceed 25% at load buses or 30% at non-load buses at any time other than during the fault.
3. Additional voltage requirements associated with voltage stability are specified in Standard ID. If it can be demonstrated that post transient voltage deviations that are less than the values in the table will result in voltage instability, the system in which the disturbance originated and the affected system(s) should cooperate in mutually resolving the problem.
4. Refer to Figure W-1 for voltage performance parameters.
5. Load buses include generating unit auxiliary loads.
6. To reach the frequency categories shown in the WECC Disturbance-Performance Table for Category C disturbances, it is presumed that some planned and controlled islanding has occurred. Under-frequency load shedding is expected to arrest this frequency decline and assure continued operation within the resulting islands.
7. For simulation test cases, the interconnected transmission system steady state loading conditions prior to a disturbance should be appropriate to the case. Disturbances should be simulated at locations on the system that result in maximum stress on other systems. Relay action, fault clearing time, and re-closing practice should be represented in simulations according to the planning and operation of the actual or planned systems. When simulating post transient conditions, actions are limited to automatic devices and no manual action is to be assumed.

¹ Table W-1 taken from the NERC/WECC Planning Standards document approved by the Planning Coordination Committee (PCC) at its June 27-28, 2002 meeting. Approved by the Board Of Directors at its August 8-9, 2002 meeting.

NERC/WECC Voltage Performance Parameters²



3. Conclusions

The transient stability analysis concludes that the interconnection of the WPGS to the PG&E power system grid will not degrade existing transient system performance, nor contribute to power system instability. All simulations performed exhibited positive damping and were within WECC Disturbance-Performance Criteria.

For a listing of WECC/NERC Category 'B' and 'C' contingencies evaluated, please refer to **Attachment A**.

Transient stability simulations were run for a twenty-second duration, which was determined to be more than adequate to assess system performance and damping. **Attachment B** contains block-diagram illustrations of models assumed/developed for the Willow Pass project generator, governor, exciter, and power system stabilizer equipment. **Attachment C** contains the 'raw' dyd-format stability data.

Electronic copies of the transient stability plots, which include voltage, relative angle and frequency plots for the outages examined, are available in **Attachment D1-D3**.

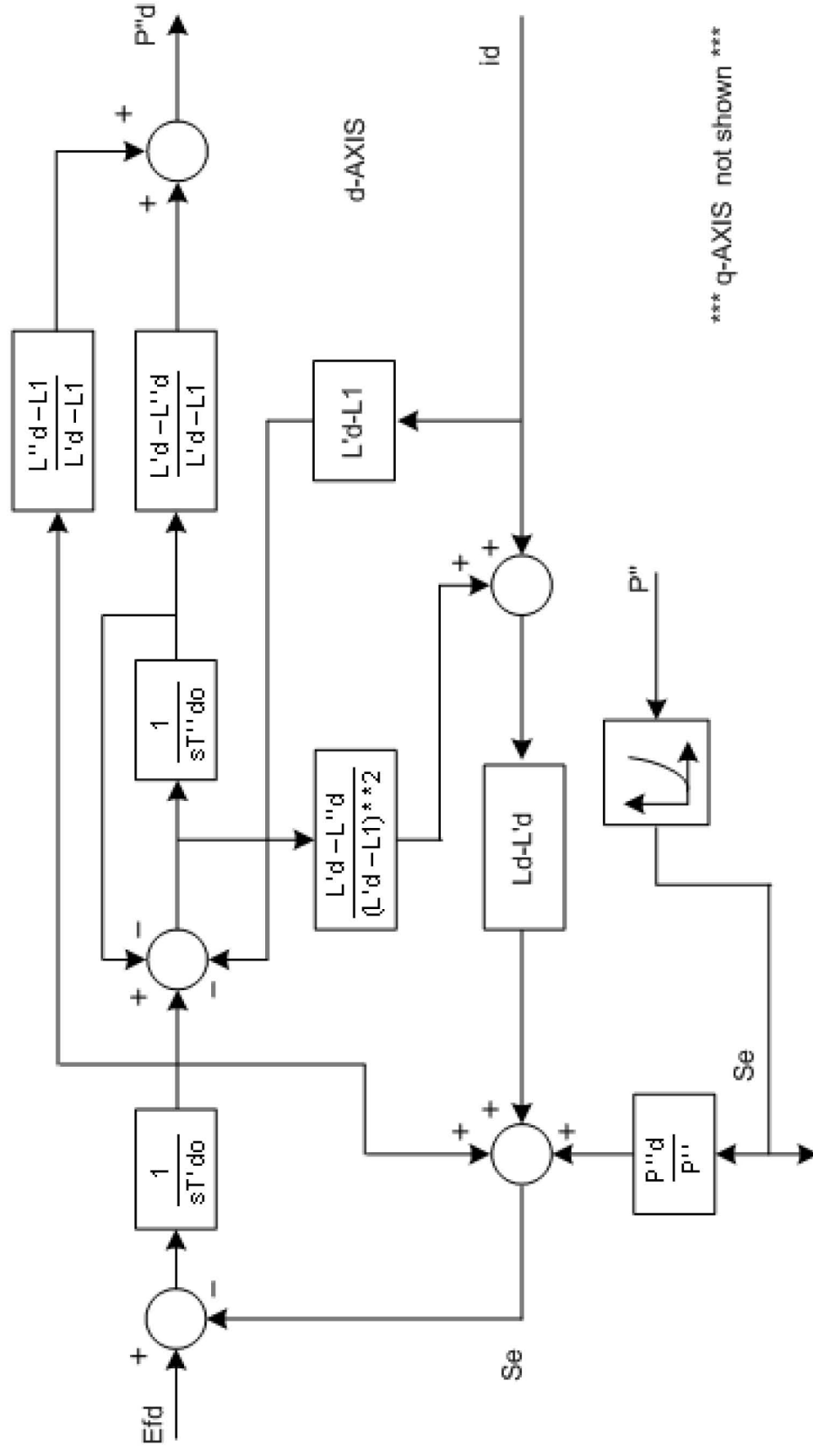
² Illustration taken from the NERC/WECC Planning Standards document approved by the Planning Coordination Committee (PCC) at its June 27-28, 2002 meeting. Approved by the Board Of Directors at its August 8-9, 2002 meeting.

**ATTACHMENT A – WECC/NERC Category ‘B’ and ‘C’ Contingencies
Evaluated**

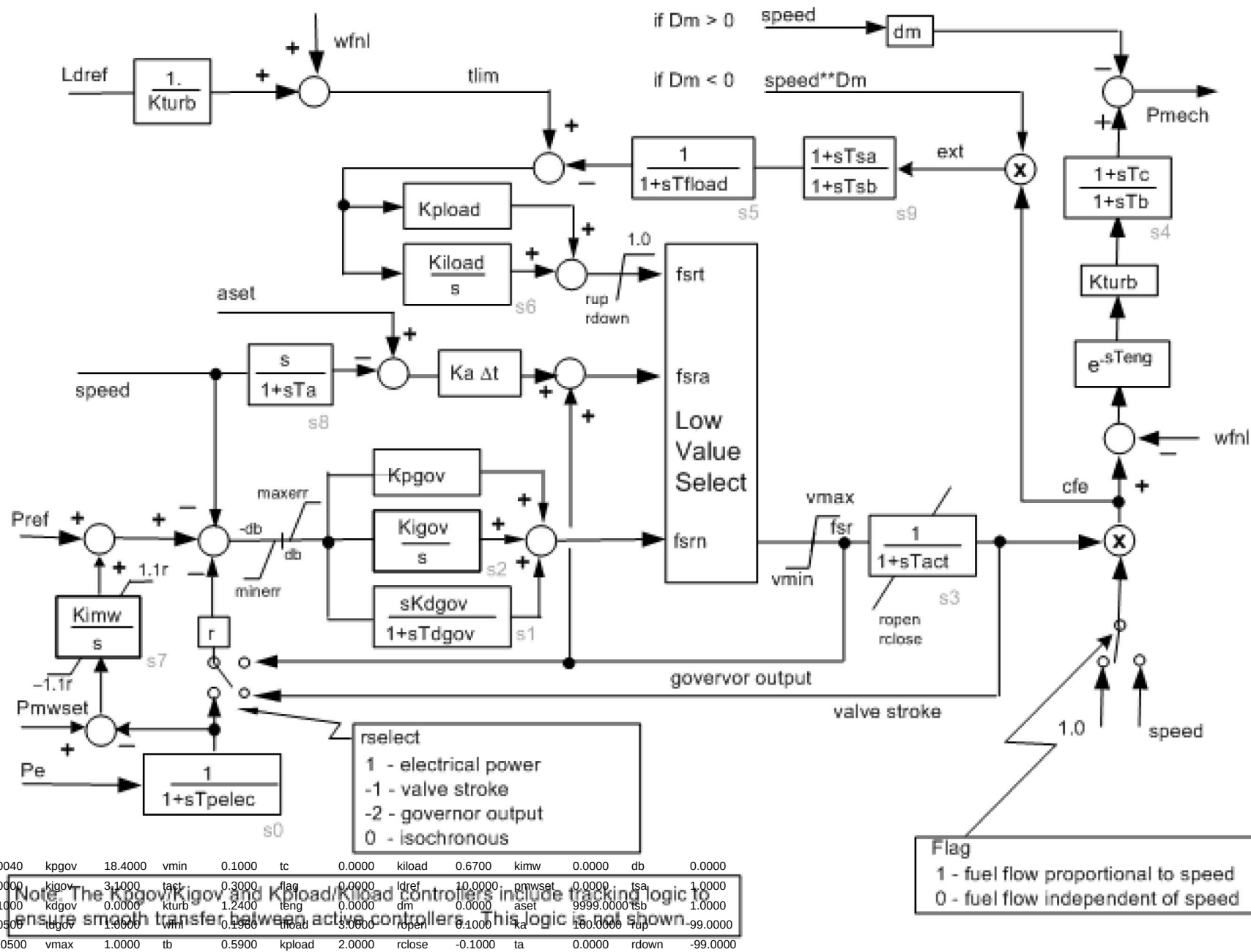
No.	Description
A-000	Flat Run
B-101	N-1 TABLE MT-VACA-DIX 500kV LINE
B-102	N-1 TABLE MT-TESLA 500kV LINE
B-103	N-1 VACA-DIX-TESLA 500kV LINE
B-104	N-1 MAXWELL-TRACY 500kV LINE
B-105	N-1 TRACY-LOSBANOS 500kV LINE
B-106	N-1 TRACY-TESLA 500kV LINE
B-107	N-1 TESLA-METCALF 500kV LINE
B-108	N-1 TESLA-LOSBANOS 500kV LINE
B-109	N-1 METCALF-MOSSLAND 500kV LINE
B-110	N-1 MOSSLAND-LOSBANOS 500kV LINE
B-128	N-1 CONTRA COSTA SUB - BIRDS LANDING 230kV LINE
B-129	N-1 CONTRA COSTA - CONTRA COSTA 8 230kV LINE
B-130	N-1 CONTRA COSTA SUB - CONTRA COSTA 230kV LINE
B-131	N-1 CONTRA COSTA - BIRDS LANDING 230kV LINE
B-132	N-1 CONTRA COSTA - MORAGA 230kV #1 LINE
B-133	N-1 CONTRA COSTA - MORAGA 230kV #2 LINE
B-134	N-1 C.COSTA - BRENTWOOD 230kV LINE
B-135	N-1 C.COSTA - DELTAPMP 230kV LINE
B-136	N-1 C.COSTA - LS PSTAS 230kV LINE
B-137	N-1 LONETREE-C.COSTA 230kV LINE
B-139	N-1 PITTSBURG - DEC PITTSBURG #1 230kV LINE
B-140	N-1 PITTSBURG - DEC PITTSBURG #2 230kV LINE
B-141	N-1 PITTSBURG - SAN RAMON 230kV LINE
B-142	N-1 PITTSBURG - TASSAJAR 230kV LINE
B-143	N-1 PITTSBURG - TIDEWATR 230kV LINE
B-144	N-1 PITTSBURG - TESORO 230kV LINE
B-145	N-1 PITTSBURG - EAST SHORE 230kV LINE
B-146	N-1 PITTSBURG - TESLA C 230kV #1 LINE
B-147	N-1 PITTSBURG - TESLA C 230kV #2 LINE
B-148	N-1 PITTSBURG - SAN MATEO 230kV LINE
B-154	N-1 PITTSBURG - POTRERO D.C. LINE
B-231	N-1 PITTSBURG - CLAYTON 115kV #1 LINE
B-232	N-1 PITTSBURG - CLAYTON 115kV #4 LINE
B-233	N-1 PITTSBURG - LMEC 115kV #1 LINE
B-234	N-1 PITTSBURG - LMEC 115kV #2 LINE
B-235	N-1 PITTSBURG - MARTINEZ 115kV #2 LINE & CCCSD LOAD & CCCSD GEN
B-236	N-1 PITTSBURG - MARTINEZ 115kV #1 LINE & WILLOW PASS BART LOAD & BOLLMAN LOAD
B-237	N-1 PITTSBURG - COLUMBIA STEEL 115kV LINE & GWF 2 LD/GN & PRAXAIR LD & DOW CHEM GN
B-238	N-1 PITTSBURG - CLAYTON 115kV #3 LINE & KIRKER LD RADIAL FROM PITTS-KIRKER-POSCO 115kV LINE
B-239	N-1 PITTSBURG - KIRKER-POSCO 115kV LINE & SHIFT KIRK LD TO PITT-CLAY 115kV LINE 3
B-247	N-1 CONTRA COSTA SUB - FIRBERBOARD - CROWN Z 115kV LINE
B-248	N-1 CONTRA COSTA SUB - FIRBERBOARD - REC 115kV LINE
B-367	N-1 CONTRA COSTA SUB - DUPONT 60kV LINE
B-368	N-1 CONTRA COSTA SUB - BALFOUR 60kV LINE
B-370	N-1 ANTIOCH - CONTRA COSTA SUB 60kV LINE
B-371	N-1 WILLOW PASS - CONTRA COSTA SUB 60kV BUS
B-403	T-1 VACA DIXION 500/230kV #11 XFMR BANK
B-404	T-1 VACA DIXION 500/230kV #12 XFMR BANK
B-405	T-1 TESLA 500/230kV #2 XFMR BANK
B-406	T-1 TESLA 500/230kV #6 XFMR BANK
B-407	T-1 TESLA 500/230kV #4 XFMR BANK
B-408	T-1 METCALF 500/230kV #11 XFMR BANK
B-409	T-1 METCALF 500/230kV #12 XFMR BANK

B-410	T-1 METCALF 500/230kV #13 XFMR BANK
B-411	T-1 TRACY 500/230kV #1 XFMR BANK
B-412	T-1 TRACY 500/230kV #1 XFMR BANK
B-413	T-1 CONTRA COSTA SUB 230/115kV #3 XFMR BANK
B-417	T-1 PITTSBURG 230/115kV #12 XFMR BANK
B-418	T-1 PITTSBURG 230/115kV #13 XFMR BANK
B-421	T-1 CONTRA COSTA SUB 230/115kV #3 XFMR BANK
B-454	T-1 CONTRA COSTA SUB 115/60kV #1 XFMR BANK
B-455	T-1 CONTRA COSTA SUB 115/60kV #2 XFMR BANK
B-498	G-1 DEC PLANT
B-502	G-1 LMEC PLANT
B-511	G-1 CONTRA COSTA #6
B-512	G-1 CONTRA COSTA #7
B-513	G-1 PITTSBURG #5
B-514	G-1 PITTSBURG #6
B-515	G-1 PITTSBURG #7
B-996	G-1 WILLOW PASS PLANT
C-111	N-2 COCO - BIRDS LANDING - CONTRA COSTA SUB - BIRDS LANDING 230kV LINES
C-112	N-2 CONTRA COSTA SUB - COCO&BIRDS LANDING - CONTRA COSTA SUB 230kV LINES
C-113	N-2 C.COSTA - MORAGA 230kV #1 & #2 LINES
C-114	N-2 CONTRA COSTA - LOS PSTAS & CONTRA COSTA - CAYETANO 230kV LINES
C-115	N-2 CAYETANO - NDUBLIN & CONTRA COSTA - CAYETANO 230kV LINES
C-116	N-2 PITTSBURG - TESORO & PITTSBURG - TIDEWATER 230kV LINES
C-118	N-2 PITTSBURG - SANMATEO & PITTSBURG - EAST SHORE 230kV LINES
C-119	N-2 PITTSBURG - TESLA #1 & #2 230kV LINES
C-120	N-2 PITTSBURG - TASSAJARA & PITTSBURG - SAN RAMON 230kV LINES
C-124	N-2 PITTSBURG - SAN MATEO & EAST SHORE - SAN MATEO 230kV LINES
C-128	N-2 NORTH DUBLIN - VINYARD & CONTRA COSTA - LOS PASITAS 230kV LINES
C-139	N-2 PITSBURG - SANRAMON&TASSAJAR - NEWARK 230kV LINES
C-158	N-2 PITTS - MARTZ 115kV #1 & #2 LINES, WP BART, BOLLMAN, CCCSD LD & CCCSD
C-159	N-2 PITTSBURG - CLAYTON 115kV #1 & #3 LINE & KIRKER LD RADIAL FROM PITTS-KIRKER-POSCO
C-210	B-1 CONTRA COSTA SUB 230kV BUS SECTION 1 OUTAGE
C-211	B-1 CONTRA COSTA SUB 230kV BUS SECTION 2 OUTAGE
C-212	B-1 CONTRA COSTA PP 230kV BUS SECTION 1 D OUTAGE
C-213	B-1 CONTRA COSTA PP 230kV BUS SECTION 2 D OUTAGE
C-214	B-1 CONTRA COSTA PP 230kV BUS SECTION 1 E OUTAGE
C-215	B-1 CONTRA COSTA PP 230kV BUS SECTION 2 E OUTAGE
C-216	B-1 CONTRA COSTA PP 230kV BUS SECTION 1 F OUTAGE
C-217	B-1 CONTRA COSTA PP 230kV BUS SECTION 2 F OUTAGE
C-219	B-1 PITSBURG 230kV BUS SECTION 1 D OUTAGE
C-220	B-1 PITSBURG 230kV BUS SECTION 2 D OUTAGE
C-221	B-1 PITSBURG 230kV BUS SECTION 1 E OUTAGE
C-222	B-1 PITSBURG 230kV BUS SECTION 2 E OUTAGE
C-232	B-1 PITSBURG 115kV BUS SECTION 1 OUTAGE
C-233	B-1 PITSBURG 115kV BUS SECTION 2 OUTAGE
C-242	B-1 CONTRA COSTA SUB 115kV BUS SECTION 1 OUTAGE
C-243	B-1 CONTRA COSTA SUB 115kV BUS SECTION 2 OUTAGE

ATTACHMENT B – Block-Diagram Illustrations of Models



ld	2.3640	lppq	0.2240	tpqo	1.1640	d	1.0000
lpd	0.3000	ll	0.1920	tpqp	0.0790	rcomp	0.0000
lpdp	0.2240	ra	0.0022	s1	0.1140	xcomp	0.0000
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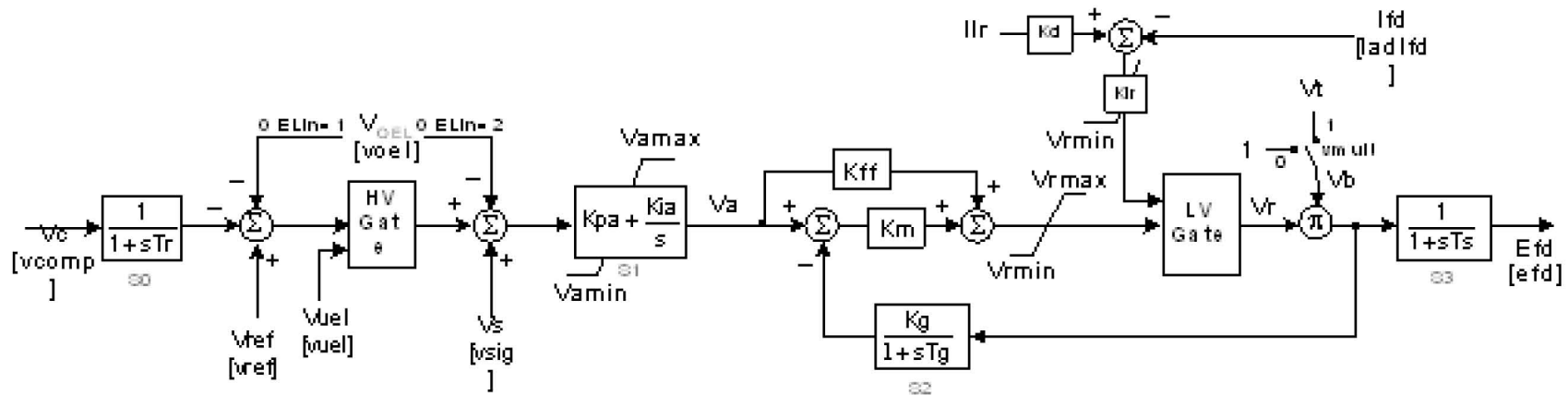
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PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
 2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
 COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



tr	0.0000	kff	1.0000	vrmin	-4.7000	klr	30.0000
kpa	20.9000	km	1.0000	vmult	1.0000	ts	0.0000
kia	53.2000	kg	1.0000	oelin	0.0000		
vamax	5.6000	tg	0.0400	ilr	3.7400		
vamin	-4.7000	vrmax	5.6000	kcl	1.0000		

General Electric International, Inc. PSLF 2008



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

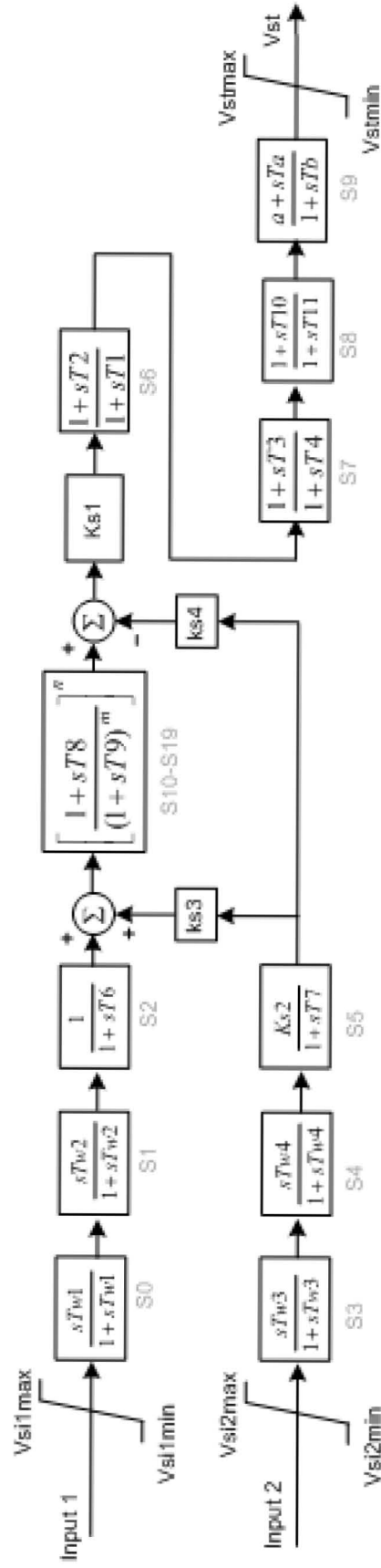
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

From base 0.0hs13:mbase 0.0hs13:ps99001_MIR_GT1 16.5

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



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k1	0.0000	tw1	10.0000	tw4	0.0000	t8	0.6000	t1	0.1400	t11	0.0000	tb	0.0000
j2	3.0000	tw2	10.0000	t6	0.0000	t9	0.1200	t2	0.0140	vstmax	0.1000	ks4	1.0000
k2	0.0000	vsi2max	2.0000	t7	10.0000	n	1.0000	t3	0.1400	vstmin	-0.1000		
vsi1max	0.5000	vsi2min	-2.0000	ks2	0.9600	m	5.0000	t4	0.0140	a	1.0000		

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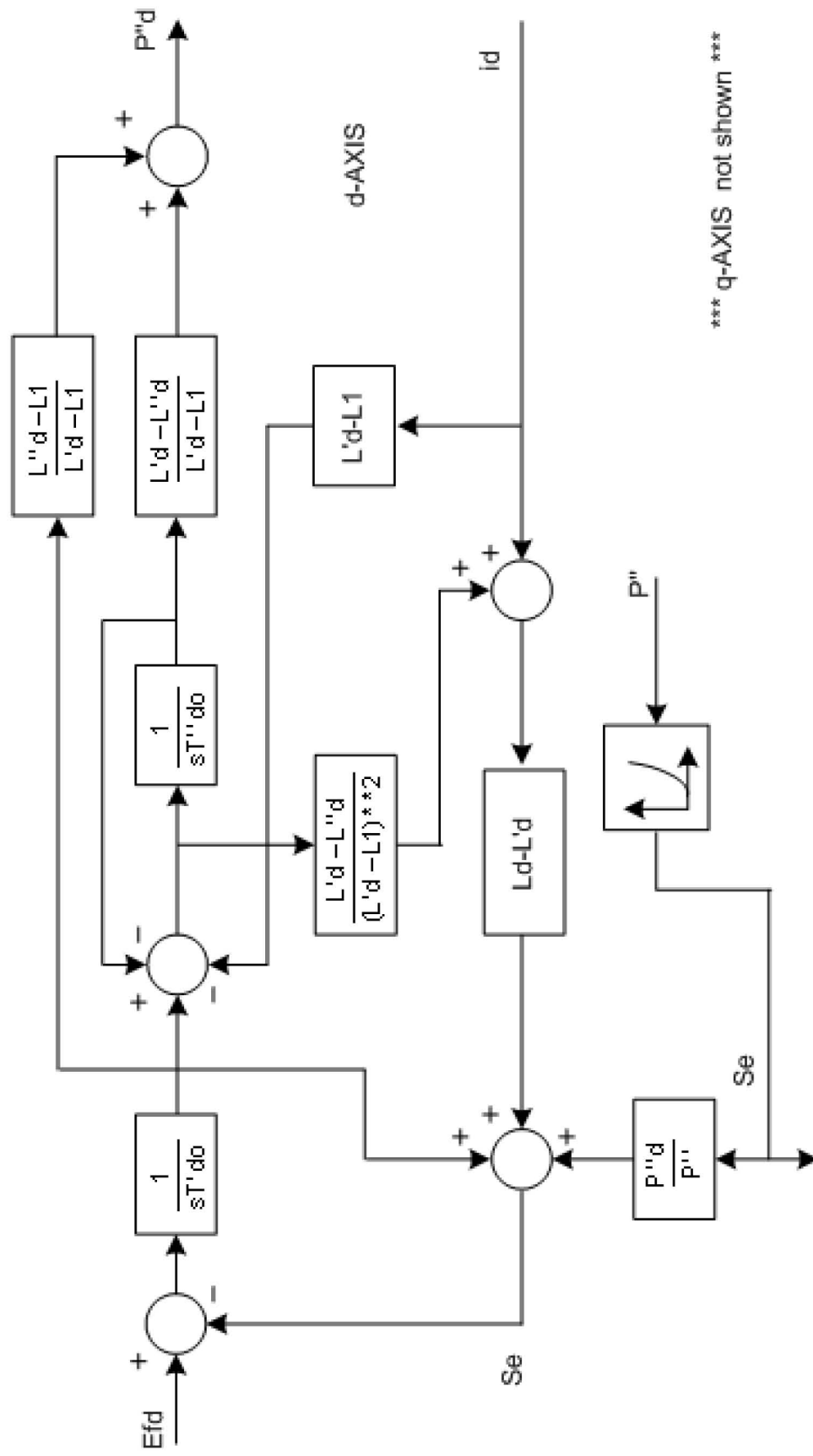
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

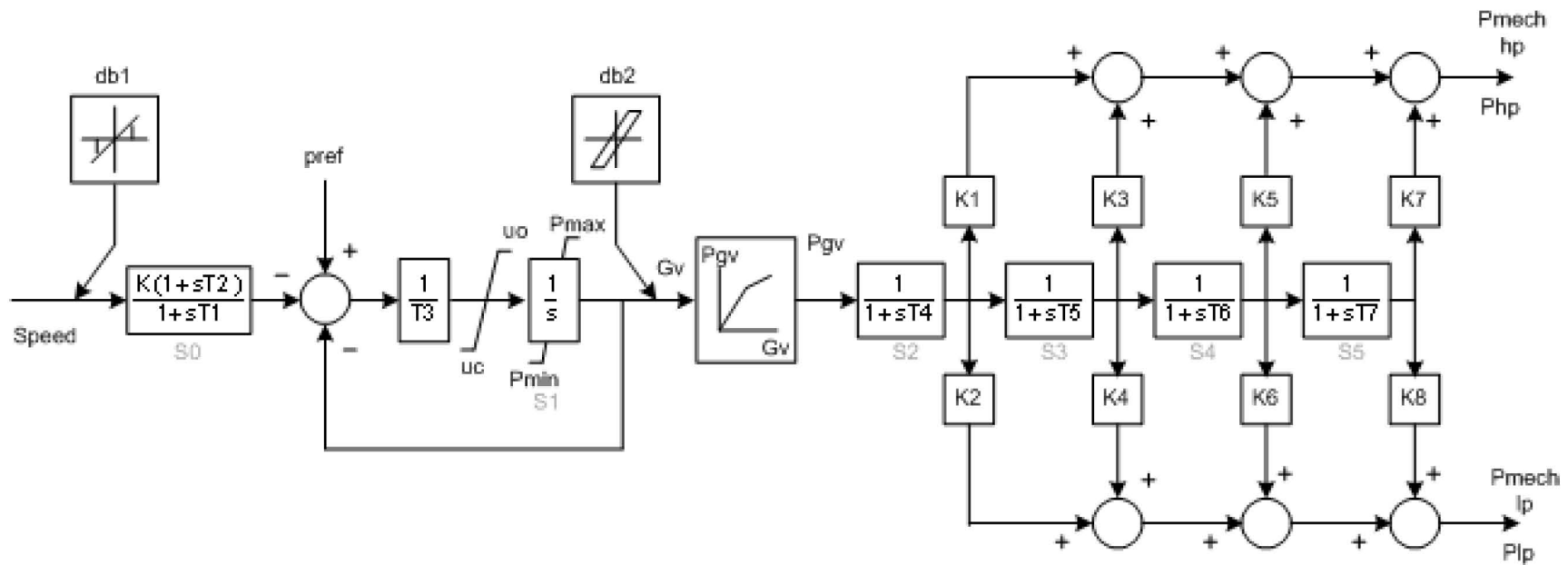
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



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lppd	0.3010	ll	0.1660	tpqqo	0.1500	rcomp	0.0000
lppd	0.2090	ra	0.0039	s1	0.0590	xcomp	0.0000
lq	2.5600	tpdo	6.7200	s12	0.2850	accel	0.0000
lpq	0.5410	tpdo	0.0430	h	2.3600		



k	20.0000	uc	-0.1000	k2	0.0000	k5	0.0000	db1	0.0000	gv2	0.0000	pgv4	0.0000
t1	4.5000	pmax	1.0000	t5	0.1100	k6	0.0000	eps	0.0000	pgv2	0.0000	gv5	0.0000
t2	2.0000	pmin	0.0000	k3	0.4700	t7	0.0000	db2	0.0000	gv3	0.0000	pgv5	0.0000
t3	0.9390	t4	0.1000	k4	0.0000	k7	0.0000	gv1	0.0000	pgv3	0.0000	gv6	0.0000
uo	0.1000	k1	0.5300	t6	0.0000	k8	0.0000	pgv1	0.0000	gv4	0.0000	pgv6	0.0000

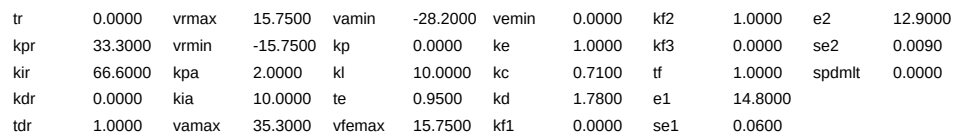
General Electric International, Inc. PSLF Project 1 From base 27 Dec 14:56 base 0.0ns13_ps9902_MIP_ST1 13.8



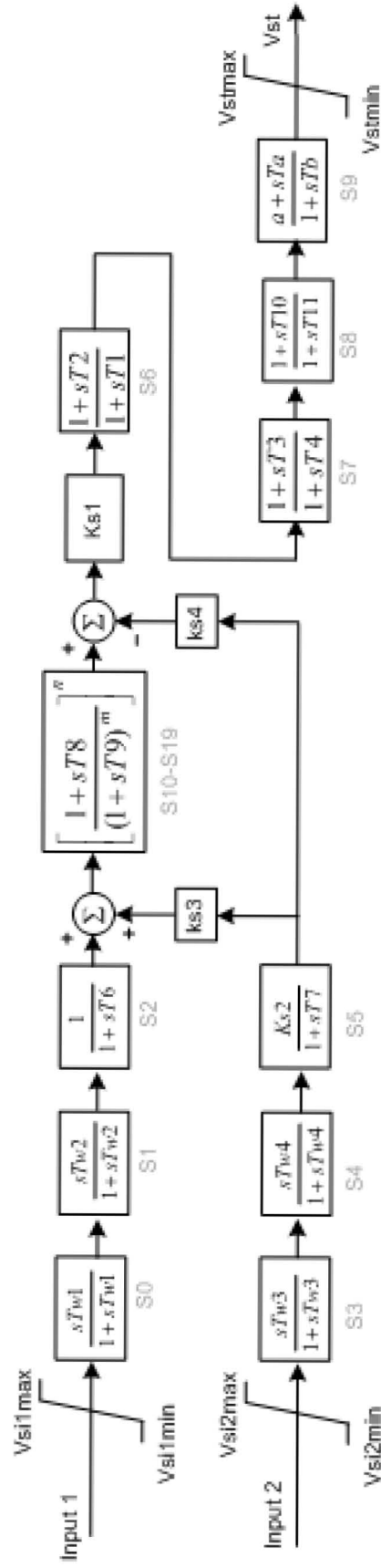
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



Case developed based on WECC 2012 HS2A Case, dated 11/14/07



j1	1.0000	vsi1min	-0.5000	tw3	10.0000	ks3	1.0000	ks1	5.0000	t10	0.1800	ta	0.0000
k1	0.0000	tw1	10.0000	tw4	0.0000	t8	0.6000	t1	0.2500	t11	0.0300	tb	0.0000
j2	3.0000	tw2	10.0000	t6	0.0000	t9	0.1200	t2	0.0400	vstmax	0.1000	ks4	1.0000
k2	0.0000	vsi2max	2.0000	t7	10.0000	n	1.0000	t3	0.2500	vstmin	-0.1000		
vsi1max	0.5000	vsi2min	-2.0000	ks2	2.1200	m	5.0000	t4	0.0400	a	1.0000		

General Electric International, Inc. PSLF ~~ppsg24n~~ ~~00016:trb2axx~~ ~~0.0hs13_ps99092~~ ~~MR_sMT1~~ 13.8

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

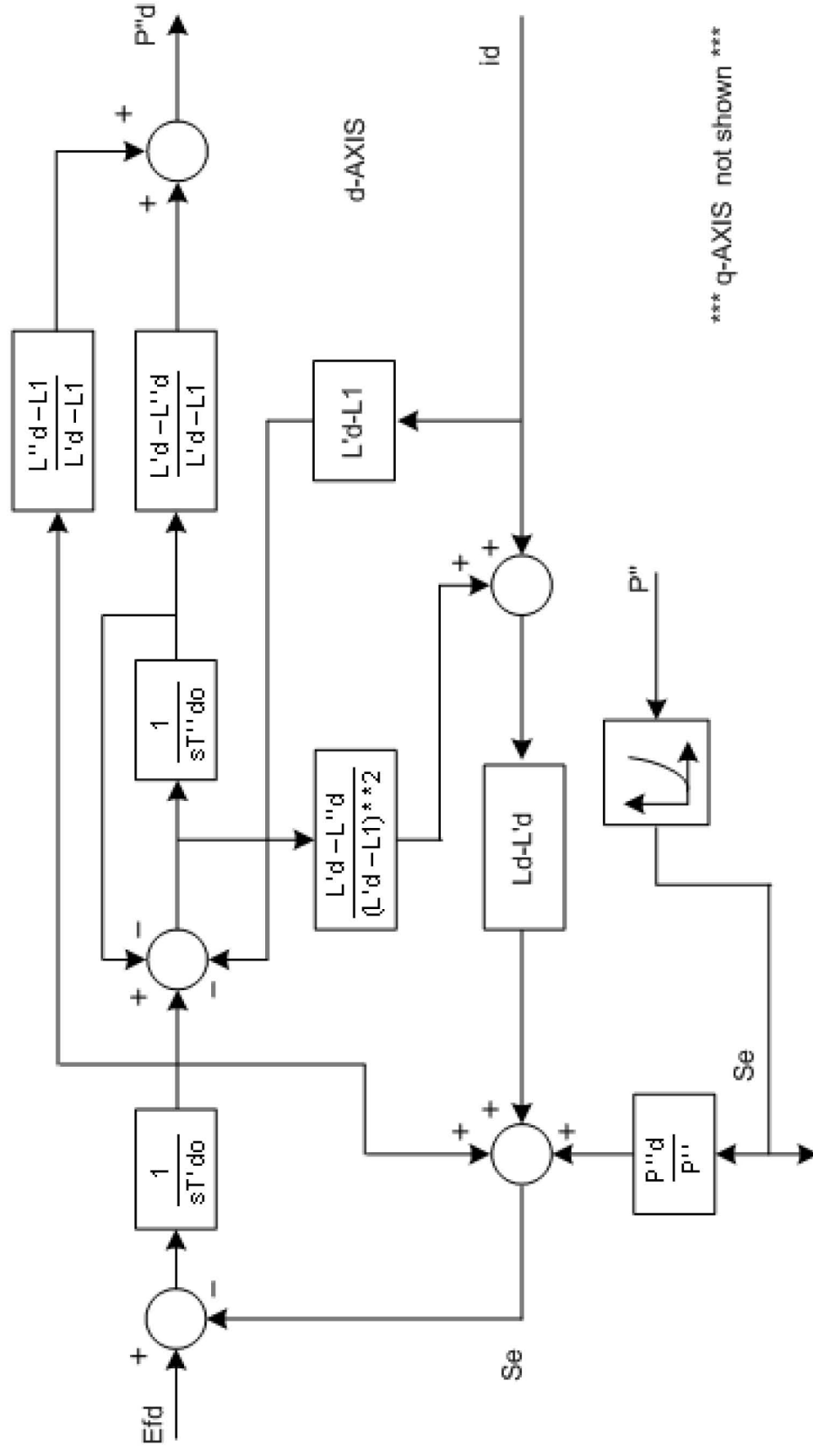
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

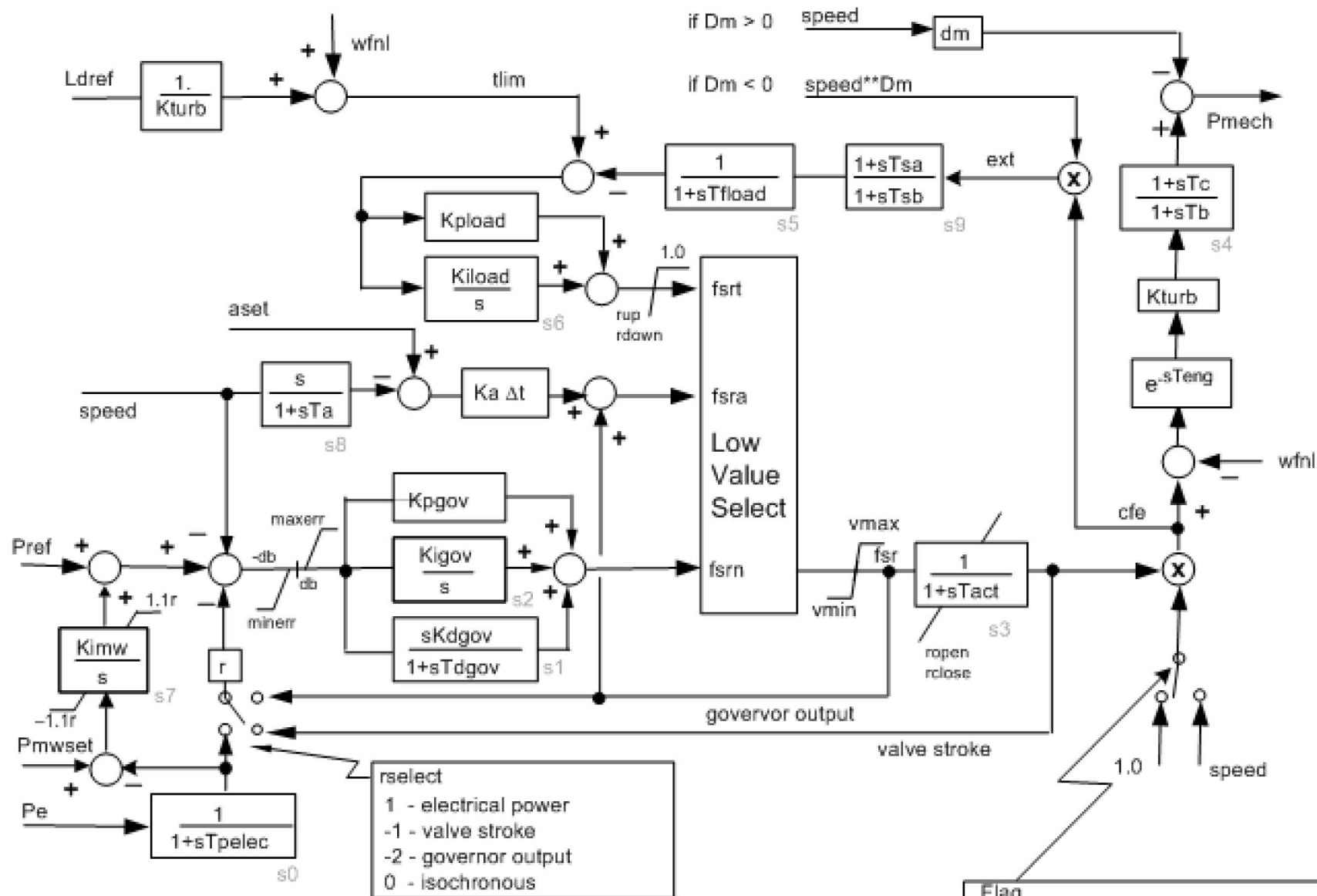
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07





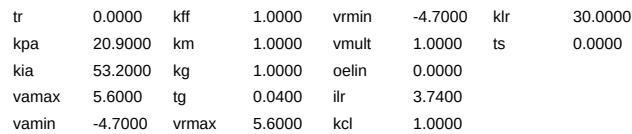
ld	2.3640	lppq	0.2240	tpqo	1.1640	d	1.0000
lpd	0.3000	ll	0.1920	tpqp	0.0790	rcomp	0.0000
lpdp	0.2240	ra	0.0022	s1	0.1140	xcomp	0.0000
lq	2.3020	tpdo	10.4800	s12	0.4890	accel	0.0000
lpq	0.4910	tpdo	0.0480	h	5.2100		



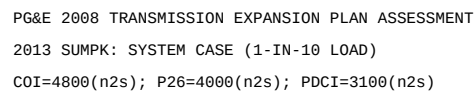
r	0.0040	kpgov	18.4000	vmin	0.1000	tc	0.0000	kload	0.6700	kimw	0.0000	db	0.0000
rselect	1.0000	kigov	3.1000	tact	0.3000	flag	0.0000	ldref	10.0000	pmwsset	0.0000	tsa	1.0000
tpelec	0.1000	kdgov	0.0000	kturb	1.2400	teng	0.0000	dm	0.0000	aset	9999.0000	tsb	1.0000
maxerr	0.0500	tugov	1.0000	vmin	0.1960	tlload	3.0000	rope	0.1000	ka	100.0000	rup	-99.0000
minerr	-0.0500	vmax	1.0000	tb	0.5900	kpload	2.0000	rclose	-0.1000	ta	0.0000	rdwn	-99.0000

General Electric International, Inc. PSFL PGGOV1 From base 27 Dec 17: 00 base 0.0ns13_ps9993 MR GT2 16.5

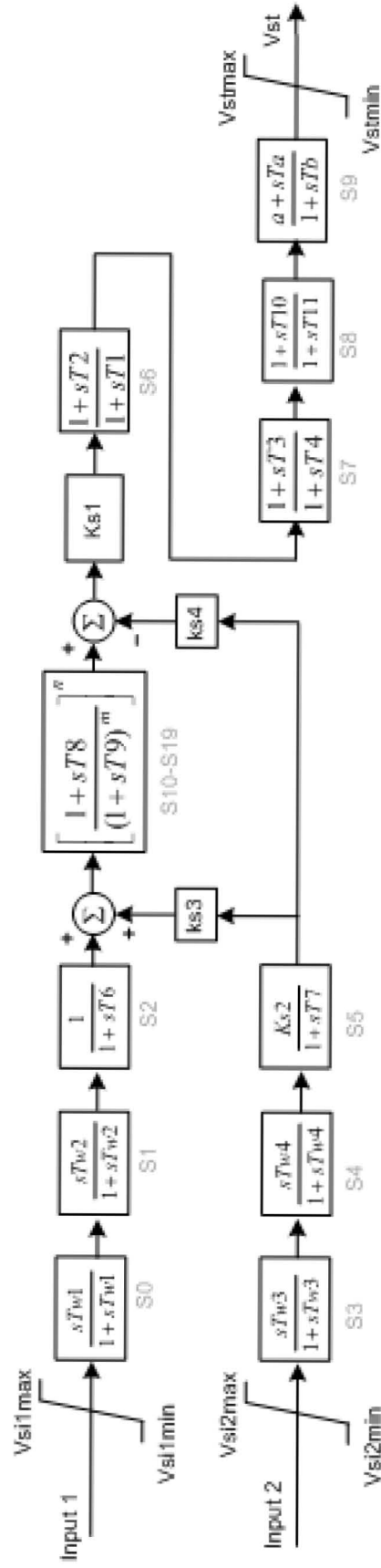




From case27 chr18:314258 0.0hs13_ps09993_MIR_672 16.5



Case developed based on WECC 2012 HS2A Case, dated 11/14/07



j1	1.0000	vs1min	-0.5000	tw3	10.0000	ks3	1.0000	ks1	20.0000	t10	0.0000	ta	0.0000
k1	0.0000	tw1	10.0000	tw4	0.0000	t8	0.6000	t1	0.1400	t11	0.0000	tb	0.0000
j2	3.0000	tw2	10.0000	t6	0.0000	t9	0.1200	t2	0.0140	vs1max	0.1000	ks4	1.0000
k2	0.0000	vs2max	2.0000	t7	10.0000	n	1.0000	t3	0.1400	vs1min	-0.1000		
vs1max	0.5000	vs2min	-2.0000	ks2	0.9600	m	5.0000	t4	0.0140	a	1.0000		

General Electric International, Inc. PSLE PPS222h From base27 00019:00000 MR_sMT2 16.5



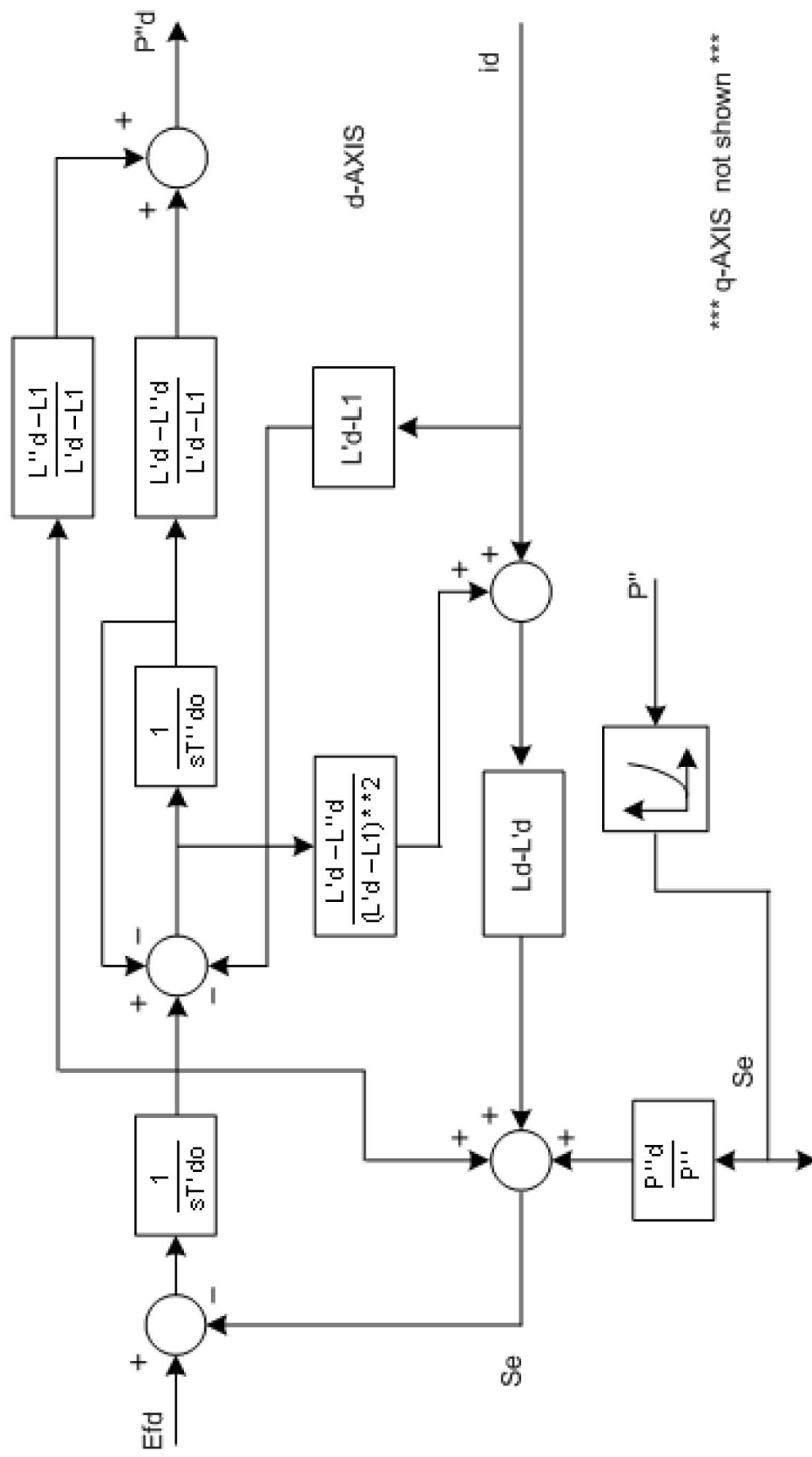
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

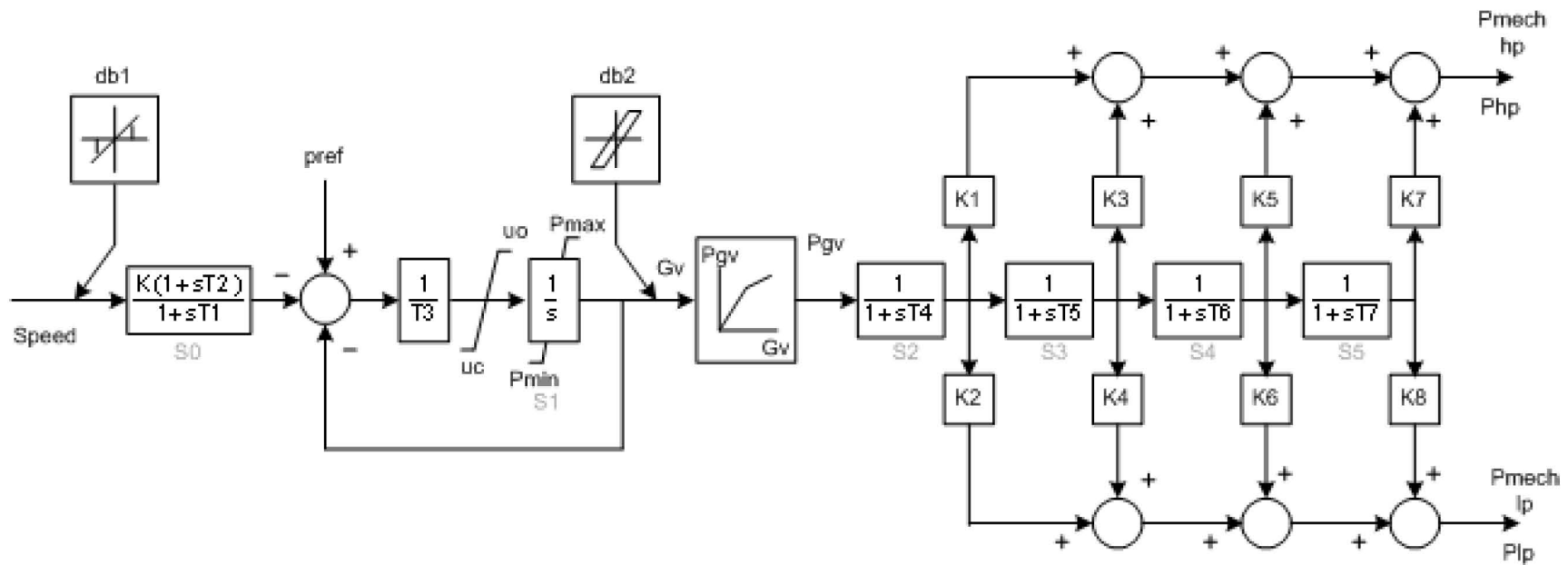
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



id	2.7000	lppq	0.2090	tpqo	2.5000	d	1.0000
lppd	0.3010	ll	0.1660	tpqqo	0.1500	rcomp	0.0000
lppd	0.2090	ra	0.0039	s1	0.0590	xcomp	0.0000
lq	2.5600	tpdo	6.7200	s12	0.2850	accel	0.0000
lpq	0.5410	tpdo	0.0430	h	2.3600		



k	20.0000	uc	-0.1000	k2	0.0000	k5	0.0000	db1	0.0000	gv2	0.0000	pgv4	0.0000
t1	4.5000	pmax	1.0000	t5	0.1100	k6	0.0000	eps	0.0000	pgv2	0.0000	gv5	0.0000
t2	2.0000	pmin	0.0000	k3	0.4700	t7	0.0000	db2	0.0000	gv3	0.0000	pgv5	0.0000
t3	0.9390	t4	0.1000	k4	0.0000	k7	0.0000	gv1	0.0000	pgv3	0.0000	gv6	0.0000
uo	0.1000	k1	0.5300	t6	0.0000	k8	0.0000	pgv1	0.0000	gv4	0.0000	pgv6	0.0000

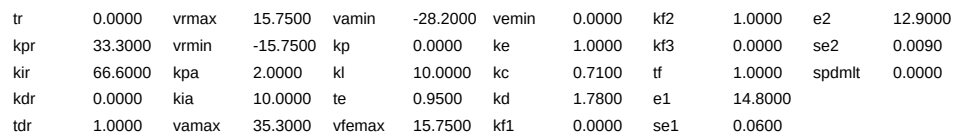
General Electric International, Inc. PSLF Project 1 From base 27 0.020:1 base 0.0ns13 ps 9994 MR ST2 13.8



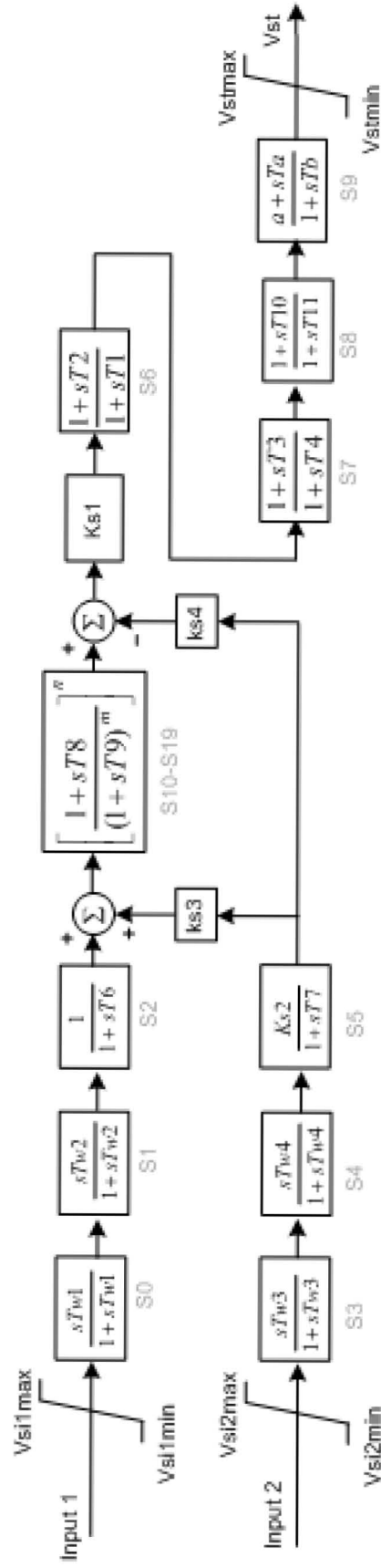
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP:K: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07



Case developed based on WECC 2012 HS2A Case, dated 11/14/07



j1	1.0000	vsi1min	-0.5000	tw3	10.0000	ks3	1.0000	ks1	5.0000	t10	0.1800	ta	0.0000
k1	0.0000	tw1	10.0000	tw4	0.0000	t8	0.6000	t1	0.2500	t11	0.0300	tb	0.0000
j2	3.0000	tw2	10.0000	t6	0.0000	t9	0.1200	t2	0.0400	vstmax	0.1000	ks4	1.0000
k2	0.0000	vsi2max	2.0000	t7	10.0000	n	1.0000	t3	0.2500	vstmin	-0.1000		
vsi1max	0.5000	vsi2min	-2.0000	ks2	2.1200	m	5.0000	t4	0.0400	a	1.0000		

General Electric International, Inc. PSLF ppsg24n 0.0hs13_ps99094_MIR_sMT2 13.8



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

ATTACHMENT C – Raw dyd-Format Dynamic Data

WILLOW PASS DYNAMIC DATA IN GE FORMAT

genrou 99991 "MIR_CT1 " 16.50 "1 " : #9 mva=285.0 10.48 0.048 1.164 0.079 5.21 1.0 2.364 2.302 0.3 0.491 0.224 0.192 0.114 0.489 0.00216 0 0
esst6b 99991 "MIR_CT1 " 16.50 "1 " : #9 0.0 20.9 53.2 5.6 -4.7 1 1 1 0.04 5.6 -4.7 1.0 0 3.74 1 30 0
pss2b 99991 "MIR_CT1 " 16.50 "1 " : #9 1 0 3 0 0.5 -0.5 10 10 2.0 -2.0 10 0 0 10 0.96 1.0 0.6 0.12 1 5 20 0.14 0.014 0.14 0.014 0 0 0.1 -0.1 1 0 0 1
ggov1 99991 "MIR_CT1 " 16.50 "1 " : #9 mwcap=242.0 0.004 1 0.10 0.05 -0.05 18.4 3.1 0 1.0 1.0 0.1 0.3 1.24 0.196 0.59 0 0 0 3.0 2.0 0.67 10 0 0.1 -0.1 0 0 9999 100 0 0 1.0 1.0 99 -99

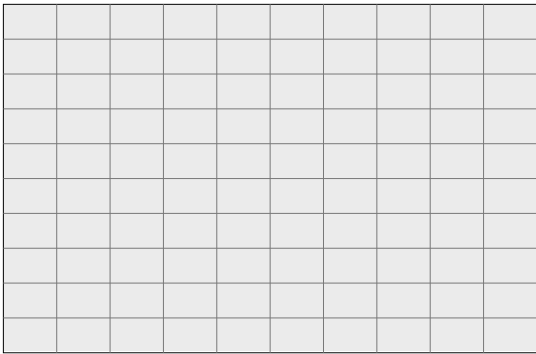
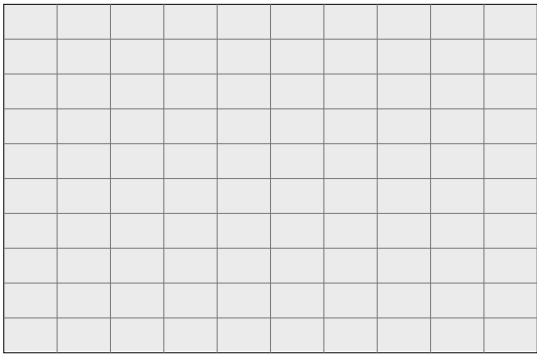
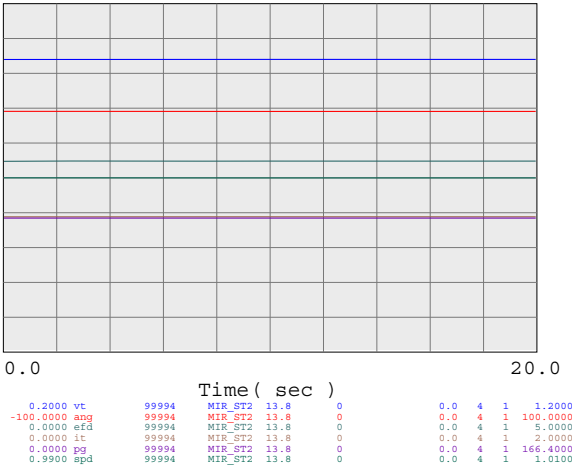
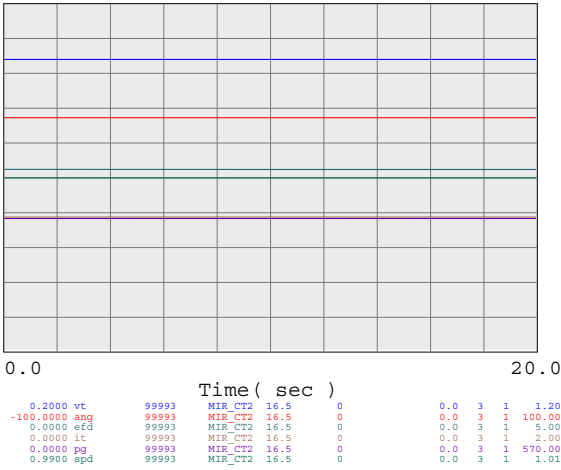
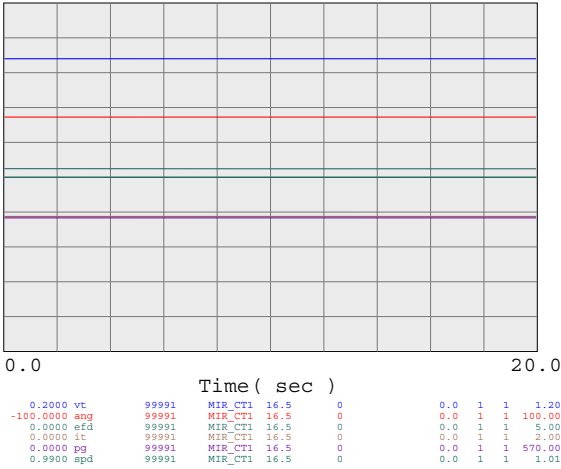
genrou 99992 "MIR_ST1 " 13.80 "2 " : #9 mva=83.2 6.72 0.043 2.5 0.15 2.36 1.0 2.7 2.56 0.301 0.541 0.209 0.166 0.059 0.285 0.0039 0 0
esac7b 99992 "MIR_ST1 " 13.80 "2 " : #9 0.0 33.3 66.6 0 1.0 15.75 -15.75 2.0 10.0 35.3 -28.2 0 10.0 0.95 15.75 0 1.0 0.71 1.78 0 1.0 0 1.0 14.8 0.06 12.9 0.009
pss2b 99992 "MIR_ST1 " 13.80 "2 " : #9 1 0 3 0 0.5 -0.5 10 10 2.0 -2.0 10 0 0 10 2.12 1.0 0.6 0.12 1 5 5 0.25 0.04 0.25 0.04 0.18 0.03 0.1 -0.1 1 0 0 1
ieeeg1 99992 "MIR_ST1 " 13.80 "2 " : #9 mwcap=72 20.0 4.5 2.0 0.939 0.1 -0.1 1.0 0 0.1 0.53 0 0.11 0.47 0

genrou 99993 "MIR_CT2 " 16.50 "3 " : #9 mva=285.0 10.48 0.048 1.164 0.079 5.21 1.0 2.364 2.302 0.3 0.491 0.224 0.192 0.114 0.489 0.00216 0 0
esst6b 99993 "MIR_CT2 " 16.50 "3 " : #9 0.0 20.9 53.2 5.6 -4.7 1 1 1 0.04 5.6 -4.7 1.0 0 3.74 1 30 0
pss2b 99993 "MIR_CT2 " 16.50 "3 " : #9 1 0 3 0 0.5 -0.5 10 10 2.0 -2.0 10 0 0 10 0.96 1.0 0.6 0.12 1 5 20 0.14 0.014 0.14 0.014 0 0 0.1 -0.1 1 0 0 1
ggov1 99993 "MIR_CT2 " 16.50 "3 " : #9 mwcap=242.0 0.004 1 0.10 0.05 -0.05 18.4 3.1 0 1.0 1.0 0.1 0.3 1.24 0.196 0.59 0 0 0 3.0 2.0 0.67 10 0 0.1 -0.1 0 0 9999 100 0 0 1.0 1.0 99 -99

genrou 99994 "MIR_ST2 " 13.80 "4 " : #9 mva=83.2 6.72 0.043 2.5 0.15 2.36 1.0 2.7 2.56 0.301 0.541 0.209 0.166 0.059 0.285 0.0039 0 0
esac7b 99994 "MIR_ST2 " 13.80 "4 " : #9 0.0 33.3 66.6 0 1.0 15.75 -15.75 2.0 10.0 35.3 -28.2 0 10.0 0.95 15.75 0 1.0 0.71 1.78 0 1.0 0 1.0 14.8 0.06 12.9 0.009
pss2b 99994 "MIR_ST2 " 13.80 "4 " : #9 1 0 3 0 0.5 -0.5 10 10 2.0 -2.0 10 0 0 10 2.12 1.0 0.6 0.12 1 5 5 0.25 0.04 0.25 0.04 0.18 0.03 0.1 -0.1 1 0 0 1
ieeeg1 99994 "MIR_ST2 " 13.80 "4 " : #9 mwcap=72 20.0 4.5 2.0 0.939 0.1 -0.1 1.0 0 0.1 0.53 0 0.11 0.47 0

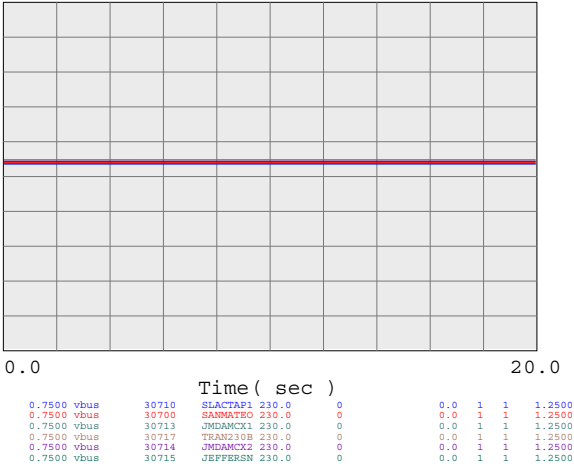
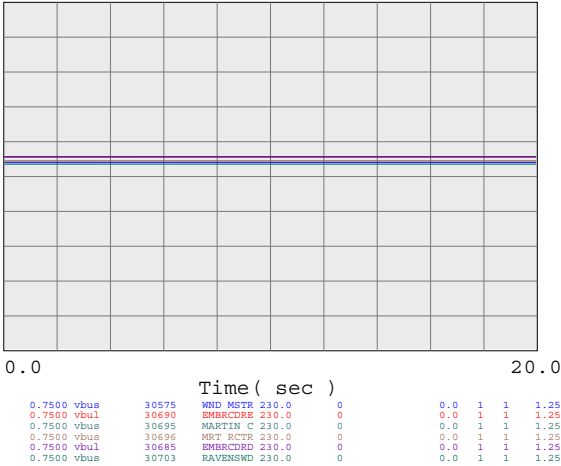
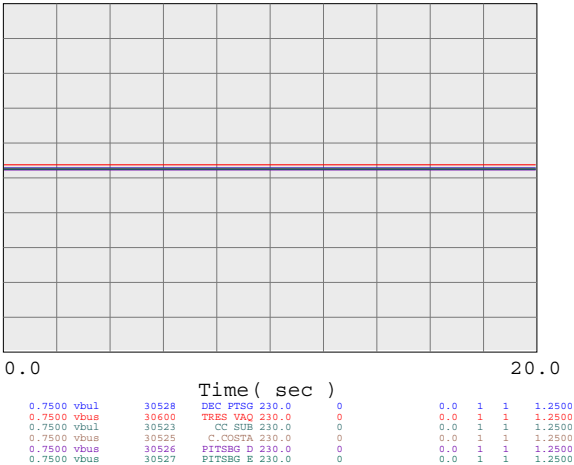
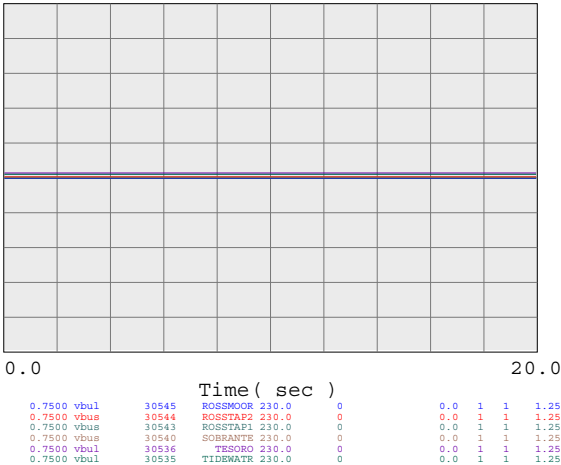
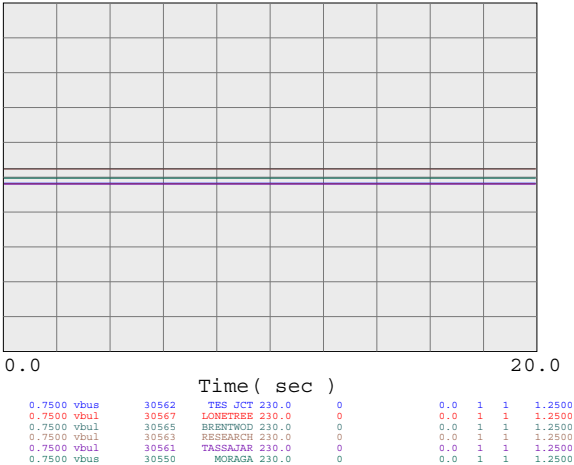
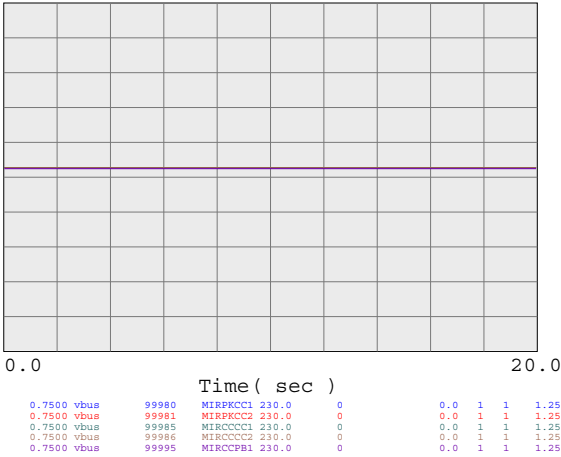
ATTACHMENT D1 – Category A Transient Stability Plots

WILLOW PASS GENERATION PLANT



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

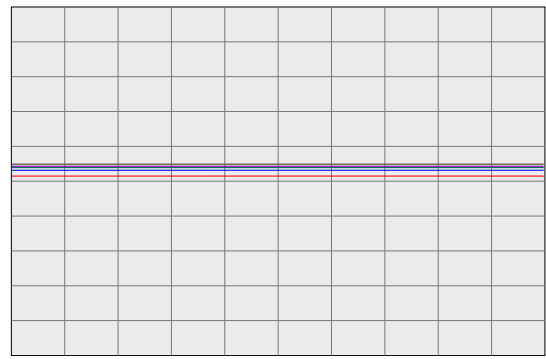
230-KV SYSTEM VOLTAGES



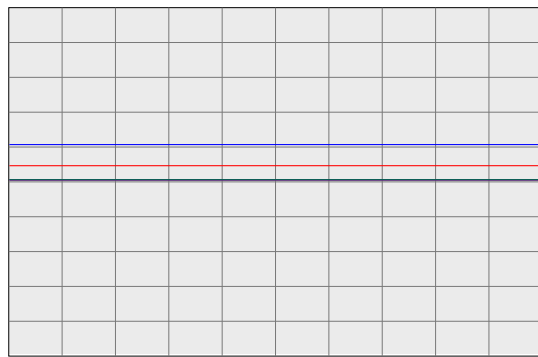
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

A coordinate grid with a horizontal line at $y = 5$. The grid is 10 units wide and 10 units high. The horizontal line is drawn at the 5th grid line from the bottom, passing through the center of the grid. The grid lines are spaced at 1-unit intervals.

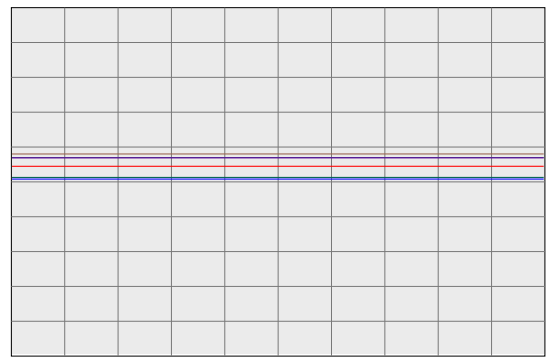
0.7500 vbus	3076	TRAN230A	230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAF2	230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND	230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF	230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW	230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2	230.0	0	0.0	1	1	1.2500



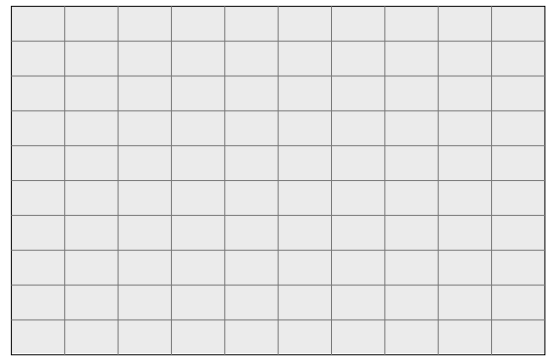
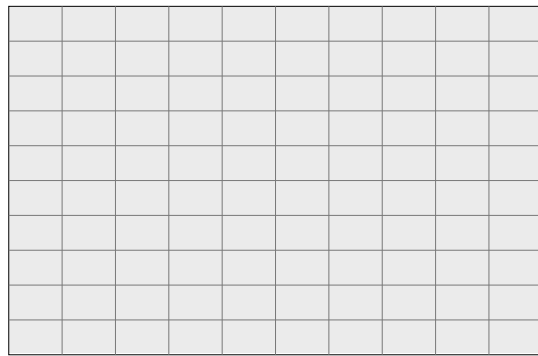
Time(sec)									
0.7500	vbul	30505	WEBER D 230.0	0	0.0	1	1	1.2500	
0.7500	vbul	30622	EIGHT MI 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30655	ADCC C 230.0	0	0.0	1	1	1.2500	



		Time (sec)					
0.7500	vbus	30503	COLLRLV 230.0	0	0.0	1	1.2500
0.7500	vbus	30500	BELL0TA 230.0	0	0.0	1	1.2500
0.7500	vbus	30499	STAGG-E 230.0	0	0.0	1	1.2500
0.7500	vbus	30498	STAGG-D 230.0	0	0.0	1	1.2500
0.7500	vbus	30497	STAGG-F 230.0	0	0.0	1	1.2500
0.7500	vbus	30496	STAGG-H 230.0	0	0.0	1	1.2500



Time(sec)									
0.7500	vbus	30495	STAGG 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30490	VLLY SPS 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30486	TIGR CKM 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500	
0.7500	vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500	



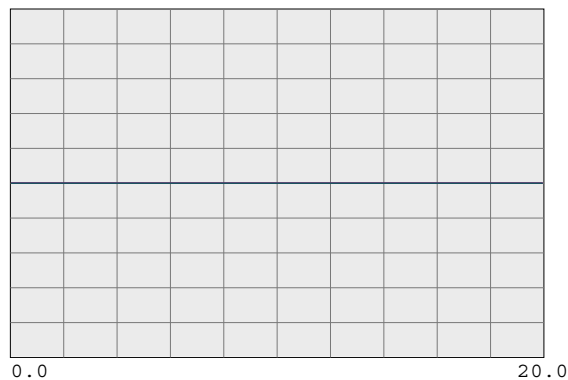
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

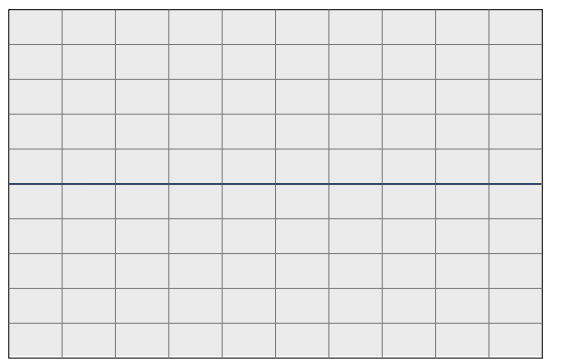
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

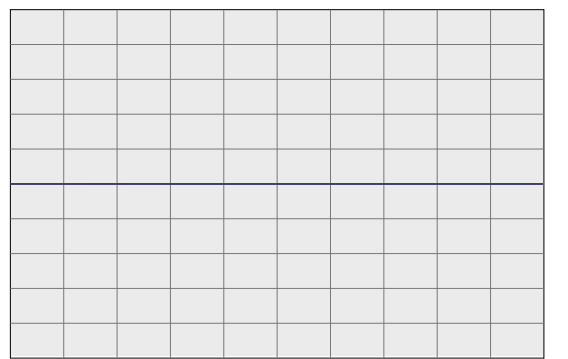
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

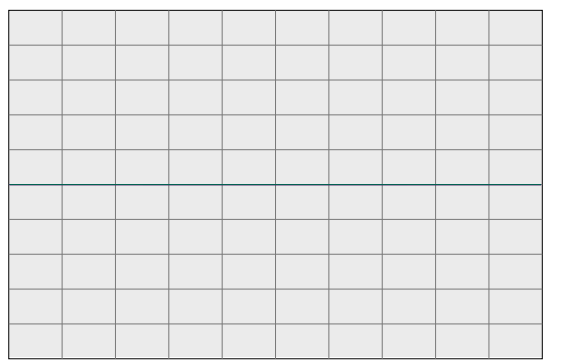
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

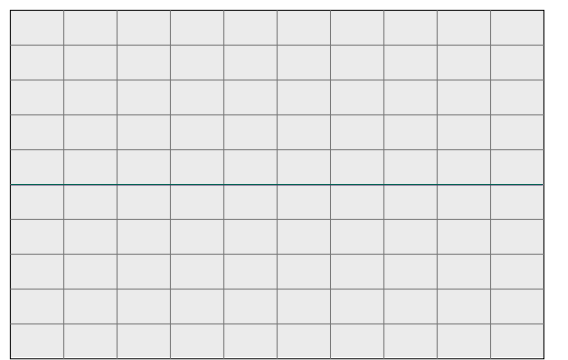
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

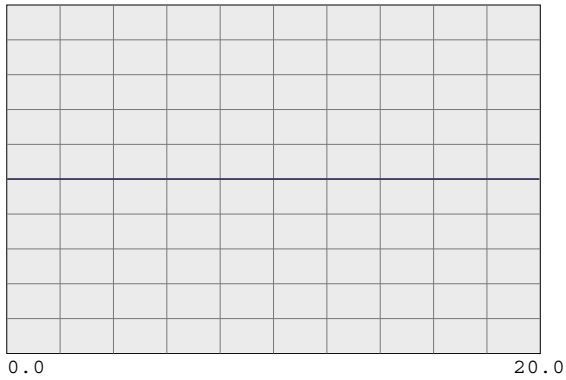
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s) ; P26=4000 (n2s) ; PDCI=3100 (n2s)

6/13/08

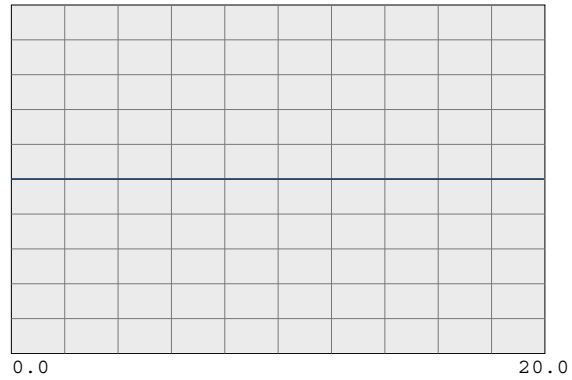
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



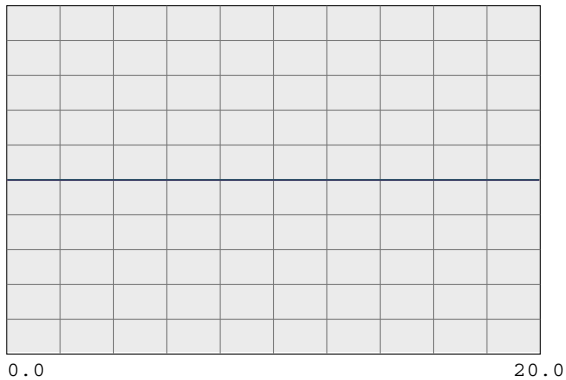
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



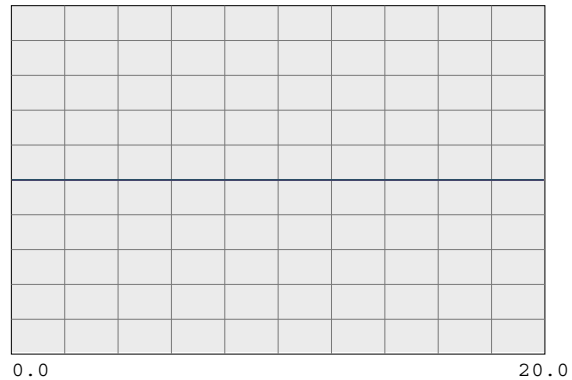
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



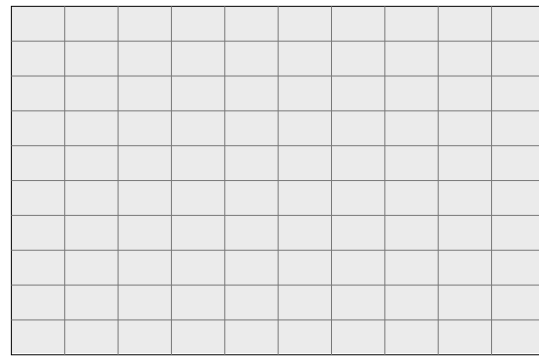
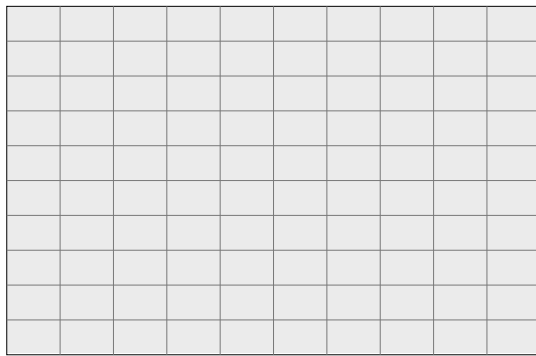
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



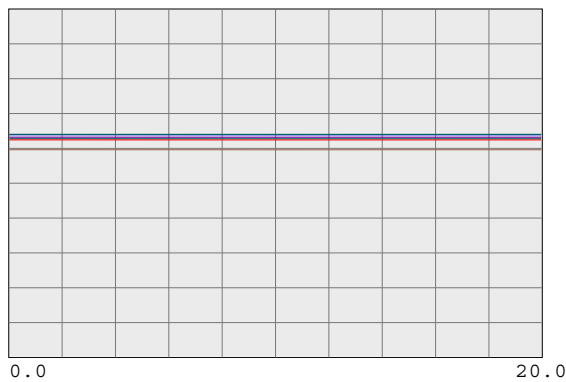
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



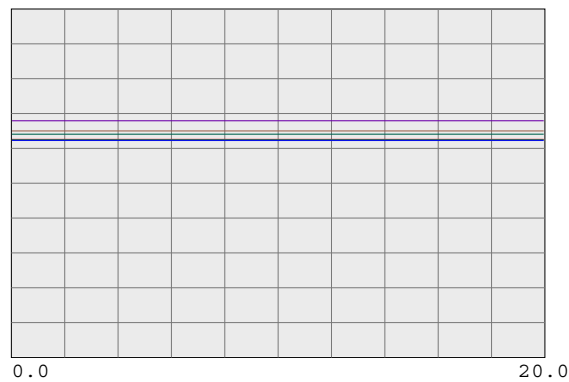
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



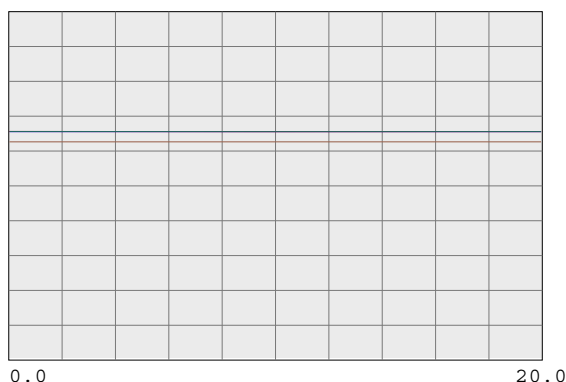
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



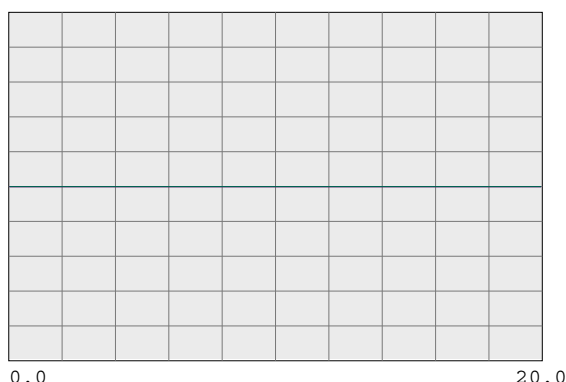
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



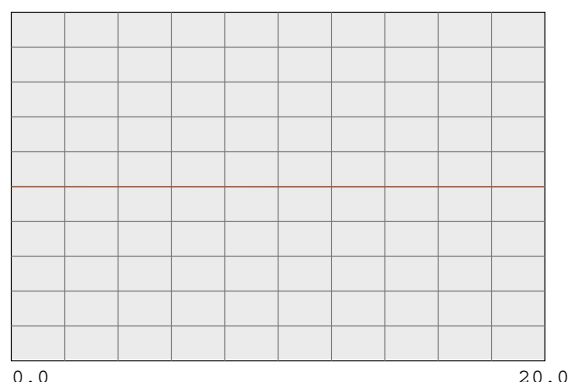
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

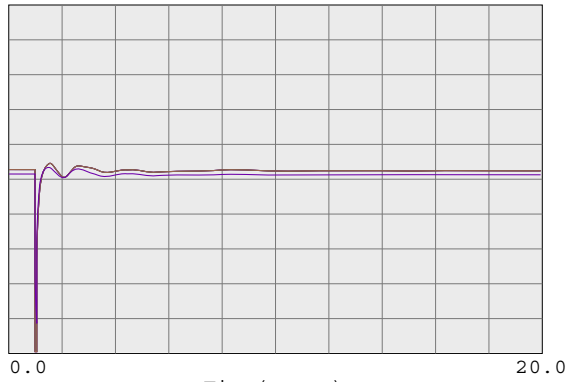
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

ATTACHMENT D2 – Category B Transient Stability Plots

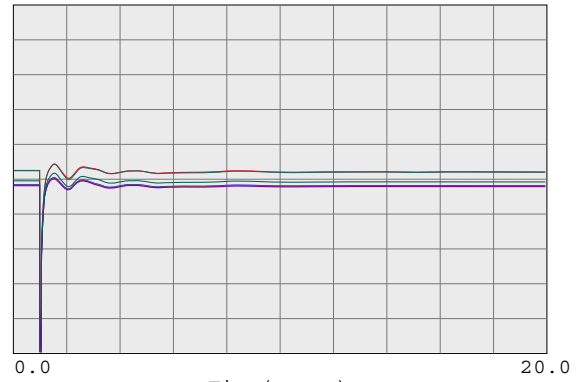
WILLOW PASS GENERATION PLANT

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

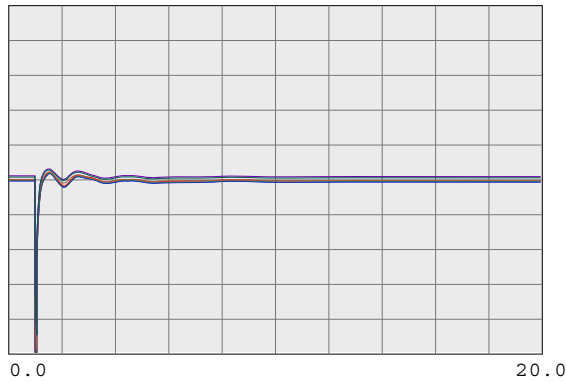
230-KV SYSTEM VOLTAGES



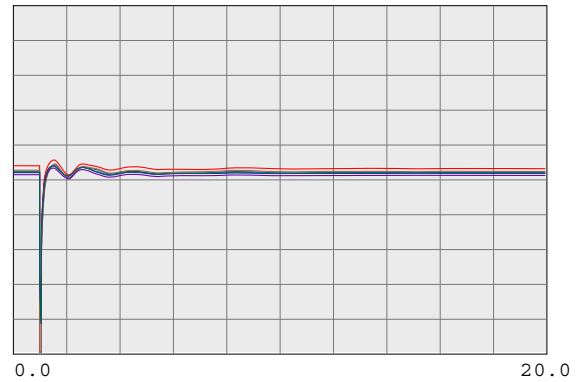
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



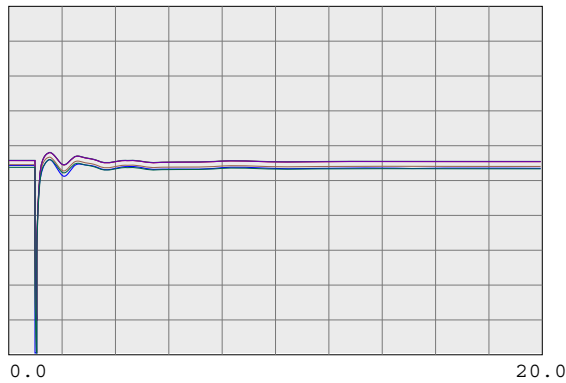
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONETREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



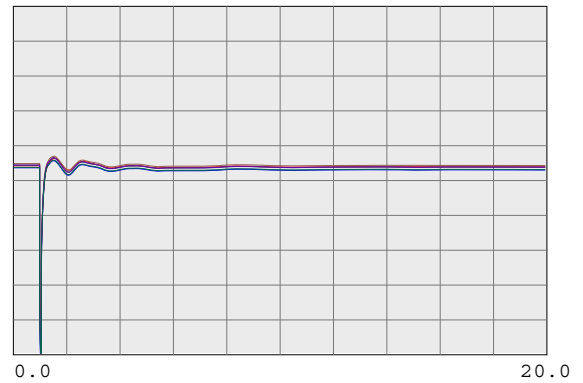
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

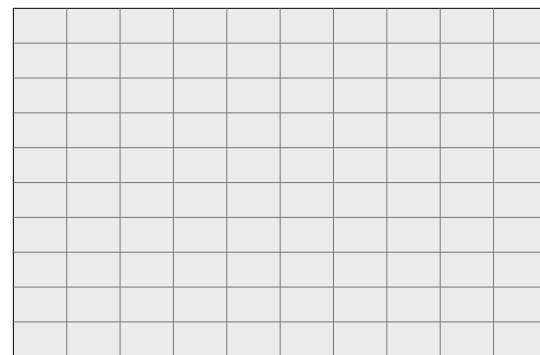
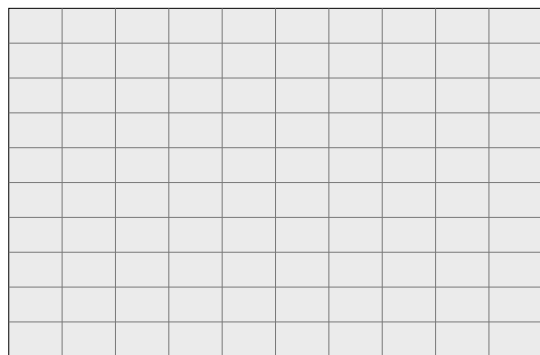
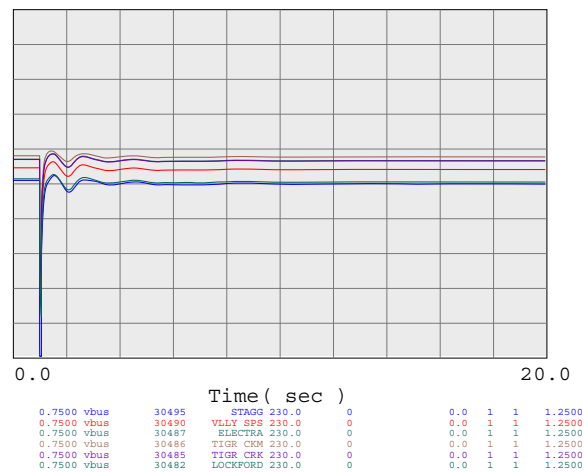
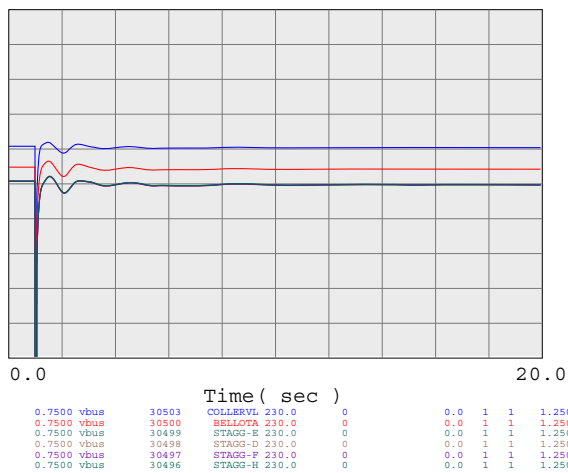
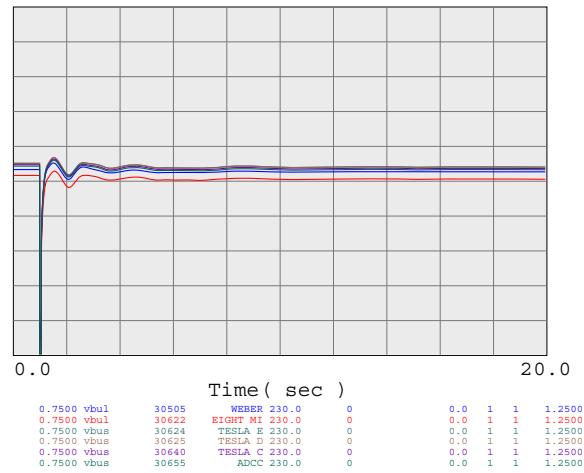
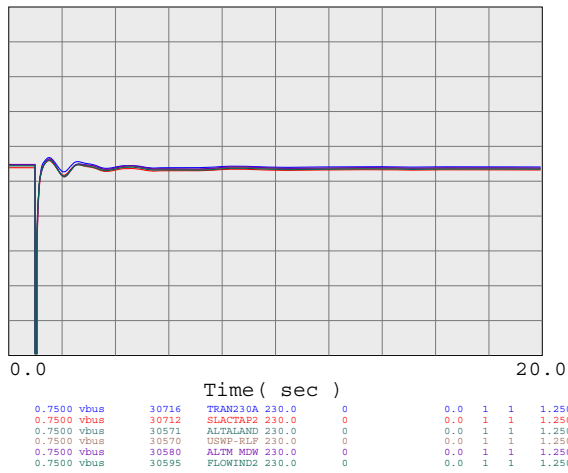
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

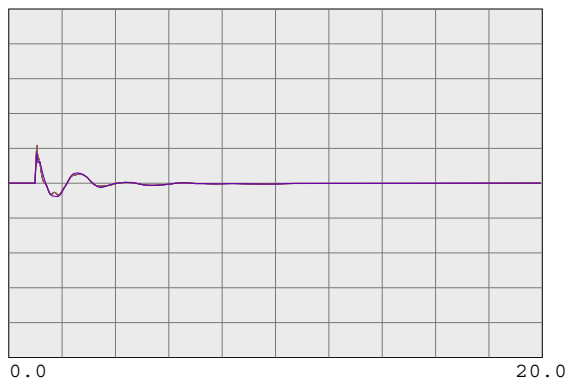
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

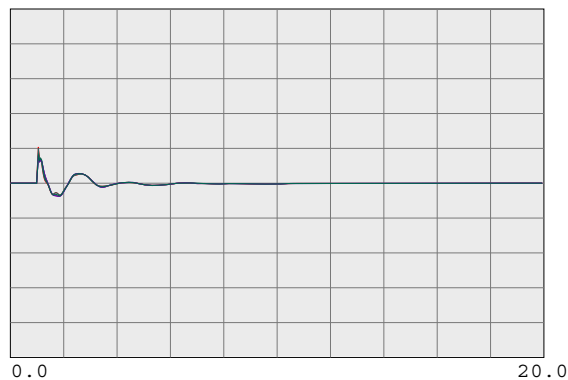
230-KV SYSTEM VOLTAGES



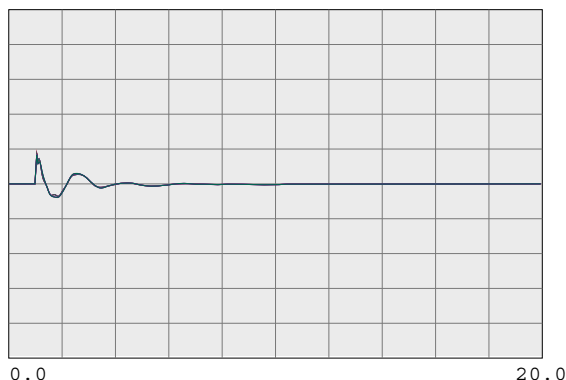
230-KV SYSTEM FREQUENCIES



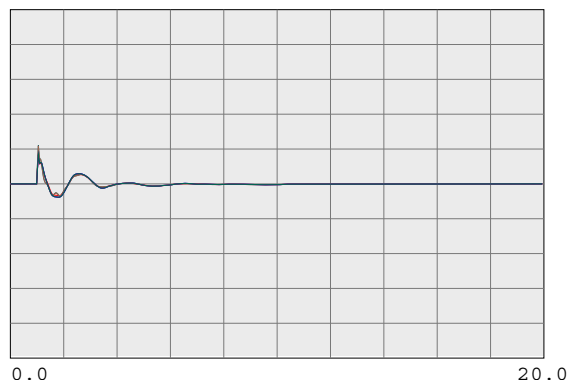
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



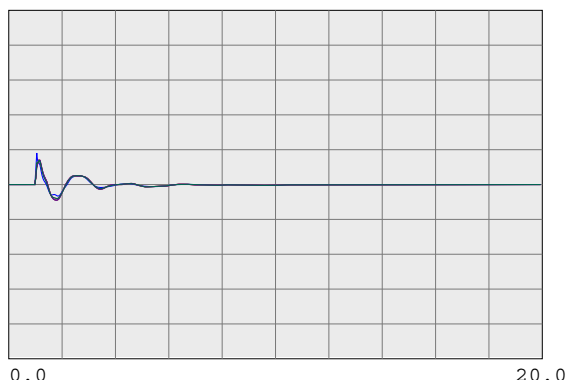
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



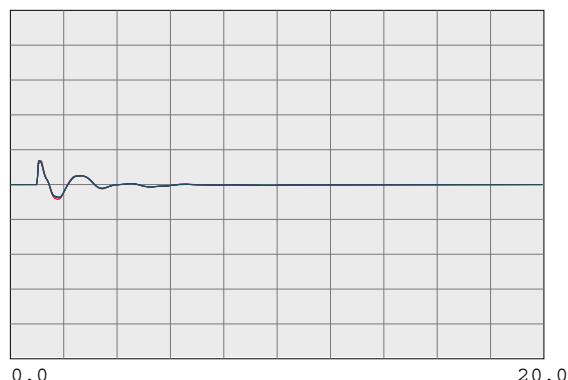
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBRO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANSJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

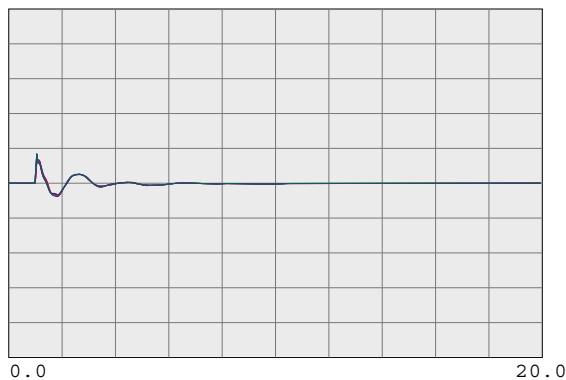
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

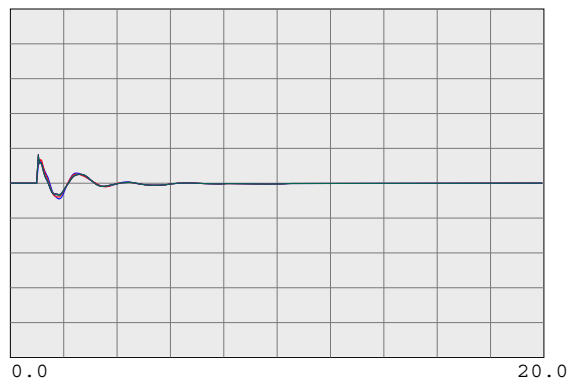
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

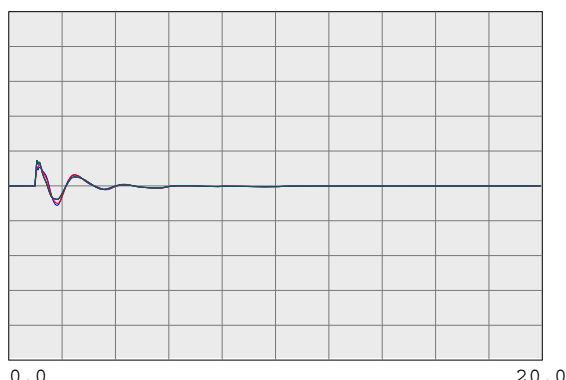
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

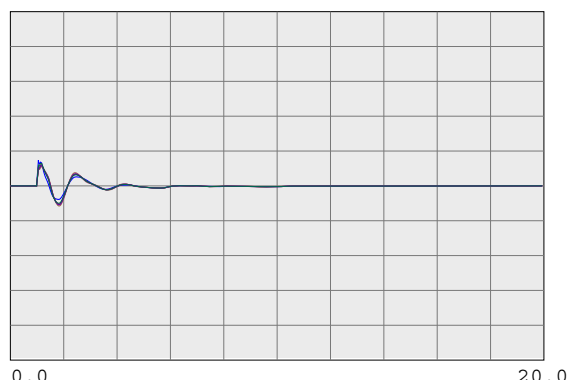
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

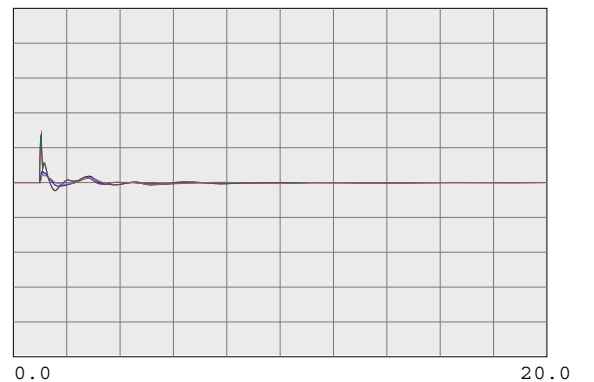
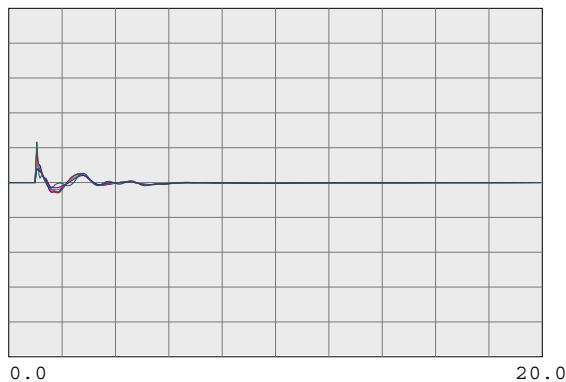
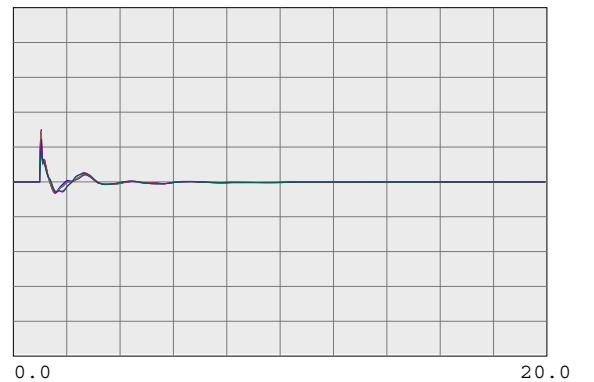
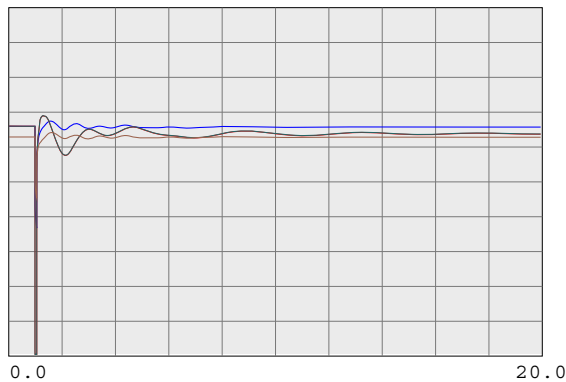
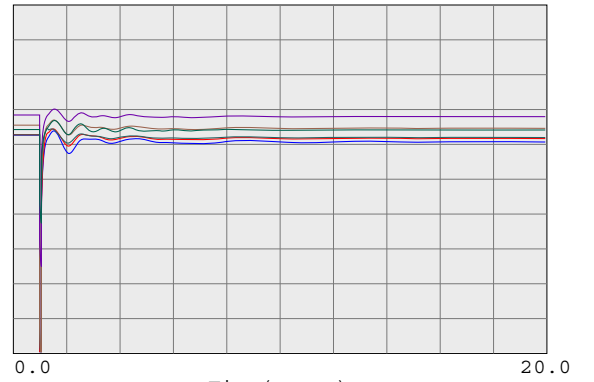
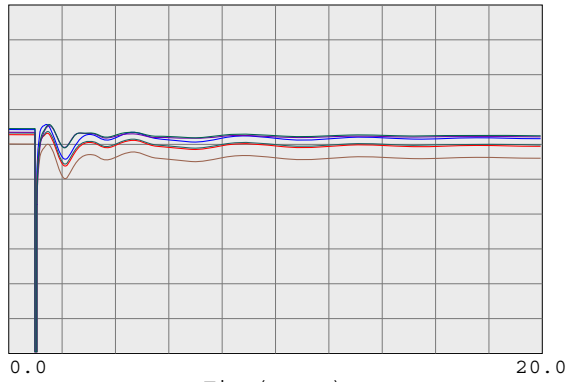
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

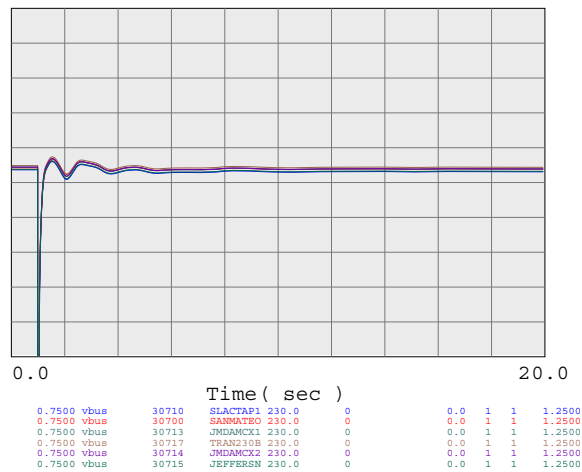
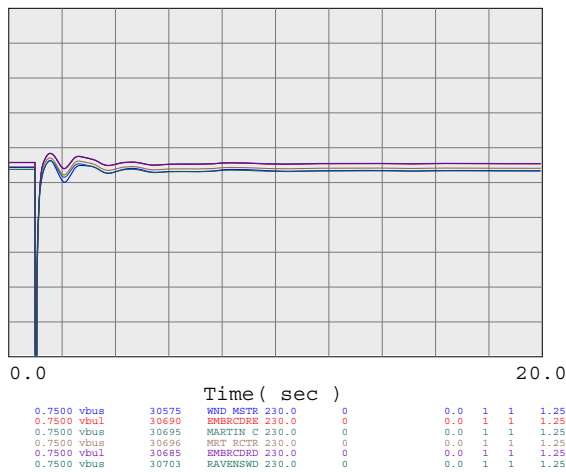
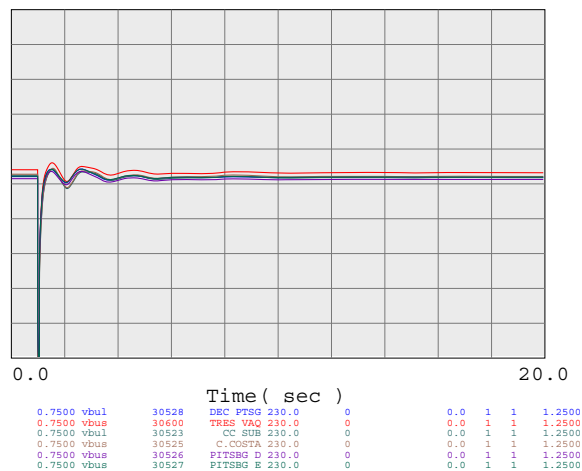
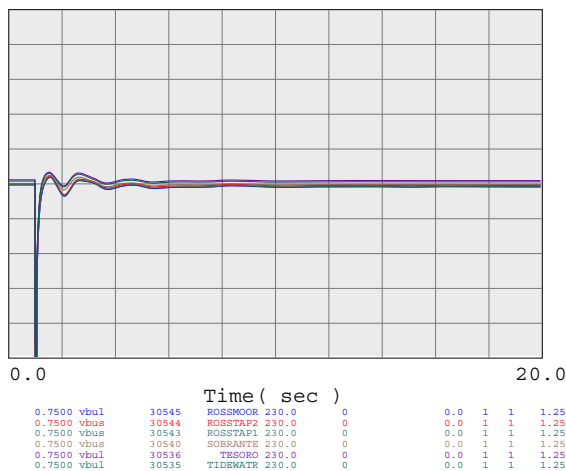
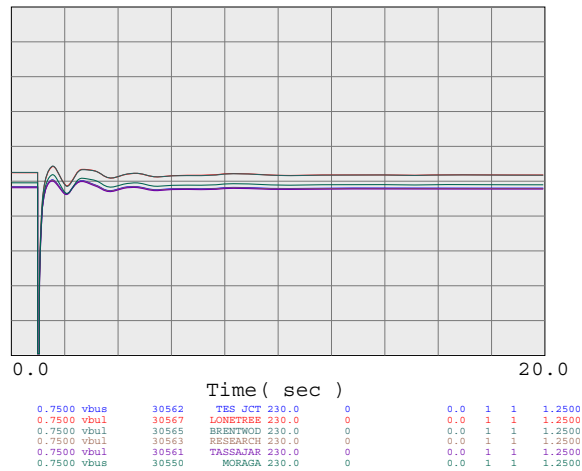
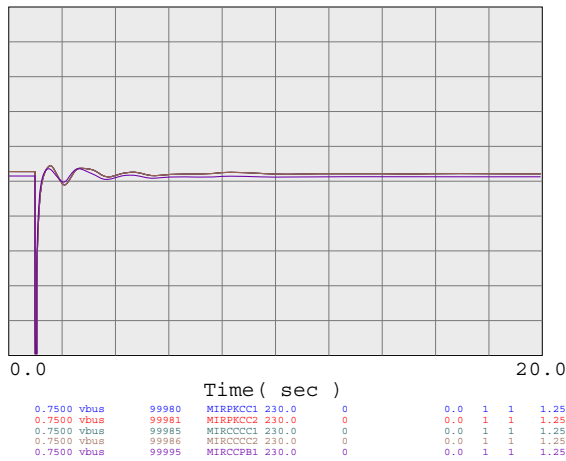
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

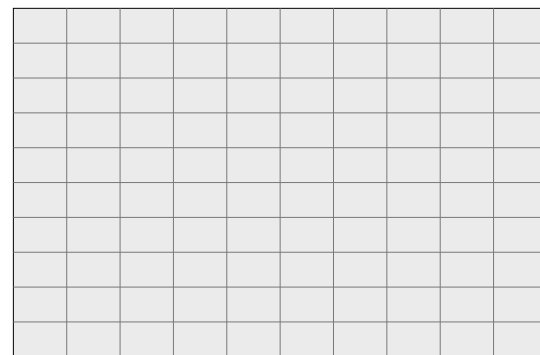
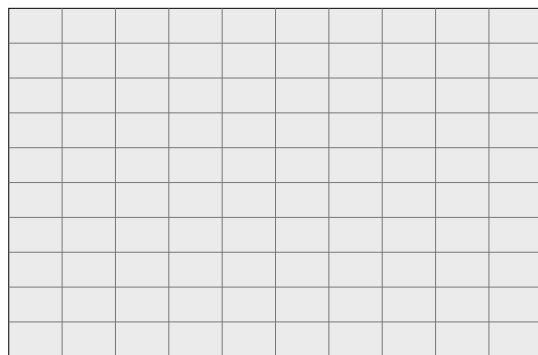
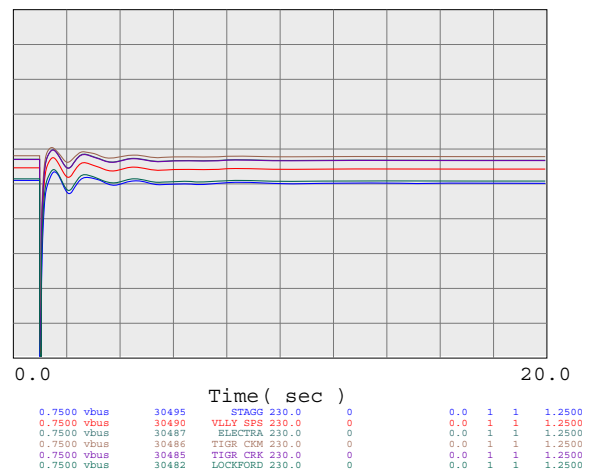
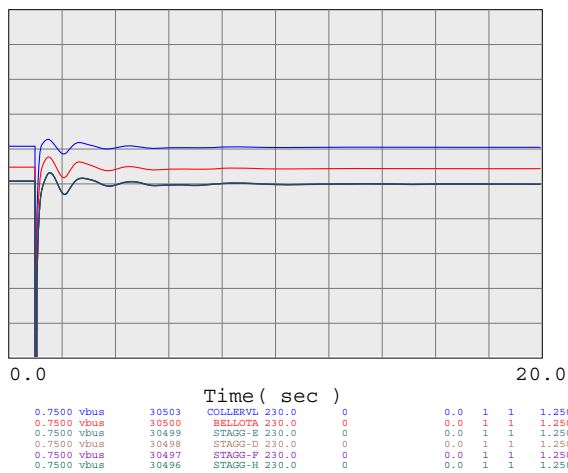
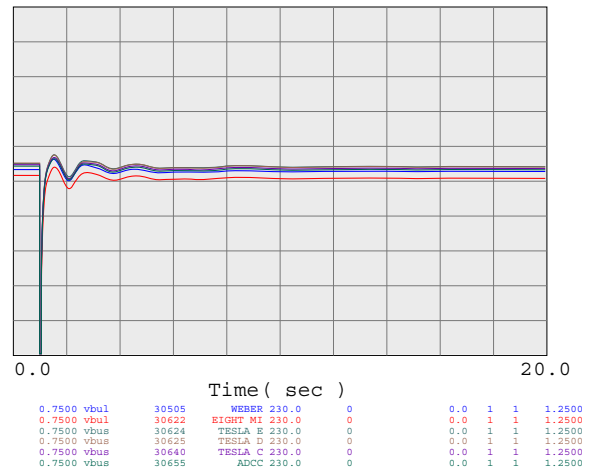
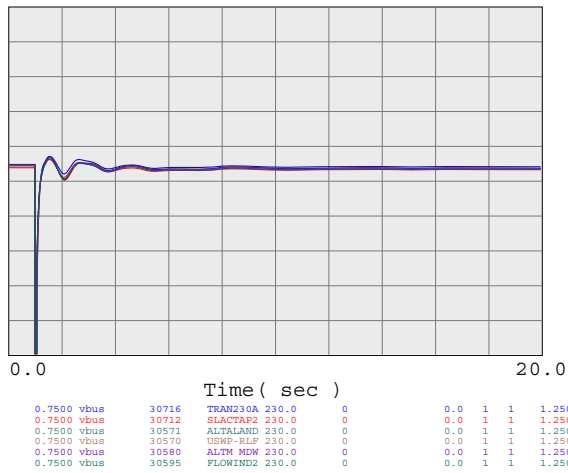
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

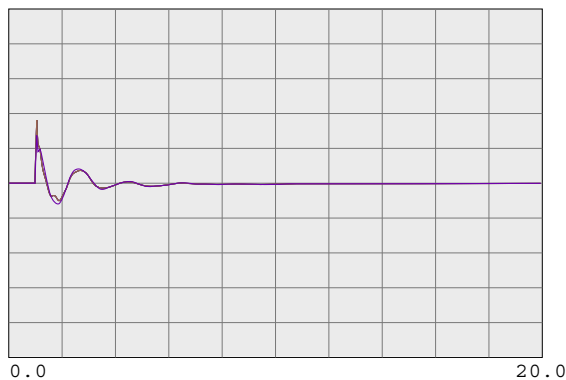


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



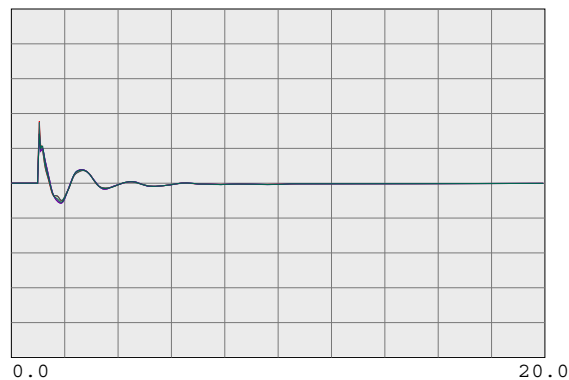
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

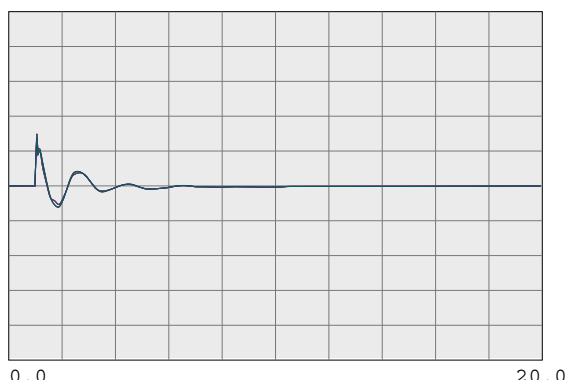
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

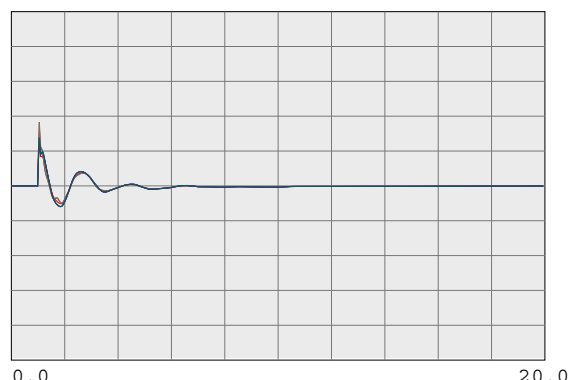
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

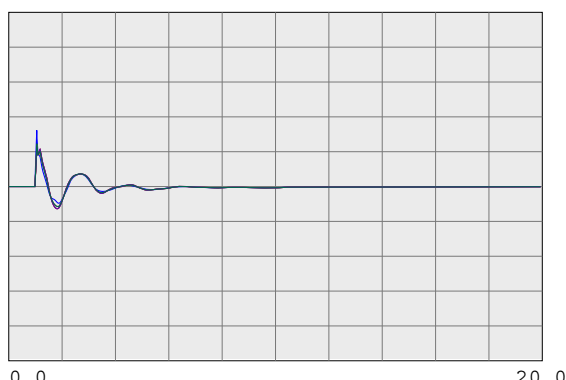
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

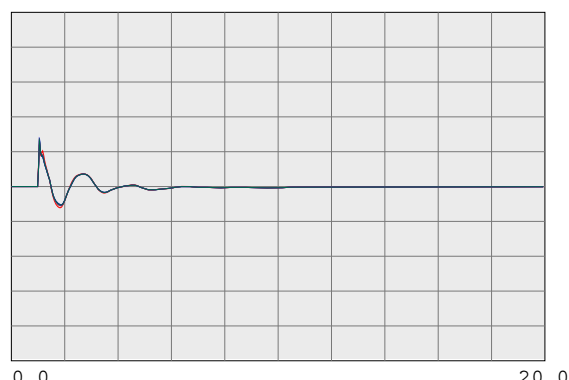
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

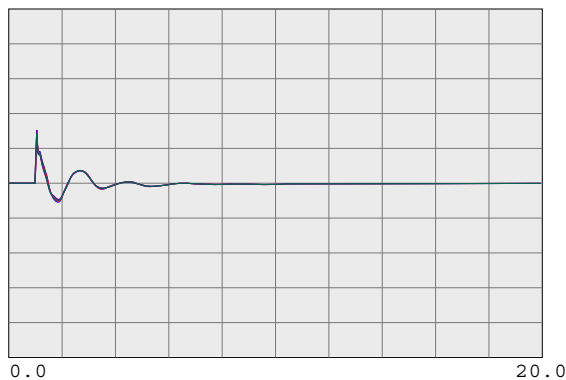
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

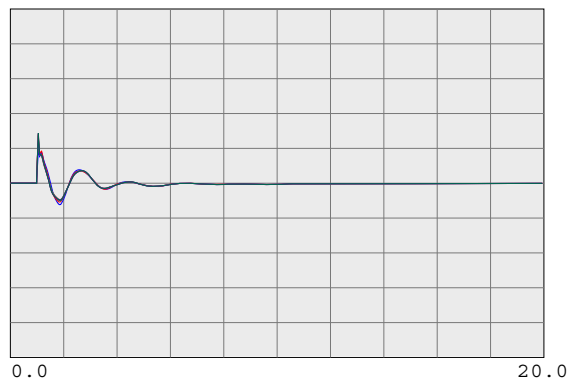
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

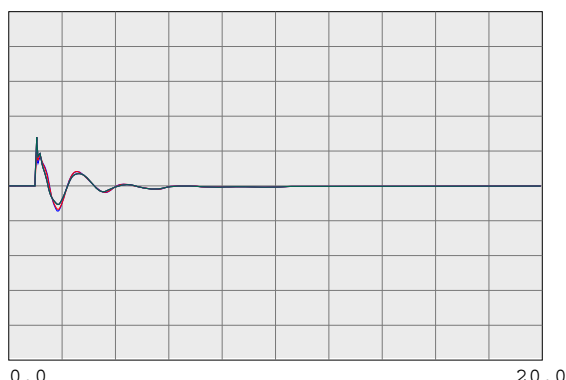
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

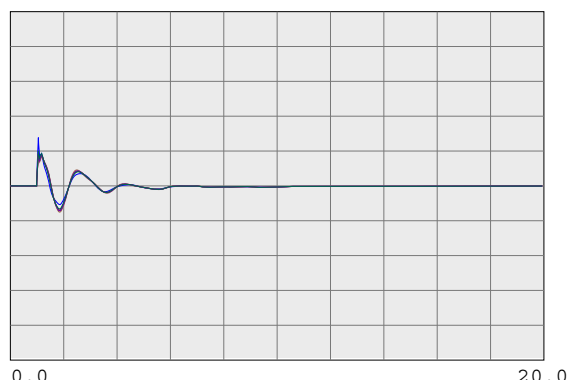
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

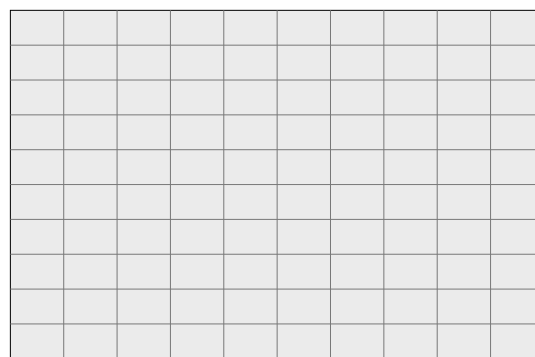
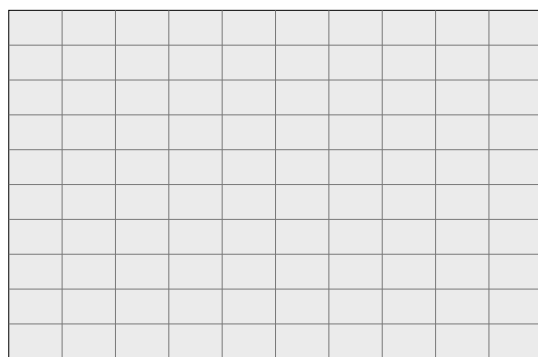
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

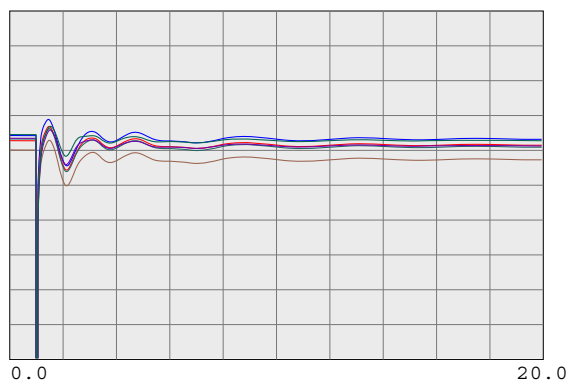
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

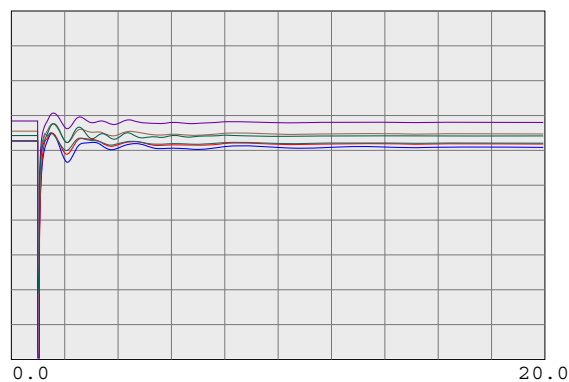
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



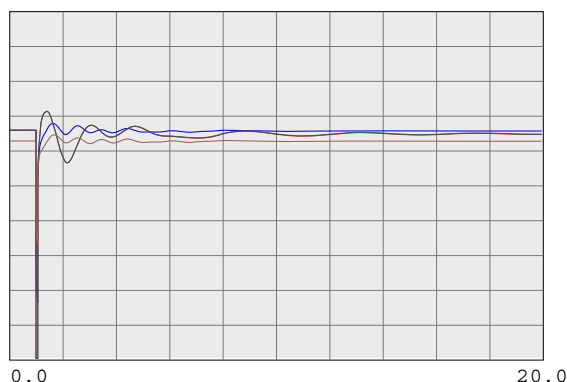
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



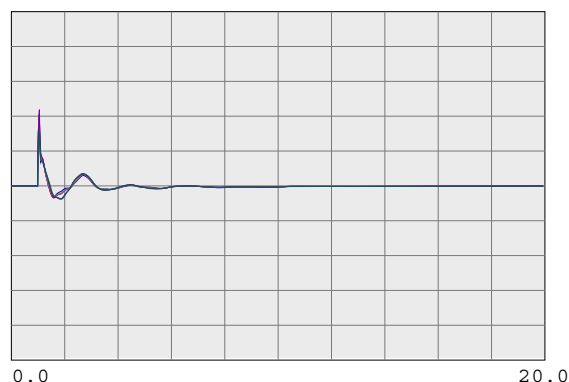
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



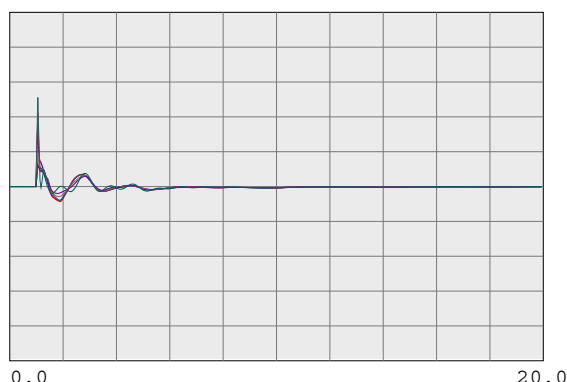
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



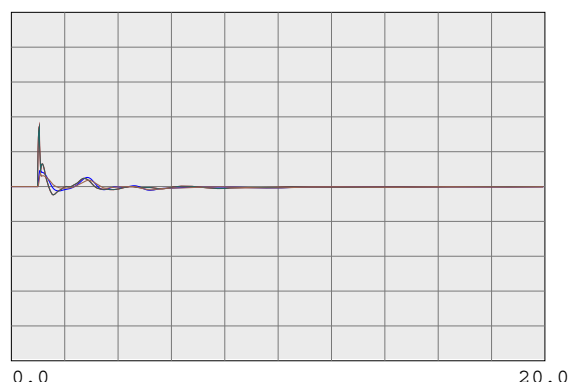
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

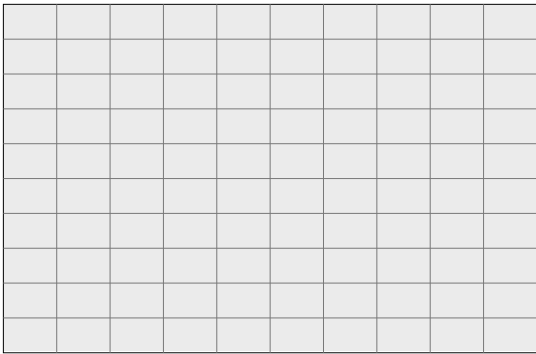
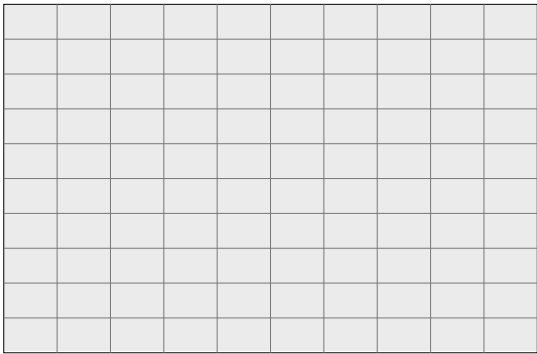
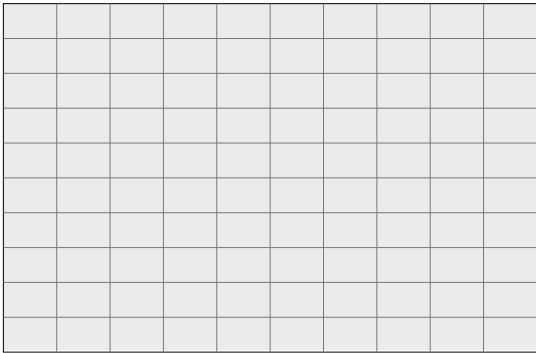
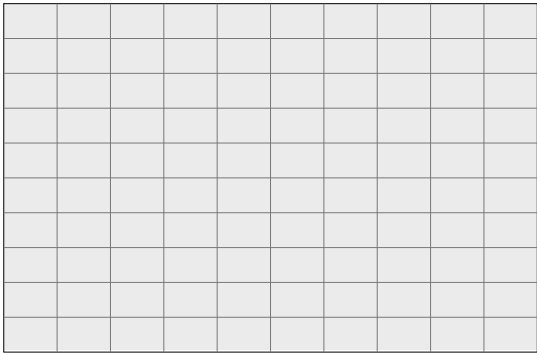
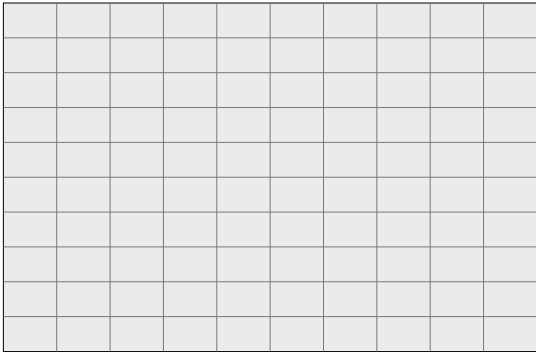
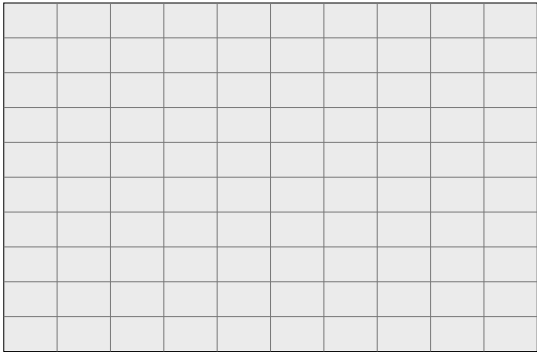
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

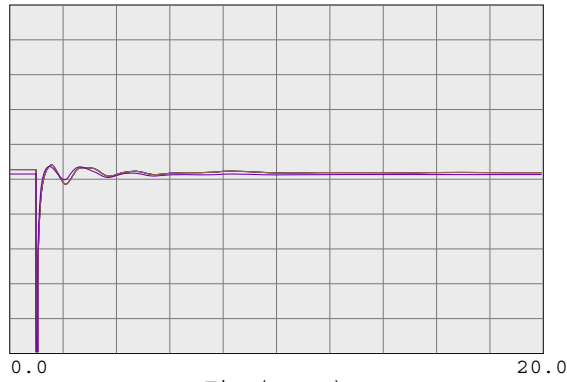
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

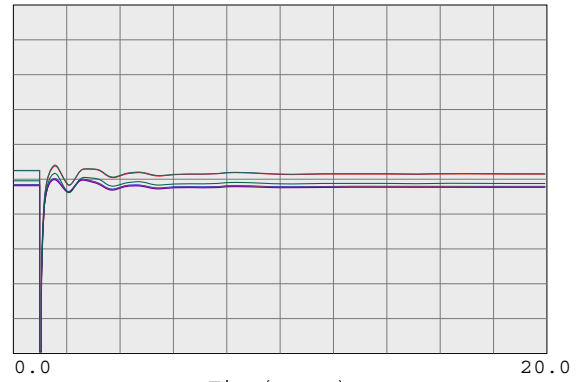


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

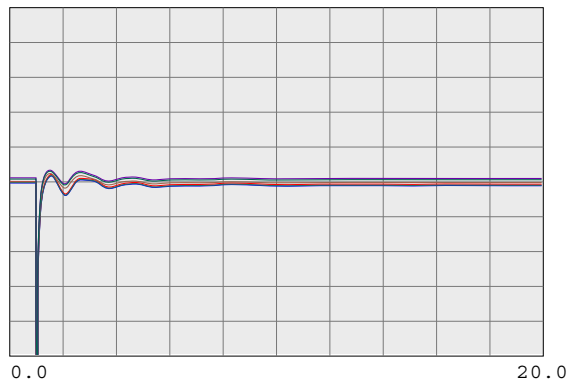
230-KV SYSTEM VOLTAGES



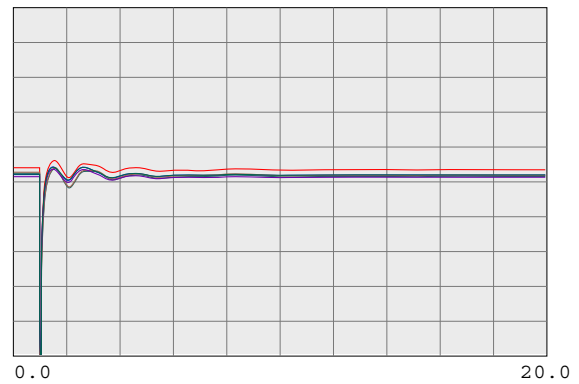
Time (sec)									
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500		



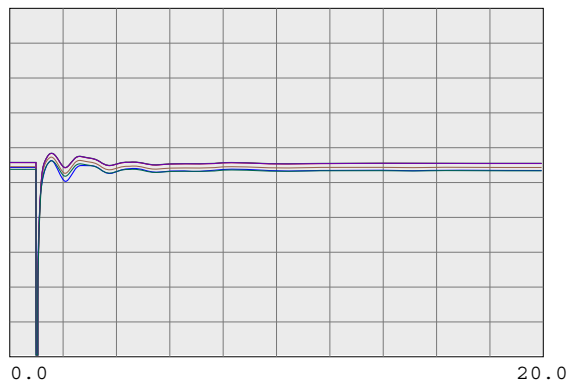
Time (sec)									
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500		



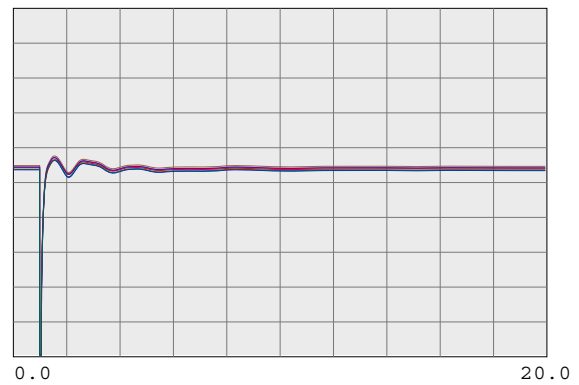
Time (sec)									
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500		



Time (sec)									
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500		



Time (sec)									
0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500		



Time (sec)									
0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500		
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500		

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

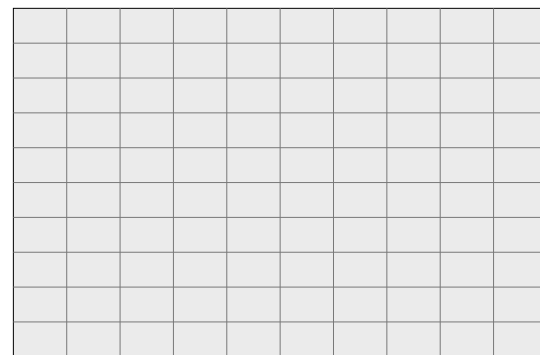
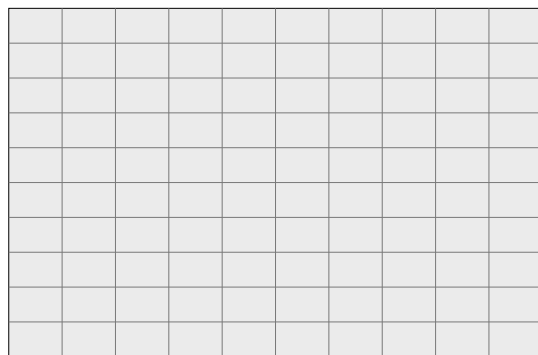
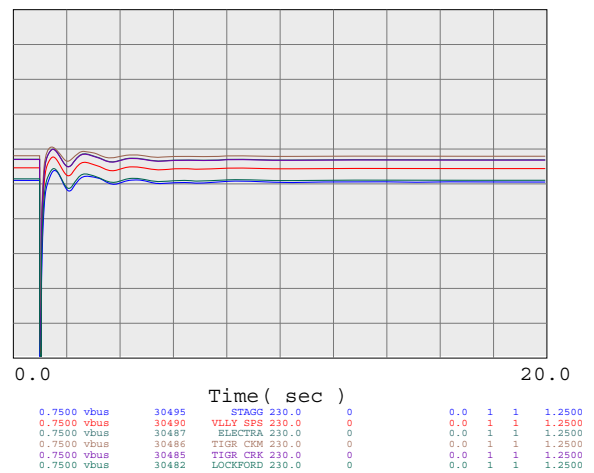
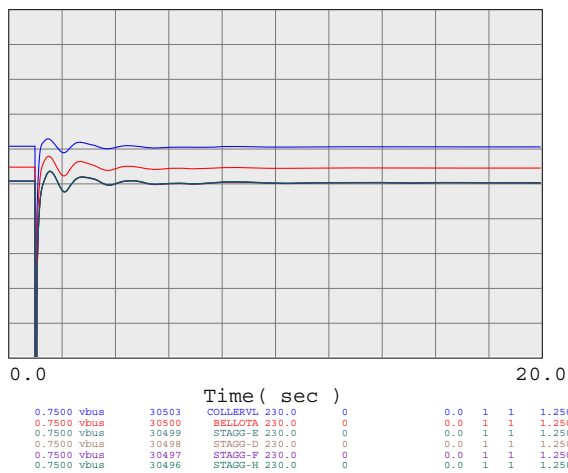
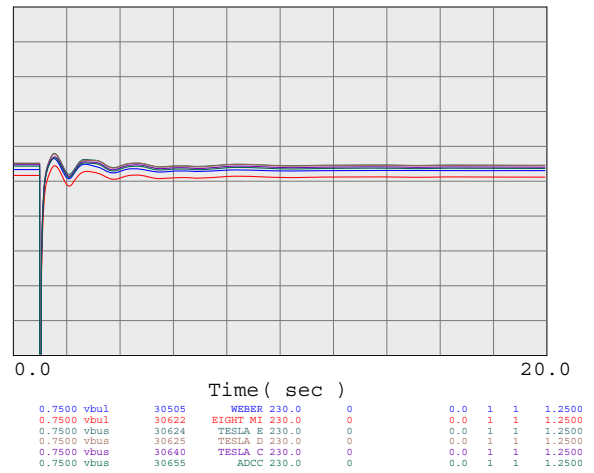
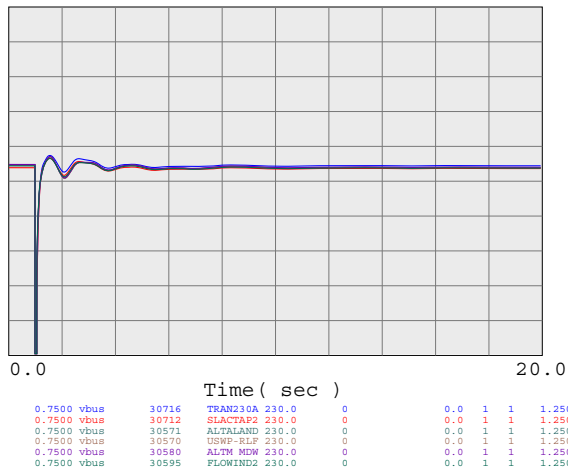
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

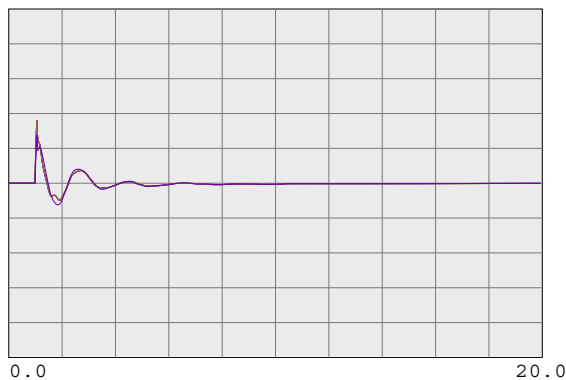
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



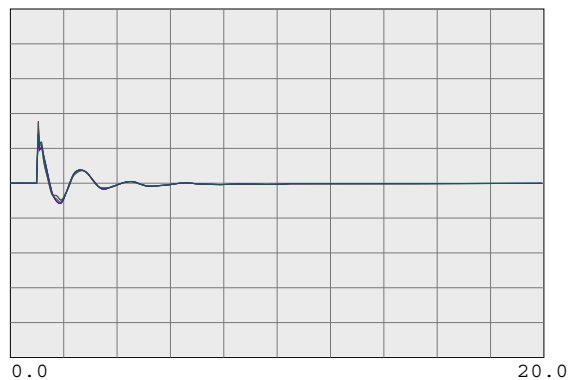
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

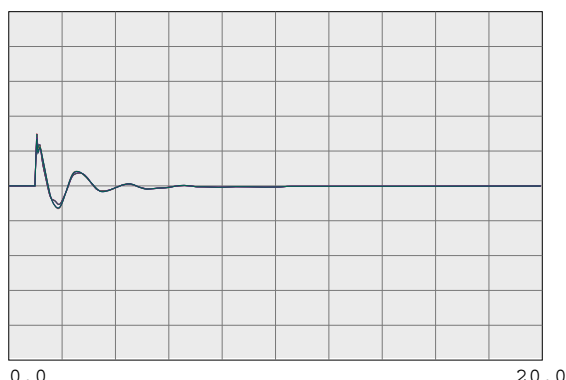
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

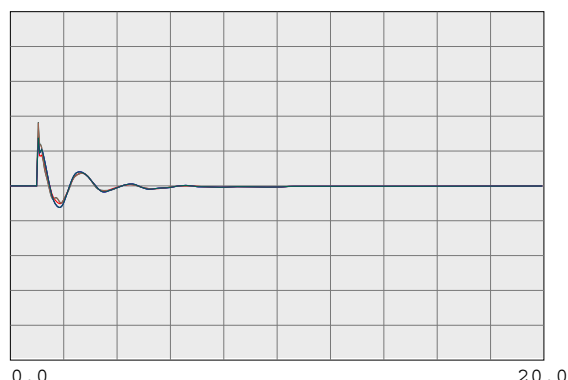
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

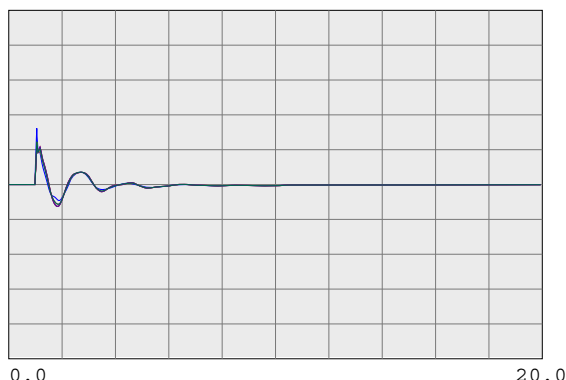
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

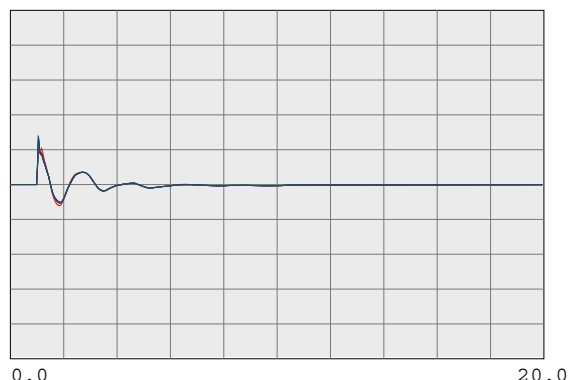
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

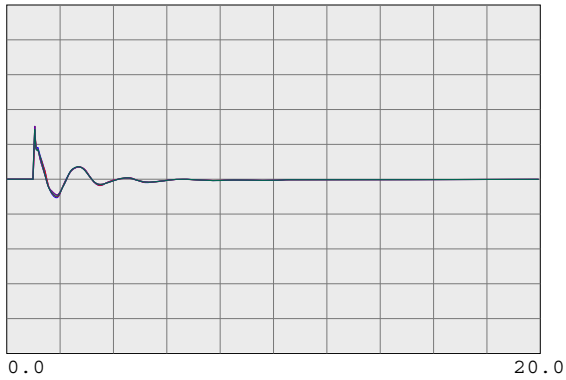
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

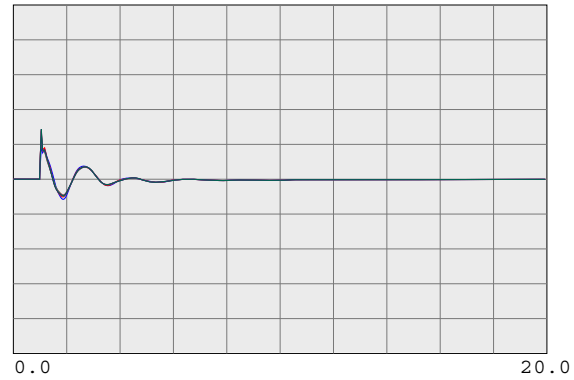
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

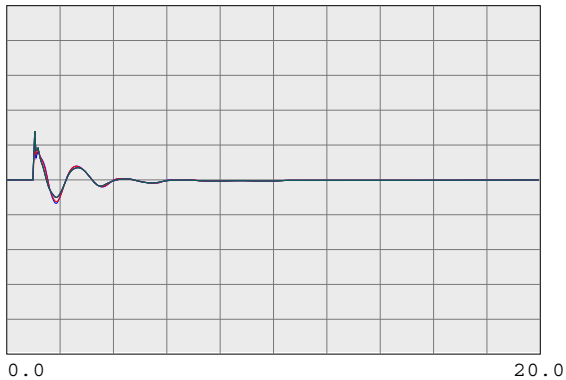
230-KV SYSTEM FREQUENCIES



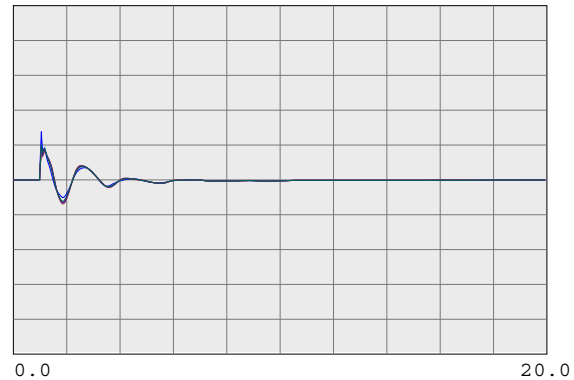
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



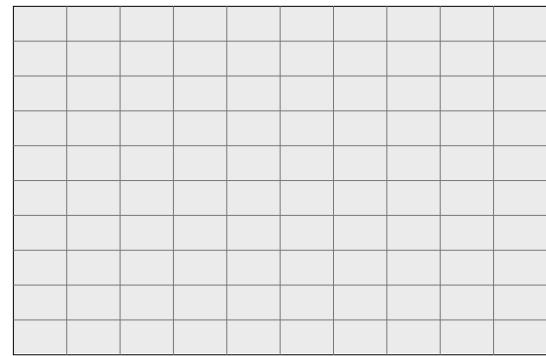
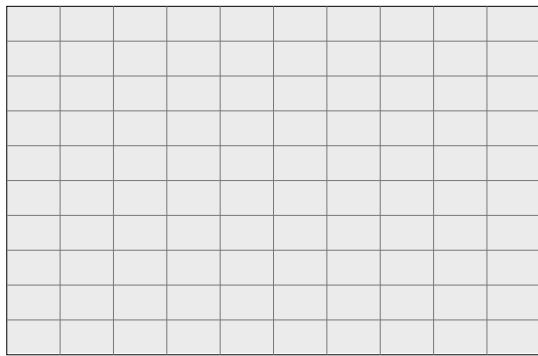
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



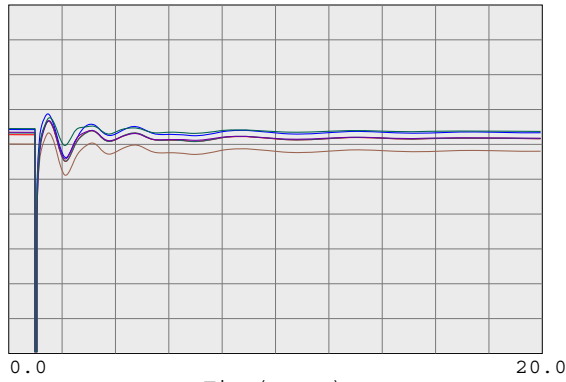
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

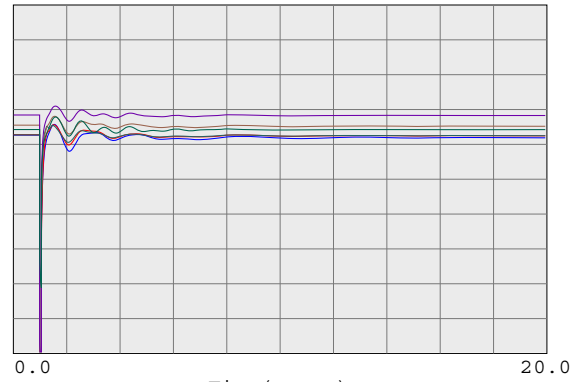


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



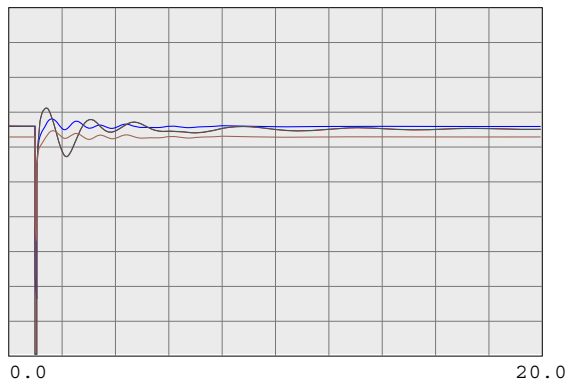
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



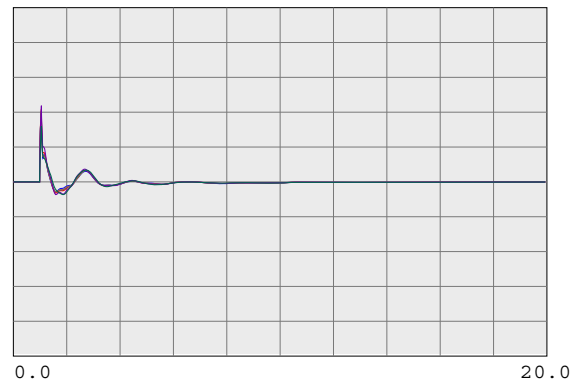
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



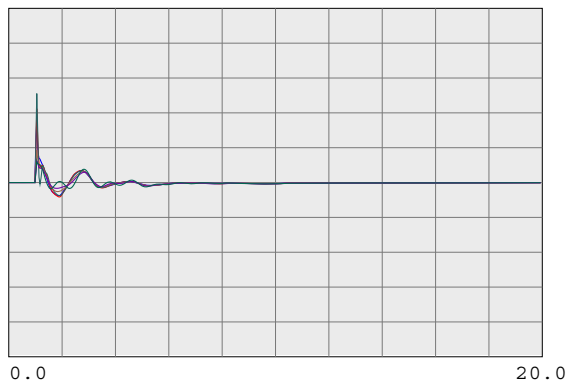
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



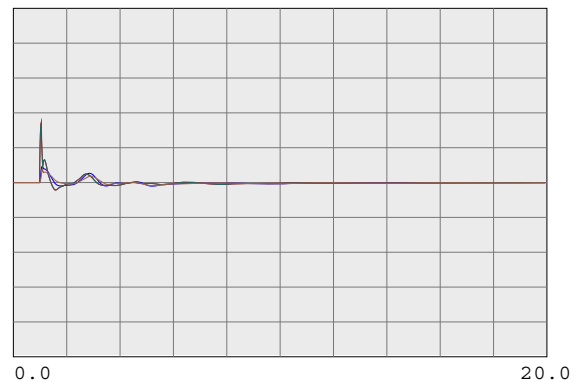
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

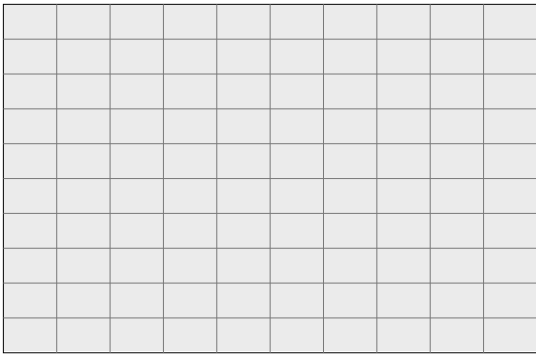
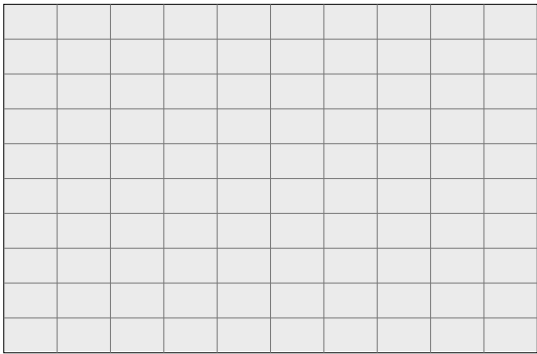
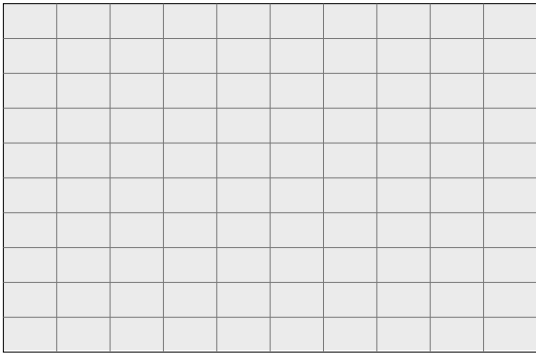
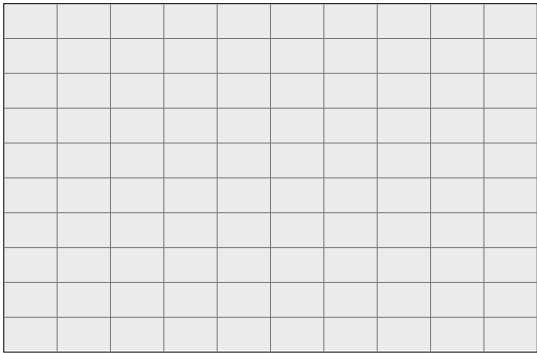
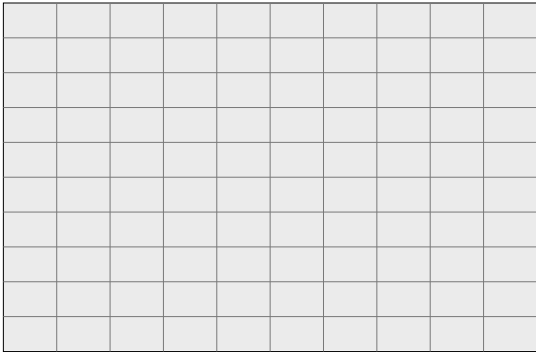
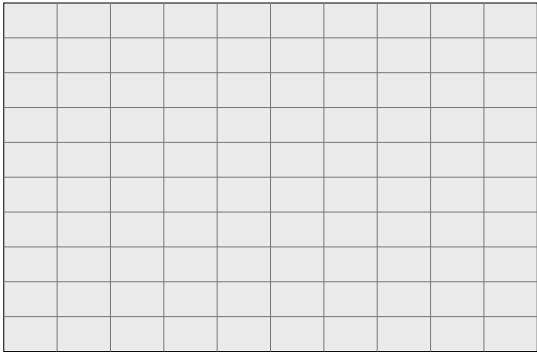
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

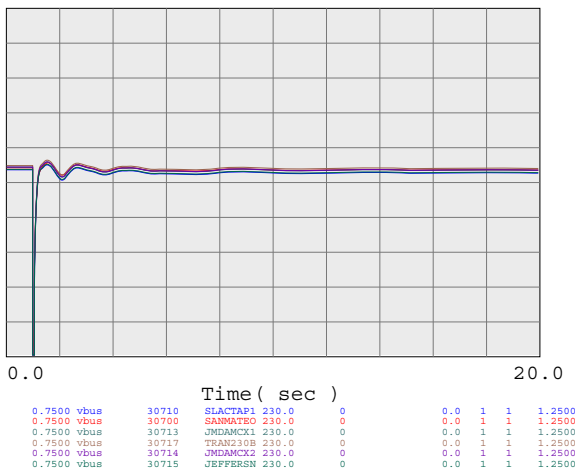
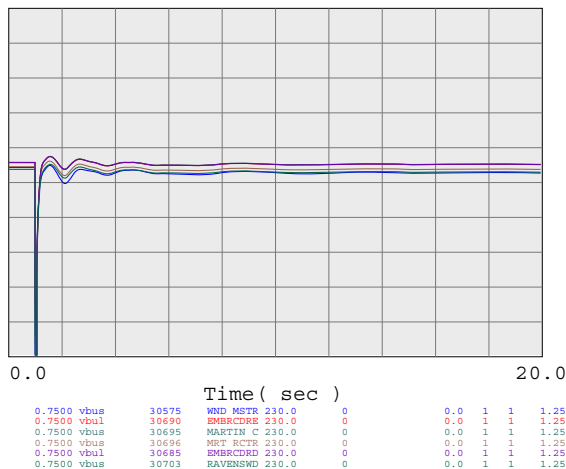
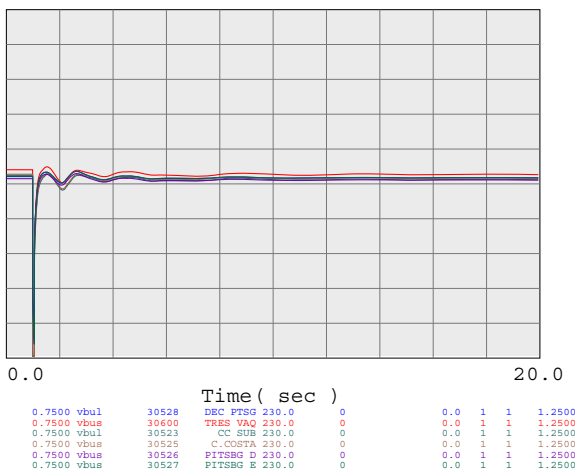
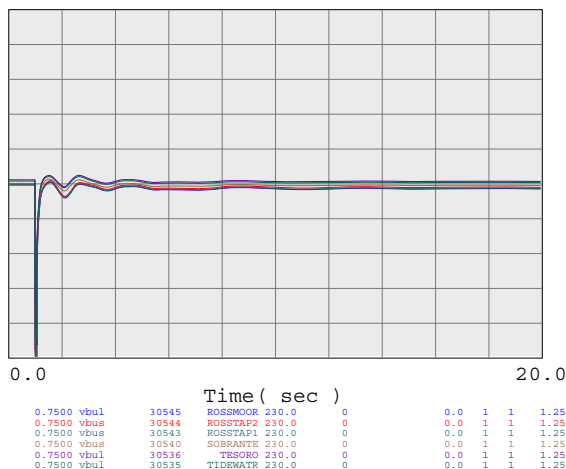
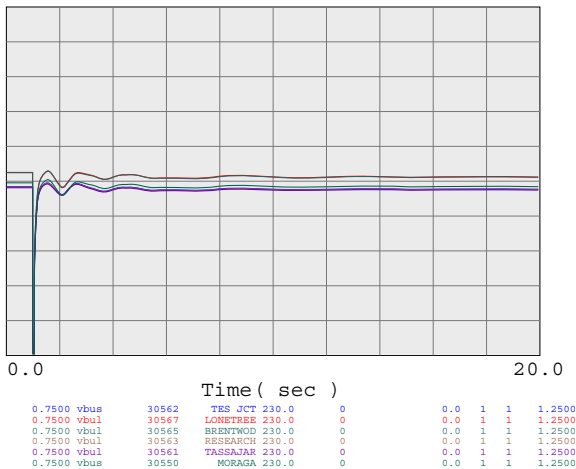
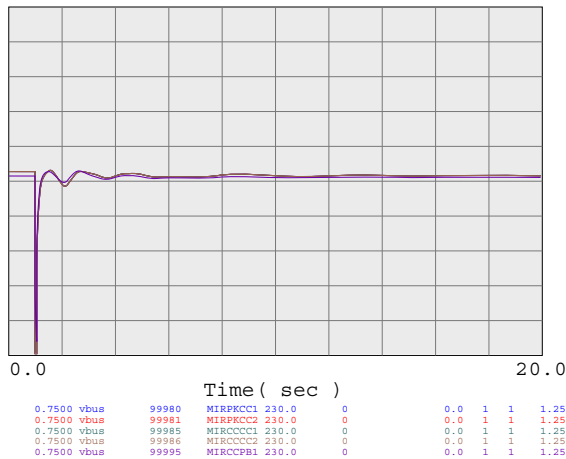
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



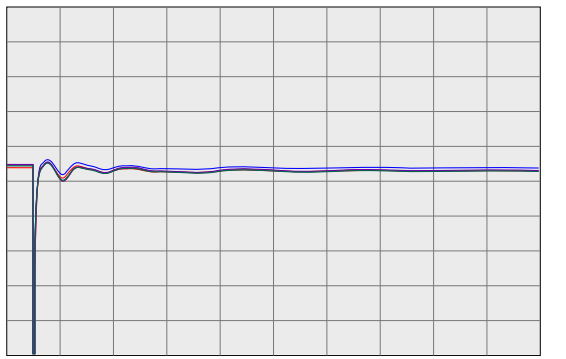
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



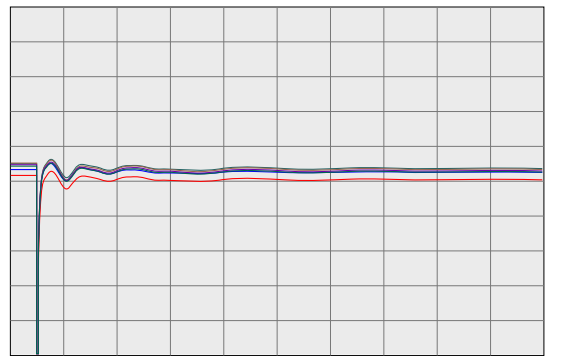
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



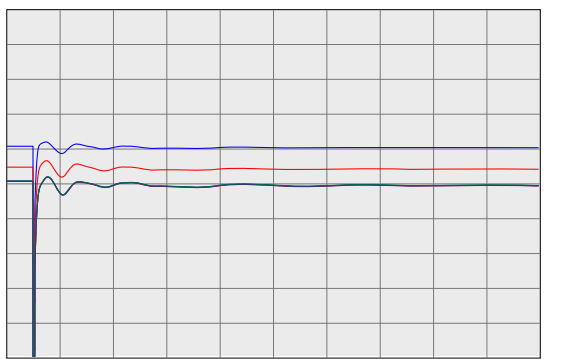
Time(sec)

0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



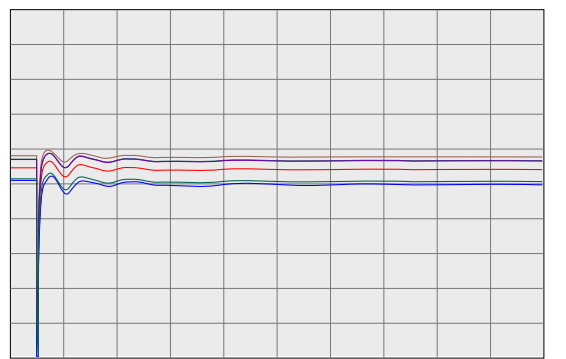
Time(sec)

0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



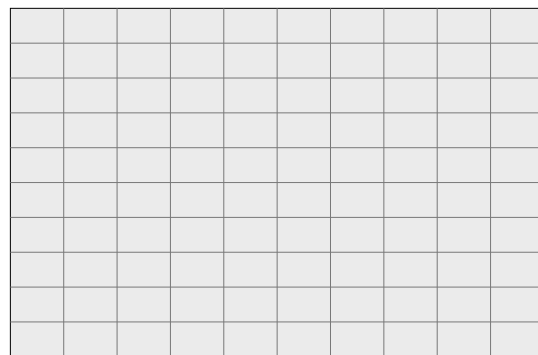
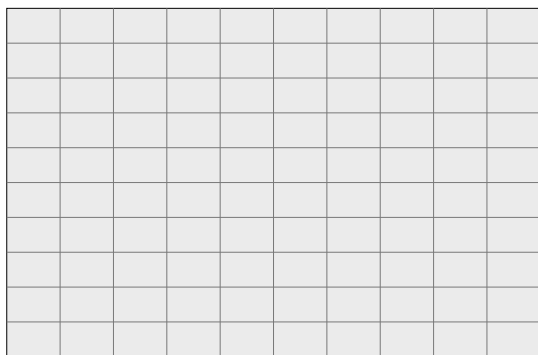
Time(sec)

0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



Time(sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKM 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

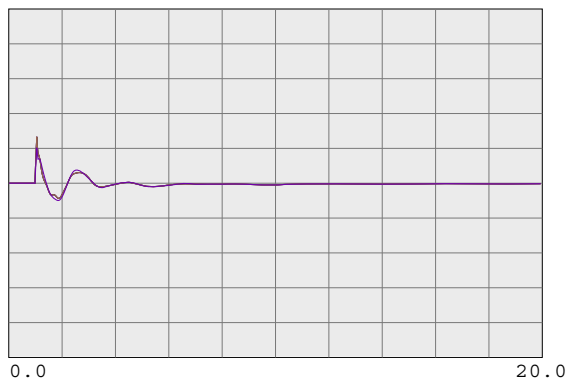
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

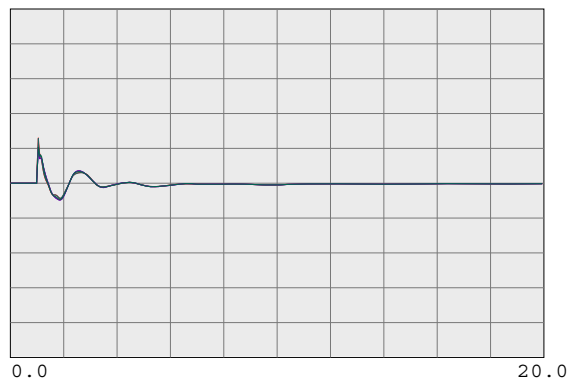
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

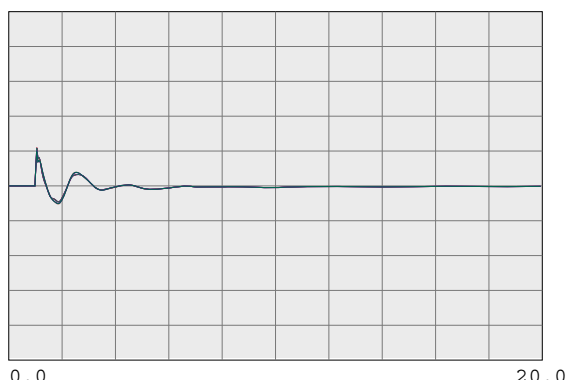
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

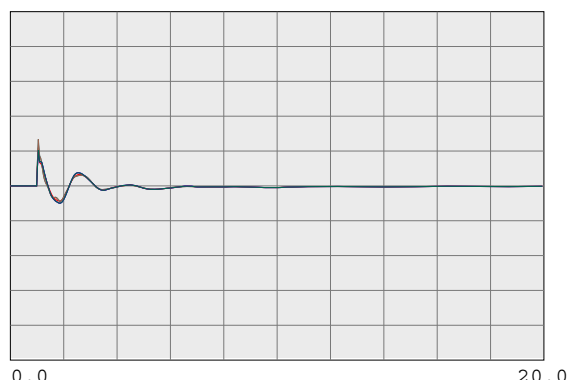
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

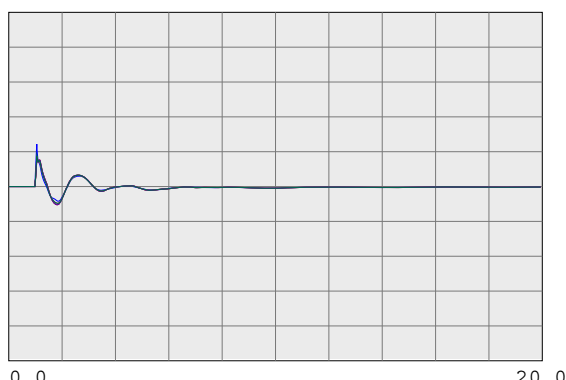
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

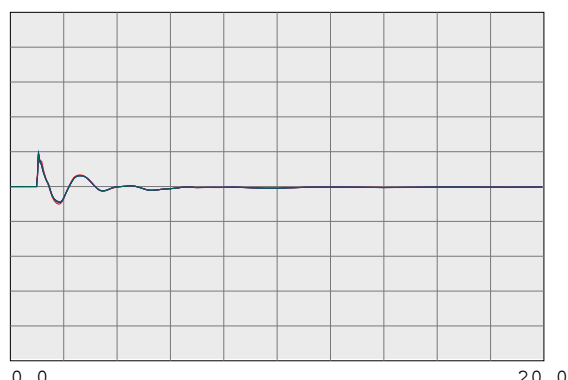
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

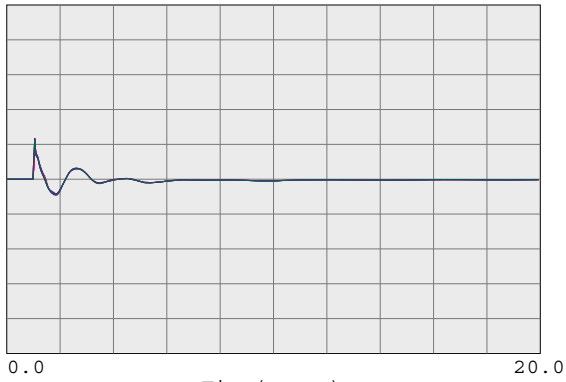
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

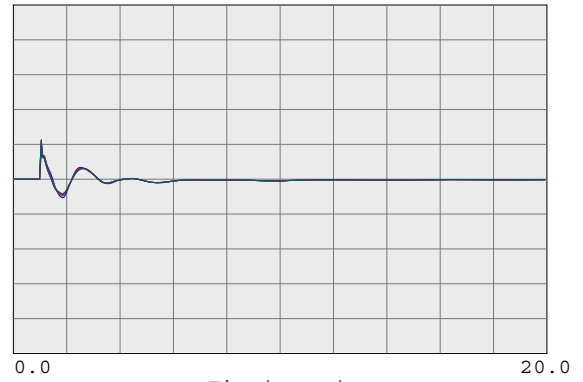
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

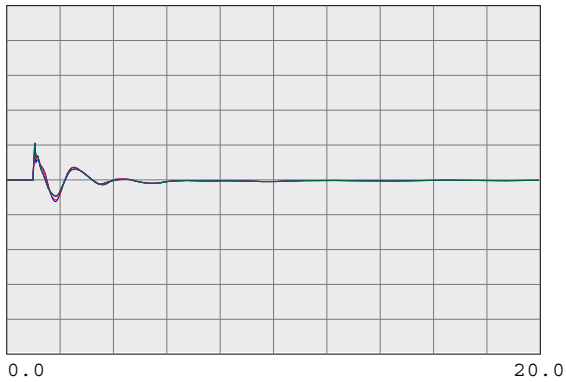
230-KV SYSTEM FREQUENCIES



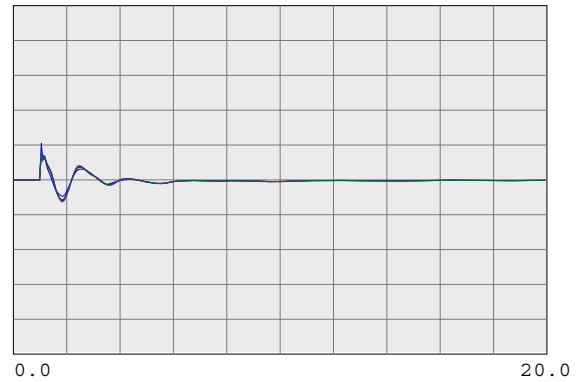
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



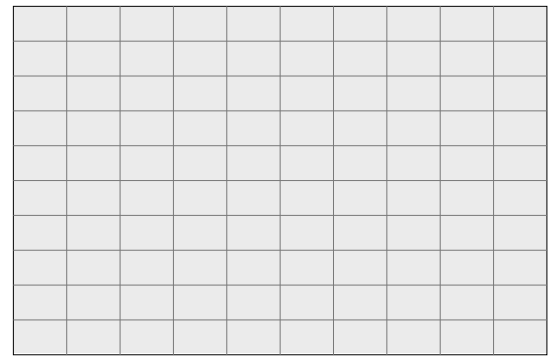
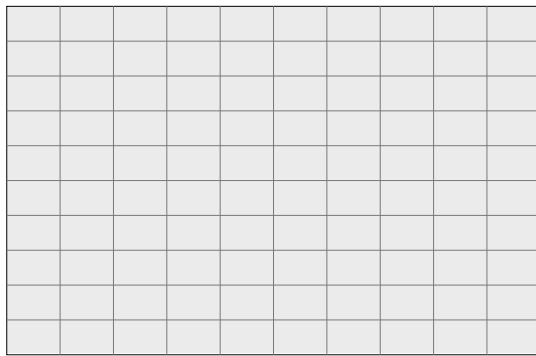
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

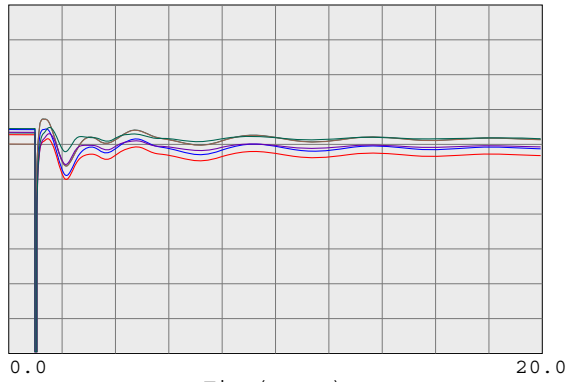


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



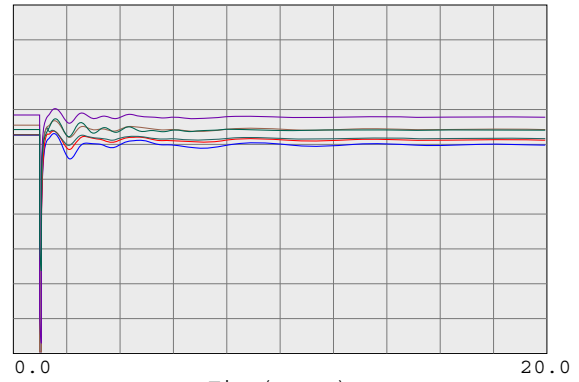
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



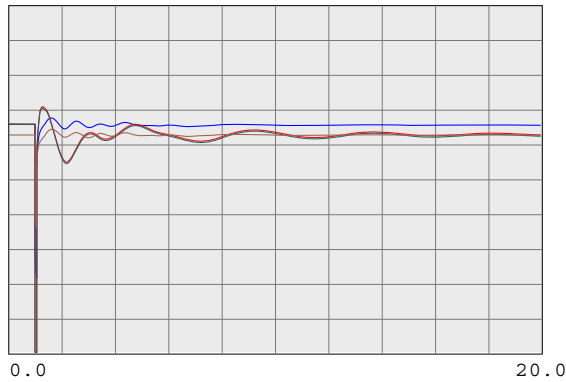
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



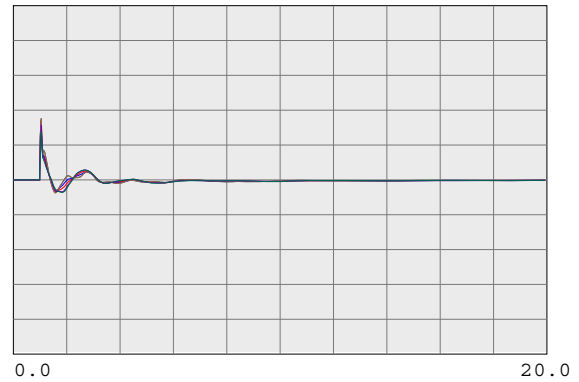
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



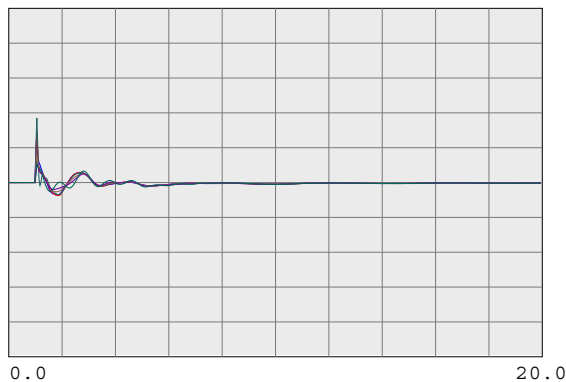
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



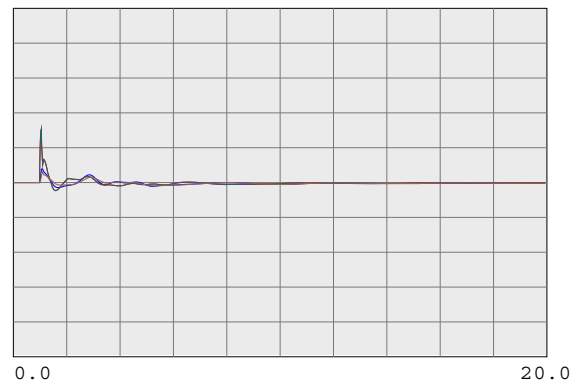
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

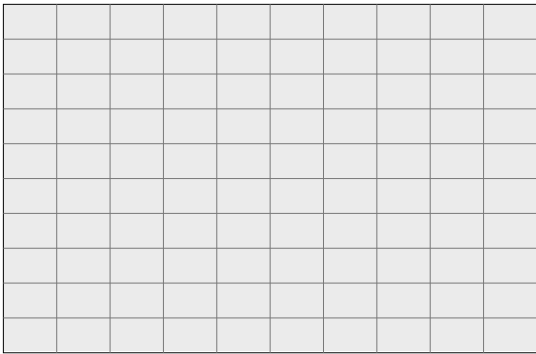
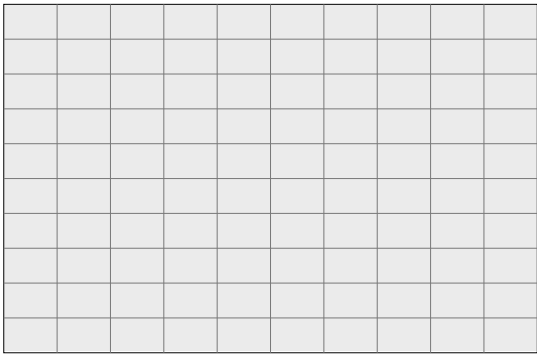
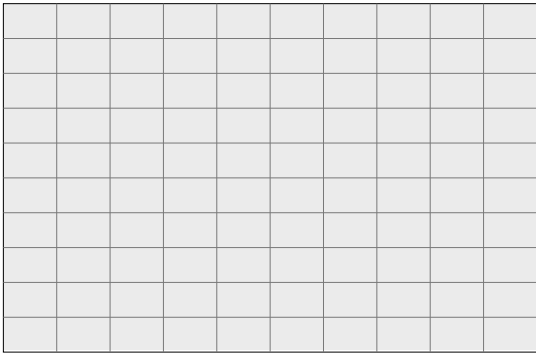
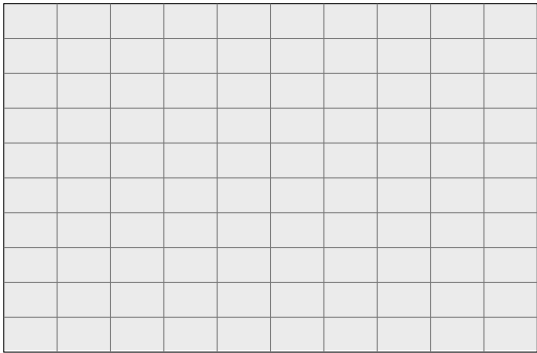
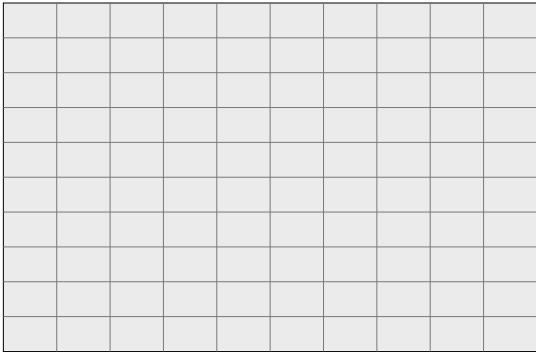
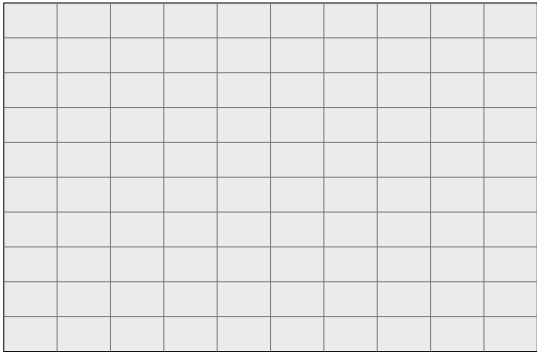
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

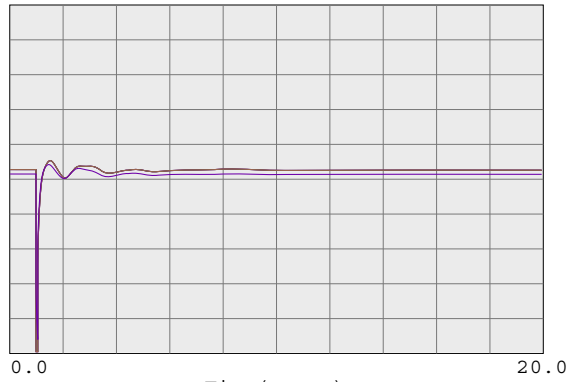
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



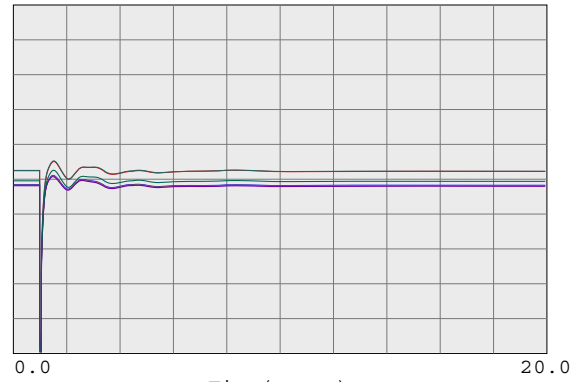
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



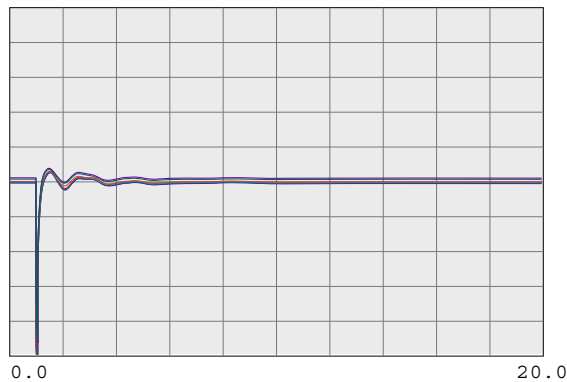
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



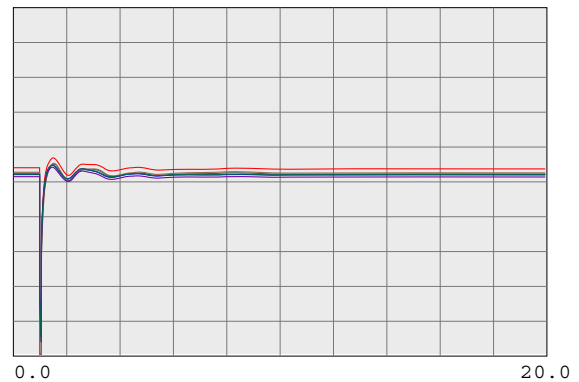
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



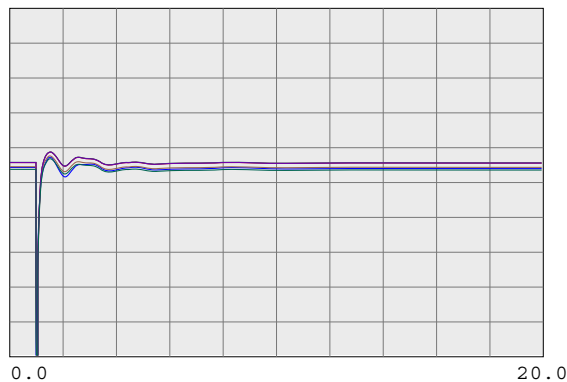
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



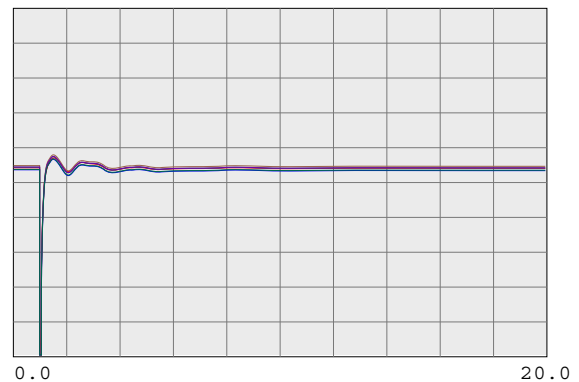
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

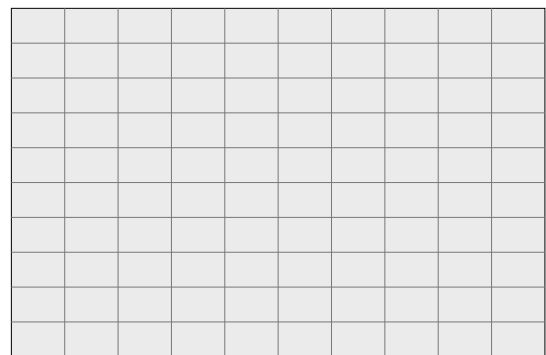
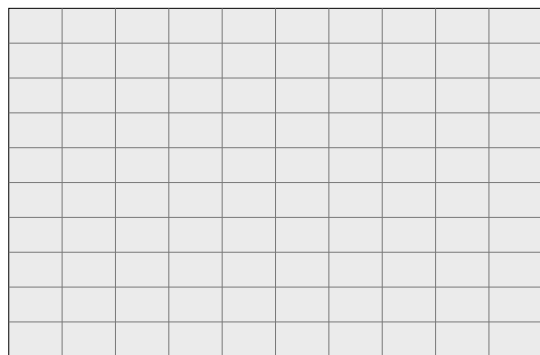
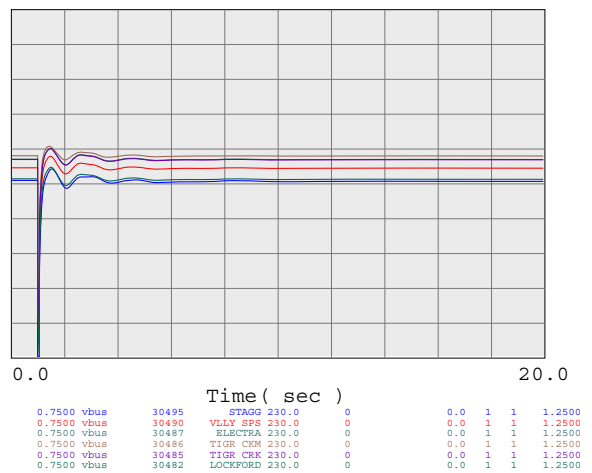
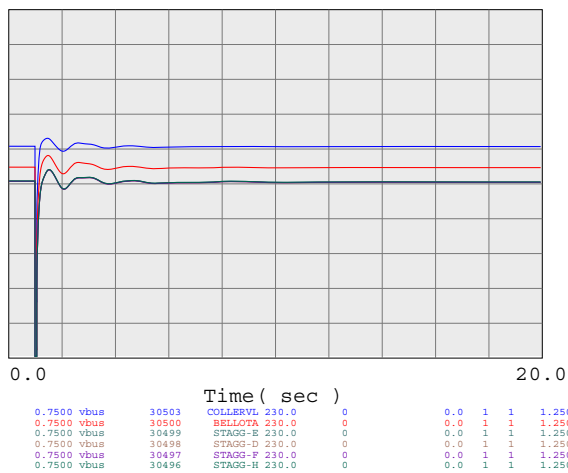
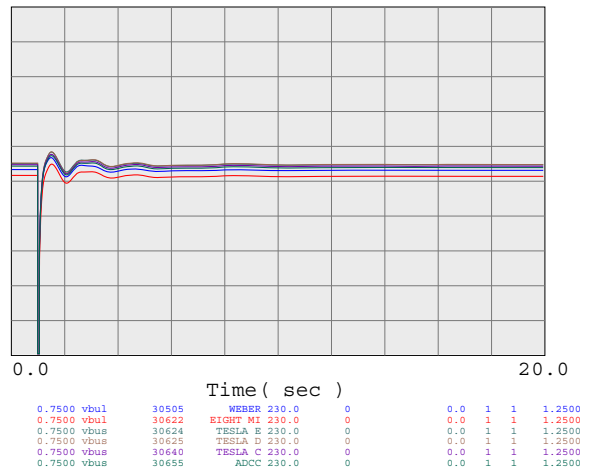
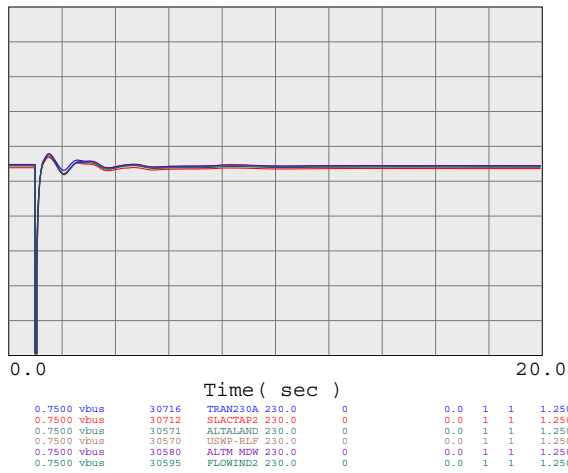
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

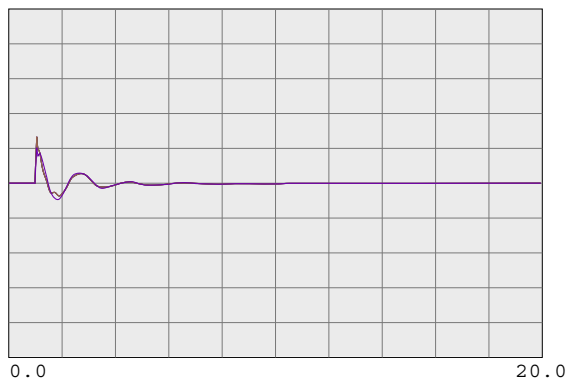
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

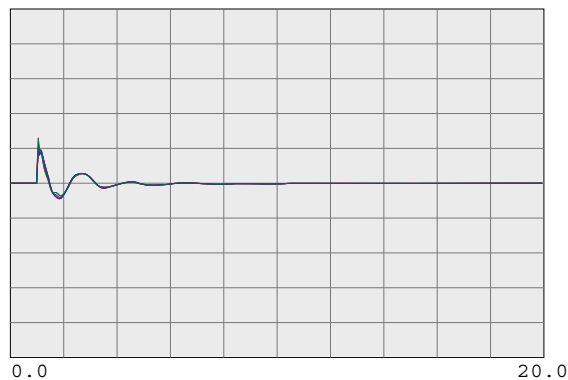
230-KV SYSTEM VOLTAGES



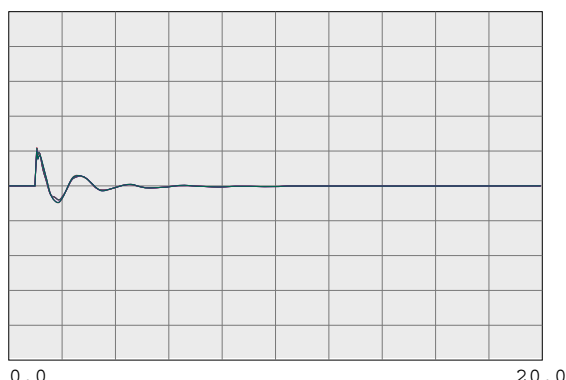
230-KV SYSTEM FREQUENCIES



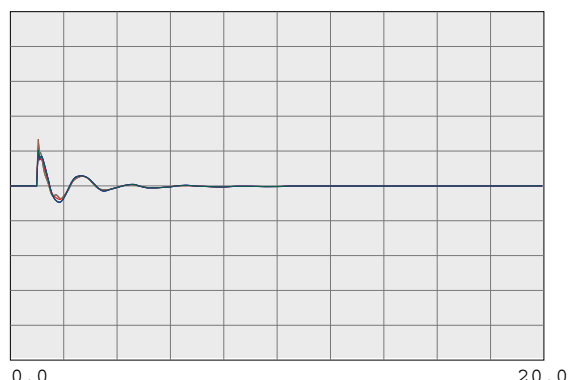
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



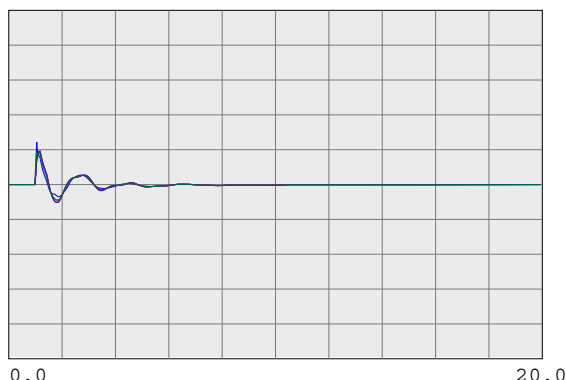
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



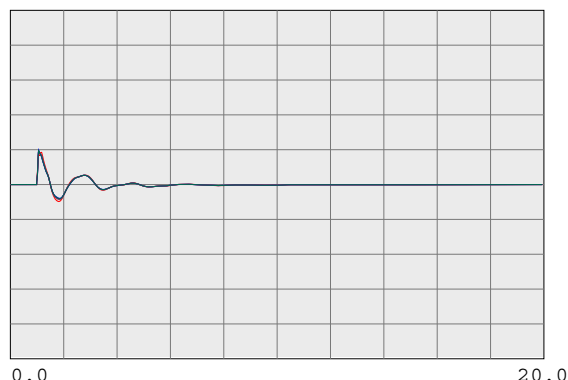
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSSTAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSSTAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBRO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

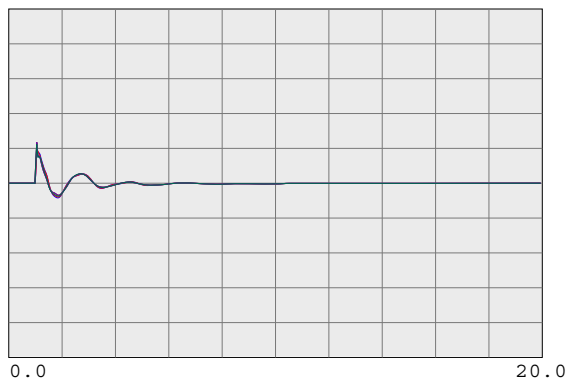
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

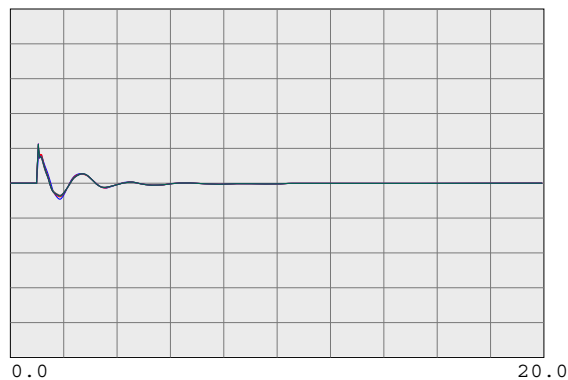
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

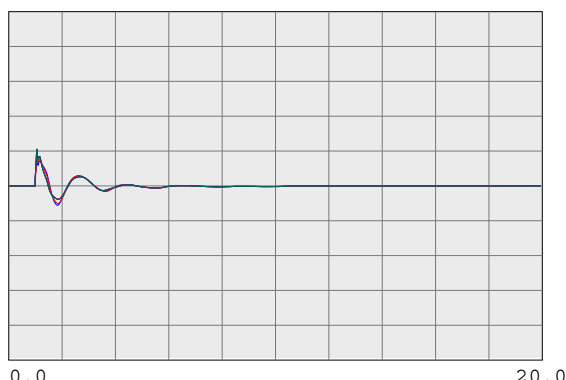
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

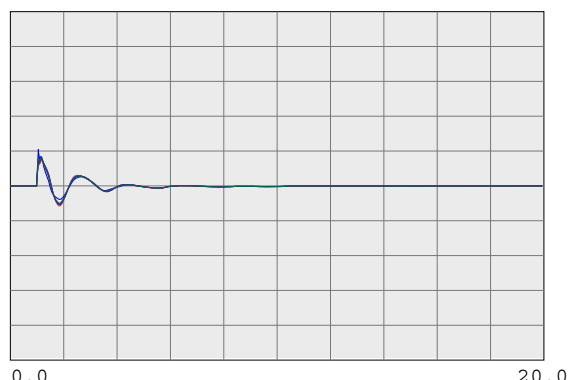
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

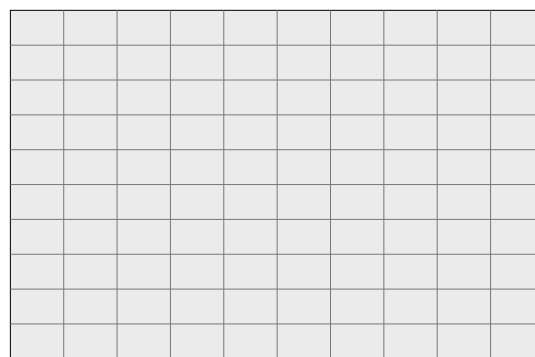
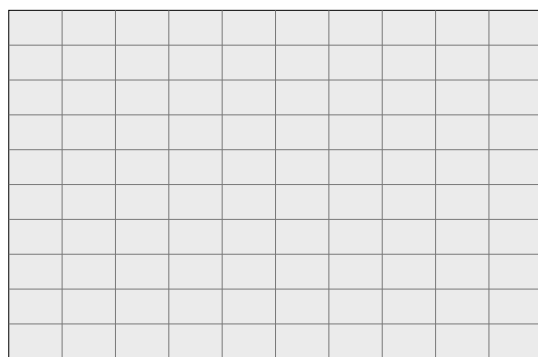
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

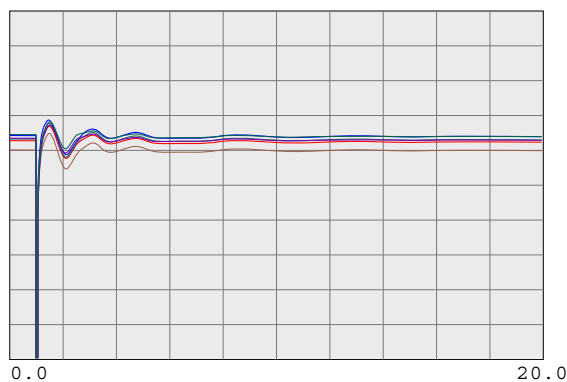
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

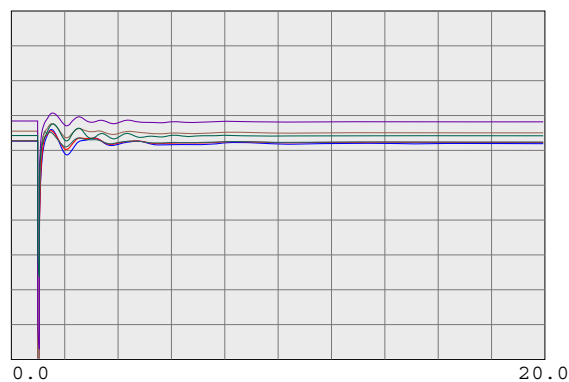
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

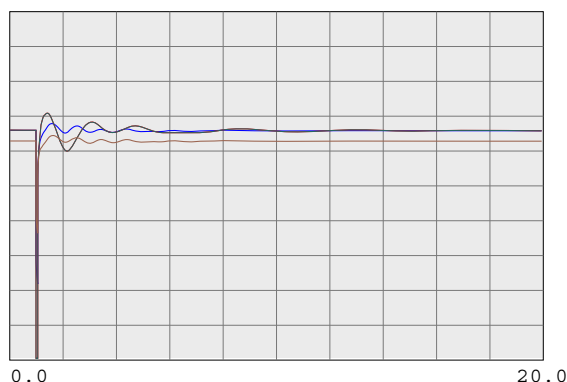
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



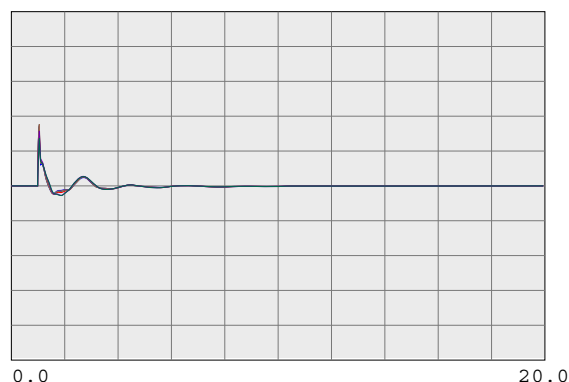
Time (sec)			
0.7500 vbus	30005	ROUND MT 500.0	0
0.7500 vbus	30015	TABLE MT 500.0	0
0.7500 vbus	30020	CLINDA 500.0	0
0.7500 vbus	30025	MAXWELL 500.0	0
0.7500 vbus	30030	VACA-DIX 500.0	0
0.7500 vbus	30035	TRACY 500.0	0



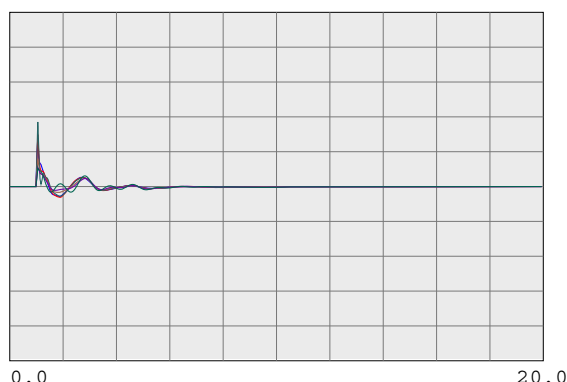
Time (sec)			
0.7500 vbus	30040	TESLA 500.0	0
0.7500 vbus	30042	METCALF 500.0	0
0.7500 vbus	30045	MOSSLAND 500.0	0
0.7500 vbus	30050	LOSBANOS 500.0	0
0.7500 vbus	30055	GATES 500.0	0
0.7500 vbus	30057	DIABLO 500.0	0



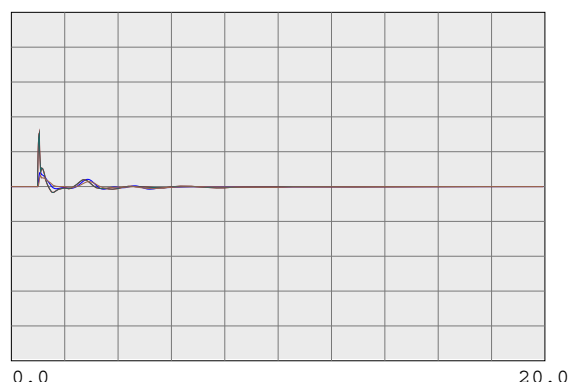
Time (sec)			
0.7500 vbus	30060	MIDWAY 500.0	0
0.7500 vbus	45035	CAPTJACK 500.0	0
0.7500 vbus	40687	MALIN 500.0	0
0.7500 vbus	24156	VINCENT 500.0	0



Time (sec)			
59.4000 fbus	30005	ROUND MT 500.0	0
59.4000 fbus	30015	TABLE MT 500.0	0
59.4000 fbus	30020	CLINDA 500.0	0
59.4000 fbus	30025	MAXWELL 500.0	0
59.4000 fbus	30030	VACA-DIX 500.0	0
59.4000 fbus	30035	TRACY 500.0	0



Time (sec)			
59.4000 fbus	30040	TESLA 500.0	0
59.4000 fbus	30042	METCALF 500.0	0
59.4000 fbus	30045	MOSSLAND 500.0	0
59.4000 fbus	30050	LOSBANOS 500.0	0
59.4000 fbus	30055	GATES 500.0	0
59.4000 fbus	30057	DIABLO 500.0	0



Time (sec)			
59.4000 fbus	30060	MIDWAY 500.0	0
59.4000 fbus	45035	CAPTJACK 500.0	0
59.4000 fbus	40687	MALIN 500.0	0
59.4000 fbus	24156	VINCENT 500.0	0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

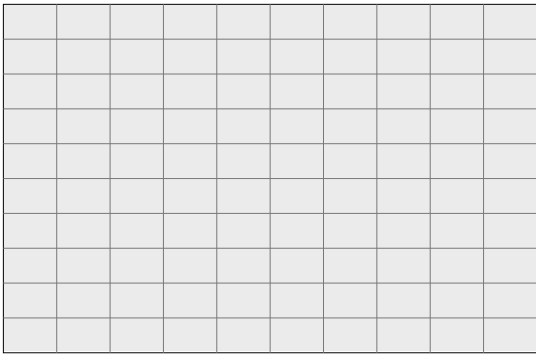
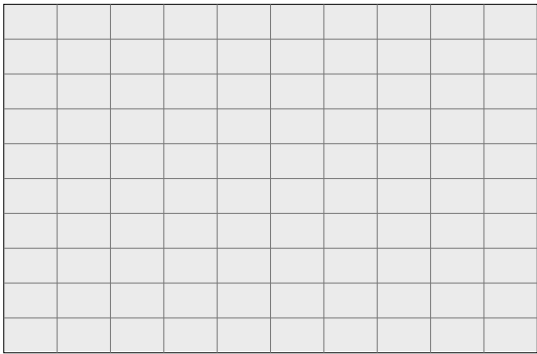
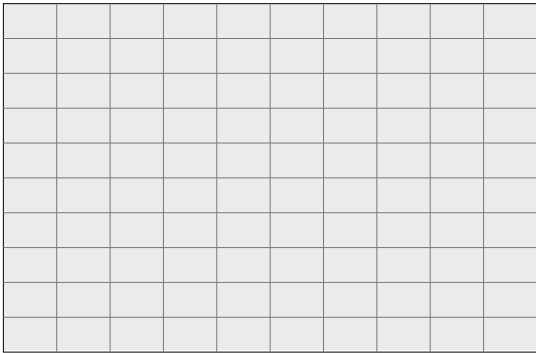
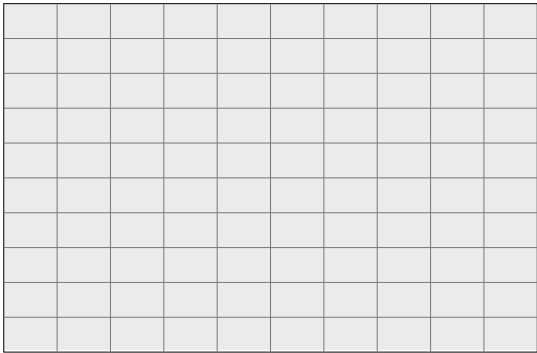
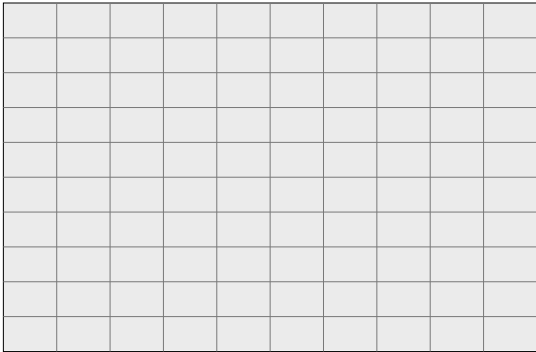
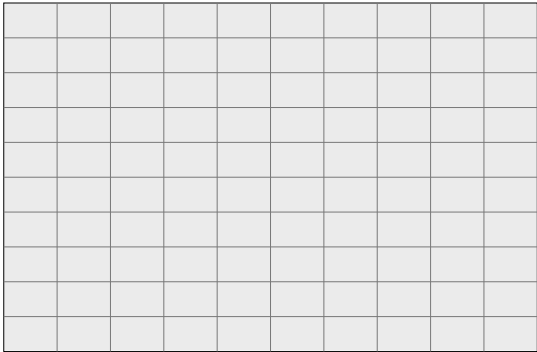
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

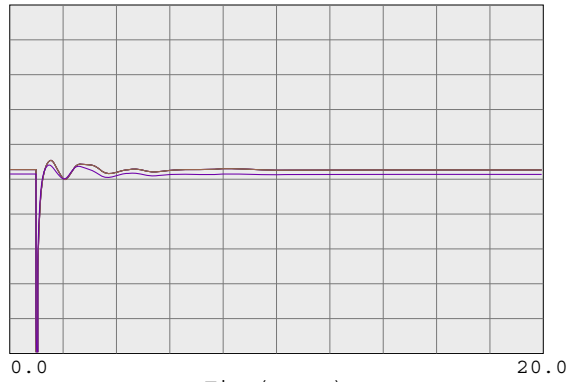
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

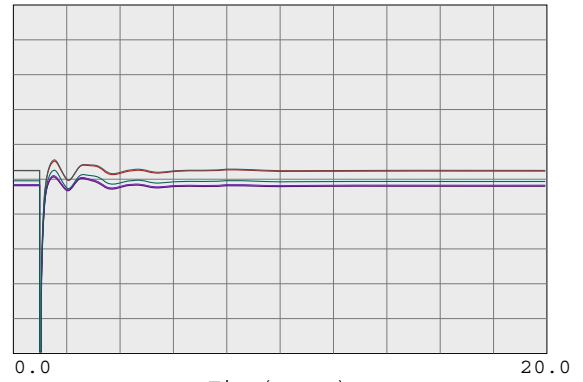


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

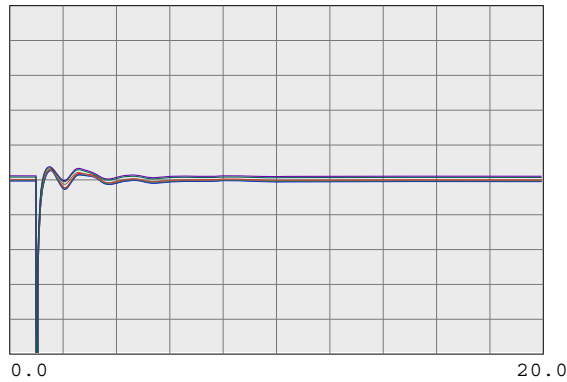
230-KV SYSTEM VOLTAGES



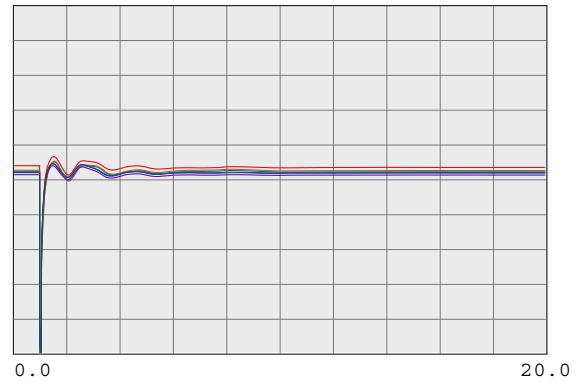
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0



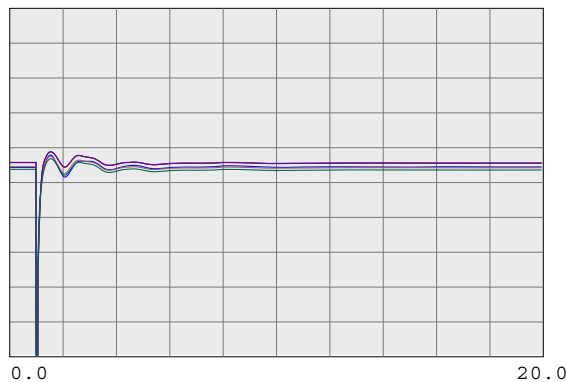
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30562	TES JCT 230.0	0	0.0
0.7500 vbus	30567	LONETREE 230.0	0	0.0
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0
0.7500 vbus	30563	RESEARCH 230.0	0	0.0
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0
0.7500 vbus	30550	MORAGA 230.0	0	0.0



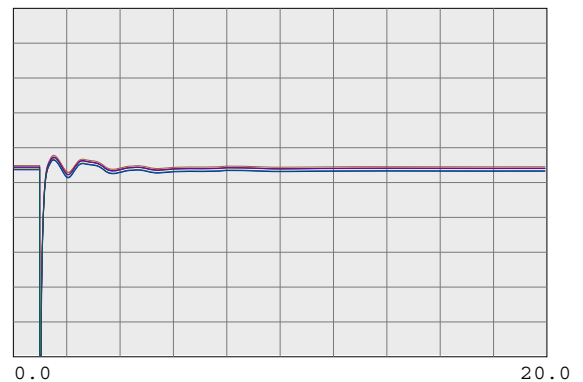
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0
0.7500 vbus	30544	ROSSTAP2 230.0	0	0.0
0.7500 vbus	30543	ROSSTAP1 230.0	0	0.0
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0
0.7500 vbus	30536	TESORO 230.0	0	0.0
0.7500 vbus	30535	TIDENATR 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0
0.7500 vbus	30600	TRES VAO 230.0	0	0.0
0.7500 vbus	30523	CC SUB 230.0	0	0.0
0.7500 vbus	30525	C. COSTA 230.0	0	0.0
0.7500 vbus	30526	PITSBG D 230.0	0	0.0
0.7500 vbus	30527	PITSBG E 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30575	WIND MSTR 230.0	0	0.0
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0
0.7500 vbus	30695	MARTIN C 230.0	0	0.0
0.7500 vbus	30696	MET ACTR 230.0	0	0.0
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30710	SLACTAP1 230.0	0	0.0
0.7500 vbus	30700	SANMATEO 230.0	0	0.0
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

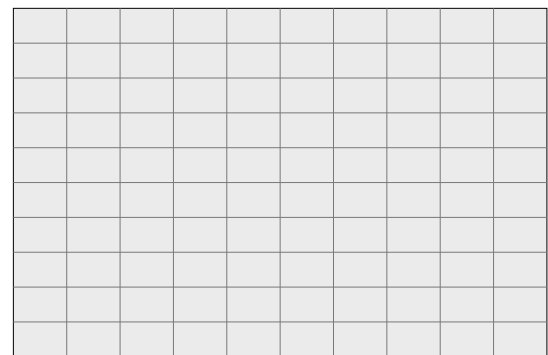
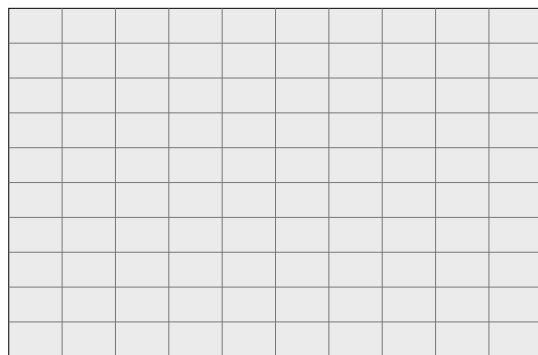
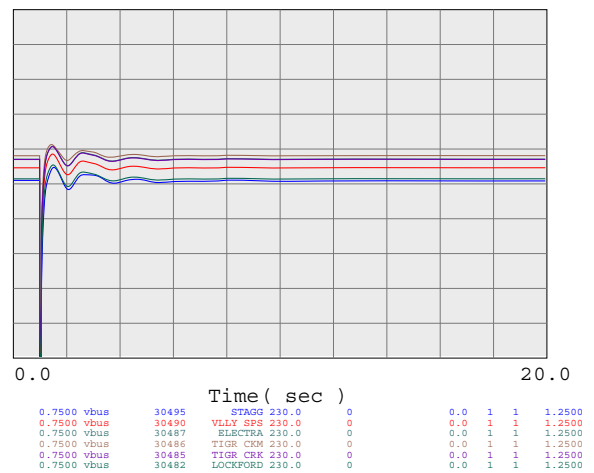
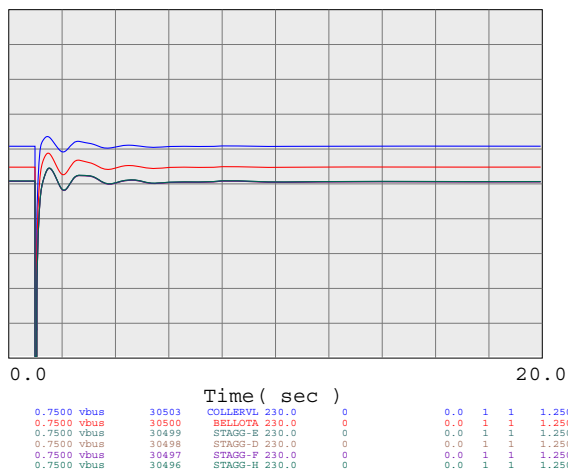
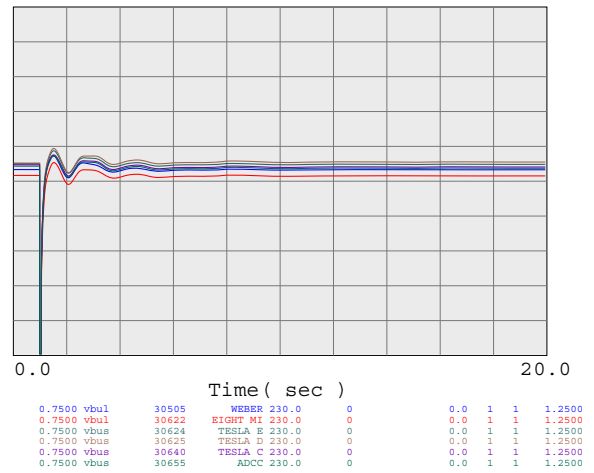
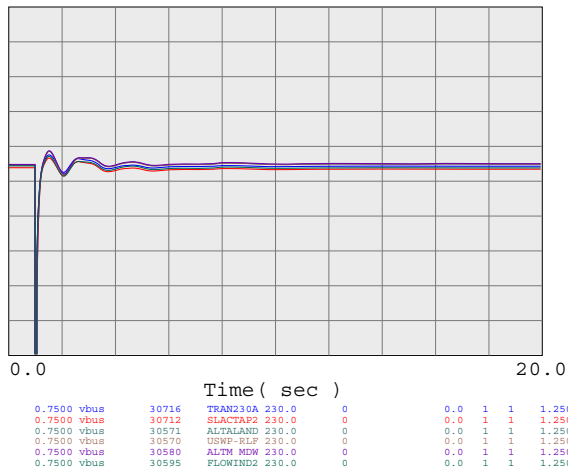
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

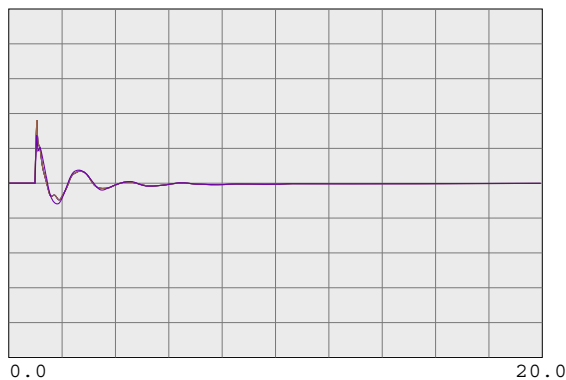
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



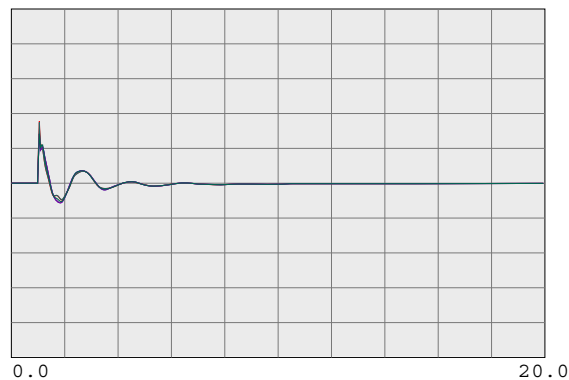
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

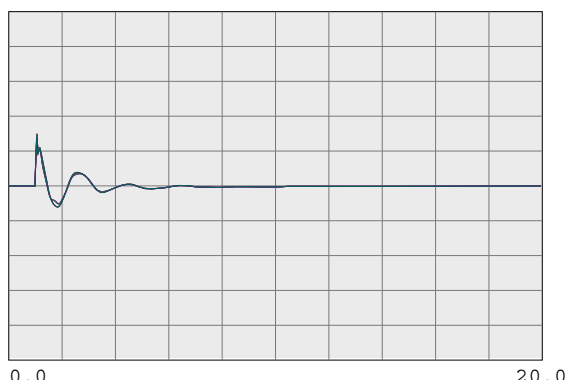
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

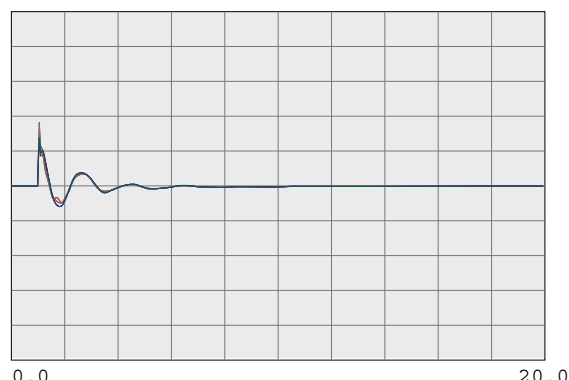
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

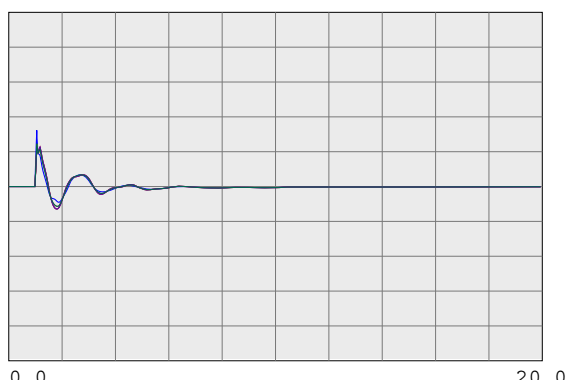
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

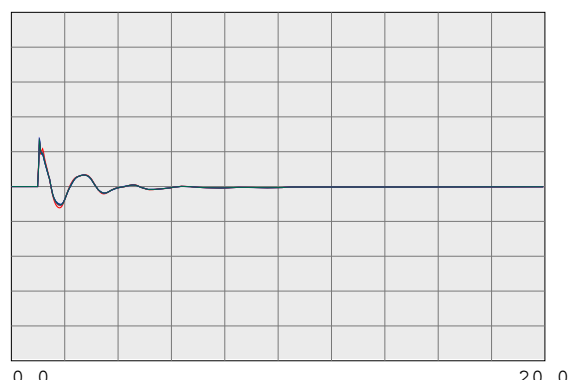
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

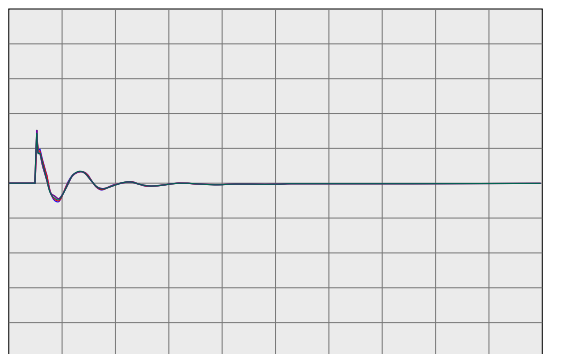
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

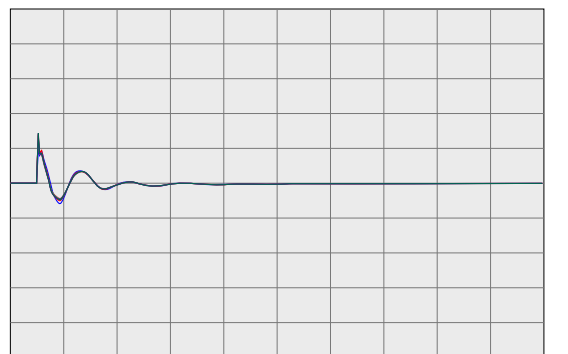
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

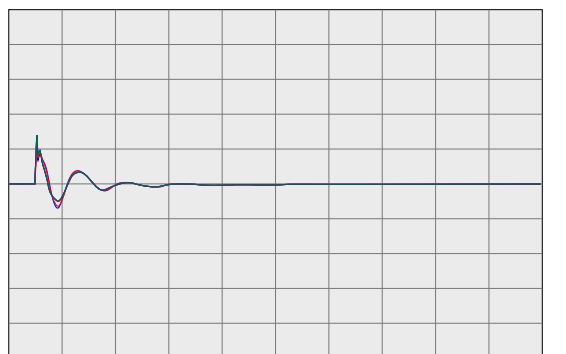
230-KV SYSTEM FREQUENCIES



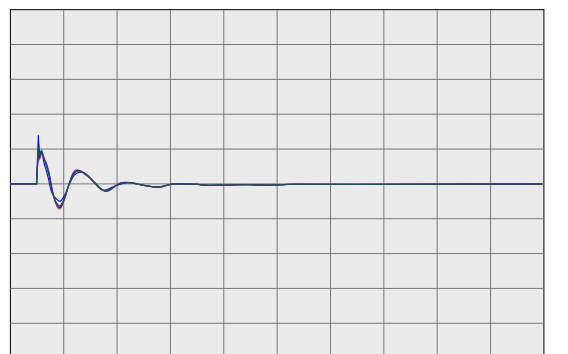
0.0	Time (sec)	20.0
59.4000 fbus	30716	TRAN230A 230.0 0
59.4000 fbus	30712	SLACTAP2 230.0 0
59.4000 fbus	30571	ALTALAND 230.0 0
59.4000 fbus	30570	USWP-RLF 230.0 0
59.4000 fbus	30580	ALTM MDW 230.0 0
59.4000 fbus	30595	FLOWIND2 230.0 0
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000



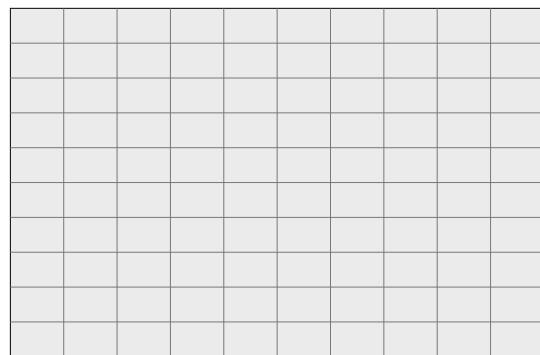
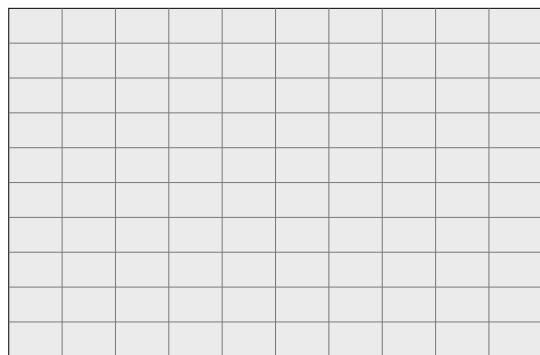
0.0	Time (sec)	20.0
59.4000 fbus	30505	WEBER 230.0 0
59.4000 fbus	30622	RIGHT MI 230.0 0
59.4000 fbus	30624	TESLA E 230.0 0
59.4000 fbus	30625	TESLA D 230.0 0
59.4000 fbus	30640	TESLA C 230.0 0
59.4000 fbus	30655	ADCC 230.0 0
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000



0.0	Time (sec)	20.0
59.4000 fbus	30503	COLLIERV 230.0 0
59.4000 fbus	30500	BELLOTA 230.0 0
59.4000 fbus	30499	STAGG-E 230.0 0
59.4000 fbus	30498	STAGG-D 230.0 0
59.4000 fbus	30497	STAGG-F 230.0 0
59.4000 fbus	30496	STAGG-H 230.0 0
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000



0.0	Time (sec)	20.0
59.4000 fbus	30495	STAGS 230.0 0
59.4000 fbus	30490	VLLY BPS 230.0 0
59.4000 fbus	30487	ELECTRA 230.0 0
59.4000 fbus	30486	TIGR CKN 230.0 0
59.4000 fbus	30485	TIGR CRK 230.0 0
59.4000 fbus	30482	LOCKFORD 230.0 0
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000
0.0	1	1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

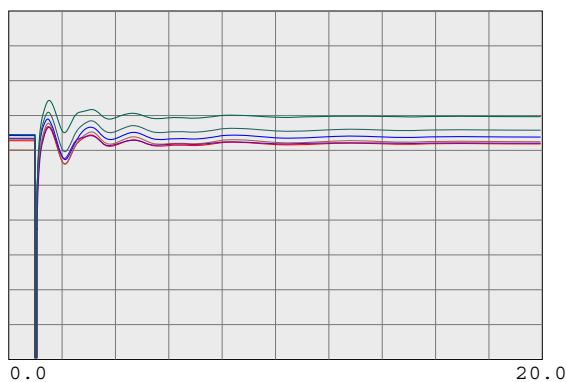
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

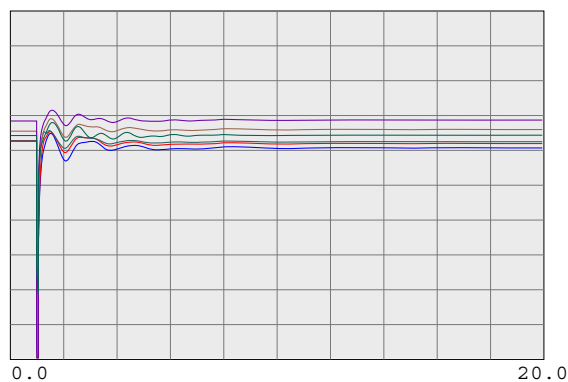
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



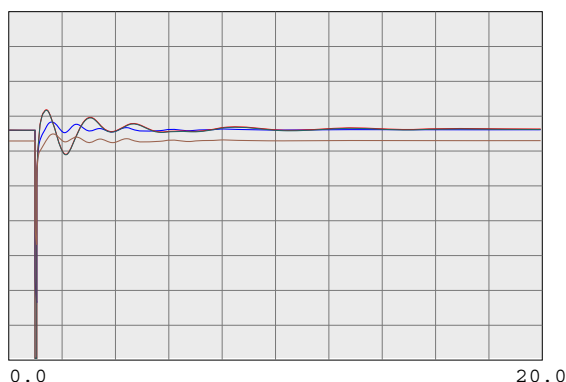
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



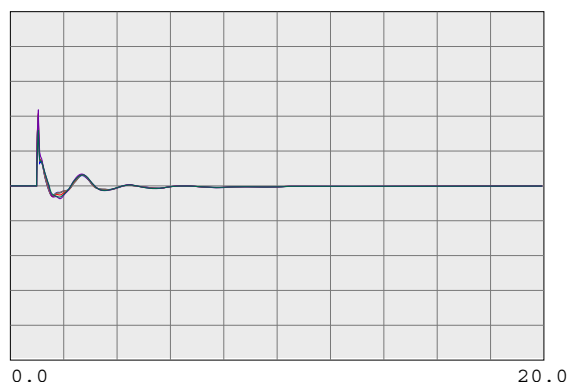
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



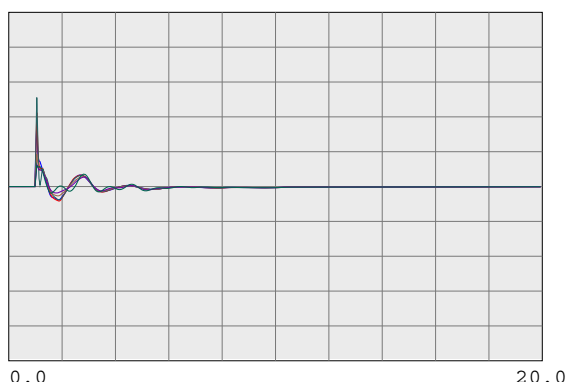
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



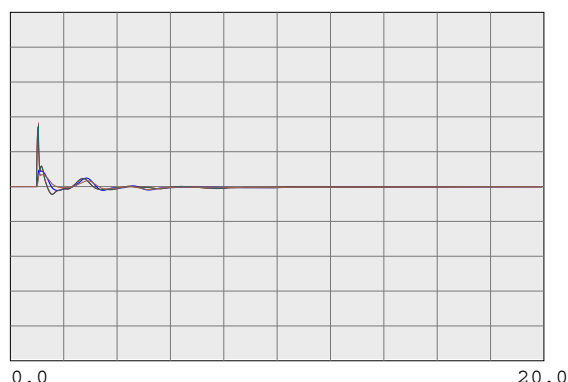
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

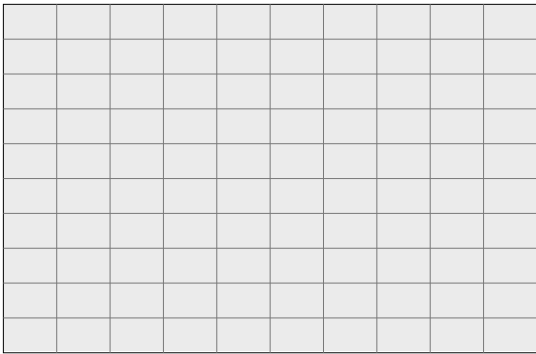
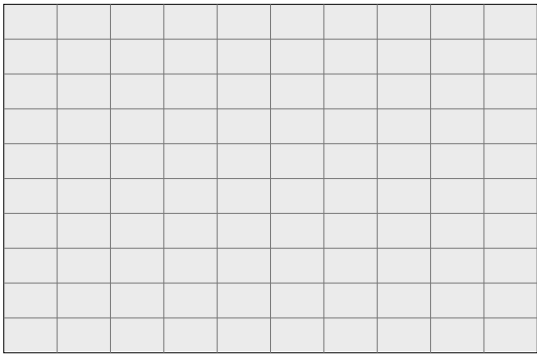
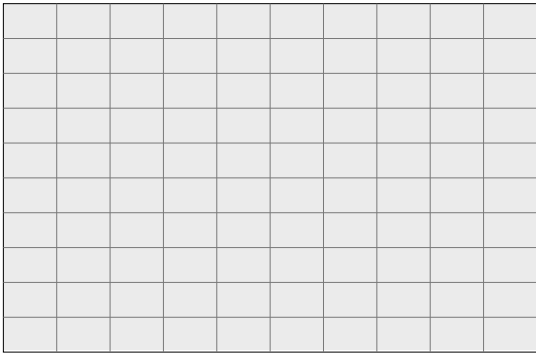
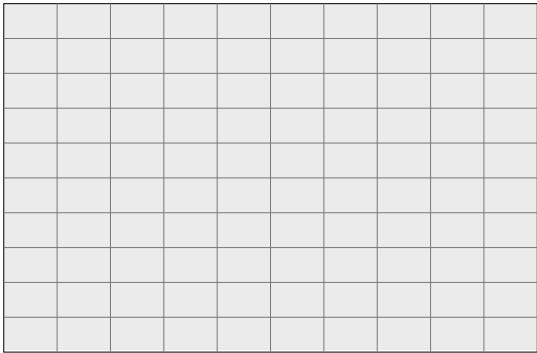
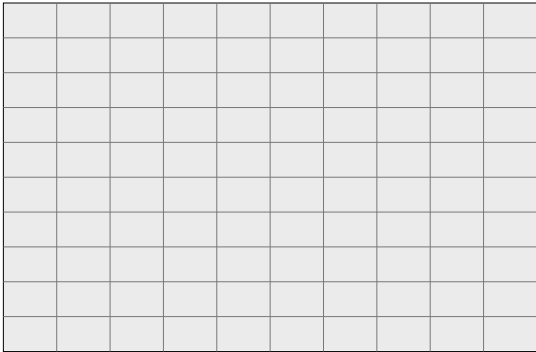
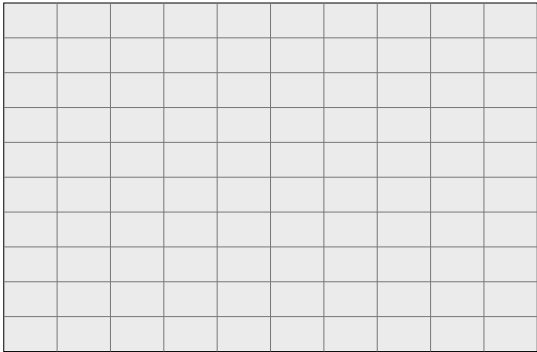
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

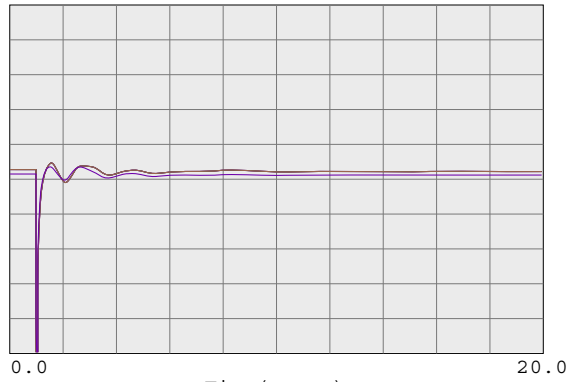
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

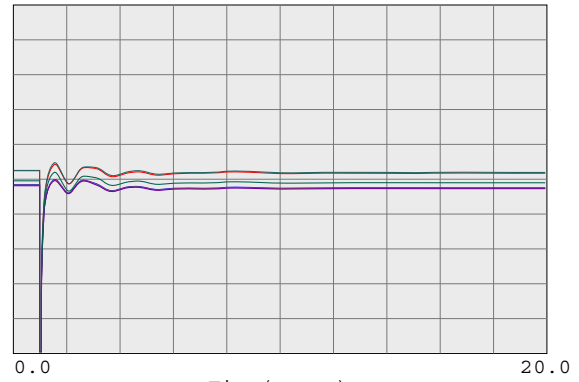


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

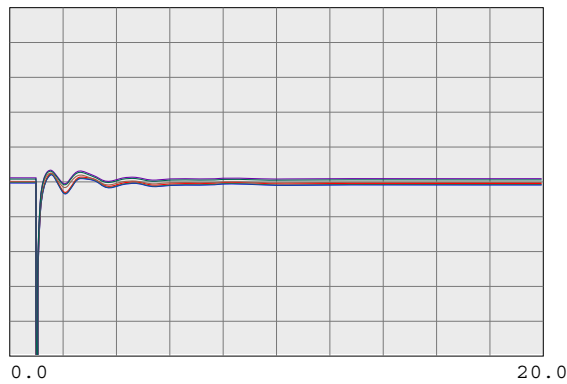
230-KV SYSTEM VOLTAGES



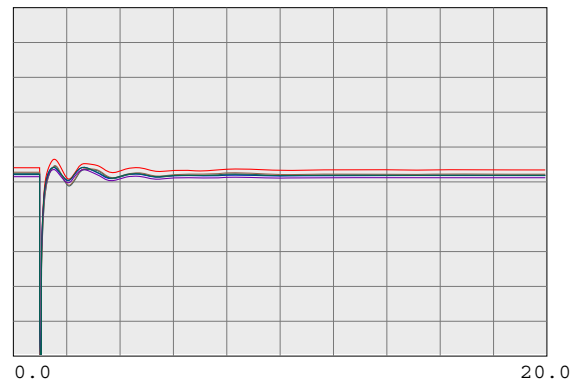
Time (sec)								
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500	



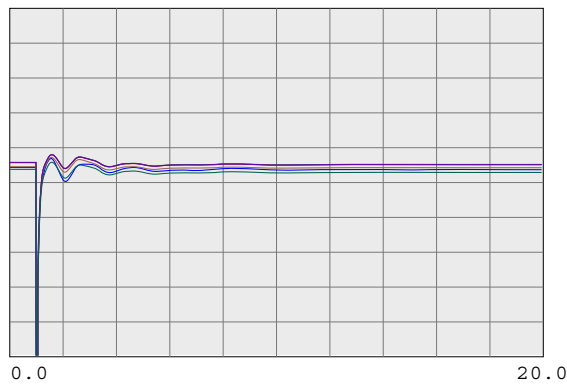
Time (sec)								
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500	



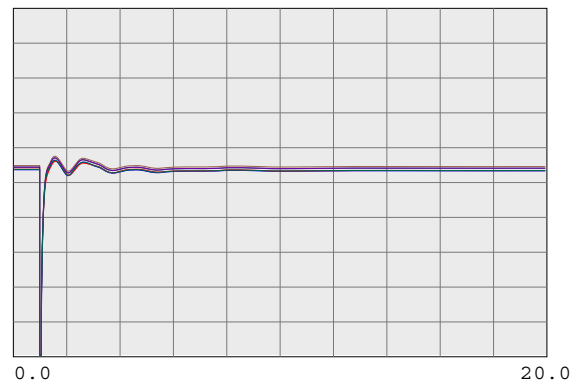
Time (sec)								
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500	



Time (sec)								
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500	



Time (sec)								
0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500	



Time (sec)								
0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500	
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500	

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

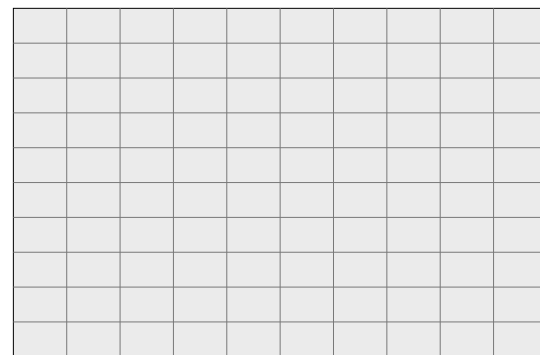
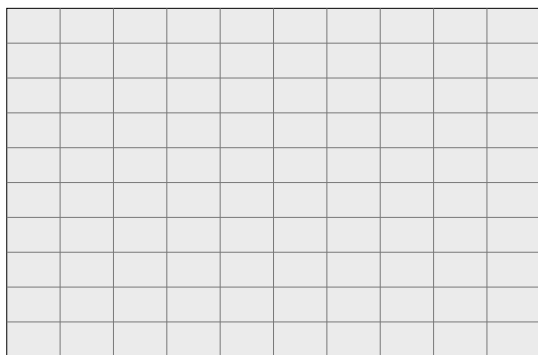
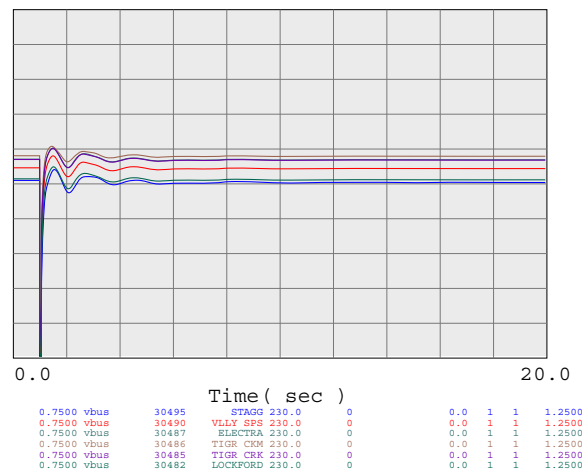
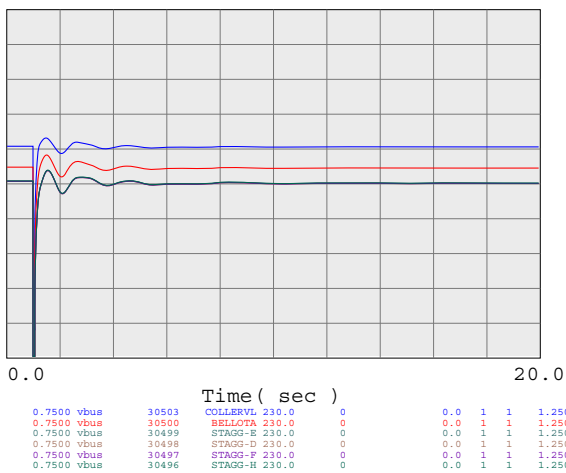
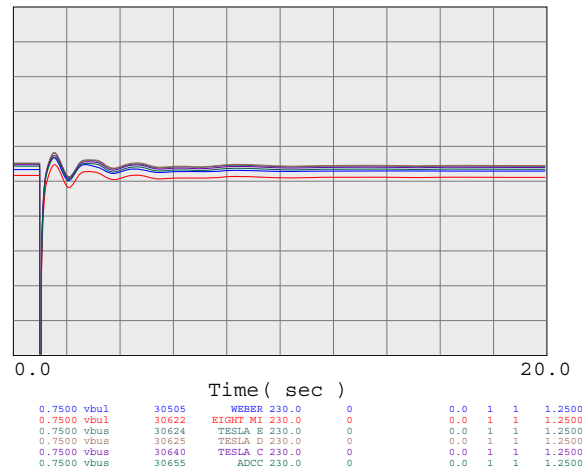
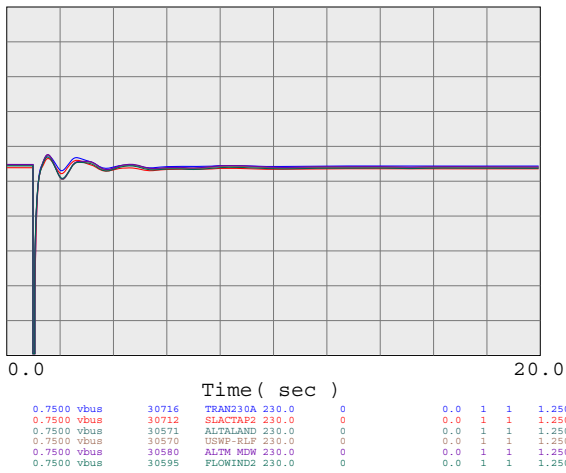
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

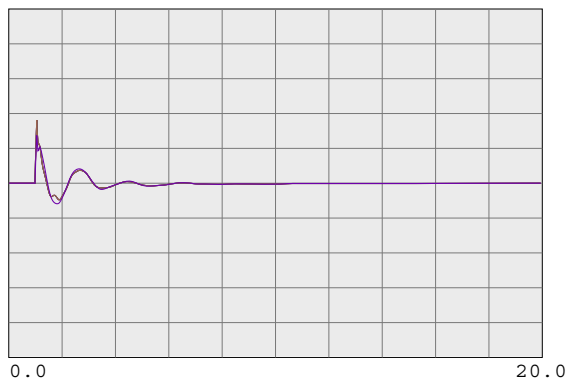
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

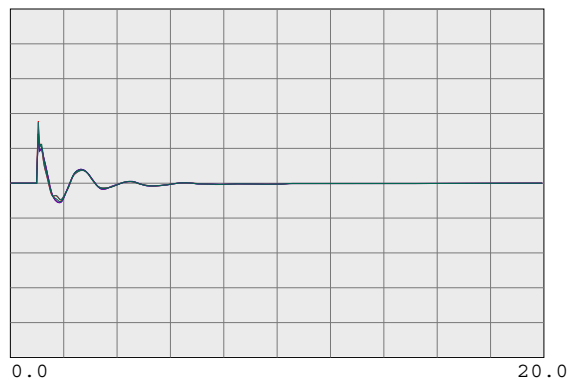


230-KV SYSTEM FREQUENCIES



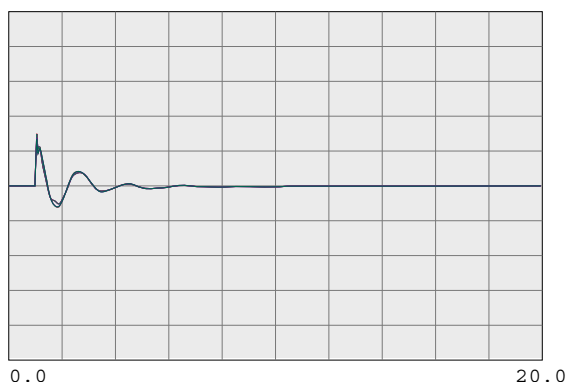
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



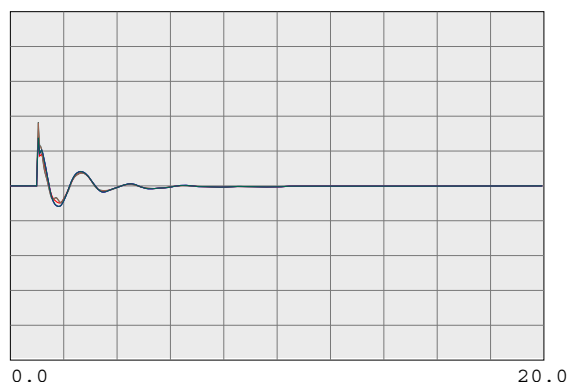
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



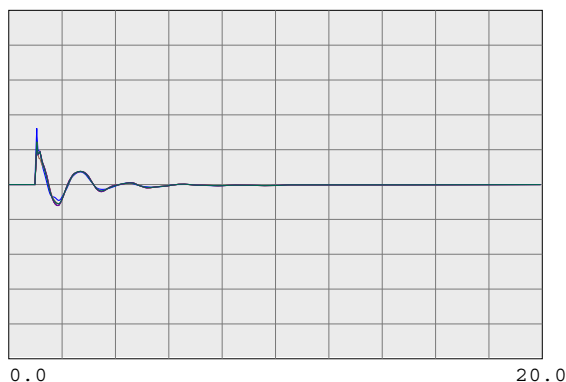
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



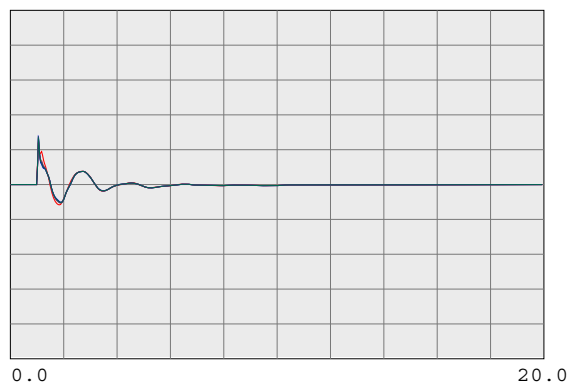
Time (sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

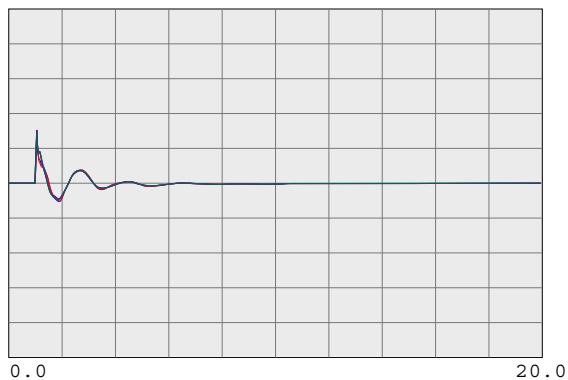
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

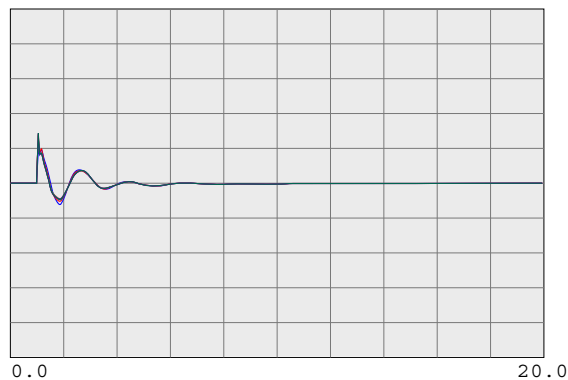
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

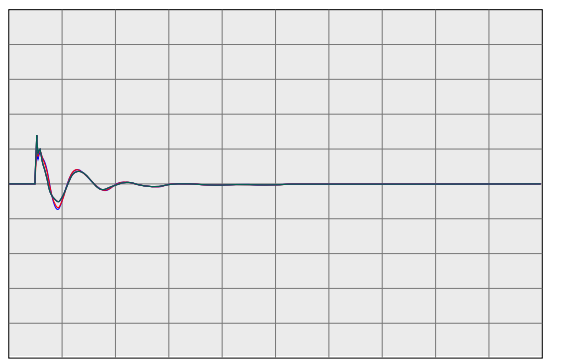
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

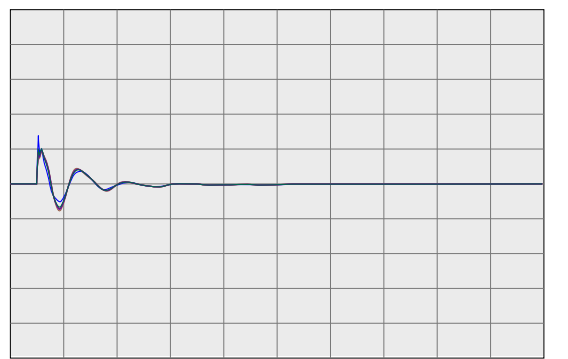
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

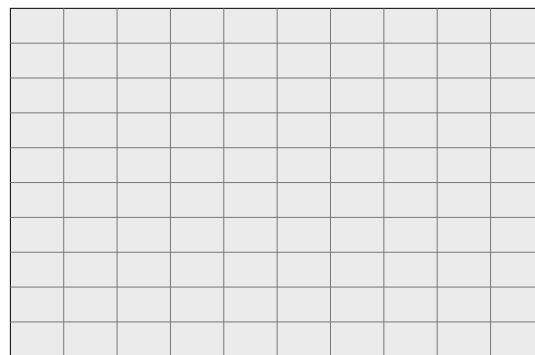
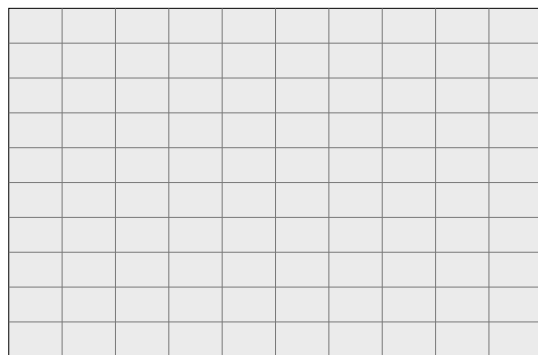
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

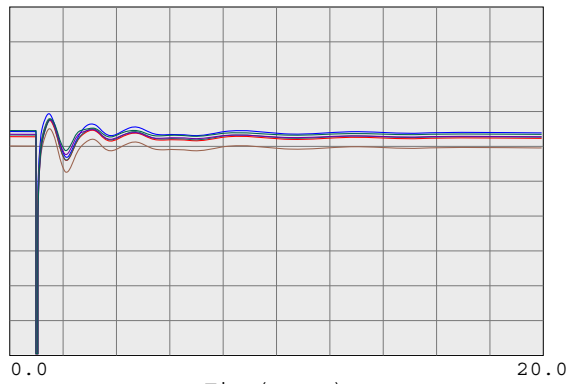
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

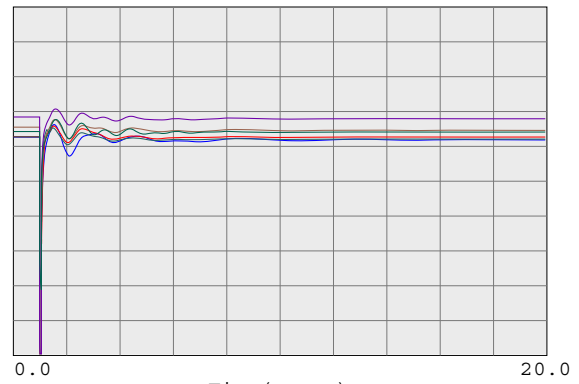
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

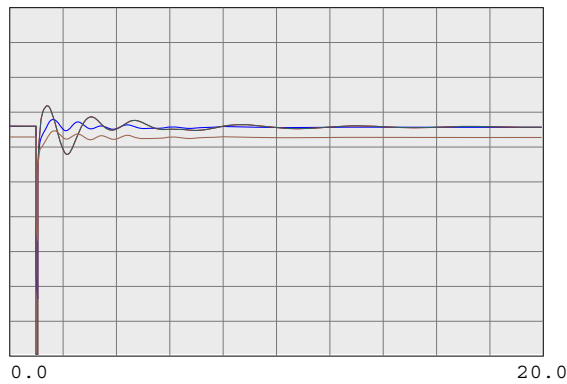
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



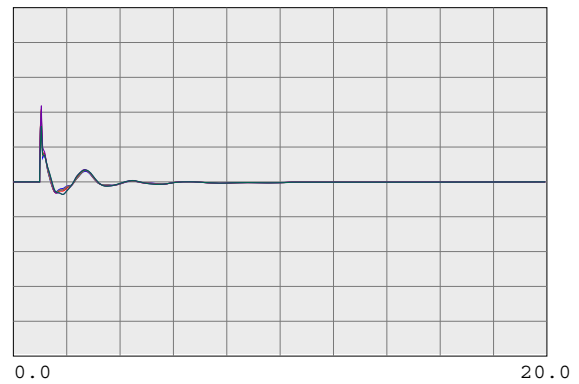
Time (sec)	0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500	



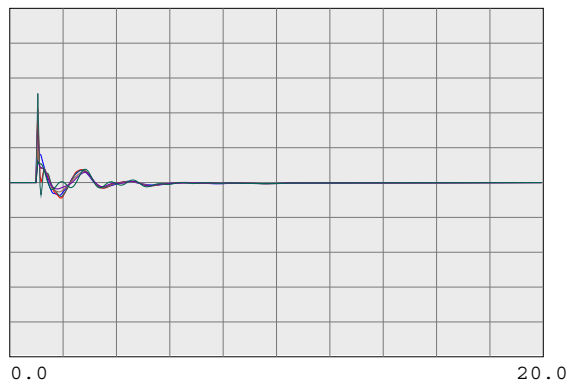
Time (sec)	0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500	



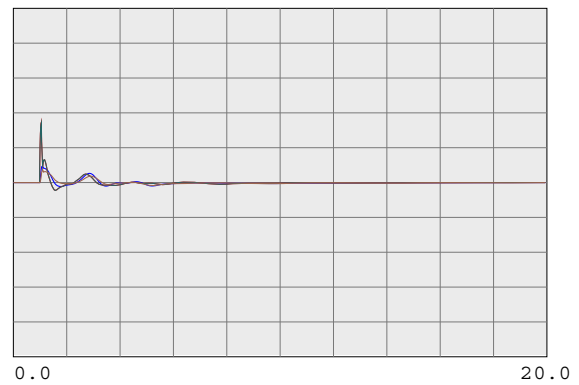
Time (sec)	0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500	



Time (sec)	59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000	



Time (sec)	59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000	



Time (sec)	59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000	

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

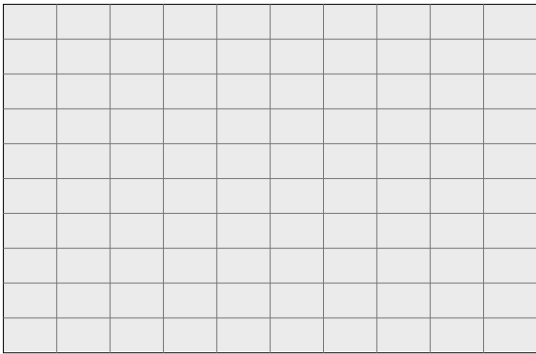
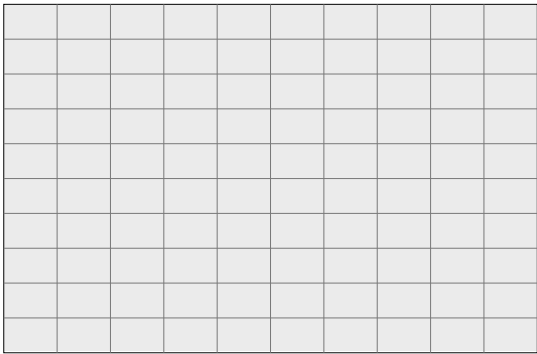
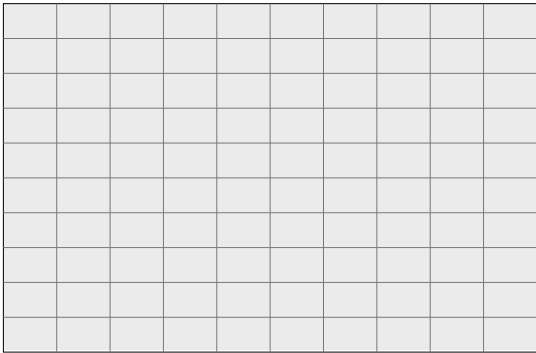
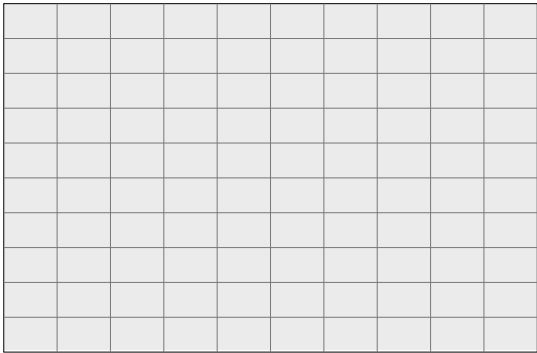
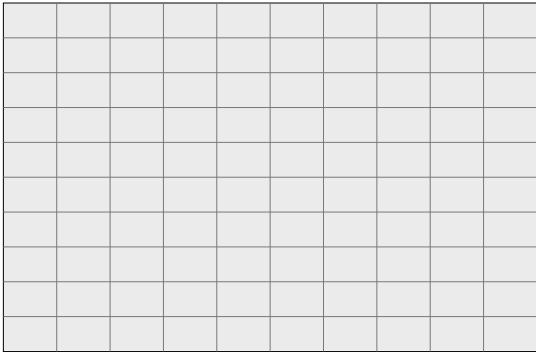
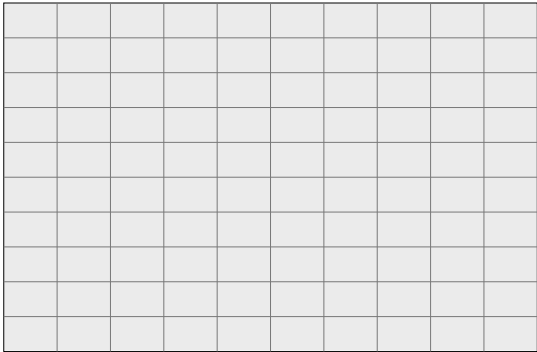
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

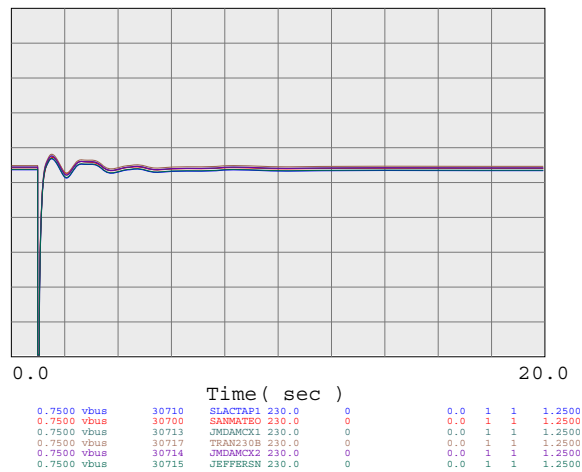
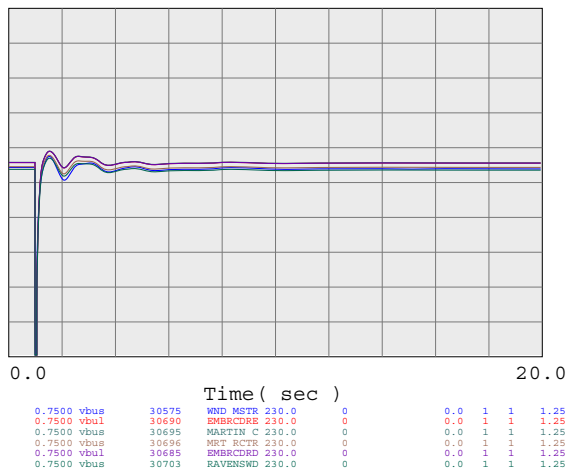
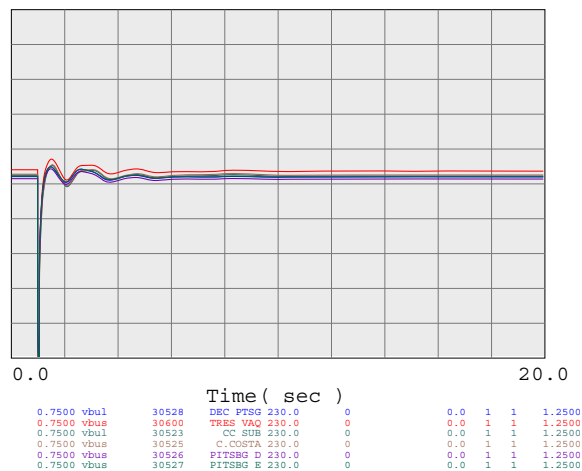
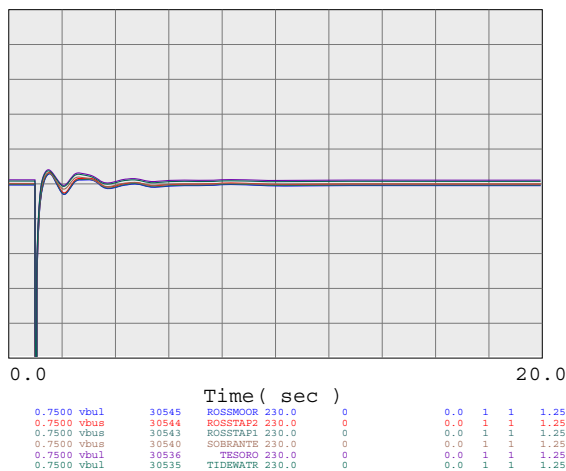
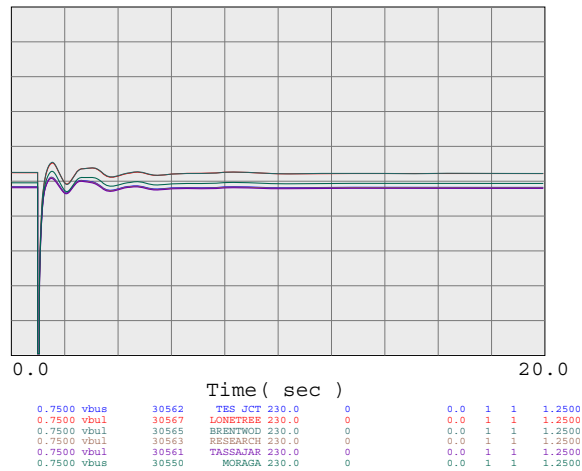
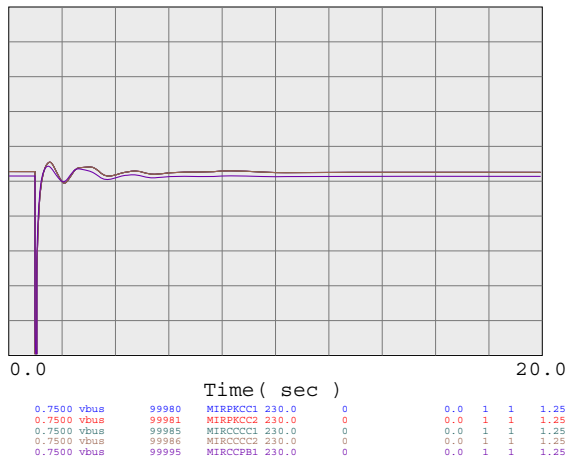
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



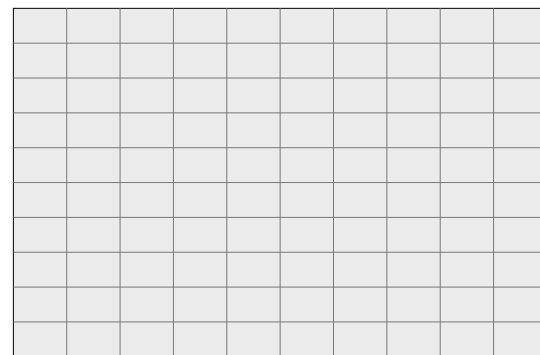
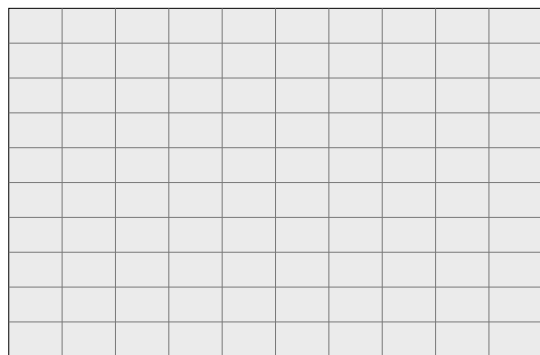
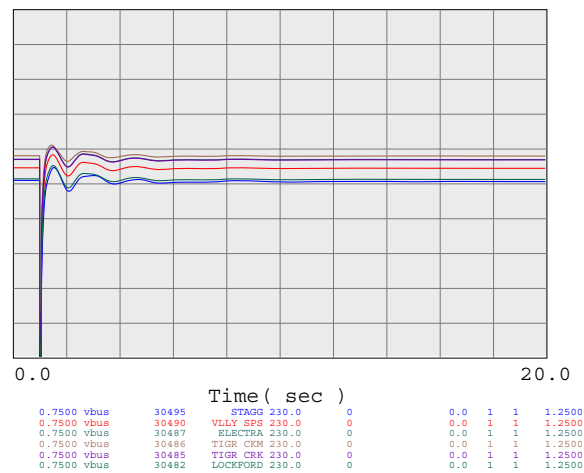
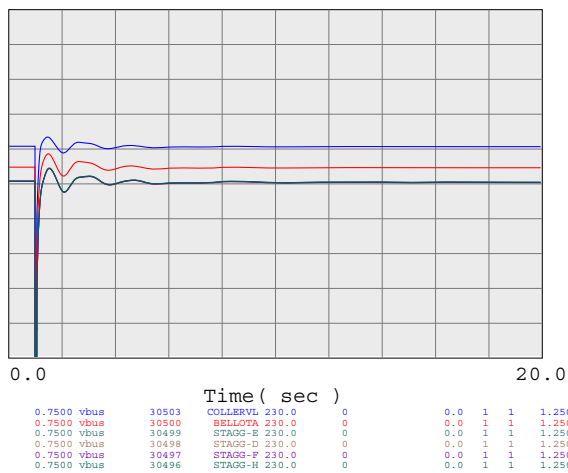
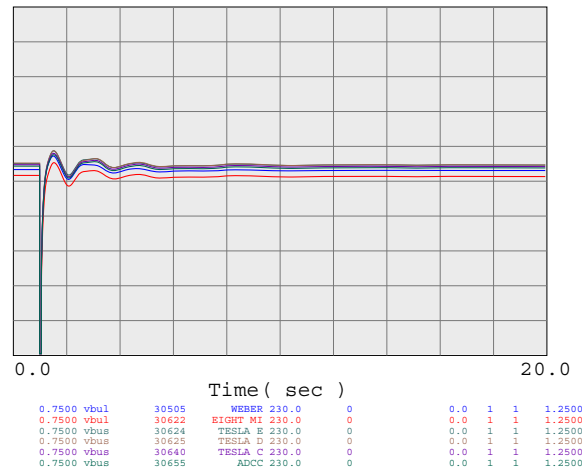
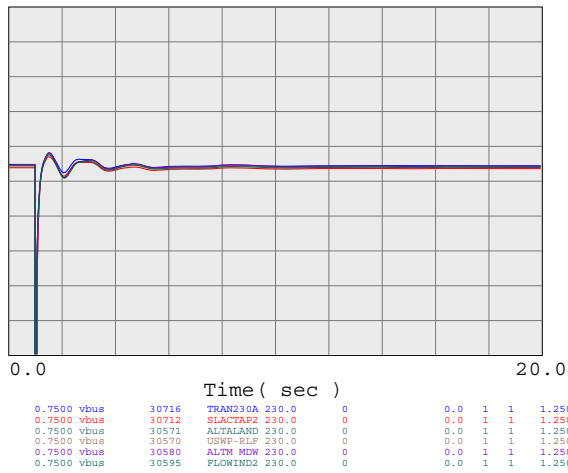
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

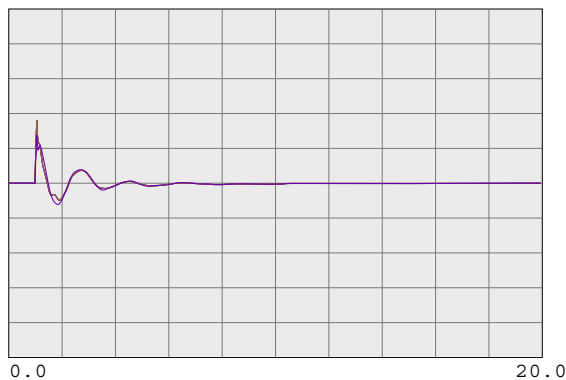


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



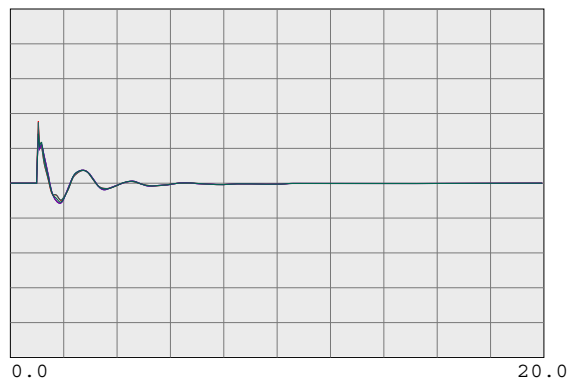
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

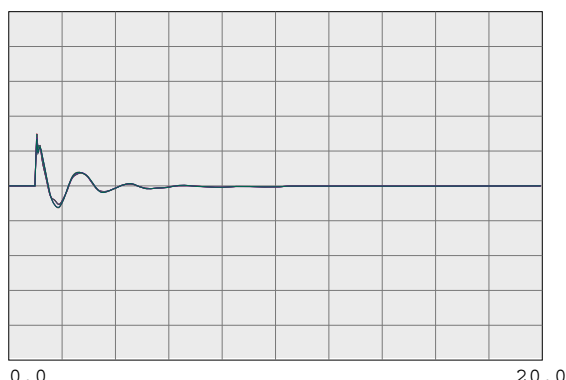
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

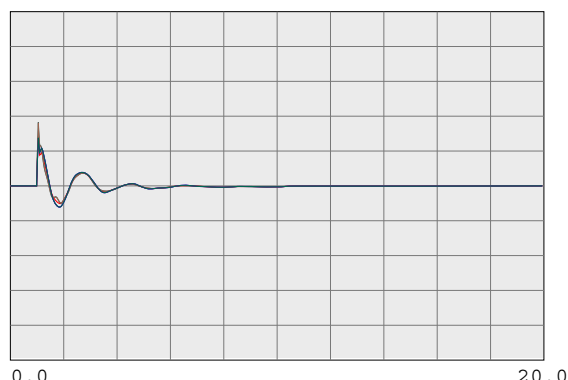
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

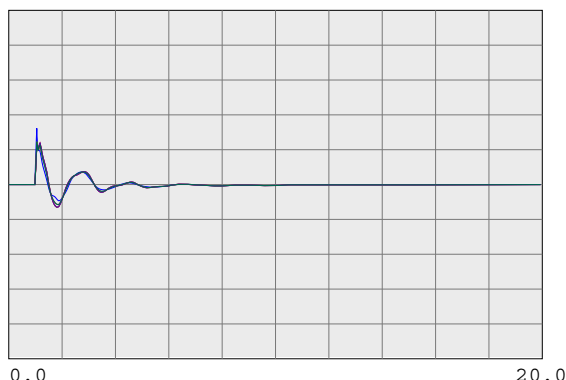
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

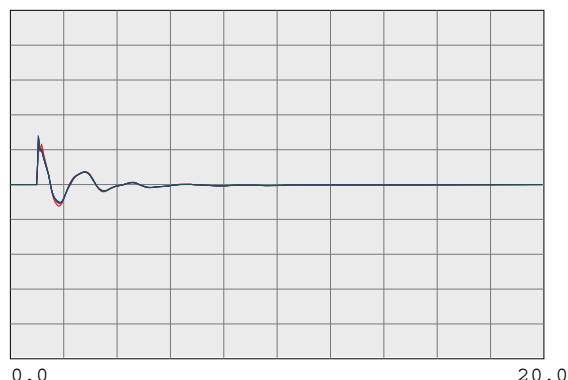
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

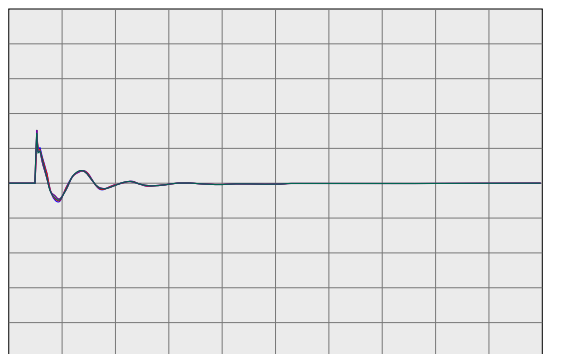
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

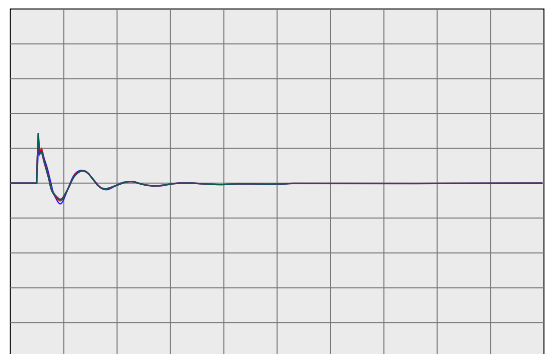
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

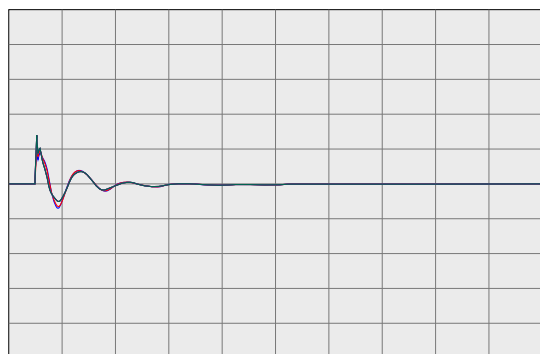
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

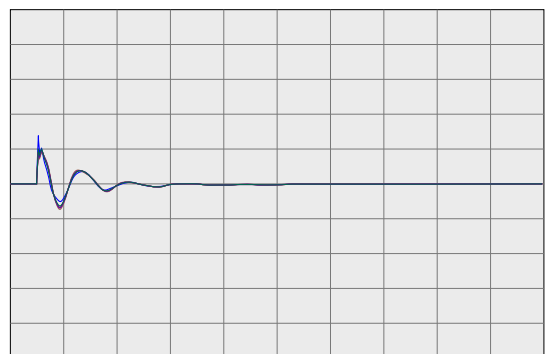
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

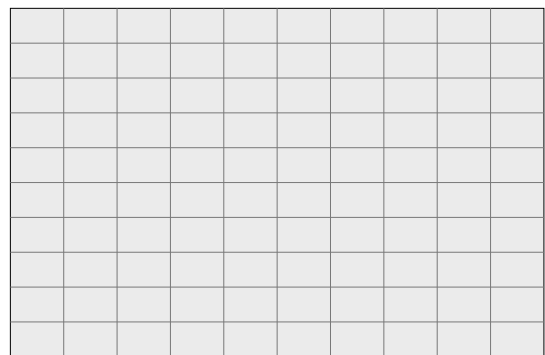
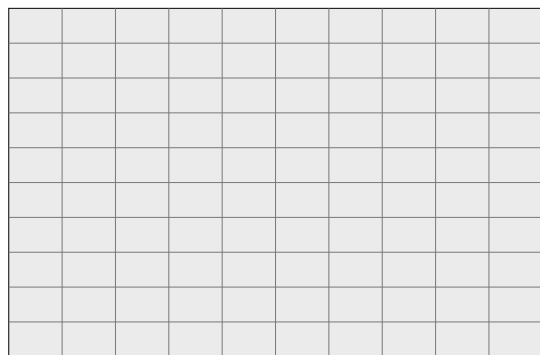
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

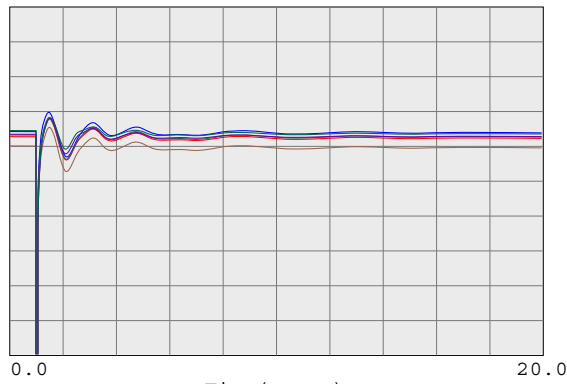
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

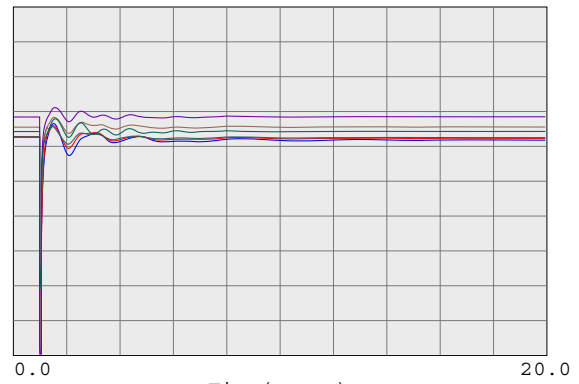
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

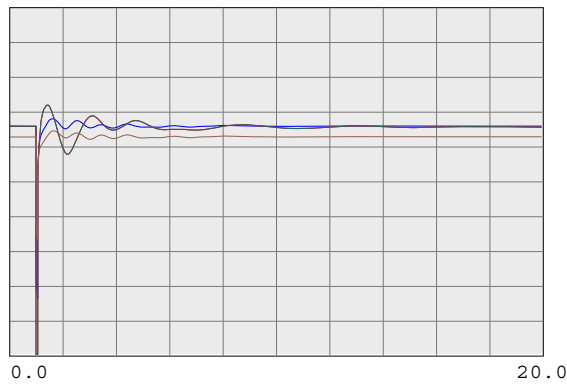
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



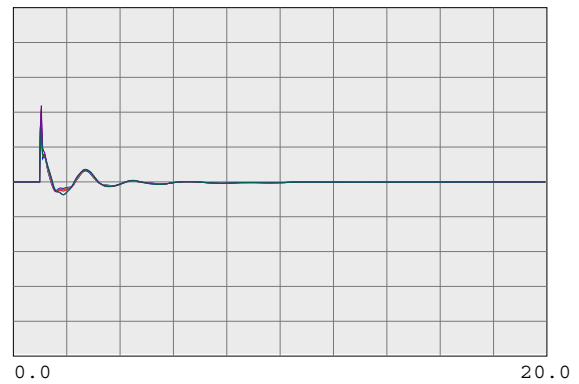
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



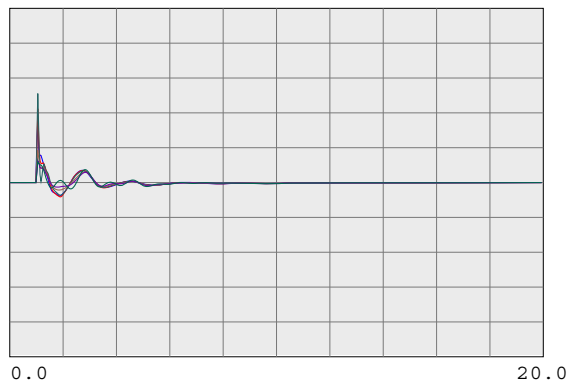
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



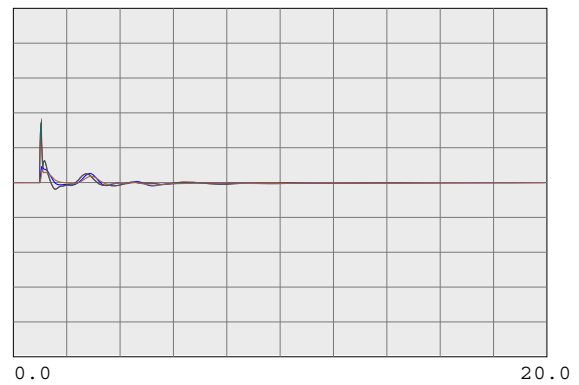
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>CLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOS BANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

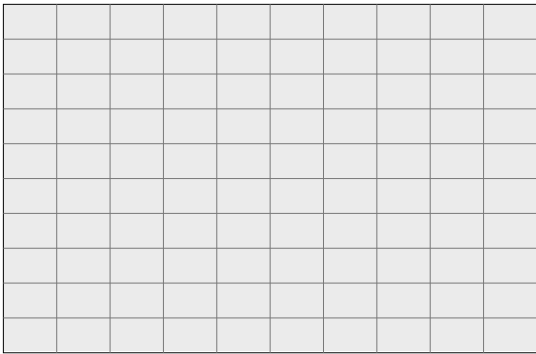
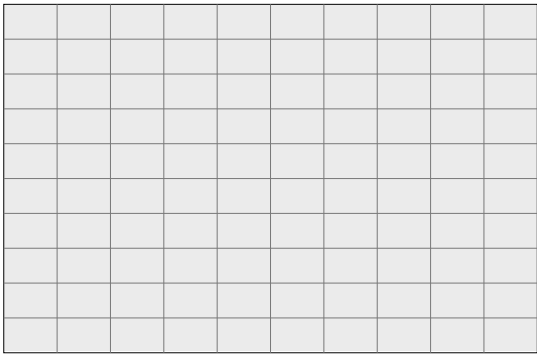
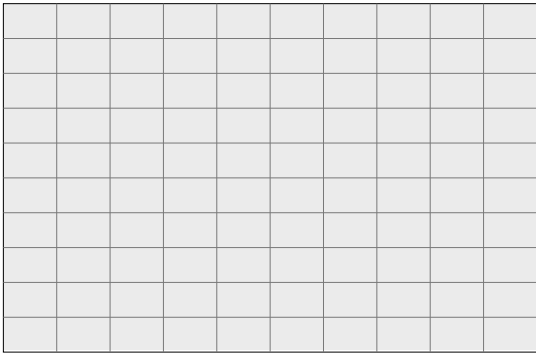
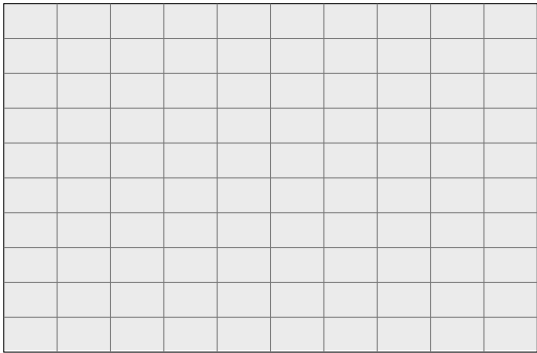
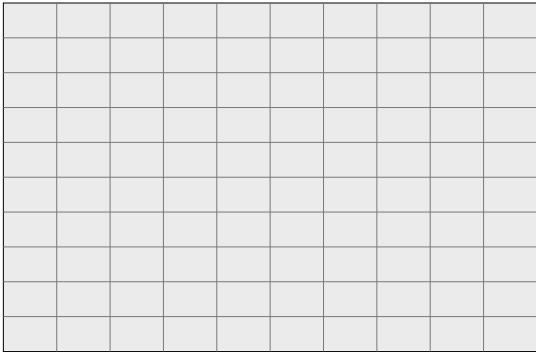
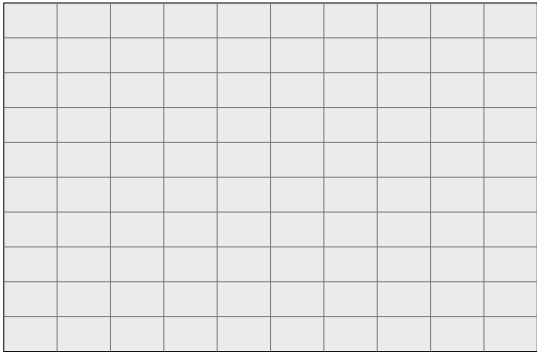
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

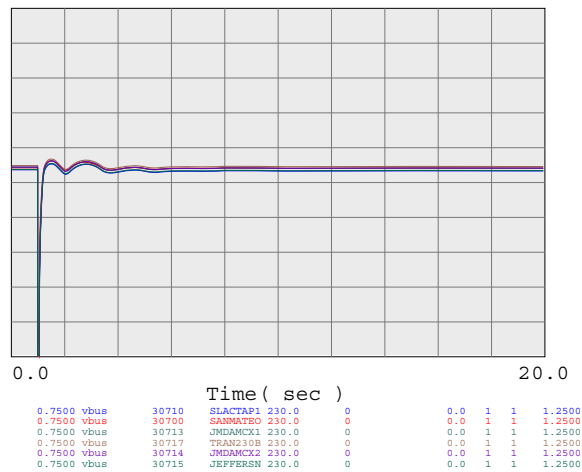
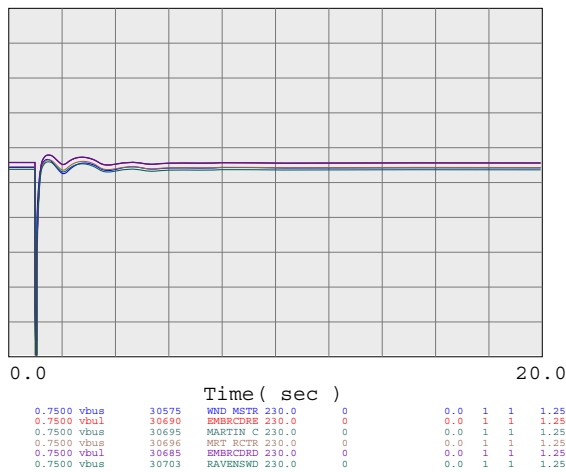
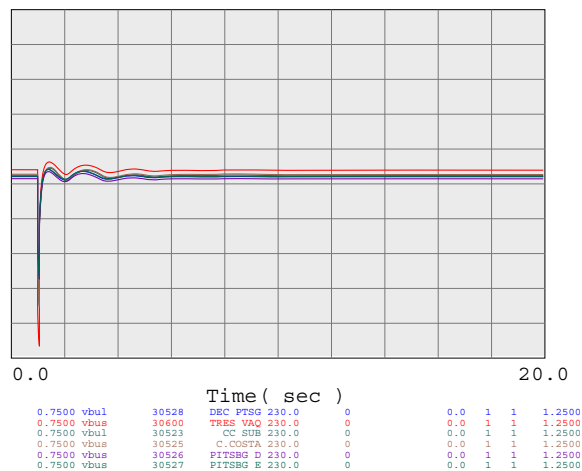
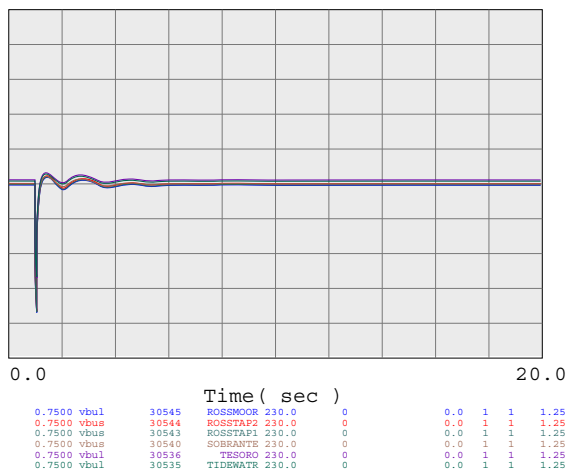
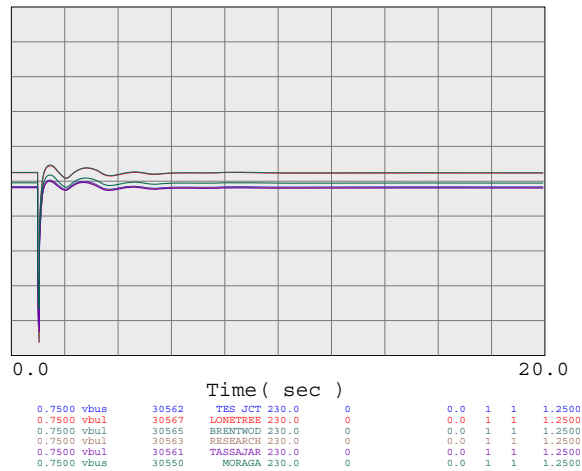
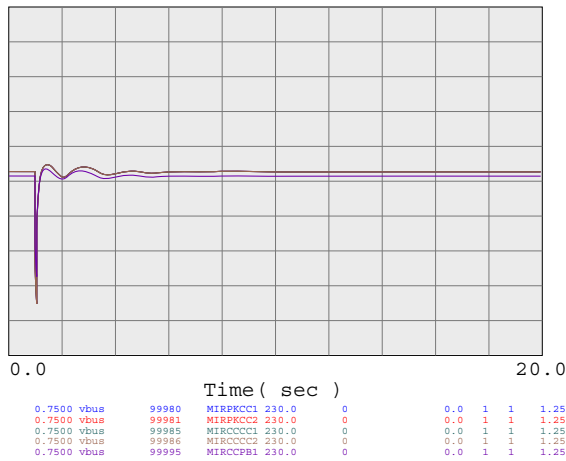
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



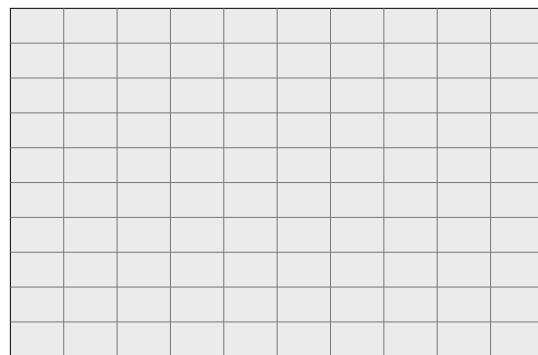
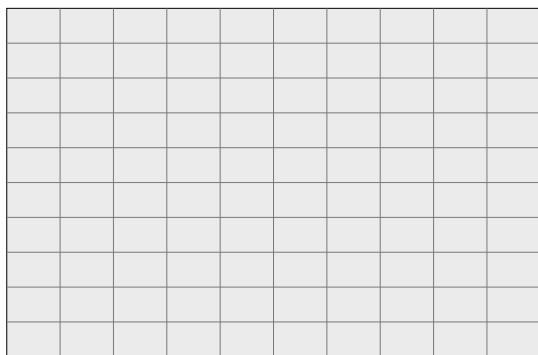
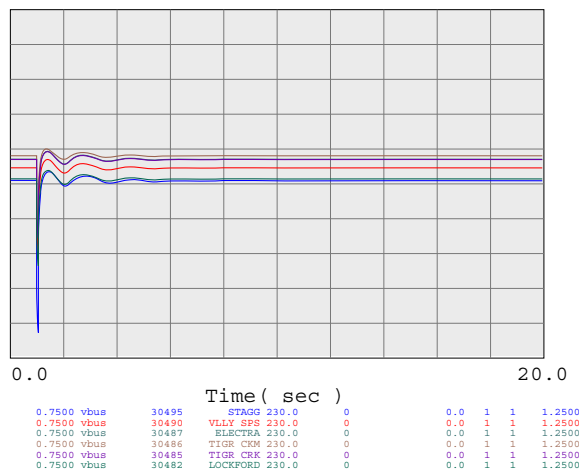
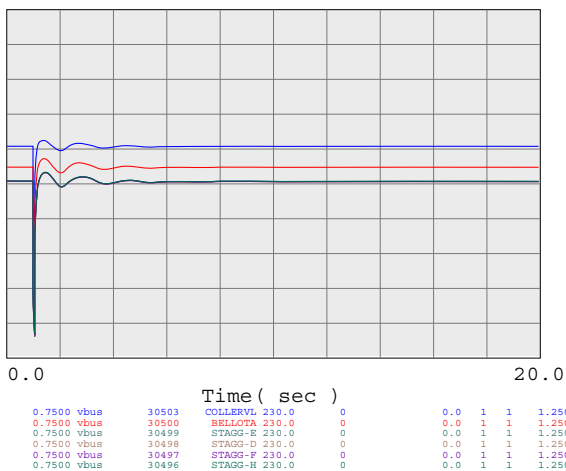
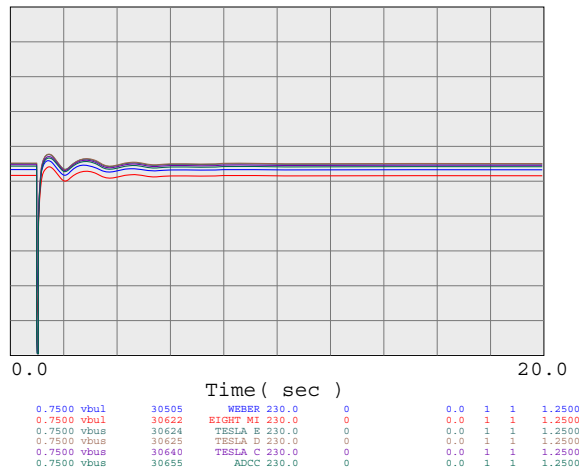
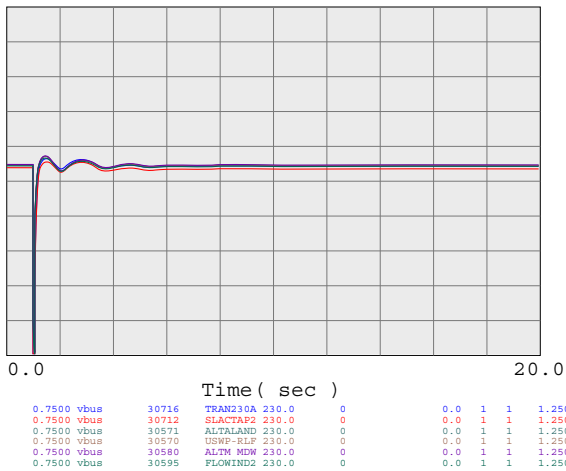
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

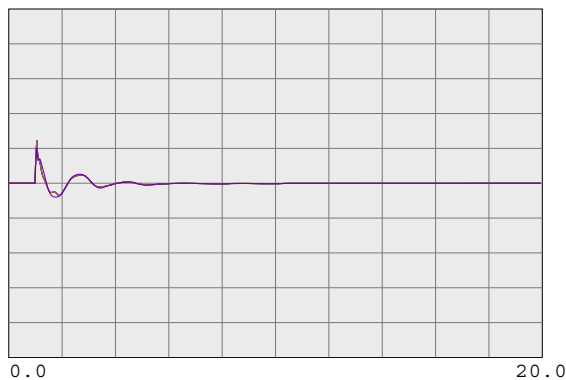


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

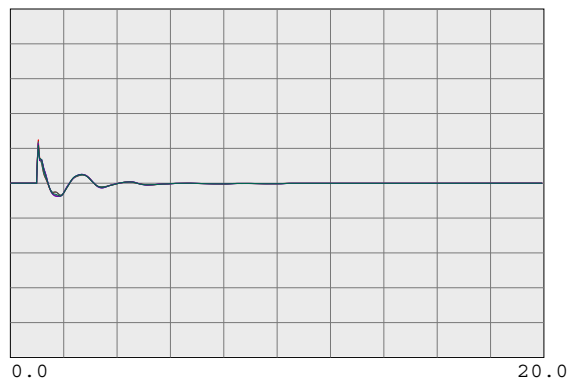


230-KV SYSTEM FREQUENCIES



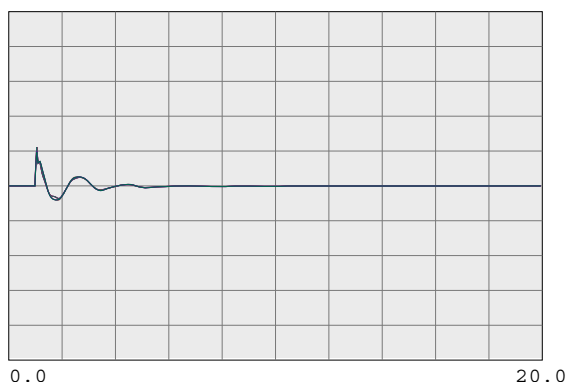
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



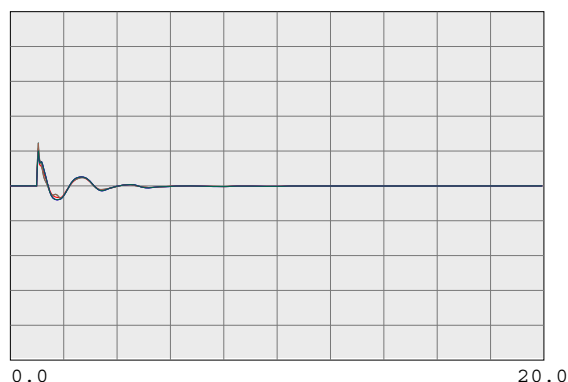
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



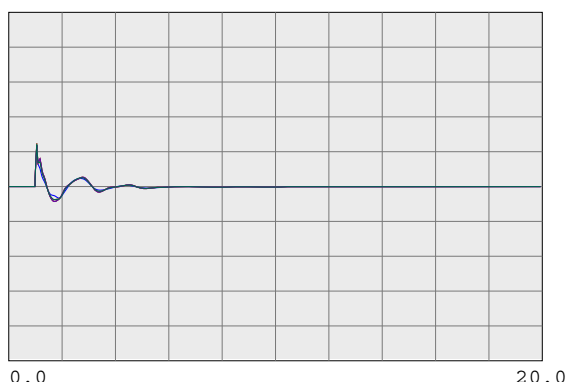
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



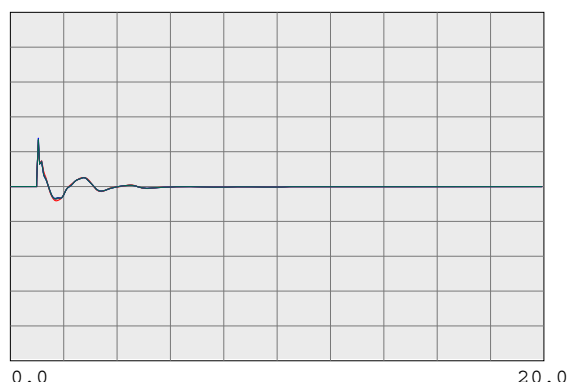
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

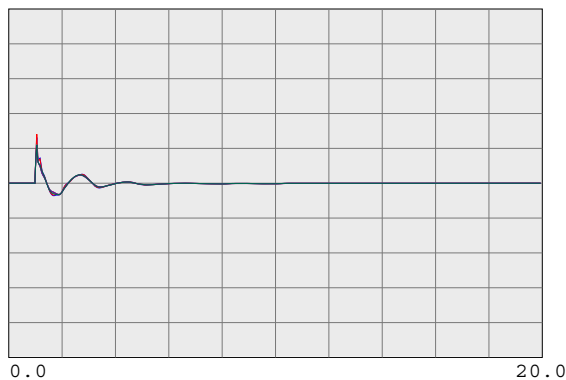
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

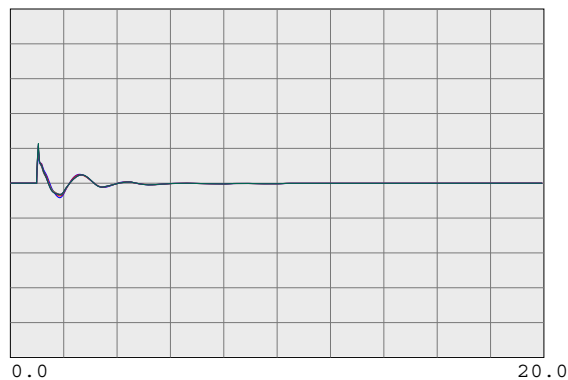
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

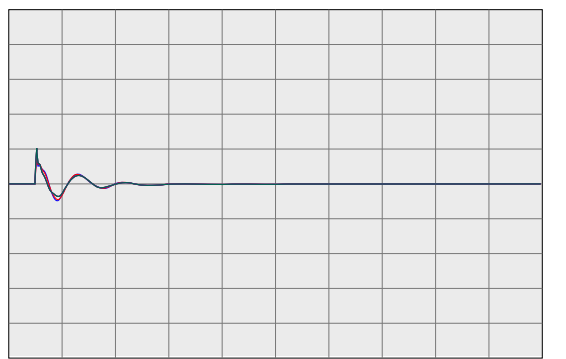
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

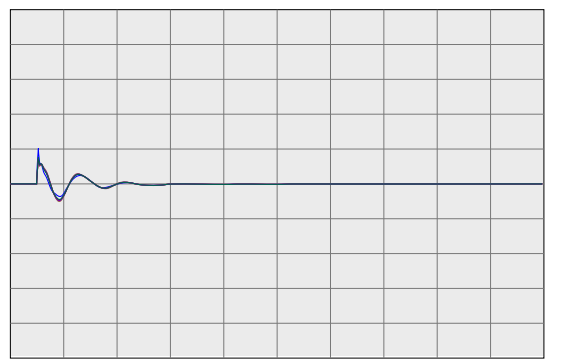
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

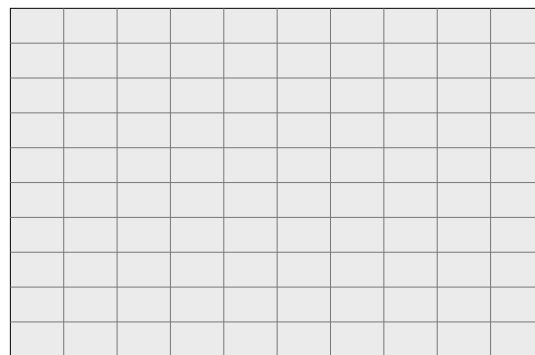
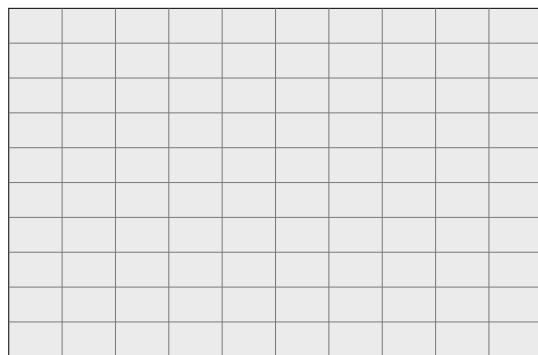
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

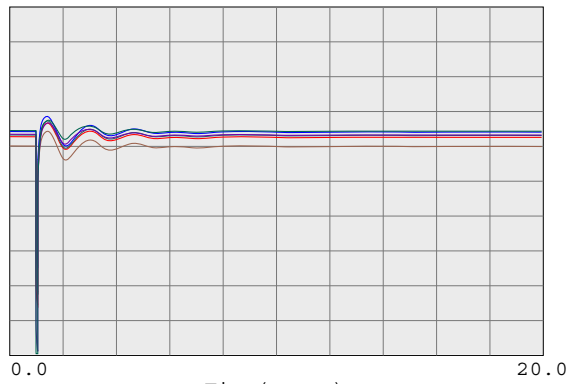
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

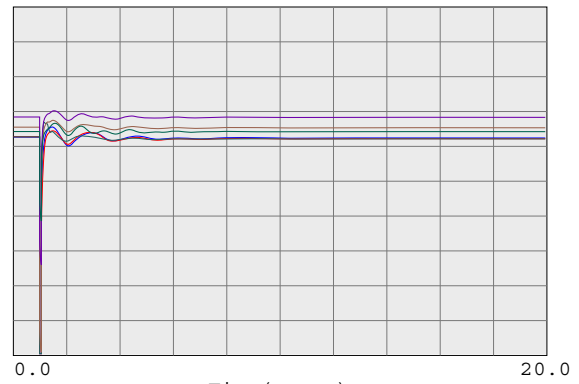
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

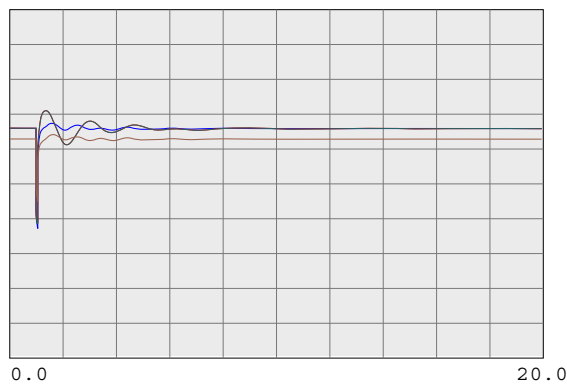
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



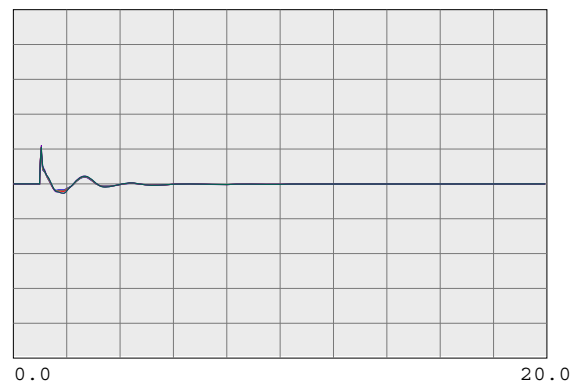
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



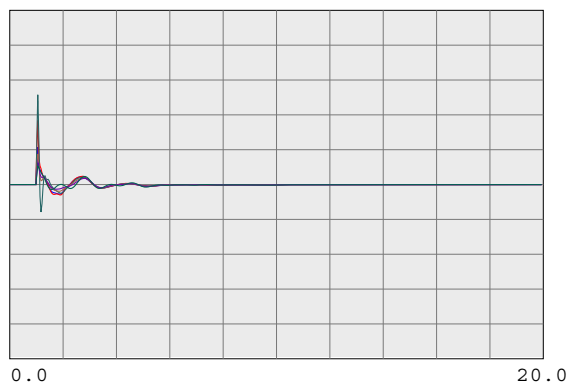
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



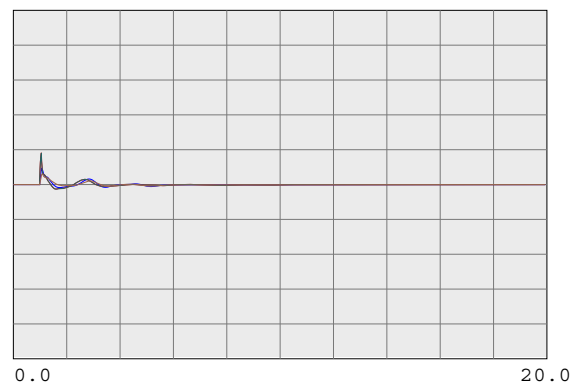
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	30042	METCALF 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	30045	MOSSLAND 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	30050	LOSBANOS 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	30055	GATES 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	30057	DIABLO 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	45035	CAPTJACK 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	40687	MALIN 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1 <td>60.6000</td> </td></td></td>	24156	VINCENT 500.0	0	0.0 <td>1 <td>1 <td>60.6000</td> </td></td>	1 <td>1 <td>60.6000</td> </td>	1 <td>60.6000</td>	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

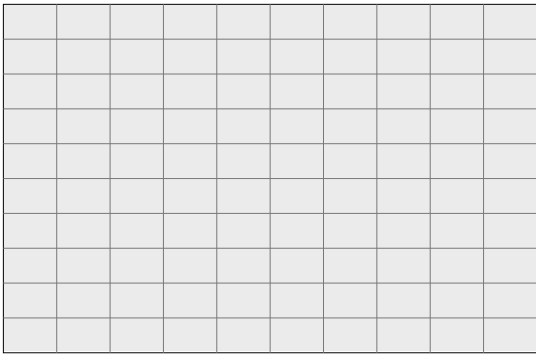
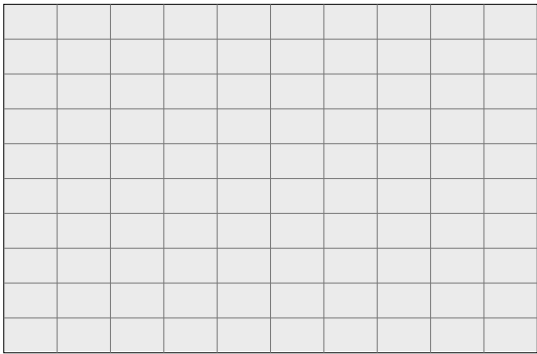
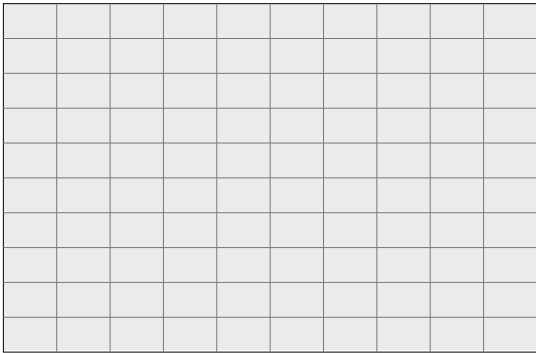
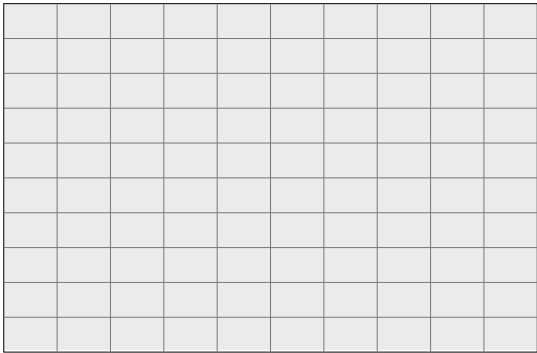
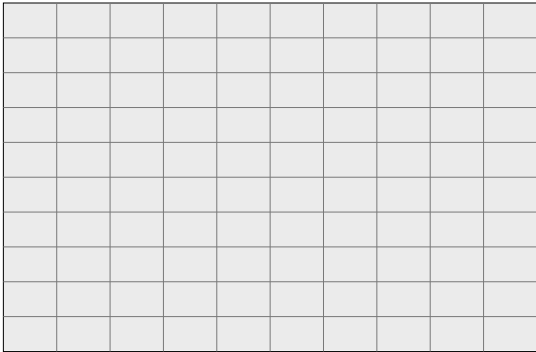
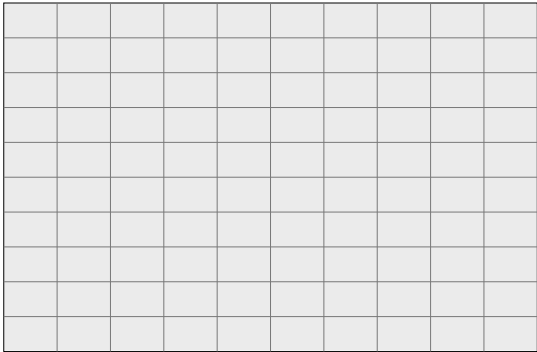
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

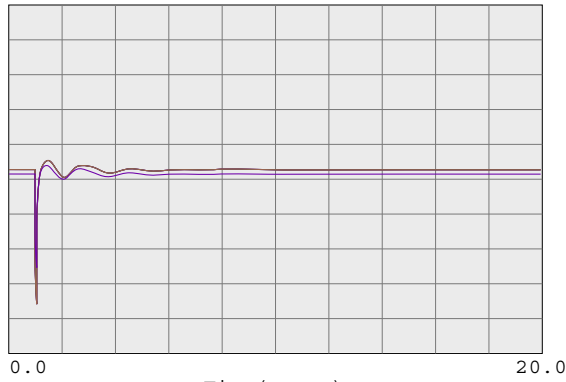
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

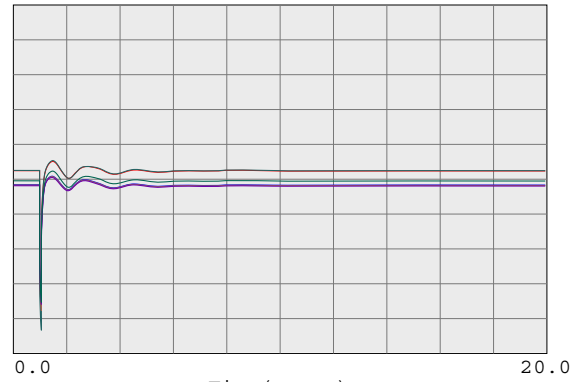


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

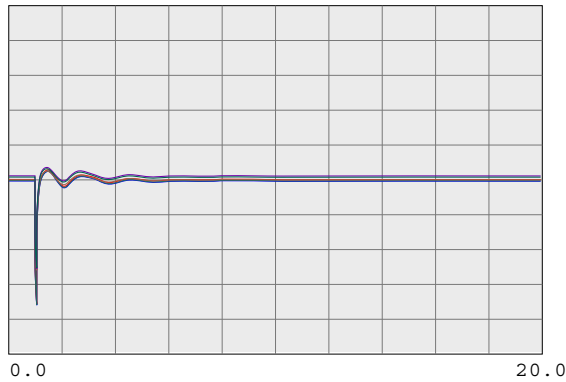
230-KV SYSTEM VOLTAGES



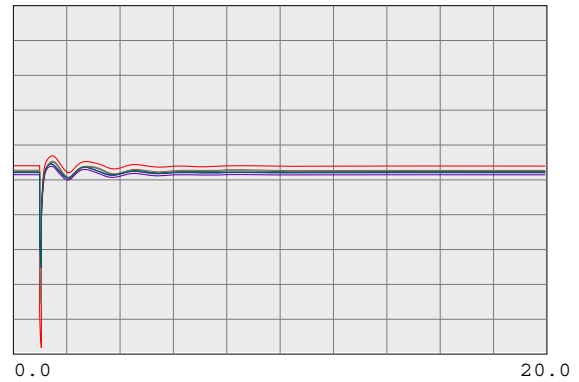
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



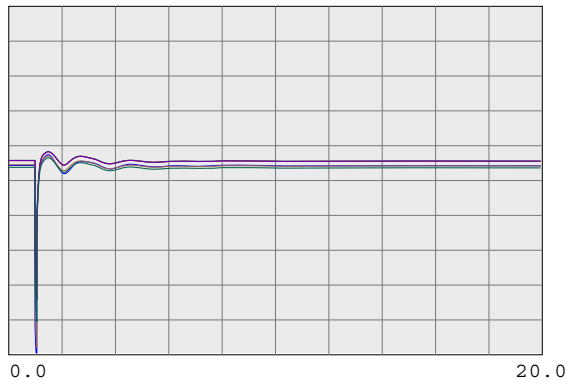
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONSTREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



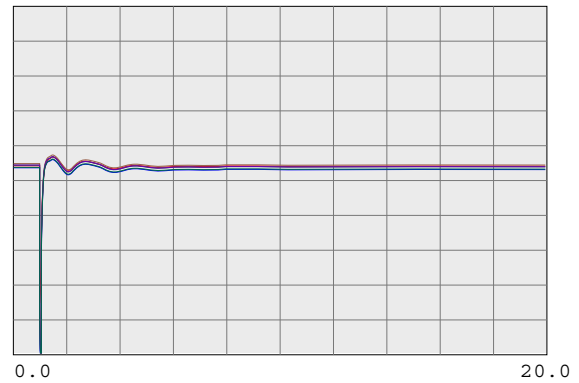
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

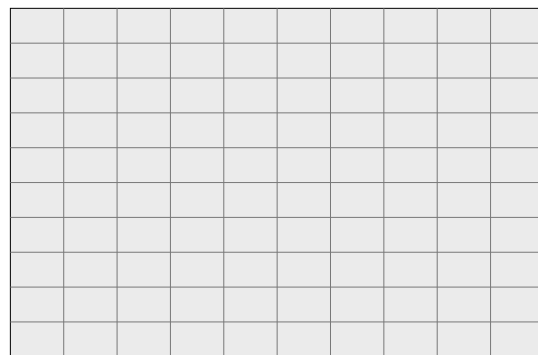
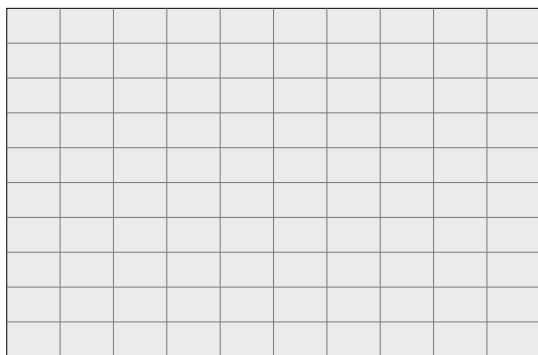
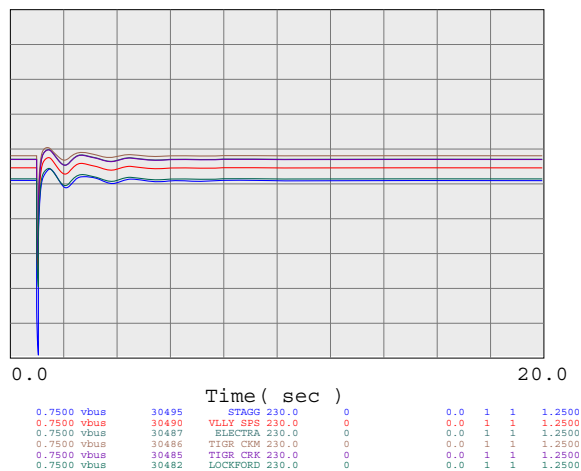
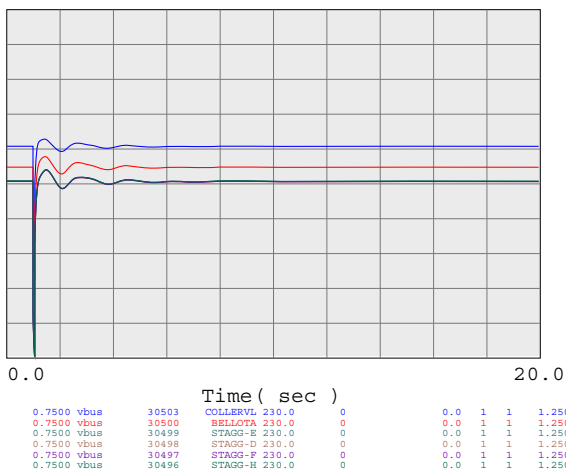
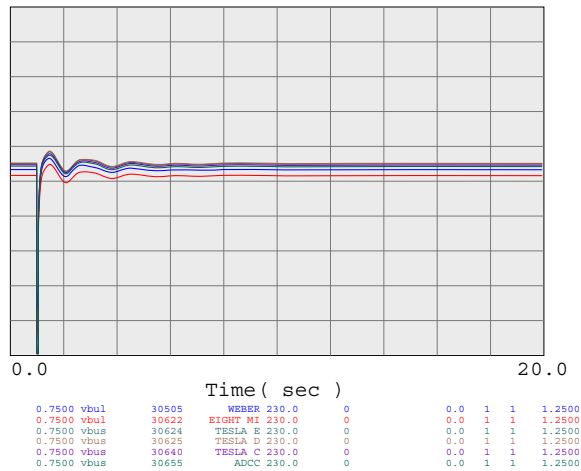
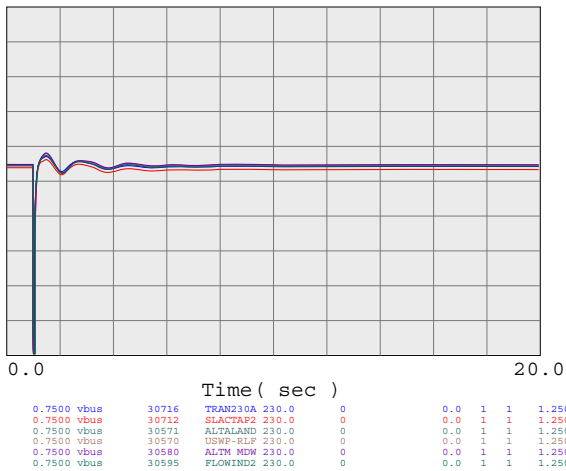
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

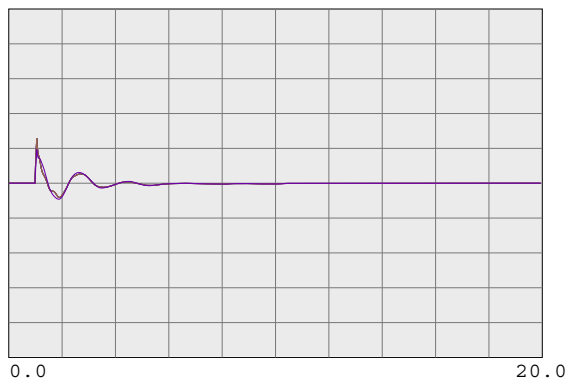
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



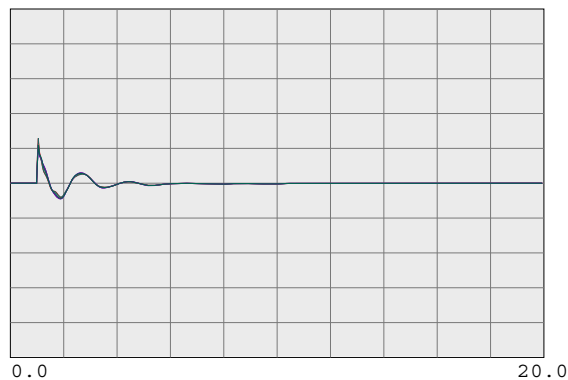
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

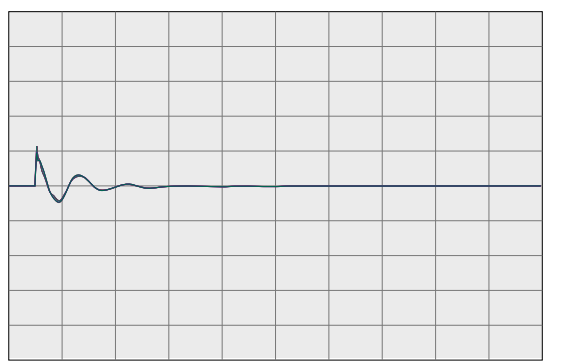
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

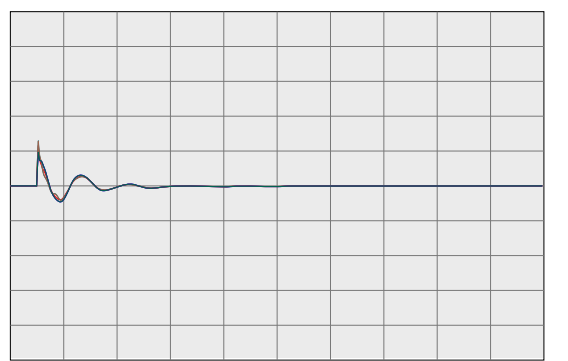
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

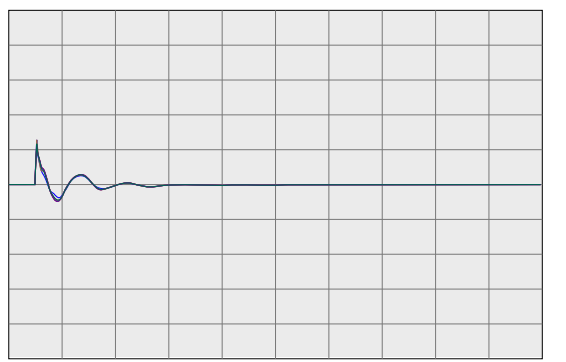
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

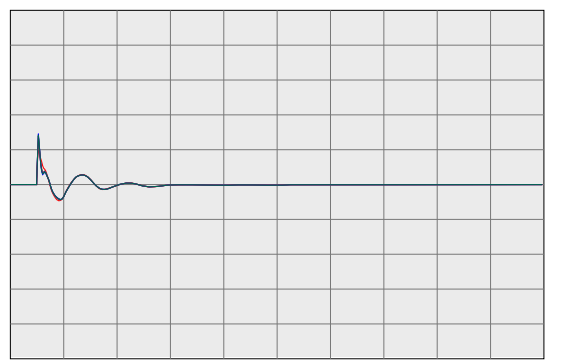
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

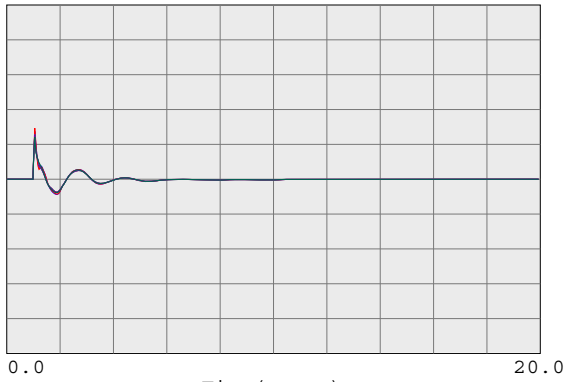
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

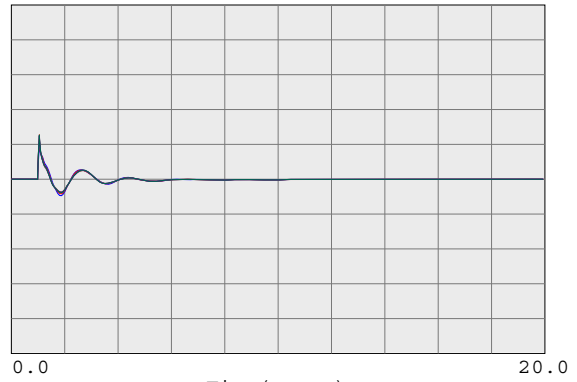
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



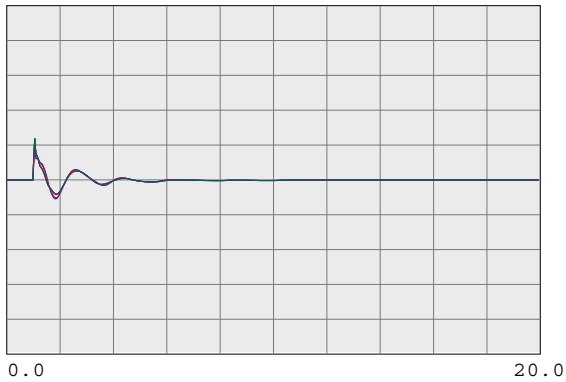
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



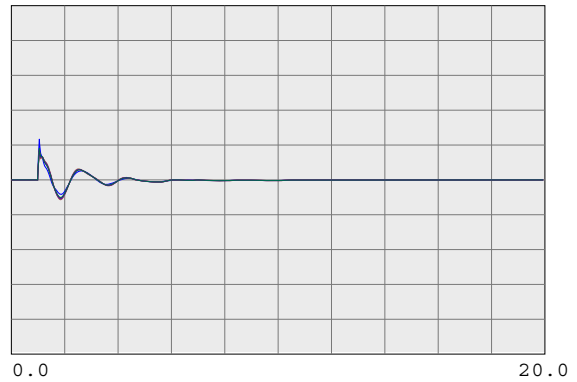
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



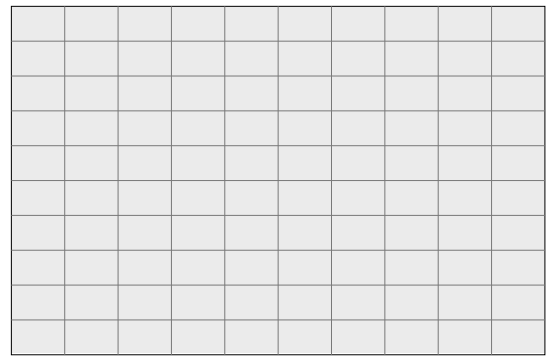
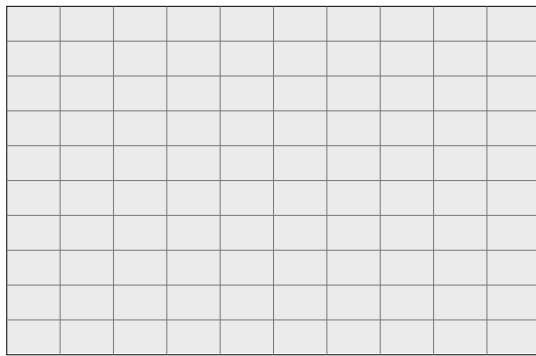
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000

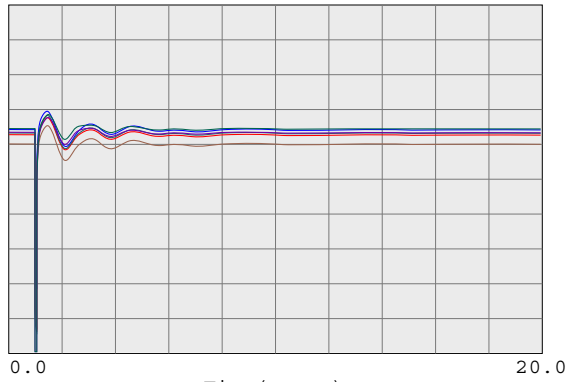


Time(sec)

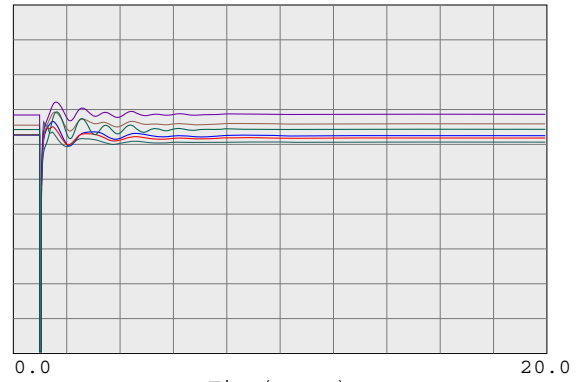
59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



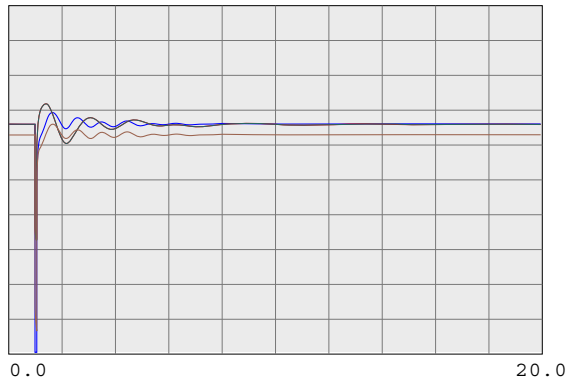
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



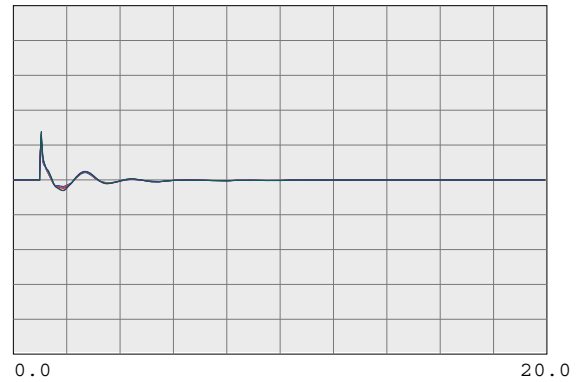
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



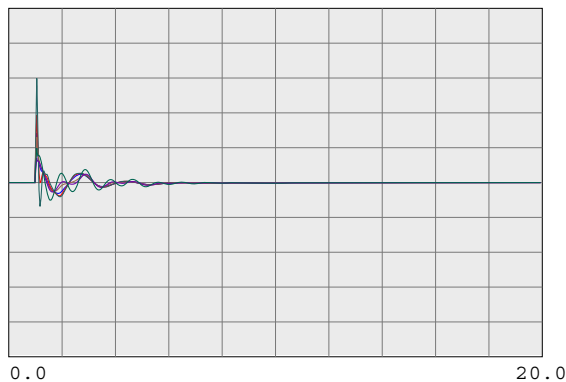
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



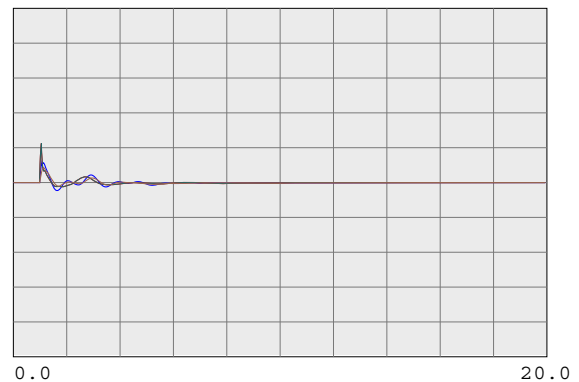
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOSBANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

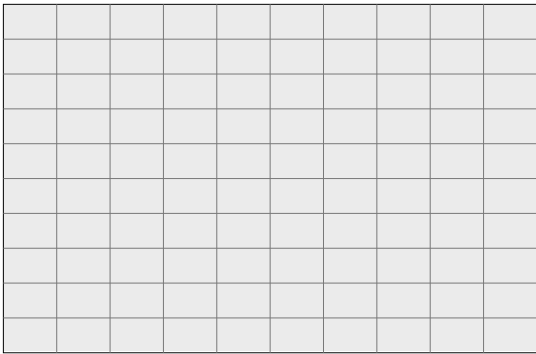
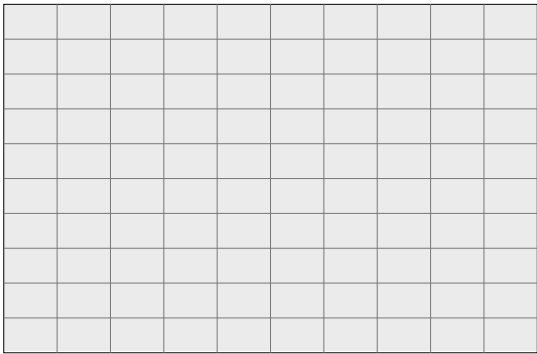
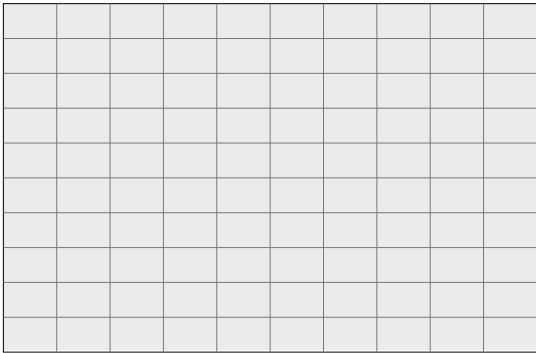
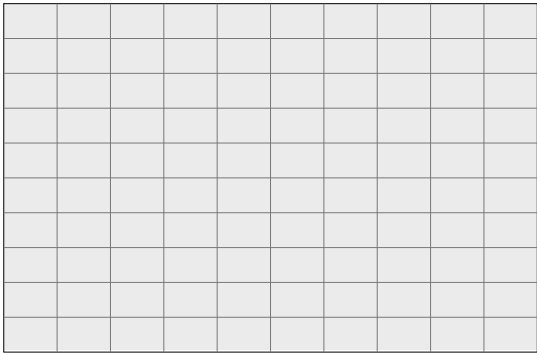
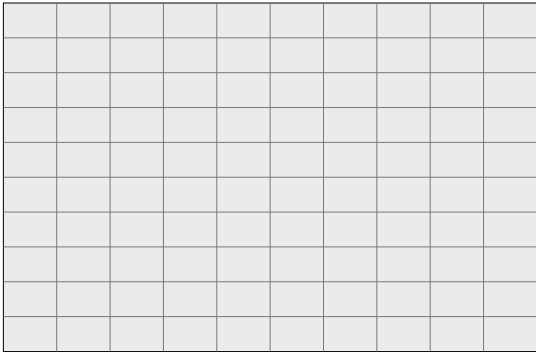
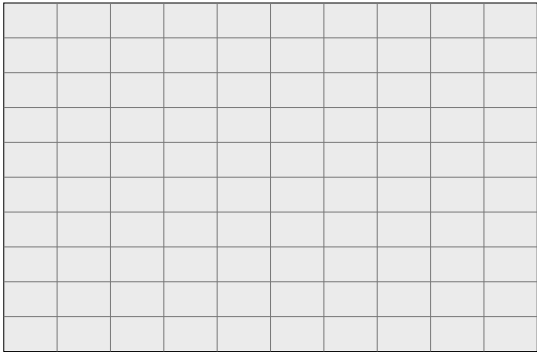
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

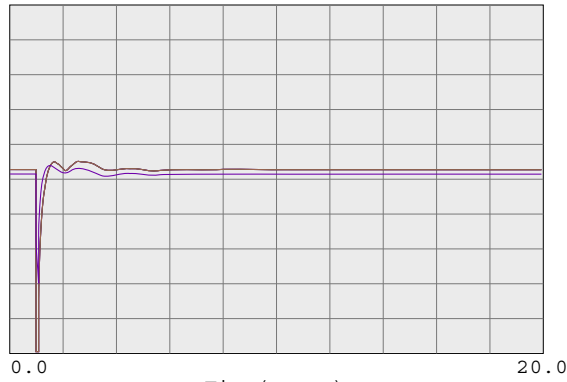
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



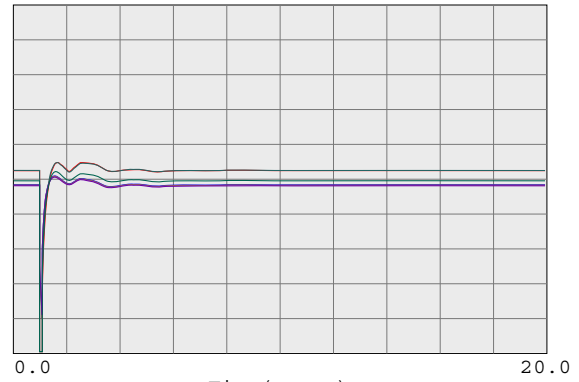
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



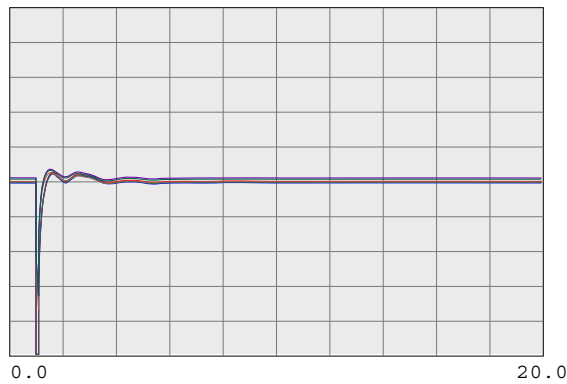
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



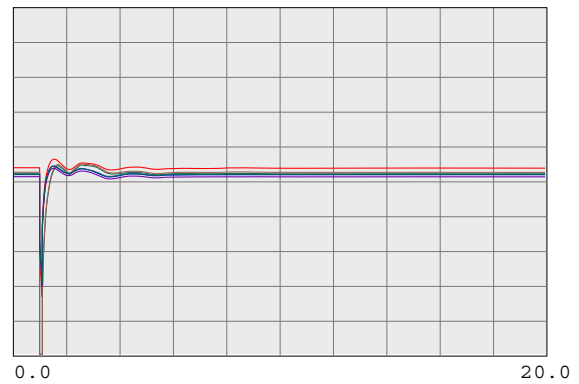
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



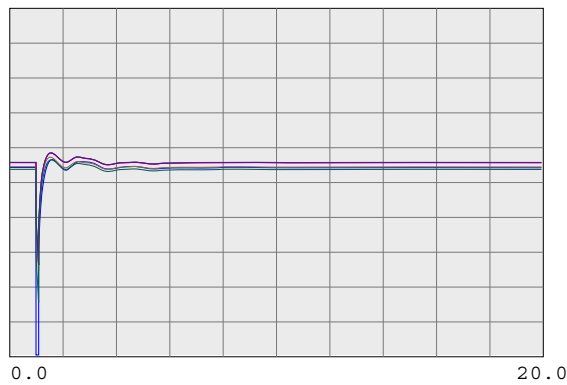
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



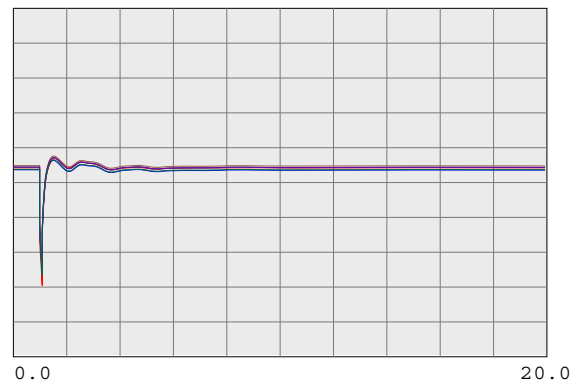
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

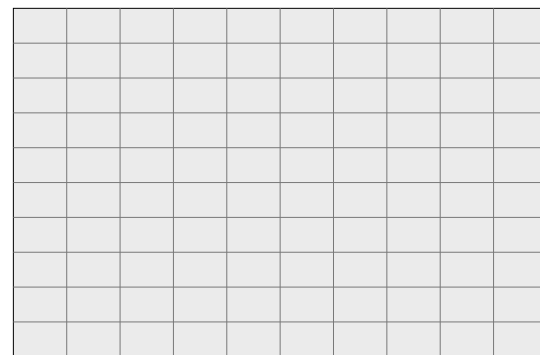
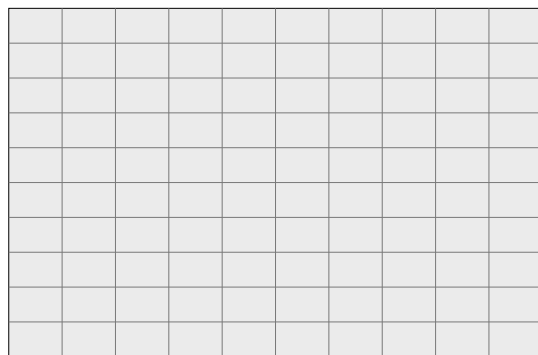
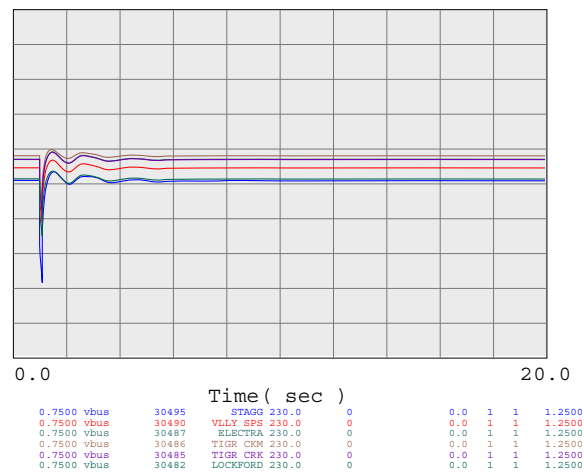
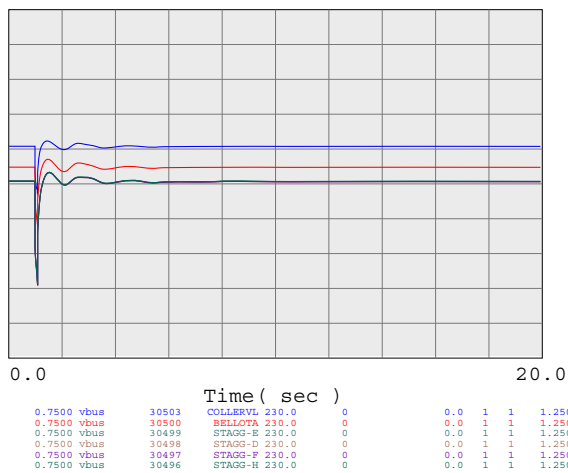
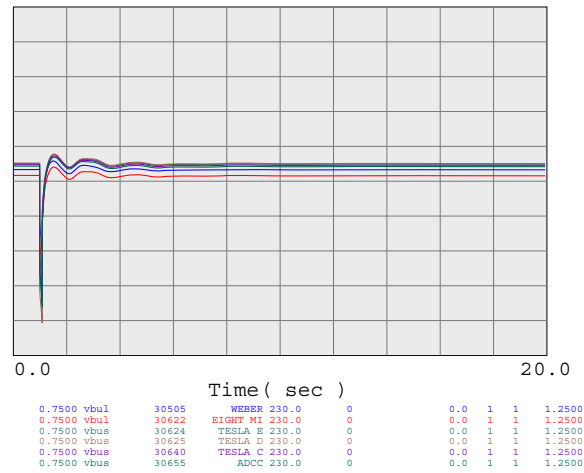
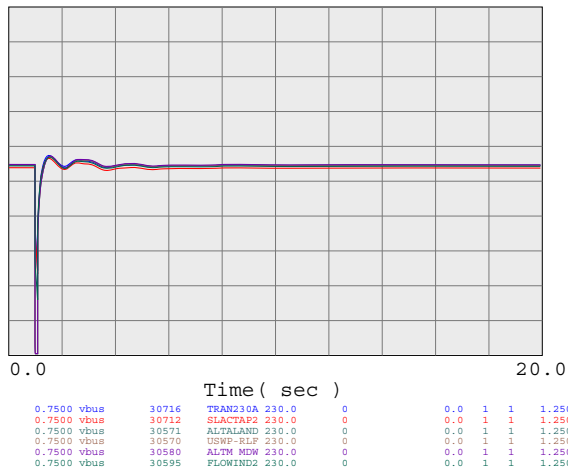
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

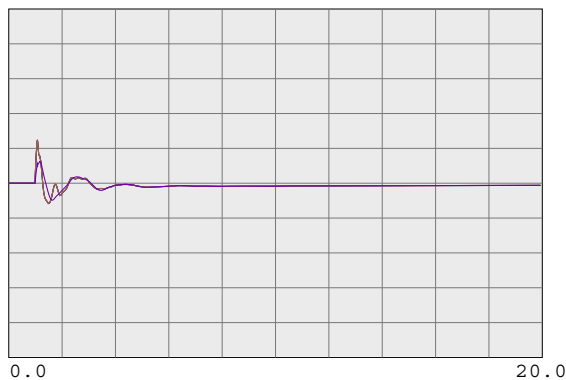
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



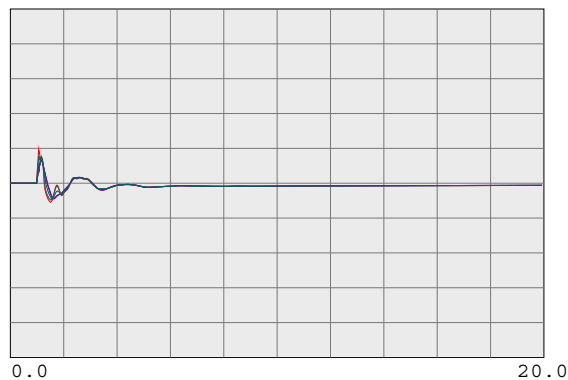
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

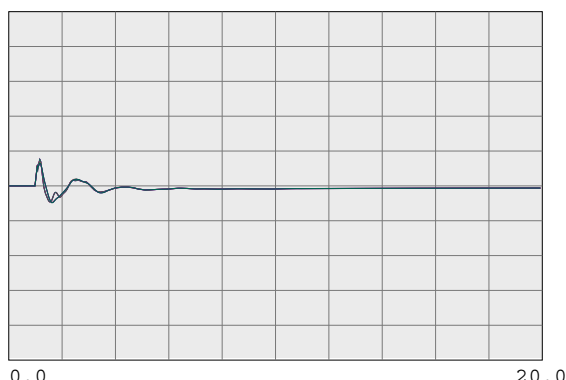
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

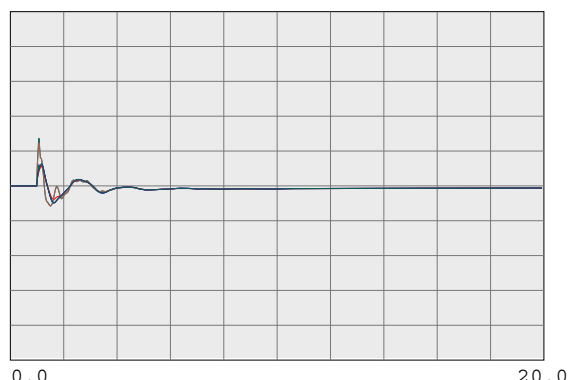
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

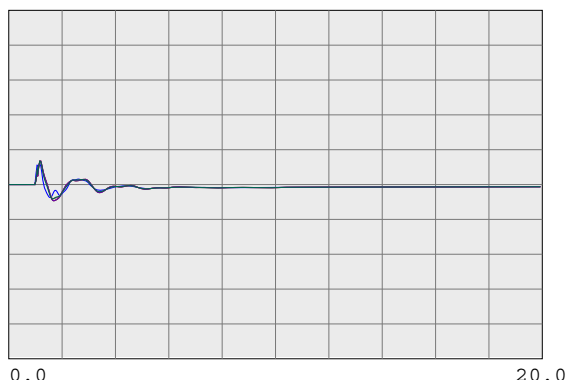
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

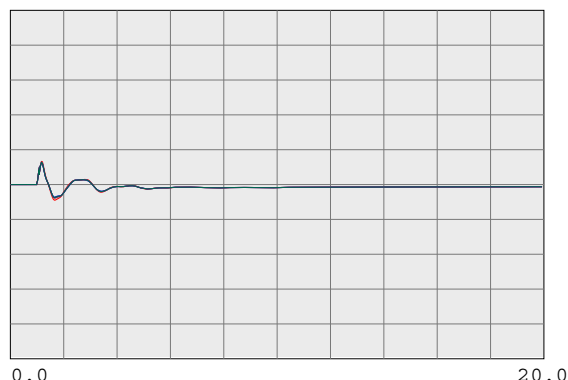
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

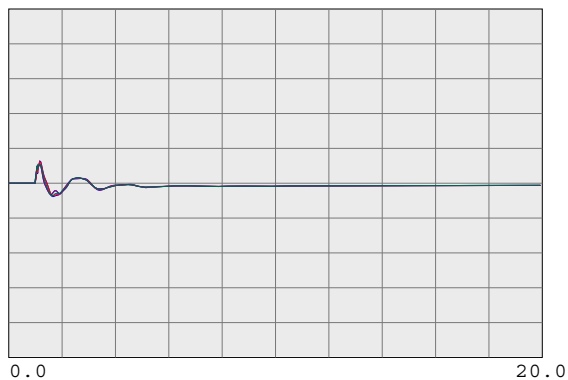
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

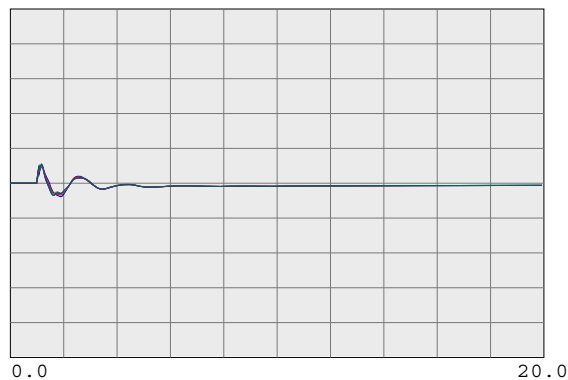
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

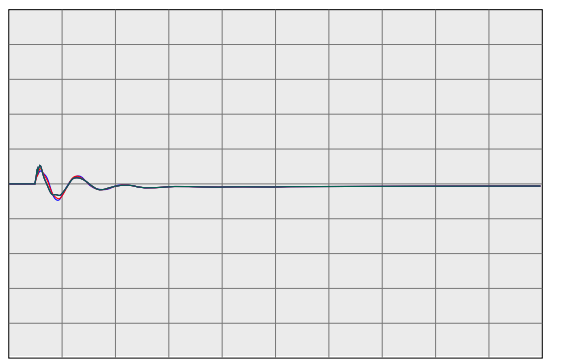
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

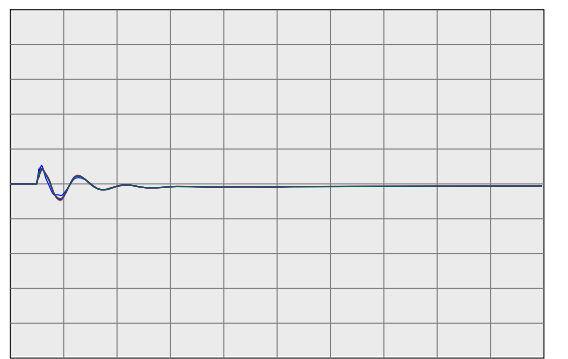
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

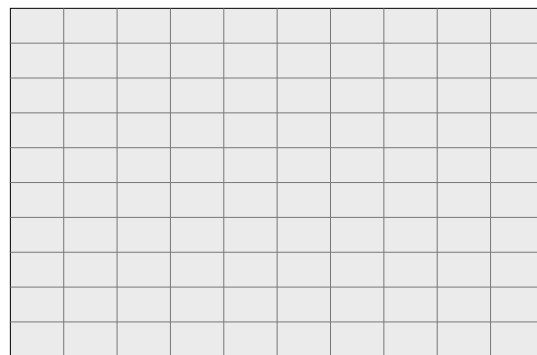
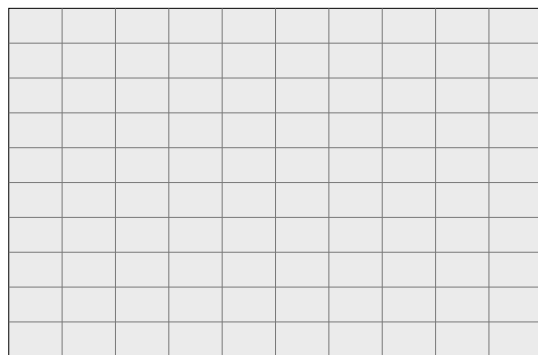
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

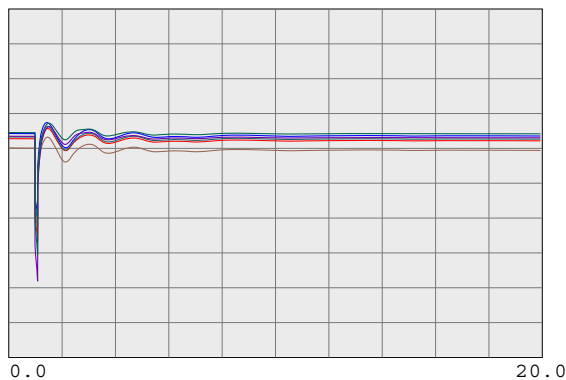
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

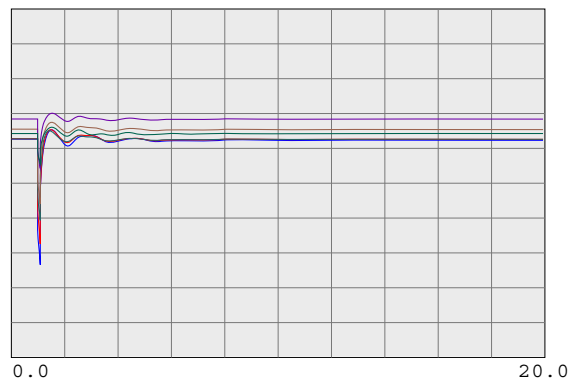
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



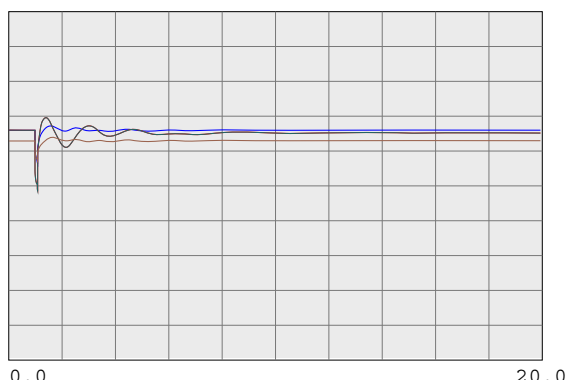
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



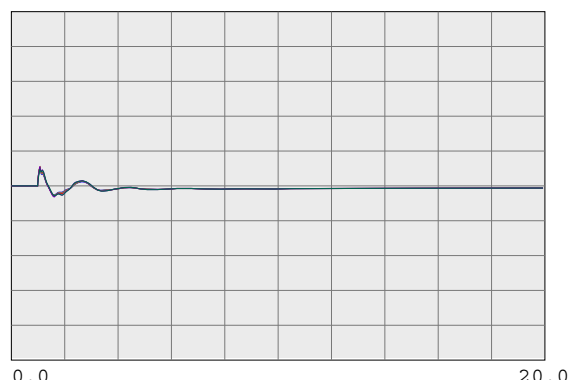
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



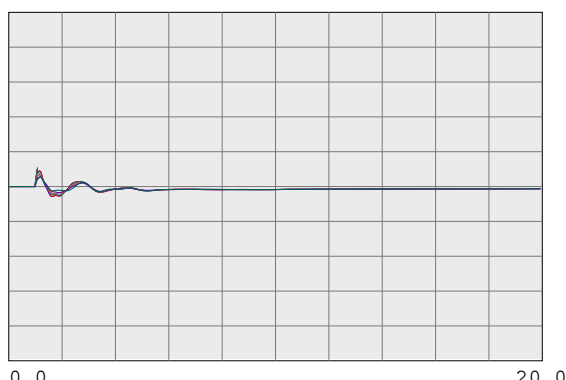
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



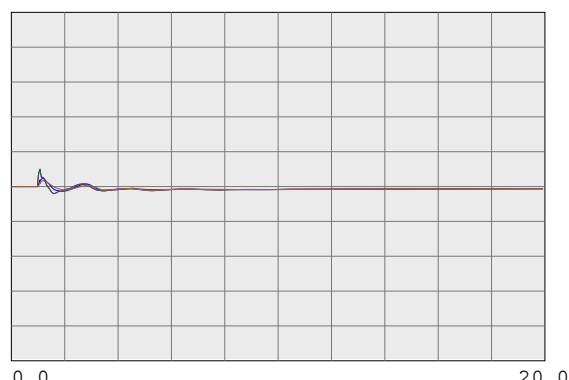
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

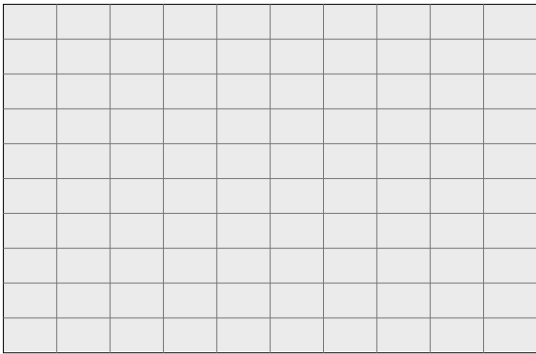
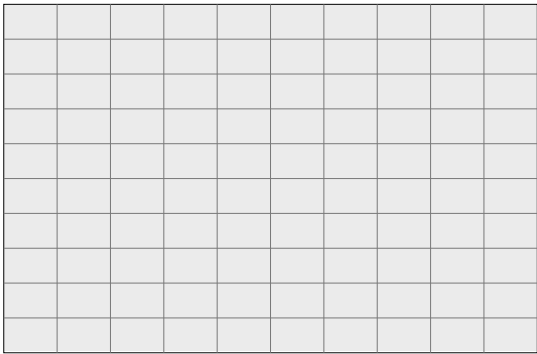
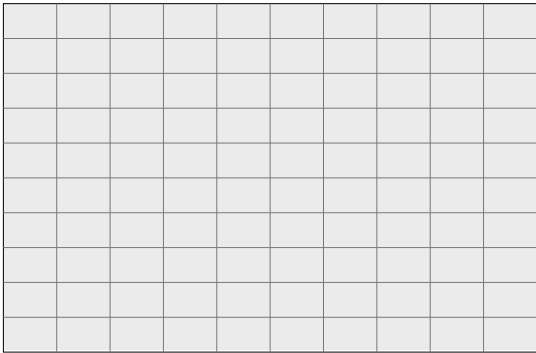
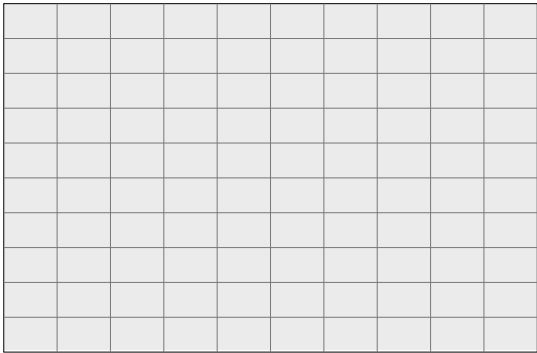
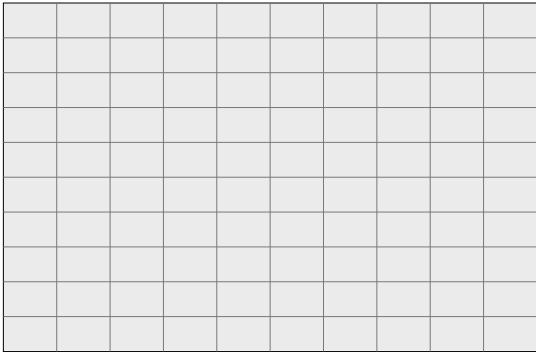
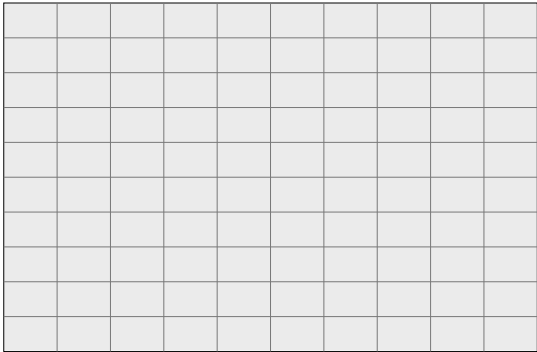
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

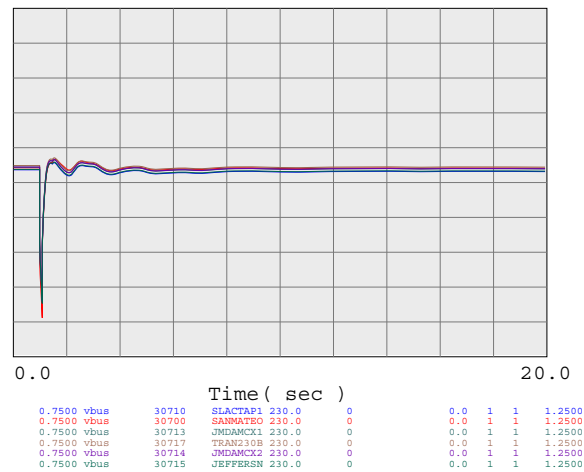
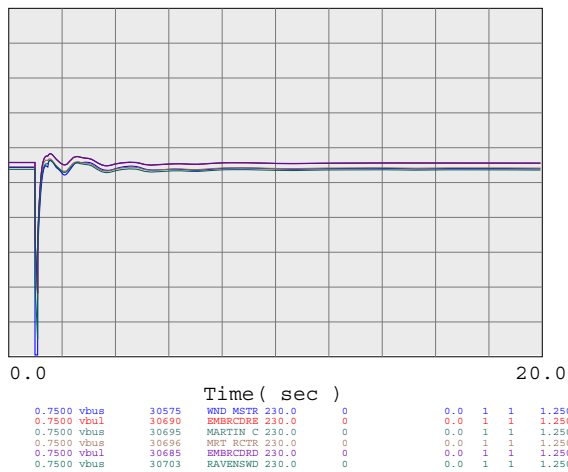
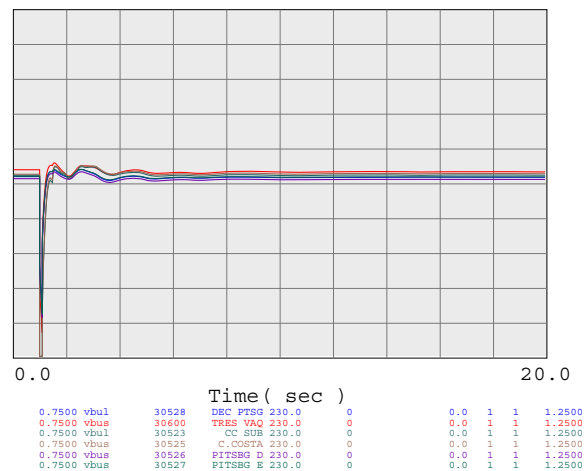
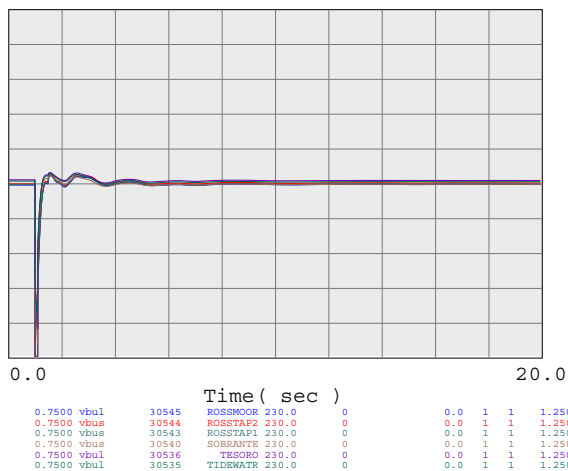
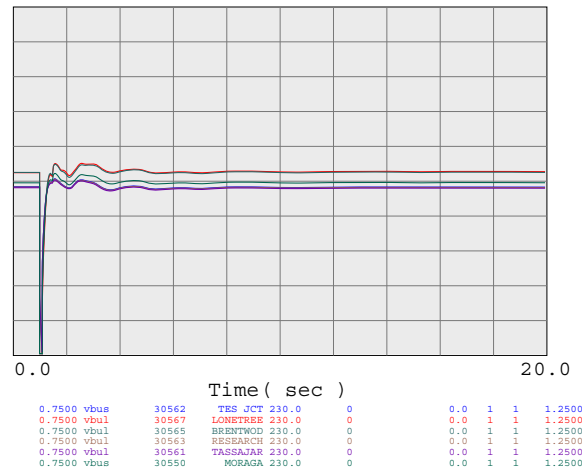
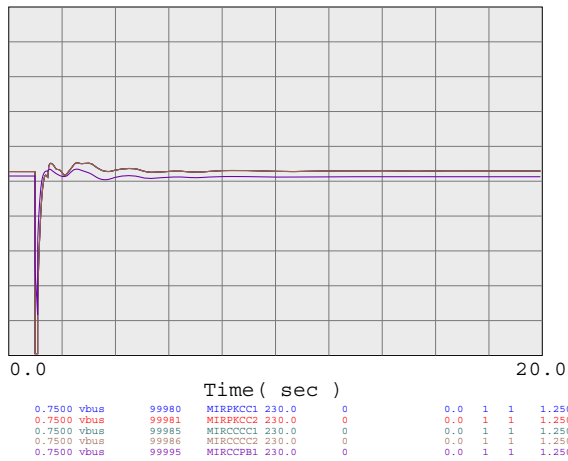
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



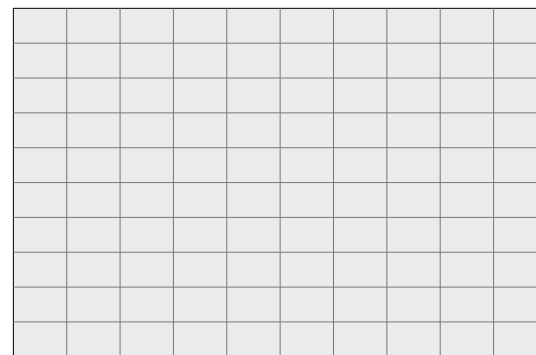
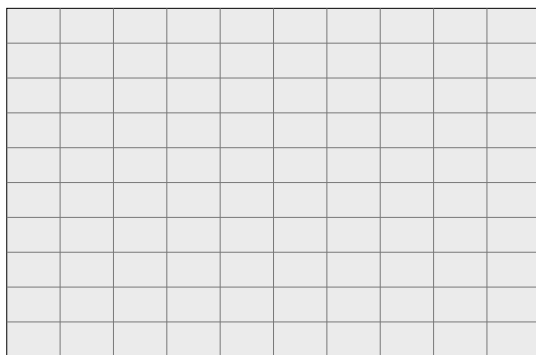
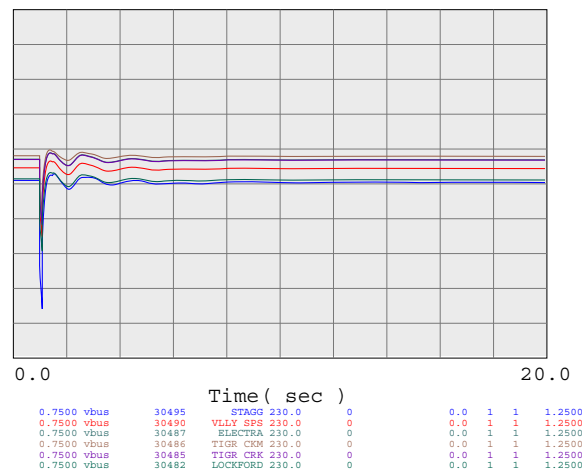
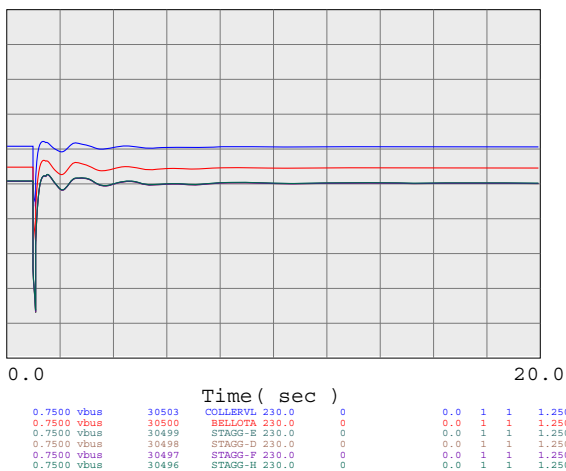
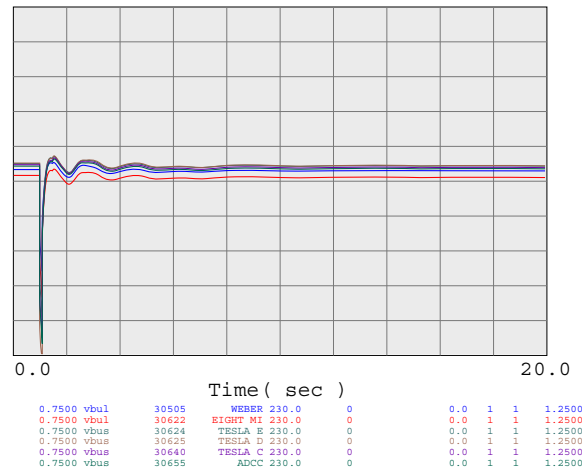
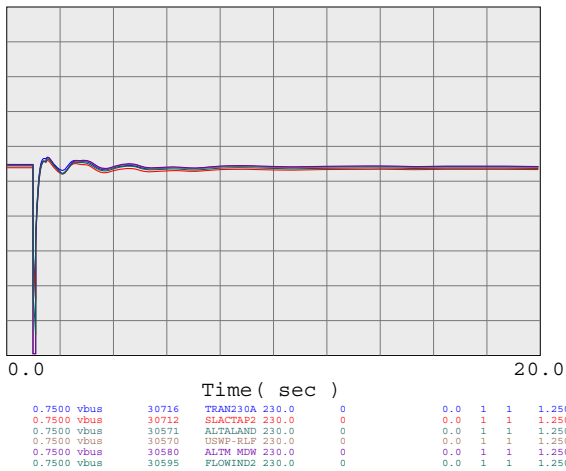
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

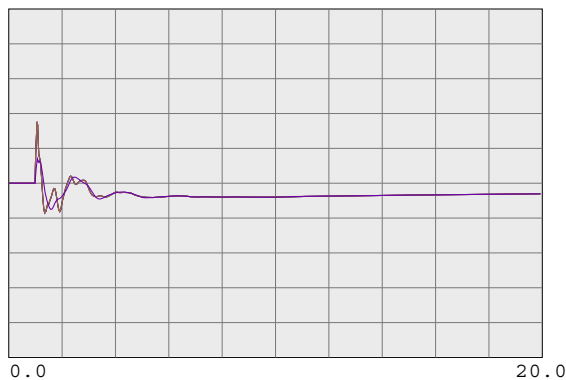


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



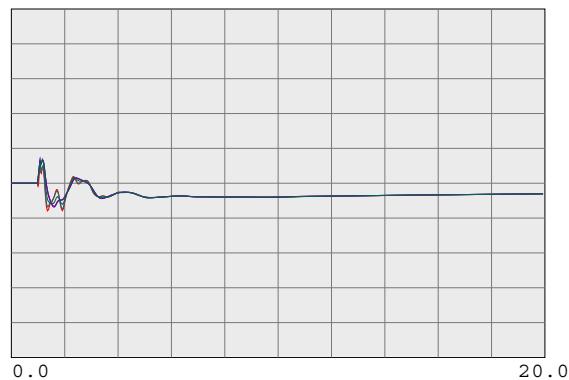
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

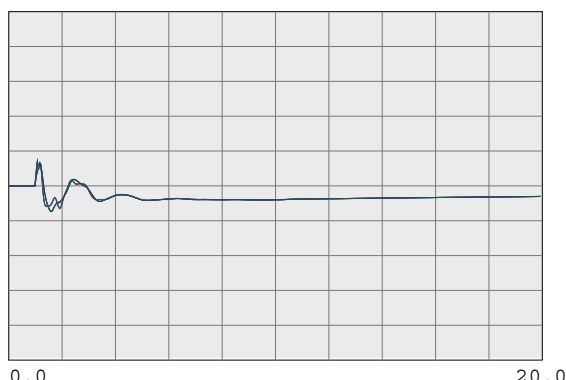
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

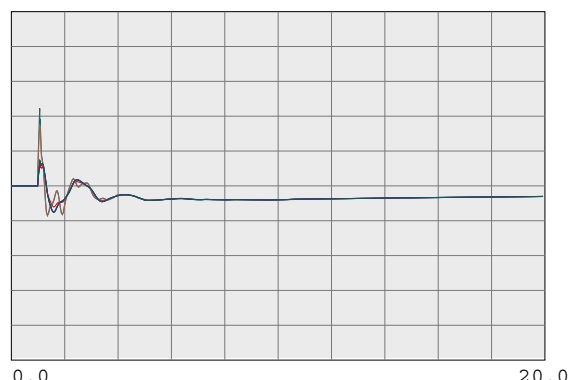
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

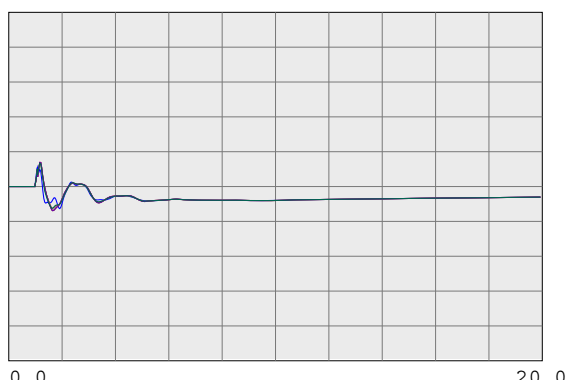
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

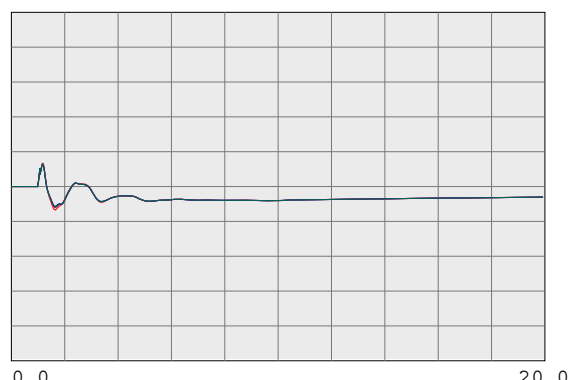
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

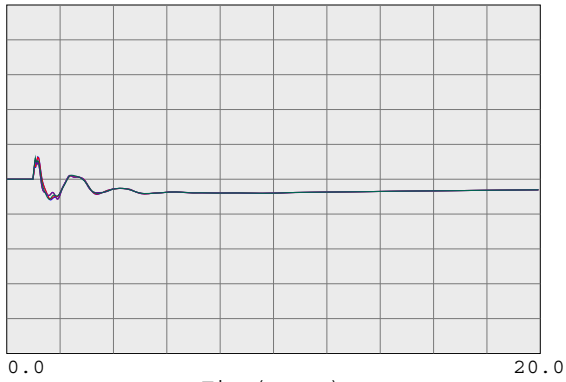
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

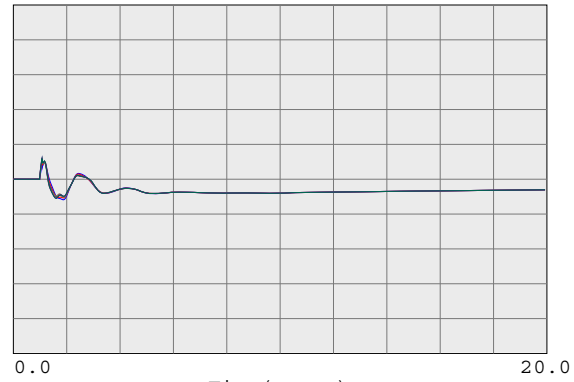
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

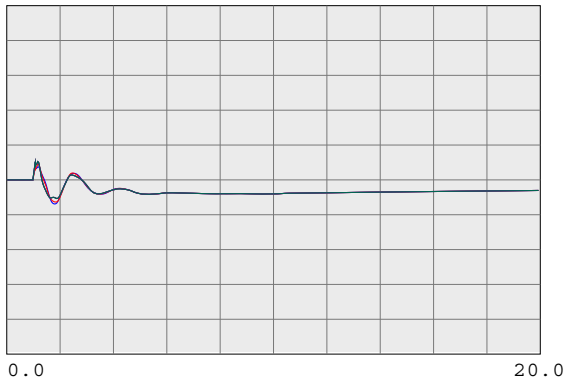
230-KV SYSTEM FREQUENCIES



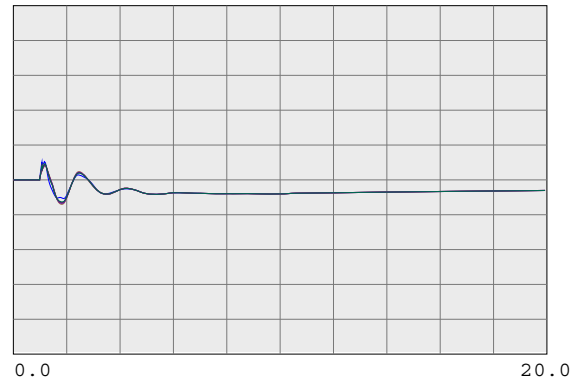
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



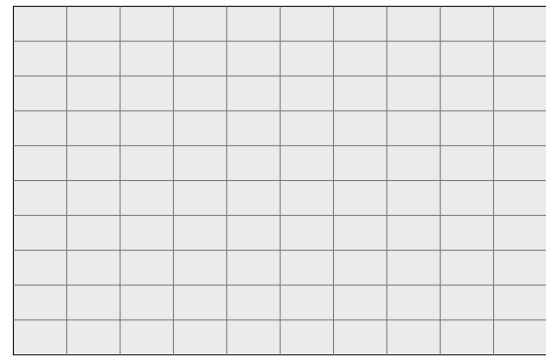
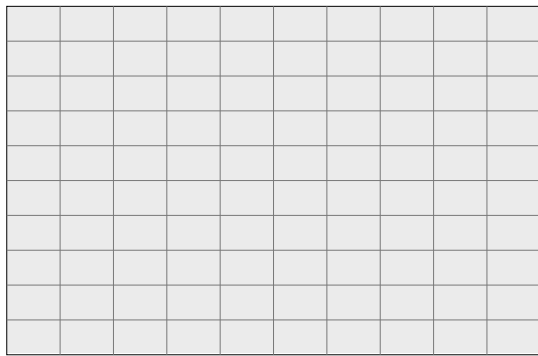
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



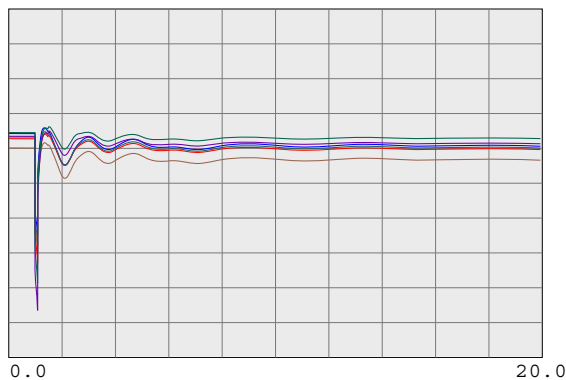
Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

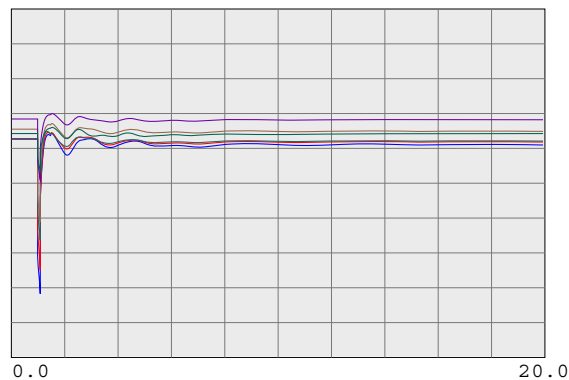


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



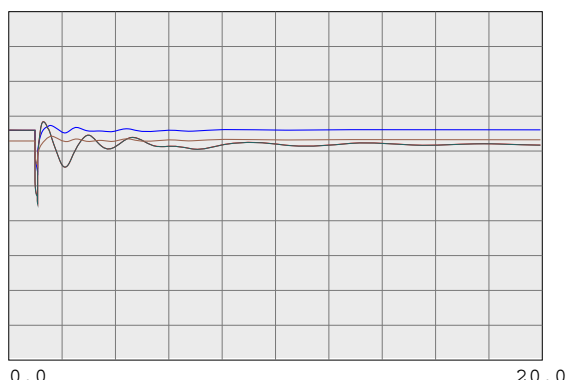
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



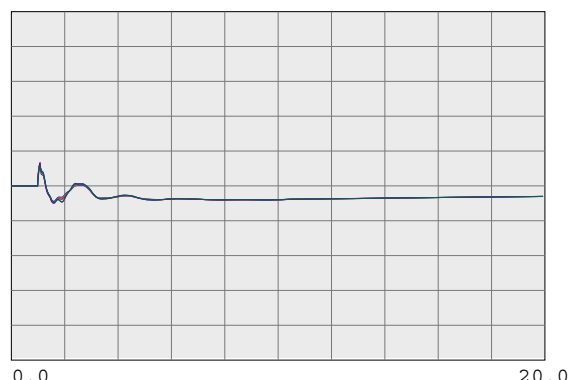
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



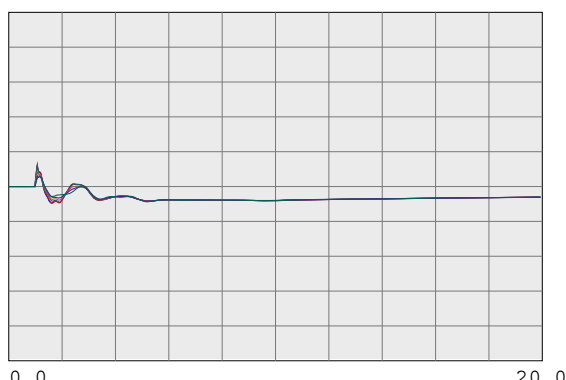
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



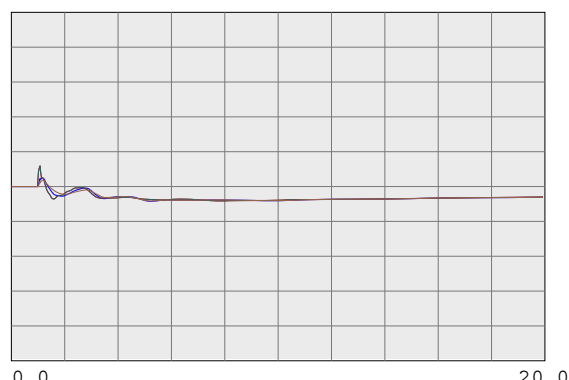
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

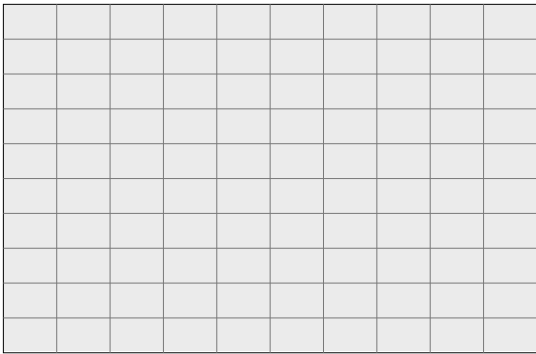
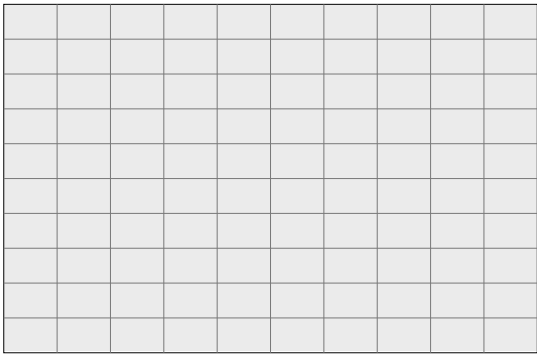
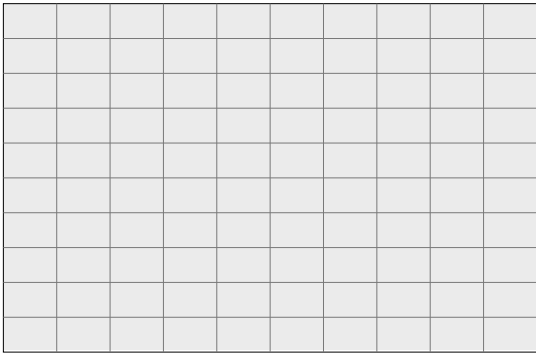
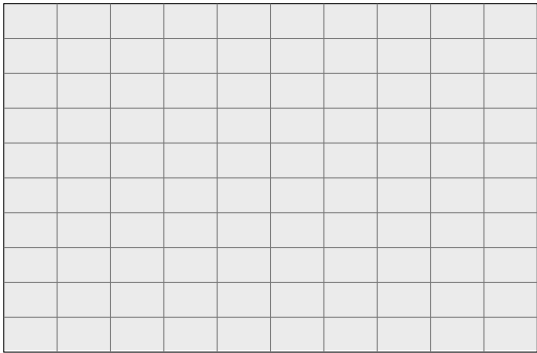
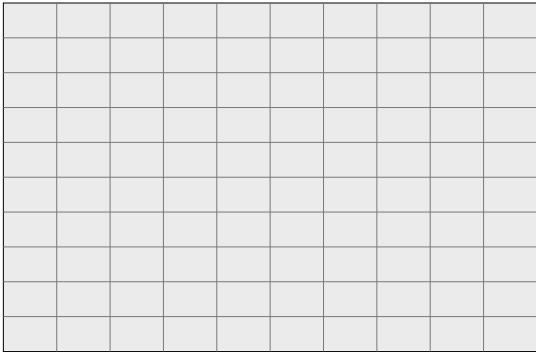
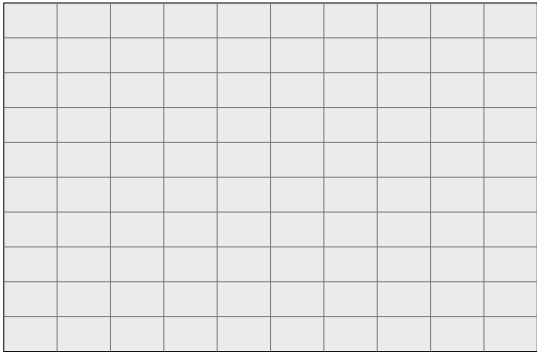
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

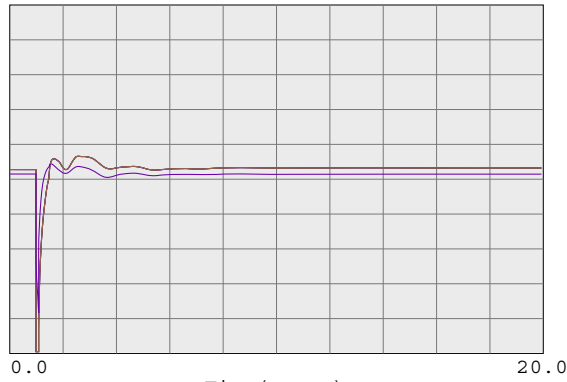
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

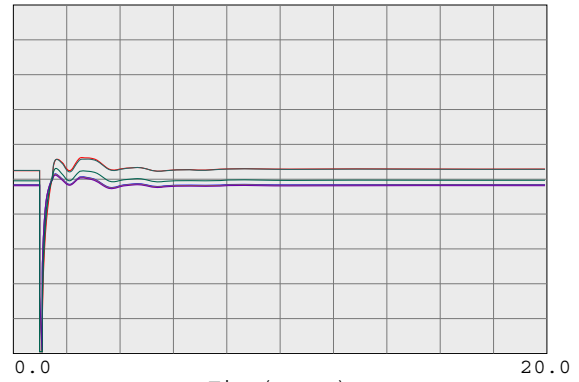


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

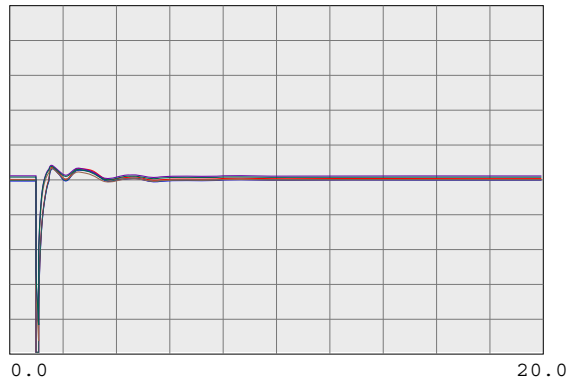
230-KV SYSTEM VOLTAGES



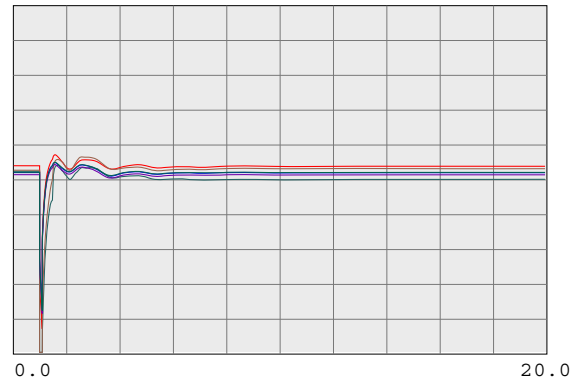
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



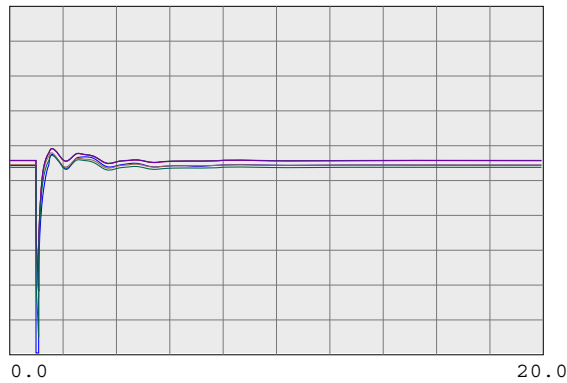
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30567 <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30567 <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30565 <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30565 <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30563 <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30563 <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30561 <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30561 <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30550 <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30550 <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	MORAGA 230.0	0	0.0	1	1	1.2500



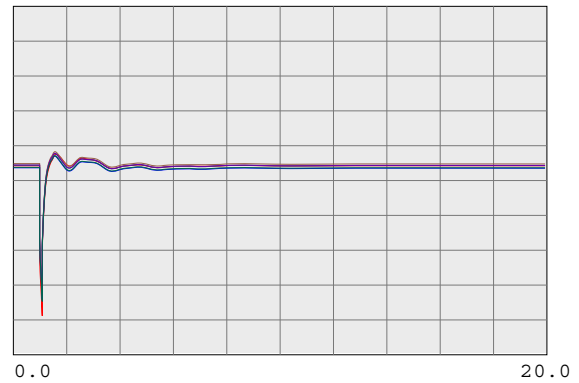
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30544 <th>ROSSAPF1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30544 <th>ROSSAPF1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSAPF1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30543 <th>ROSSAPF2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30543 <th>ROSSAPF2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSAPF2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30525 <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30525 <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

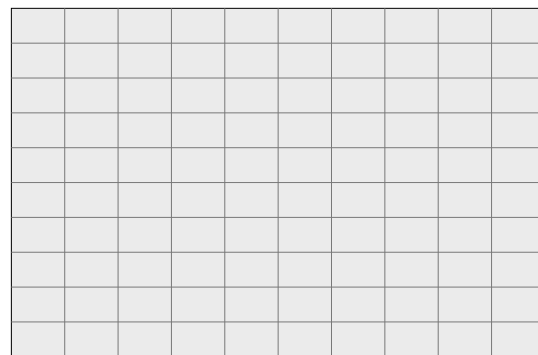
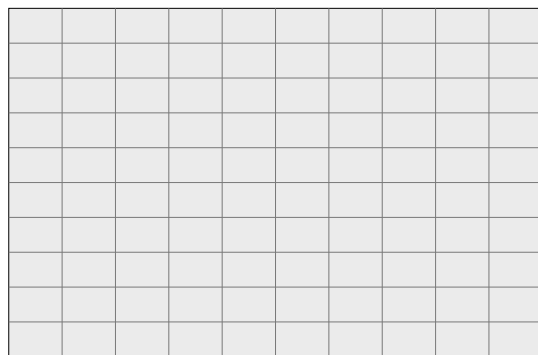
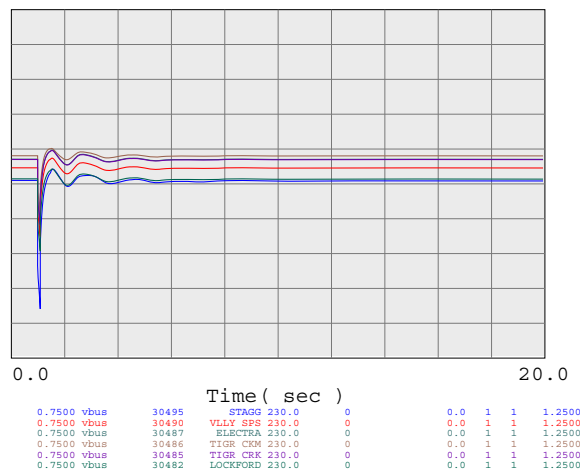
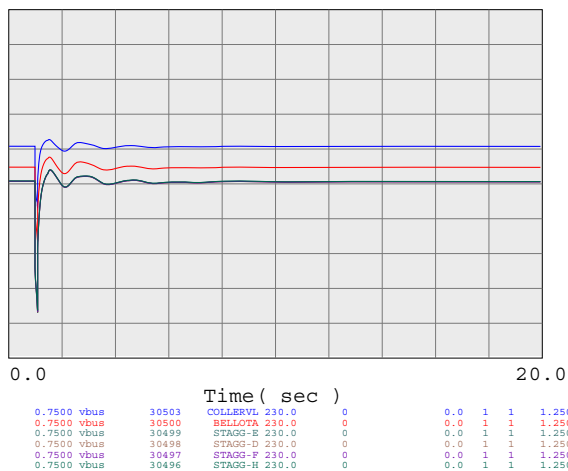
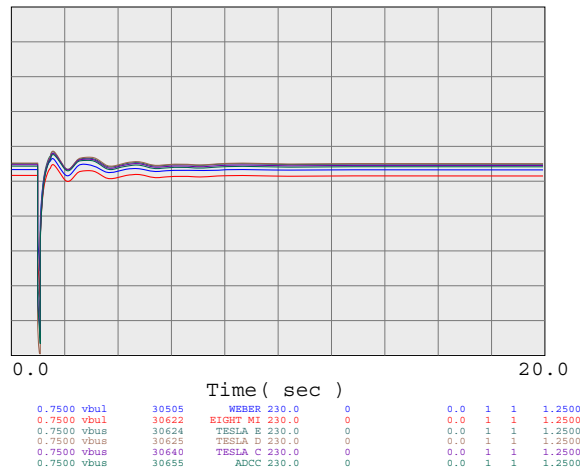
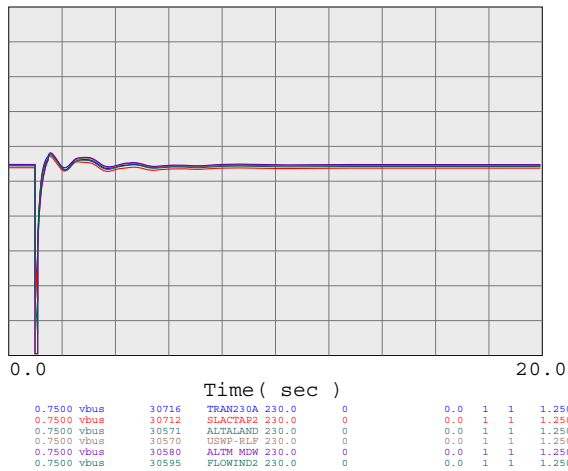
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

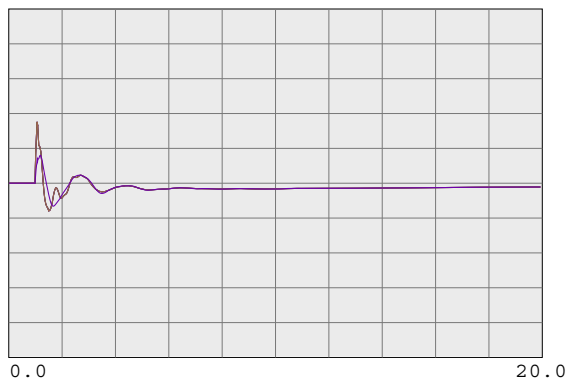
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



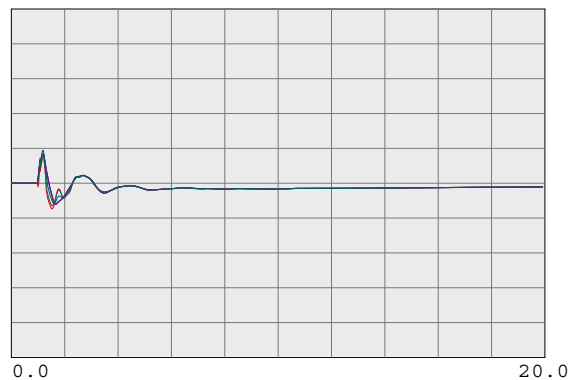
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

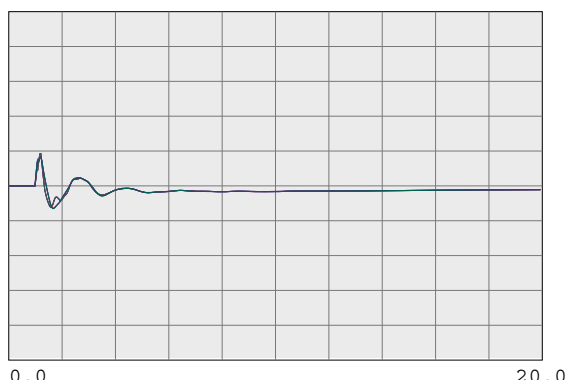
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

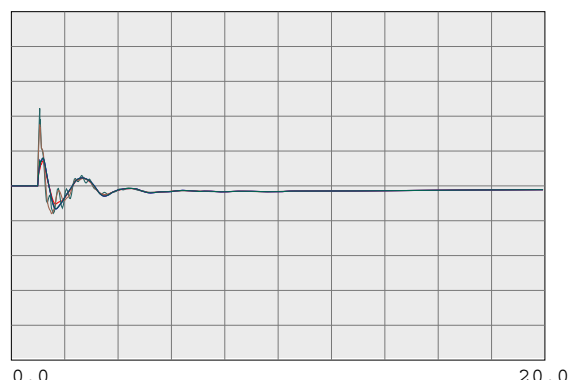
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

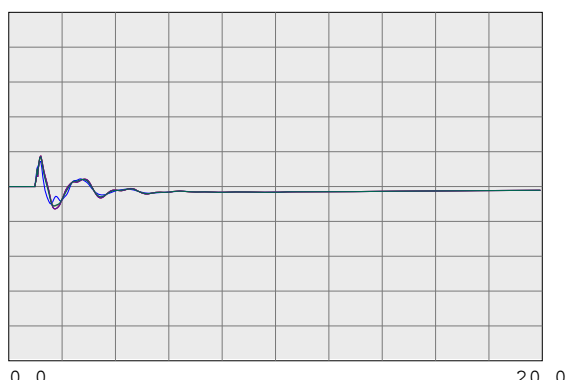
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

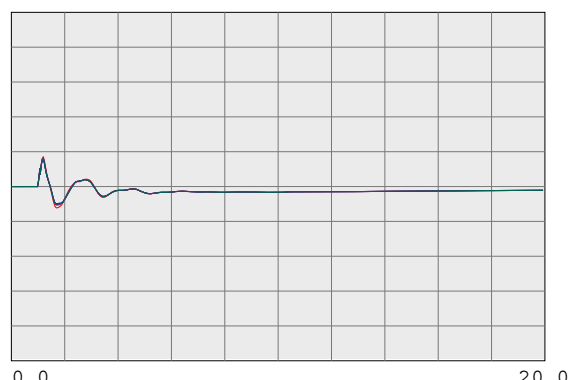
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

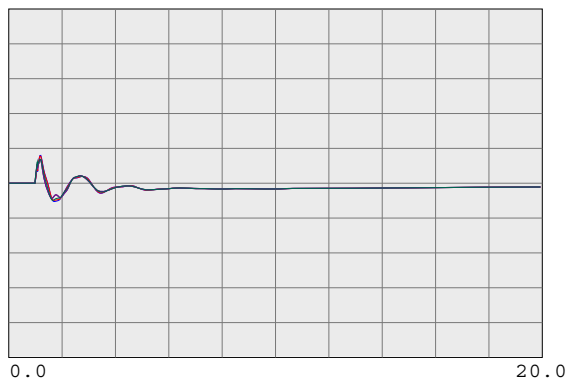
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

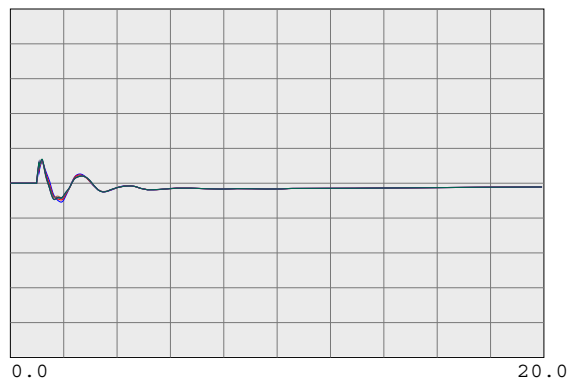
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

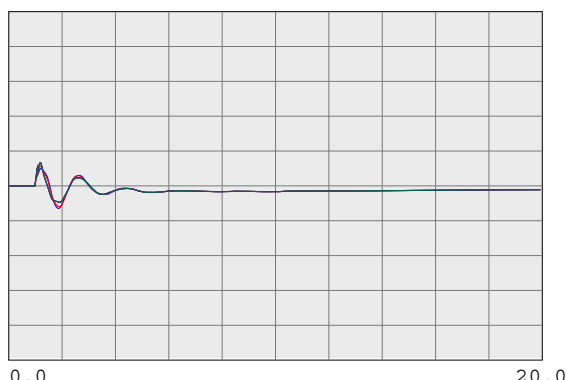
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

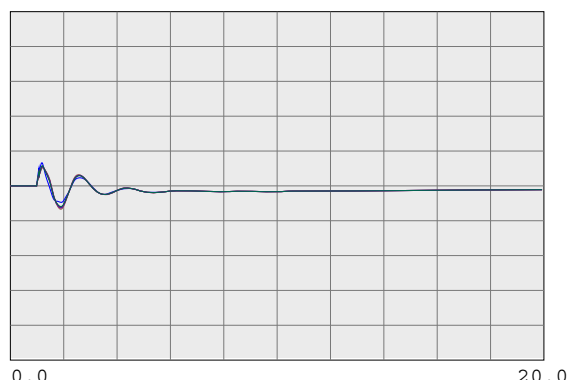
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

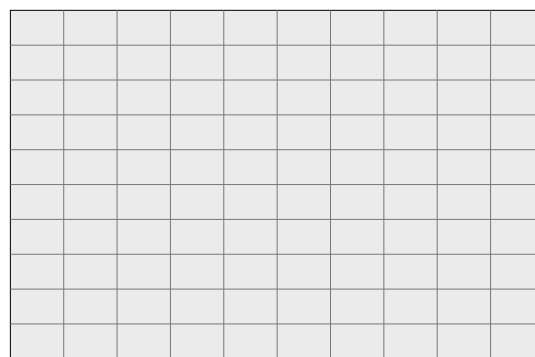
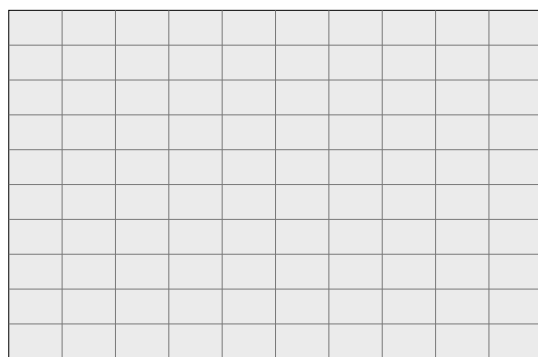
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

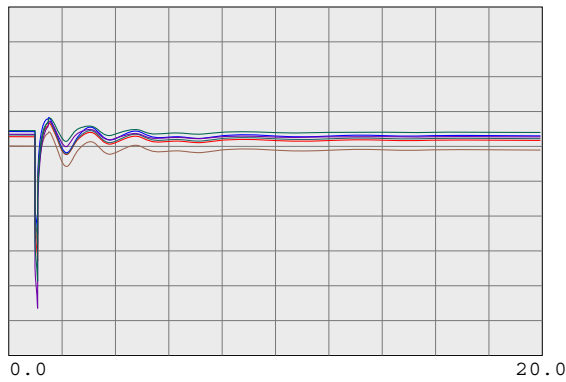
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

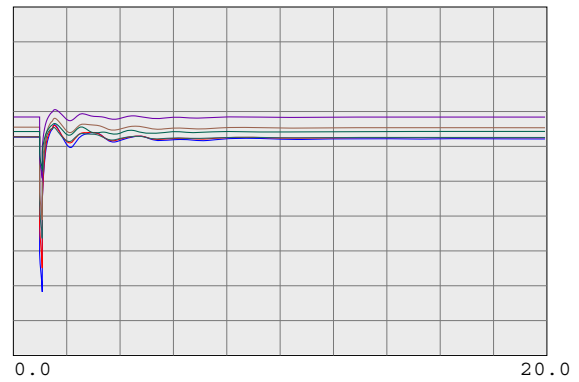
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



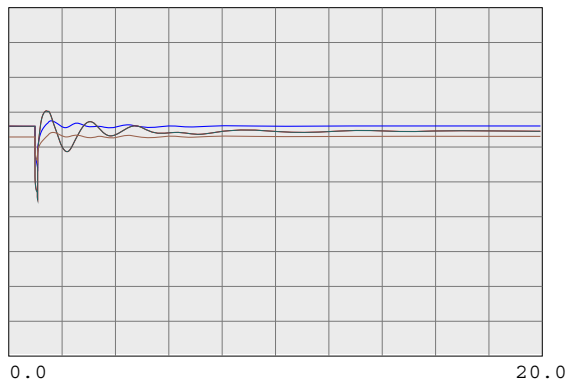
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



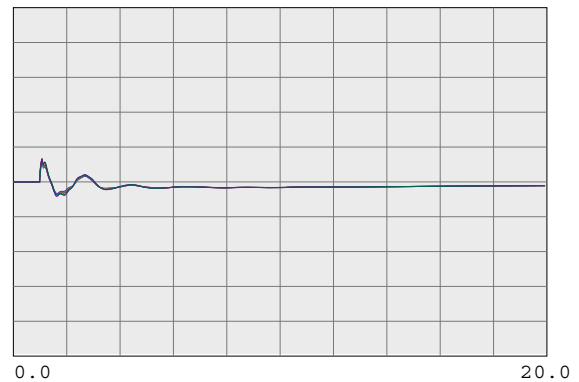
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



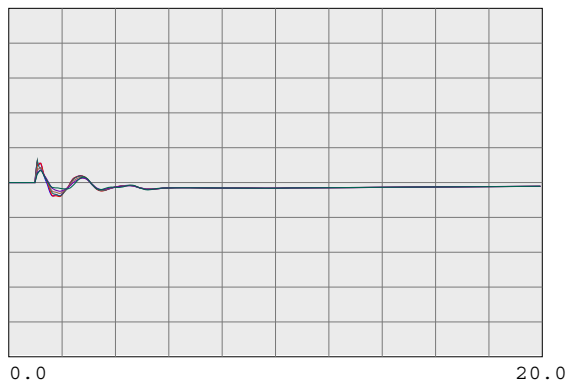
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



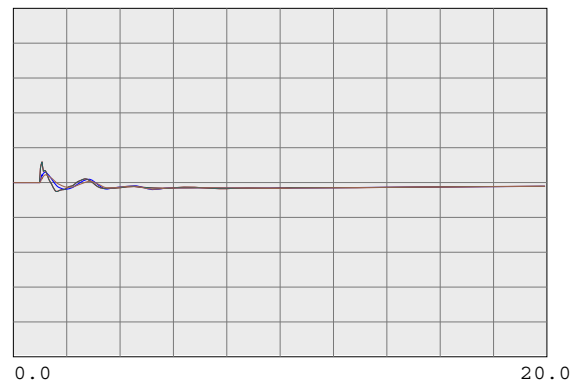
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

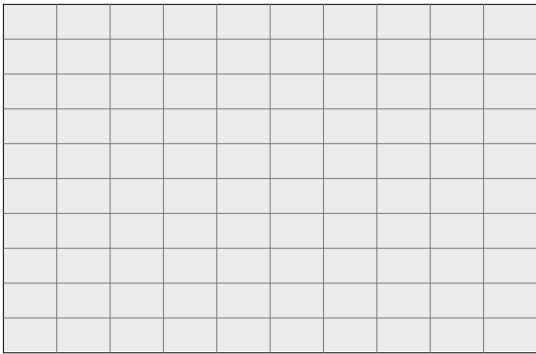
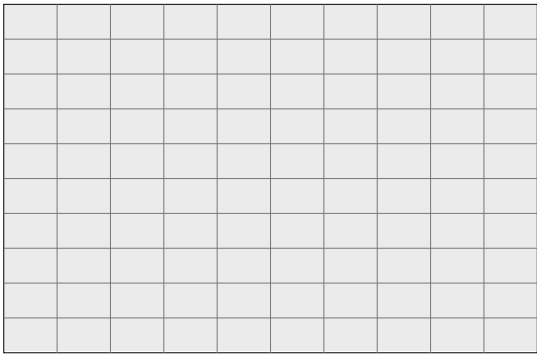
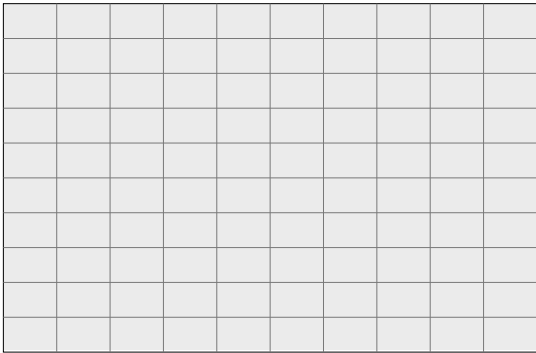
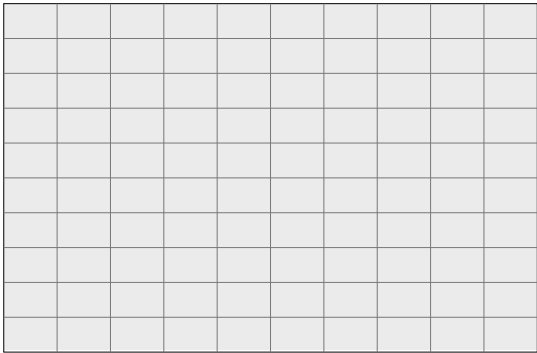
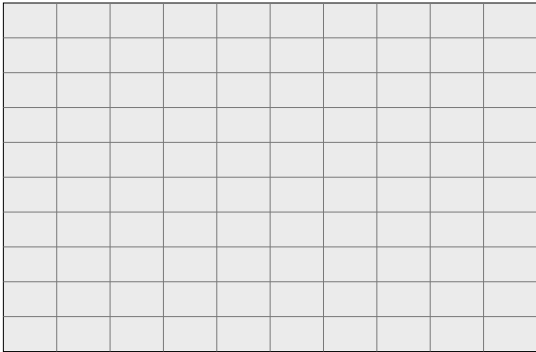
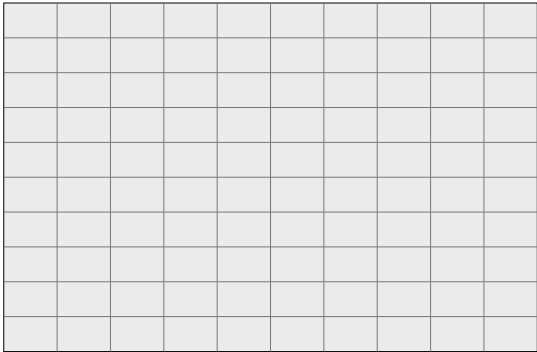
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

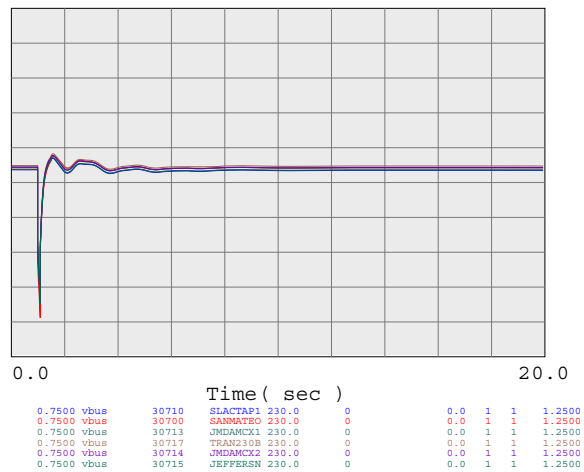
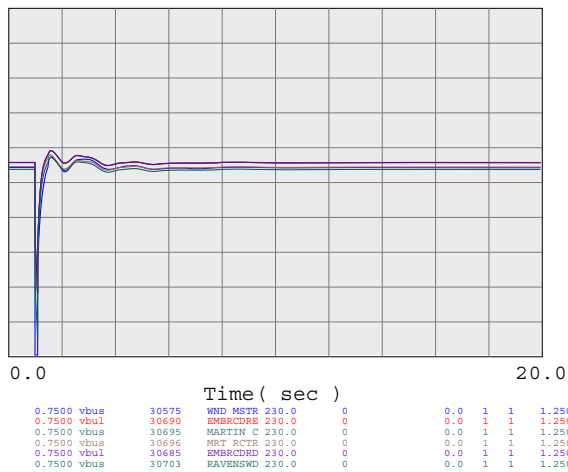
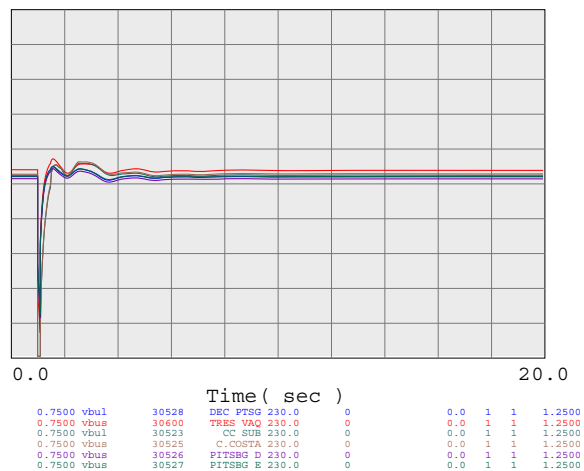
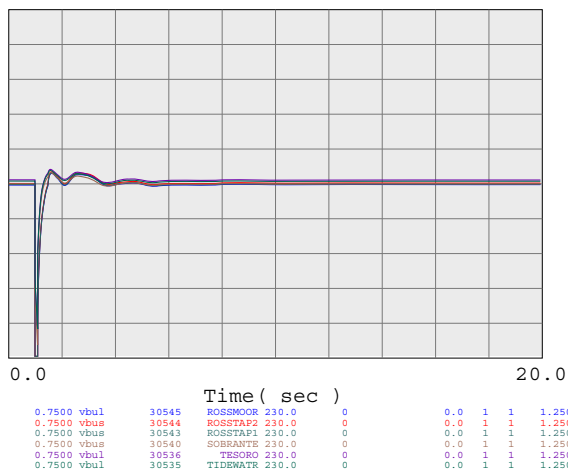
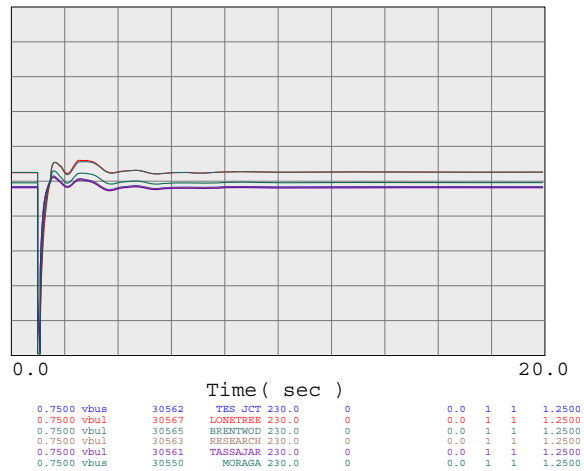
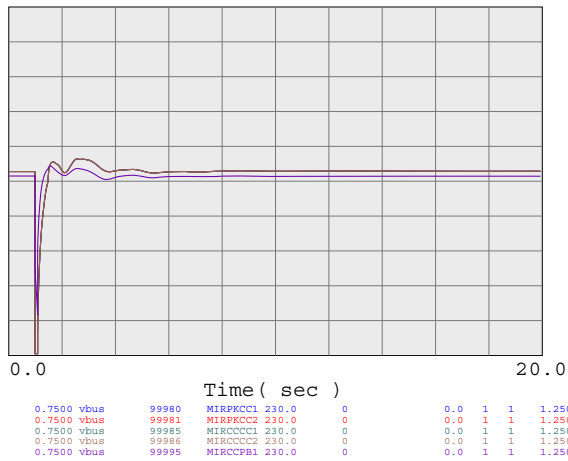
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



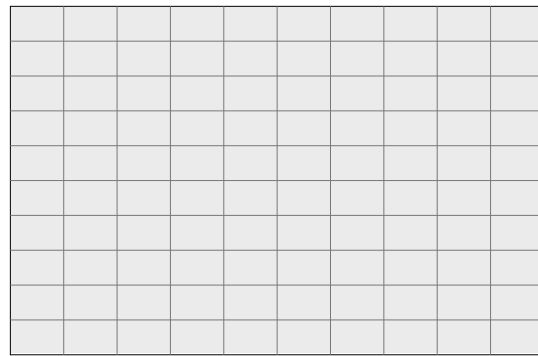
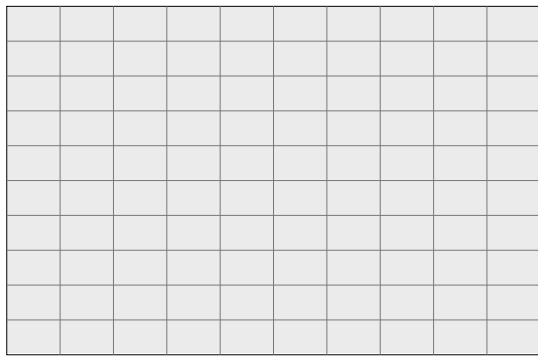
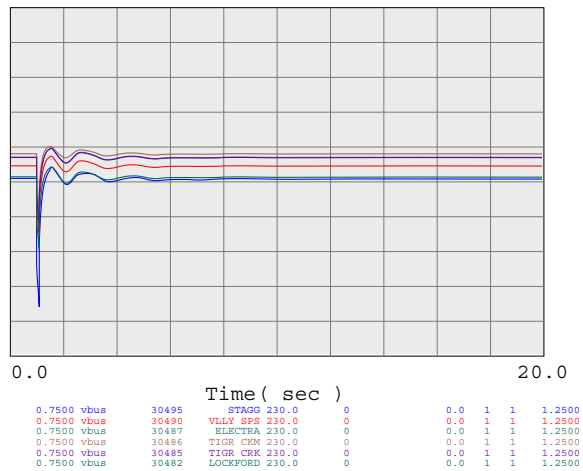
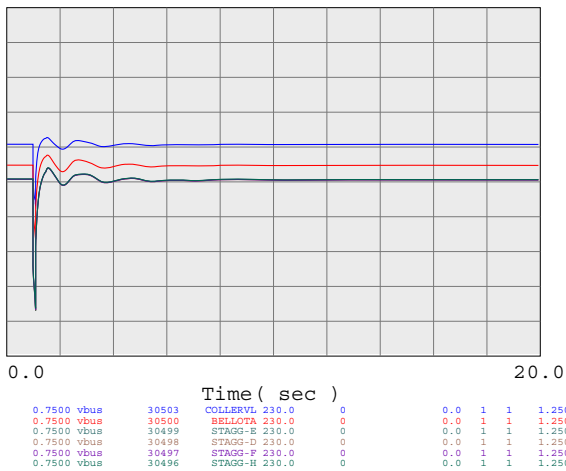
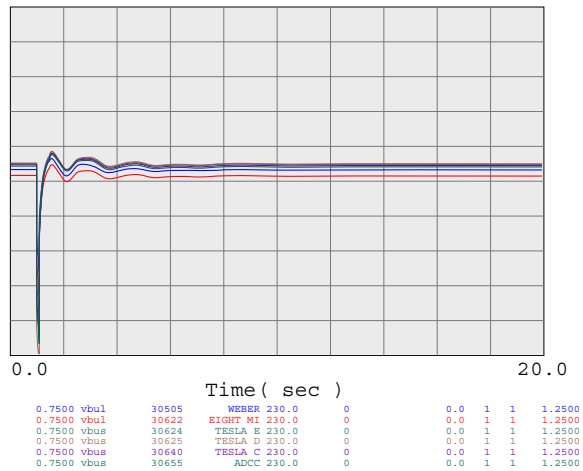
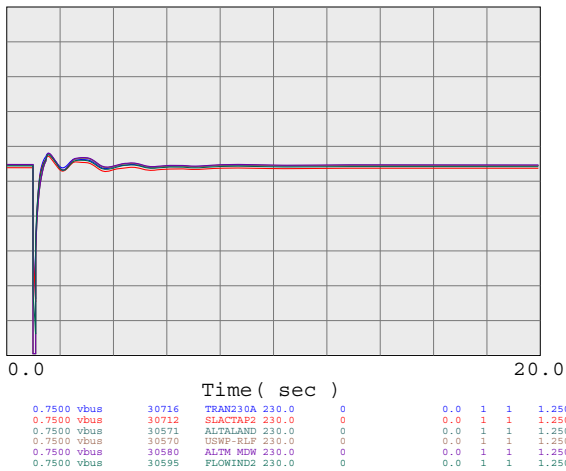
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

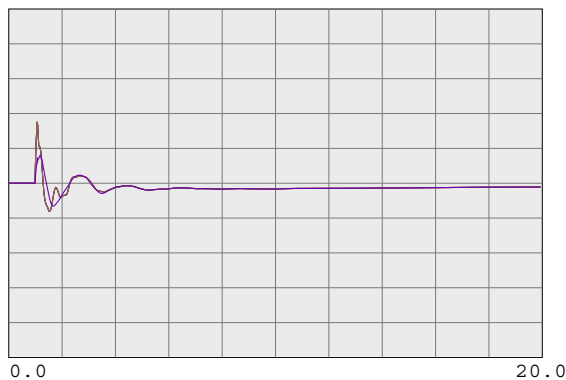


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



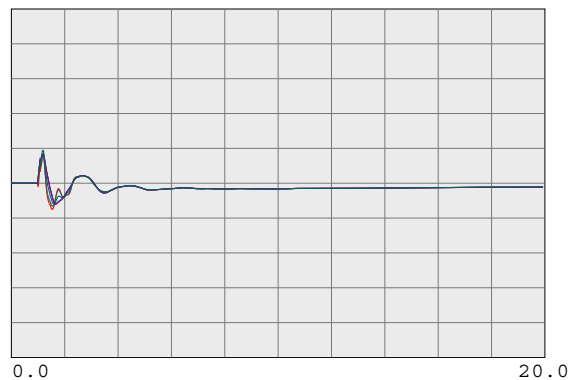
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

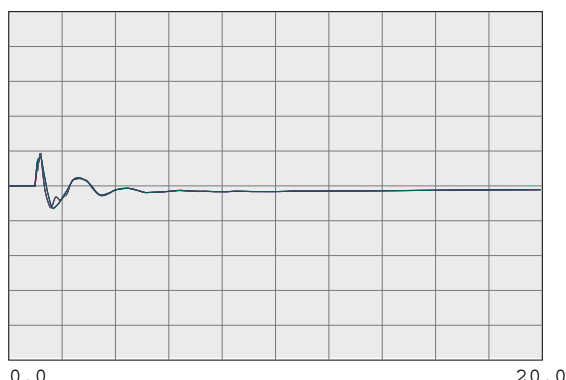
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

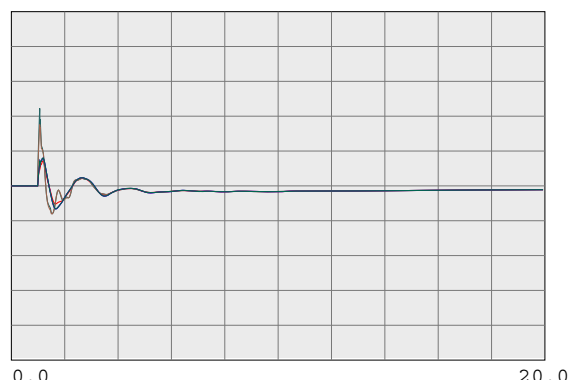
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

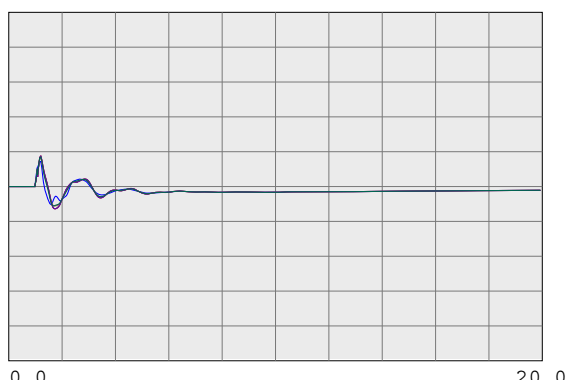
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

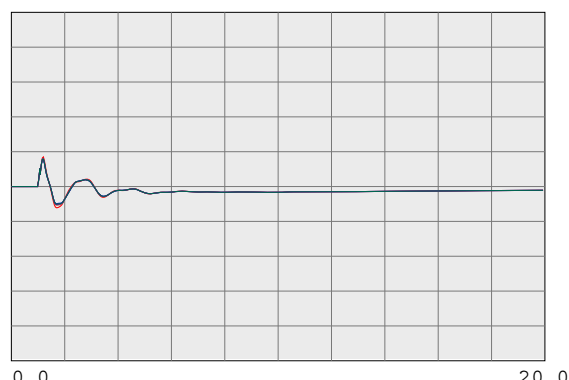
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

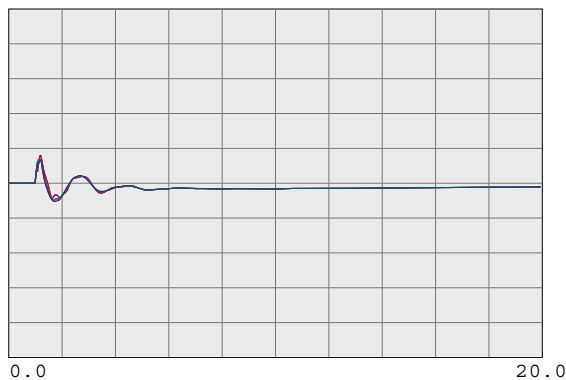
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

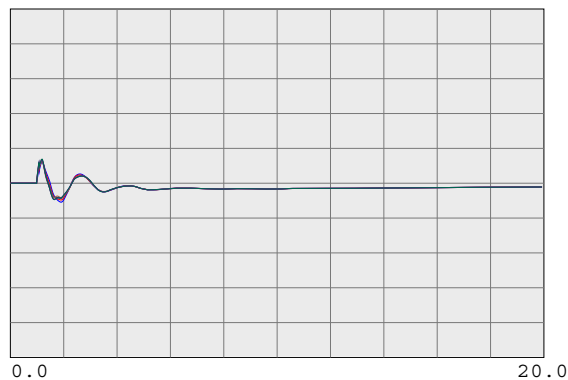
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

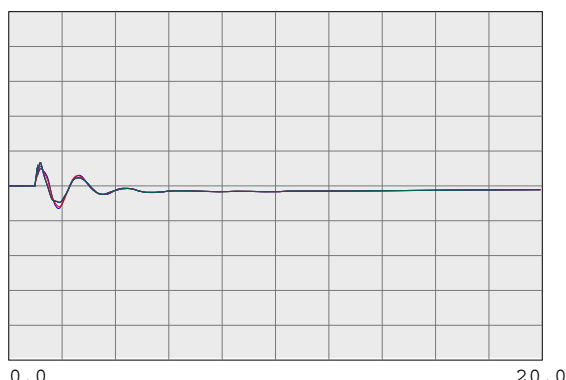
230-KV SYSTEM FREQUENCIES



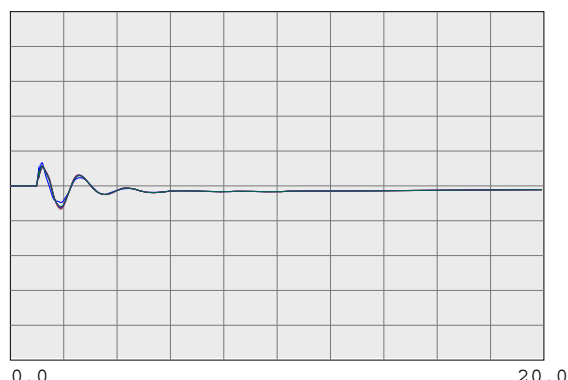
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



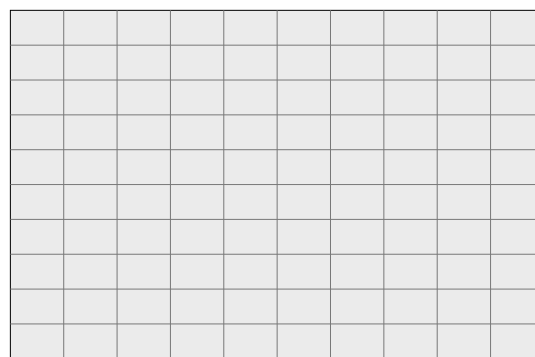
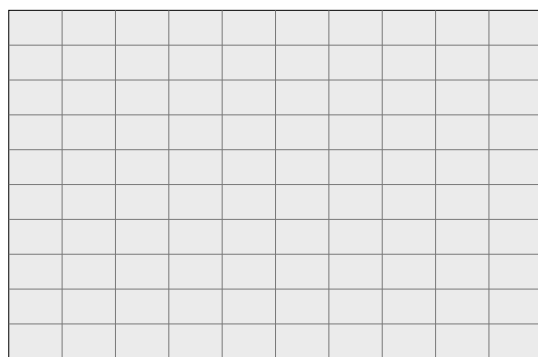
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

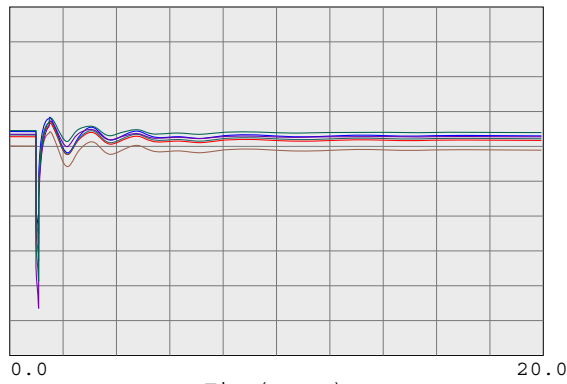
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

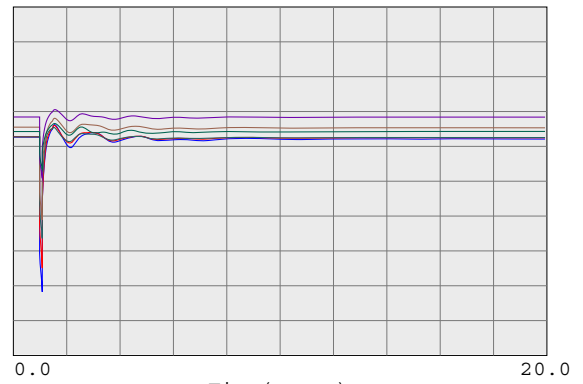
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

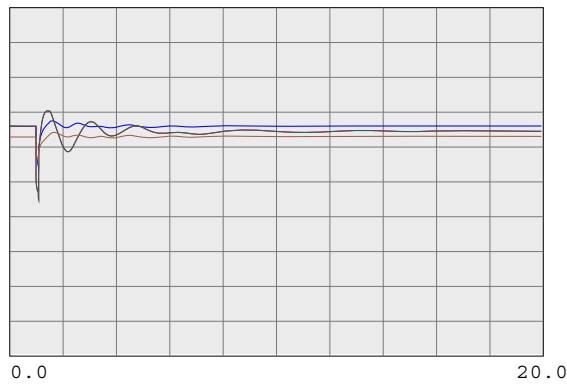
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



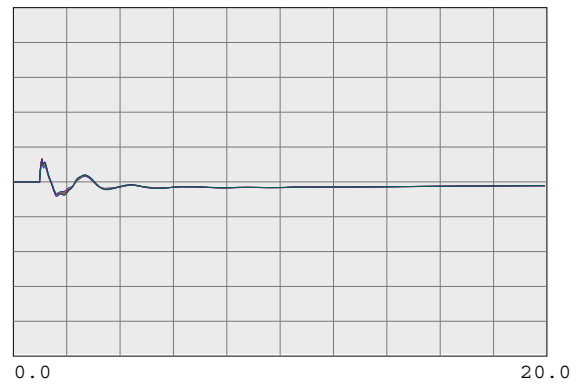
0.7500 vbus	Time (sec)	0.0	1.2500
30005	ROUND MT 500.0	0	0.0 1 1
30015	TABLE MT 500.0	0	0.0 1 1
30020	CLINDA 500.0	0	0.0 1 1
30025	MAXWELL 500.0	0	0.0 1 1
30030	VACA-DIX 500.0	0	0.0 1 1
30035	TRACY 500.0	0	0.0 1 1



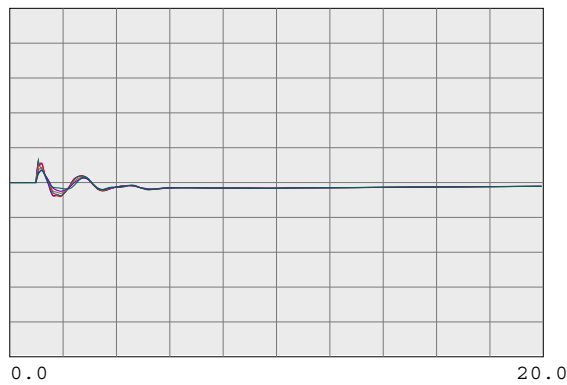
0.7500 vbus	Time (sec)	0.0	1.2500
30040	TESLA 500.0	0	0.0 1 1
30042	METCALF 500.0	0	0.0 1 1
30045	MOSSLAND 500.0	0	0.0 1 1
30050	LOS BANOS 500.0	0	0.0 1 1
30055	GATES 500.0	0	0.0 1 1
30057	DIABLO 500.0	0	0.0 1 1



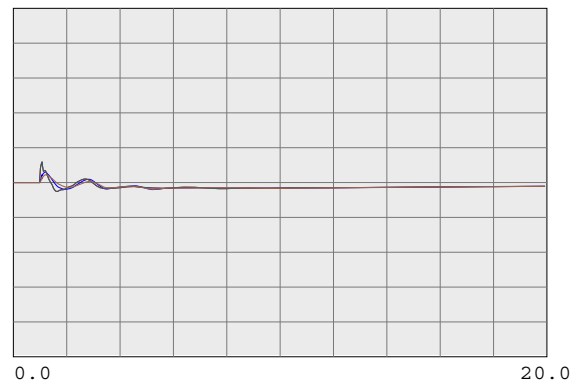
0.7500 vbus	Time (sec)	0.0	1.2500
30060	MIDWAY 500.0	0	0.0 1 1
45035	CAPTJACK 500.0	0	0.0 1 1
40687	MALIN 500.0	0	0.0 1 1
24156	VINCENT 500.0	0	0.0 1 1



59.4000 fbus	Time (sec)	0.0	60.6000
30005	ROUND MT 500.0	0	0.0 1 1
30015	TABLE MT 500.0	0	0.0 1 1
30020	CLINDA 500.0	0	0.0 1 1
30025	MAXWELL 500.0	0	0.0 1 1
30030	VACA-DIX 500.0	0	0.0 1 1
30035	TRACY 500.0	0	0.0 1 1



59.4000 fbus	Time (sec)	0.0	60.6000
30040	TESLA 500.0	0	0.0 1 1
30042	METCALF 500.0	0	0.0 1 1
30045	MOSSLAND 500.0	0	0.0 1 1
30050	LOS BANOS 500.0	0	0.0 1 1
30055	GATES 500.0	0	0.0 1 1
30057	DIABLO 500.0	0	0.0 1 1



59.4000 fbus	Time (sec)	0.0	60.6000
30060	MIDWAY 500.0	0	0.0 1 1
45035	CAPTJACK 500.0	0	0.0 1 1
40687	MALIN 500.0	0	0.0 1 1
24156	VINCENT 500.0	0	0.0 1 1

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

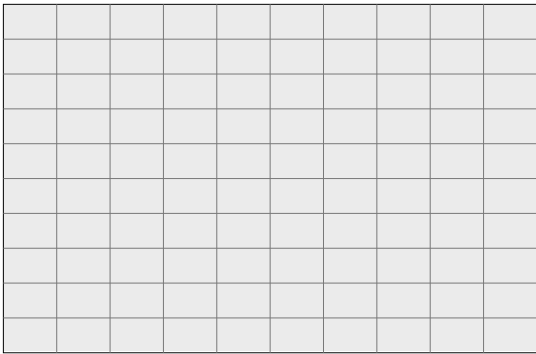
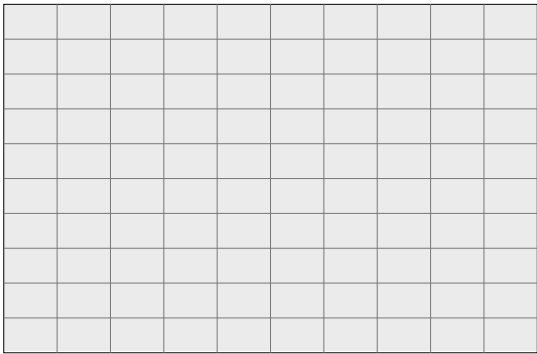
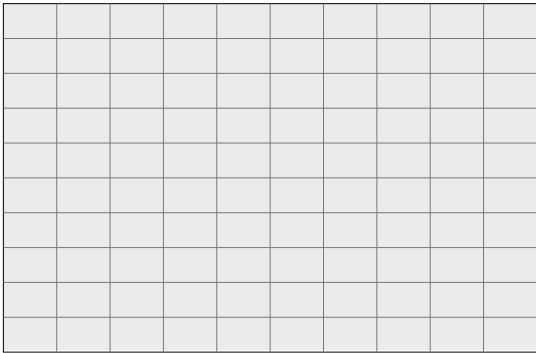
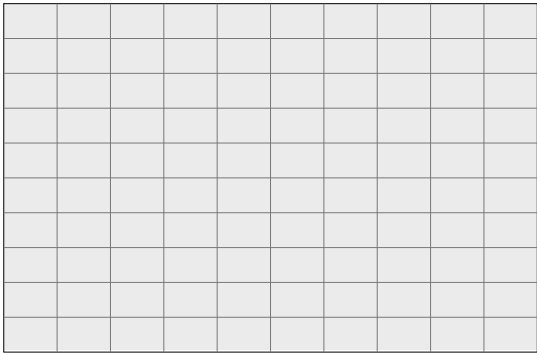
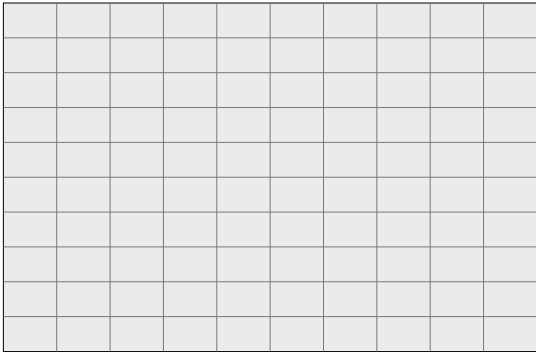
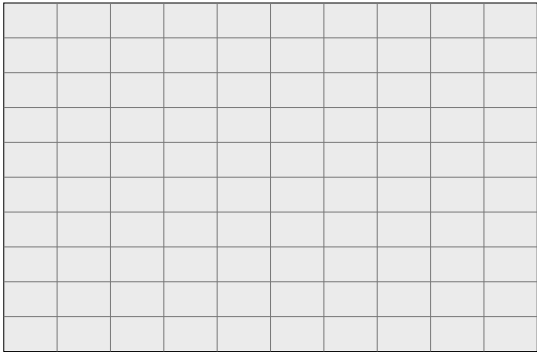
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

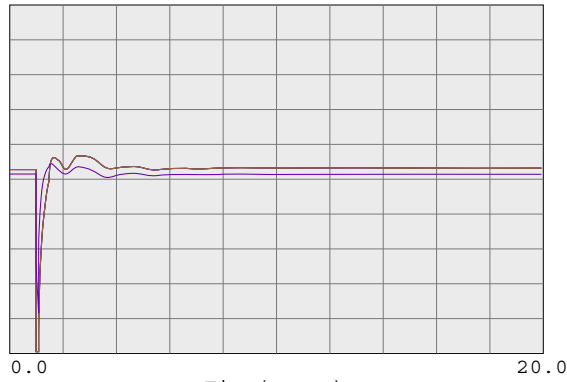
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



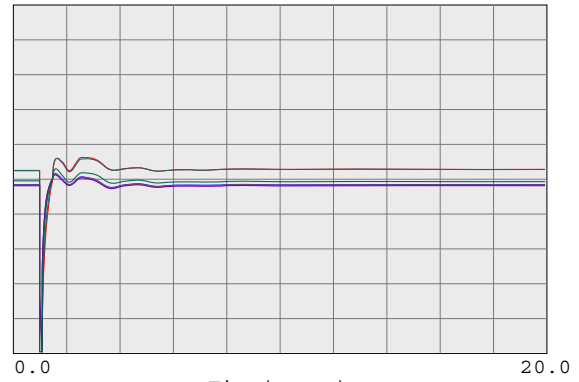
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



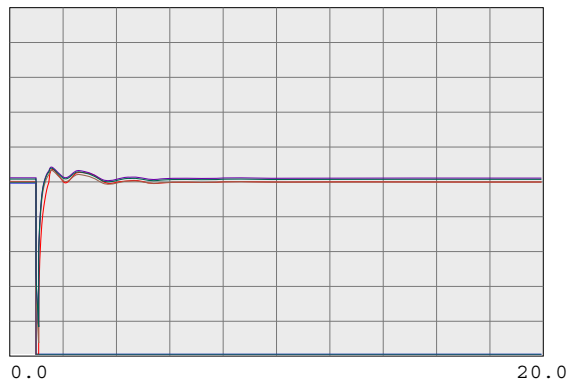
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



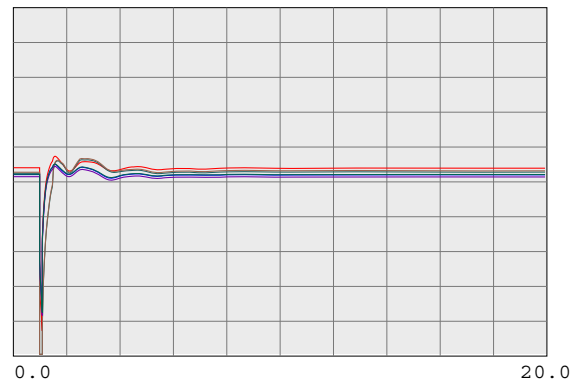
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



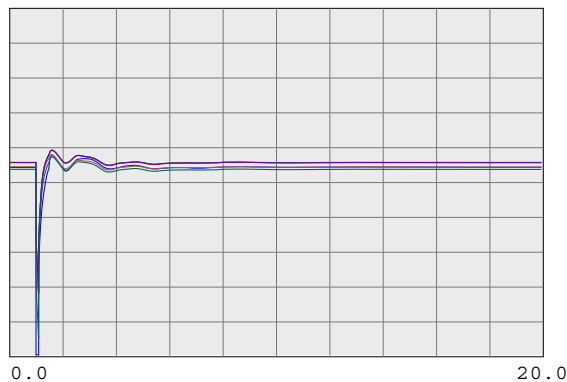
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



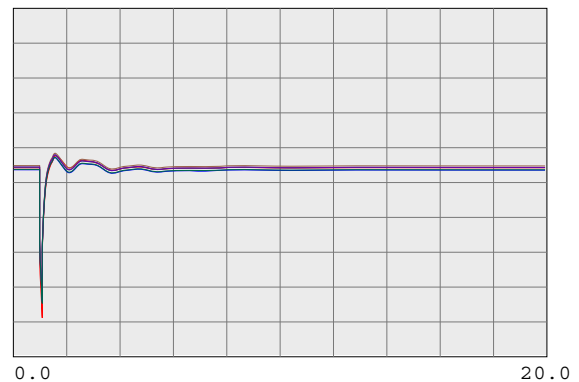
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

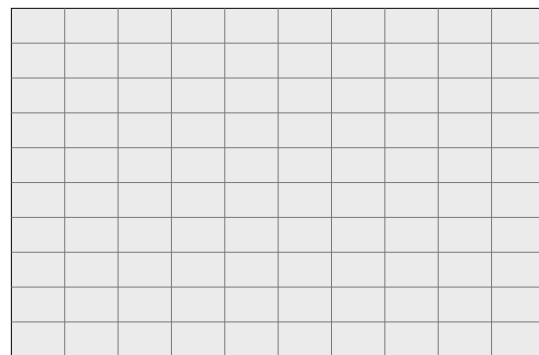
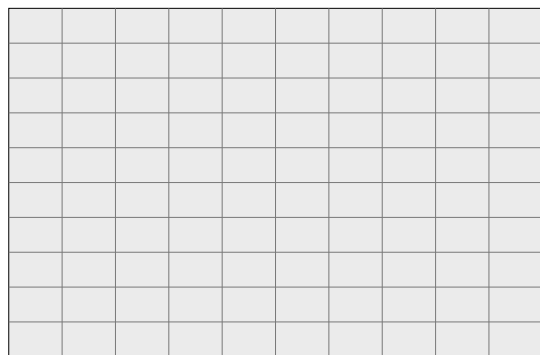
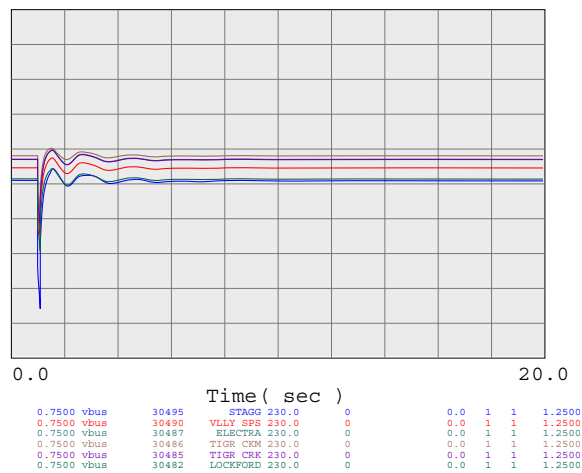
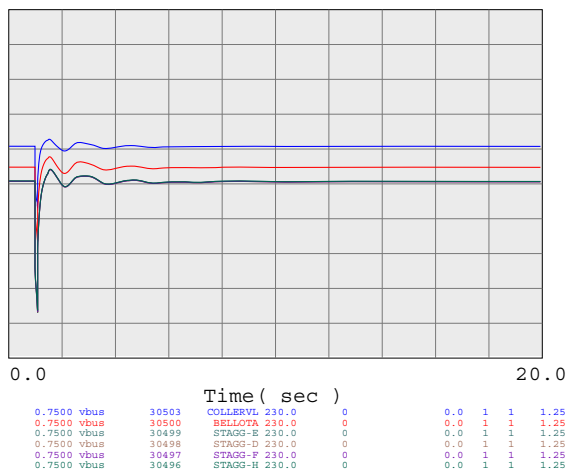
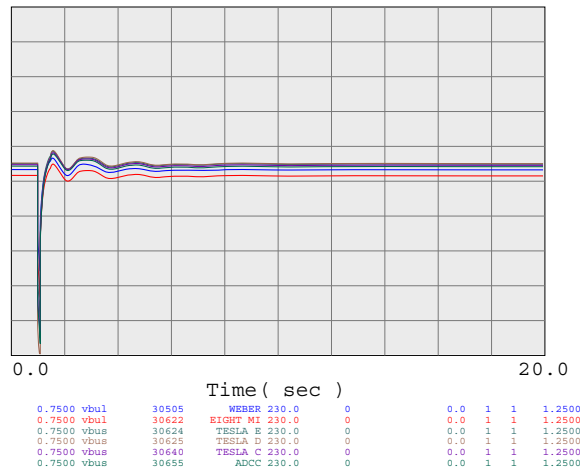
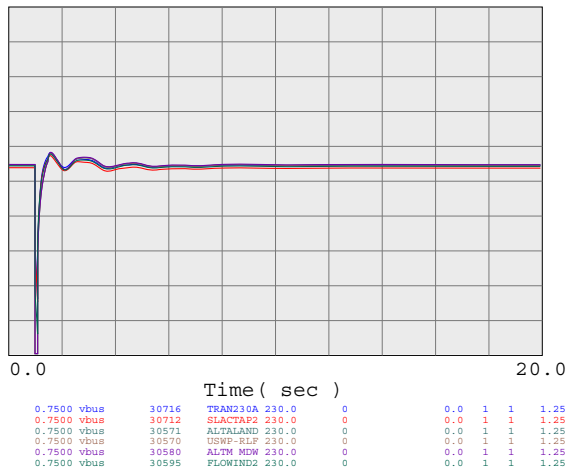
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

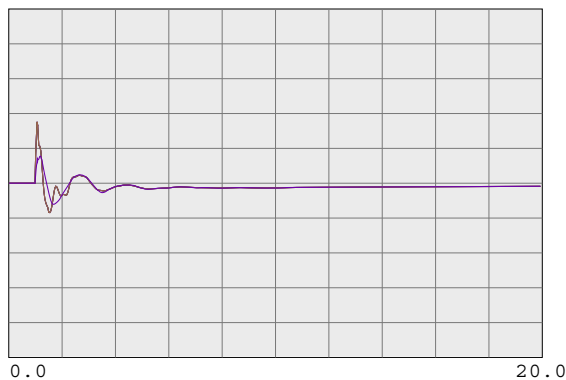
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



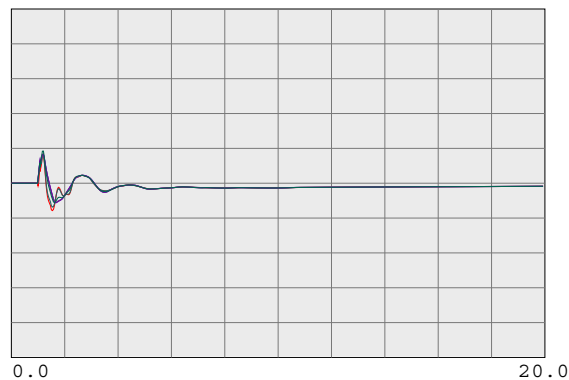
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

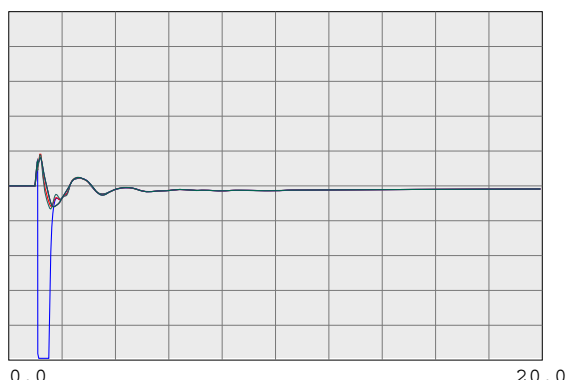
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

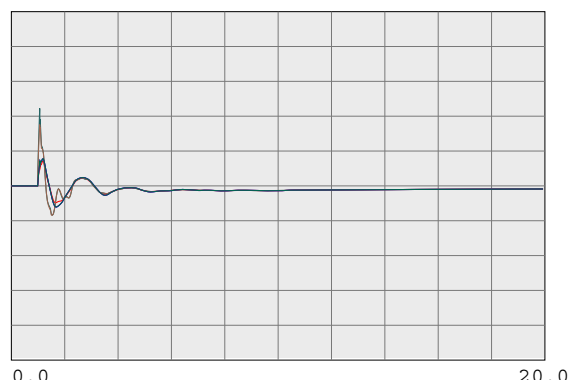
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

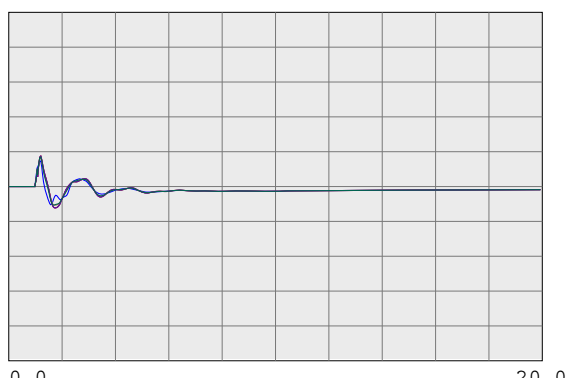
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

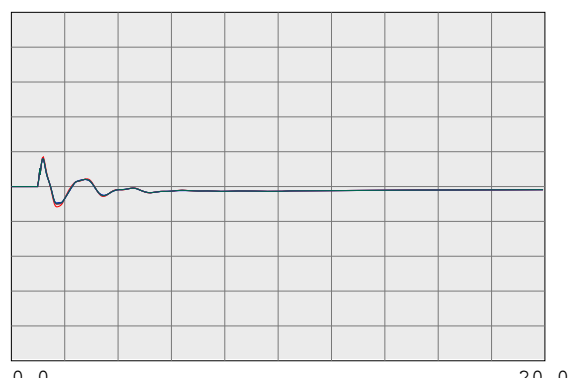
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

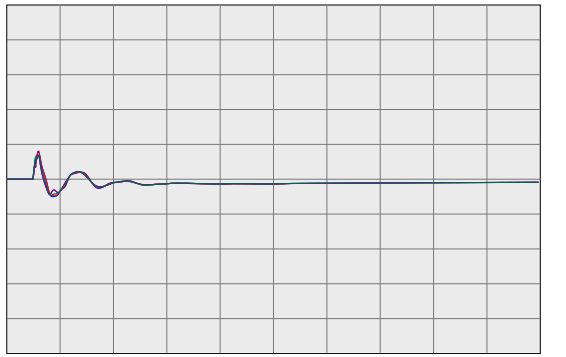
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

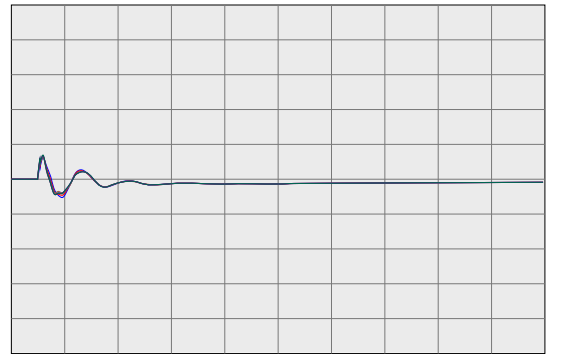
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

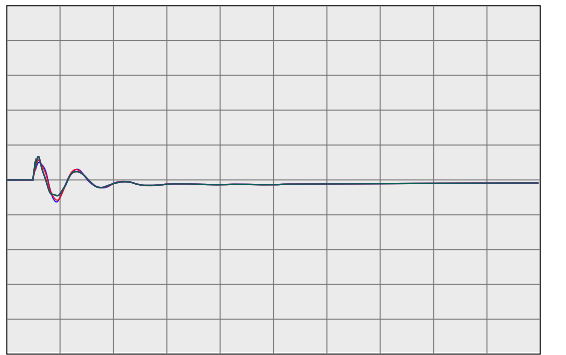
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

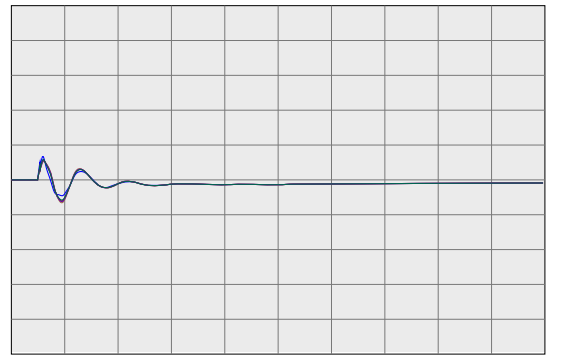
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

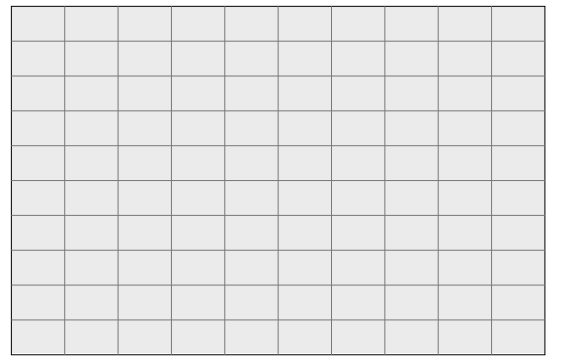
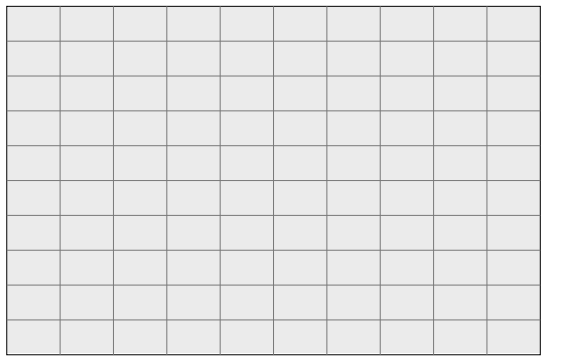
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

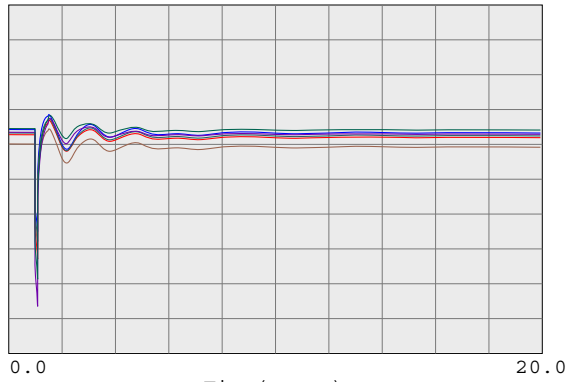
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



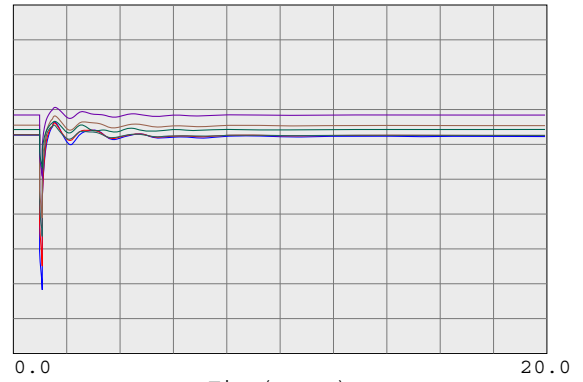
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



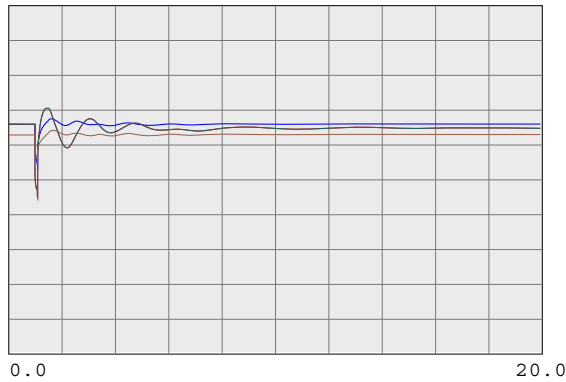
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



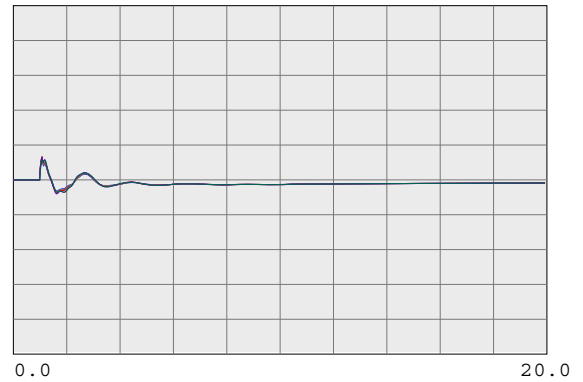
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



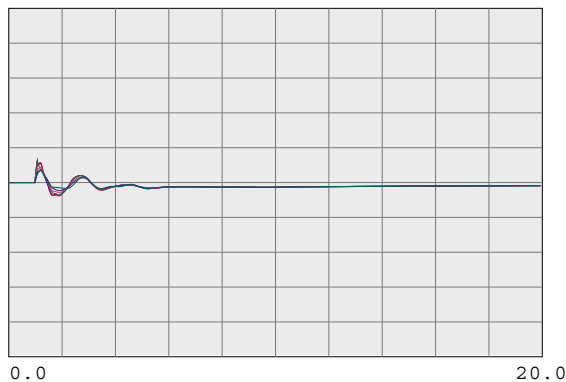
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



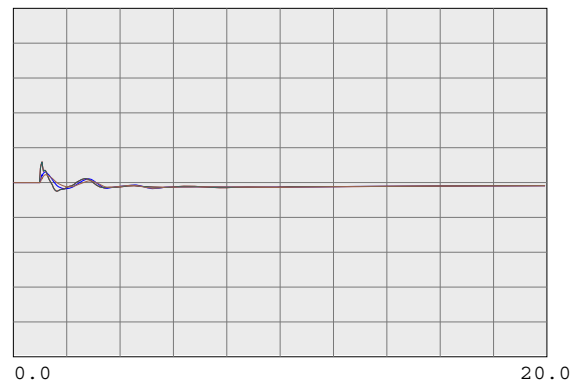
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

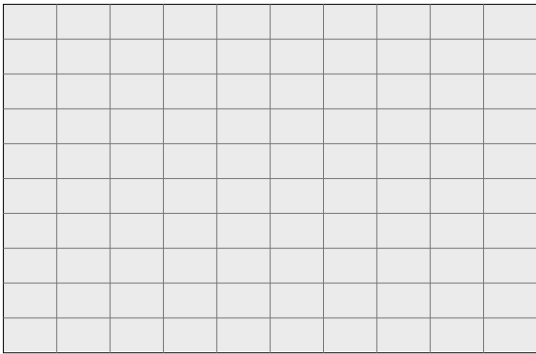
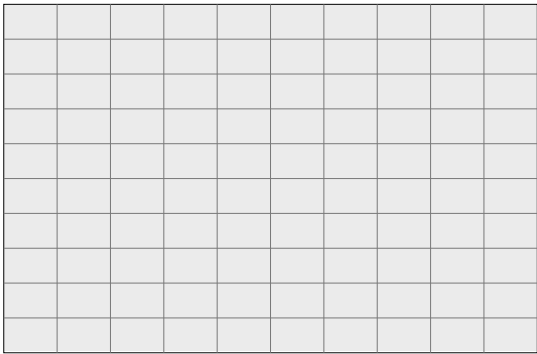
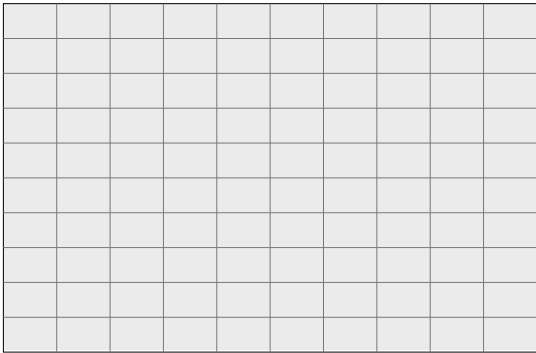
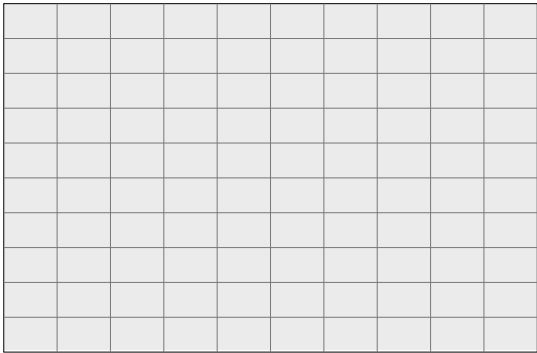
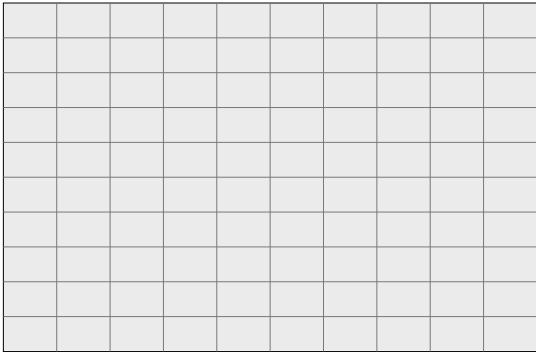
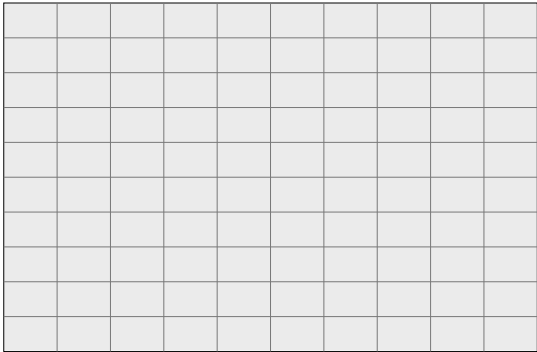
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

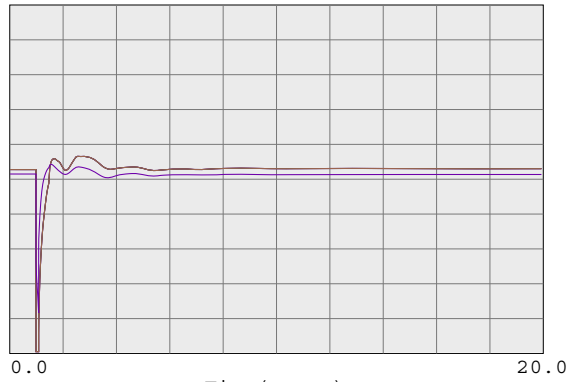
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



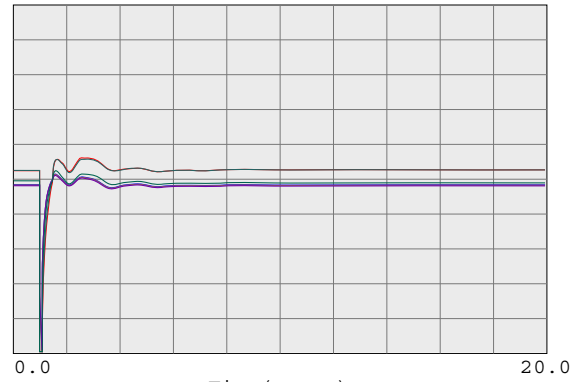
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



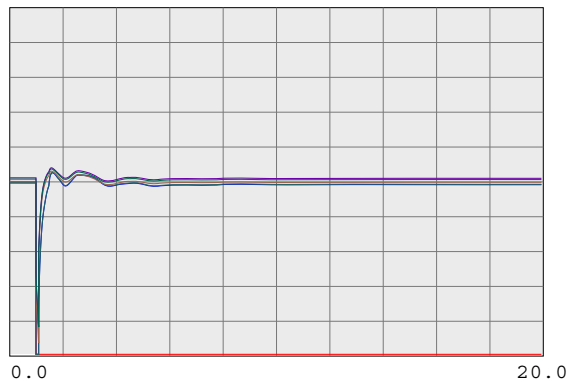
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



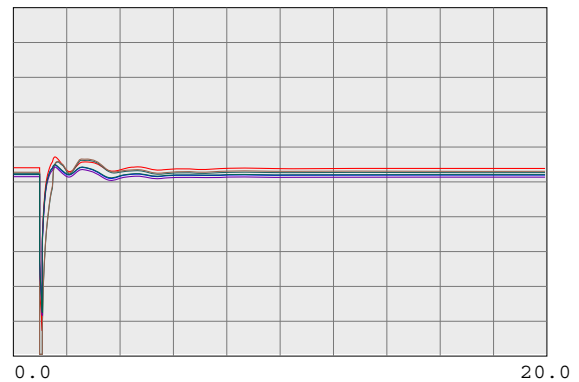
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



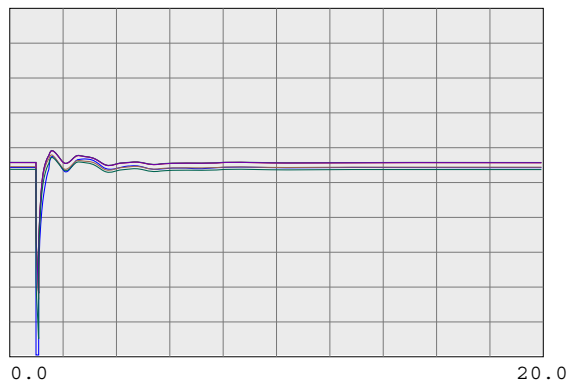
Time (sec)

0.7500 vbul	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



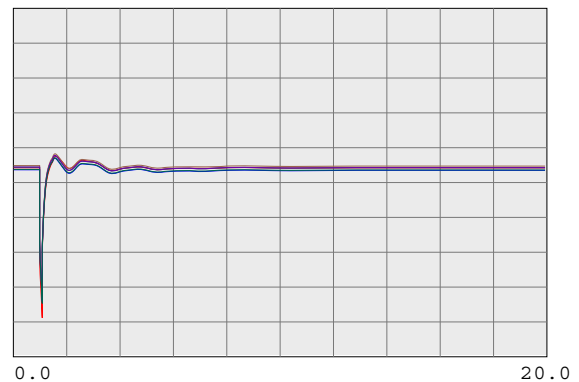
Time (sec)

0.7500 vbul	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbul	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

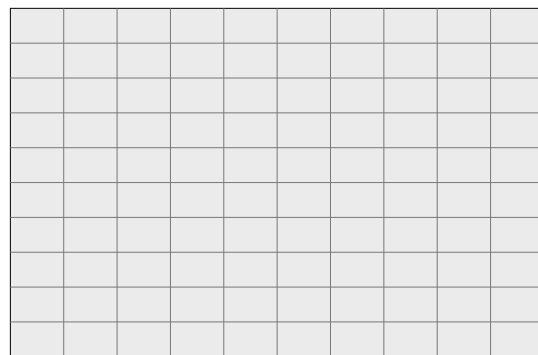
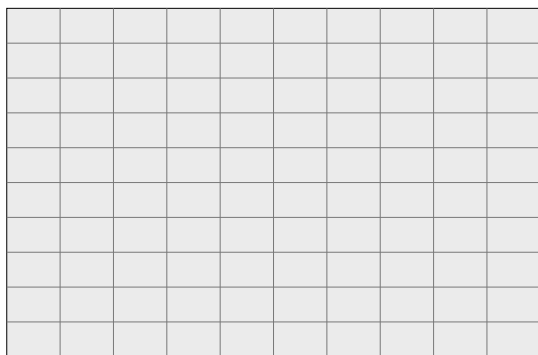
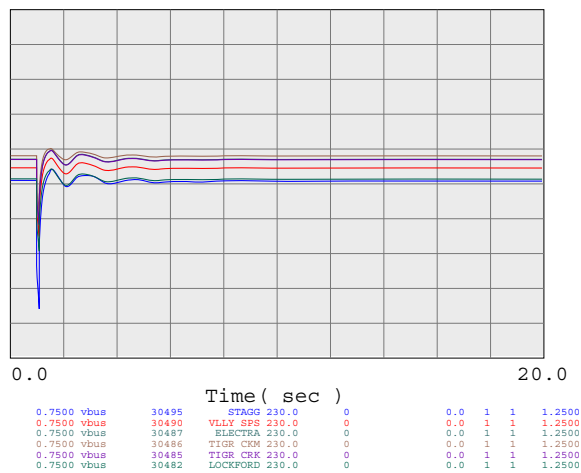
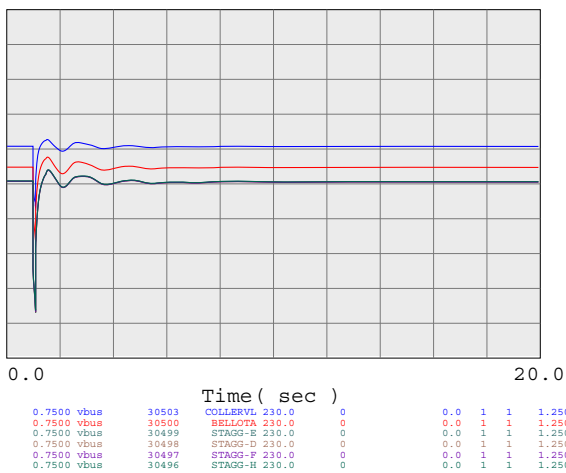
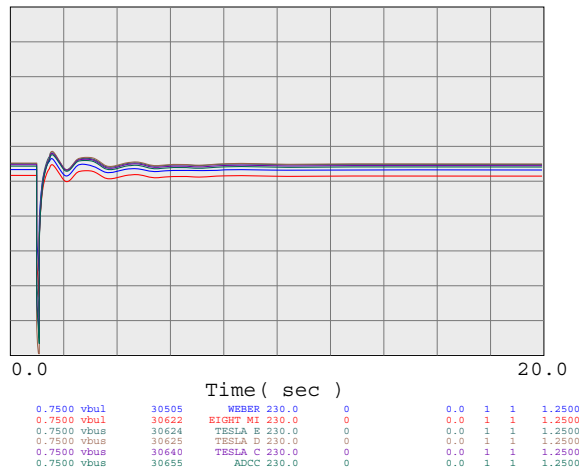
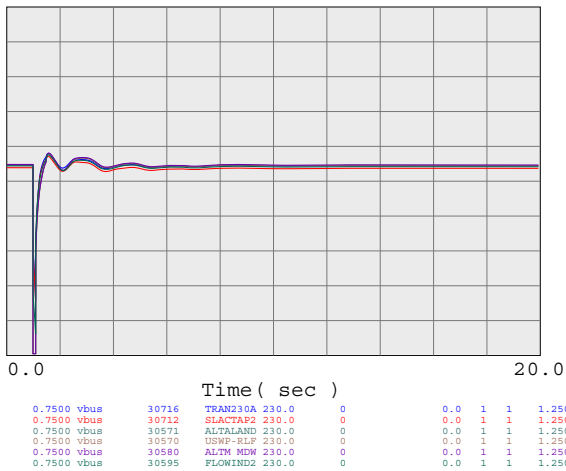
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

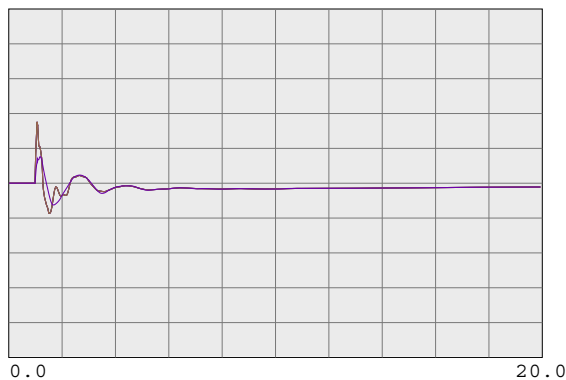
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



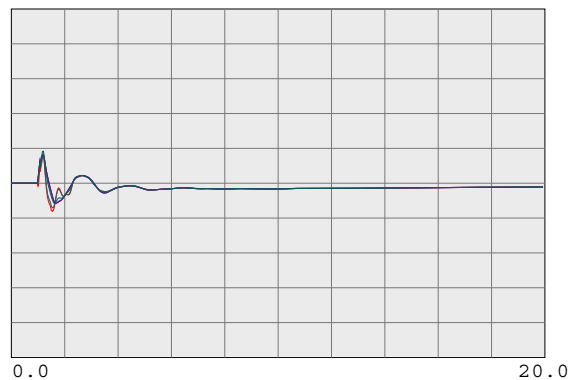
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

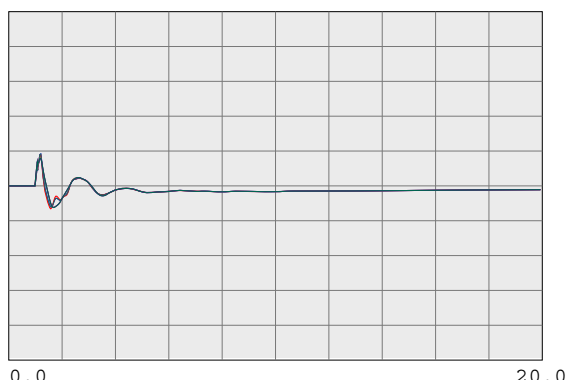
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

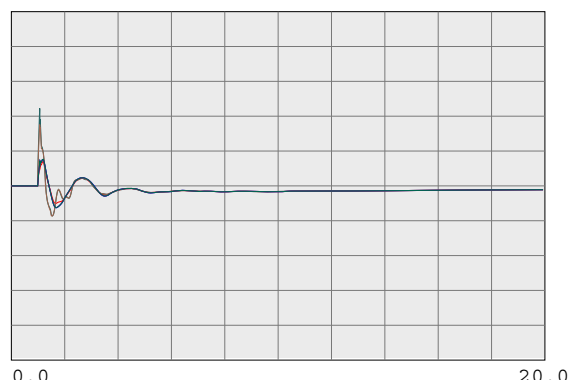
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

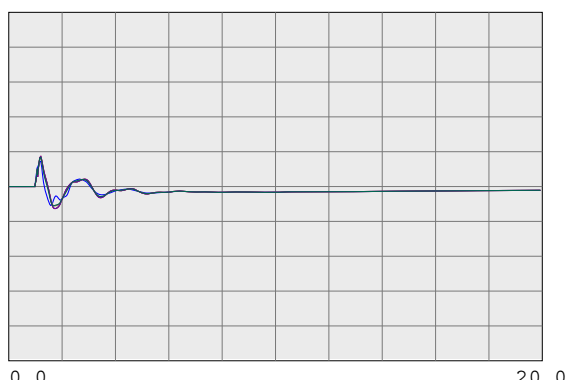
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

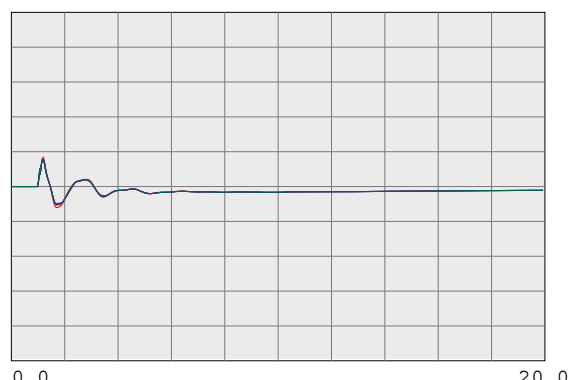
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

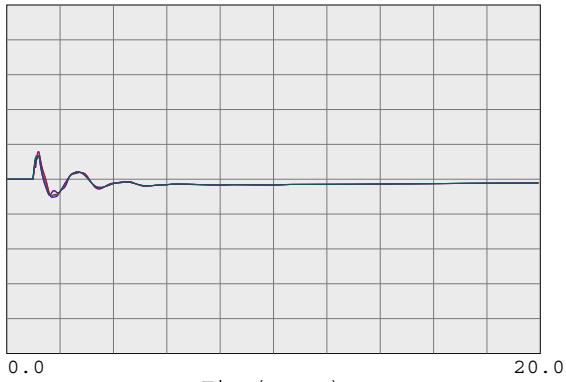
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

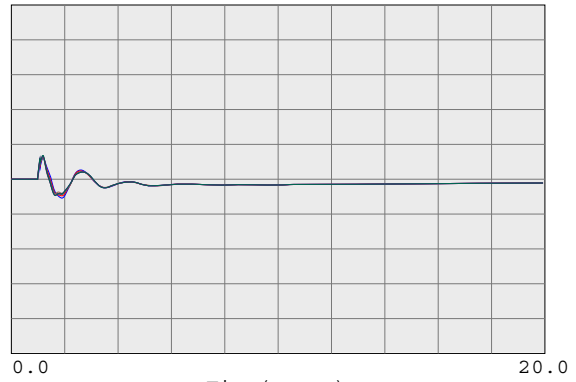
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

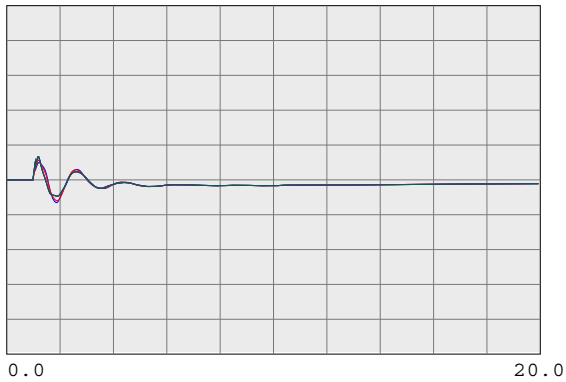
230-KV SYSTEM FREQUENCIES



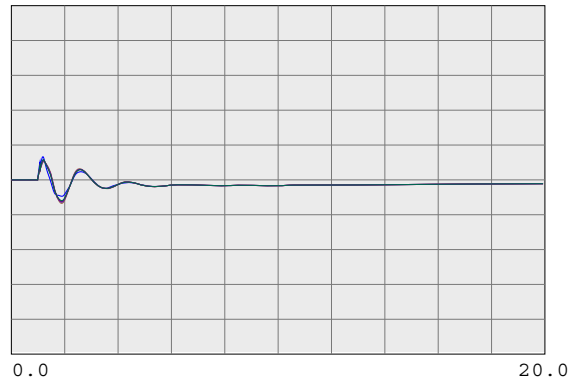
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



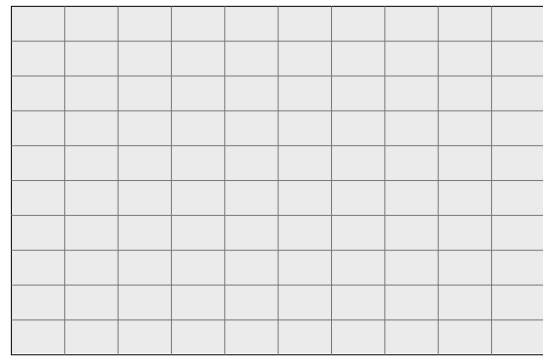
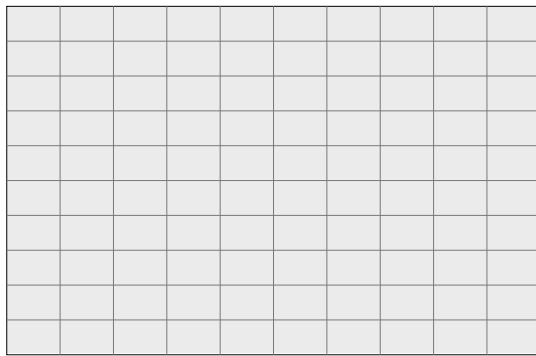
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



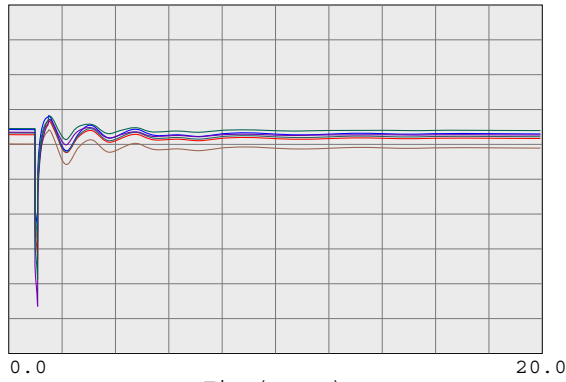
Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



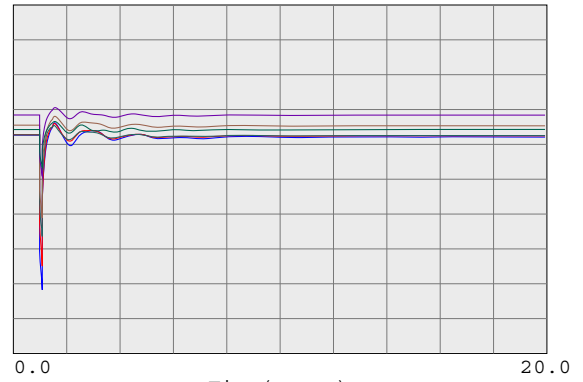
Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



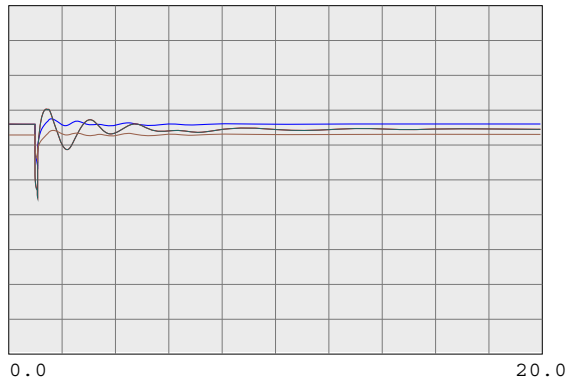
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



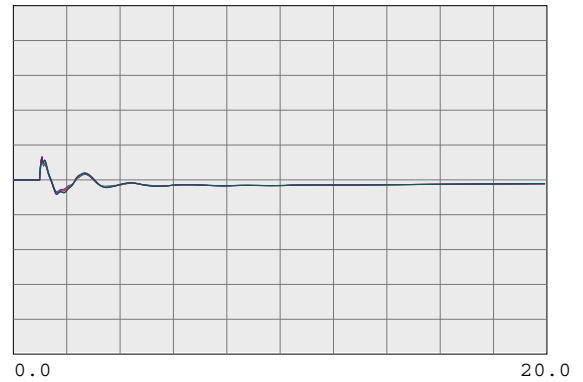
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



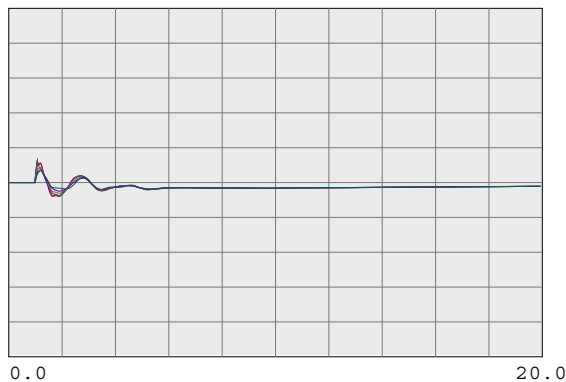
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



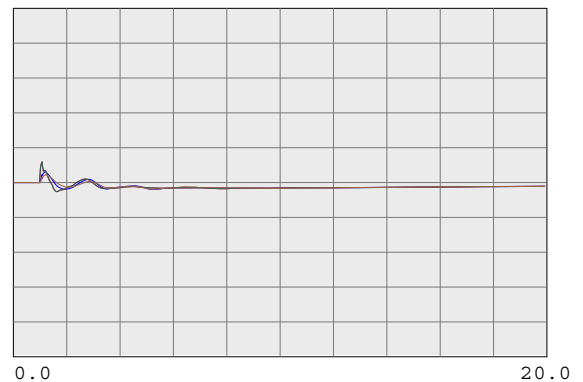
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

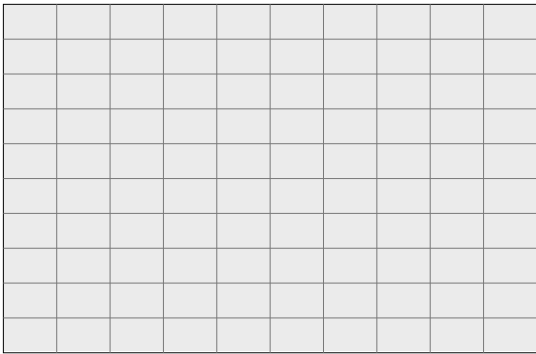
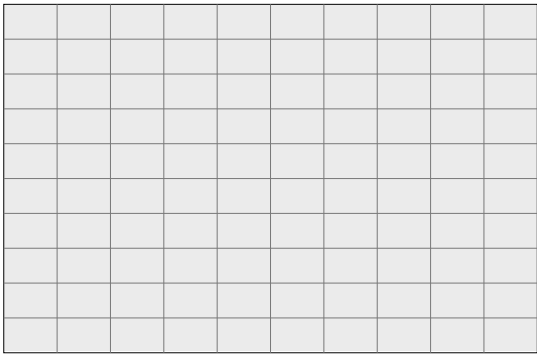
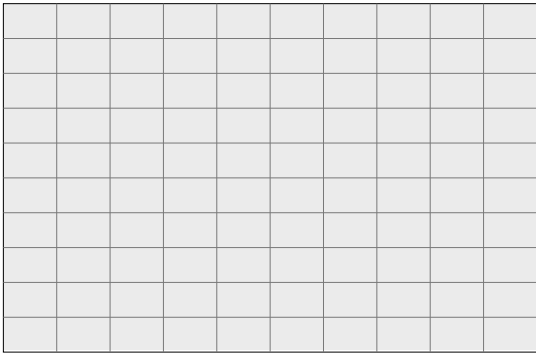
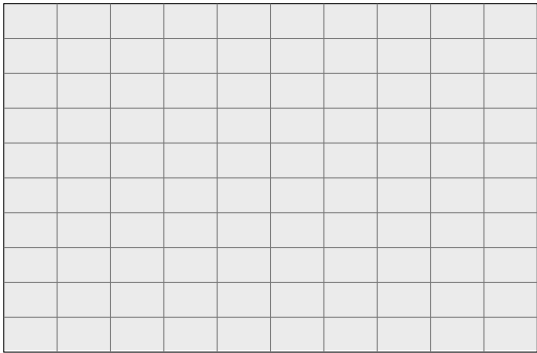
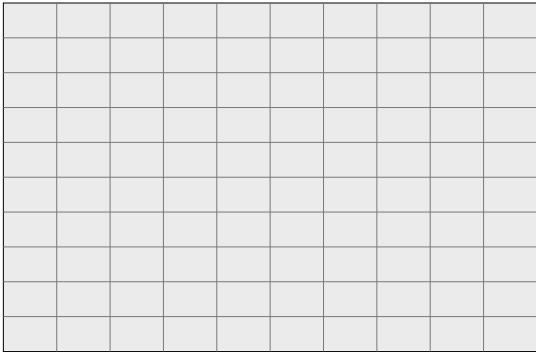
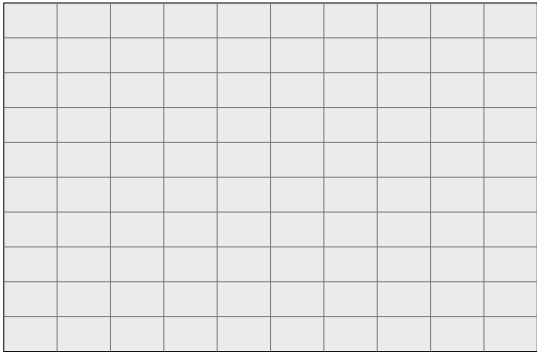
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

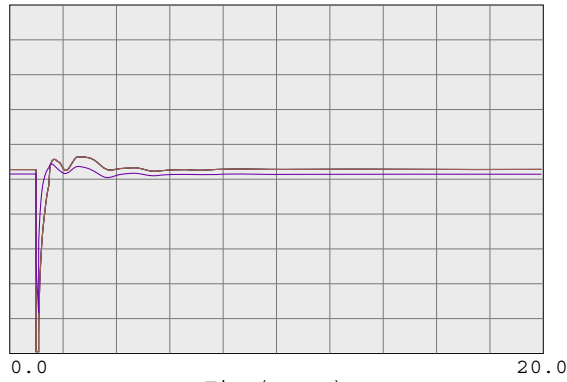
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



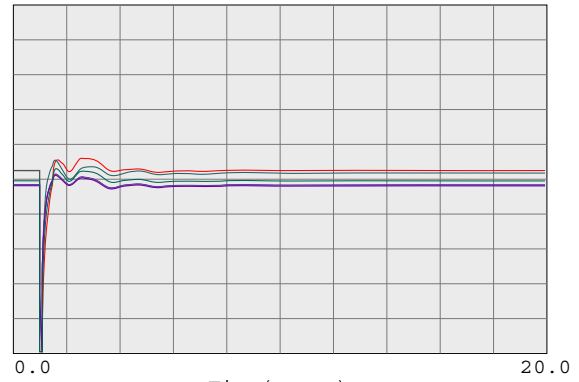
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



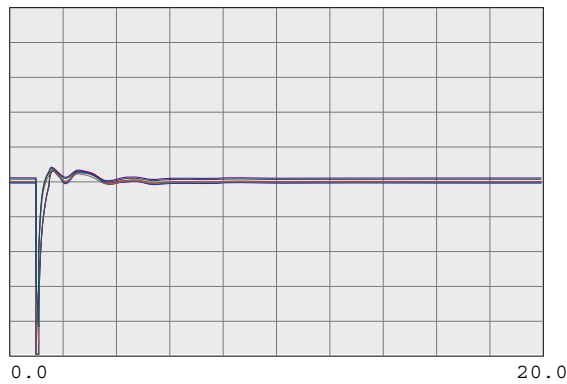
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



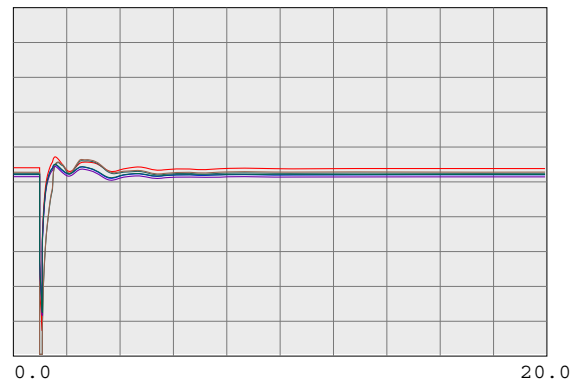
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



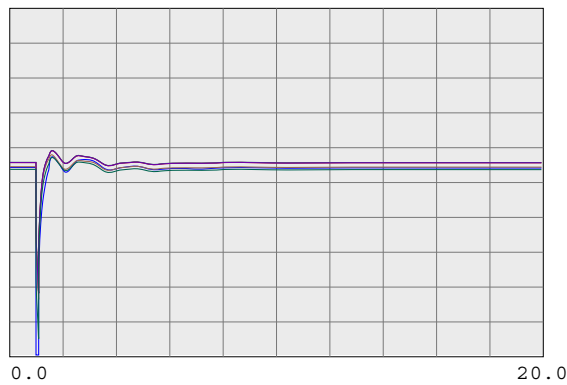
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSAPF1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSAPF2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TREBORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



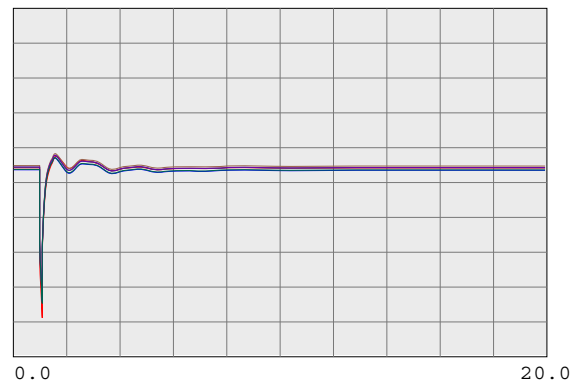
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

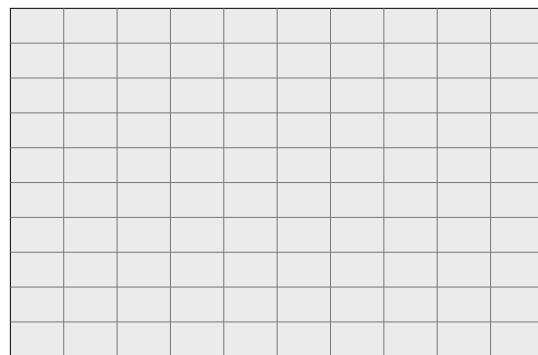
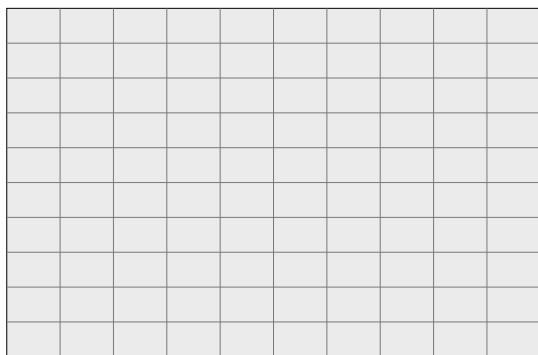
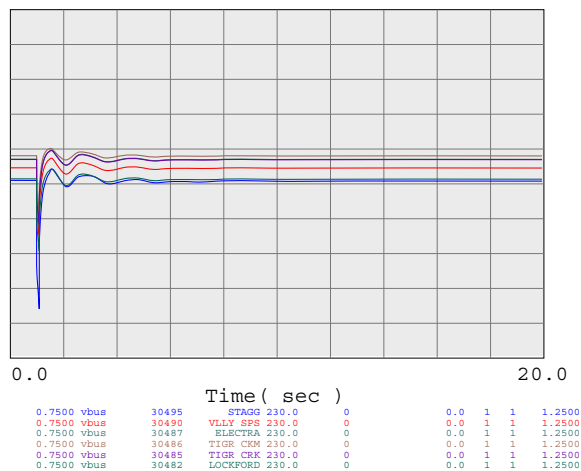
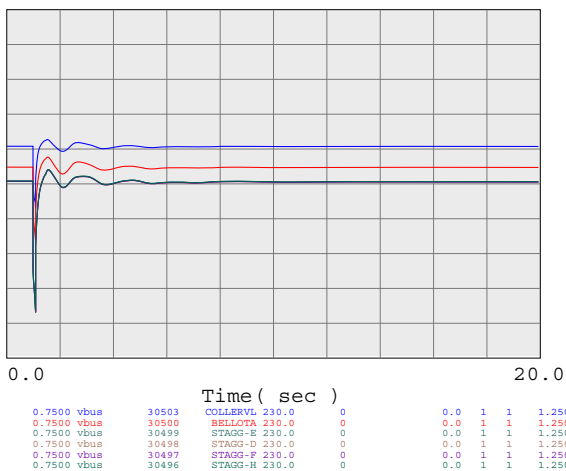
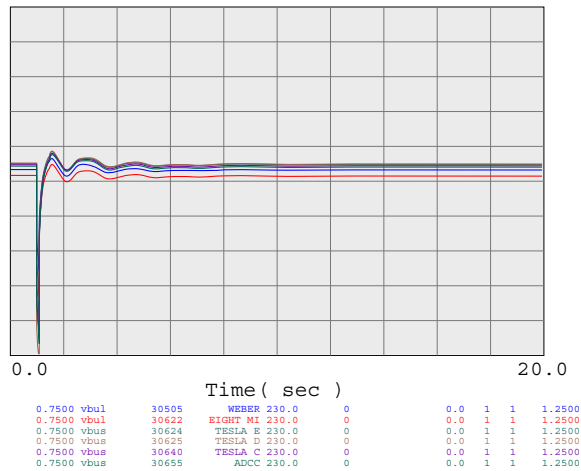
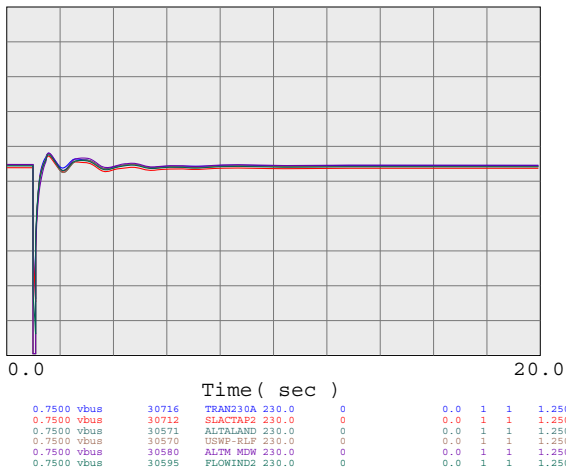
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

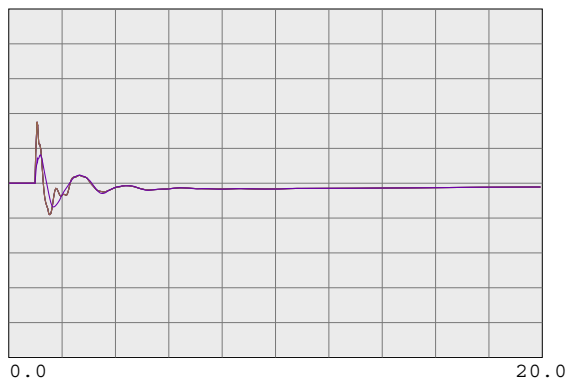
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



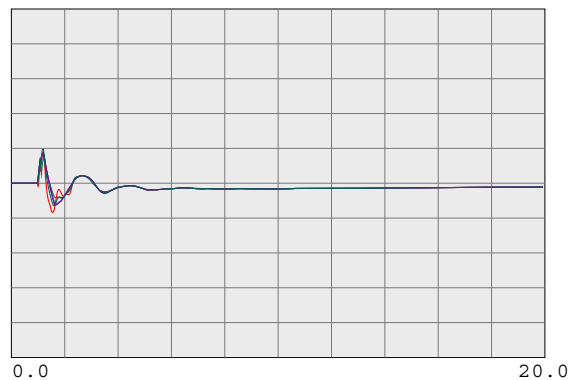
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

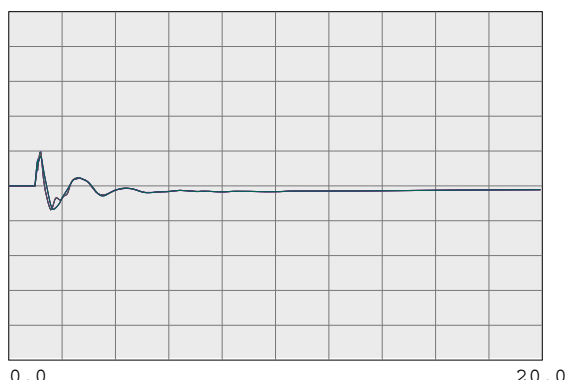
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

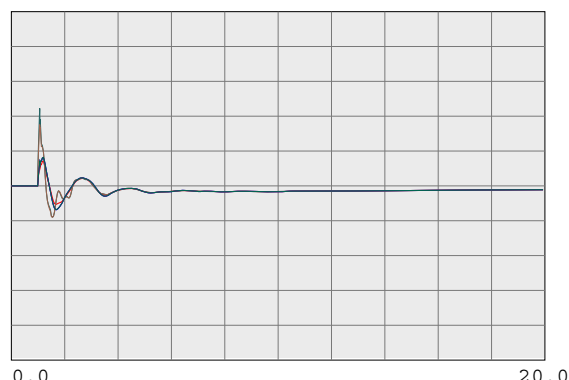
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

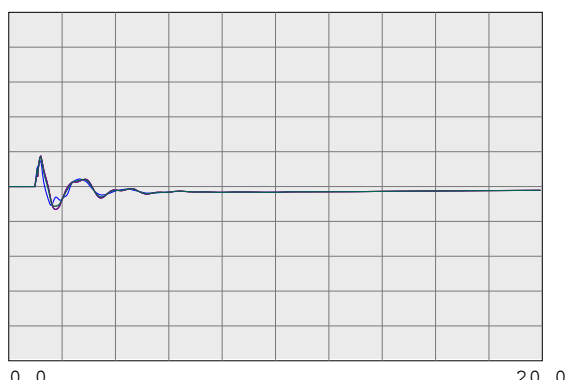
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

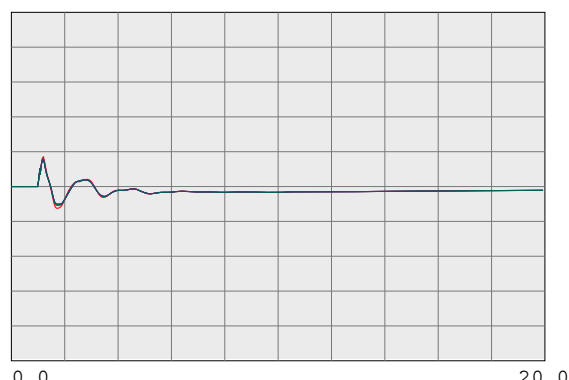
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

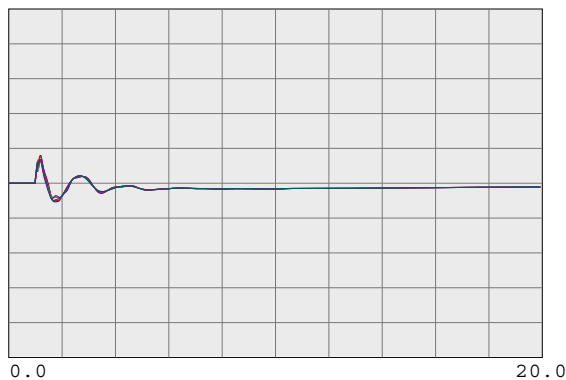
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

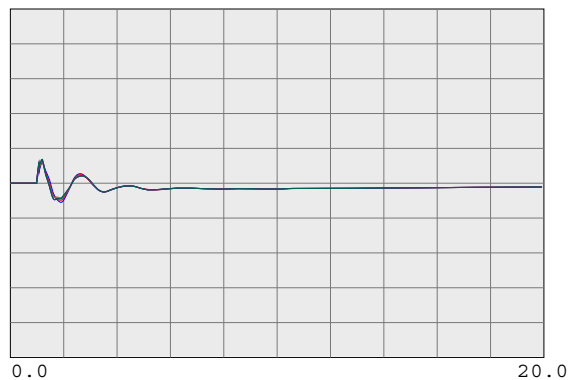
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

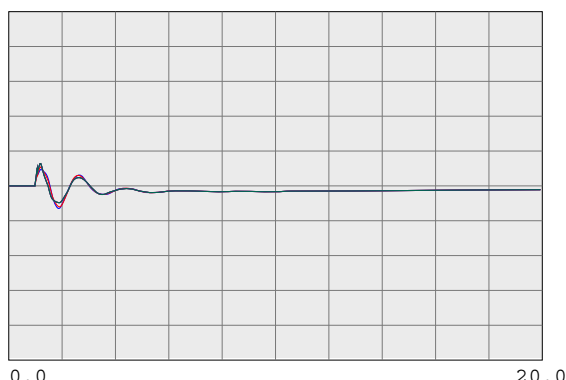
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

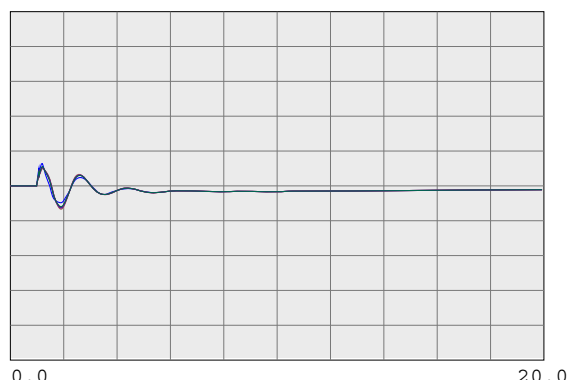
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

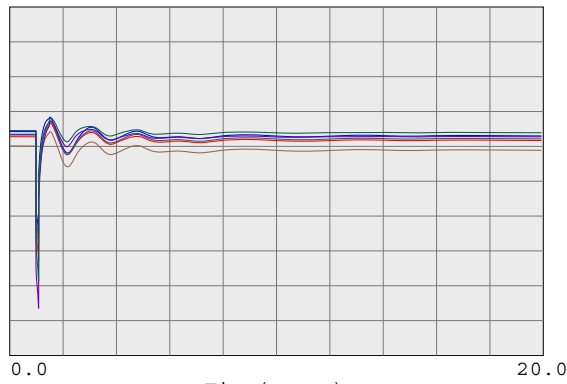
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

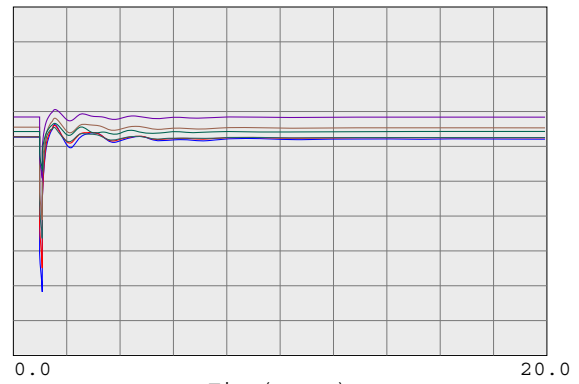
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



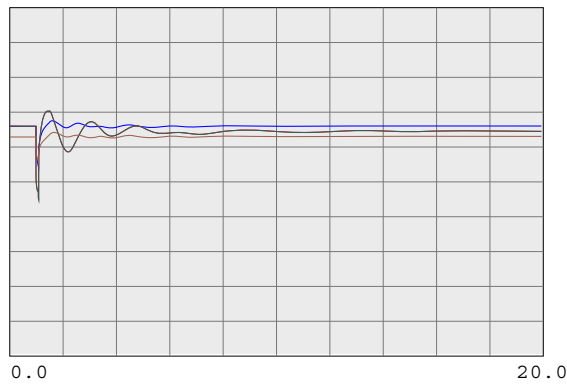
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



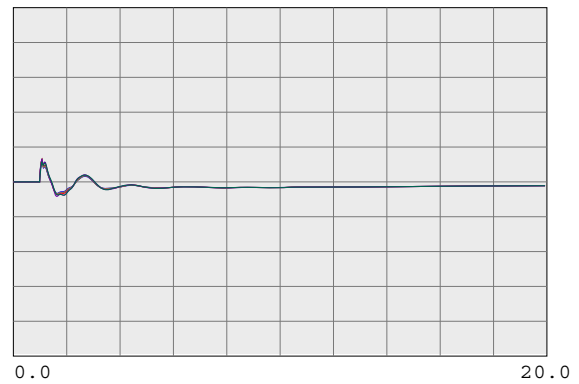
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



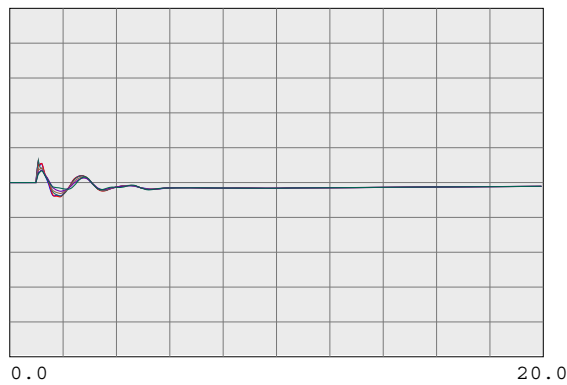
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



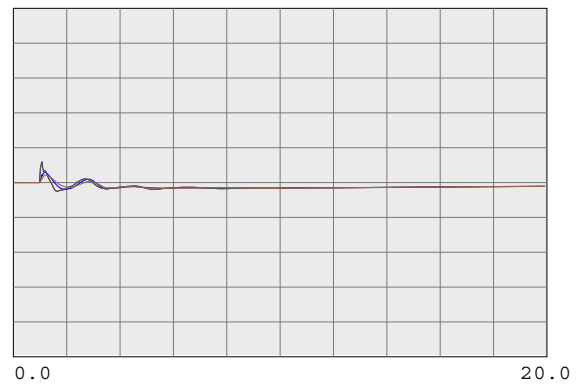
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

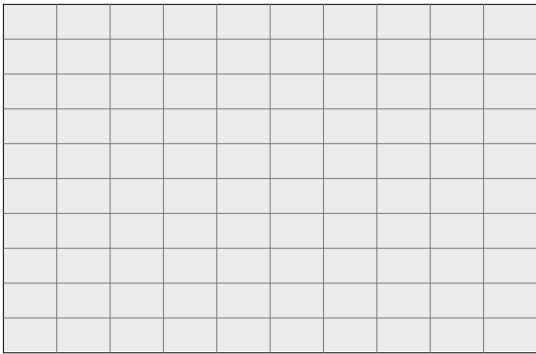
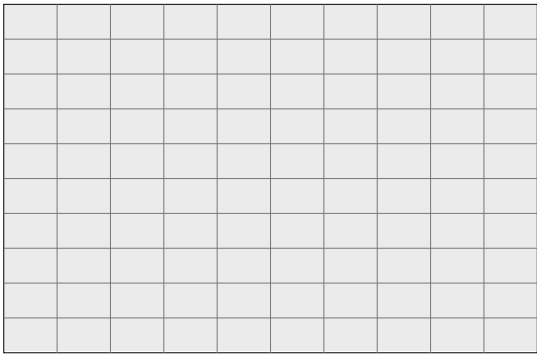
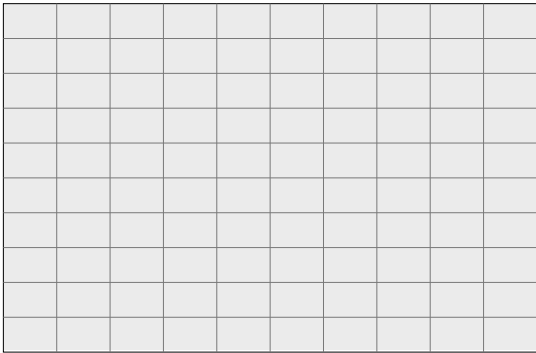
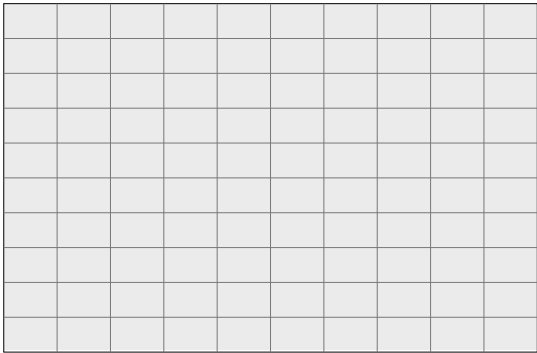
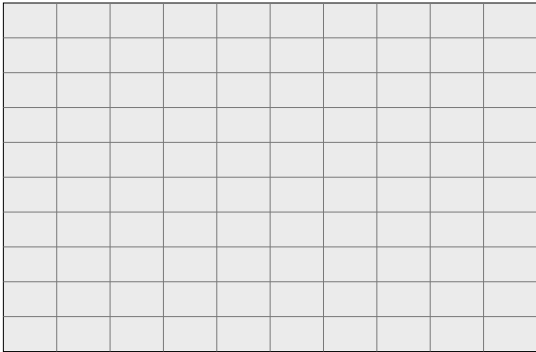
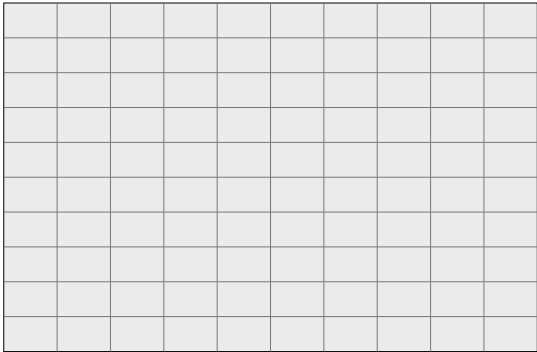
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

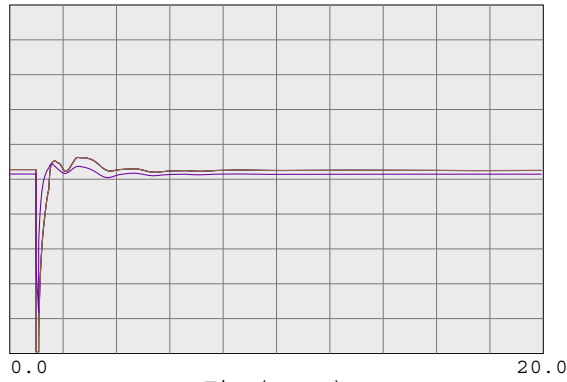
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



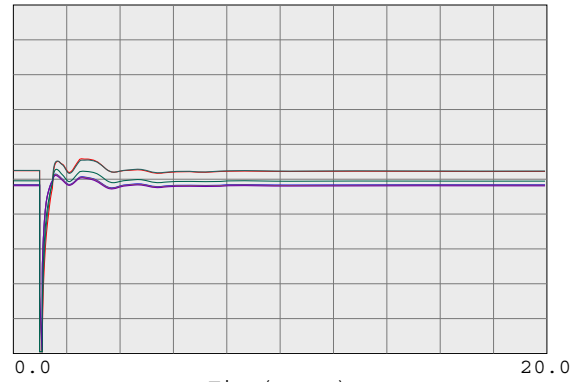
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



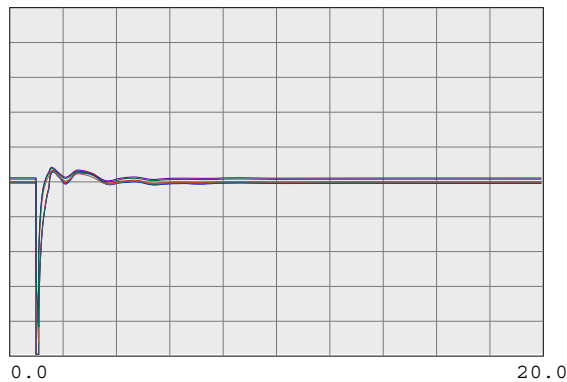
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



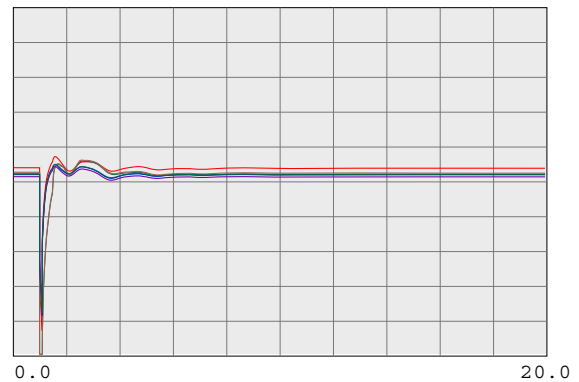
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



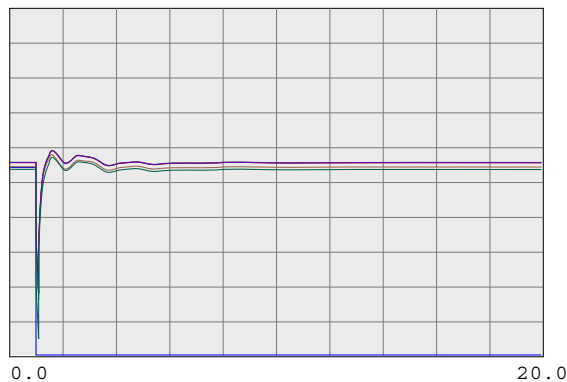
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TSOSMO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



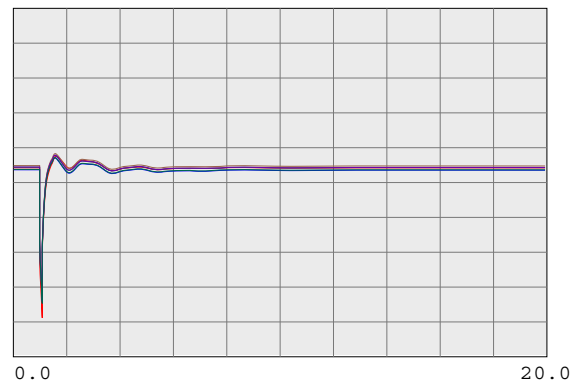
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

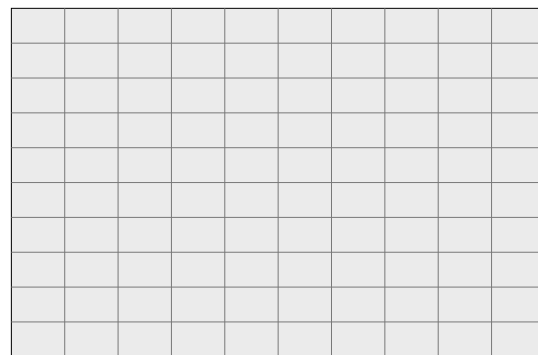
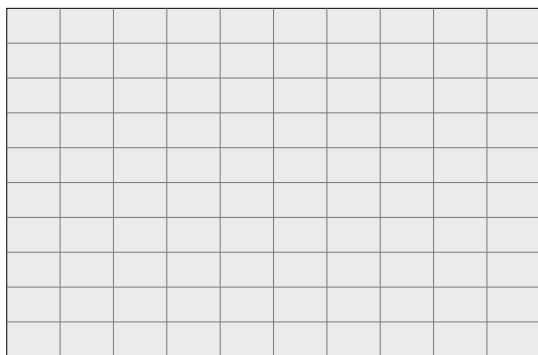
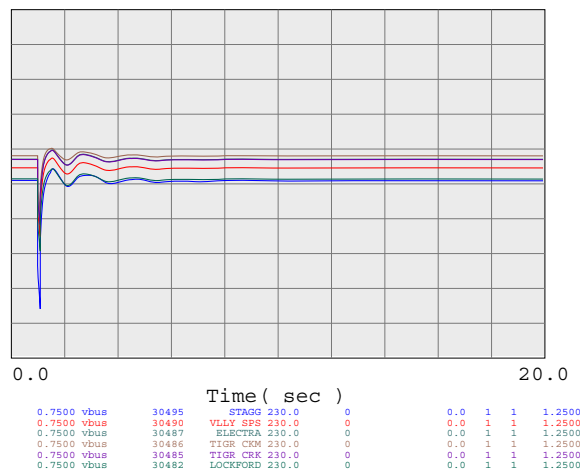
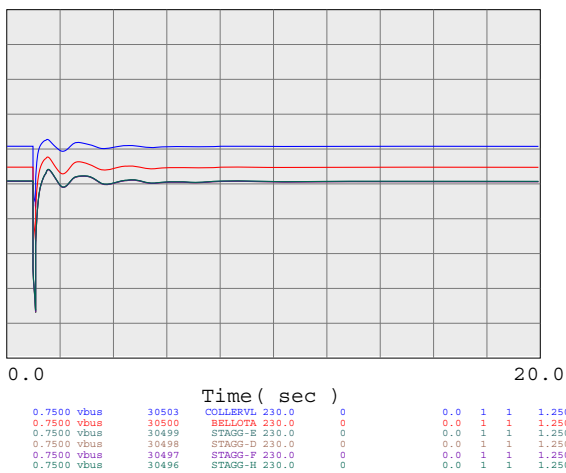
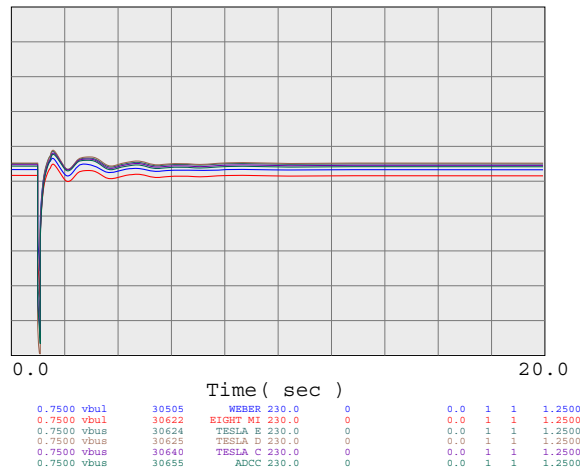
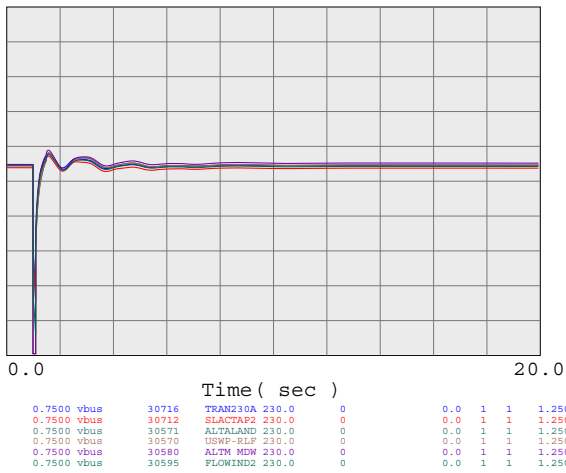
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

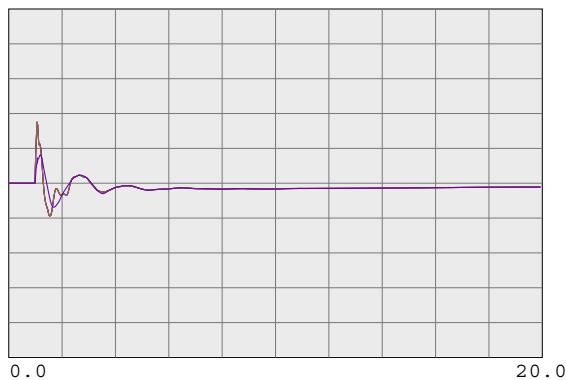
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

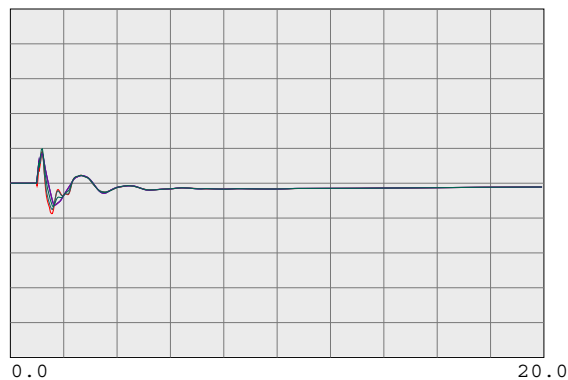
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

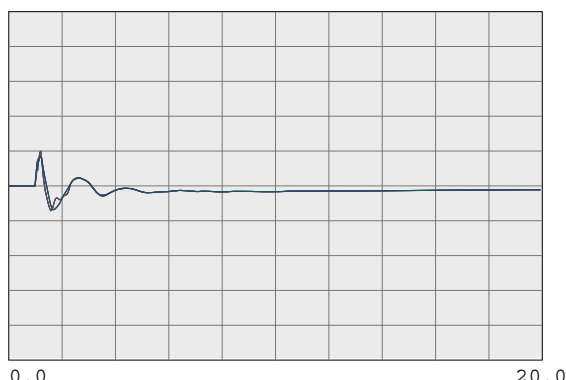
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

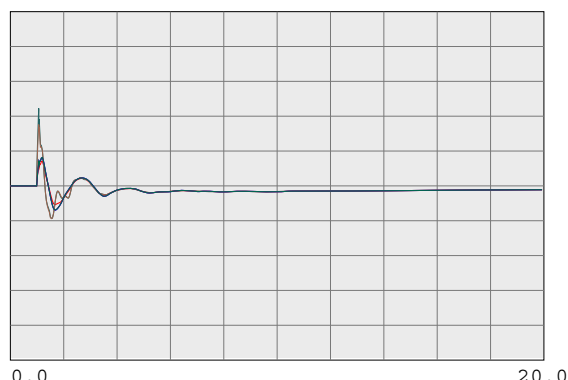
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

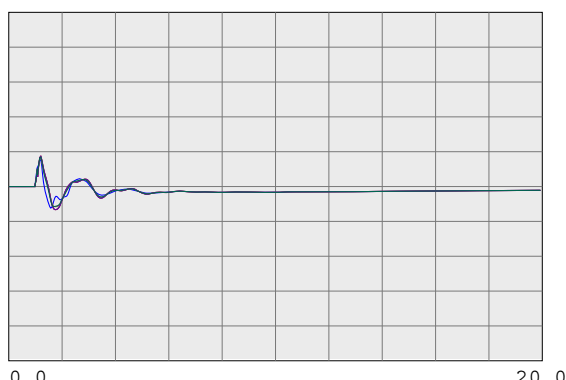
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

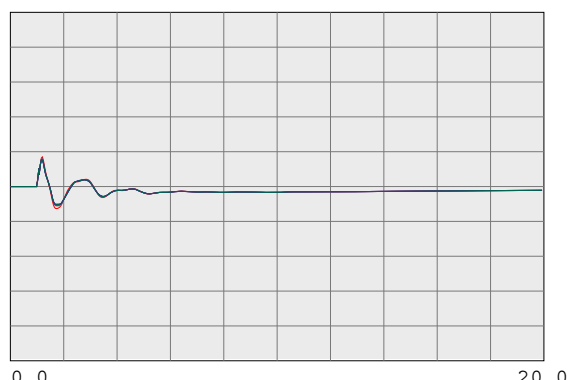
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

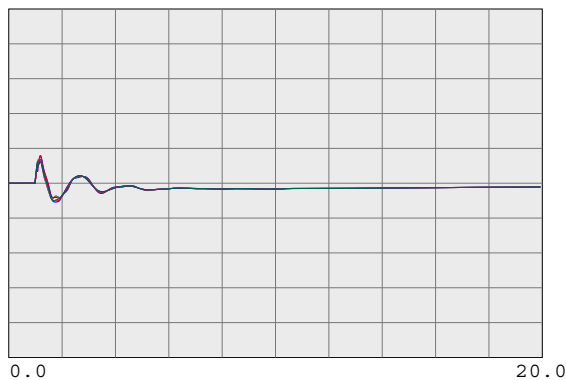
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

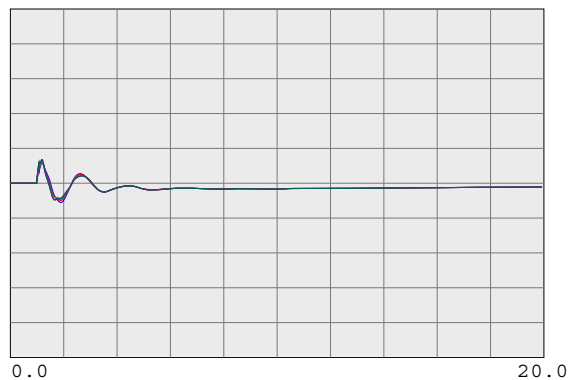
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

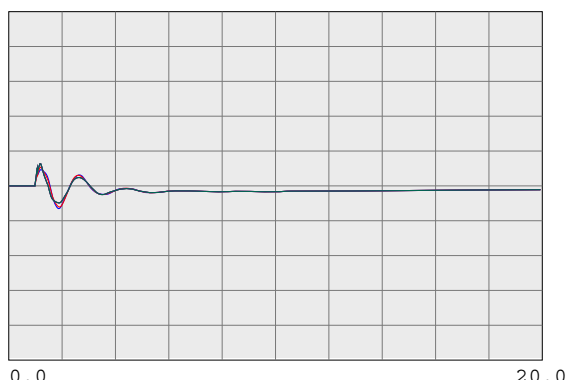
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

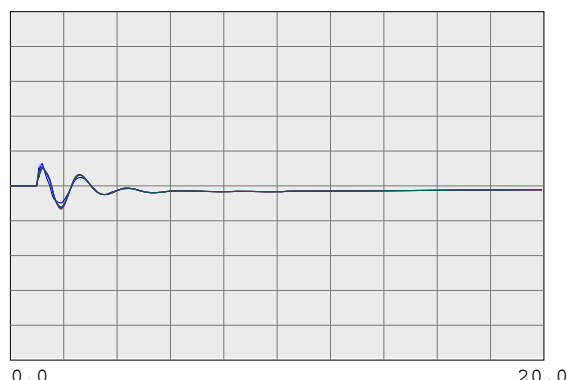
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

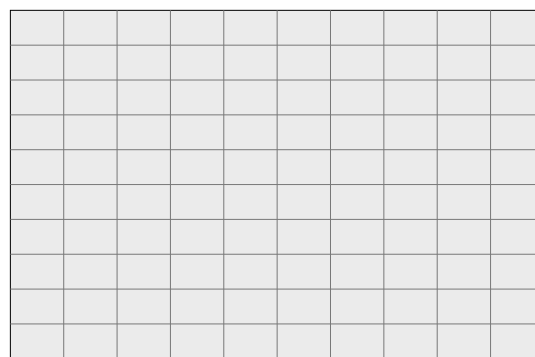
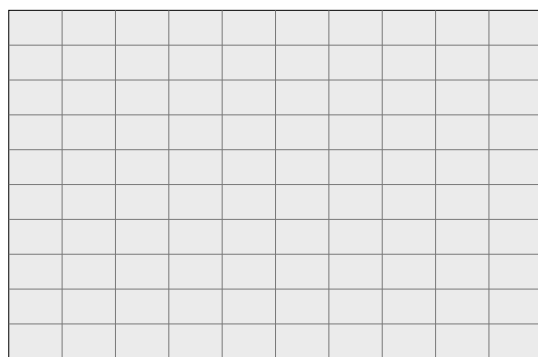
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

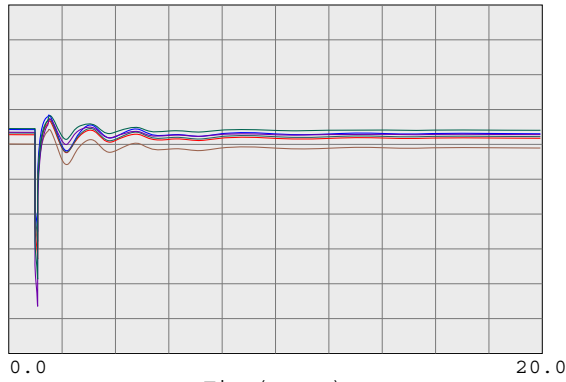
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

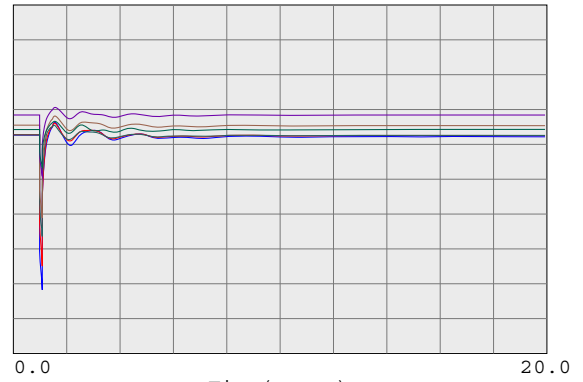
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



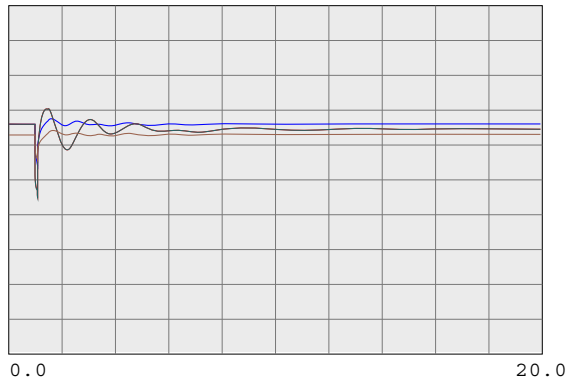
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



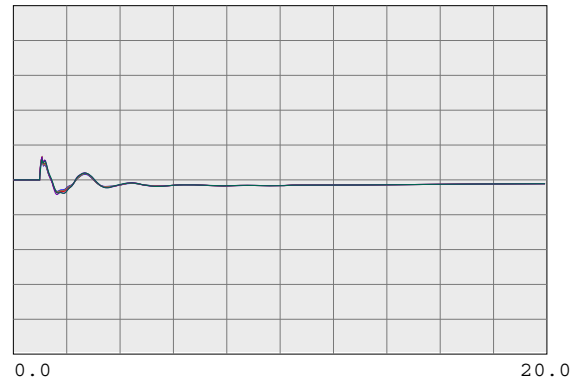
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



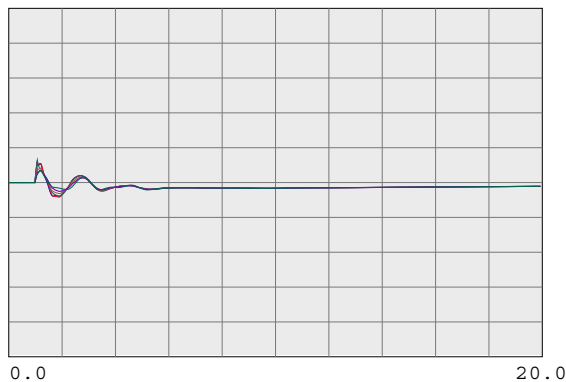
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



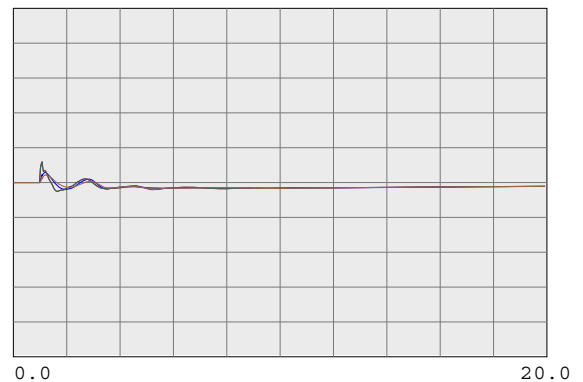
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

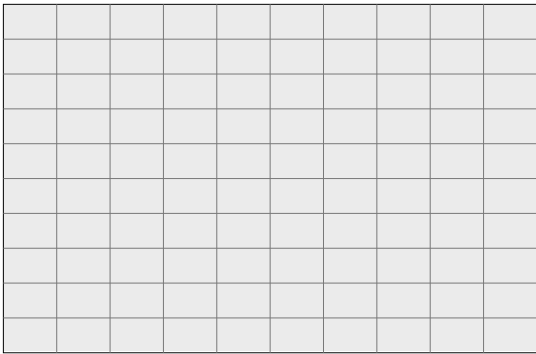
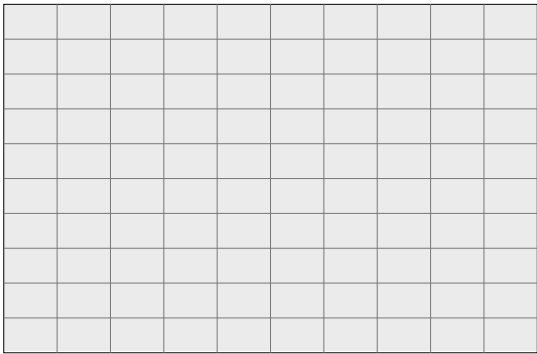
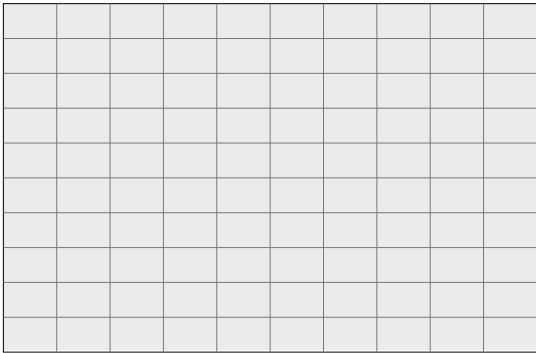
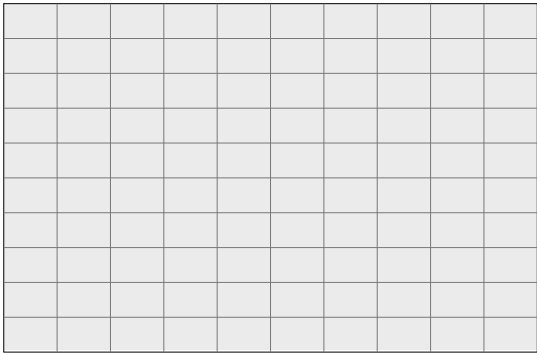
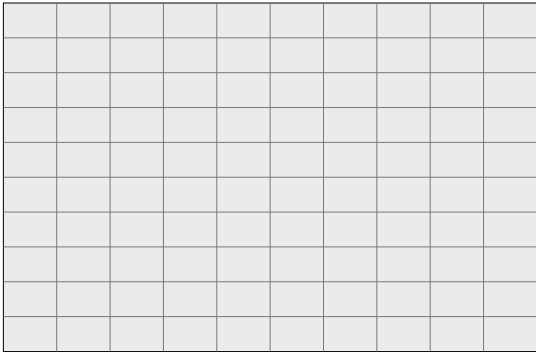
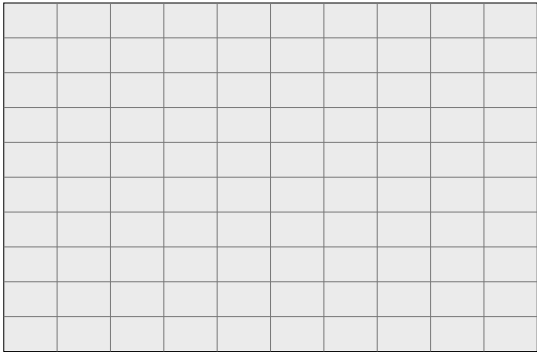
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

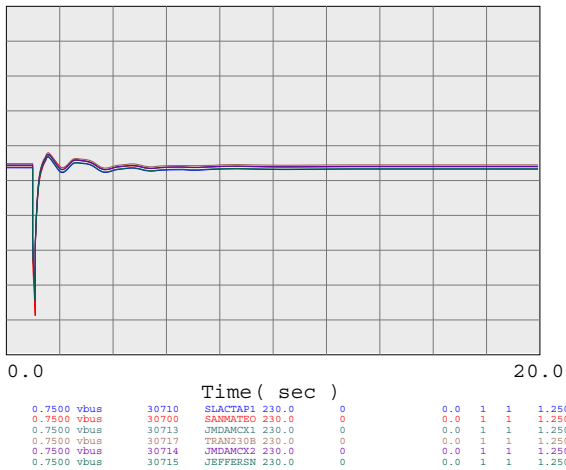
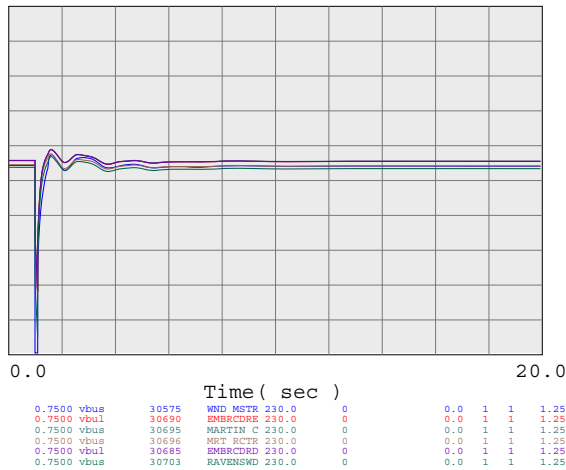
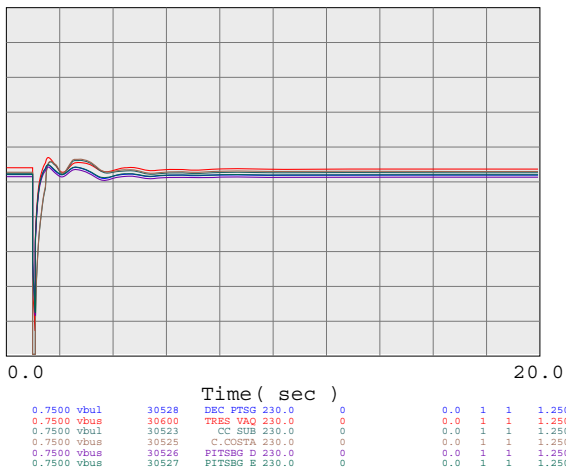
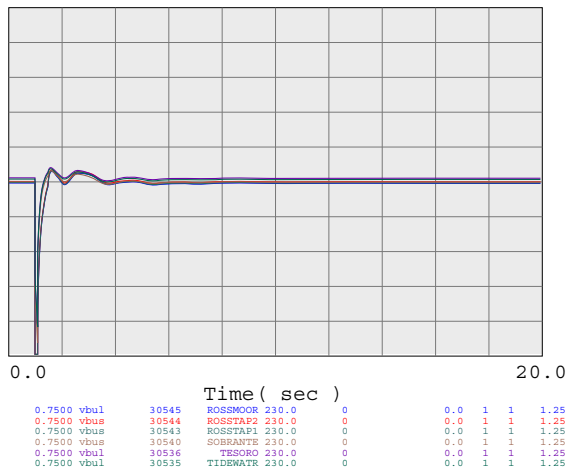
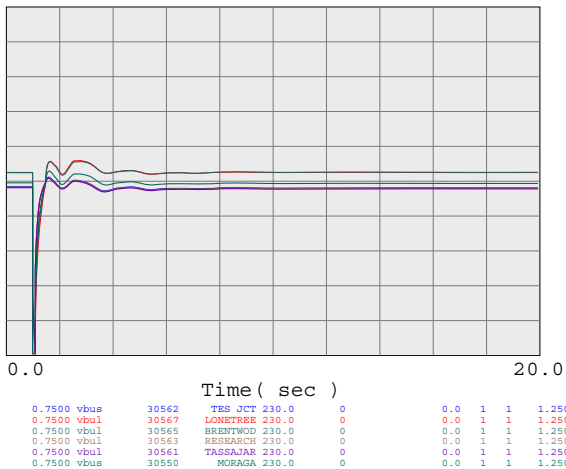
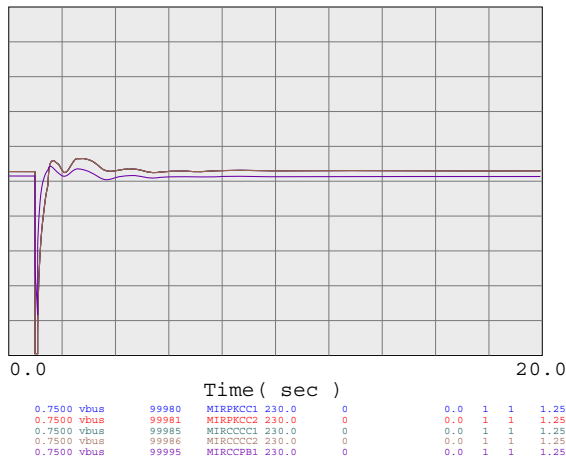
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



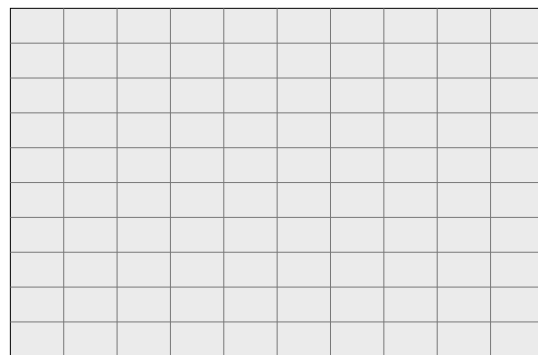
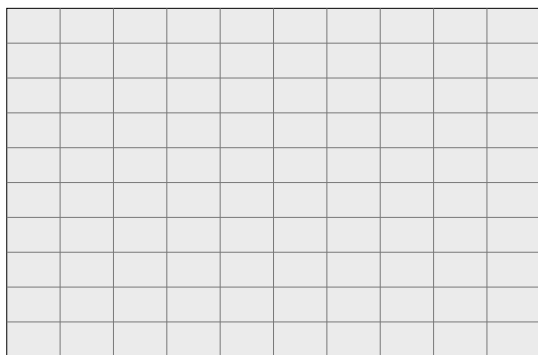
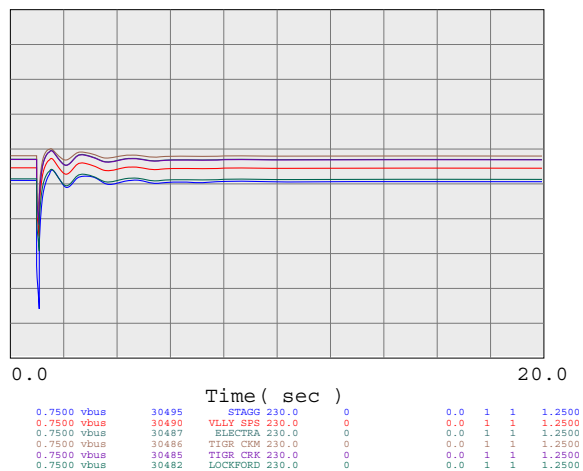
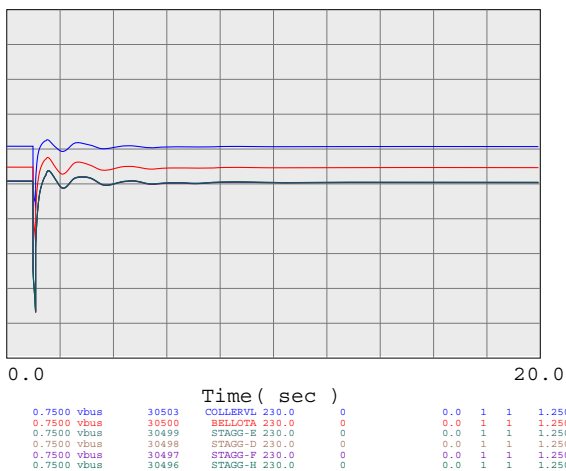
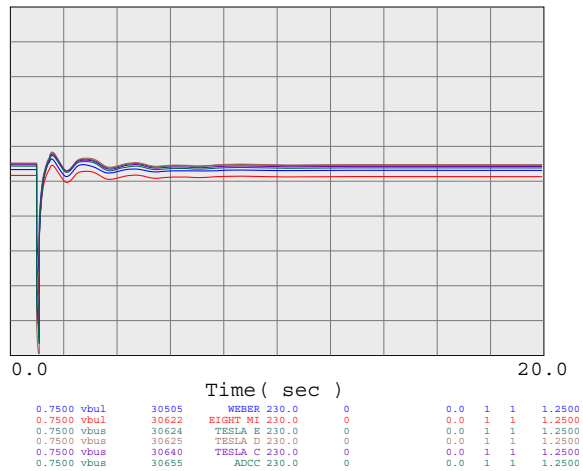
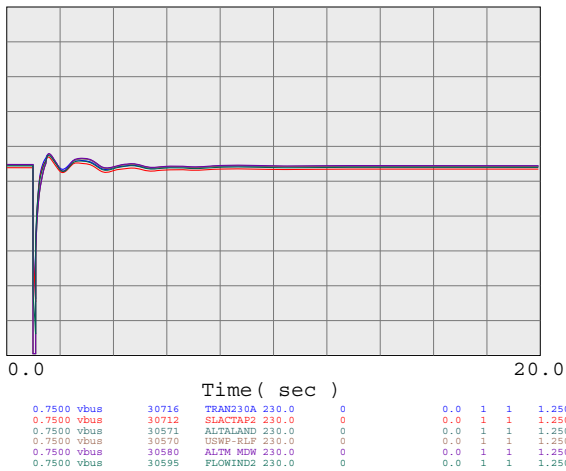
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

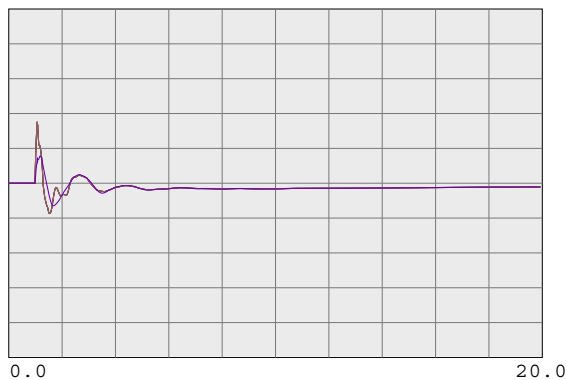


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



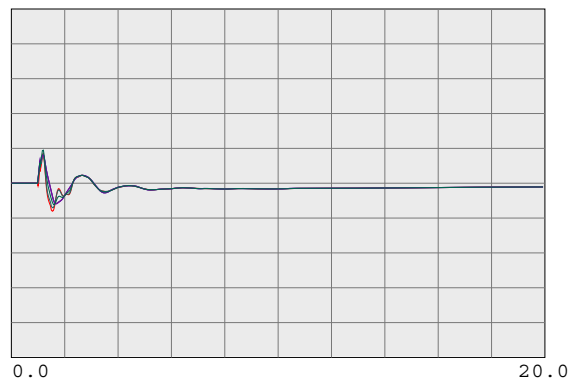
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

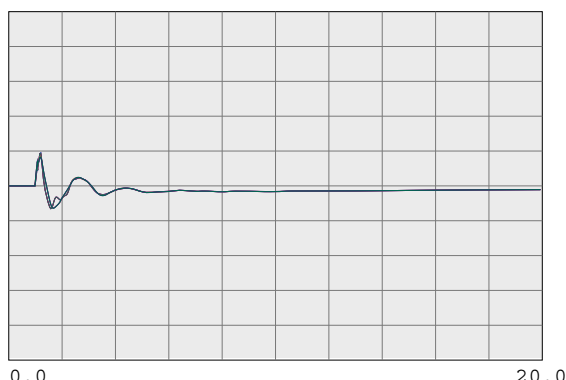
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

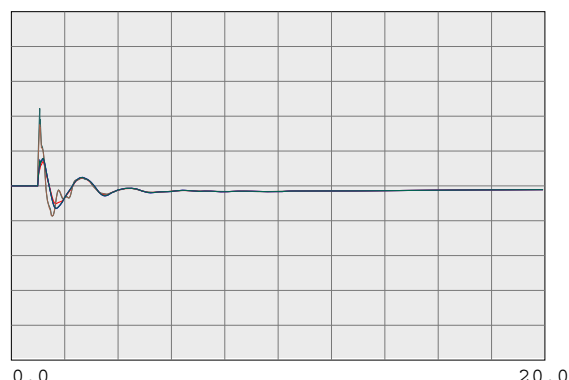
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

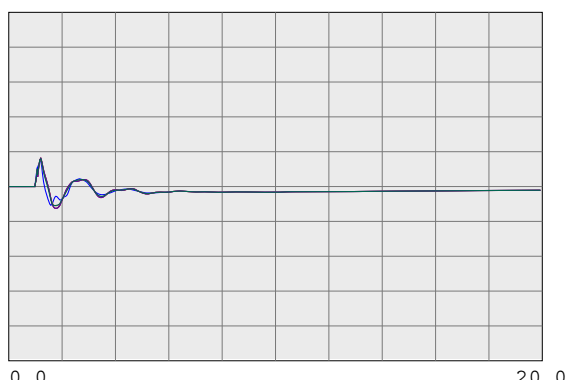
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

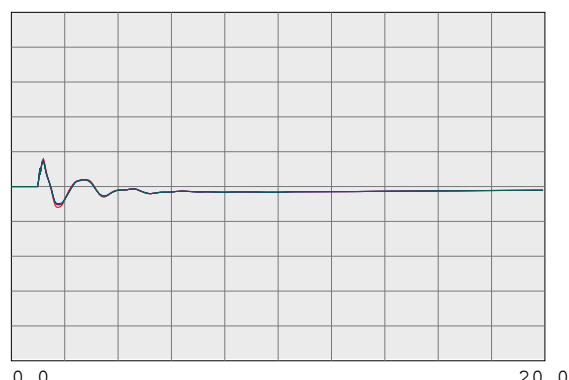
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

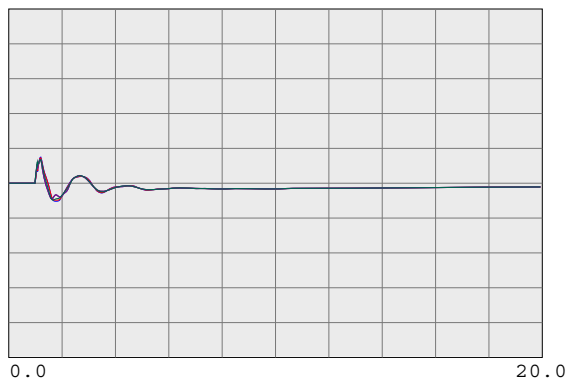
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

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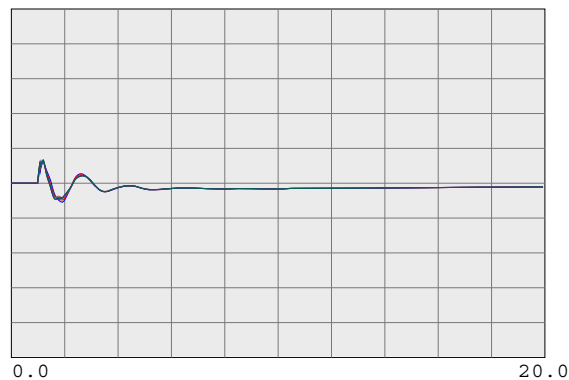
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



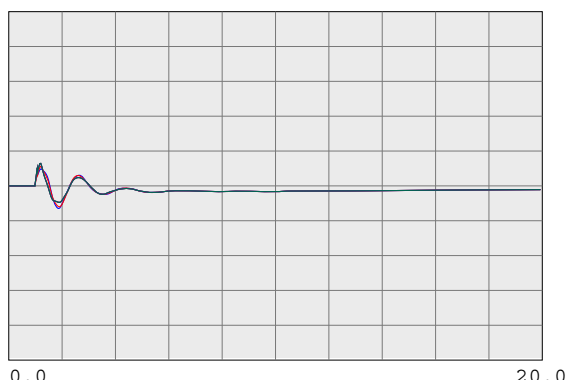
Time (sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



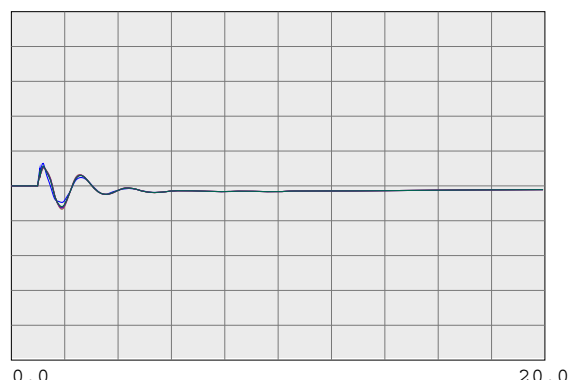
Time (sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



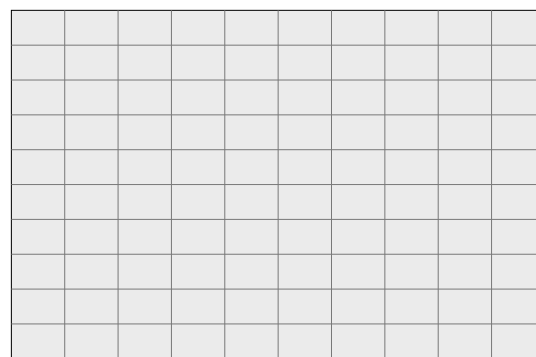
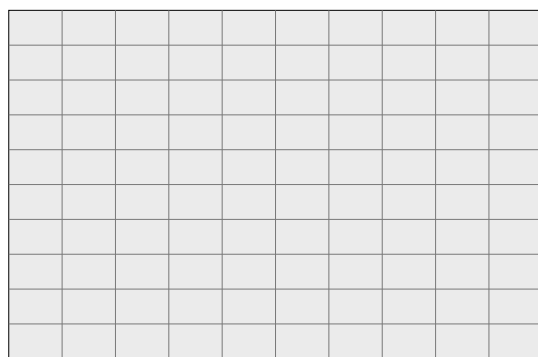
Time (sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

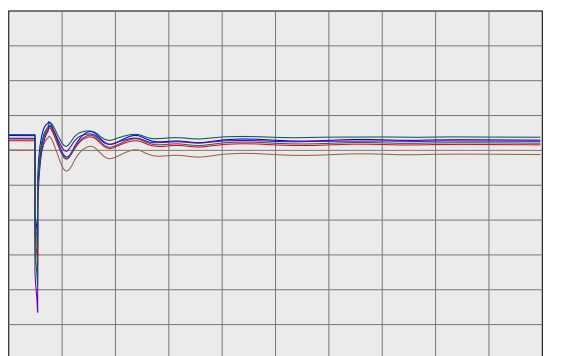
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

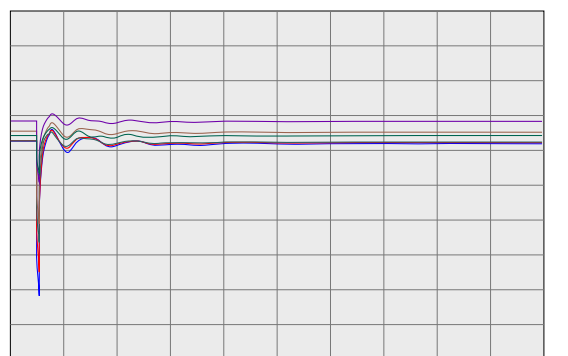
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



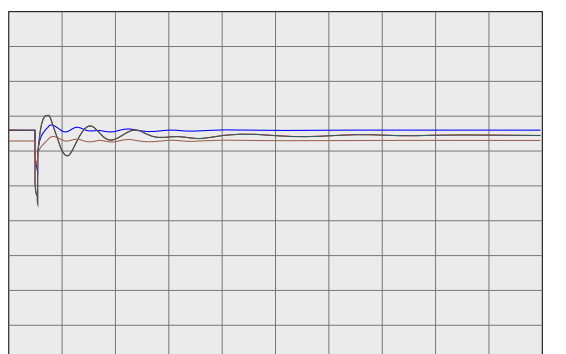
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



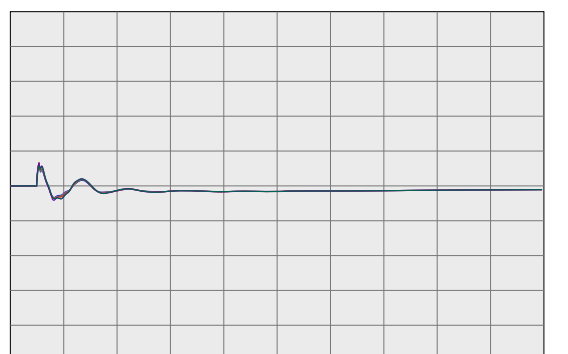
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



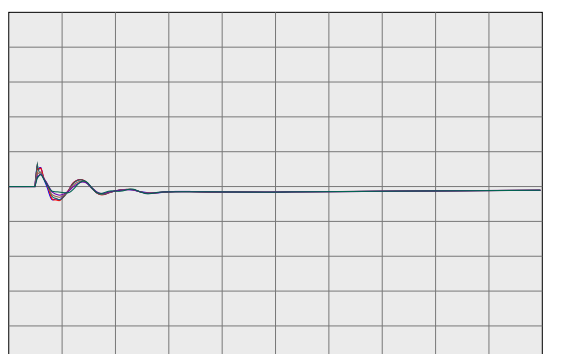
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



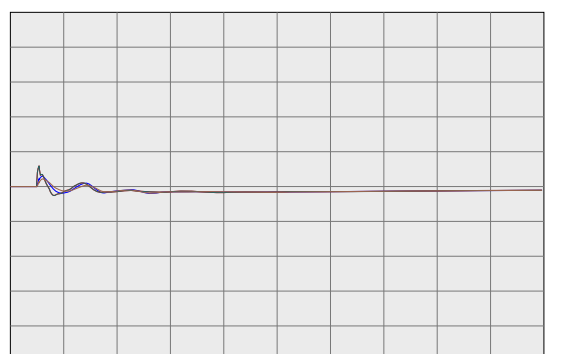
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

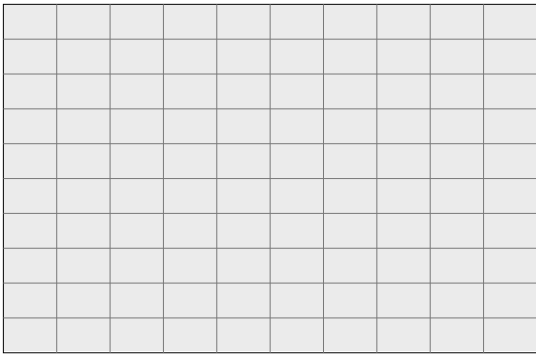
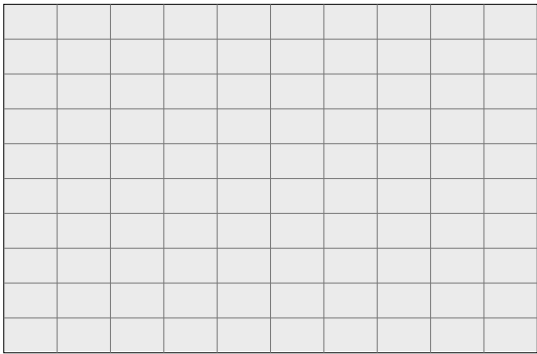
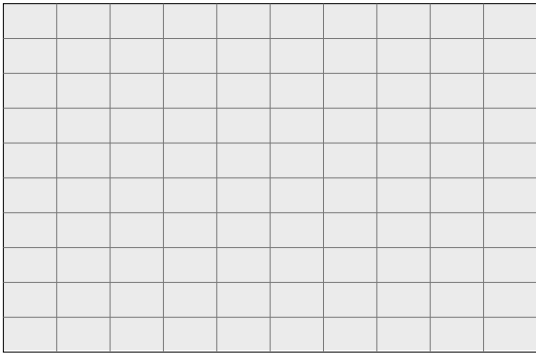
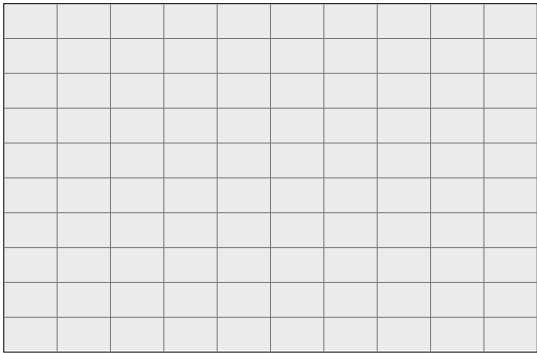
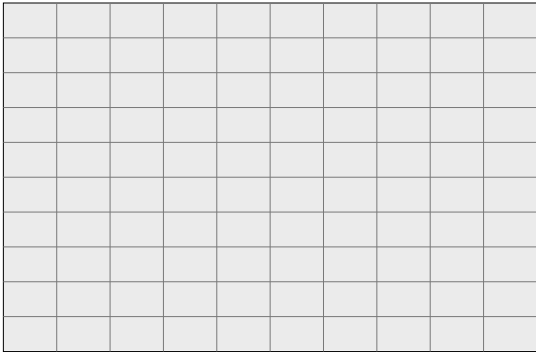
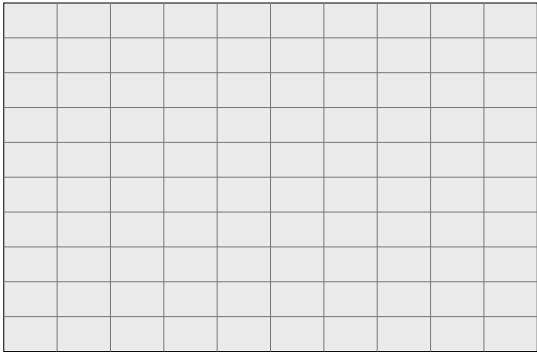
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

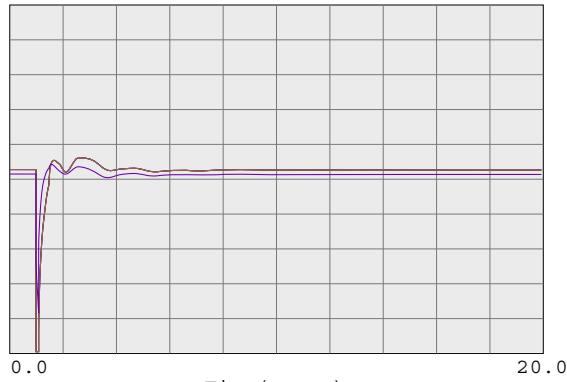
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



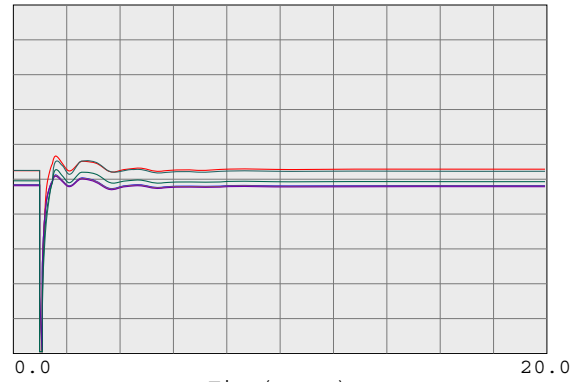
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



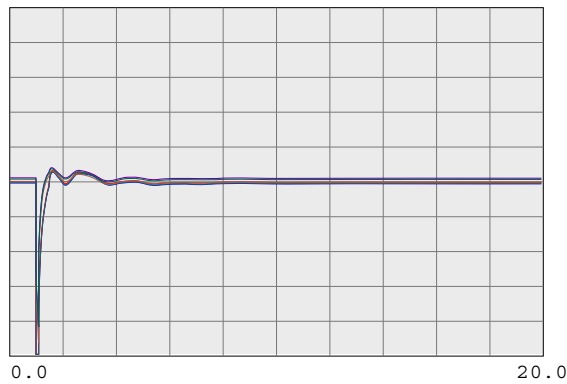
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



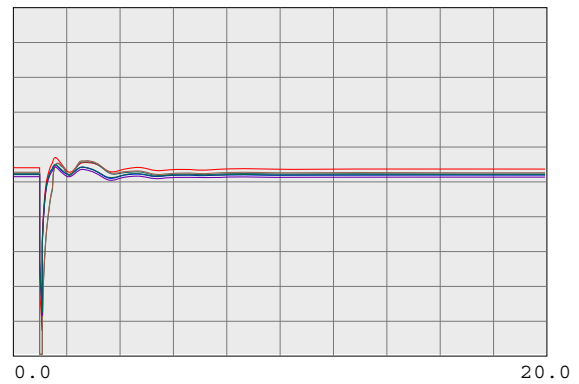
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



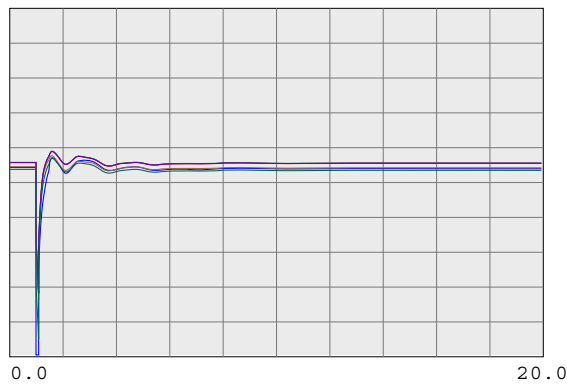
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



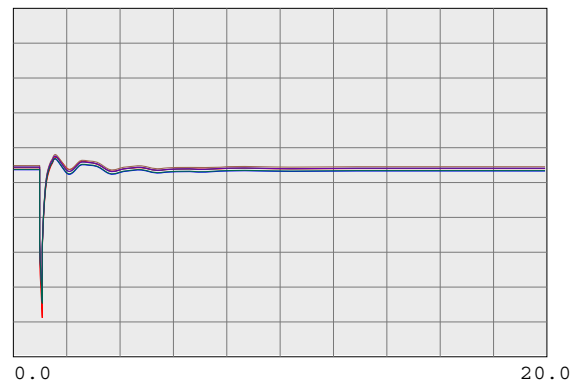
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

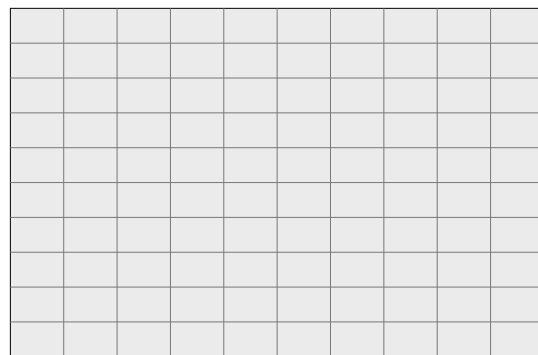
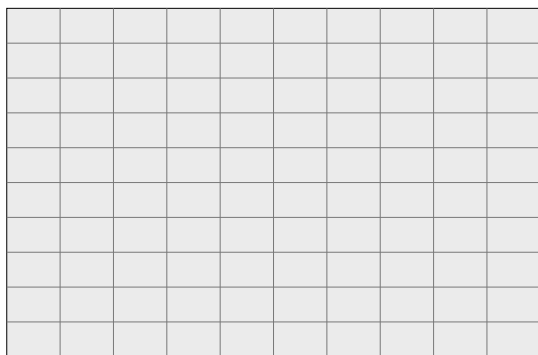
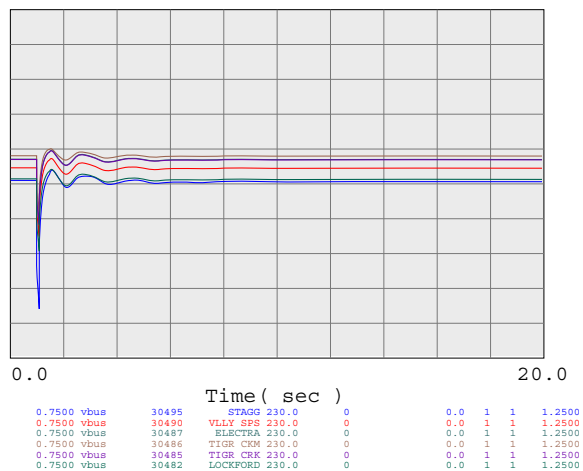
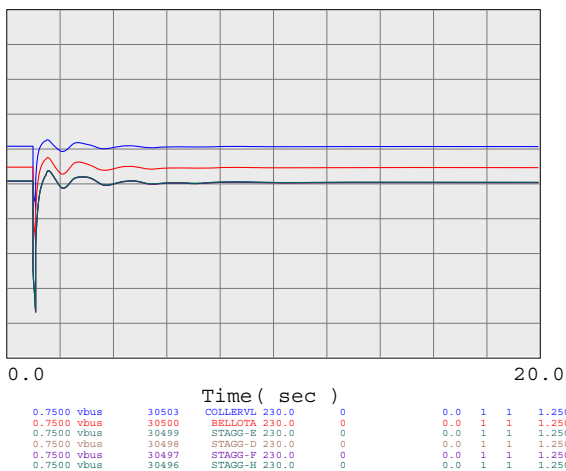
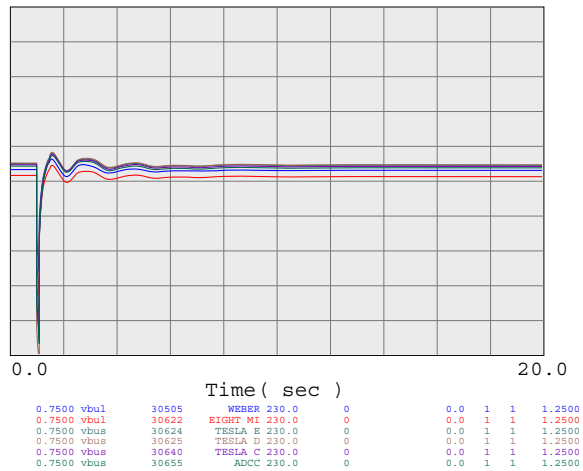
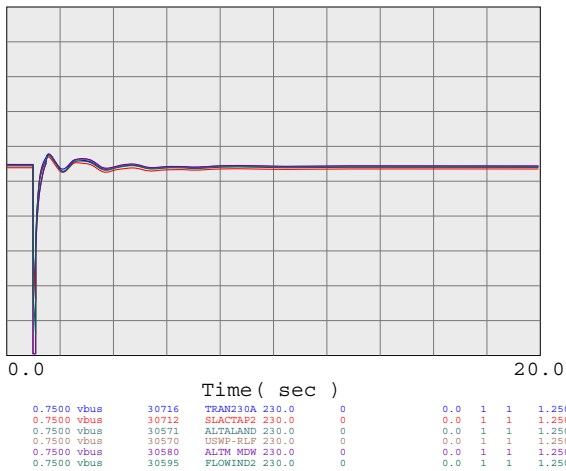
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

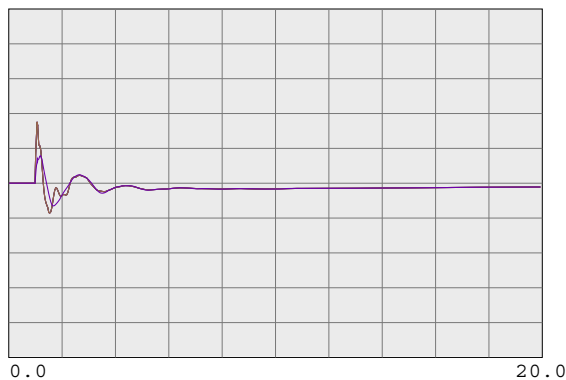
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



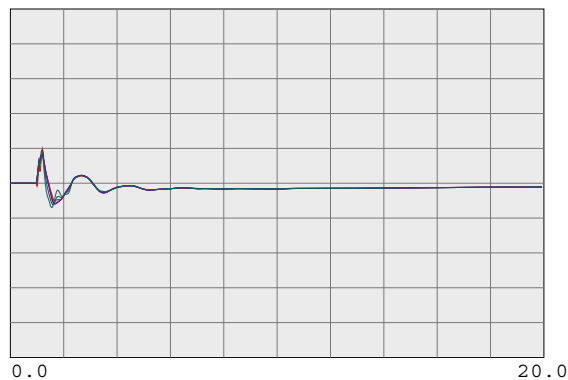
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

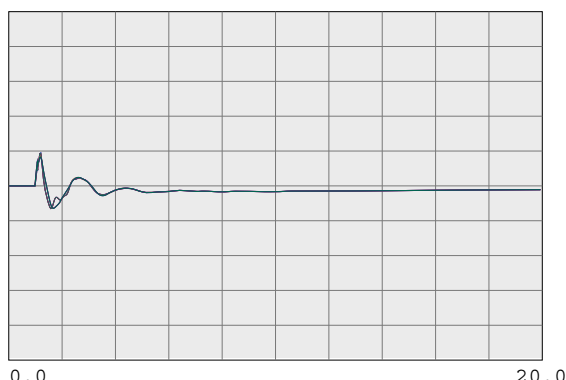
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

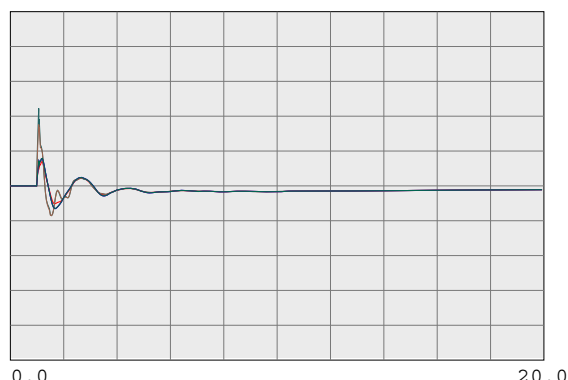
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

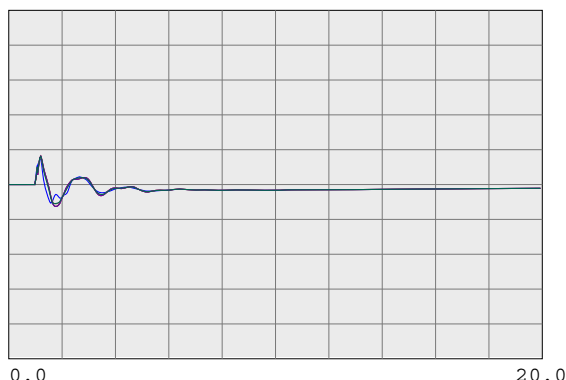
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

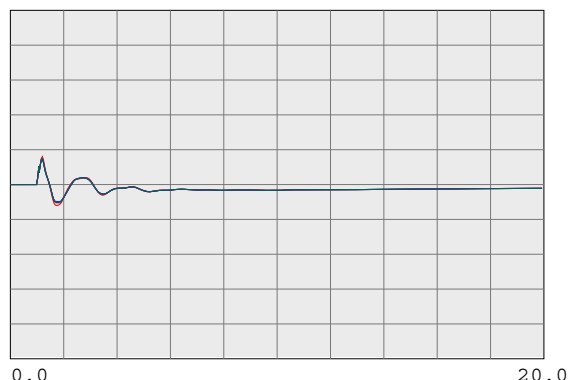
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

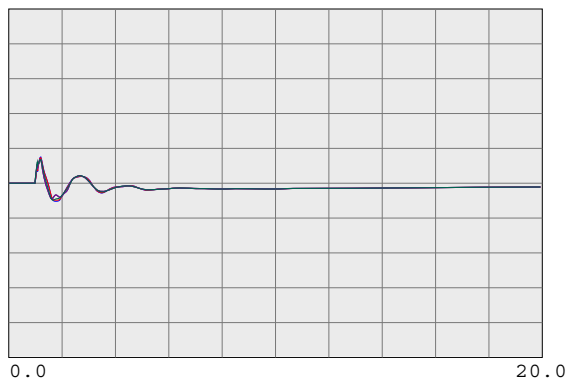
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

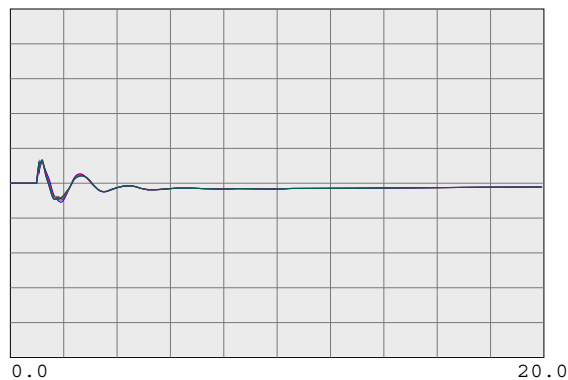
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

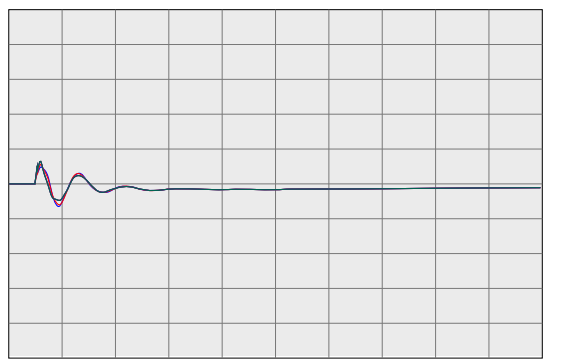
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

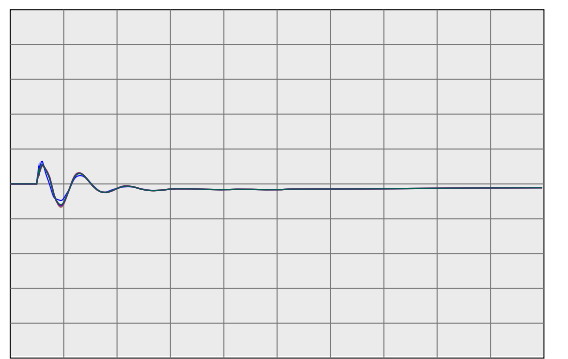
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

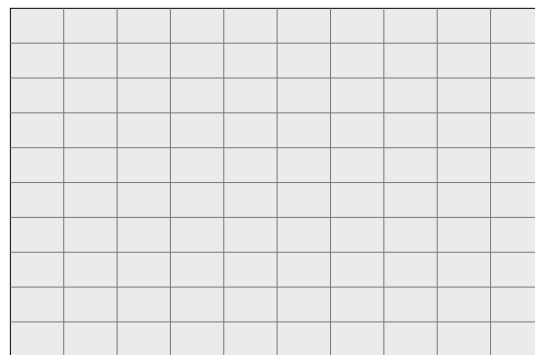
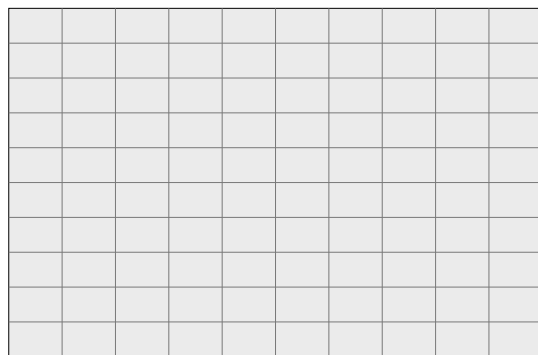
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

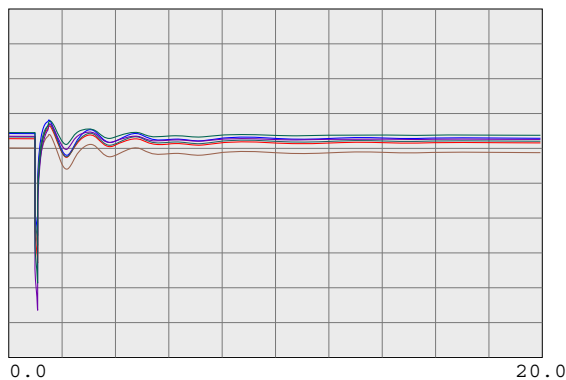
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

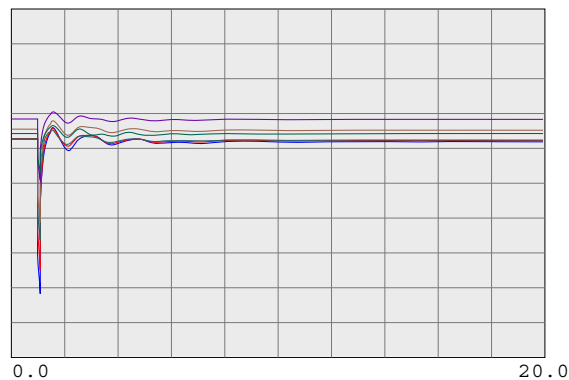
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



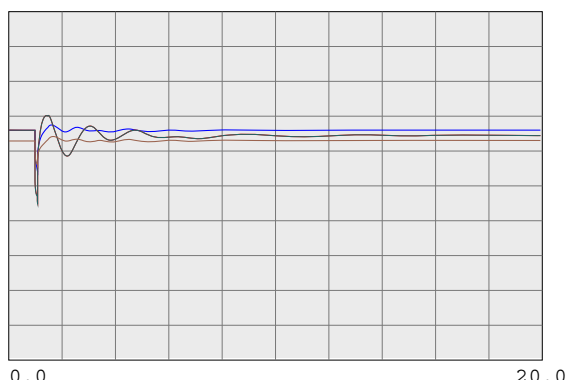
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



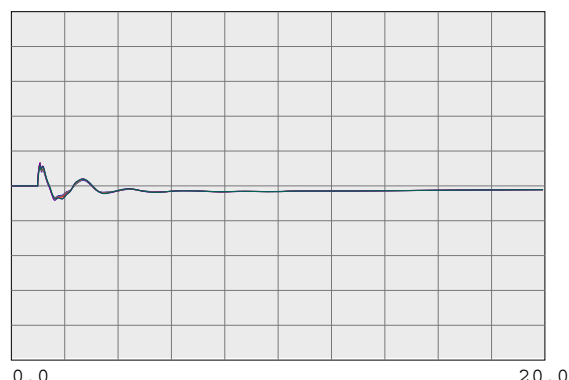
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



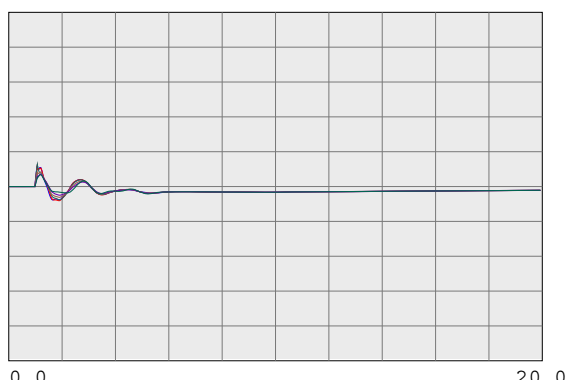
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



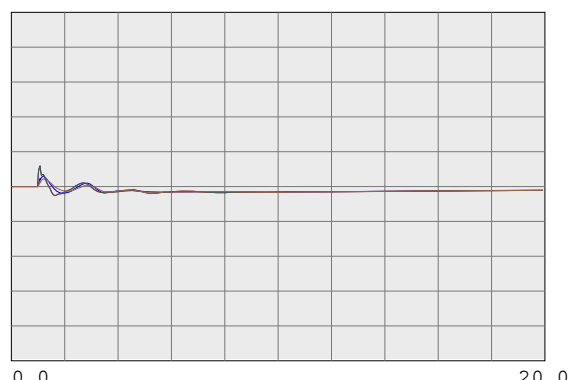
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

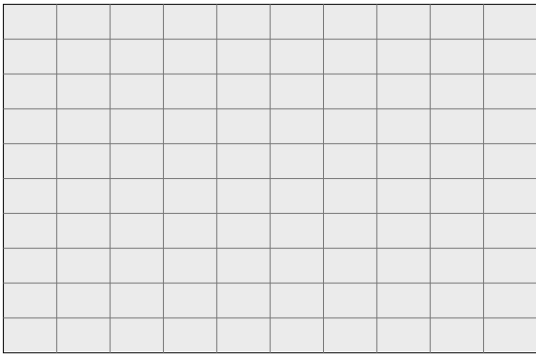
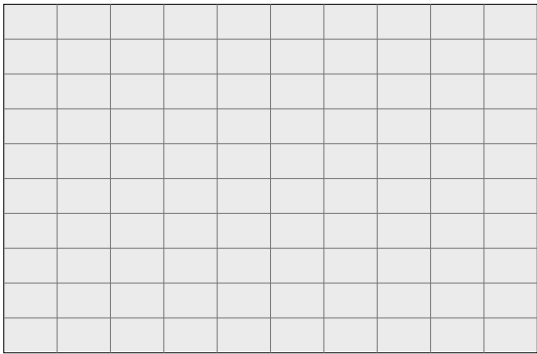
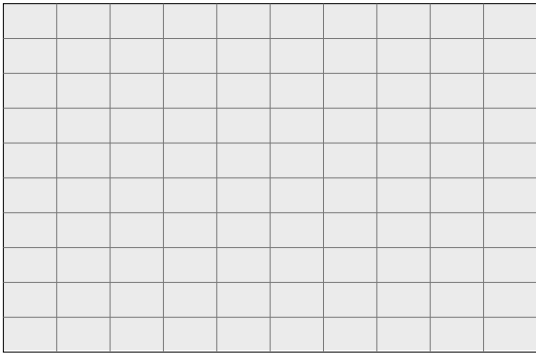
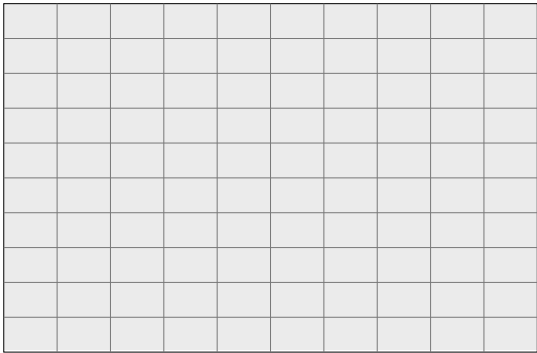
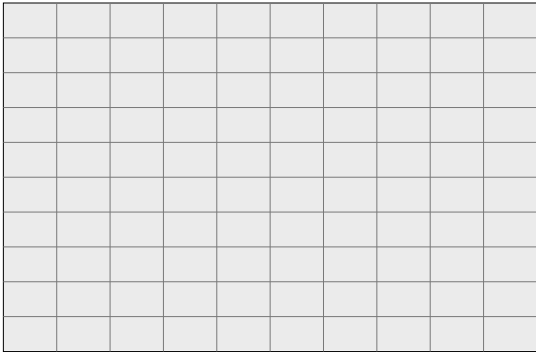
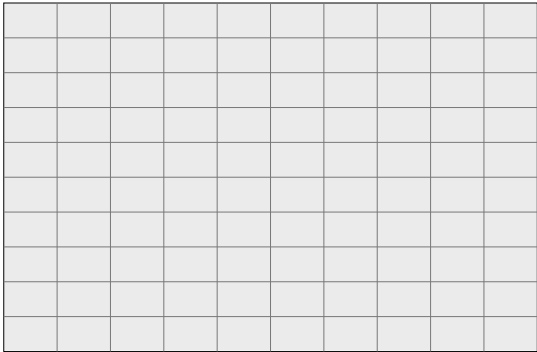
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

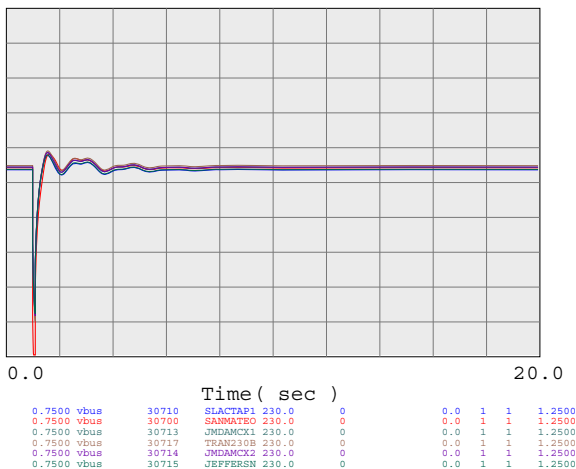
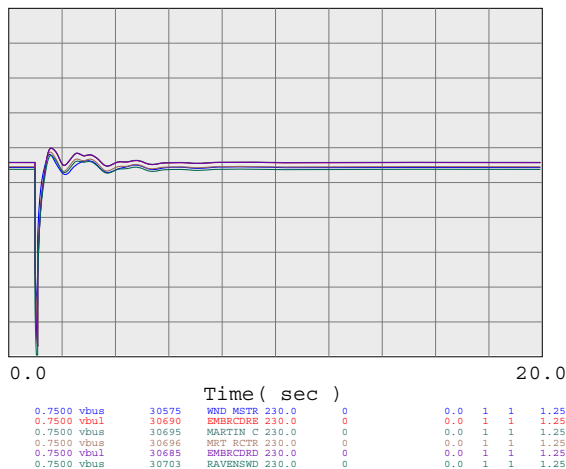
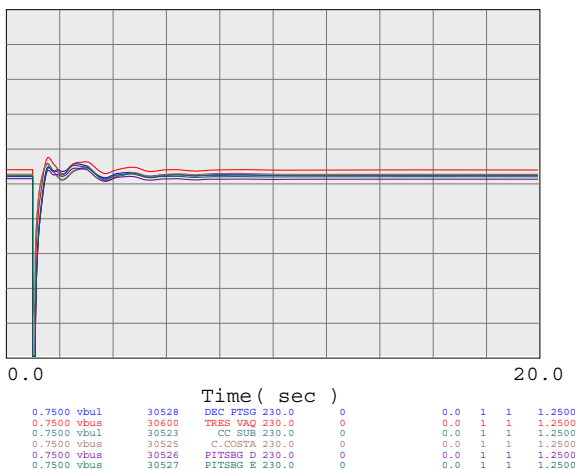
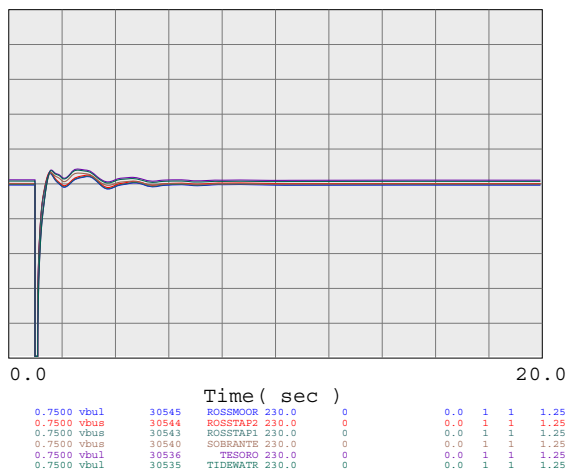
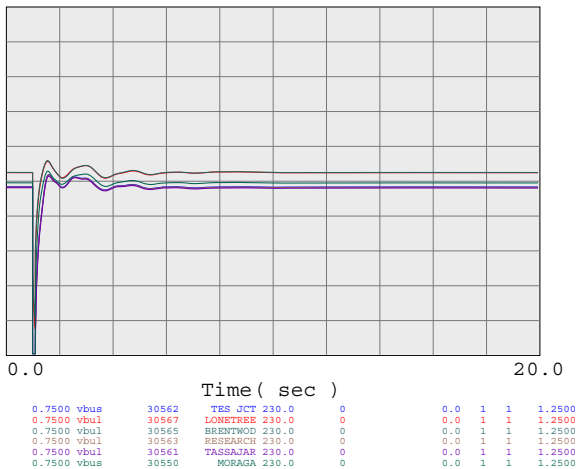
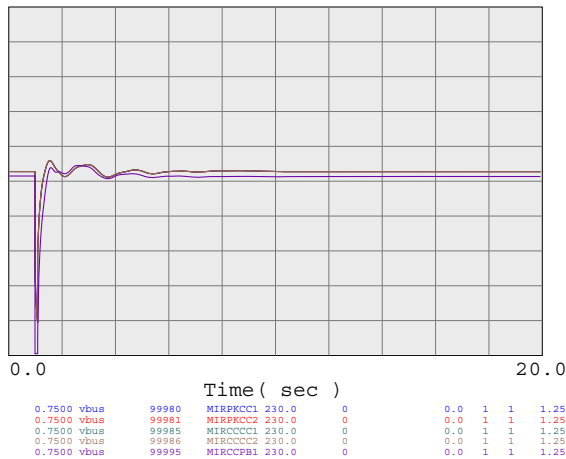
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



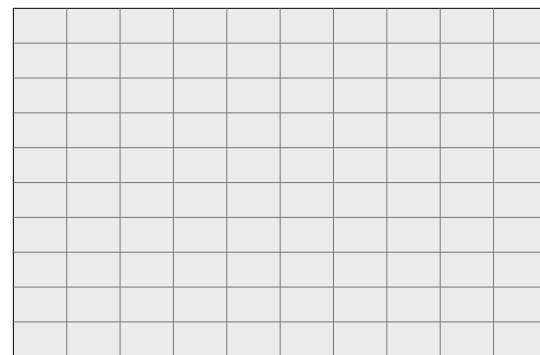
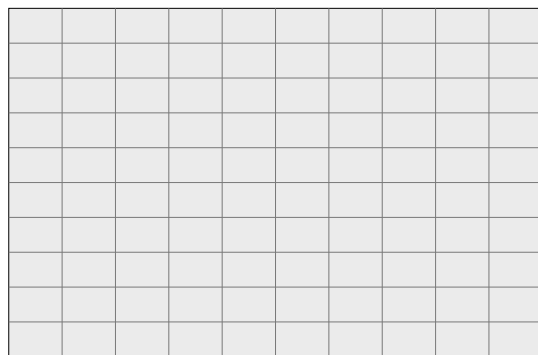
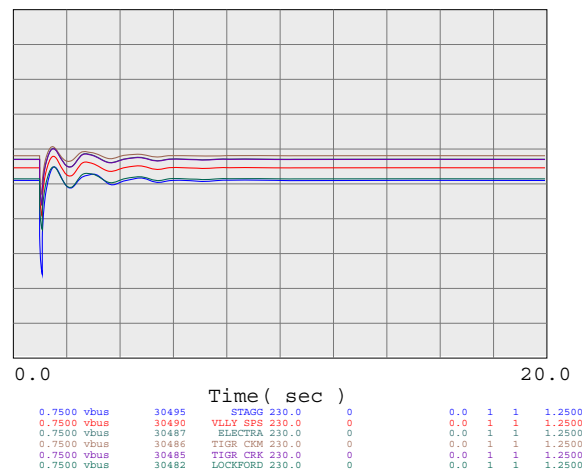
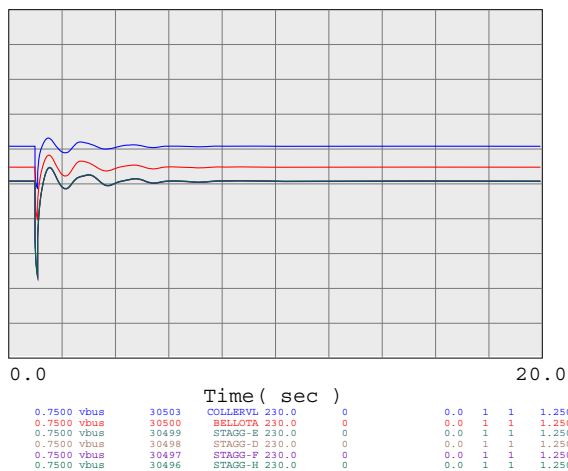
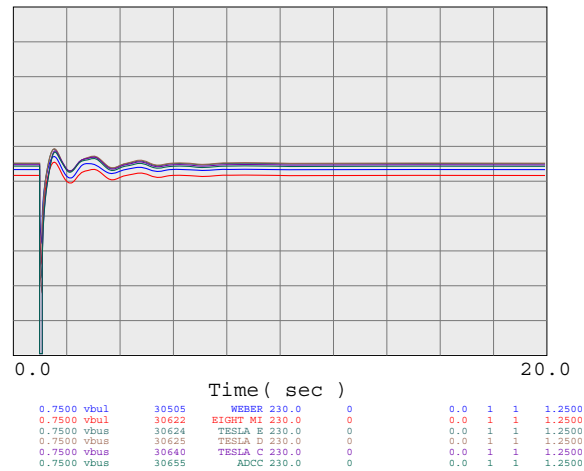
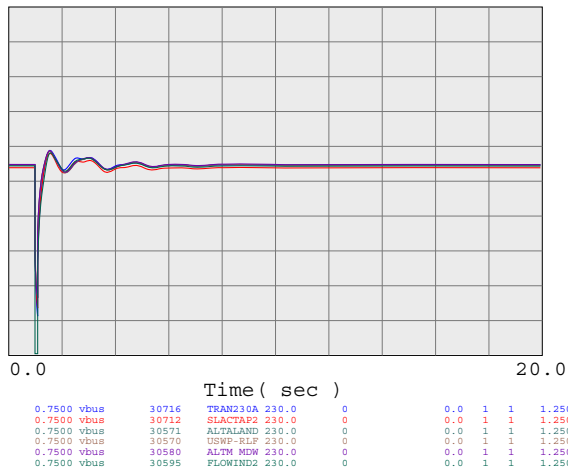
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

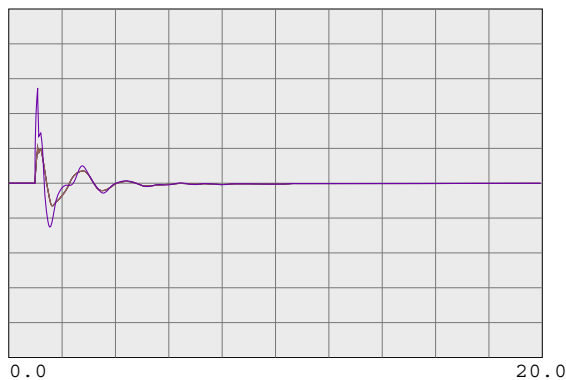


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

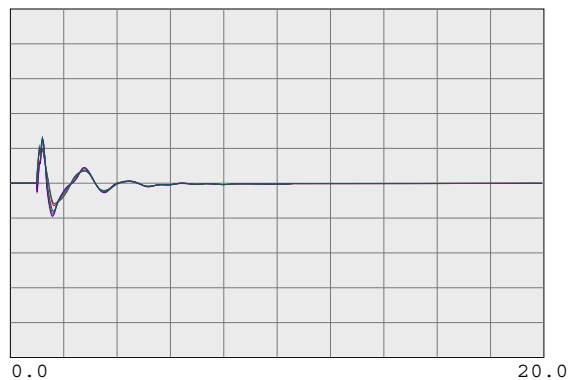
230-KV SYSTEM VOLTAGES



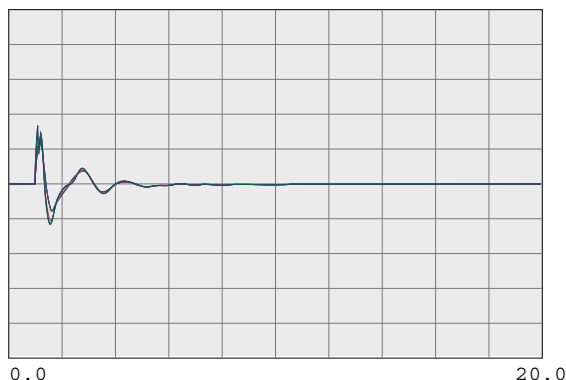
230-KV SYSTEM FREQUENCIES



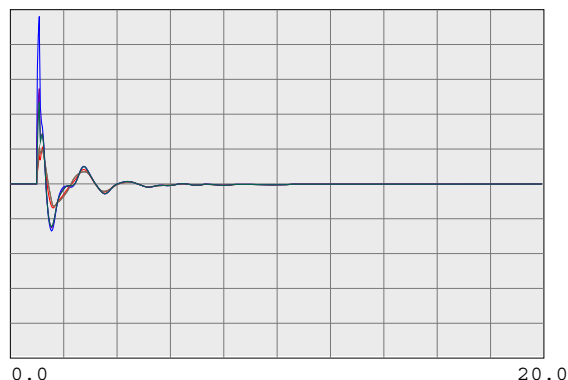
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



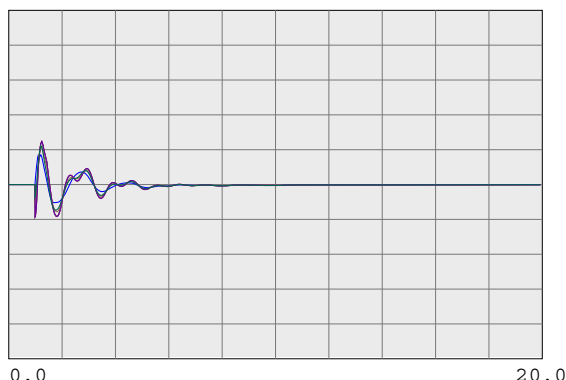
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



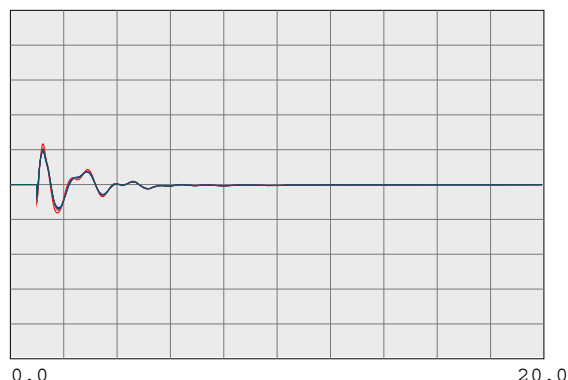
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

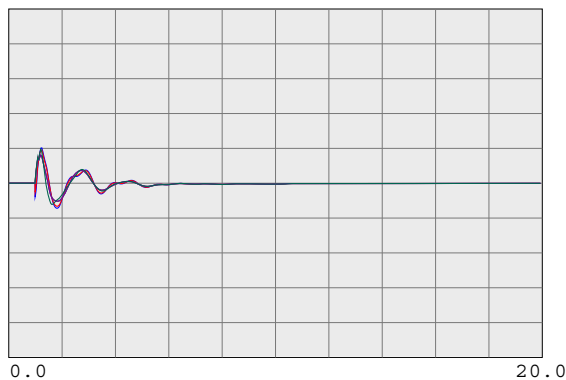
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

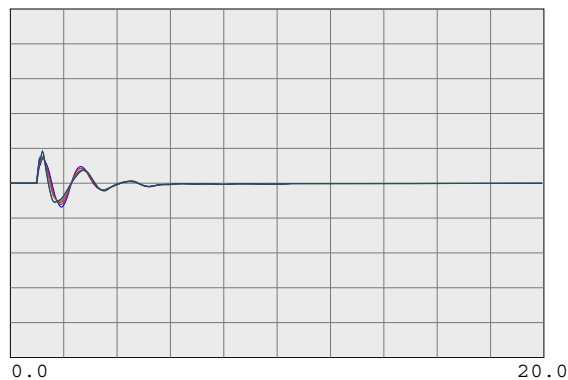
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

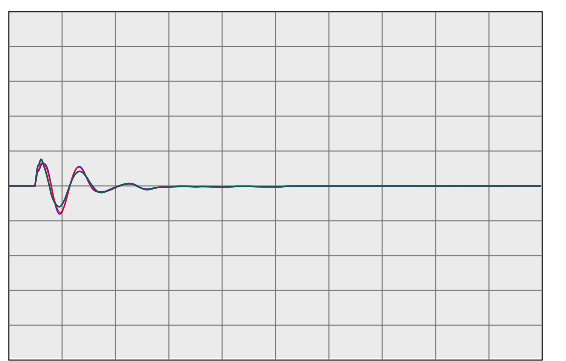
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

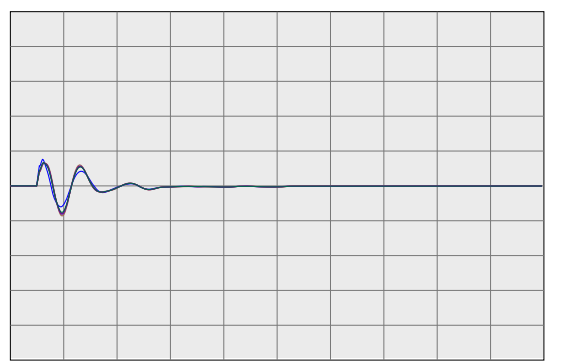
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

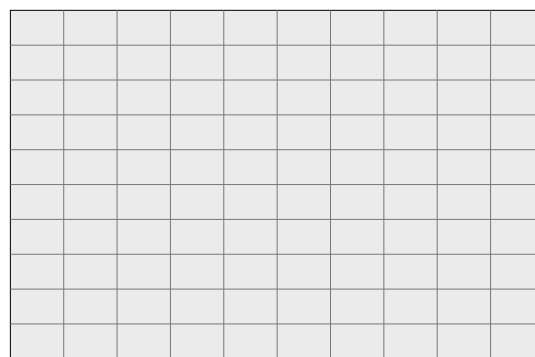
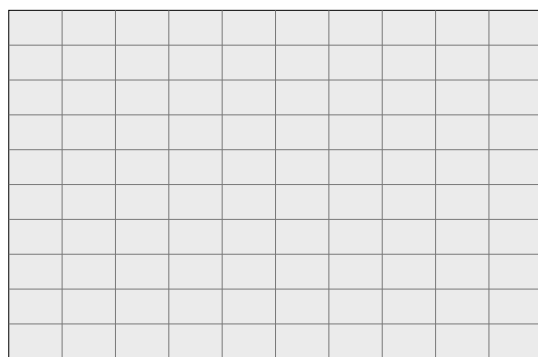
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

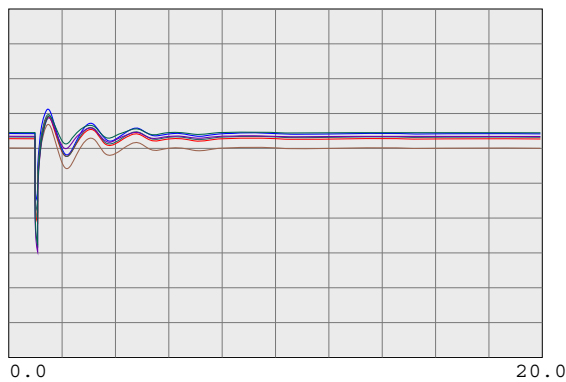
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

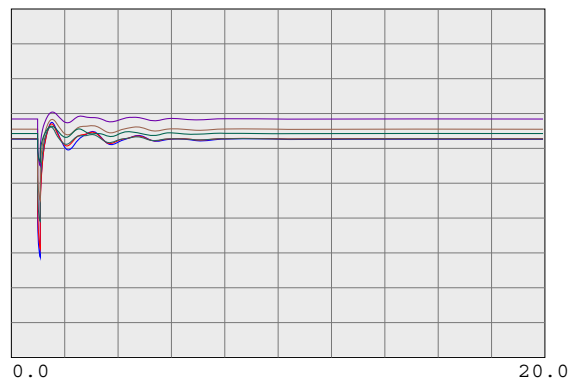
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

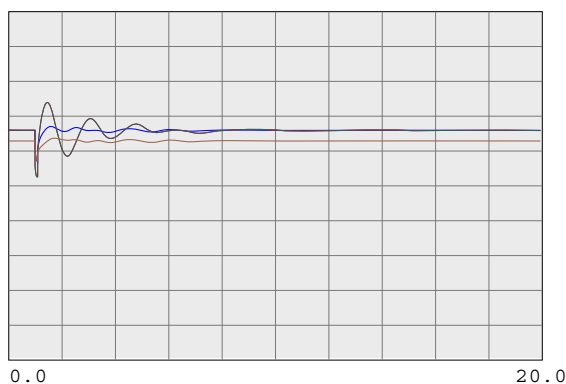
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



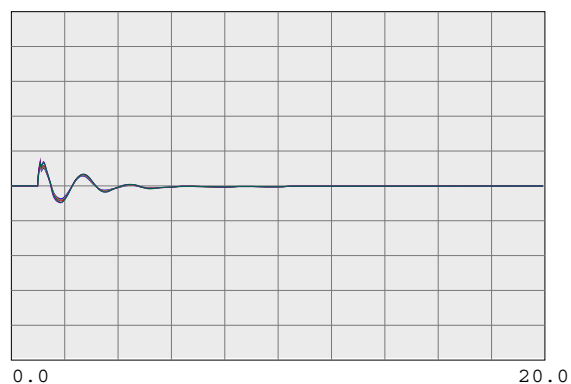
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



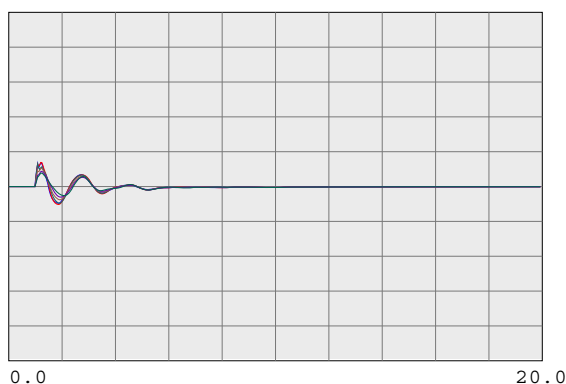
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



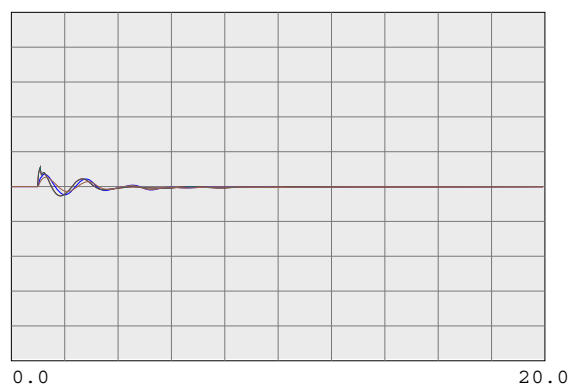
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

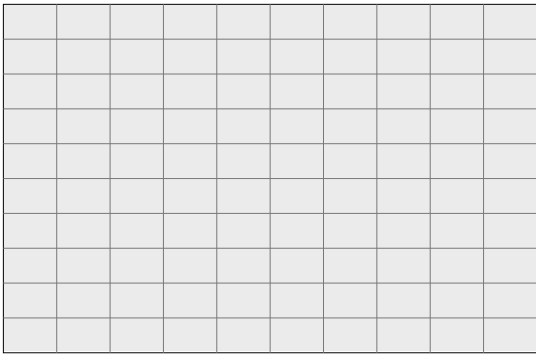
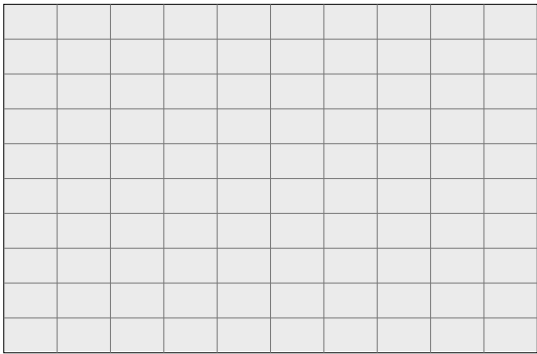
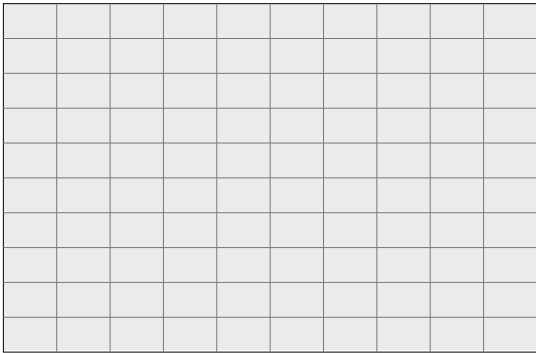
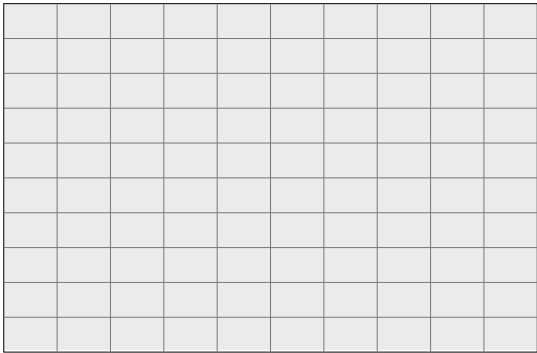
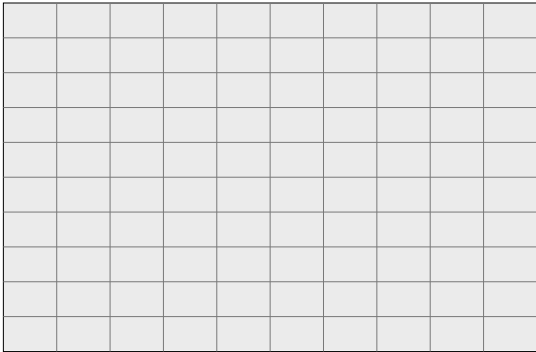
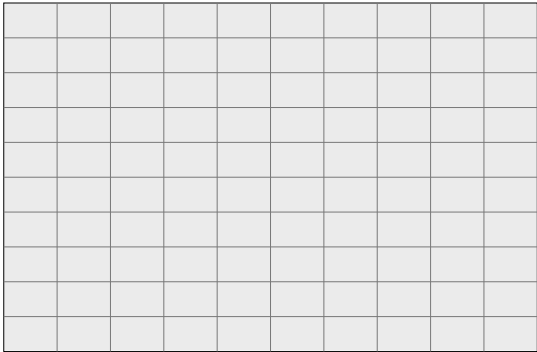
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

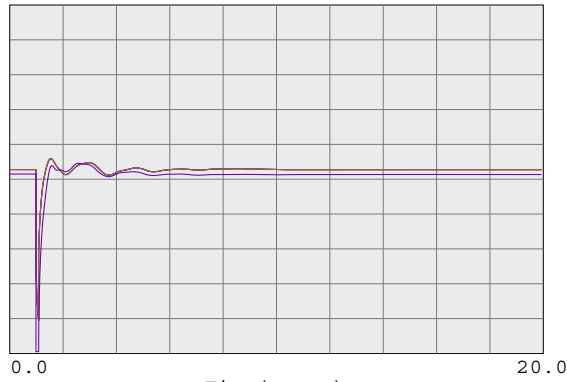
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



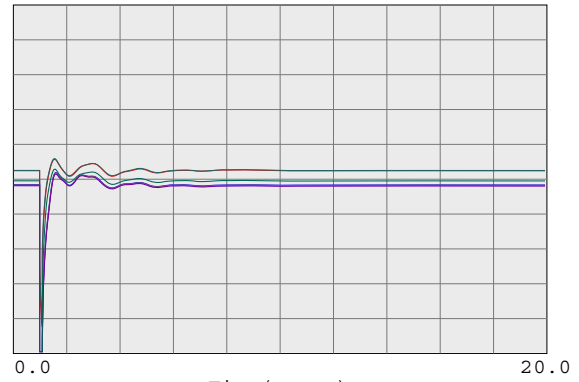
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



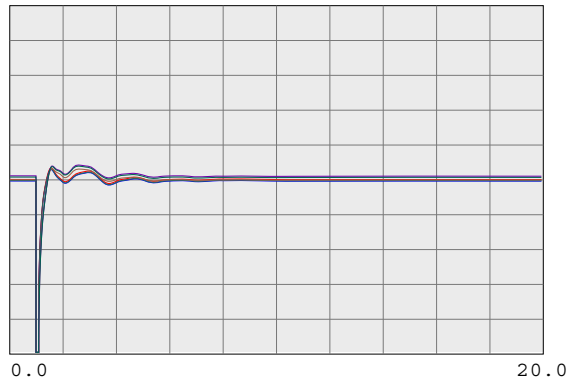
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



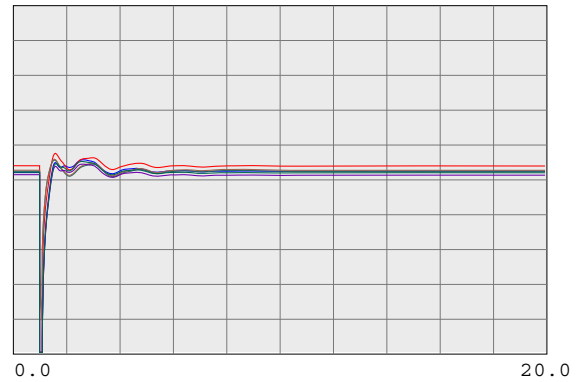
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



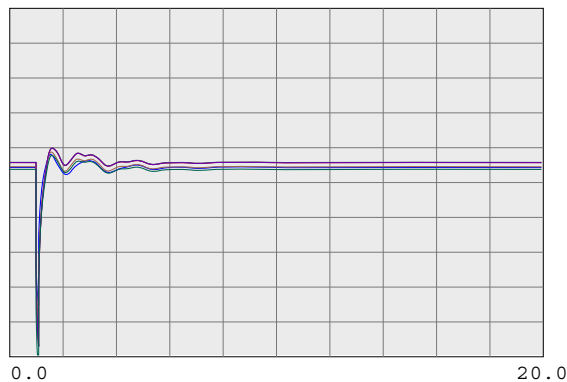
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



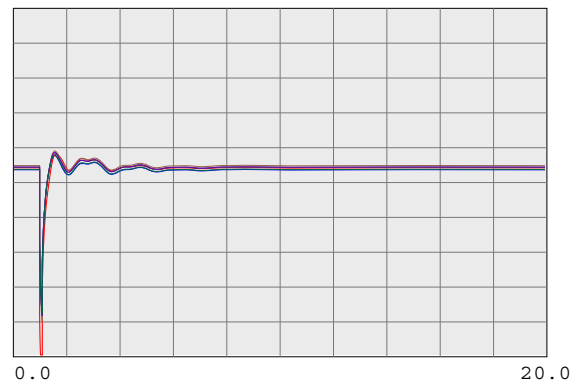
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

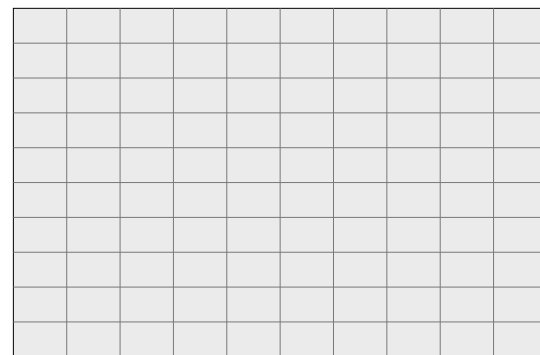
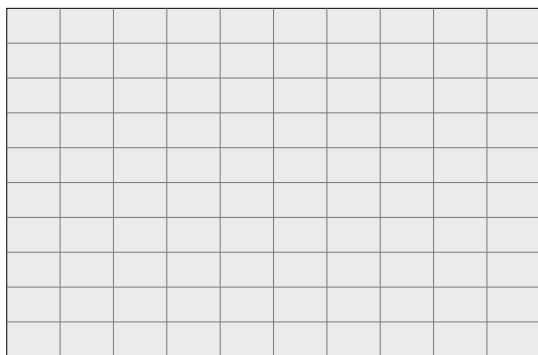
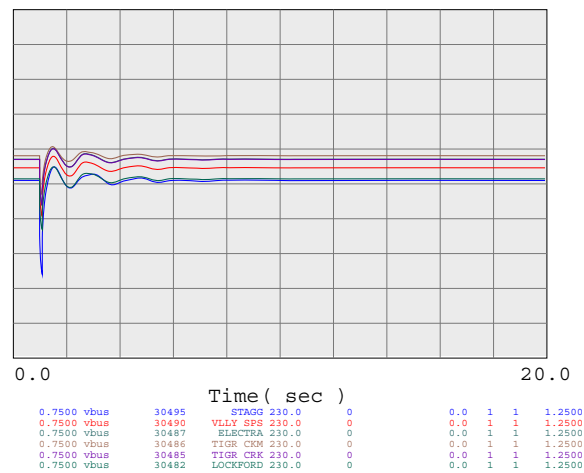
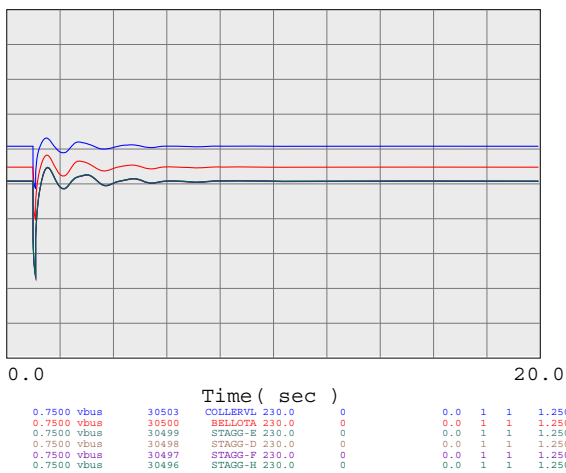
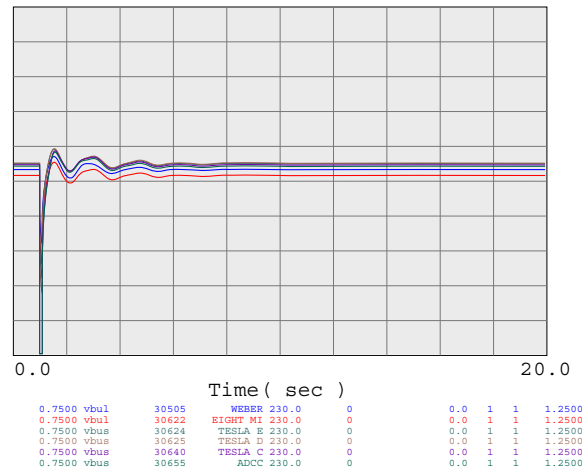
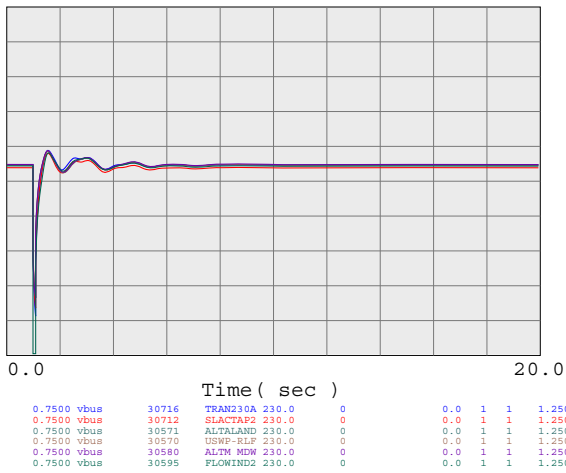
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

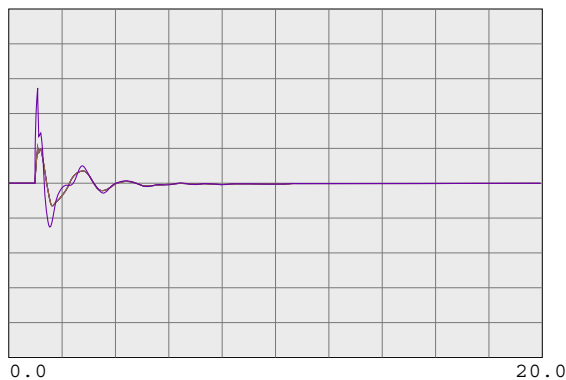
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



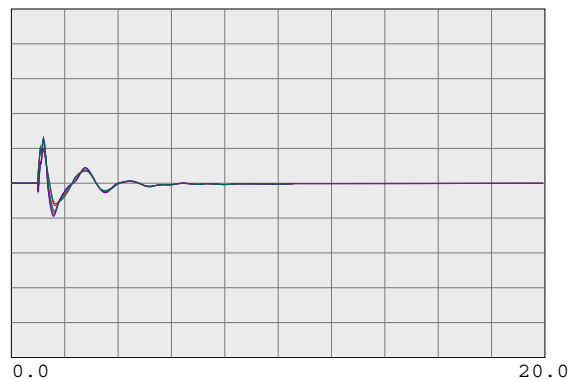
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

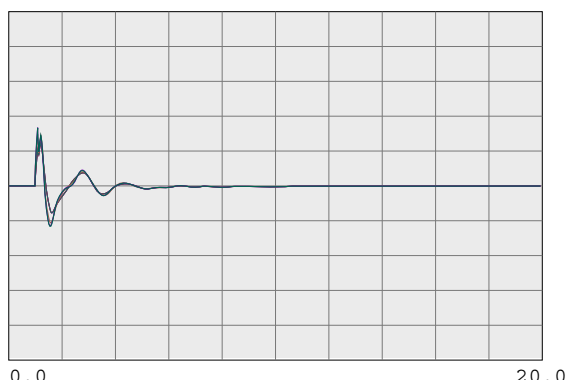
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

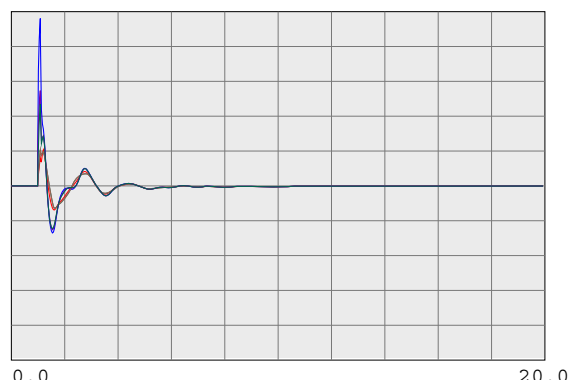
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

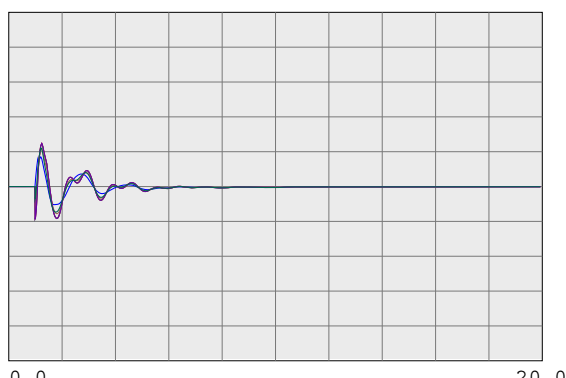
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

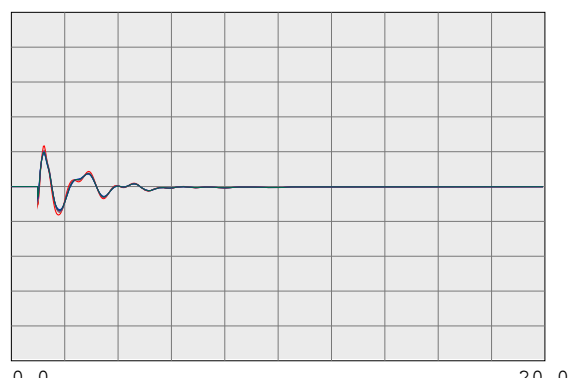
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

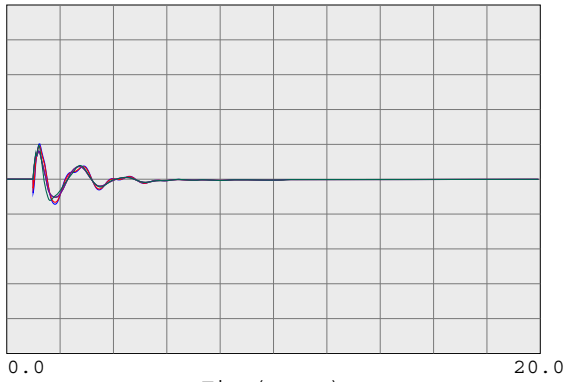
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

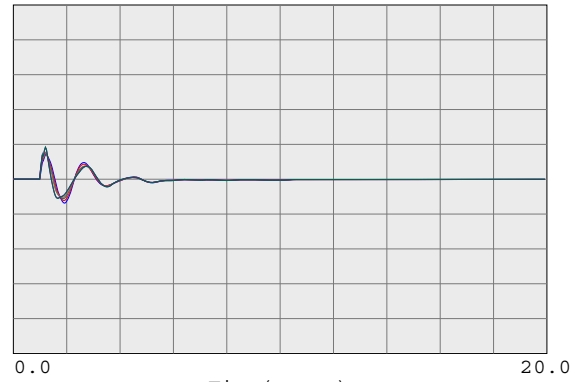
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

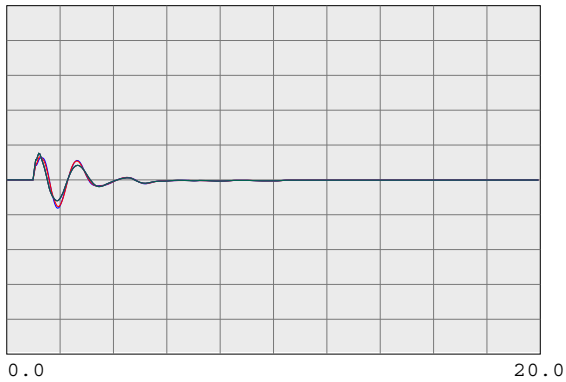
230-KV SYSTEM FREQUENCIES



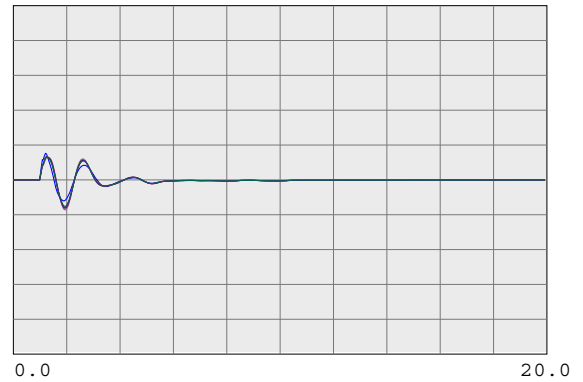
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



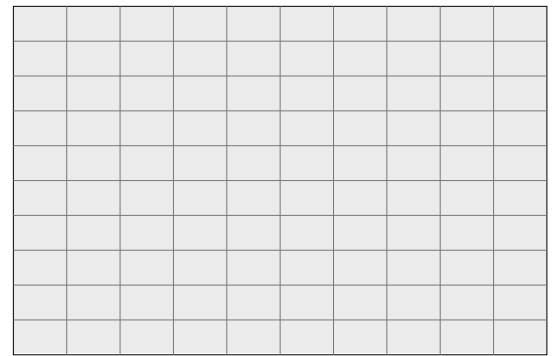
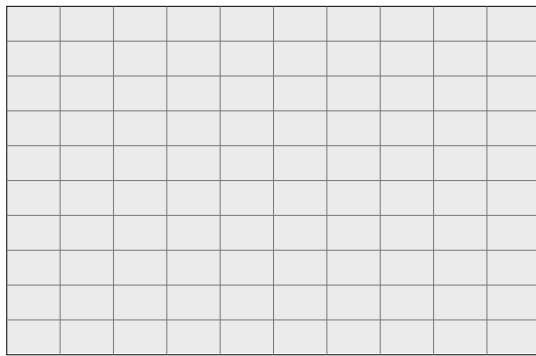
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

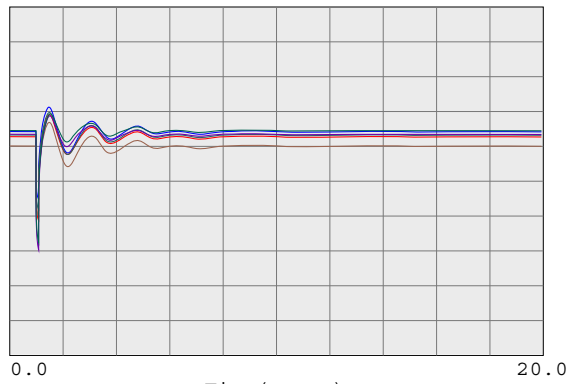


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



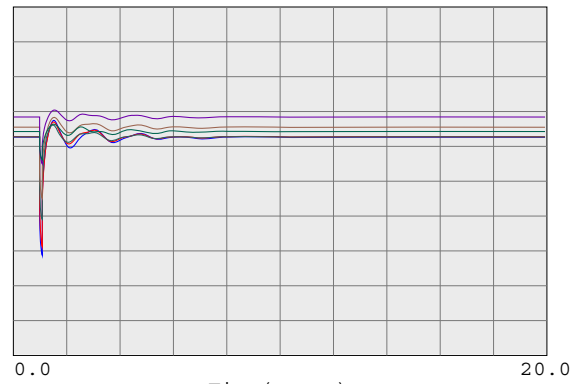
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



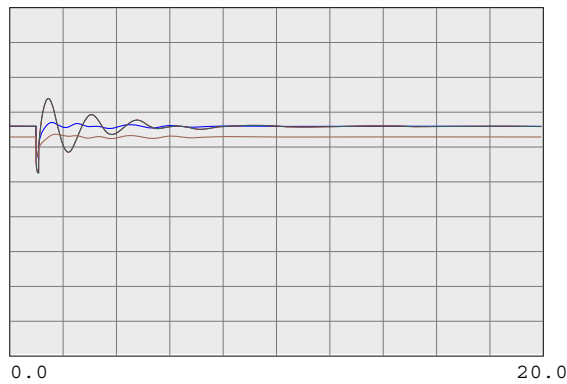
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



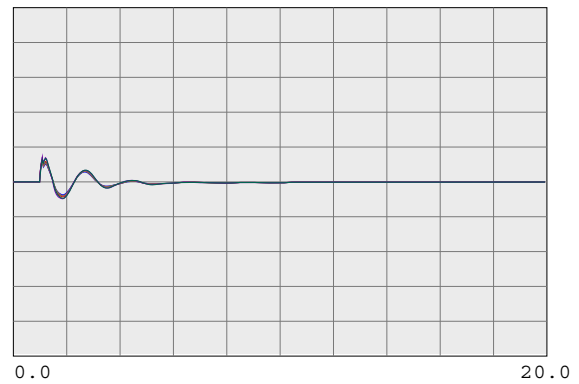
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



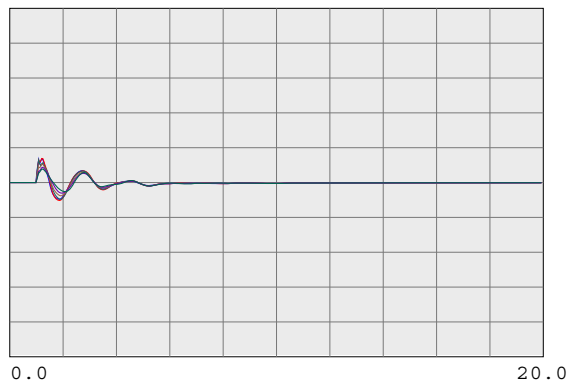
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



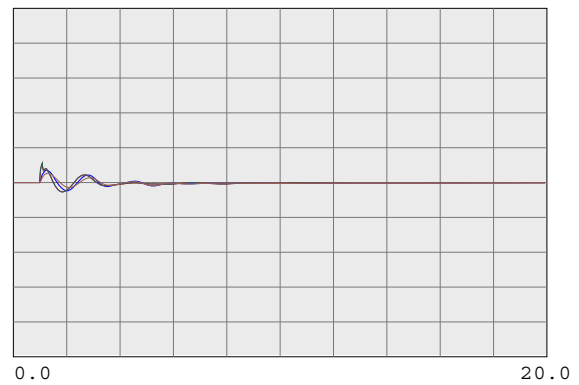
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

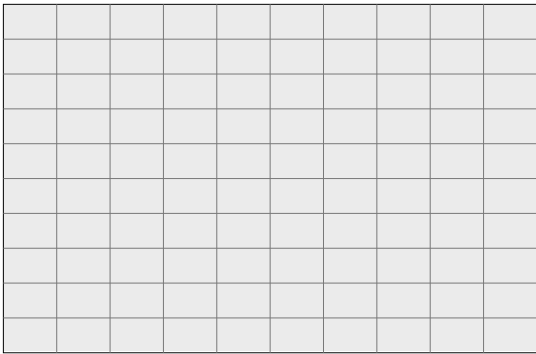
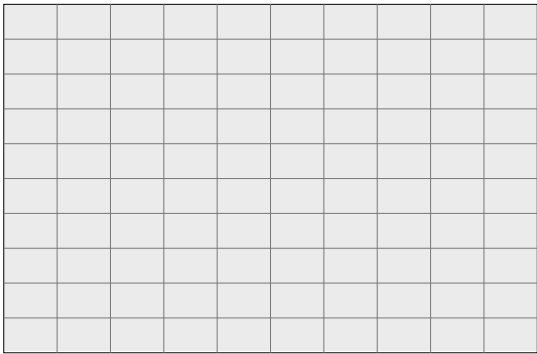
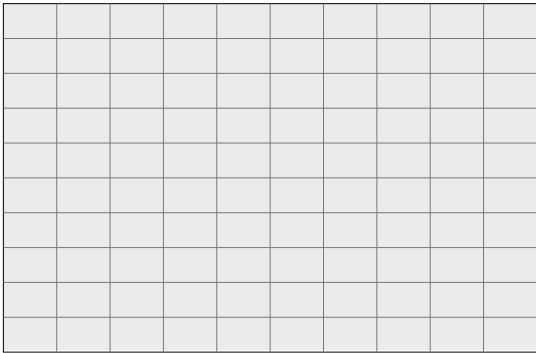
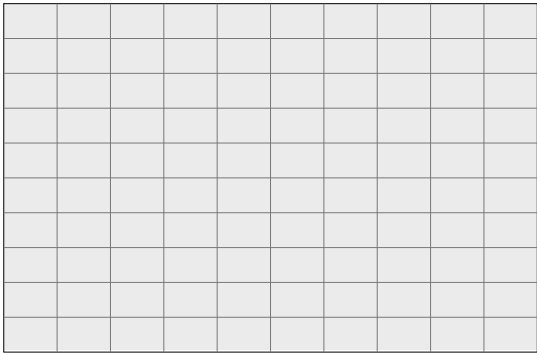
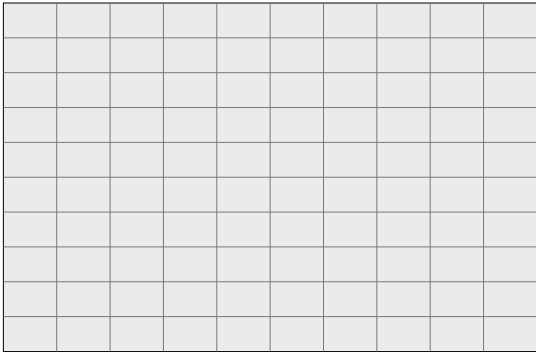
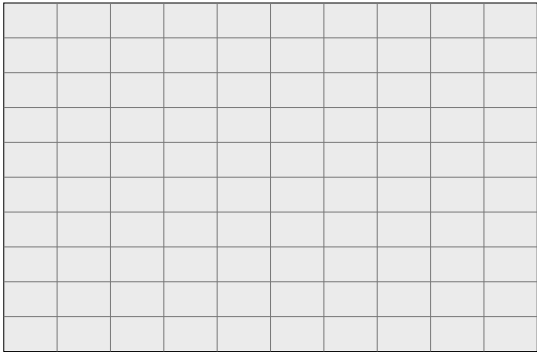
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

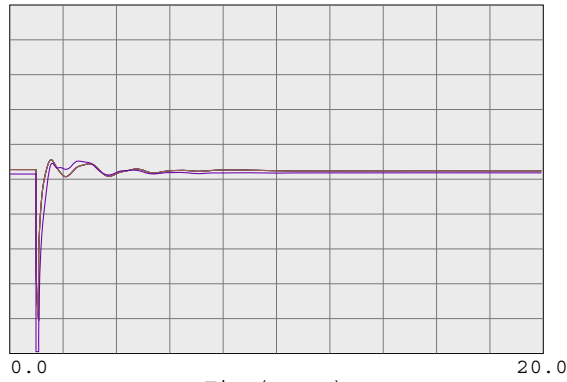
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



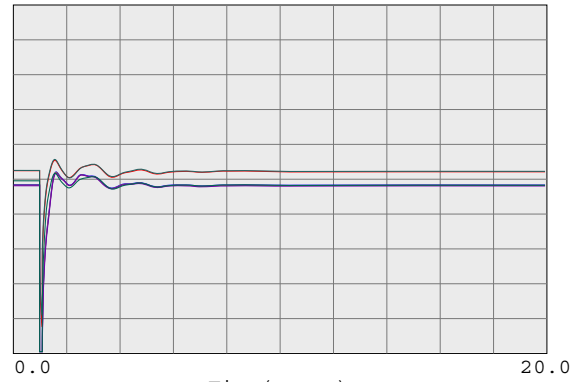
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



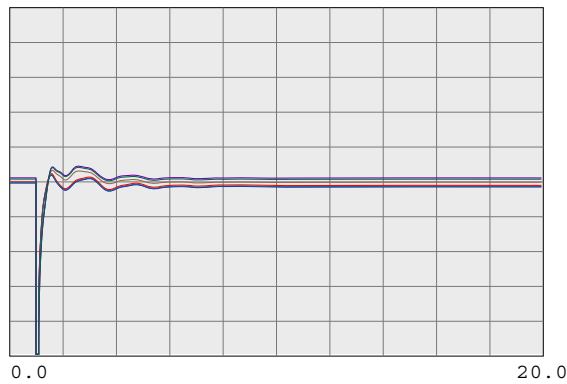
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



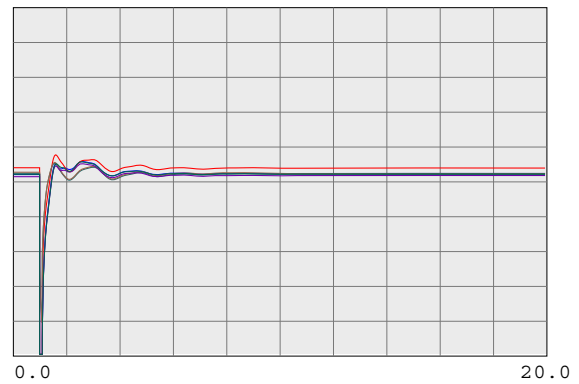
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



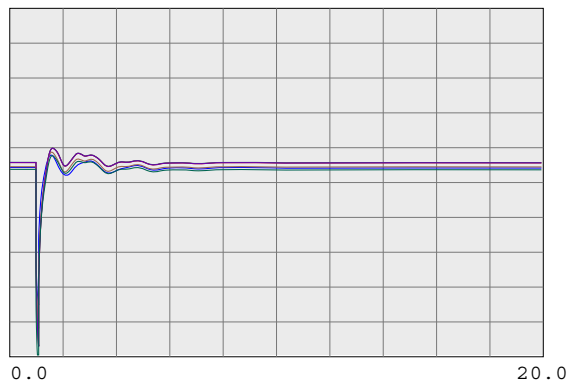
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSAPR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSAPR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



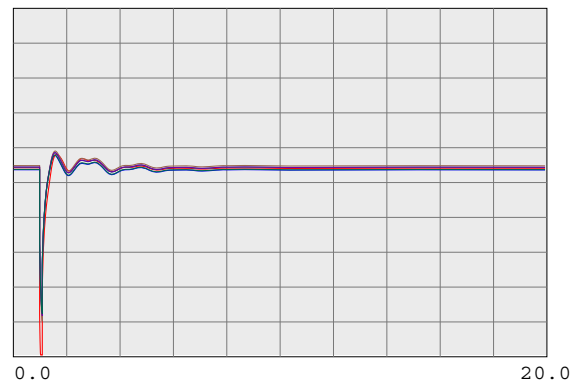
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

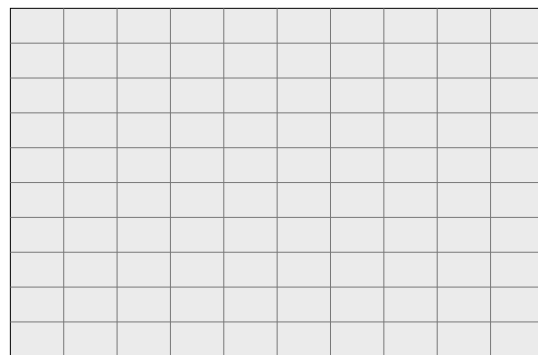
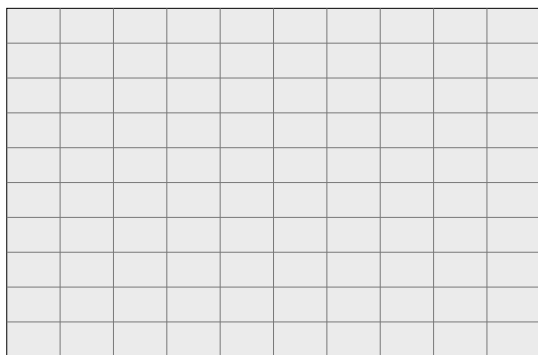
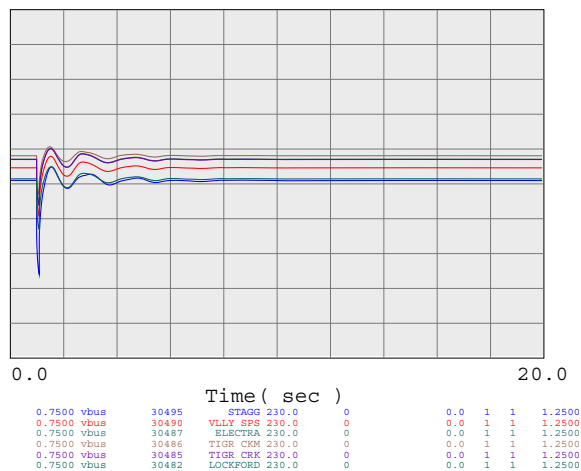
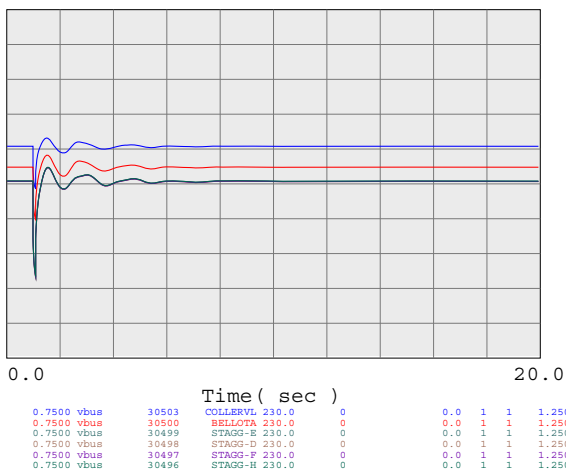
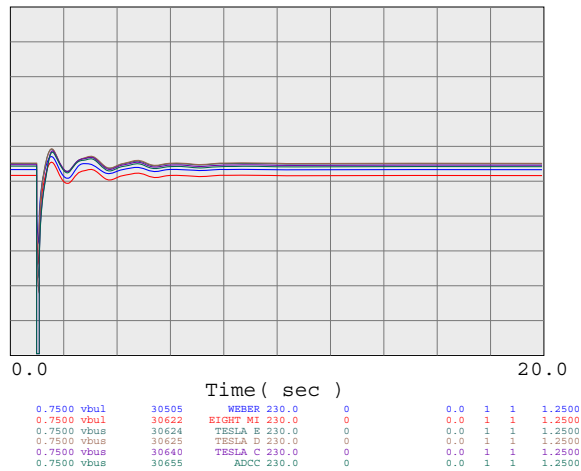
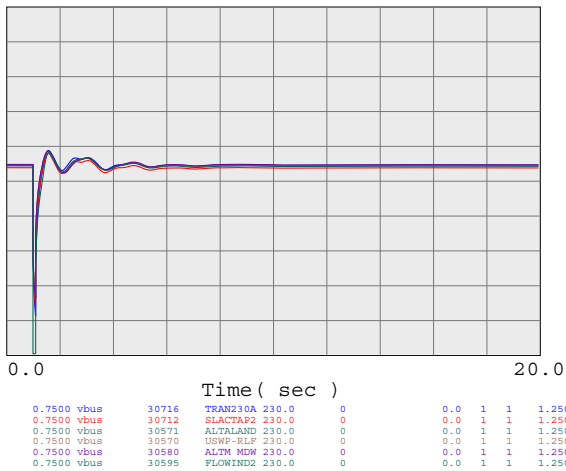
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

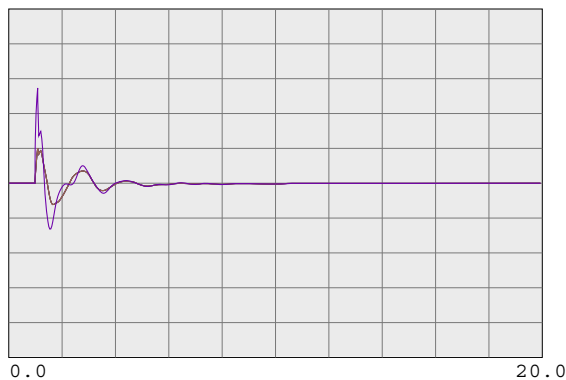
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

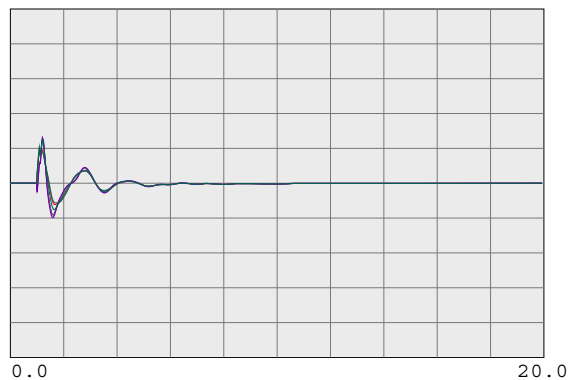
230-KV SYSTEM VOLTAGES



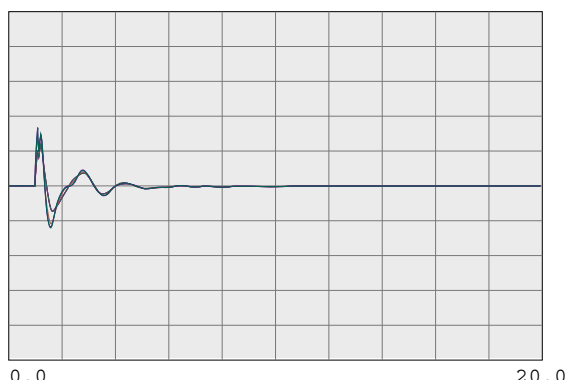
230-KV SYSTEM FREQUENCIES



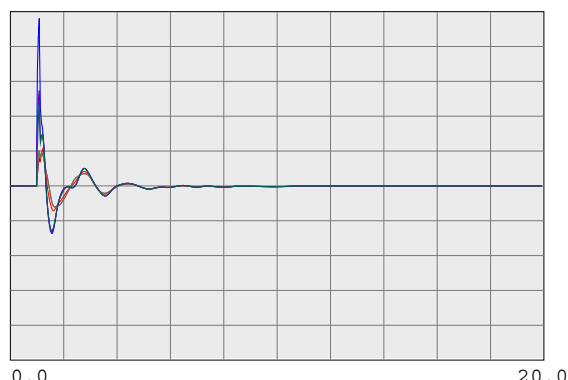
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



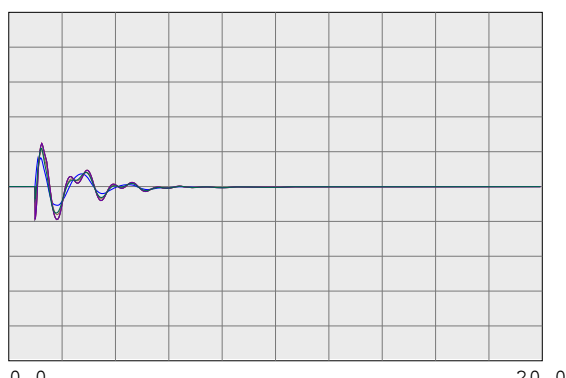
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



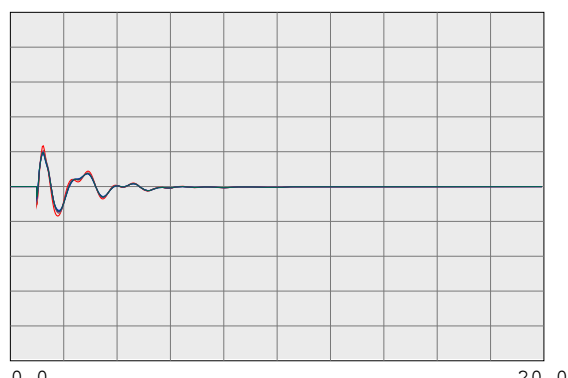
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAPR1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WID MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

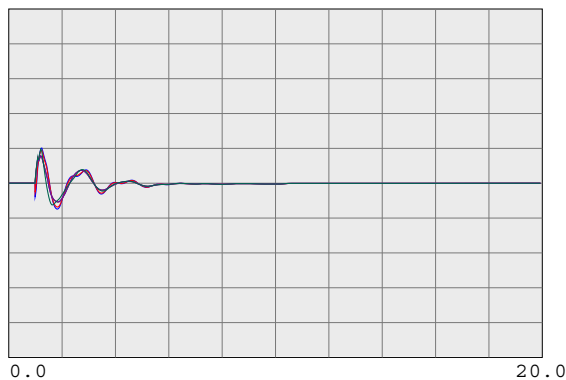
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

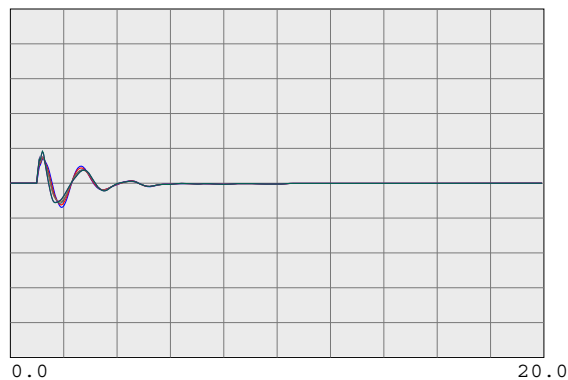
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

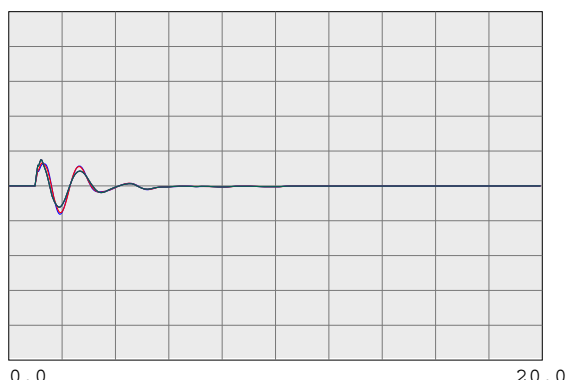
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

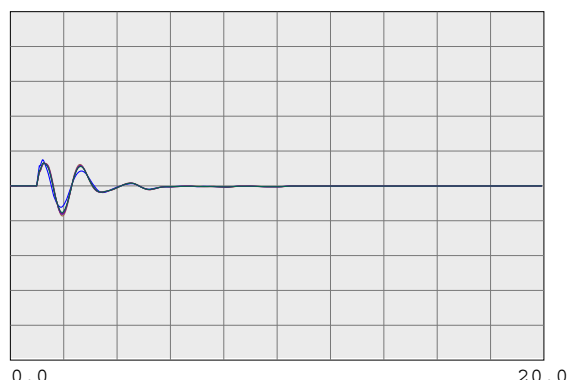
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

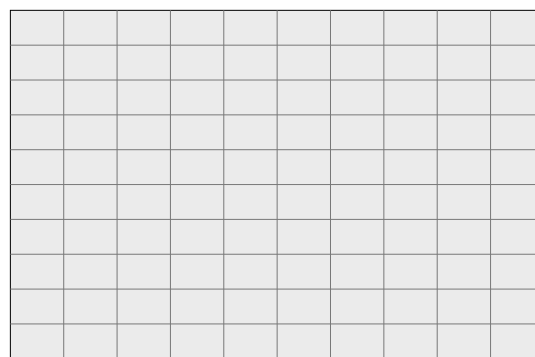
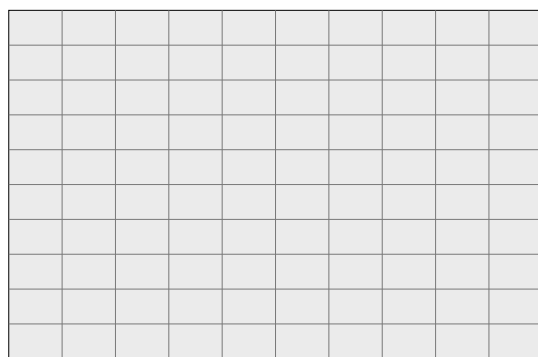
59.4000 fbus	30503	COLLERYL 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

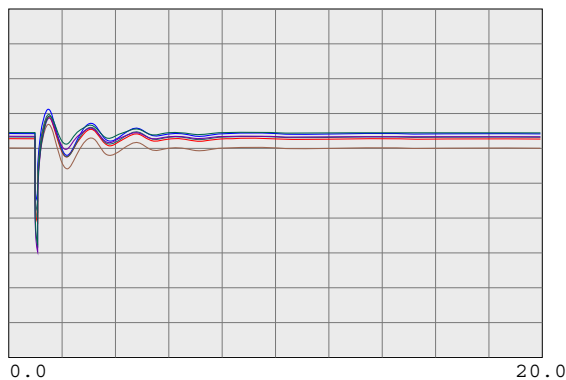
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

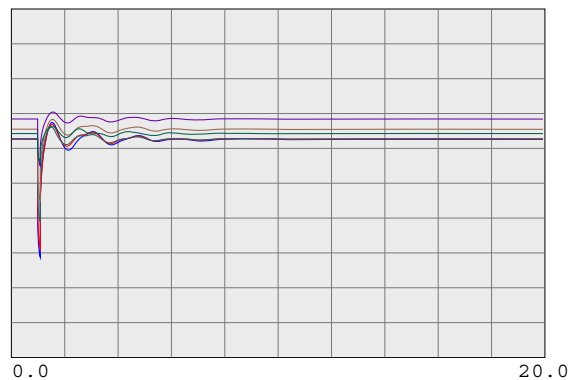
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



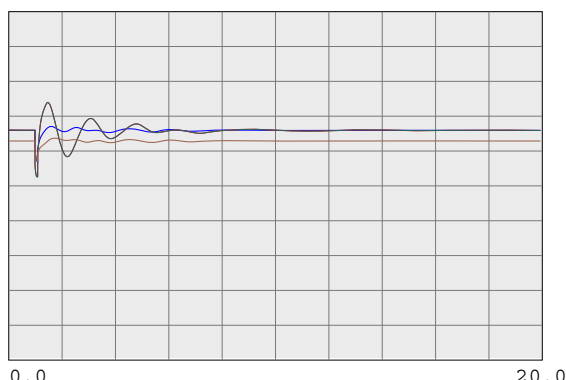
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



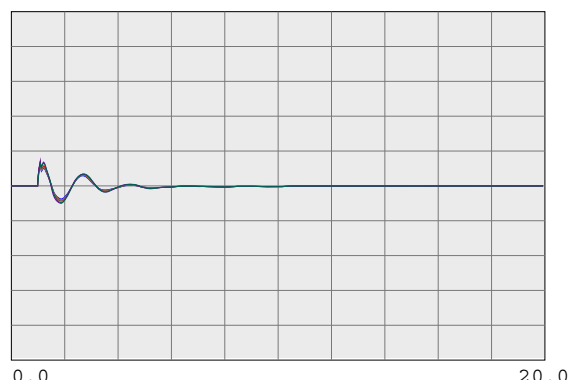
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



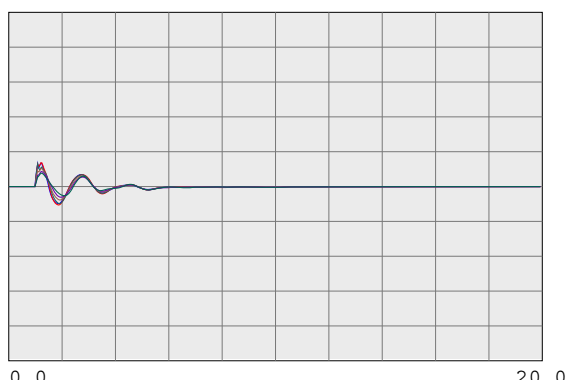
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



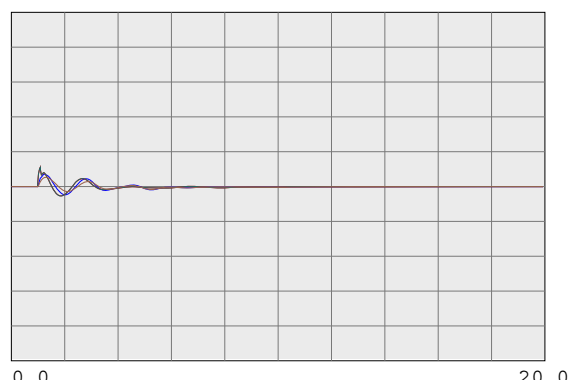
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

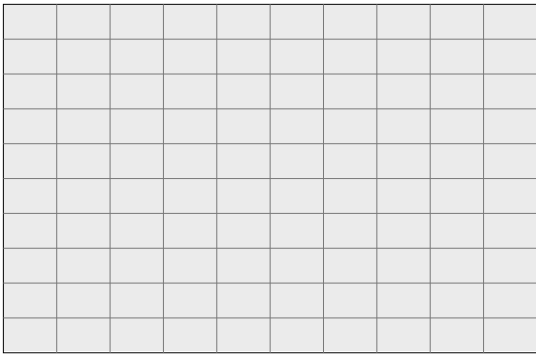
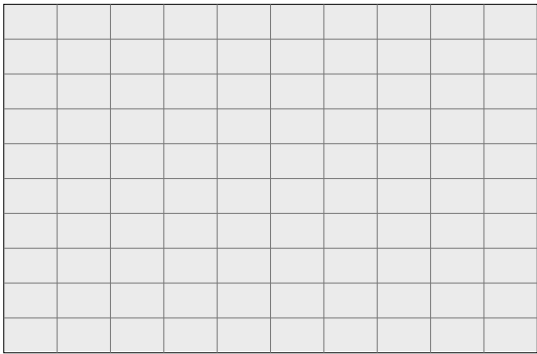
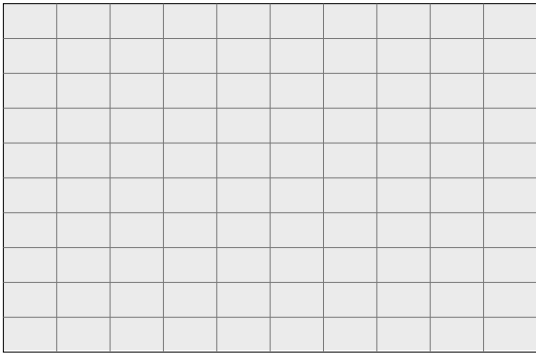
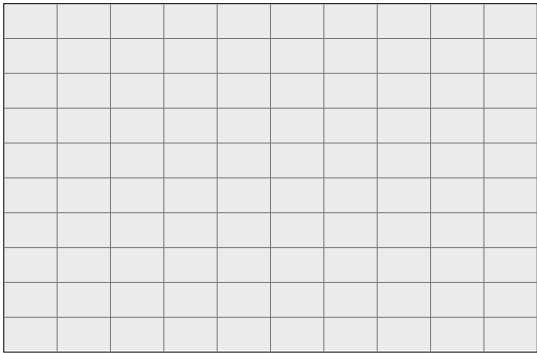
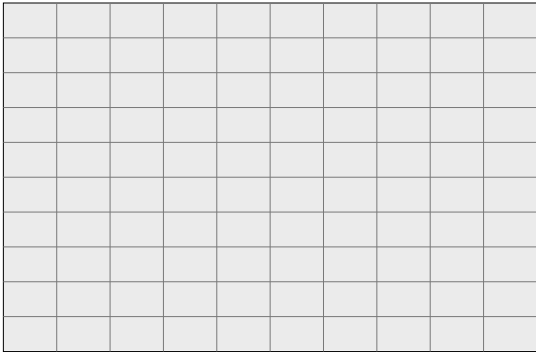
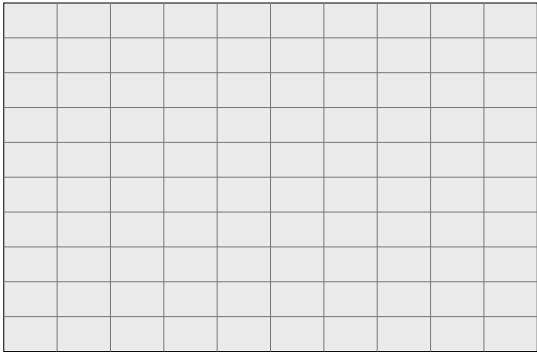
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

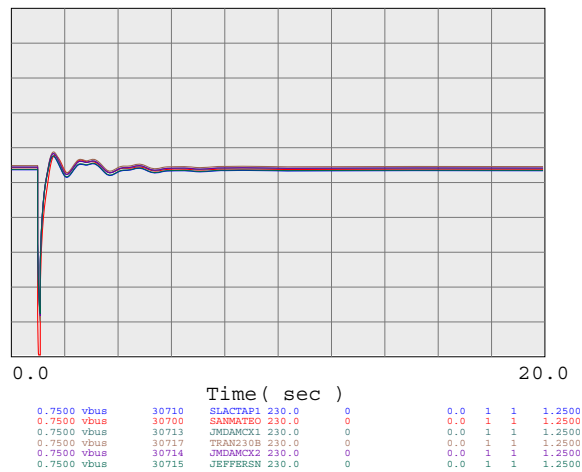
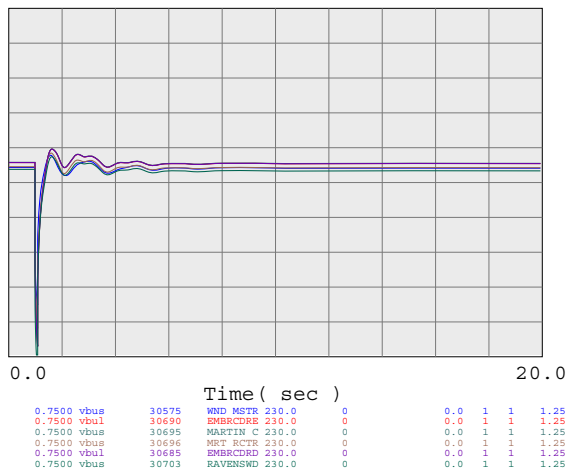
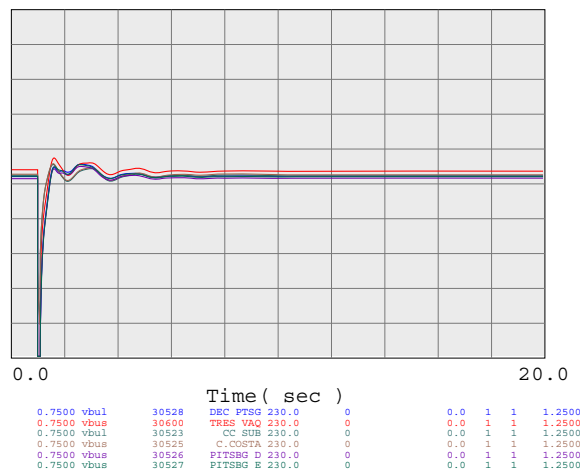
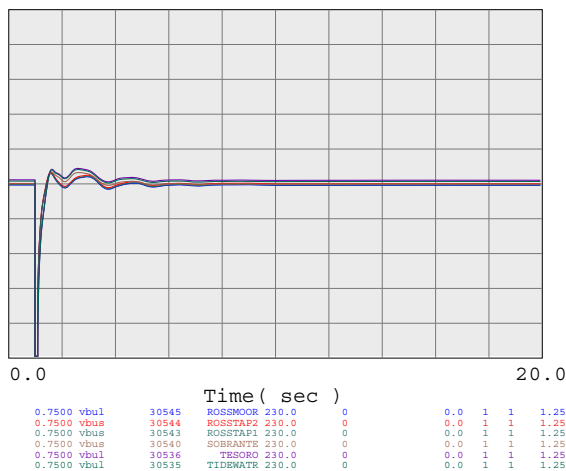
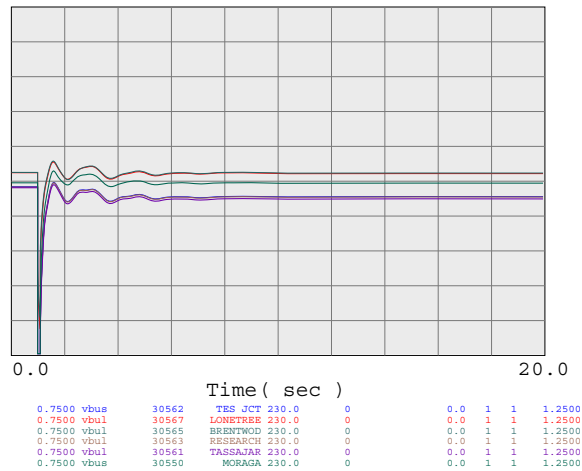
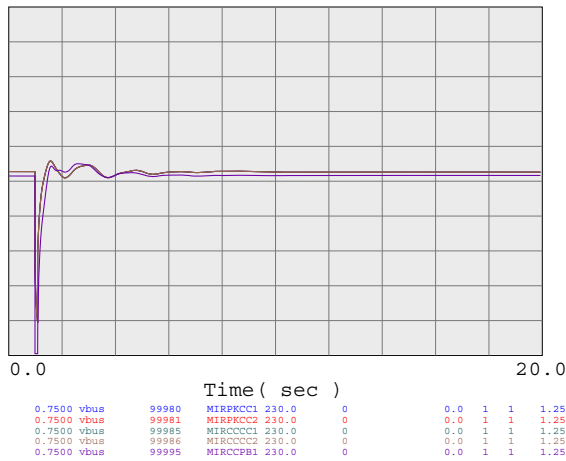
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



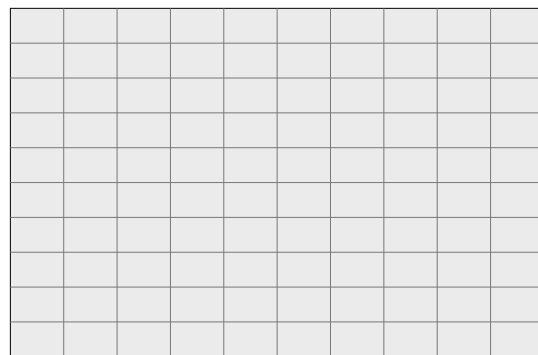
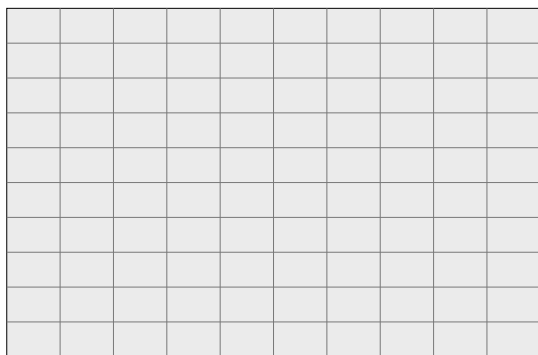
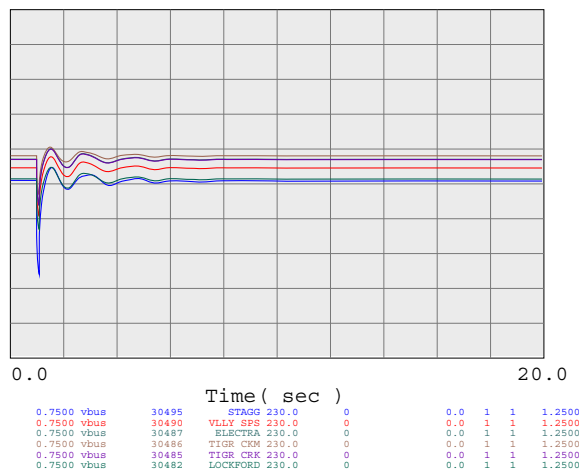
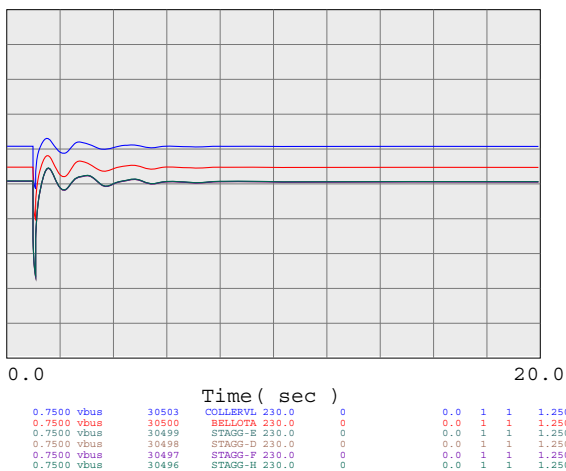
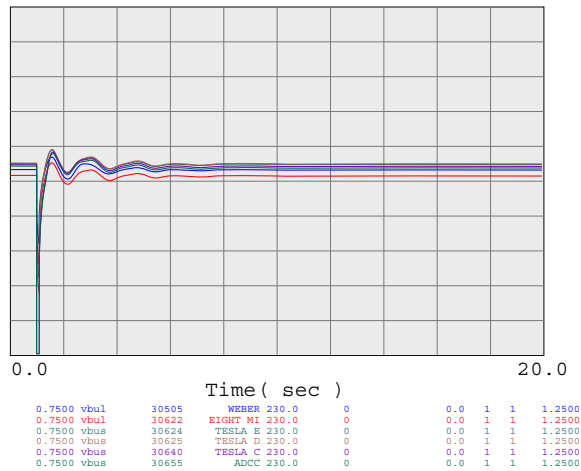
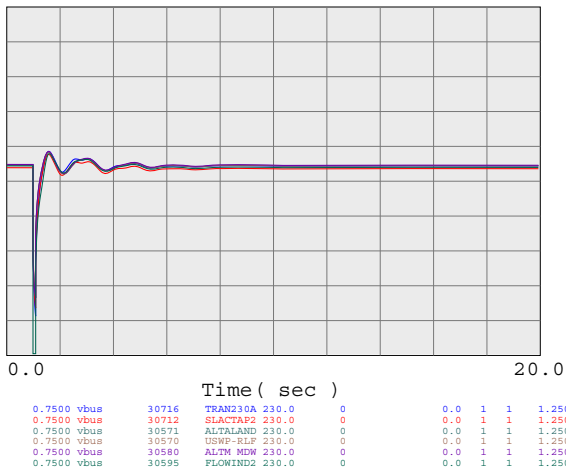
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

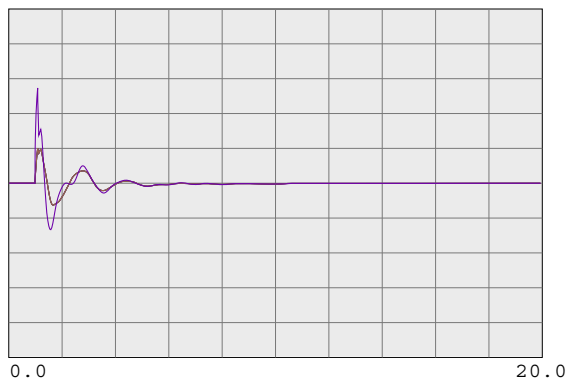


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

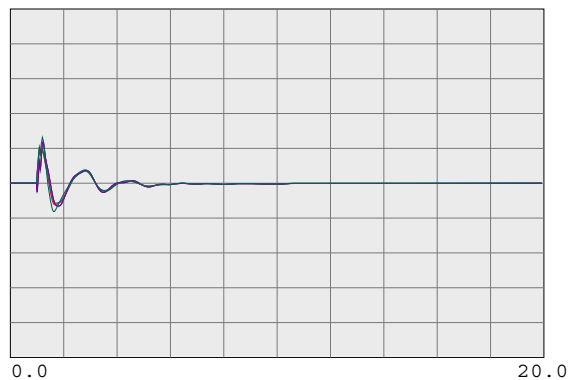


230-KV SYSTEM FREQUENCIES



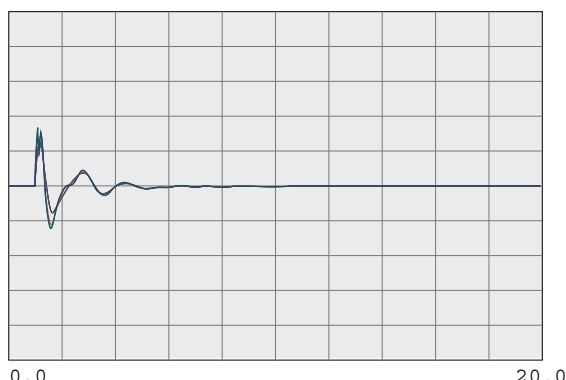
0.0 20.0
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



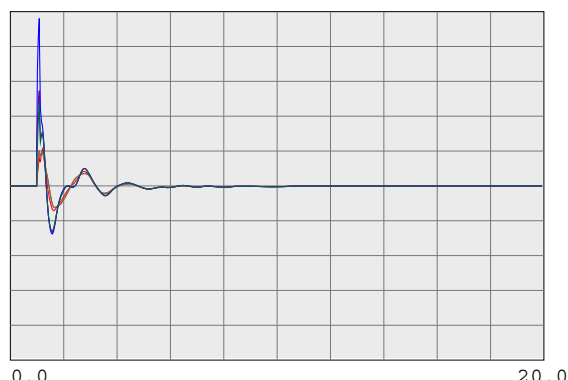
0.0 20.0
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



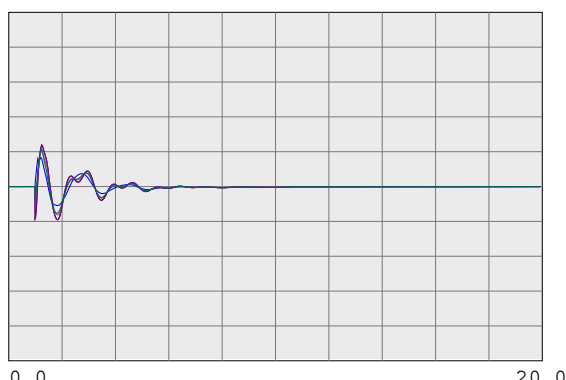
0.0 20.0
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



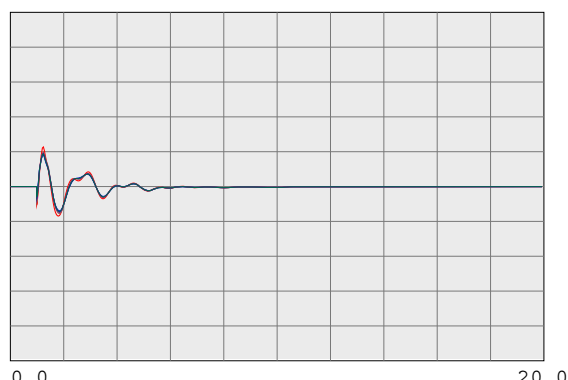
0.0 20.0
Time(sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

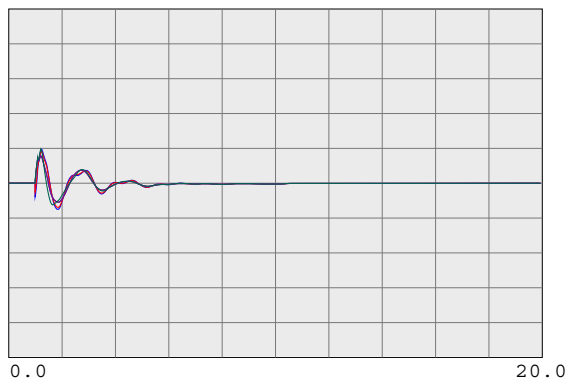
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

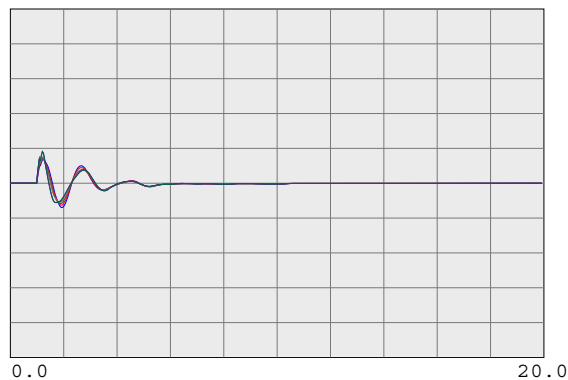
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

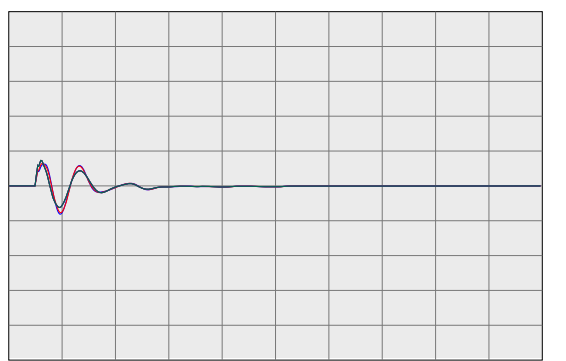
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

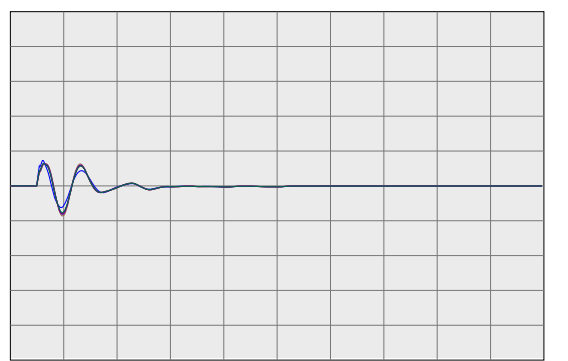
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

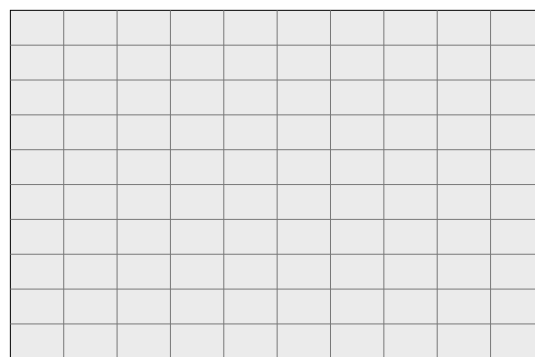
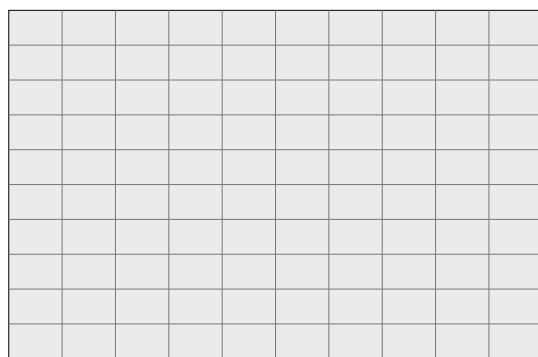
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

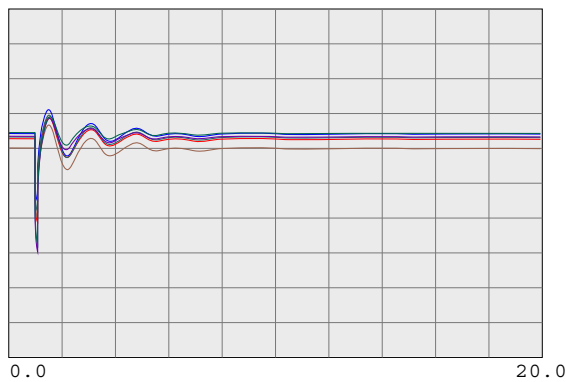
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

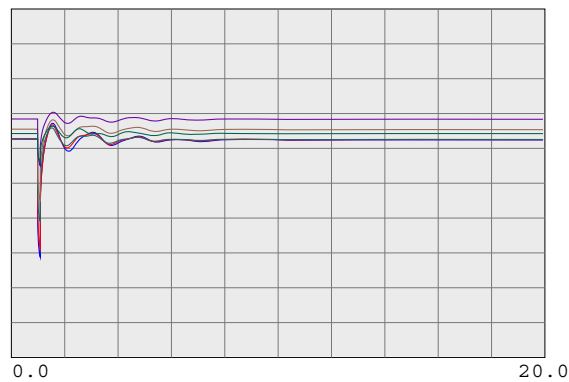
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



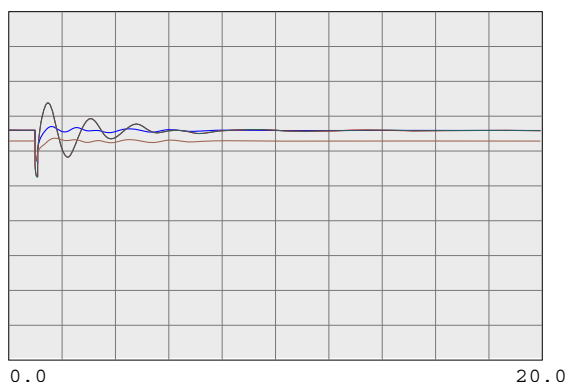
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



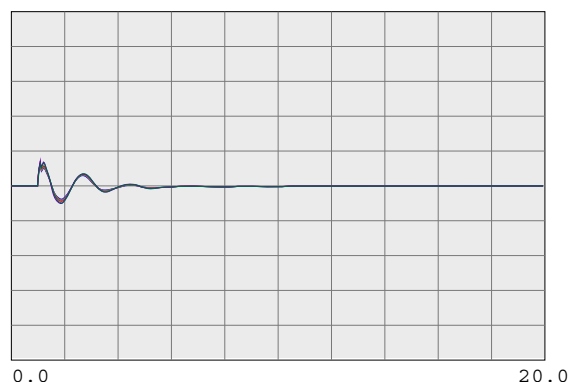
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



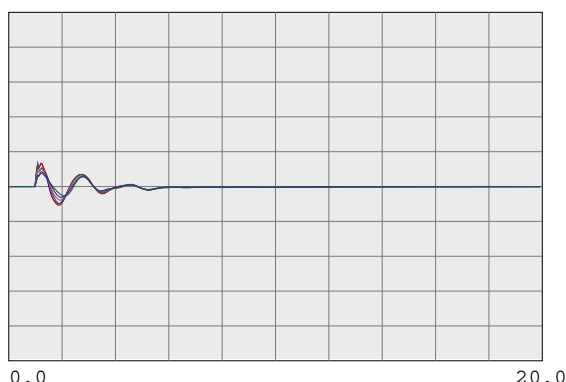
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



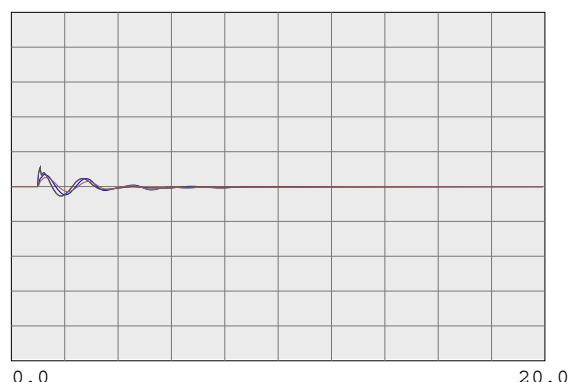
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

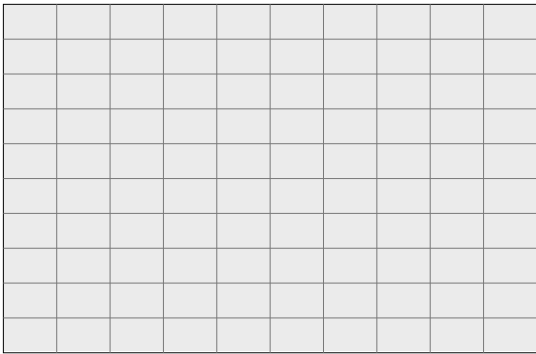
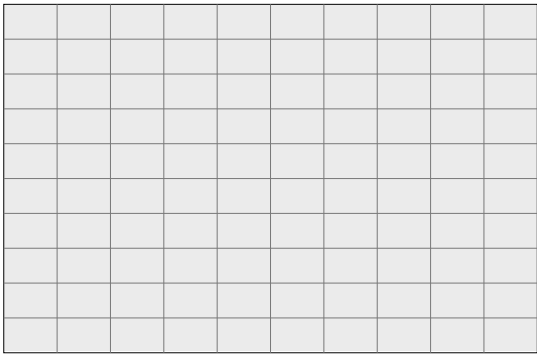
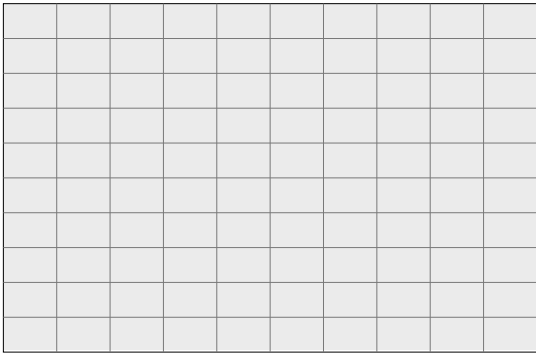
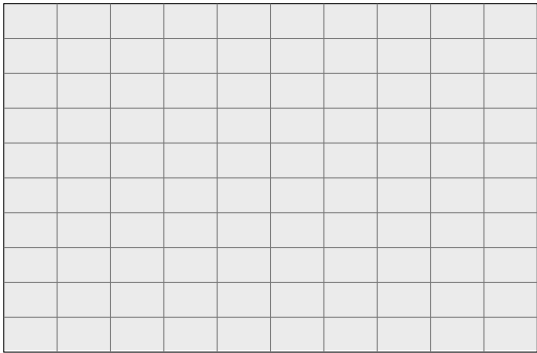
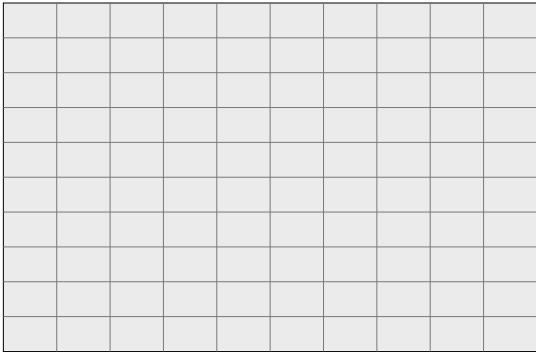
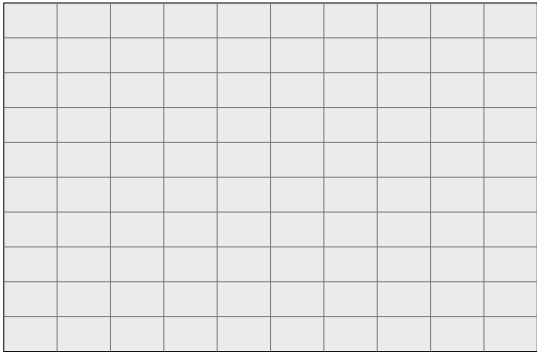
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

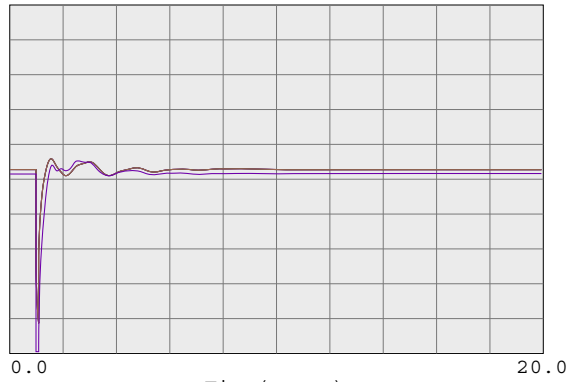
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



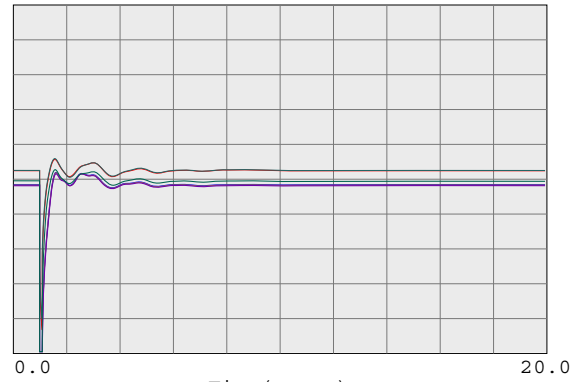
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



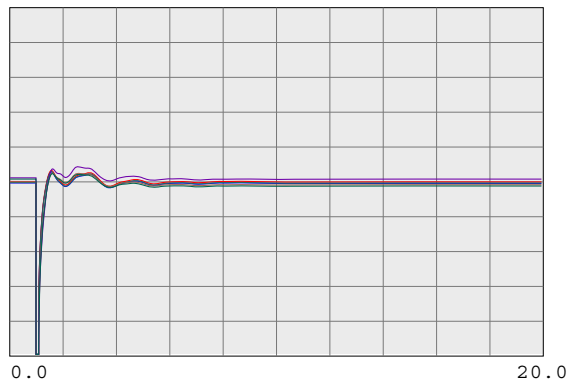
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



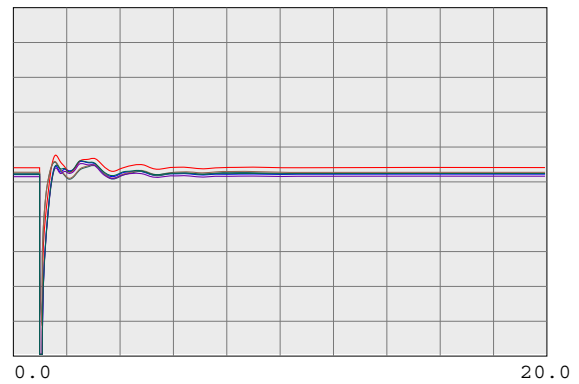
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



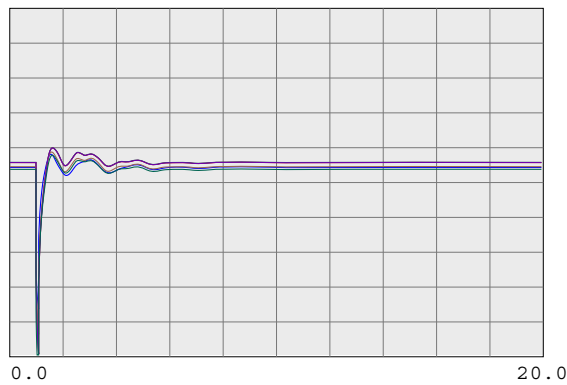
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TREBORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDEWATR 230.0	0	0.0	1	1	1.2500



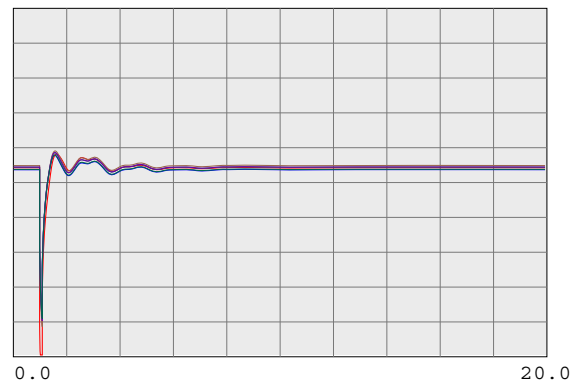
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

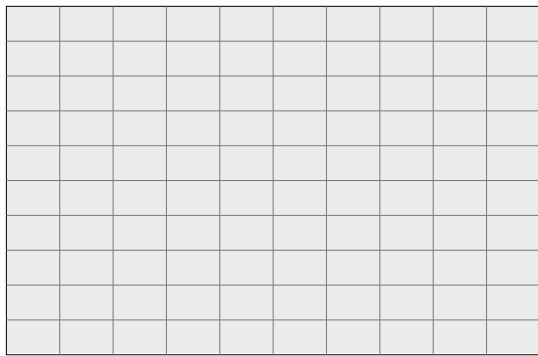
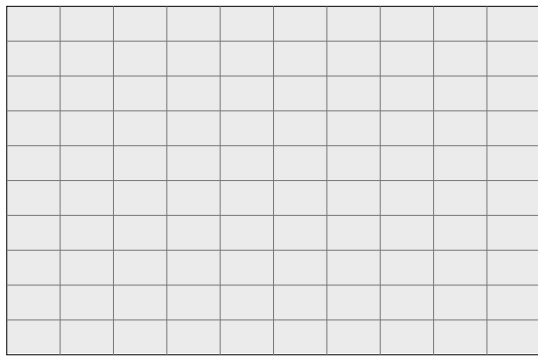
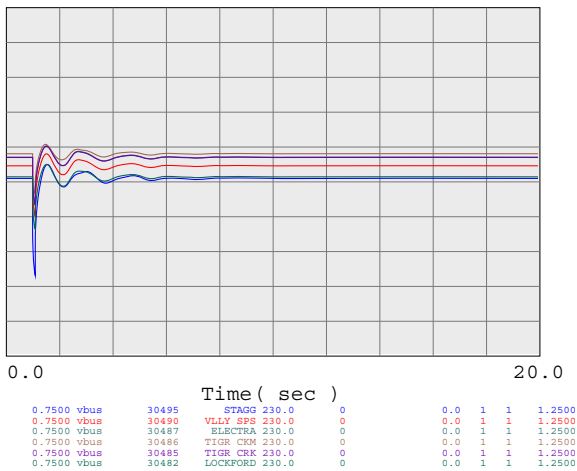
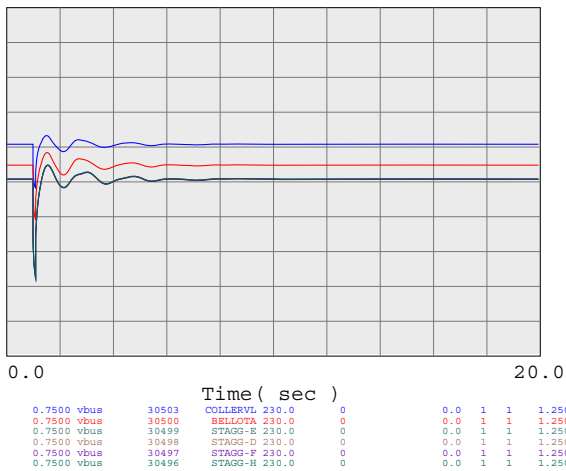
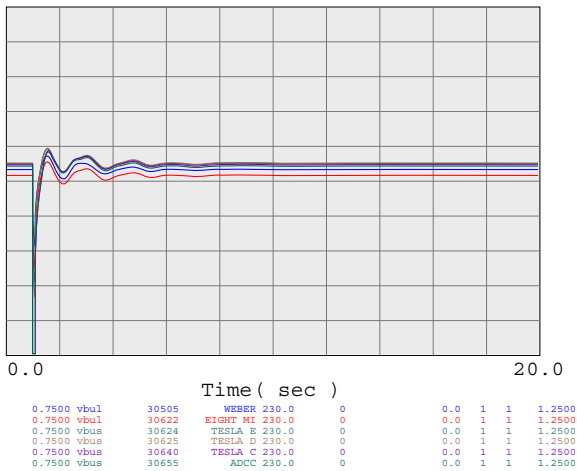
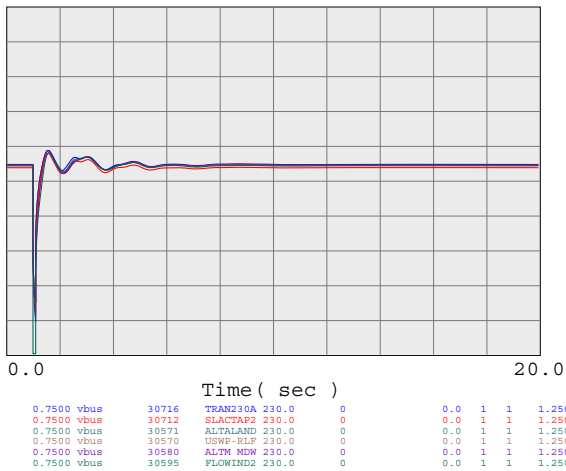
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

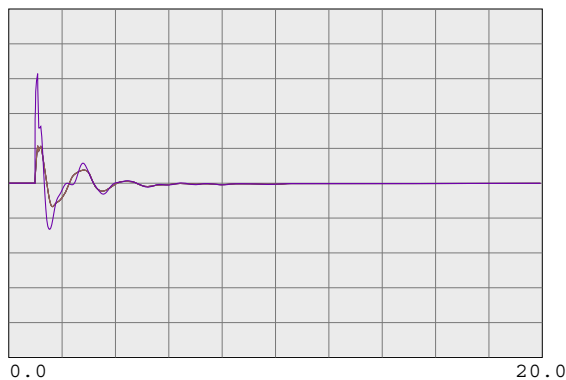
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

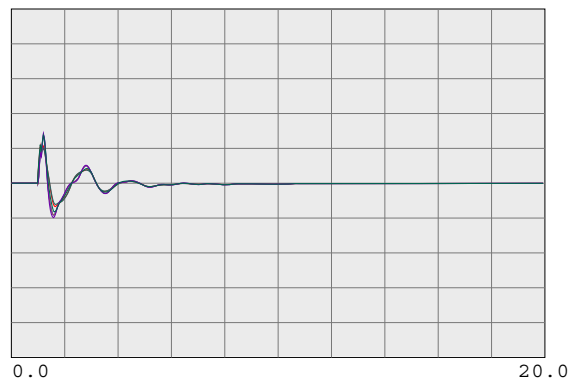


230-KV SYSTEM FREQUENCIES



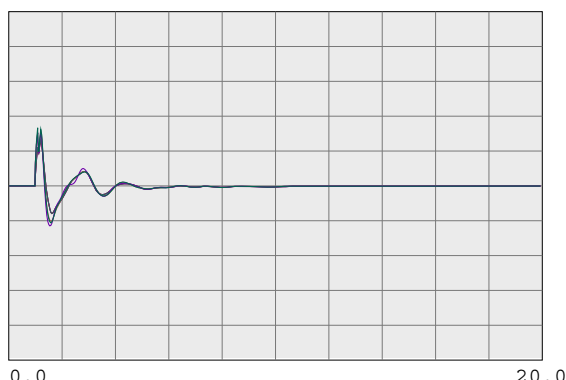
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



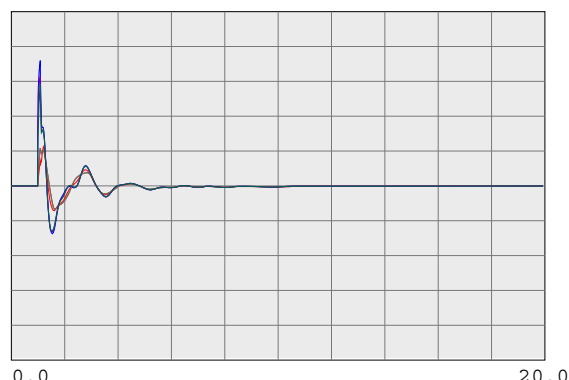
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



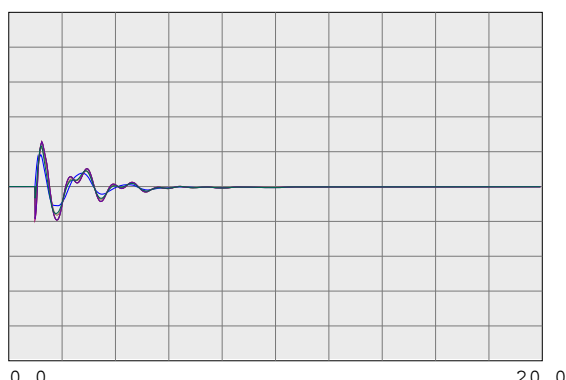
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDEWATR 230.0	0	0.0	1	1	60.6000



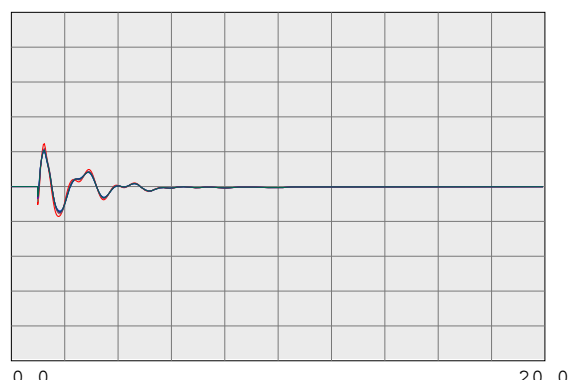
Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30575	WND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

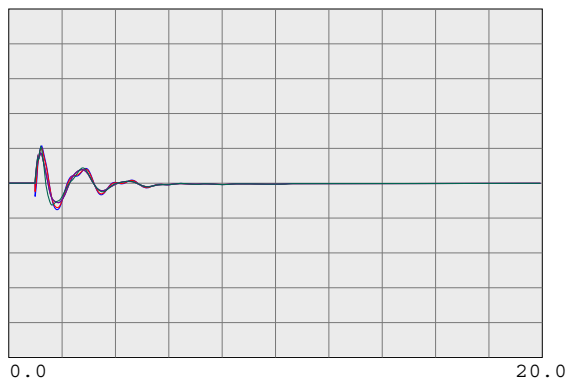
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

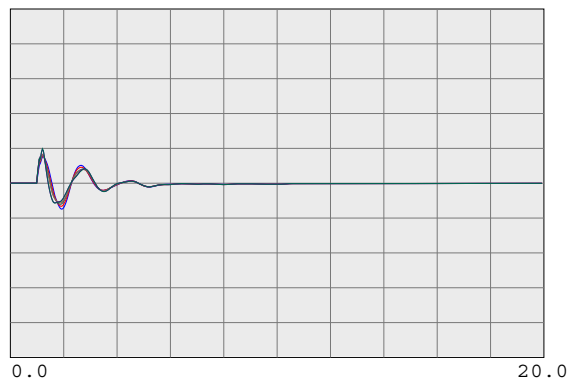
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

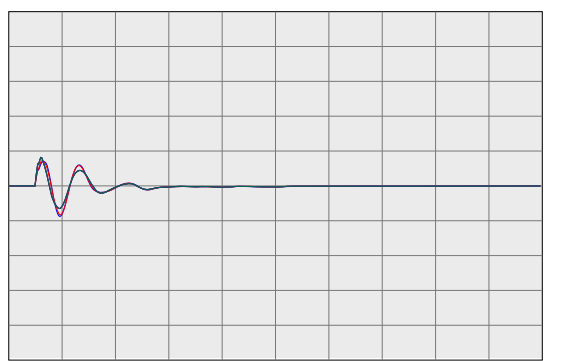
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

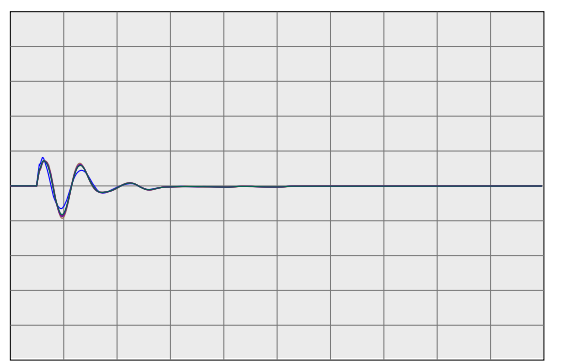
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

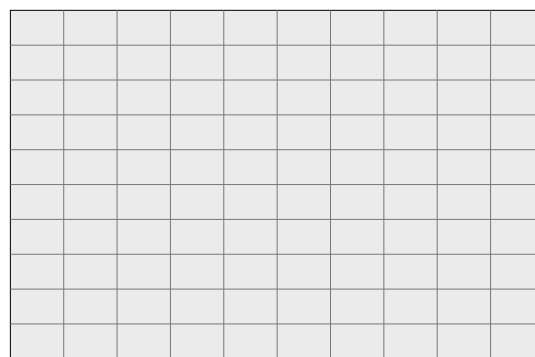
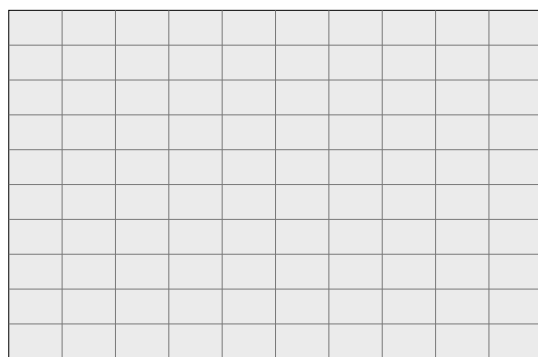
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

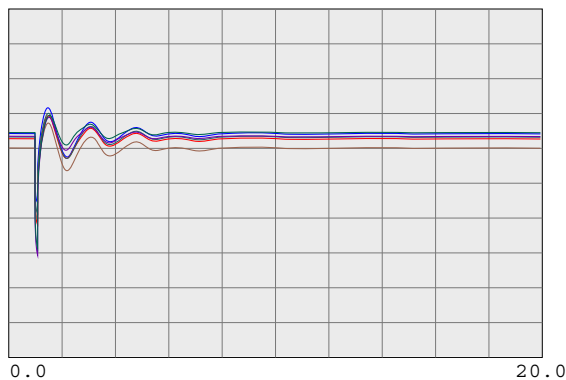
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

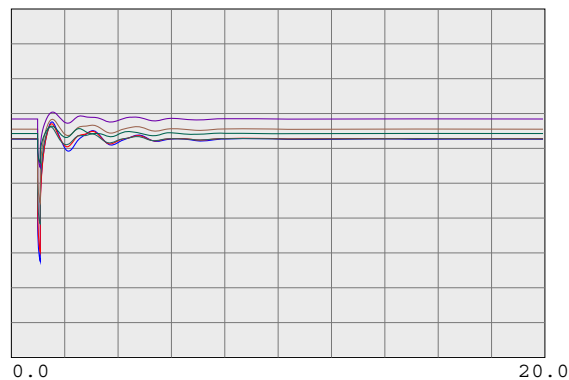
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



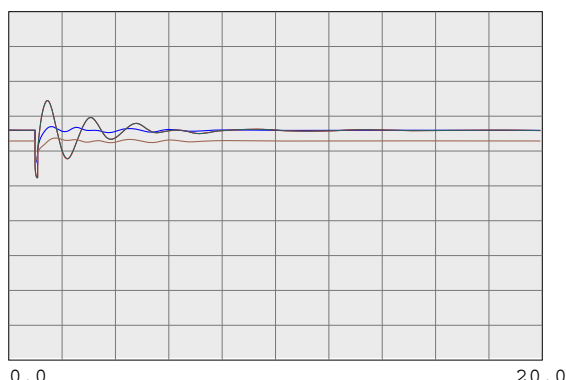
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



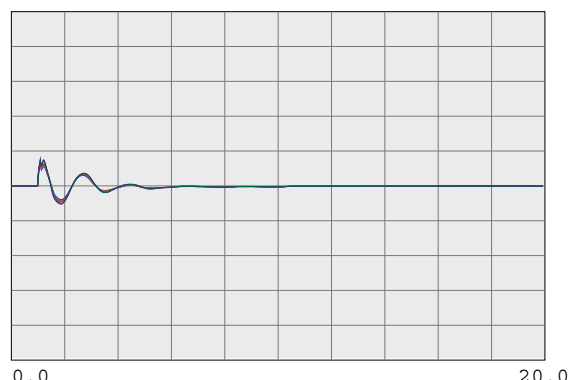
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



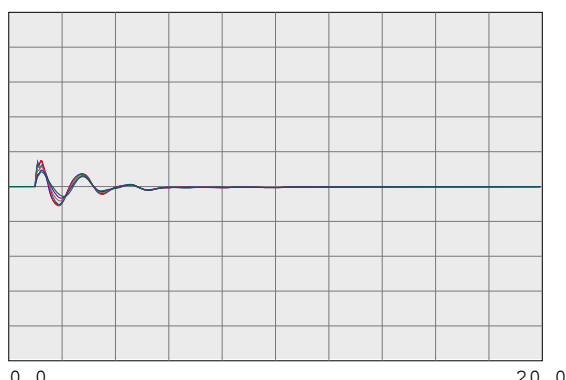
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



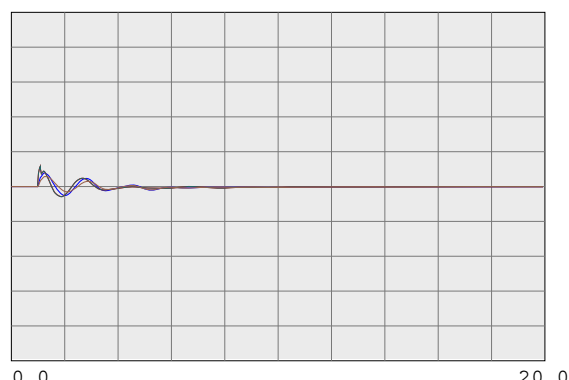
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

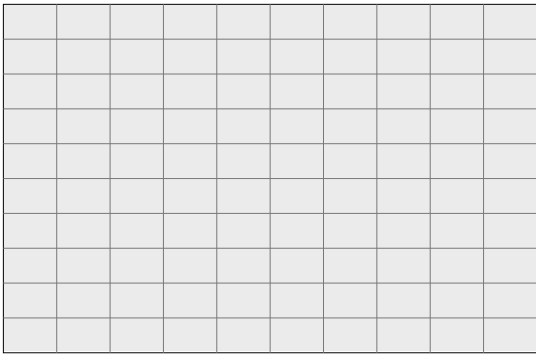
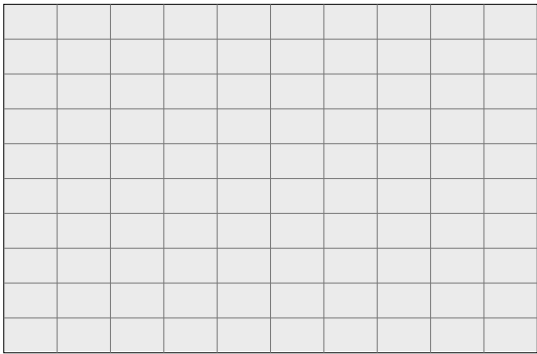
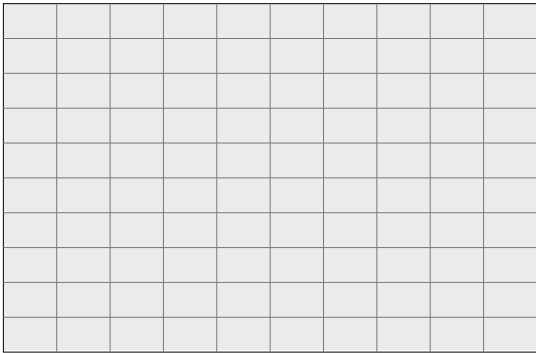
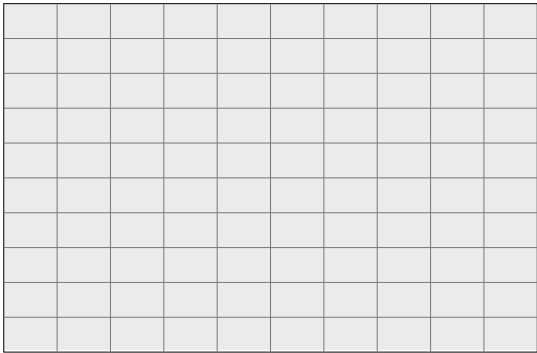
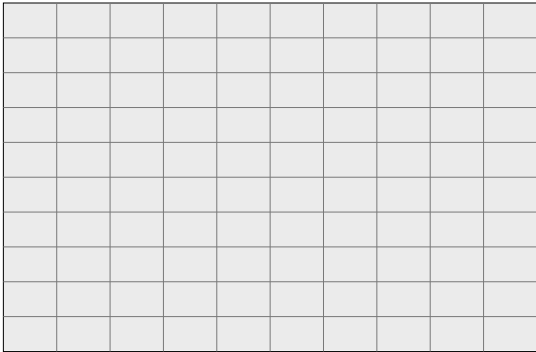
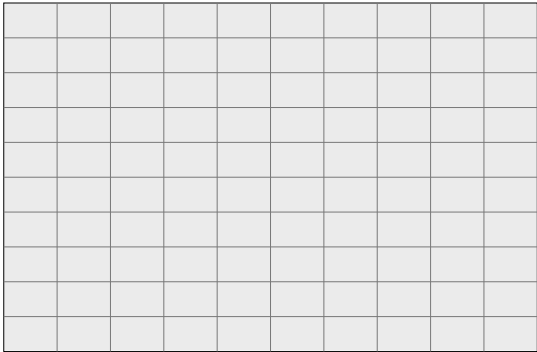
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

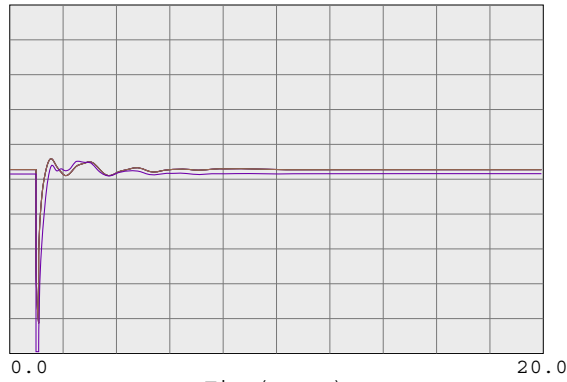
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



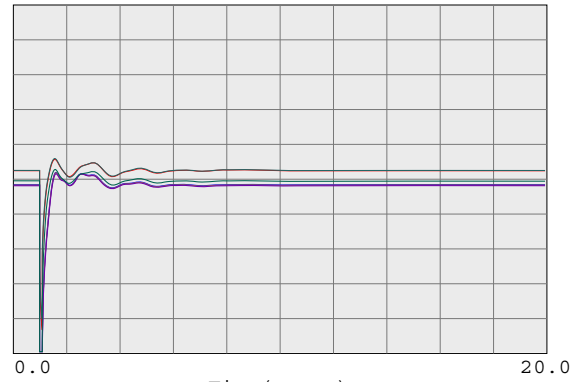
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



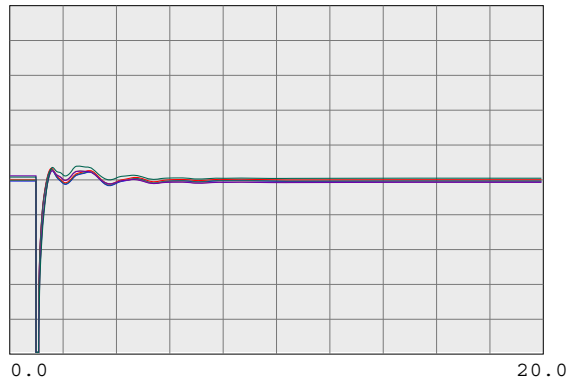
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



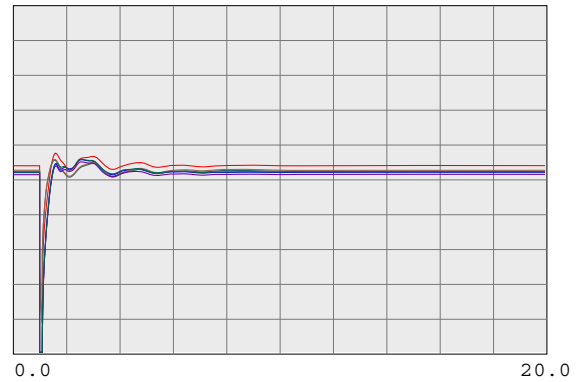
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



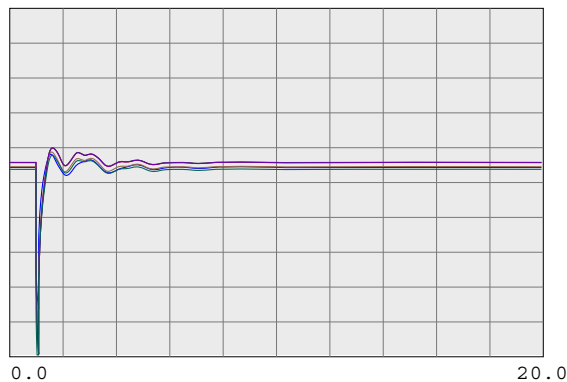
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



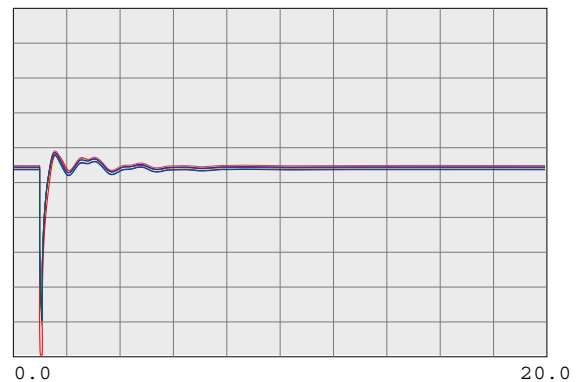
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

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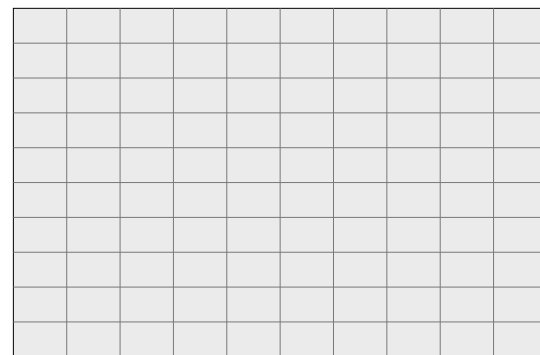
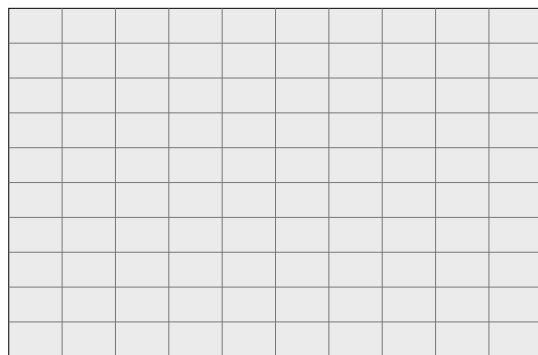
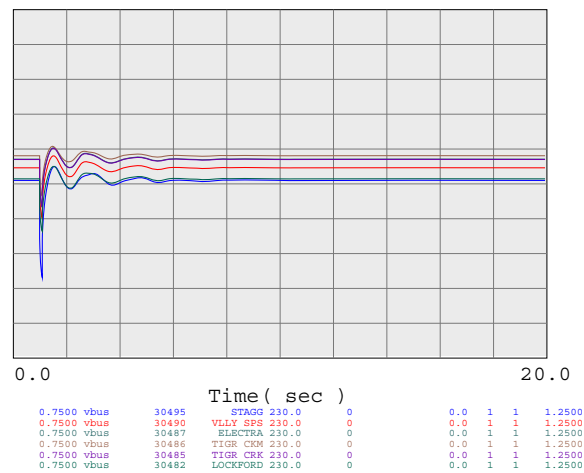
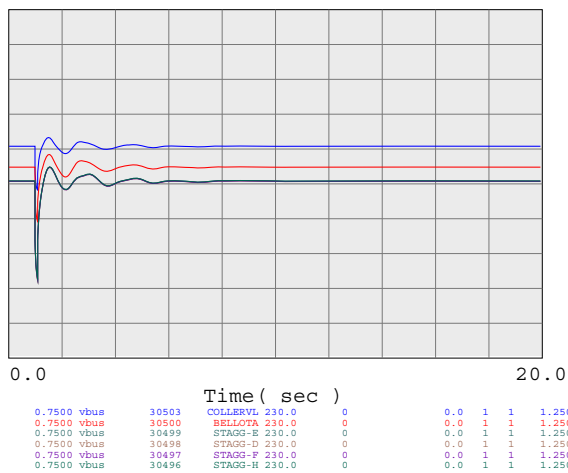
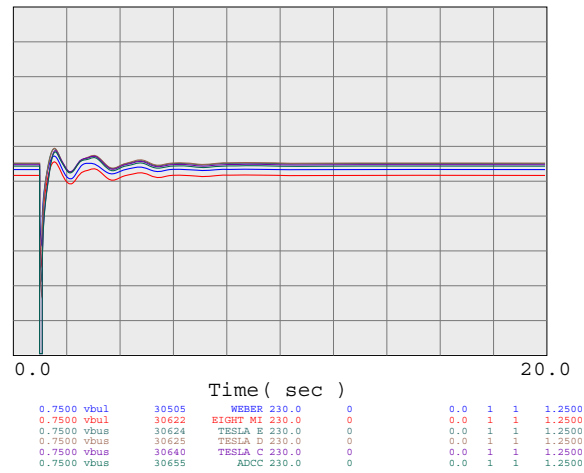
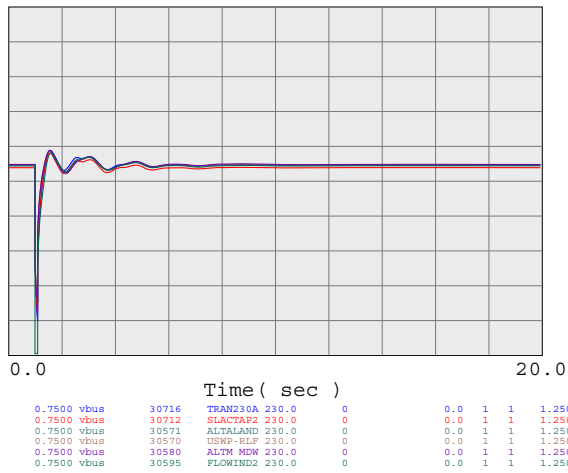
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

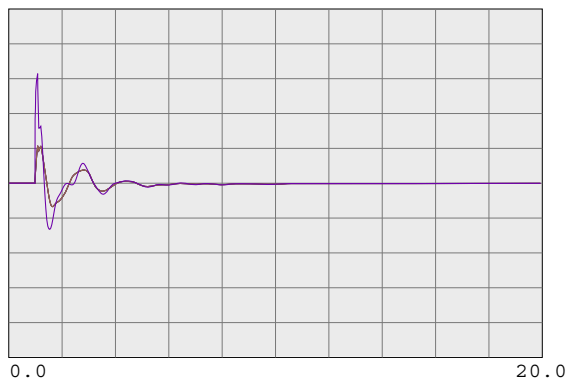
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

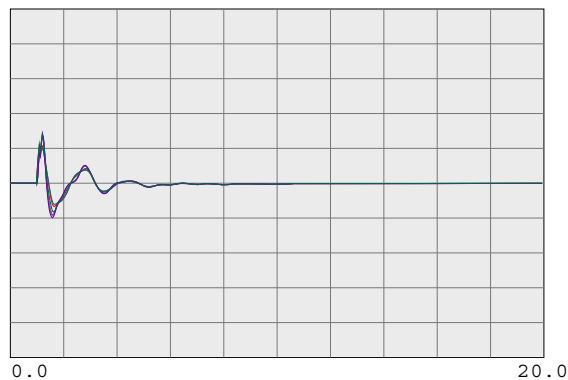


230-KV SYSTEM FREQUENCIES



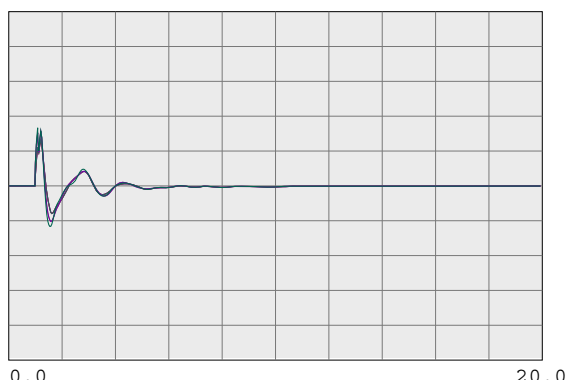
0.0 20.0
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



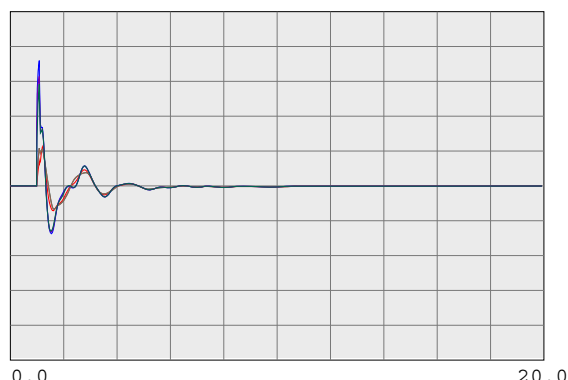
0.0 20.0
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



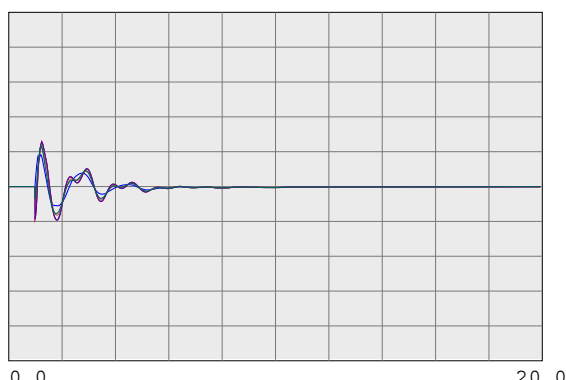
0.0 20.0
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



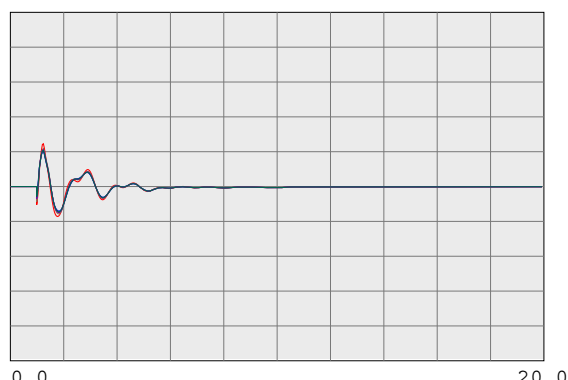
0.0 20.0
Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

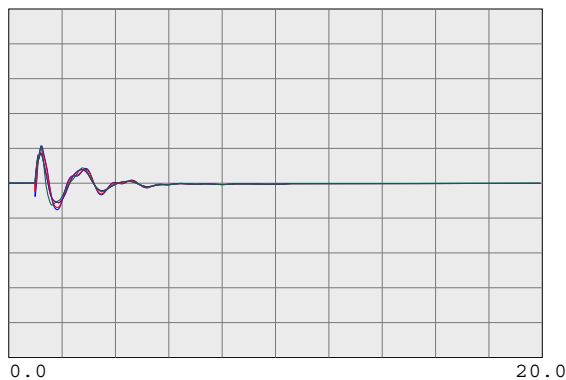
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

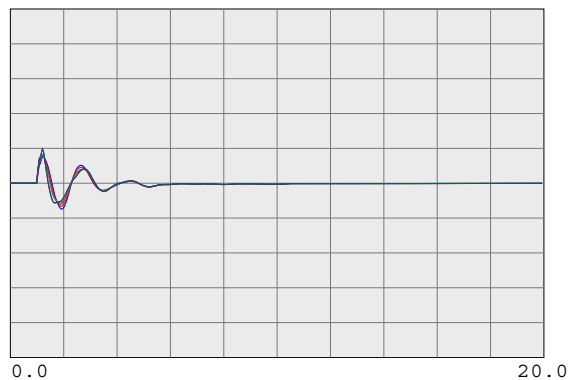
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

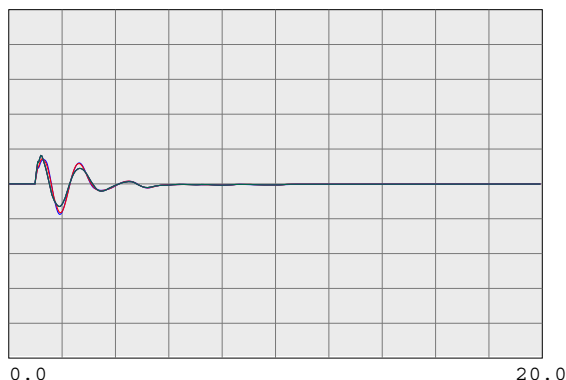
230-KV SYSTEM FREQUENCIES



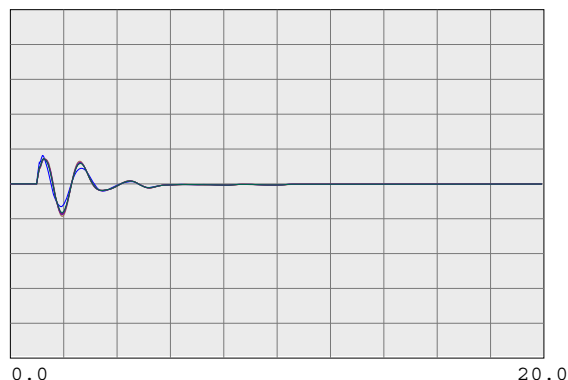
Time (sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



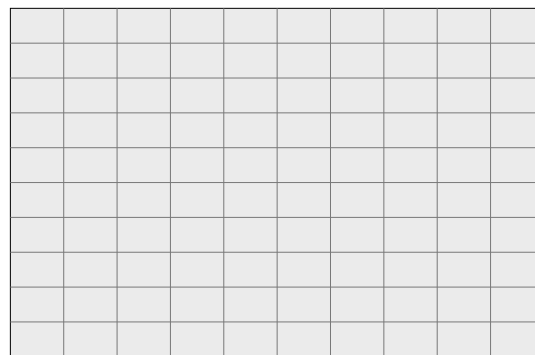
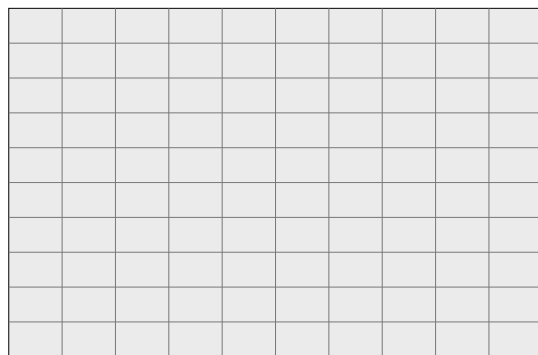
Time (sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

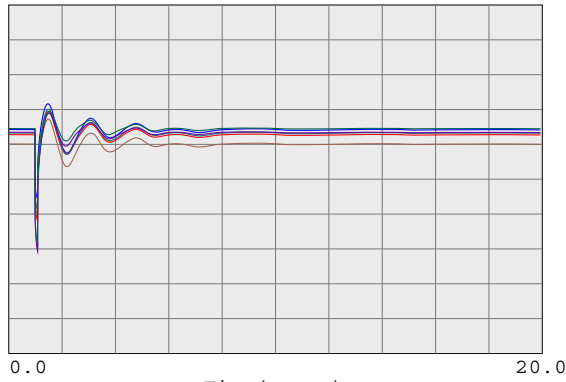
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

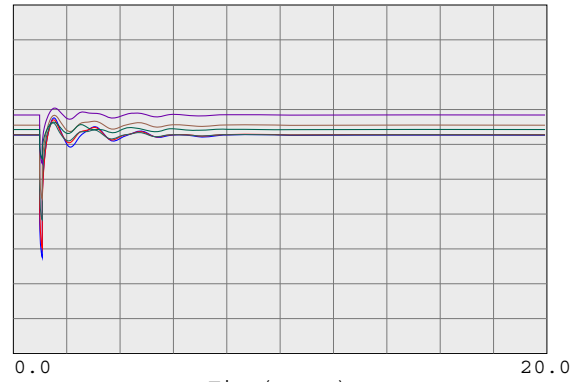
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

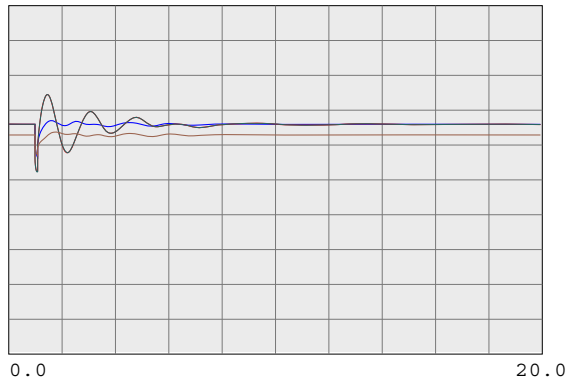
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



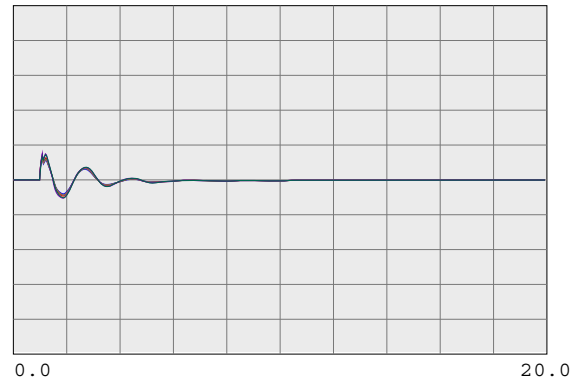
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



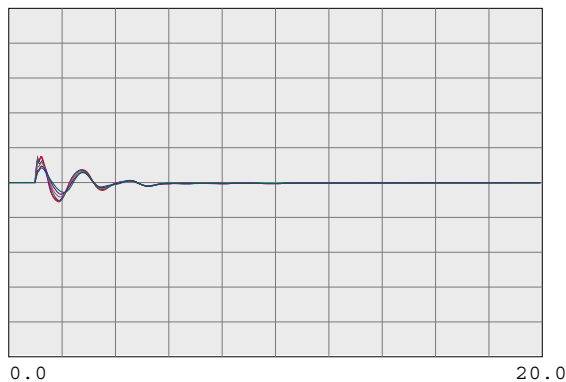
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



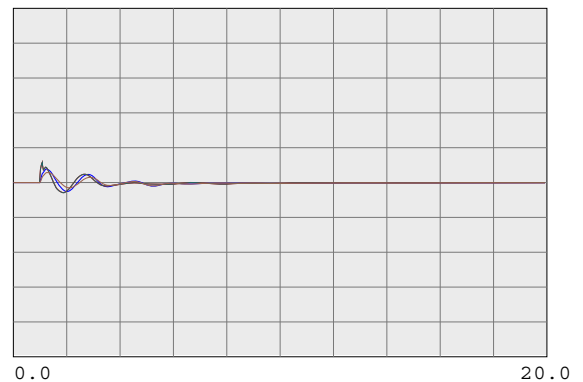
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30015	TABLE MT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30020	GLINDA 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30025	MAXWELL 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30030	VACA-DIX 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30035	TRACY 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30042	METCALF 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30045	MOSSLAND 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30050	LOSBANOS 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30055	GATES 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30057	DIABLO 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	45035	CAPTJACK 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	40687	MALIN 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	24156	VINCENT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

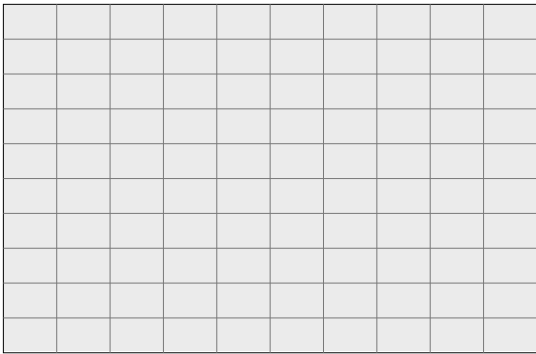
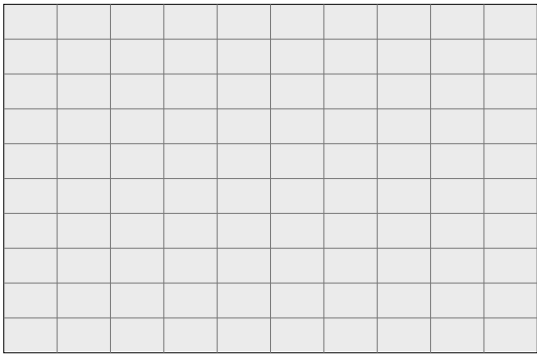
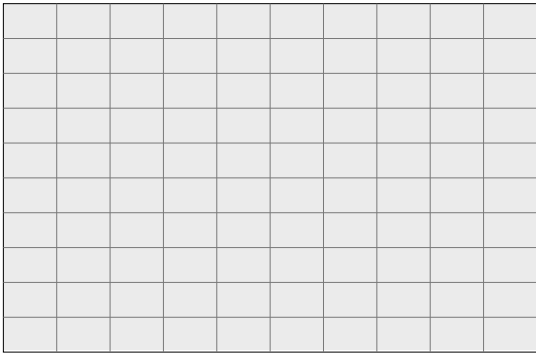
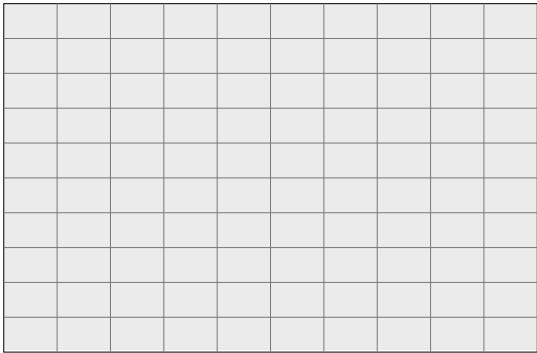
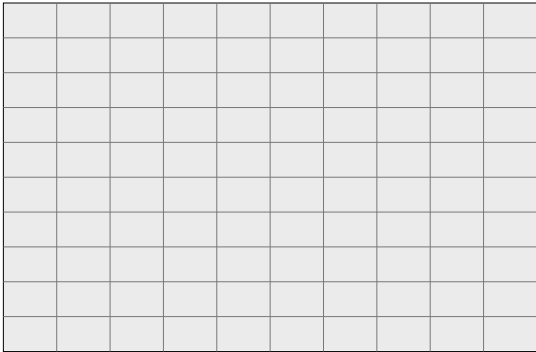
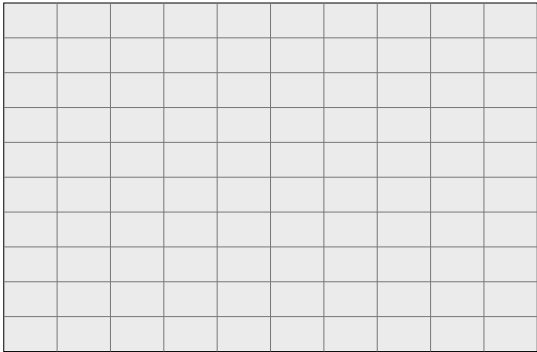
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

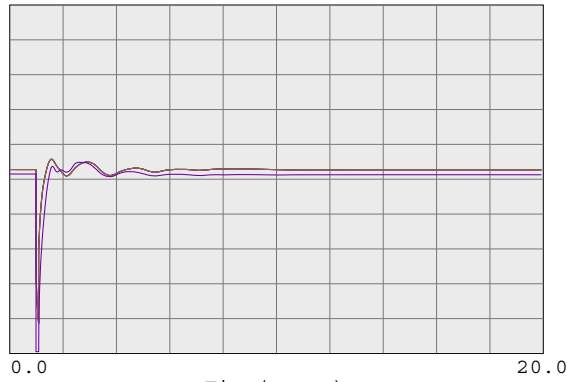
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



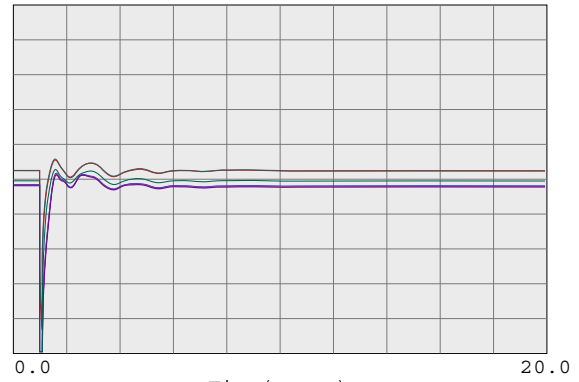
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



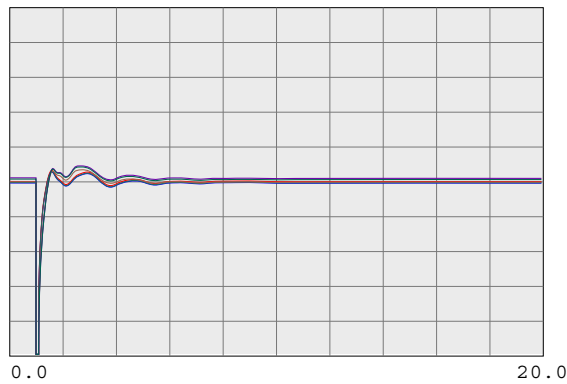
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



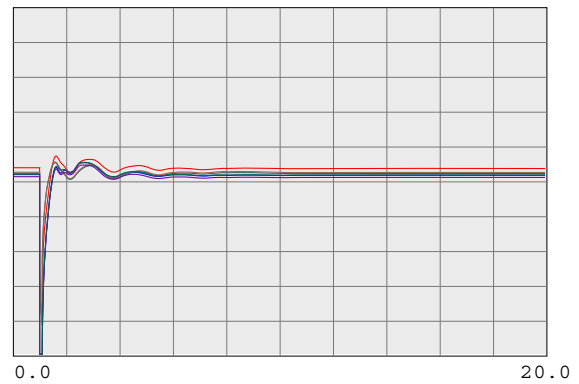
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



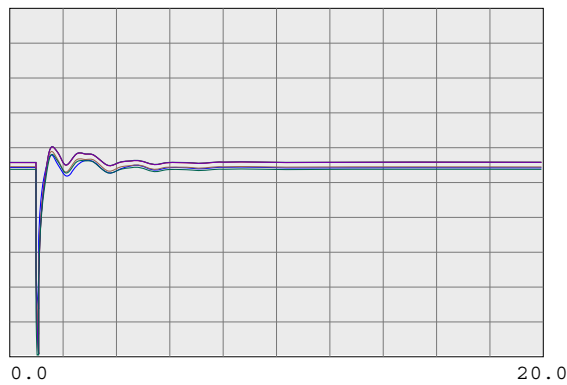
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TRISBORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



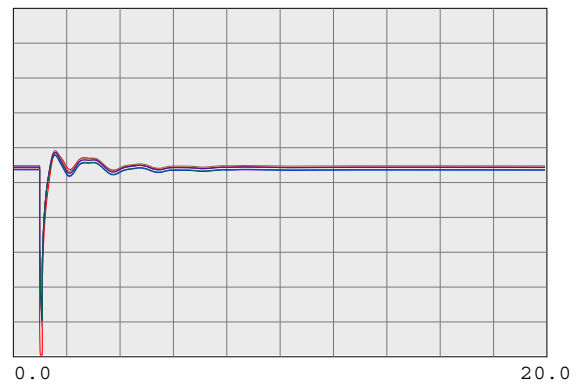
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

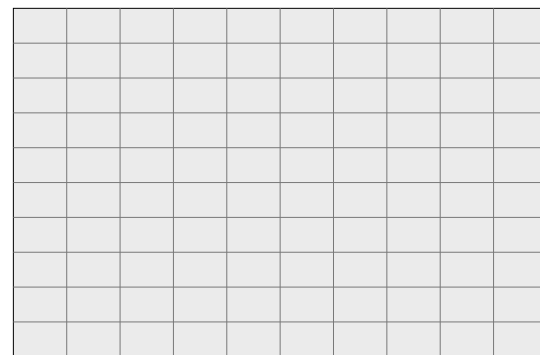
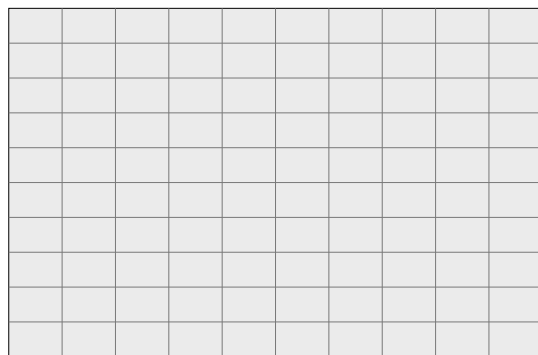
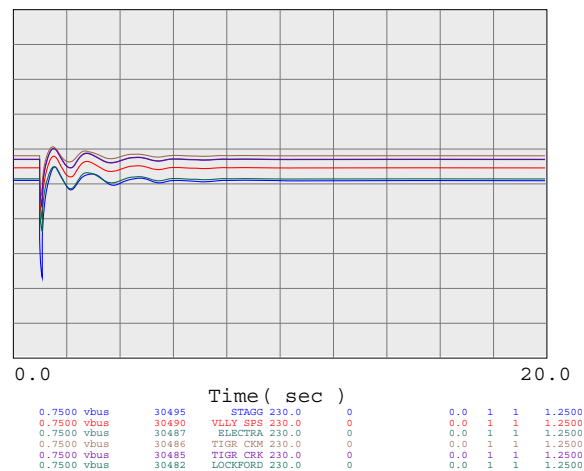
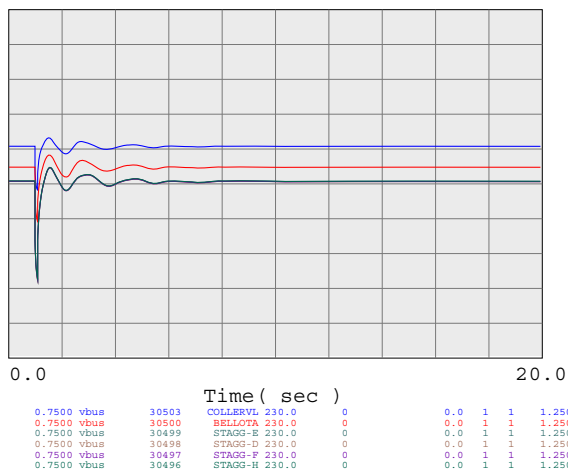
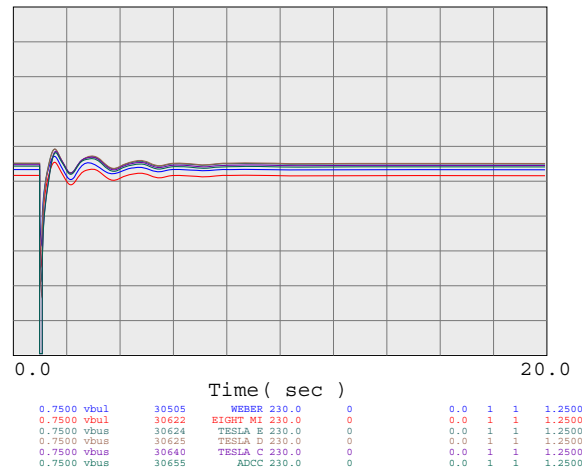
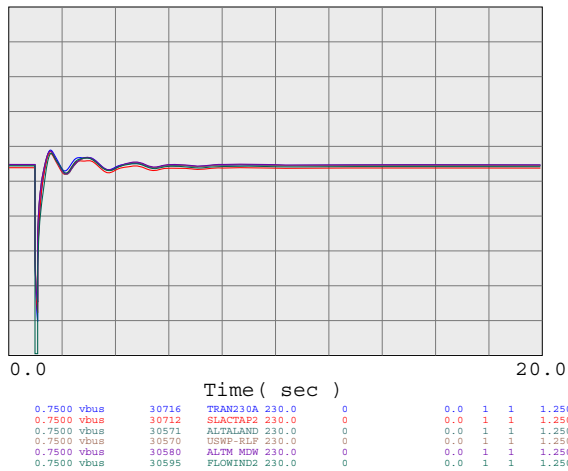
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

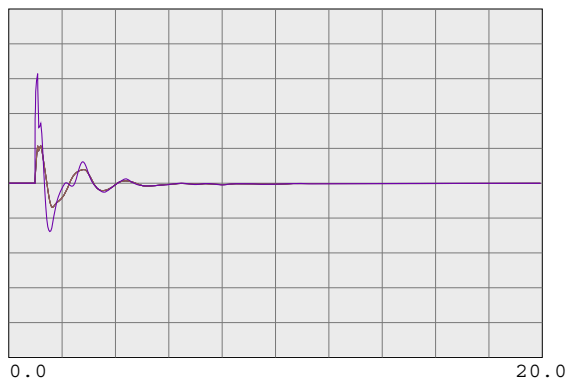
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

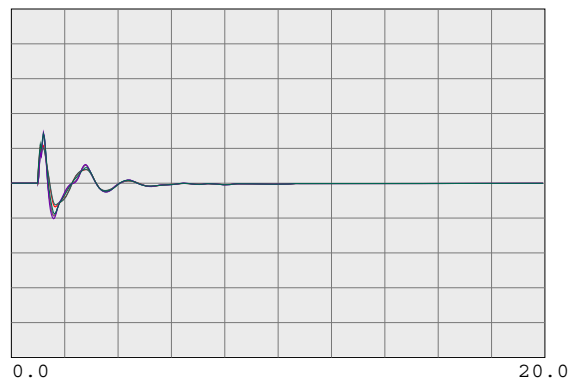
230-KV SYSTEM VOLTAGES



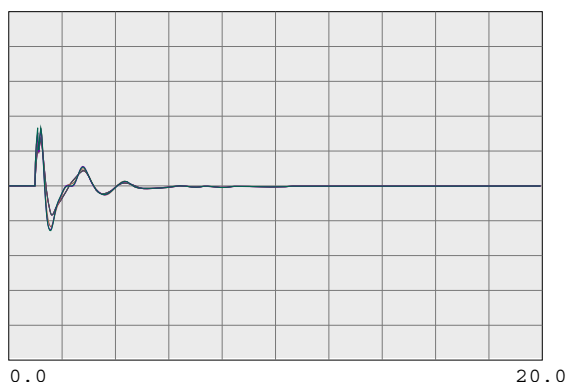
230-KV SYSTEM FREQUENCIES



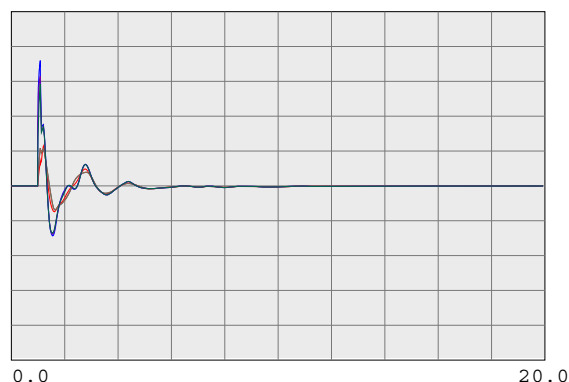
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



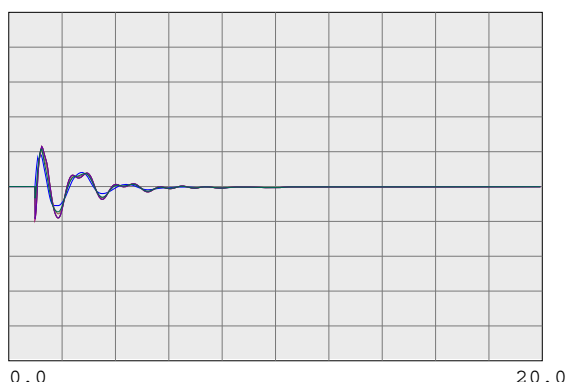
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30567</td> <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30565</td> <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30563</td> <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30561</td> <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30550</td> <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30550	MORAGA 230.0	0	0.0	1	1	60.6000



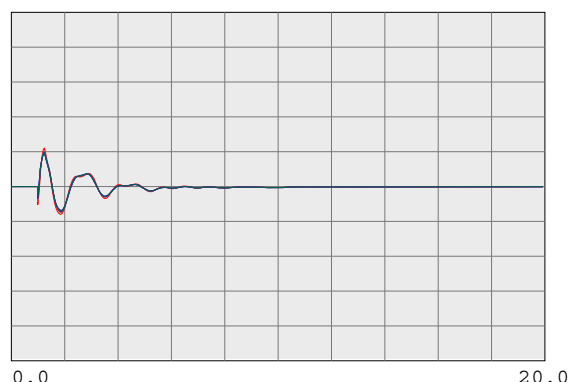
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TIDENATR 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	PITSBG E 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30685 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30685 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	RAVENSWD 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

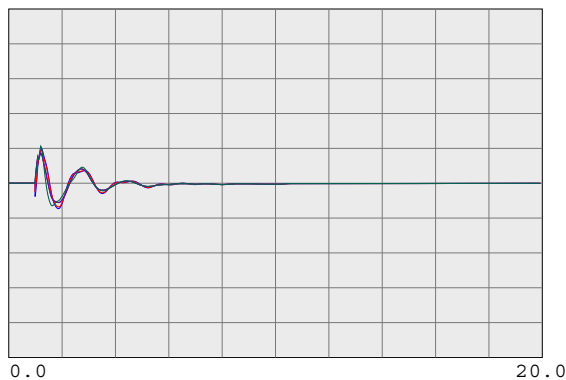
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

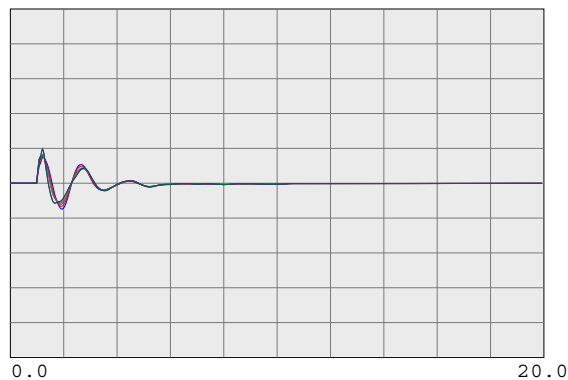
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

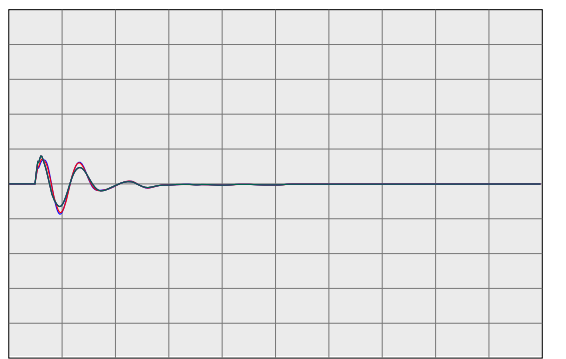
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

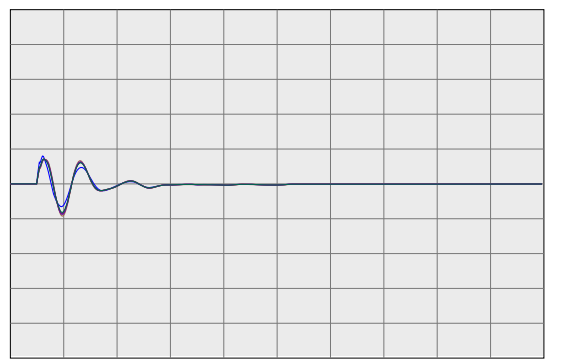
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

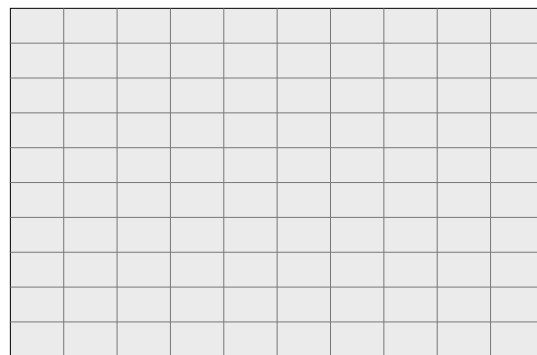
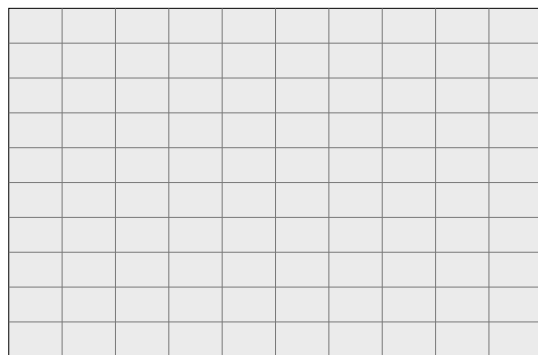
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

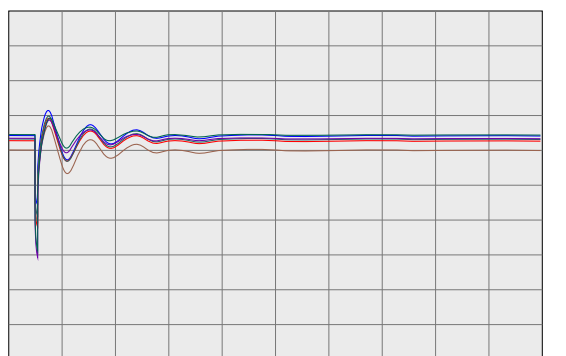
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

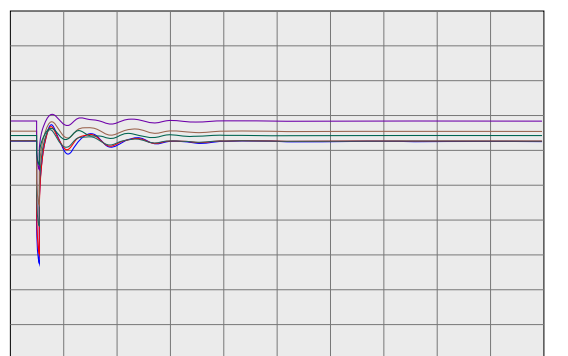
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time(sec)

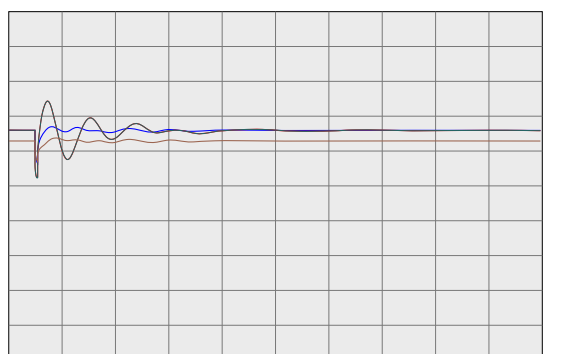
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

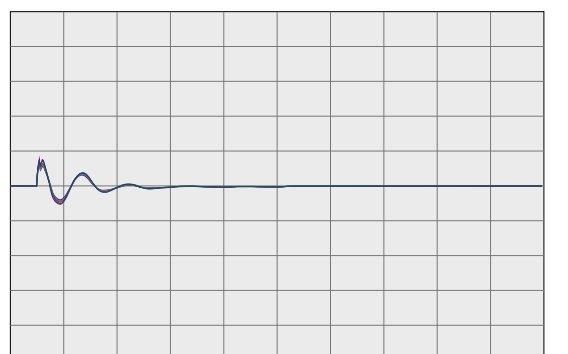
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

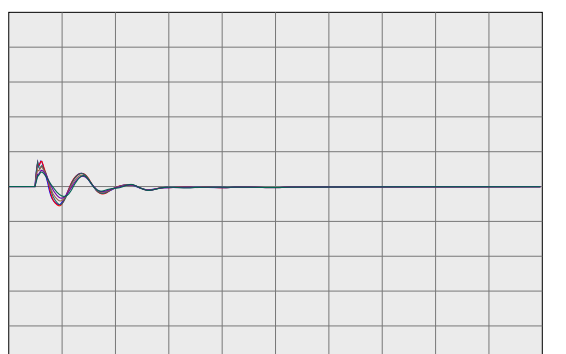
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

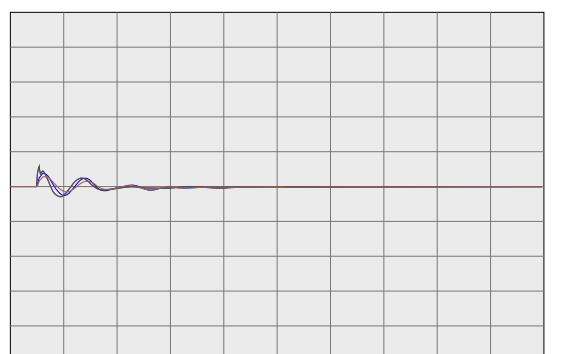
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

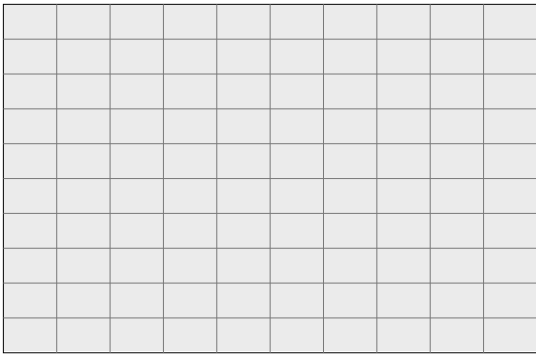
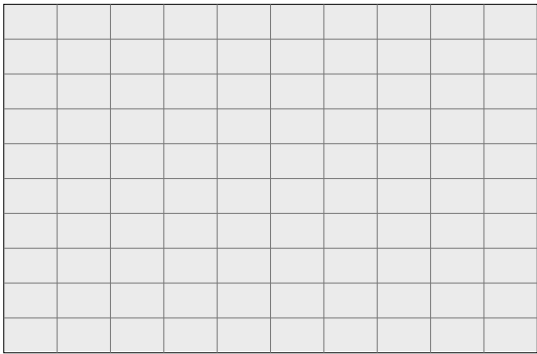
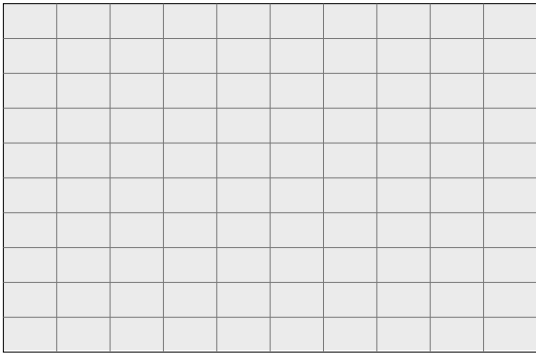
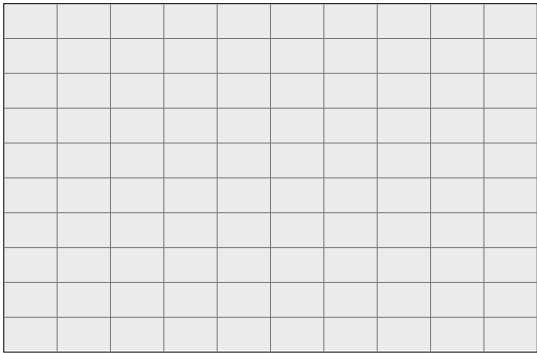
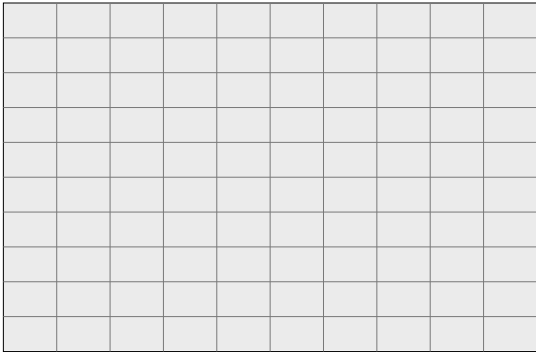
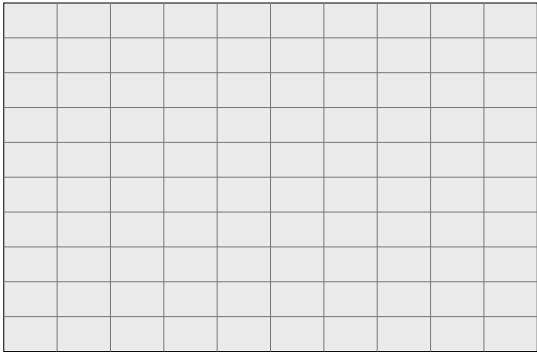
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

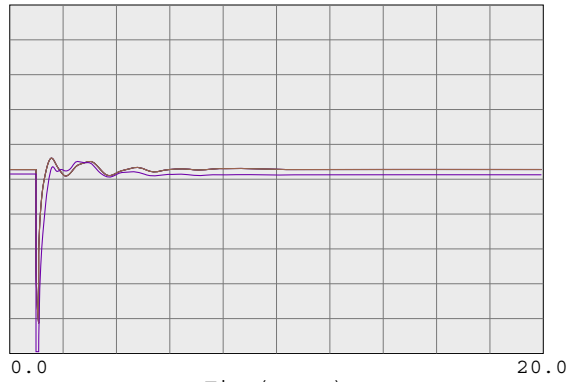
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



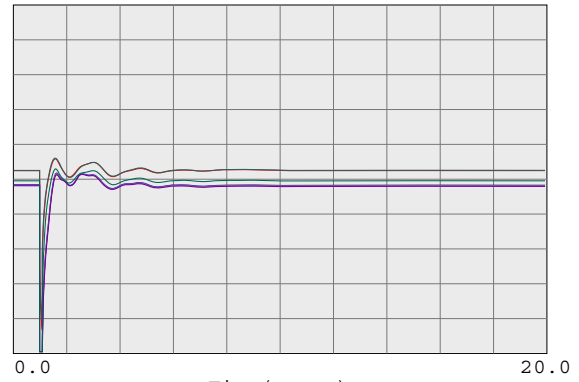
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



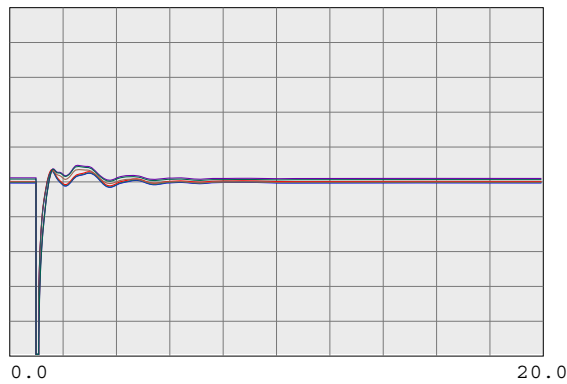
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



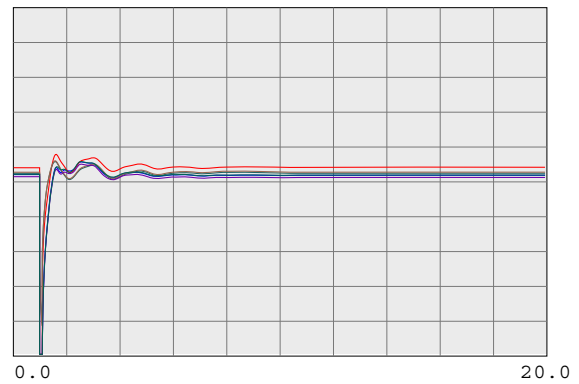
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



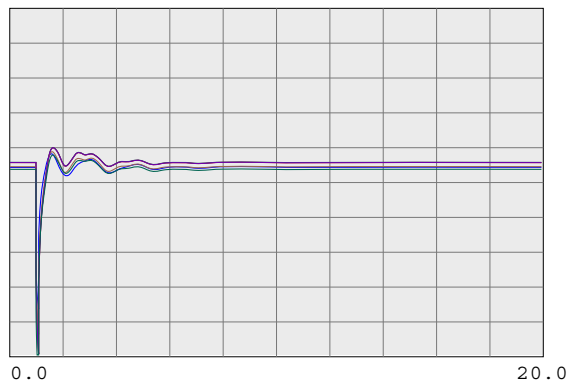
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



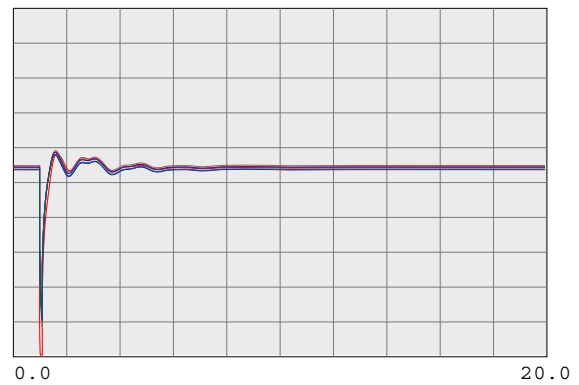
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

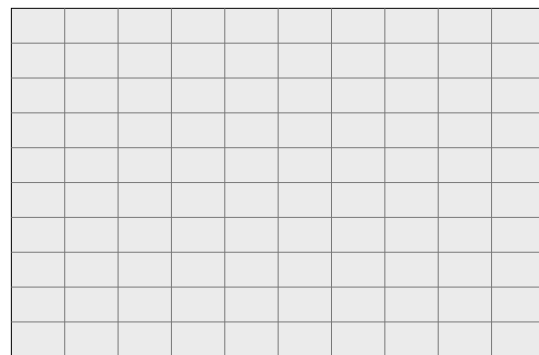
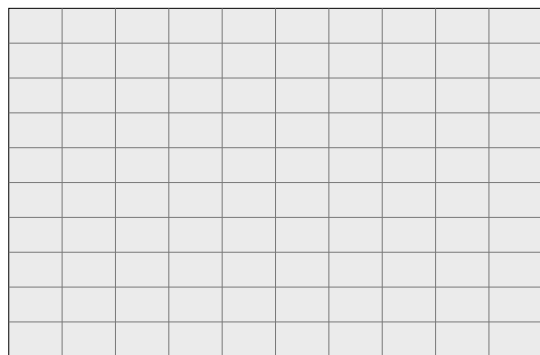
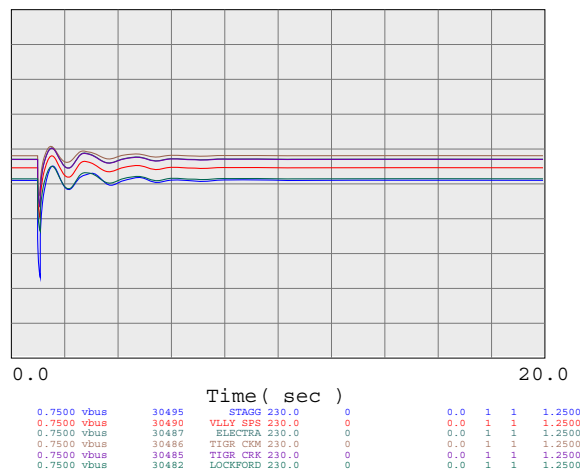
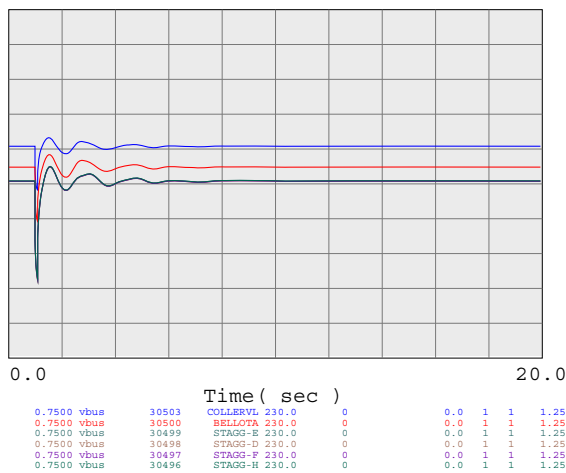
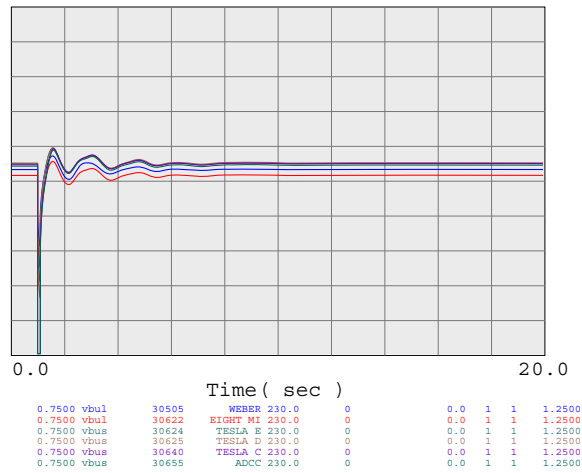
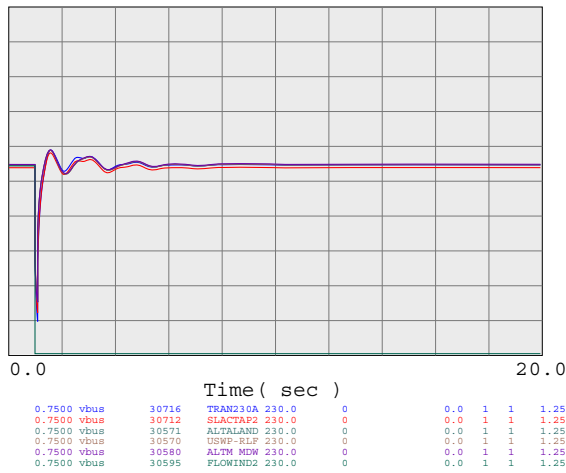
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

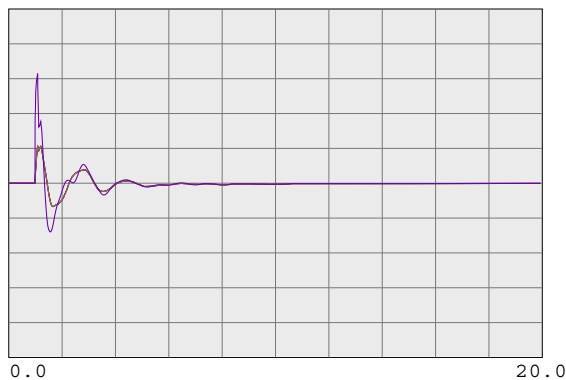
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

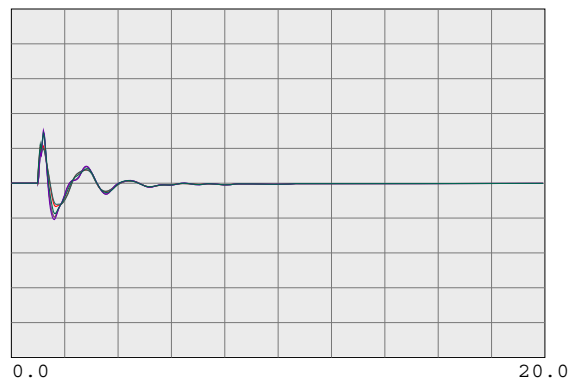
230-KV SYSTEM VOLTAGES



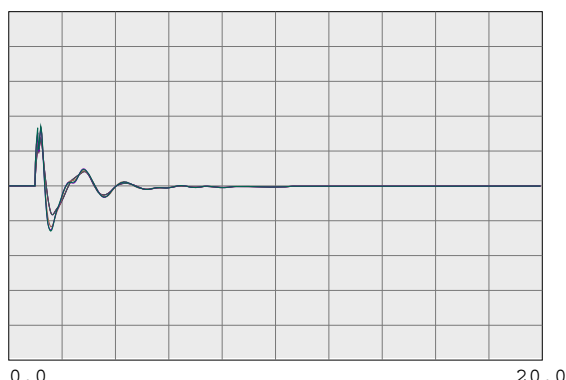
230-KV SYSTEM FREQUENCIES



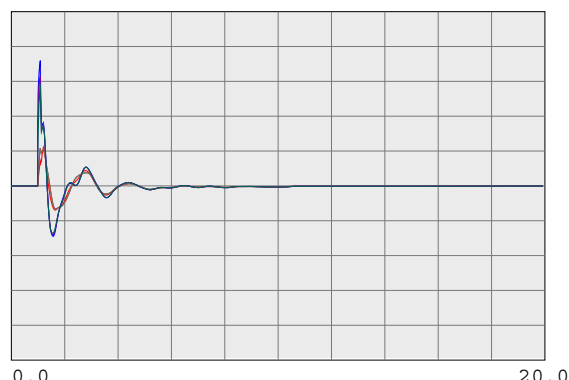
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



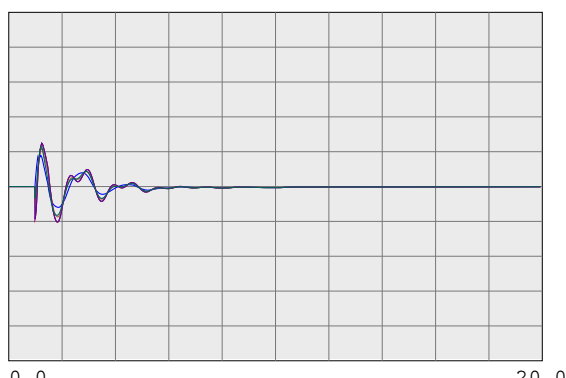
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



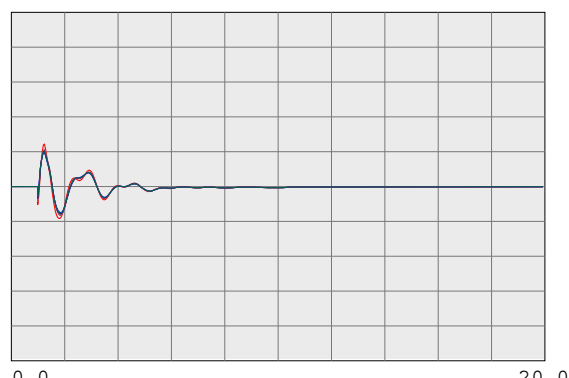
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSPAF 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSPAF1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRIANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTS 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

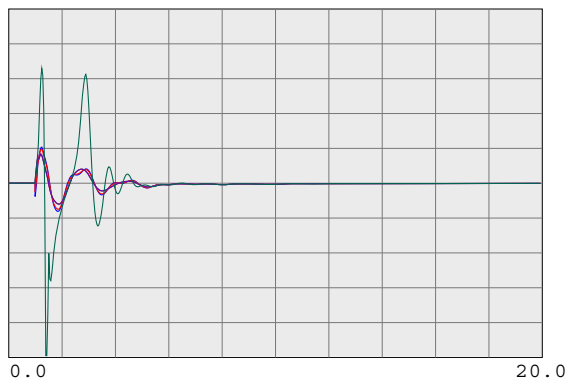
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

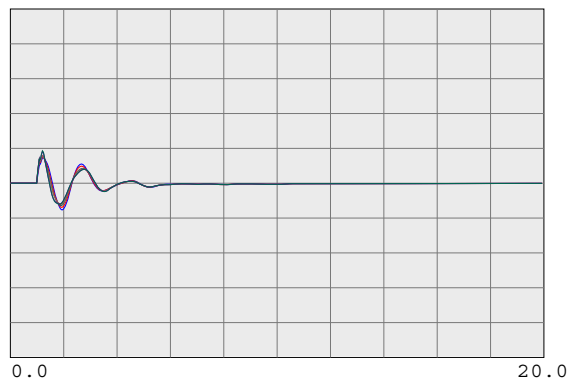
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



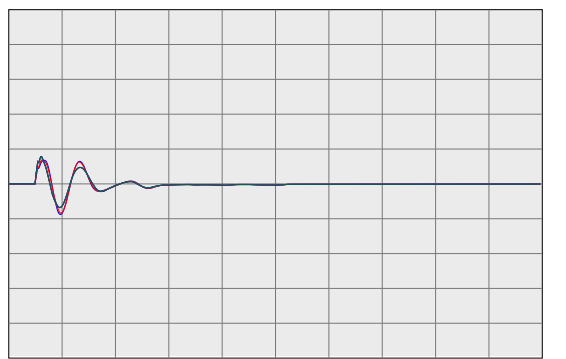
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



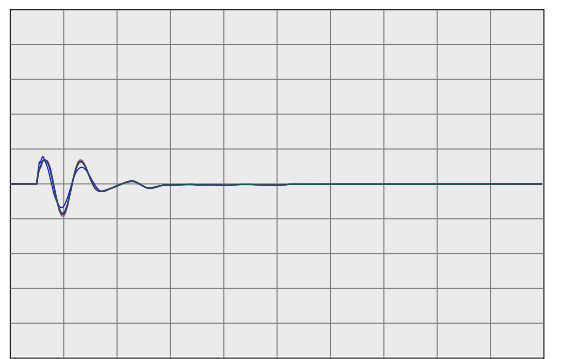
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



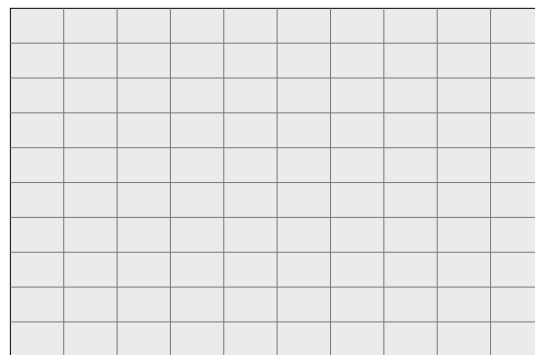
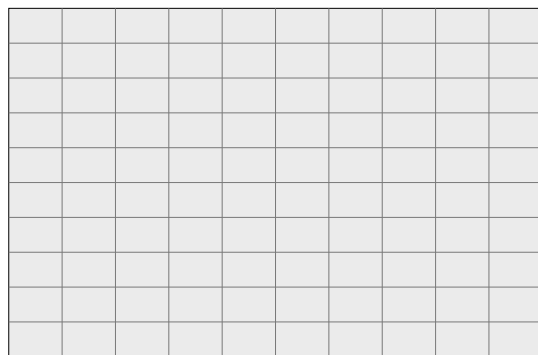
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

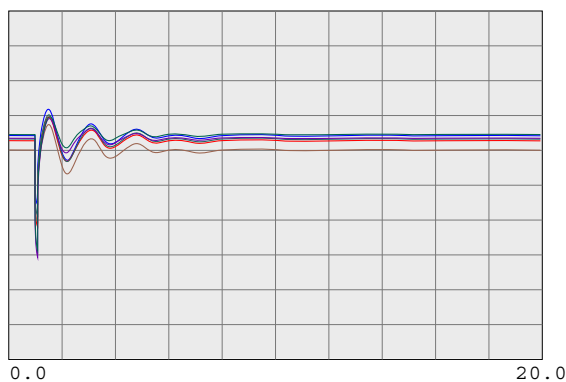
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

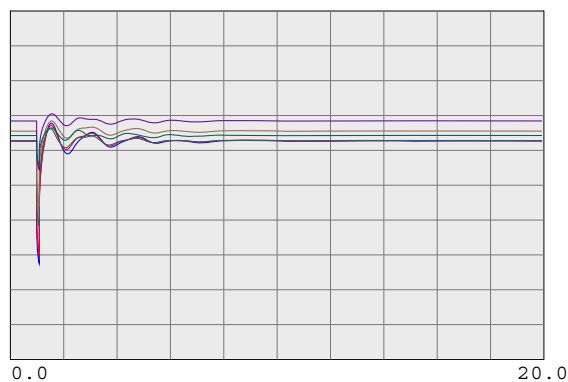
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

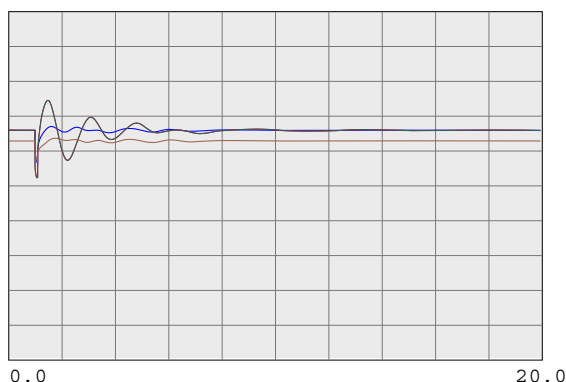
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



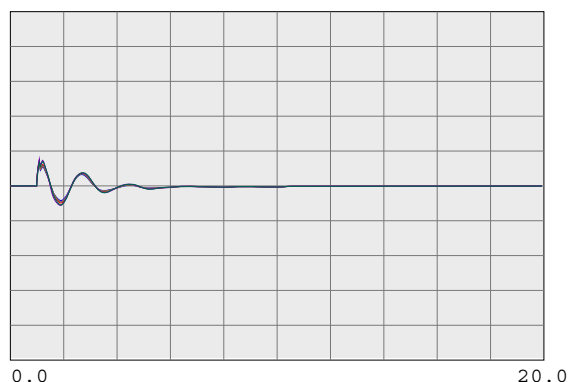
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



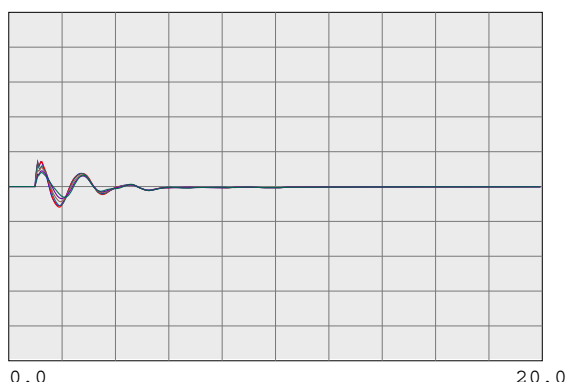
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



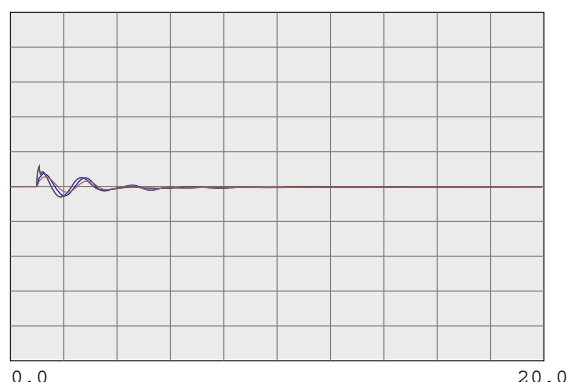
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30042	METCALF 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30045	MOSSLAND 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30050	LOSBANOS 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30055	GATES 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30057	DIABLO 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	45035	CAPTJACK 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	40687	MALIN 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	24156	VINCENT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

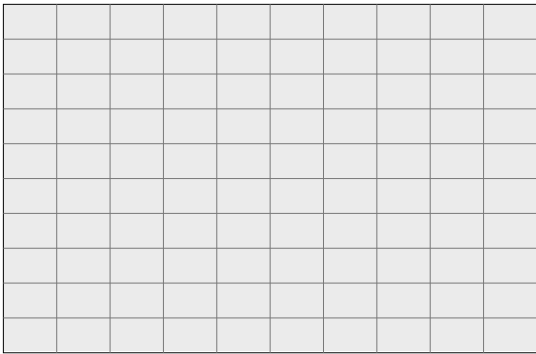
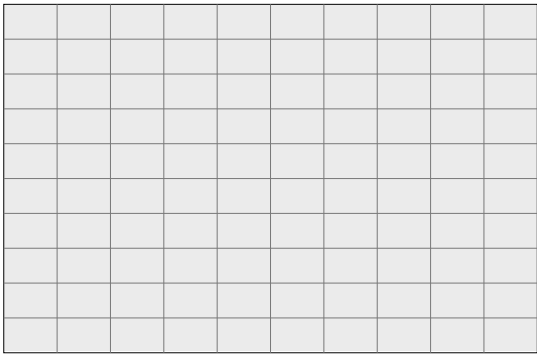
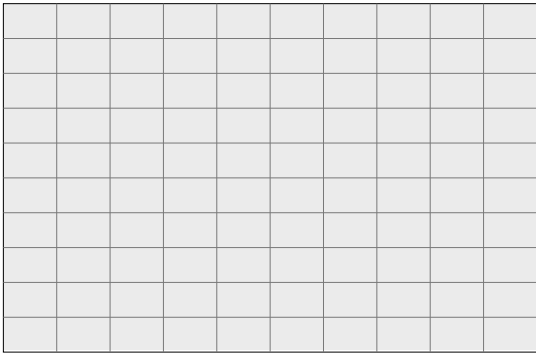
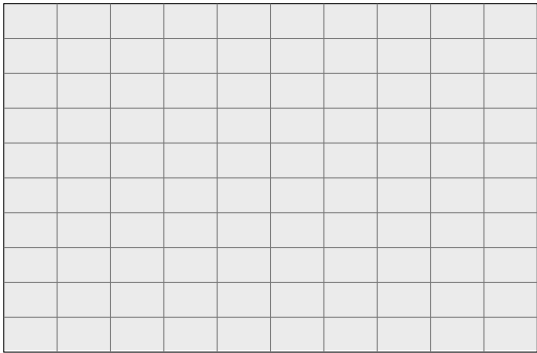
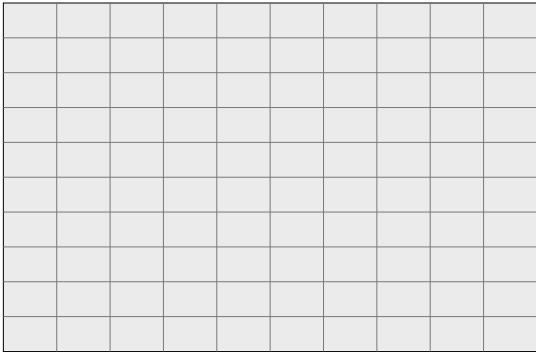
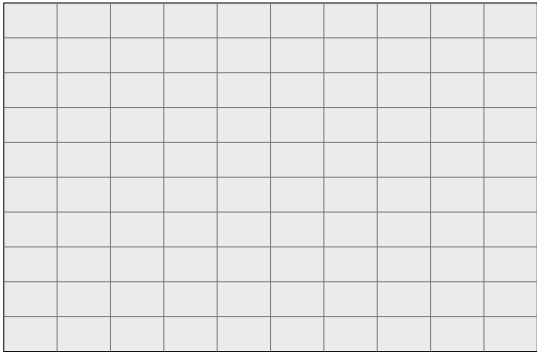
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

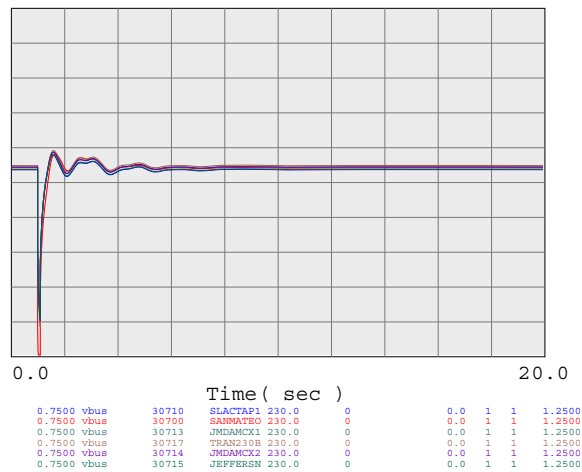
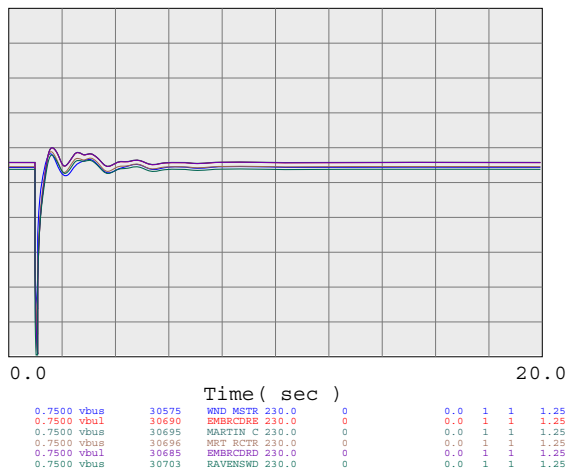
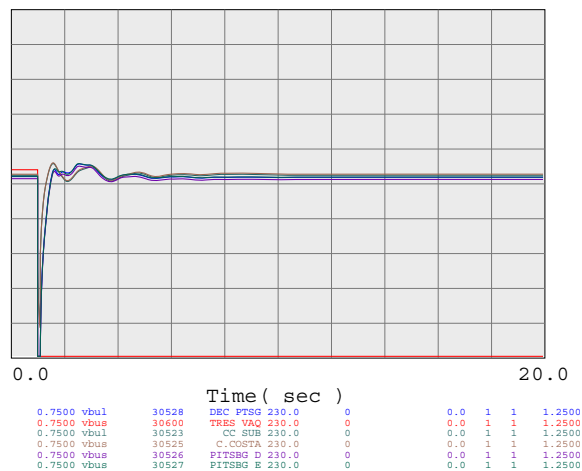
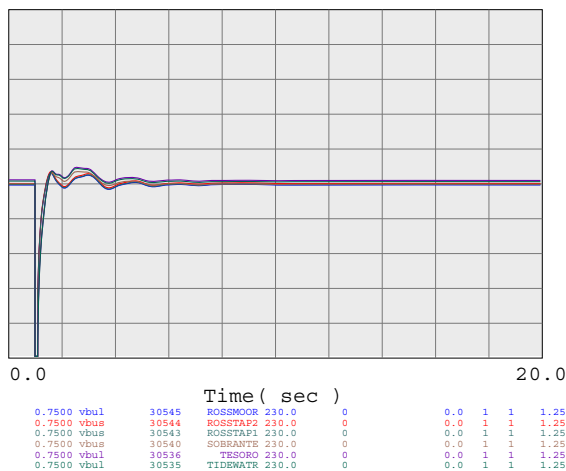
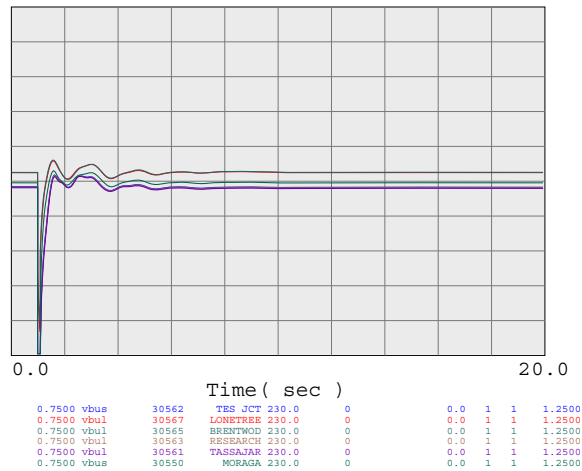
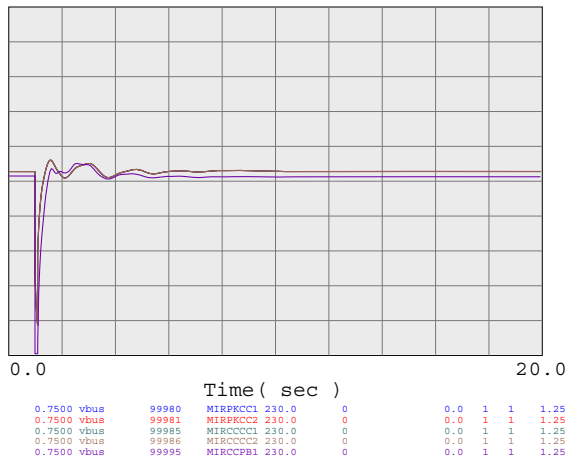
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



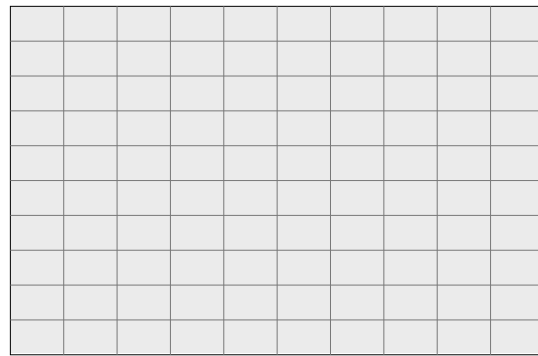
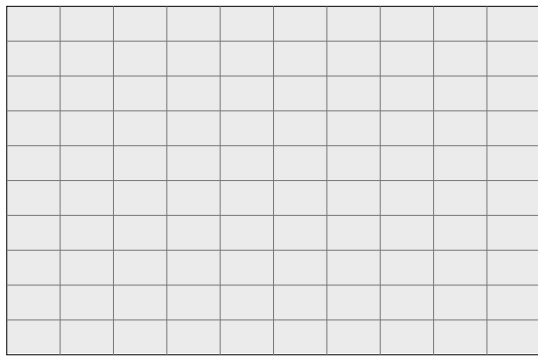
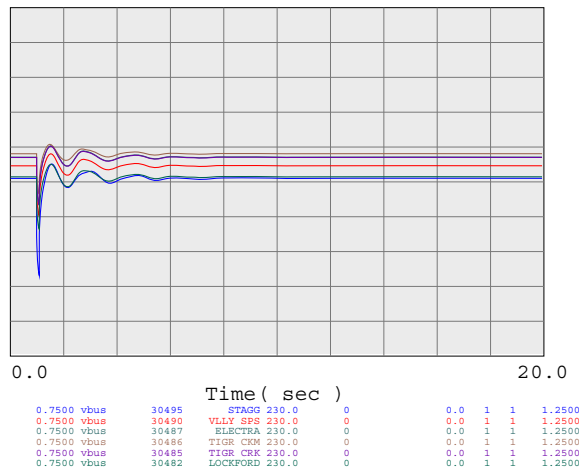
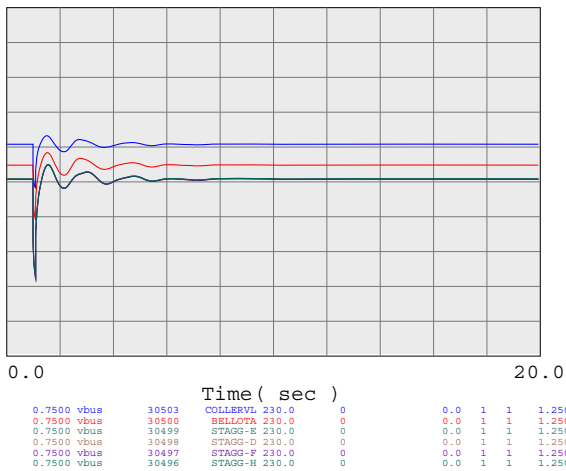
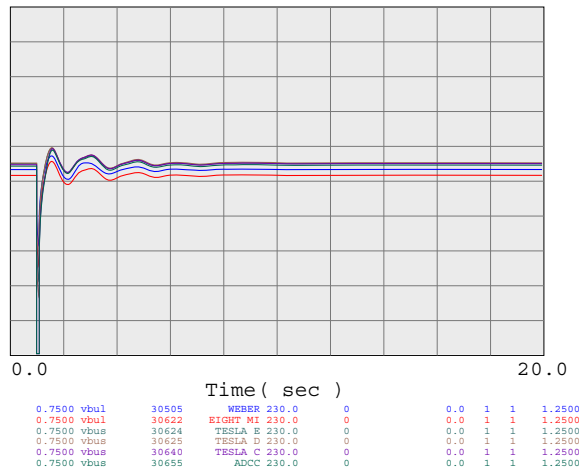
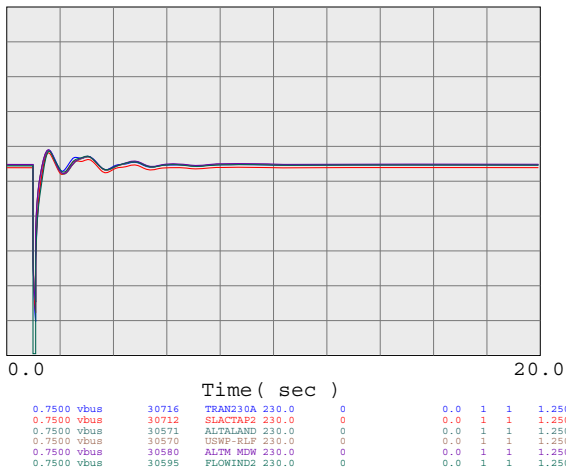
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

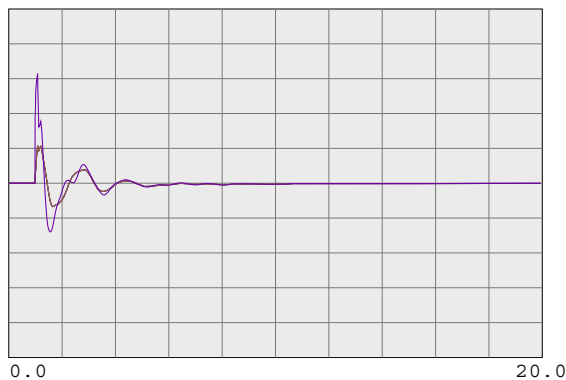


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

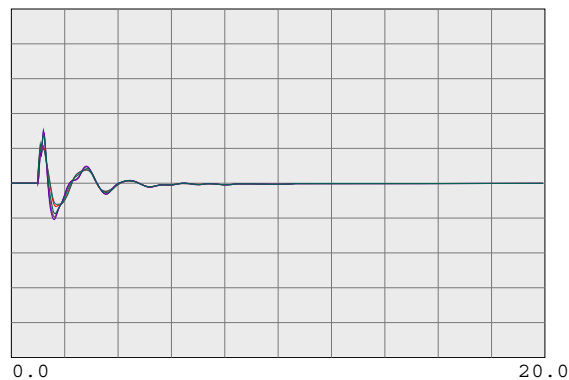


230-KV SYSTEM FREQUENCIES



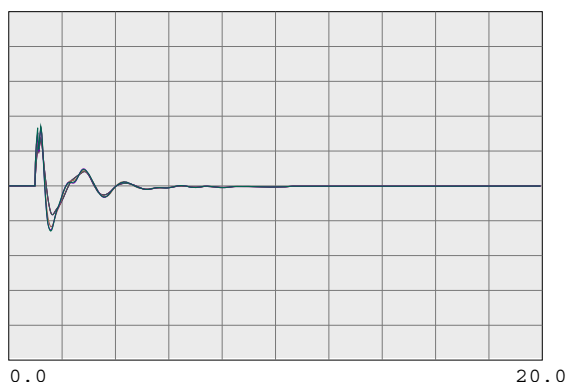
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



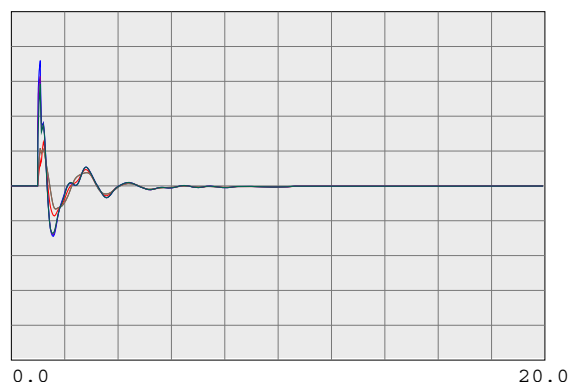
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



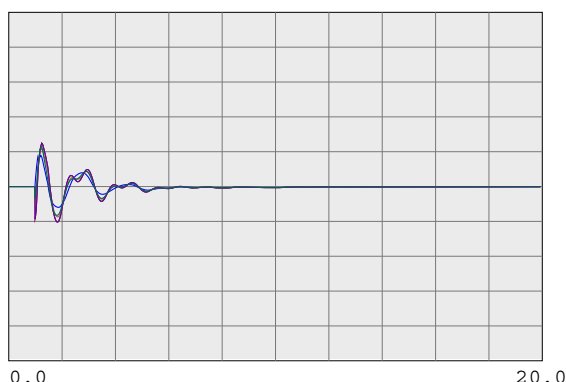
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



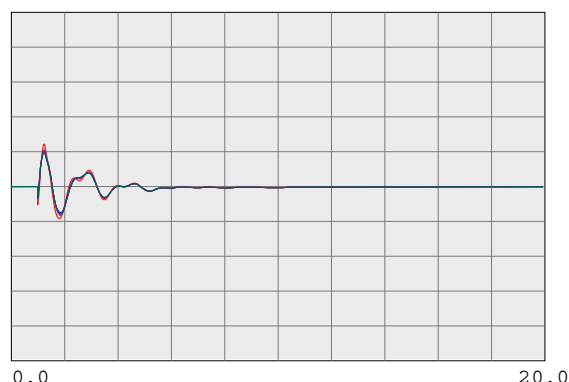
Time(sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30575	WND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

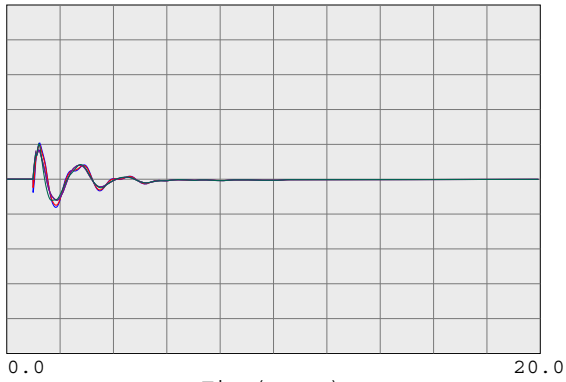
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

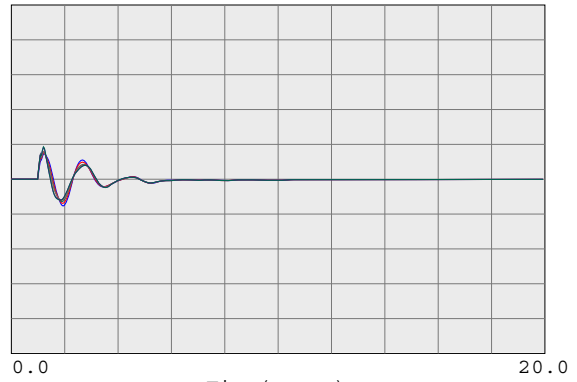
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



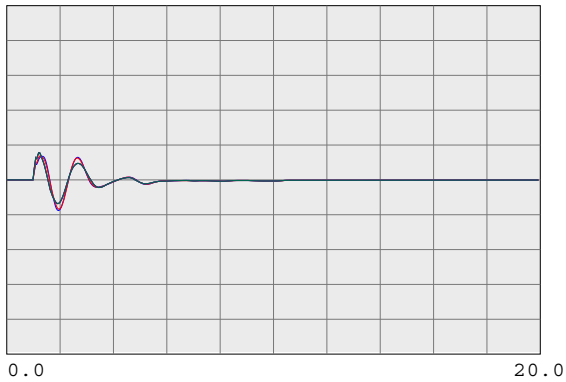
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



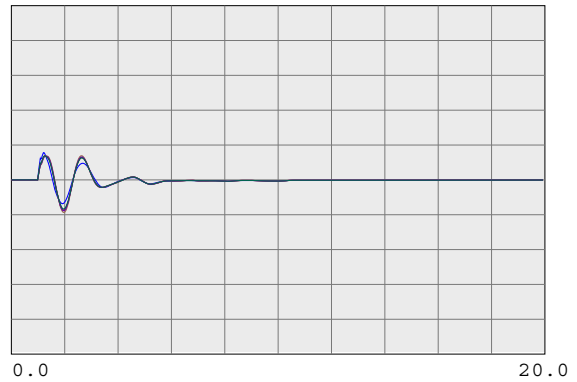
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



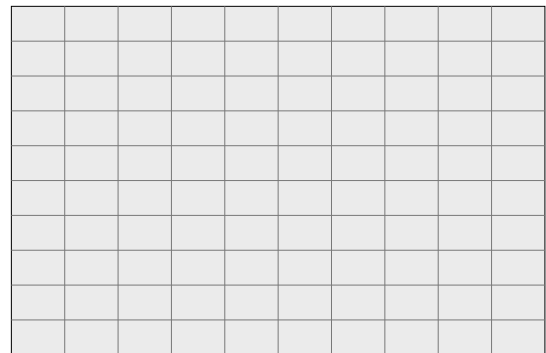
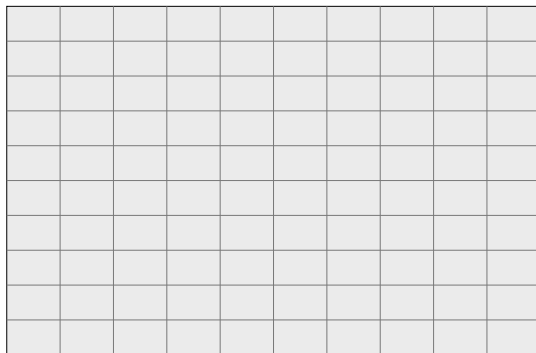
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



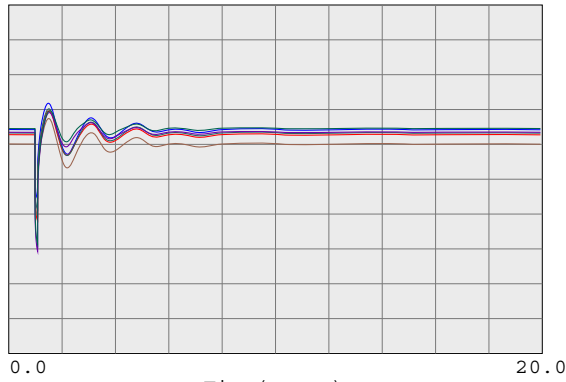
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000

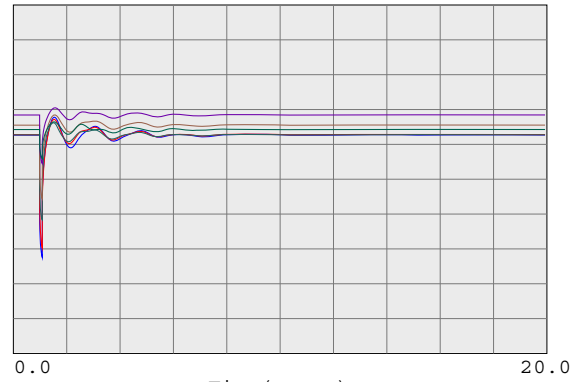


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

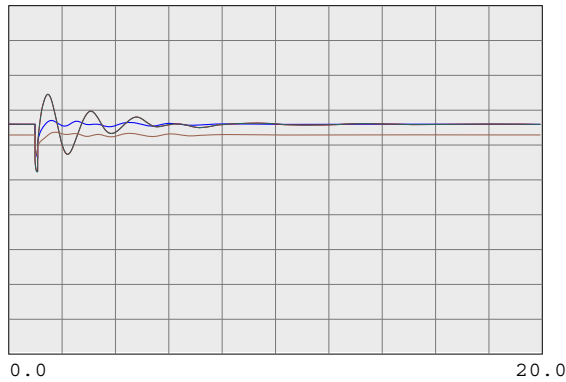
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



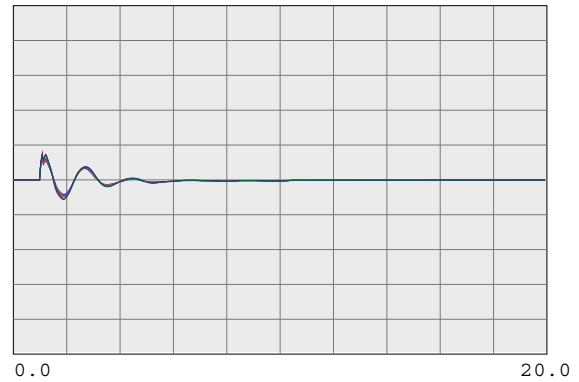
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



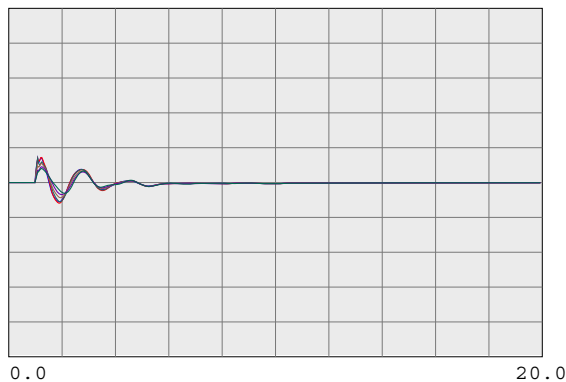
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



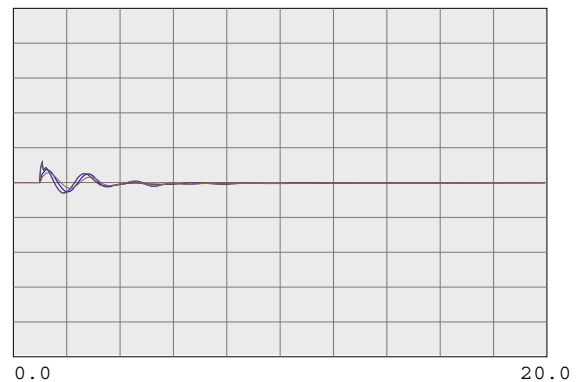
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

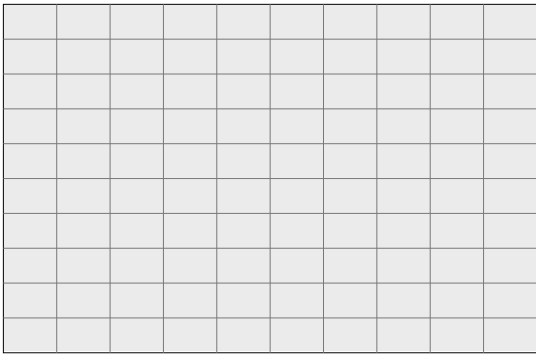
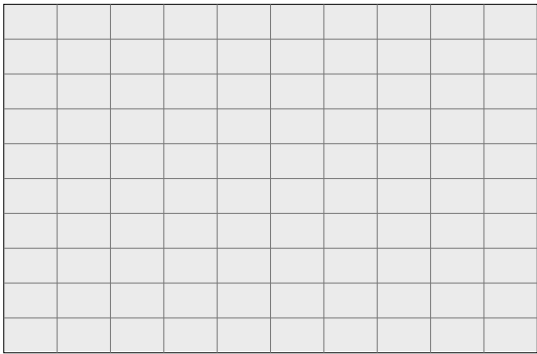
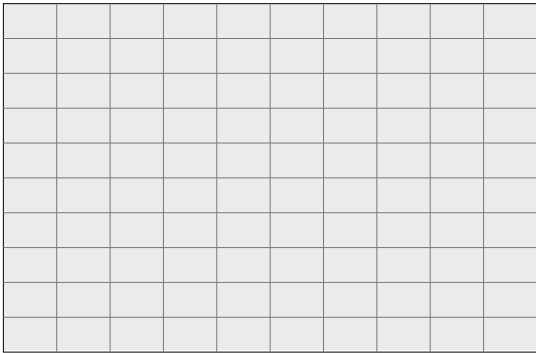
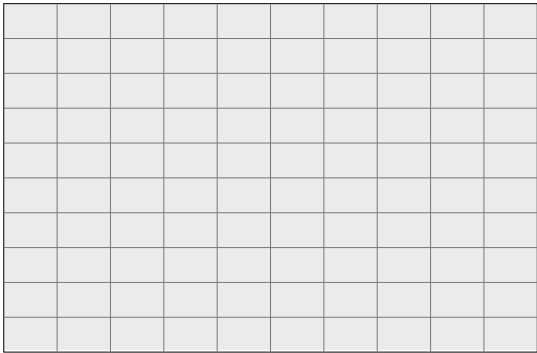
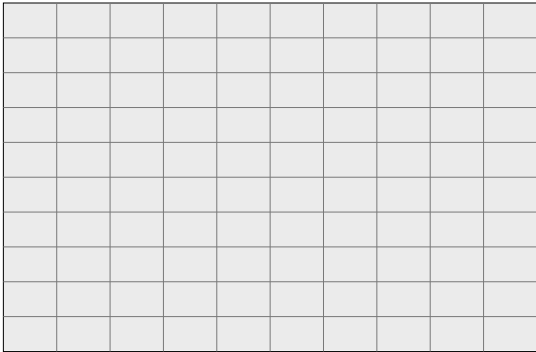
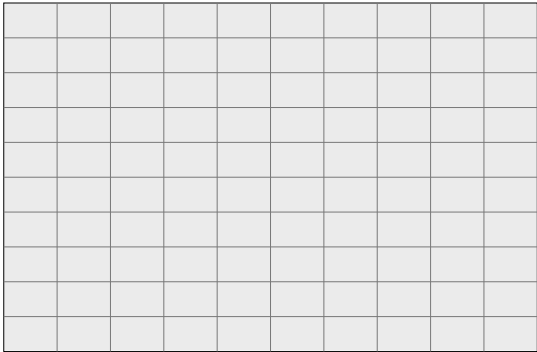
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

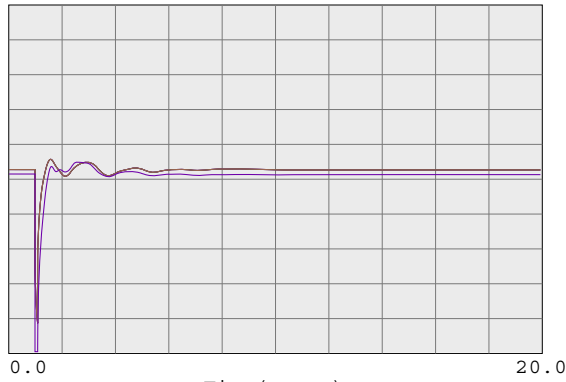
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

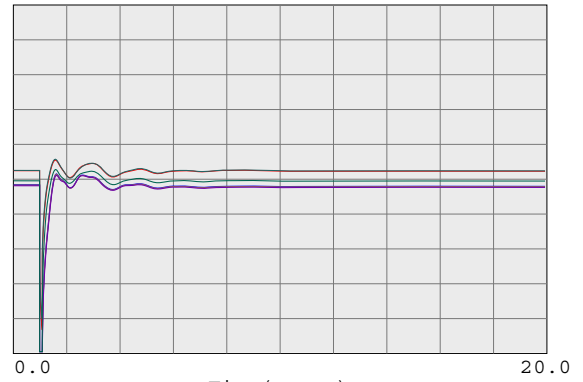


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

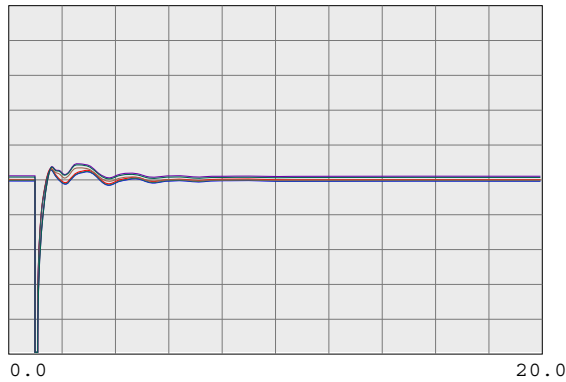
230-KV SYSTEM VOLTAGES



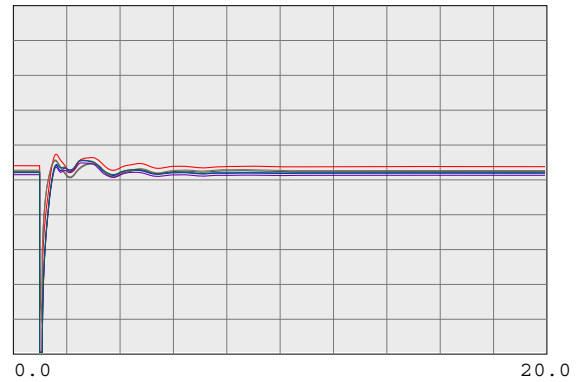
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



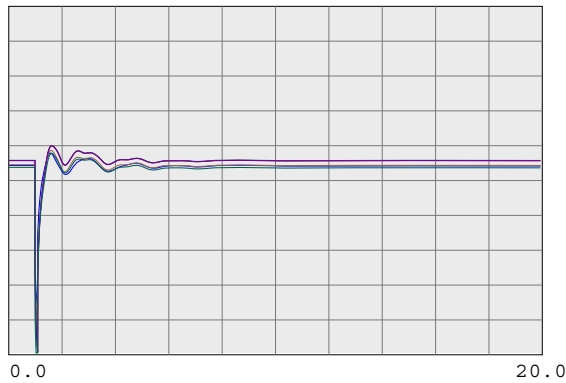
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30567</td> <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30565</td> <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30563</td> <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30561</td> <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30550</td> <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



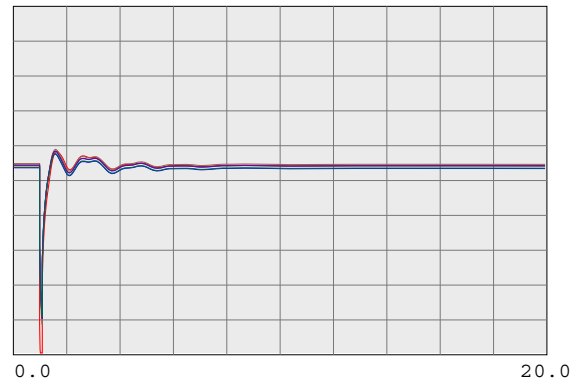
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSAPR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSAPR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

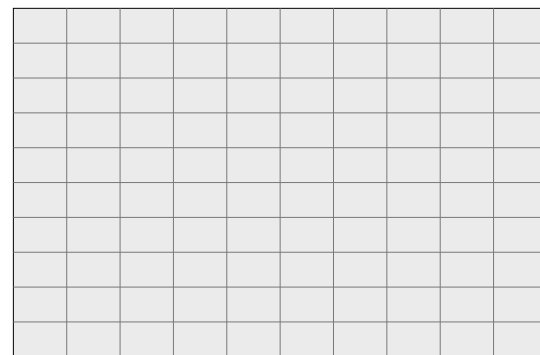
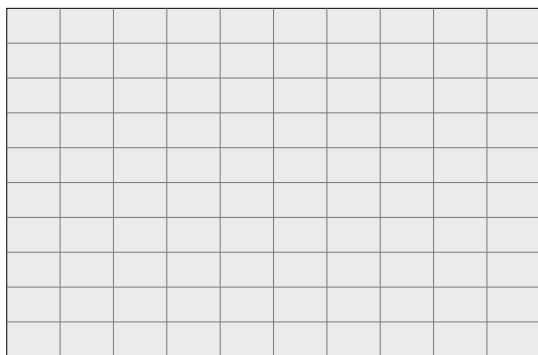
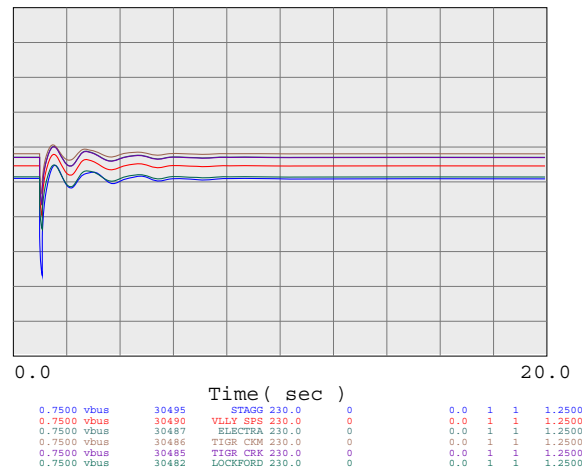
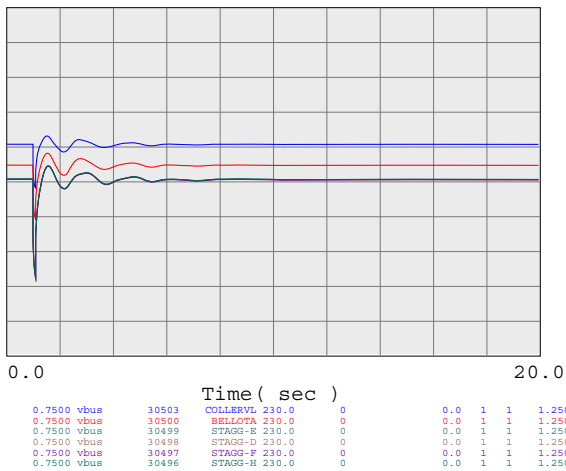
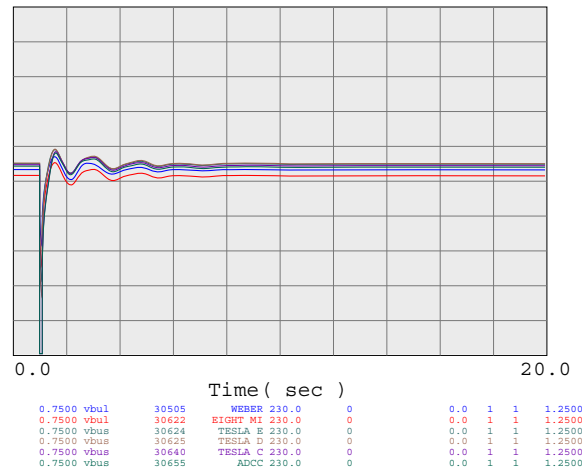
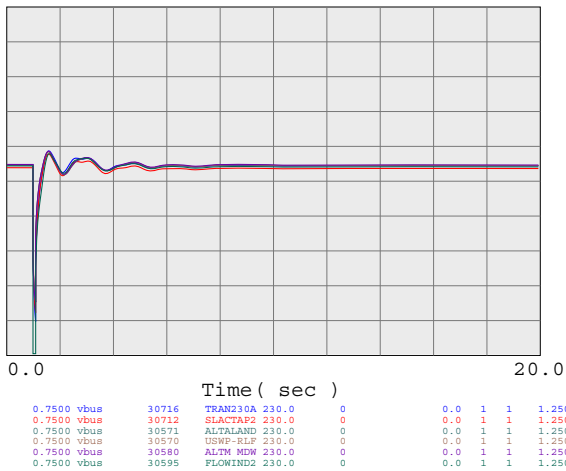
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

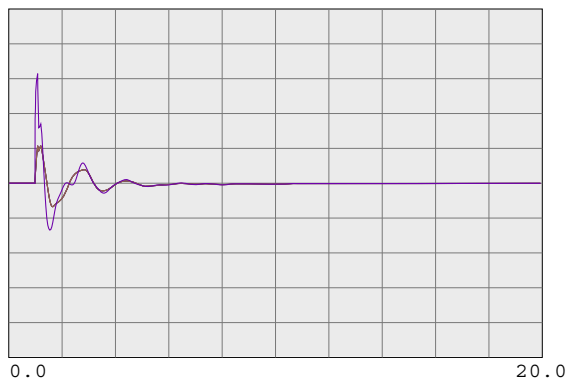
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

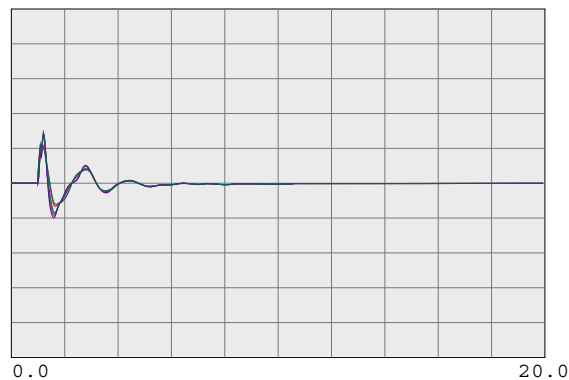


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

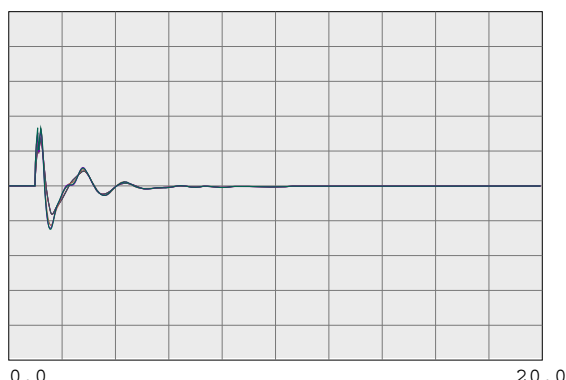
230-KV SYSTEM FREQUENCIES



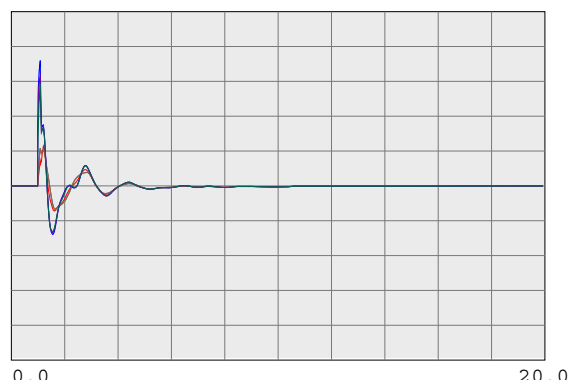
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



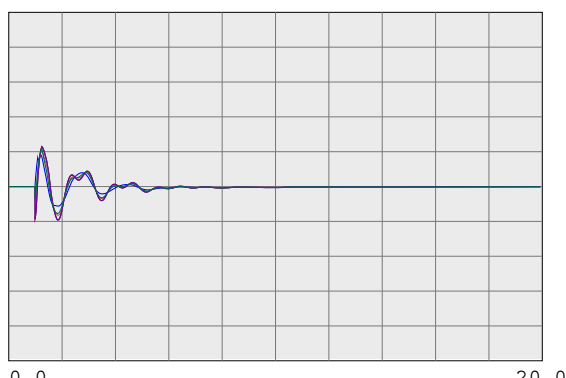
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



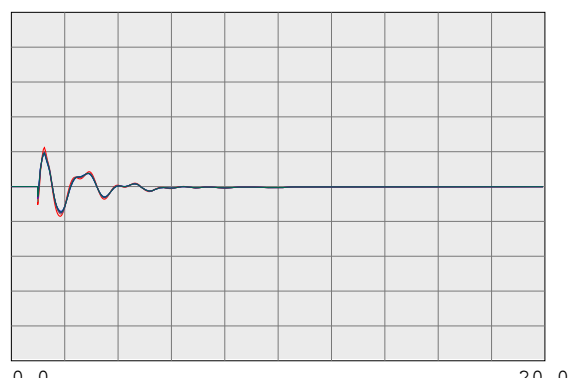
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTS 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANSJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

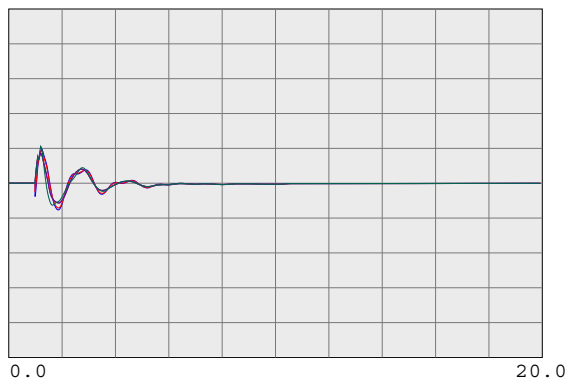
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

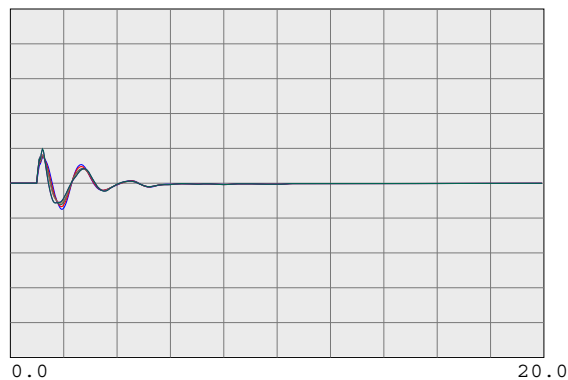
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

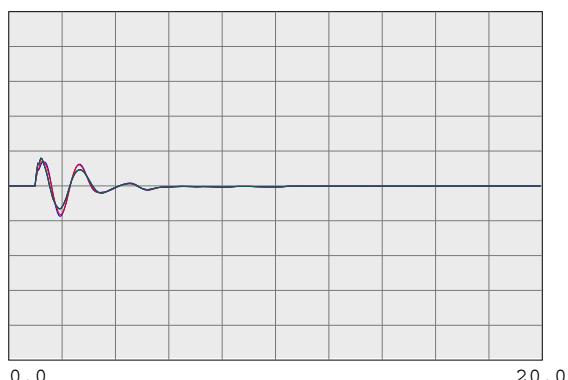
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

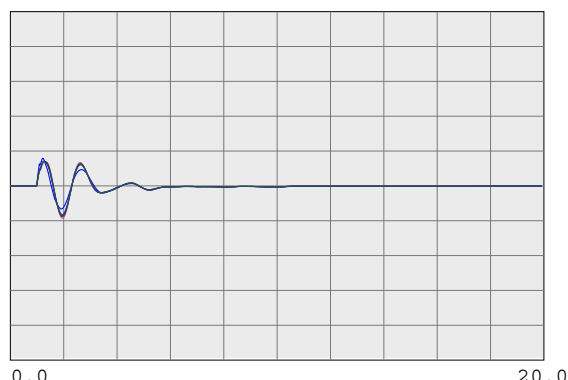
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

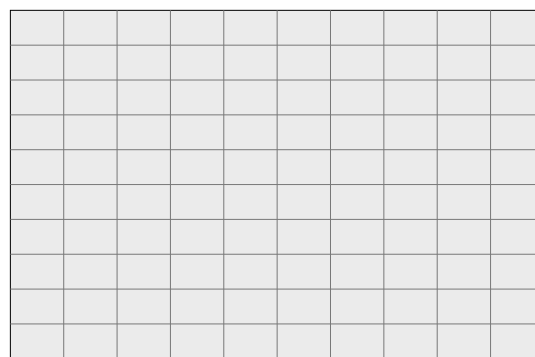
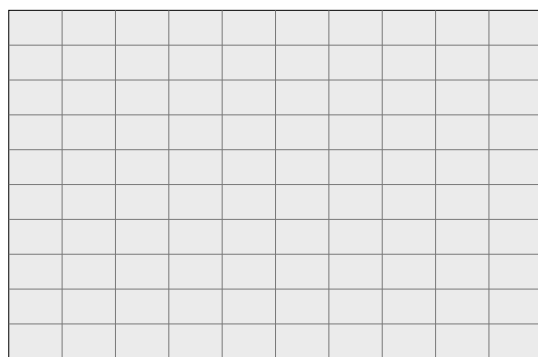
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

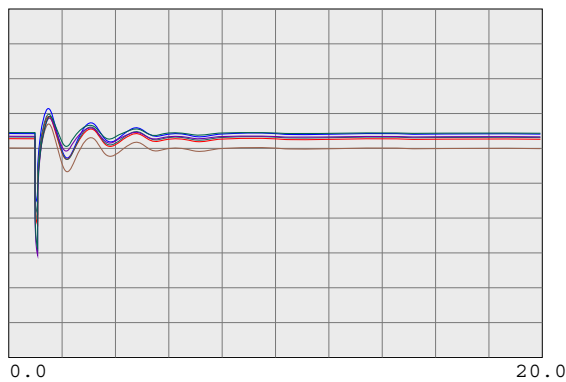
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

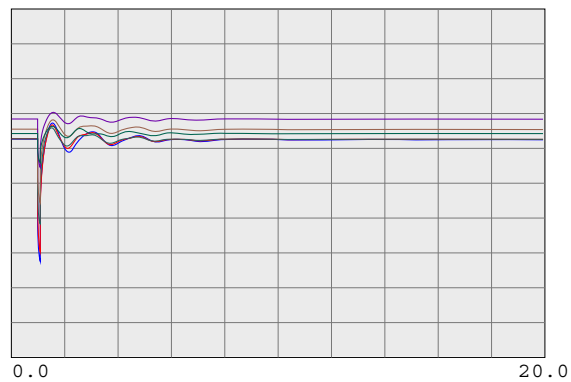
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

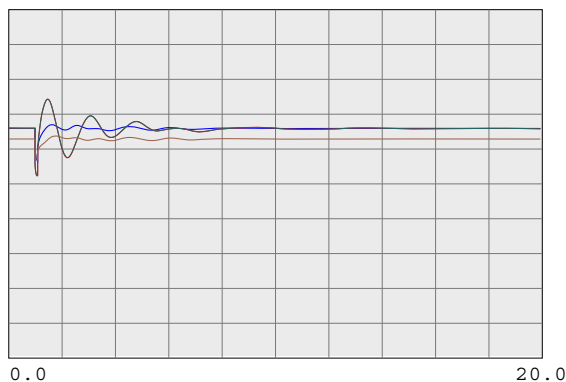
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



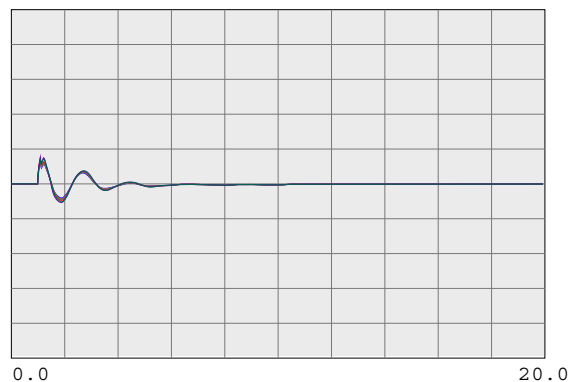
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



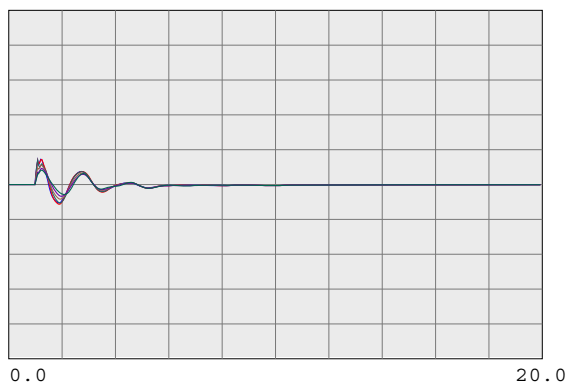
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



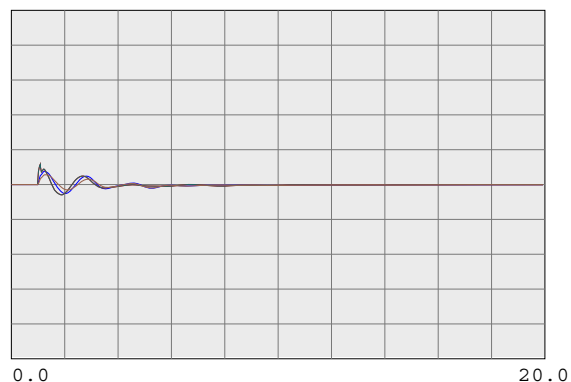
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

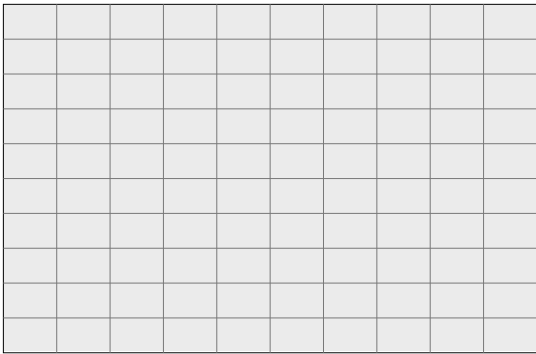
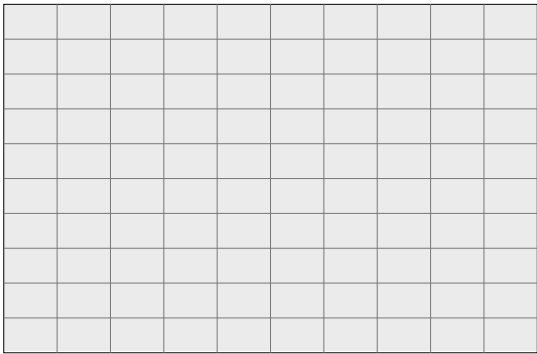
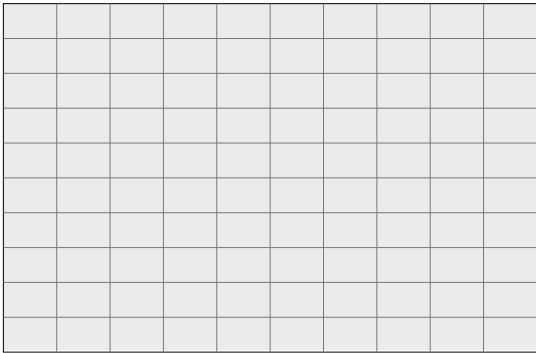
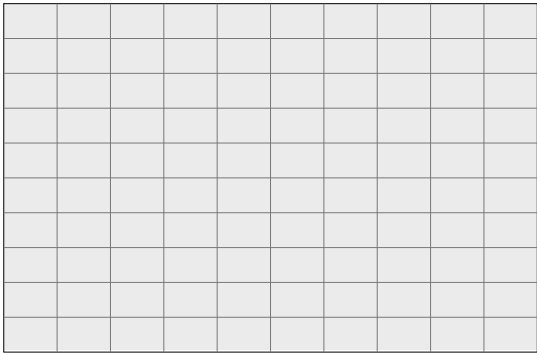
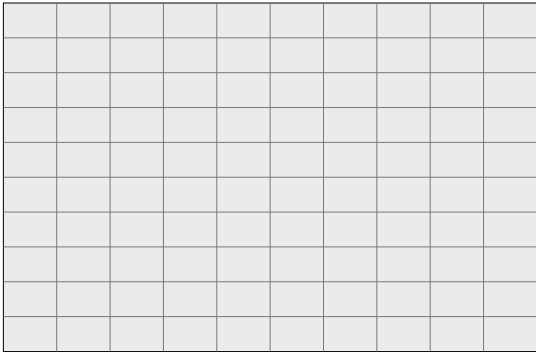
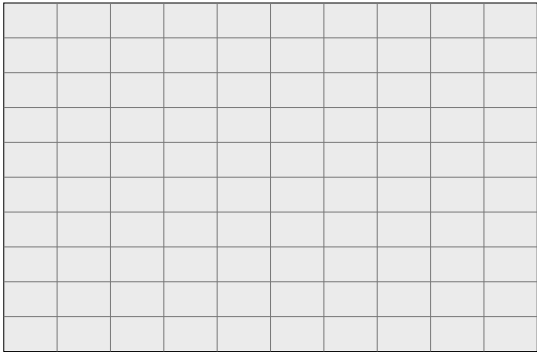
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

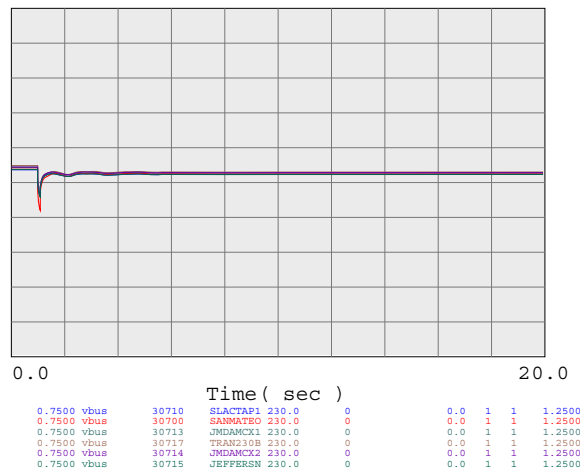
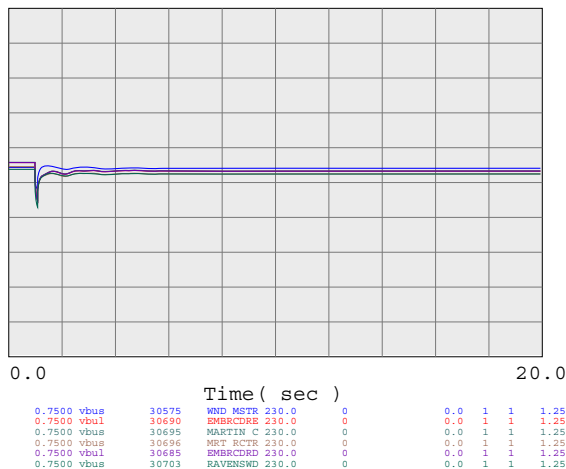
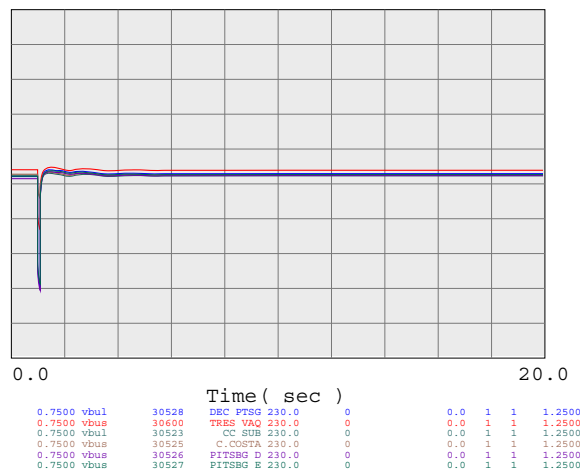
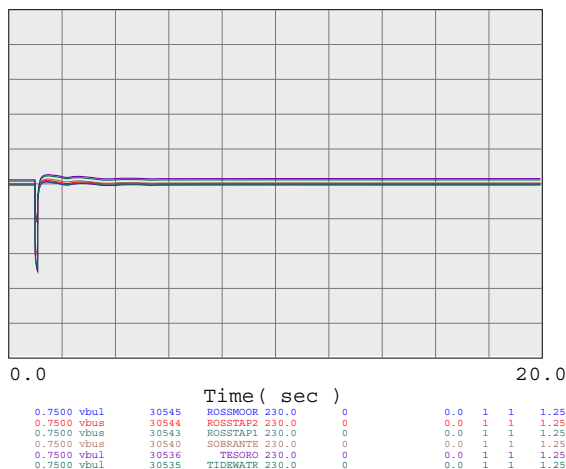
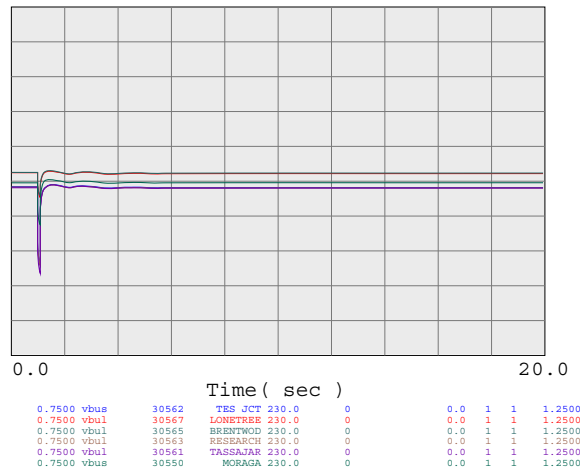
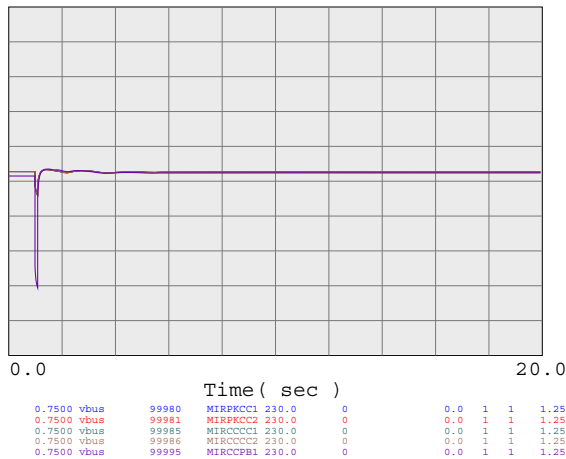
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



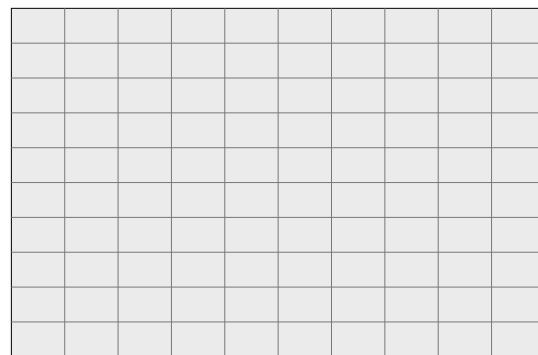
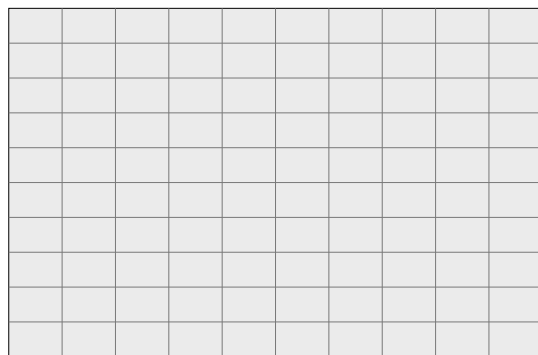
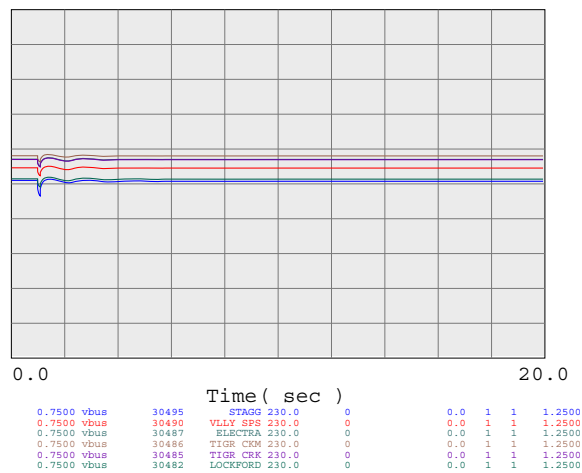
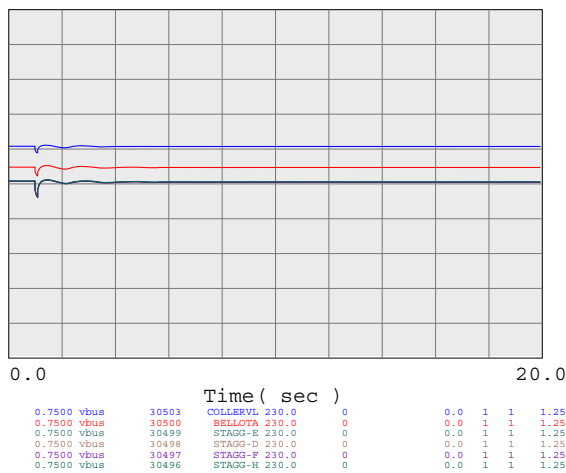
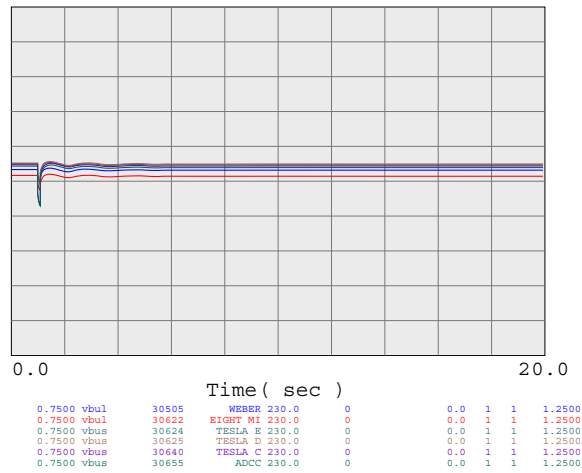
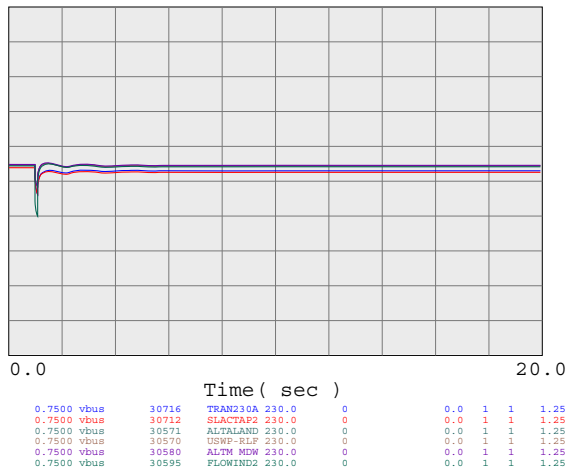
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



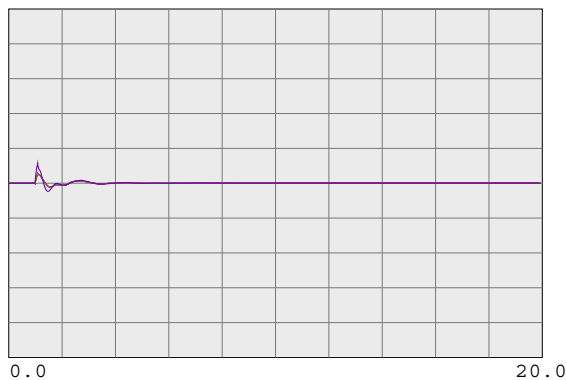
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



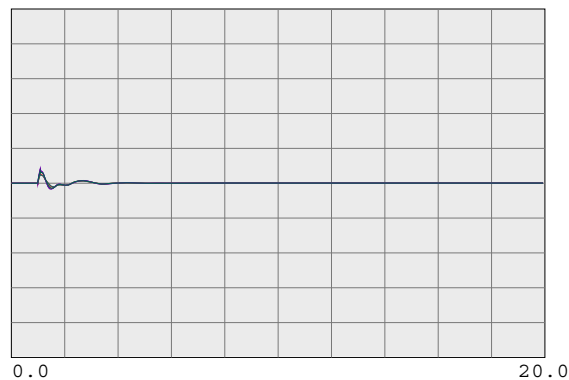
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



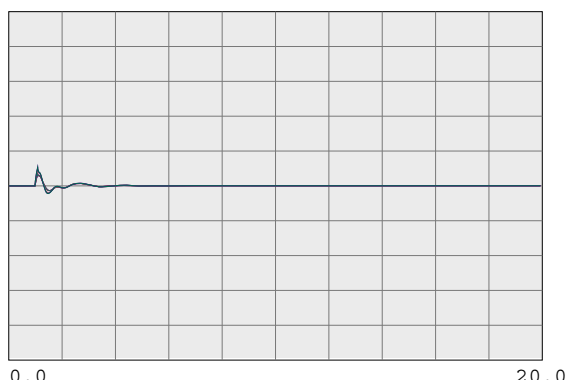
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



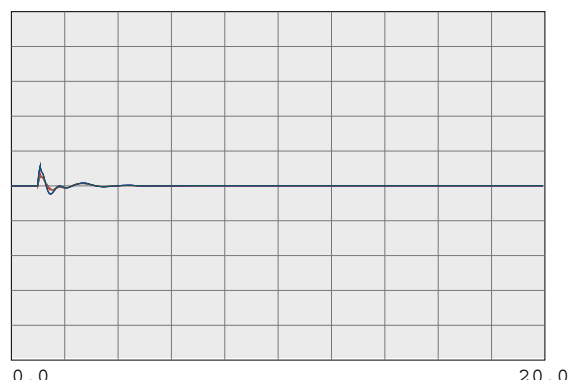
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



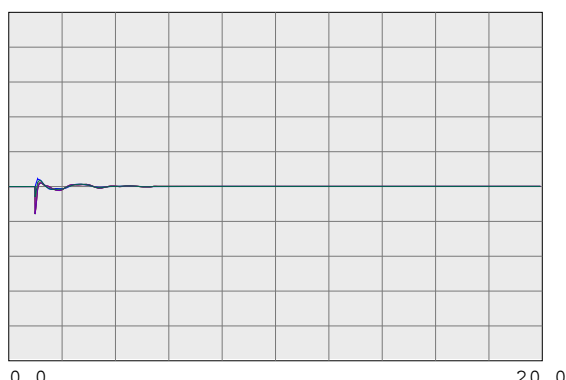
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



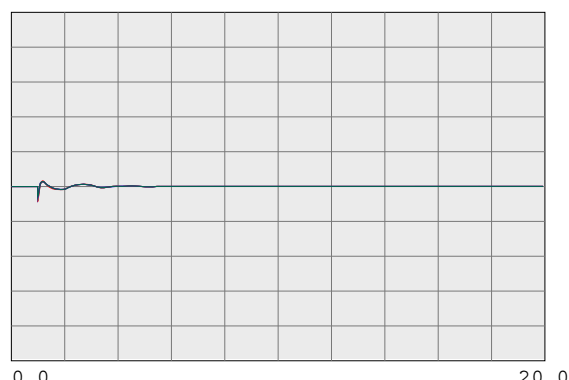
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

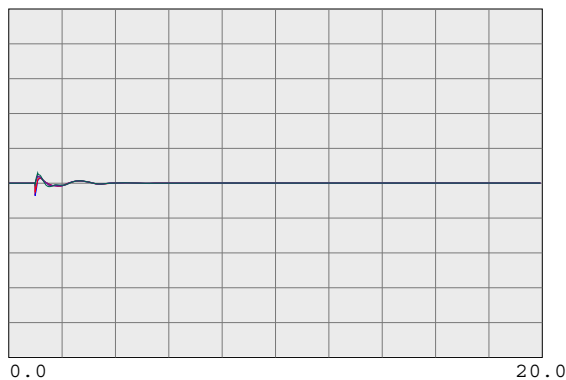
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

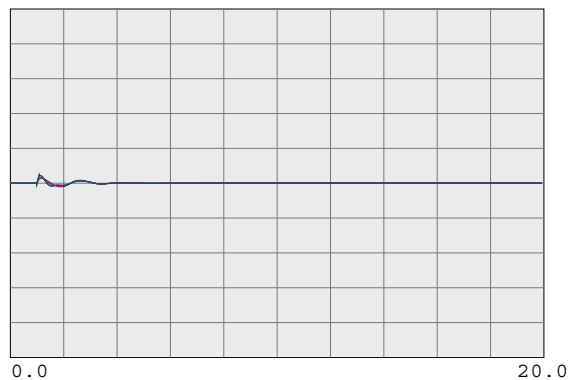
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

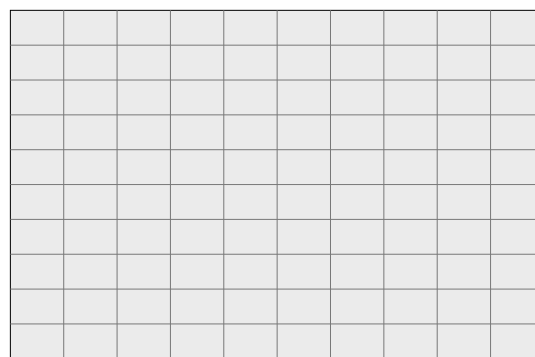
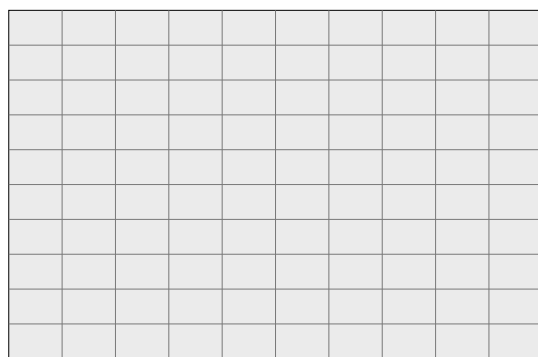
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

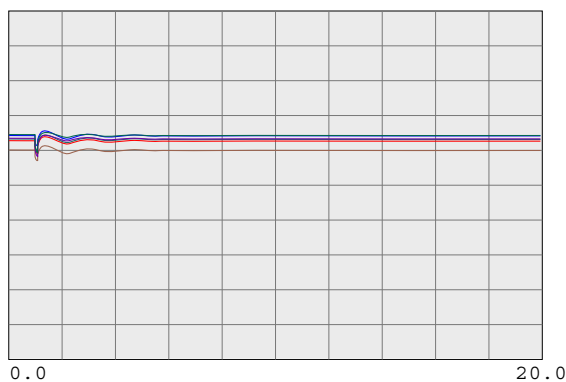
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

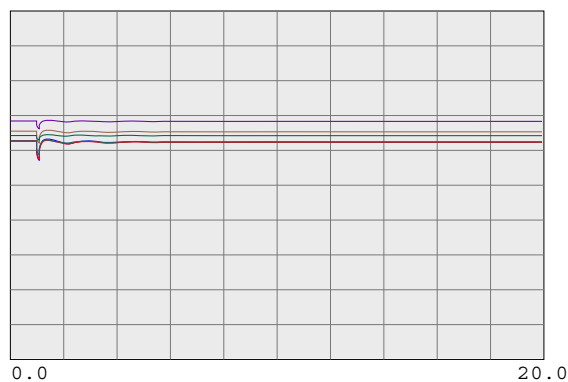
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

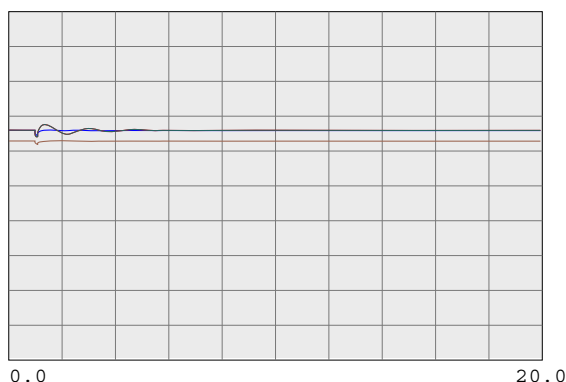
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



Time (sec)			
0.7500 vbus	30005	ROUND MT 500.0	0
0.7500 vbus	30015	TABLE MT 500.0	0
0.7500 vbus	30020	GLINDA 500.0	0
0.7500 vbus	30025	MAXWELL 500.0	0
0.7500 vbus	30030	VACA-DIX 500.0	0
0.7500 vbus	30035	TRACY 500.0	0



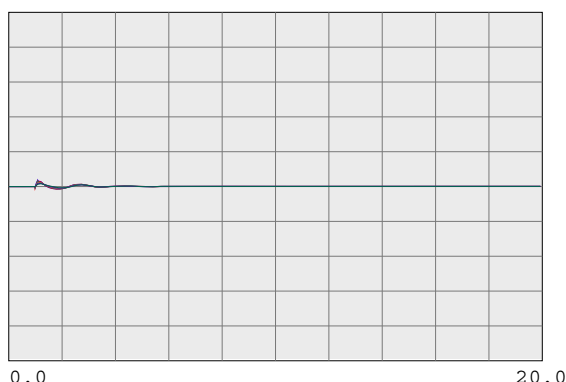
Time (sec)			
0.7500 vbus	30040	TESLA 500.0	0
0.7500 vbus	30042	METCALF 500.0	0
0.7500 vbus	30045	MOSSLAND 500.0	0
0.7500 vbus	30050	LOS BANOS 500.0	0
0.7500 vbus	30055	GATES 500.0	0
0.7500 vbus	30057	DIABLO 500.0	0



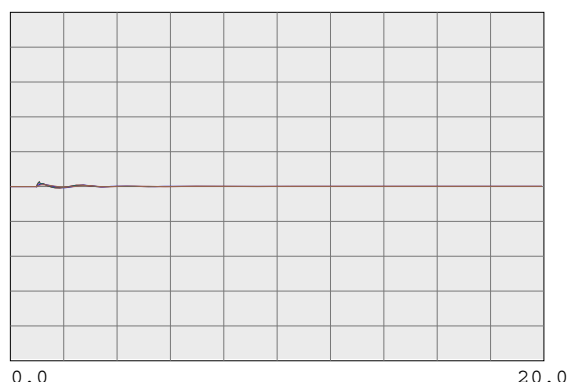
Time (sec)			
0.7500 vbus	30060	MIDWAY 500.0	0
0.7500 vbus	45035	CAPTJACK 500.0	0
0.7500 vbus	40687	MALIN 500.0	0
0.7500 vbus	24156	VINCENT 500.0	0



Time (sec)			
59.4000 fbus	30005	ROUND MT 500.0	0
59.4000 fbus	30015	TABLE MT 500.0	0
59.4000 fbus	30020	GLINDA 500.0	0
59.4000 fbus	30025	MAXWELL 500.0	0
59.4000 fbus	30030	VACA-DIX 500.0	0
59.4000 fbus	30035	TRACY 500.0	0



Time (sec)			
59.4000 fbus	30040	TESLA 500.0	0
59.4000 fbus	30042	METCALF 500.0	0
59.4000 fbus	30045	MOSSLAND 500.0	0
59.4000 fbus	30050	LOS BANOS 500.0	0
59.4000 fbus	30055	GATES 500.0	0
59.4000 fbus	30057	DIABLO 500.0	0



Time (sec)			
59.4000 fbus	30060	MIDWAY 500.0	0
59.4000 fbus	45035	CAPTJACK 500.0	0
59.4000 fbus	40687	MALIN 500.0	0
59.4000 fbus	24156	VINCENT 500.0	0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

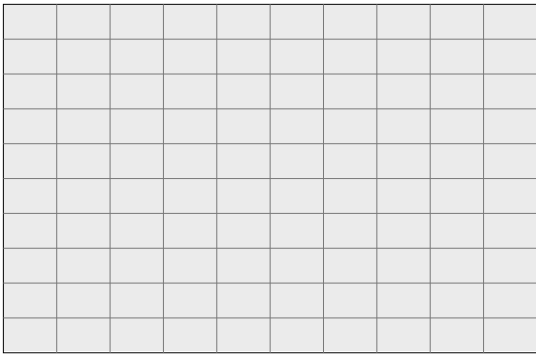
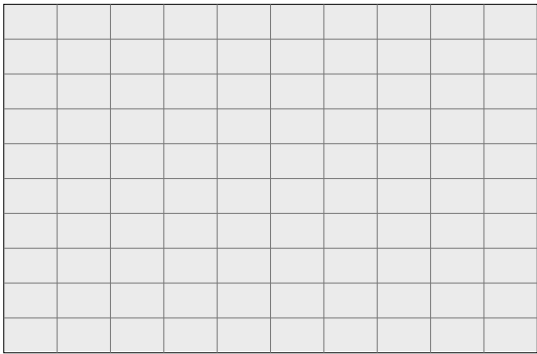
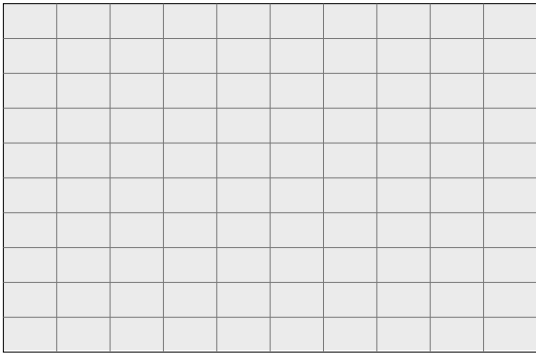
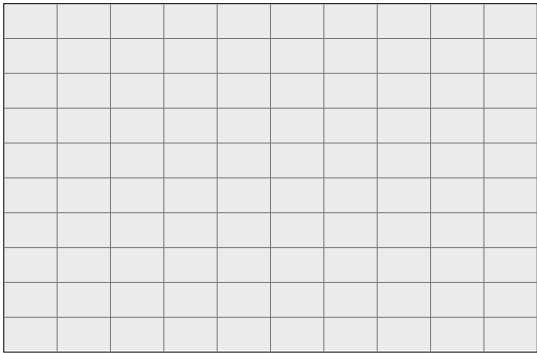
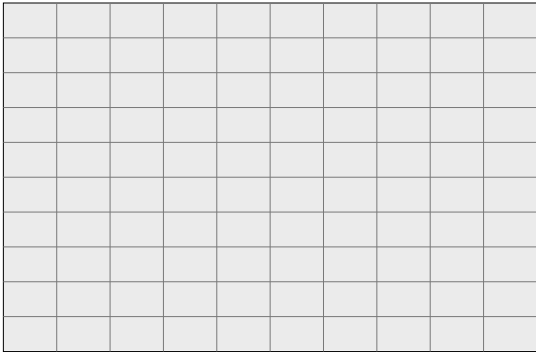
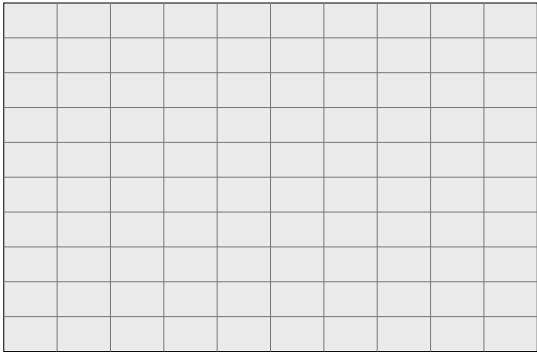
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

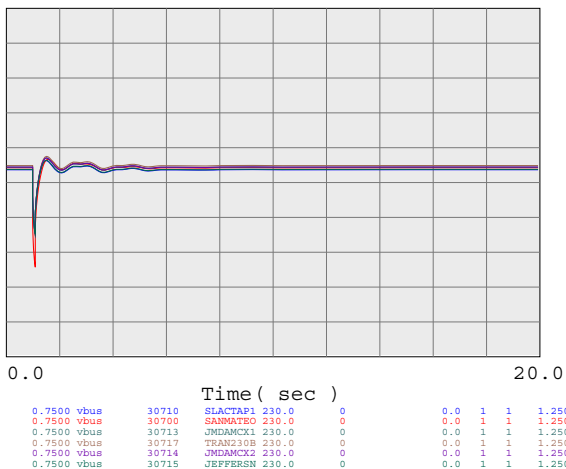
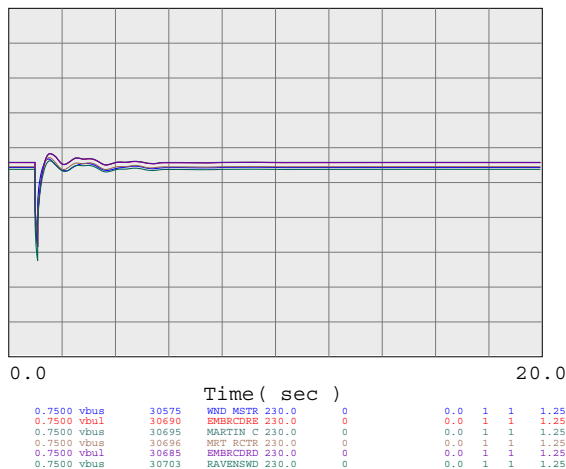
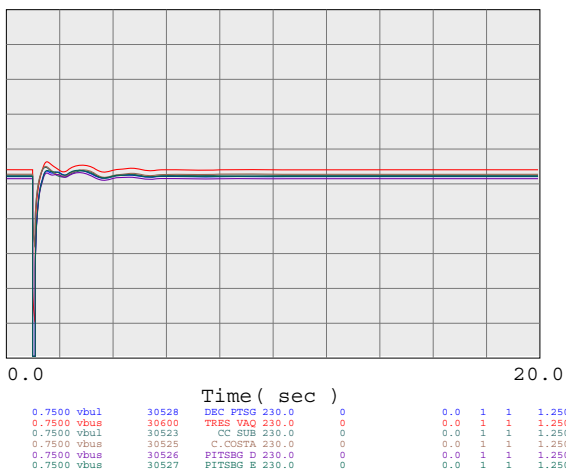
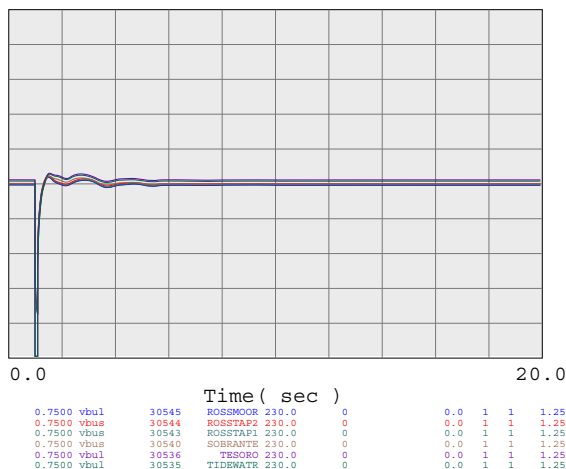
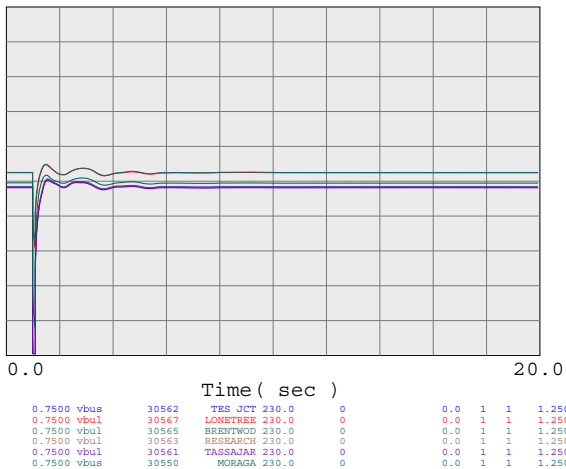
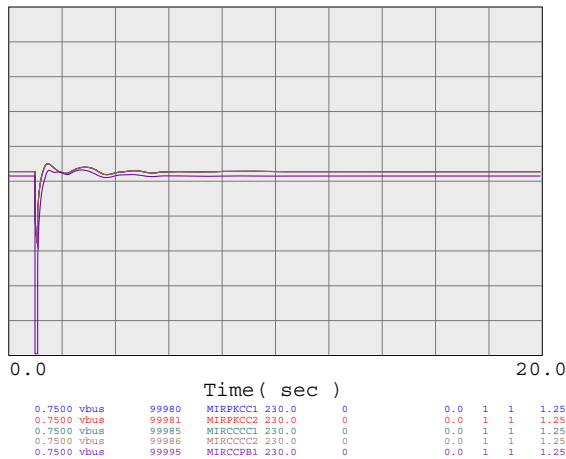
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



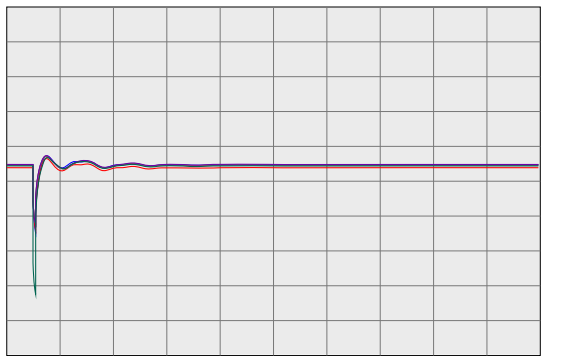
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

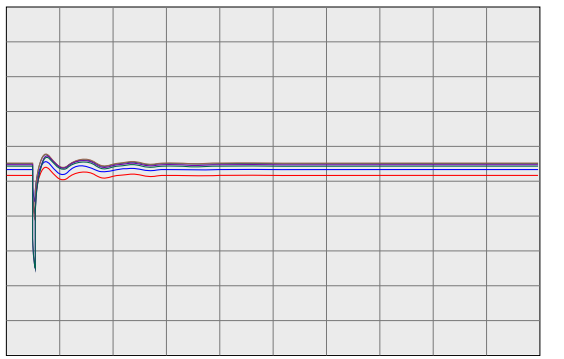


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

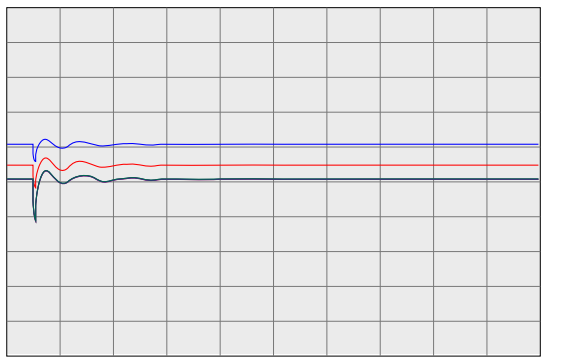
230-KV SYSTEM VOLTAGES



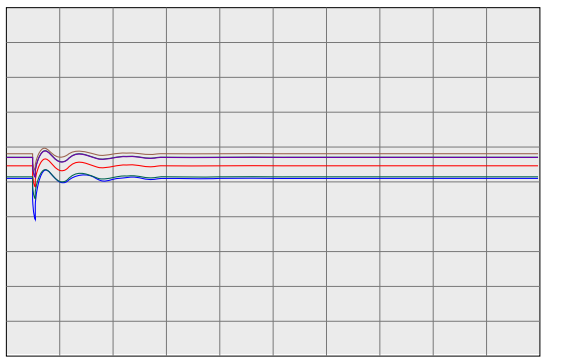
0.0 20.0
Time(sec)
0.7500 vbus 30716 TRAN230A 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30712 SLACTAP2 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30571 ALTALAND 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30570 USWP-RLF 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30580 ALTM MDW 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30595 FLOWIND2 230.0 0 0.0 1 1 1.2500



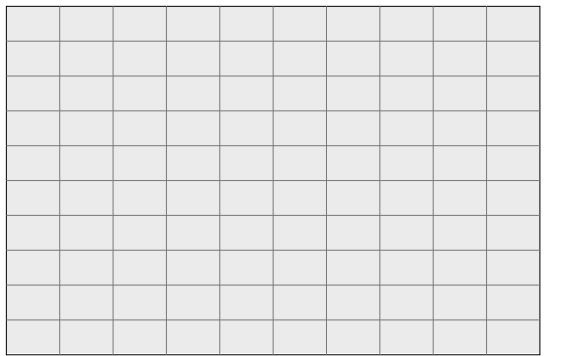
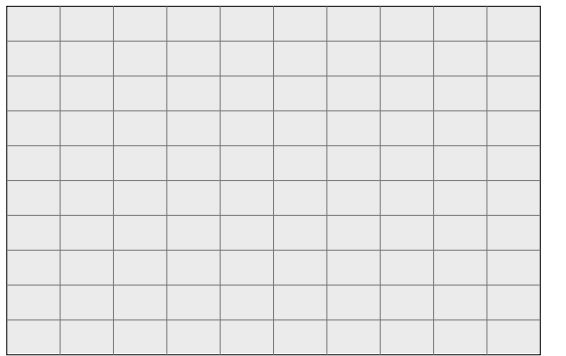
0.0 20.0
Time(sec)
0.7500 vbus 30505 WEBER 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30622 RIGHT MI 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30624 TESLA E 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30625 TESLA D 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30640 TESLA C 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30655 ADCC 230.0 0 0.0 1 1 1.2500



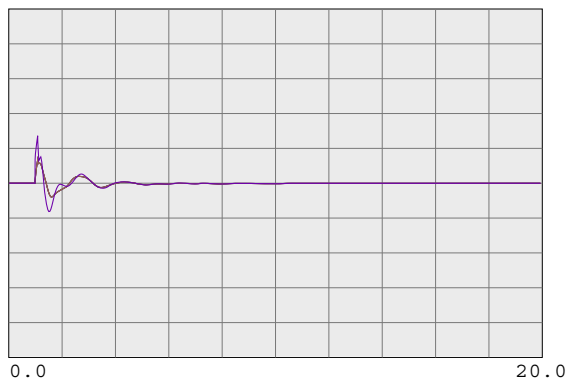
0.0 20.0
Time(sec)
0.7500 vbus 30503 COLLERVL 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30500 BELLOTA 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30499 STAGG-E 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30498 STAGG-D 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30497 STAGG-F 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30496 STAGG-H 230.0 0 0.0 1 1 1.2500



0.0 20.0
Time(sec)
0.7500 vbus 30495 STAGS 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30490 VLLY BPS 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30487 ELECTRA 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30486 TIGR CKN 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30485 TIGR CRK 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30482 LOCKFORD 230.0 0 0.0 1 1 1.2500



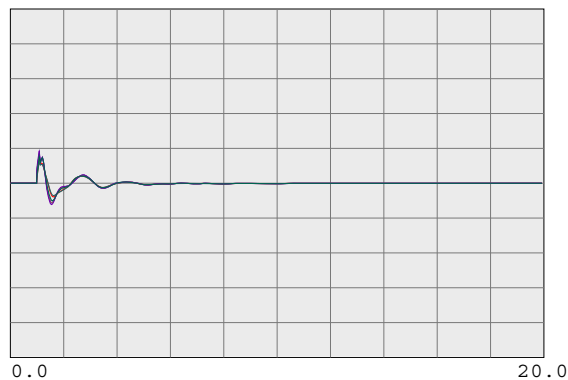
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

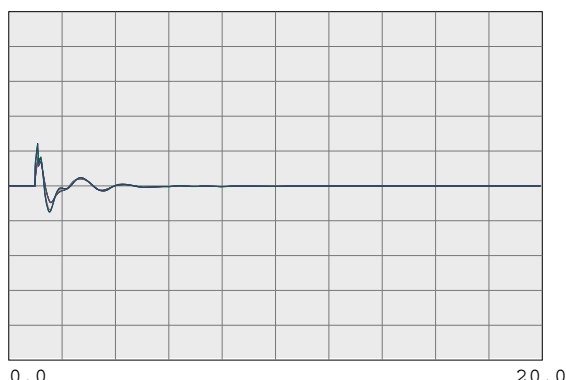
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

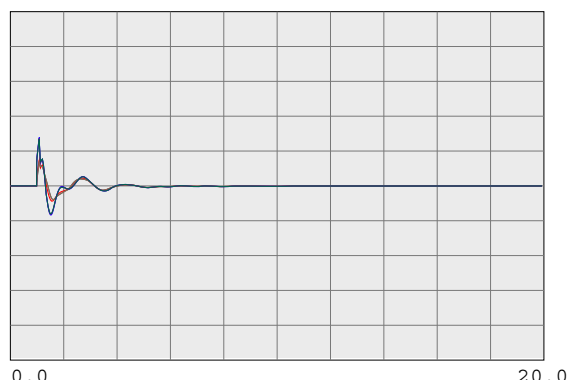
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

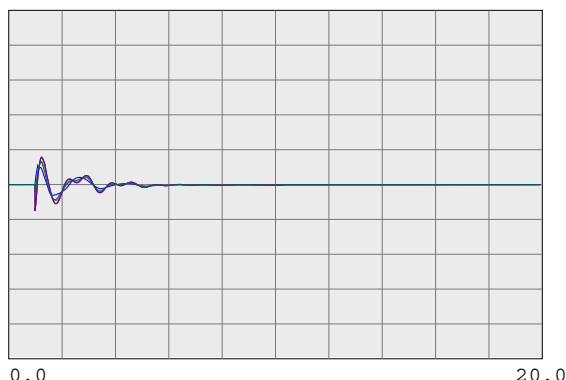
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

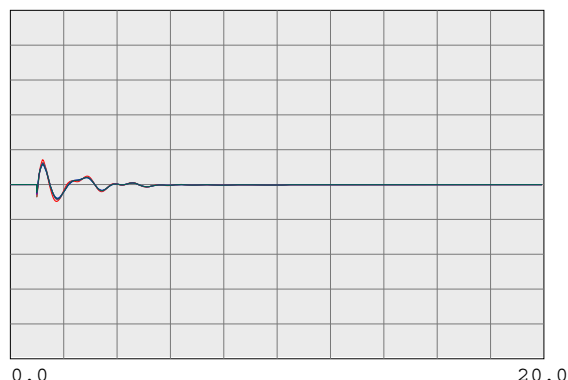
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

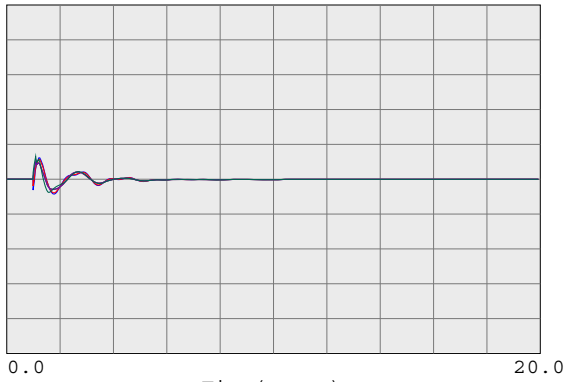
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

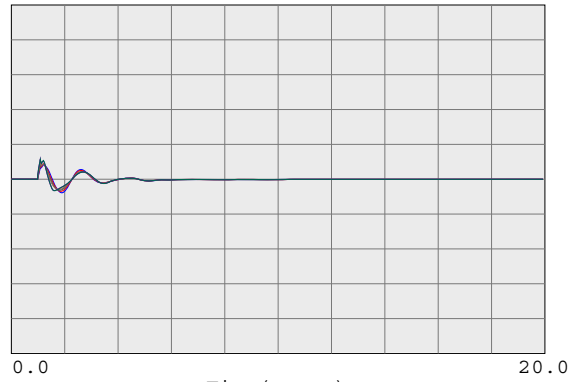
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

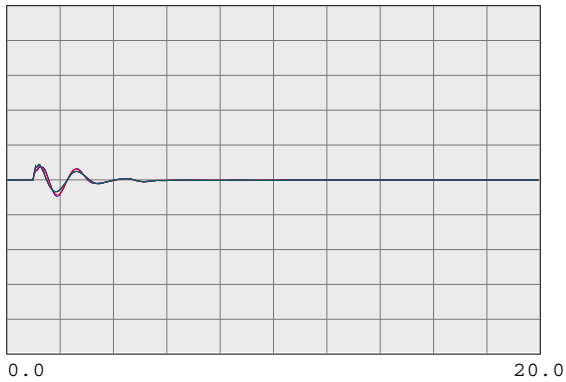
230-KV SYSTEM FREQUENCIES



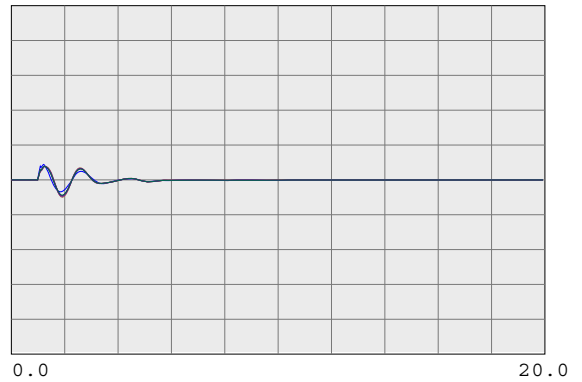
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



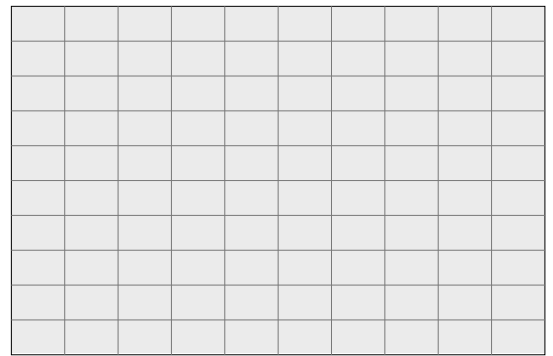
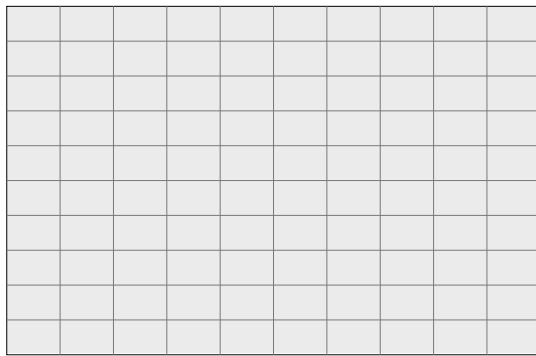
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

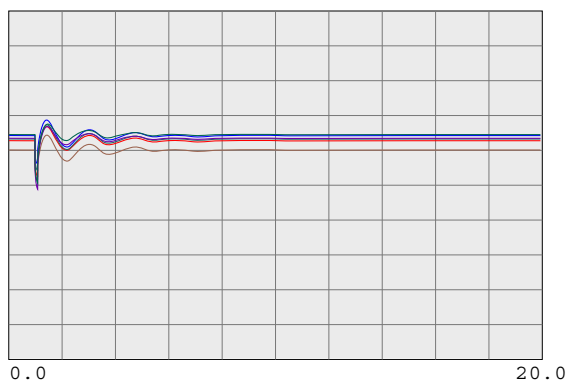


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

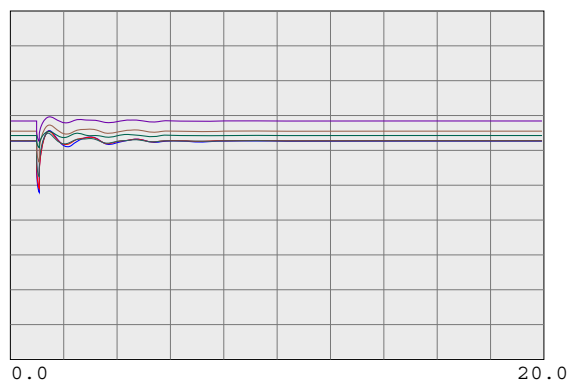
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time(sec)

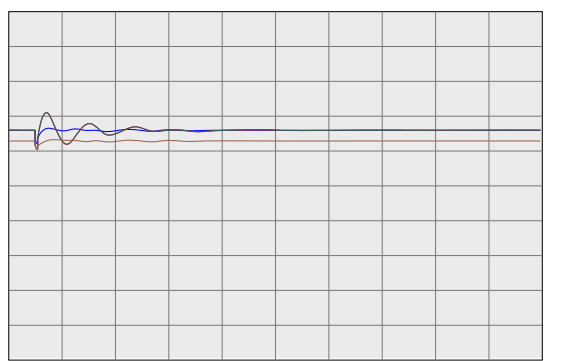
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

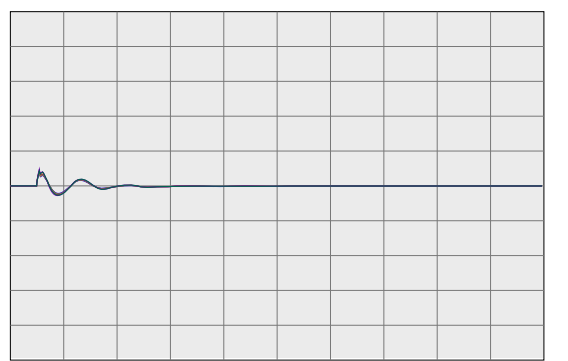
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

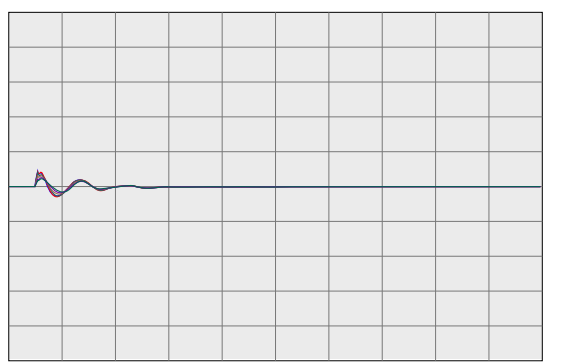
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

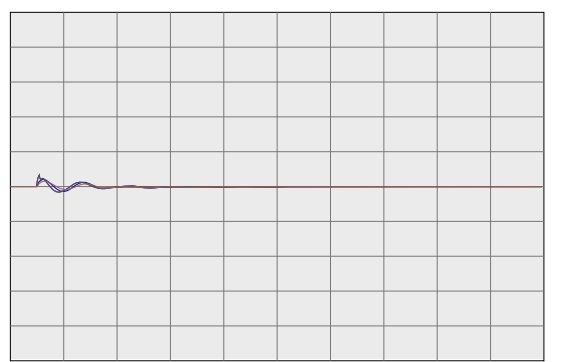
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

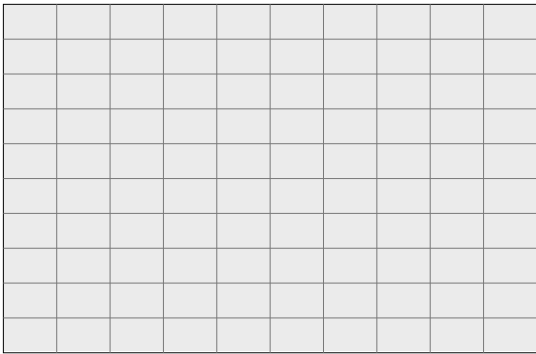
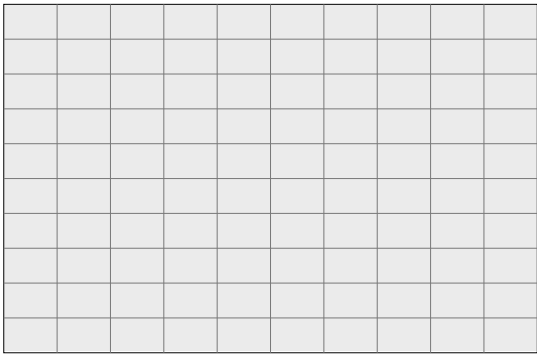
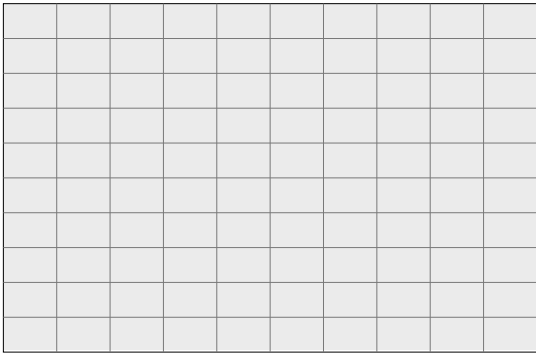
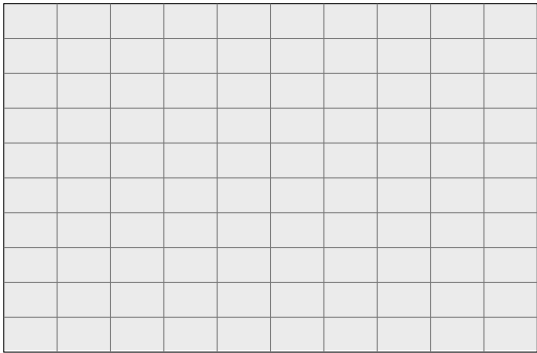
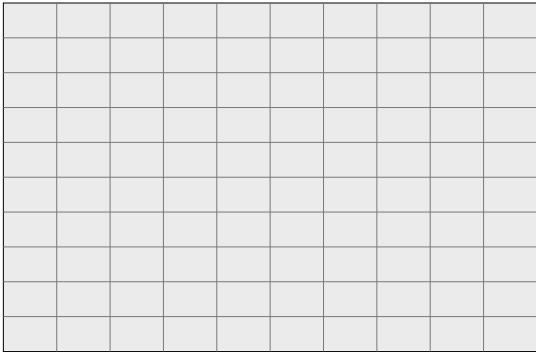
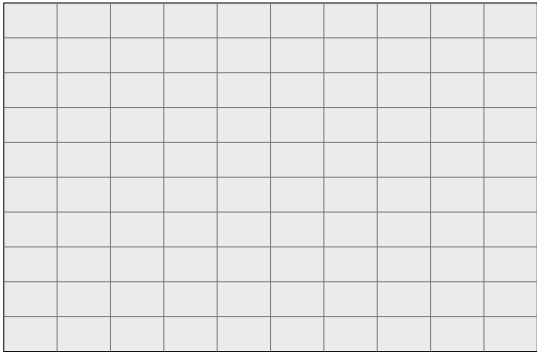
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

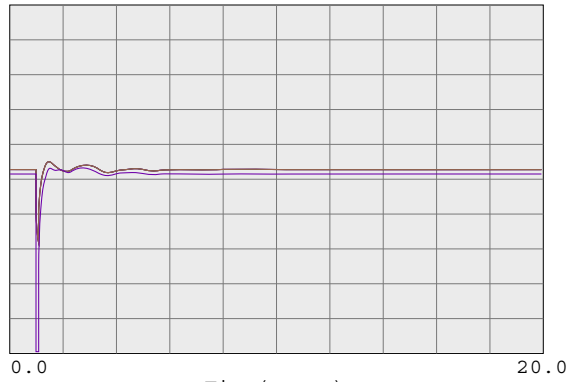
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



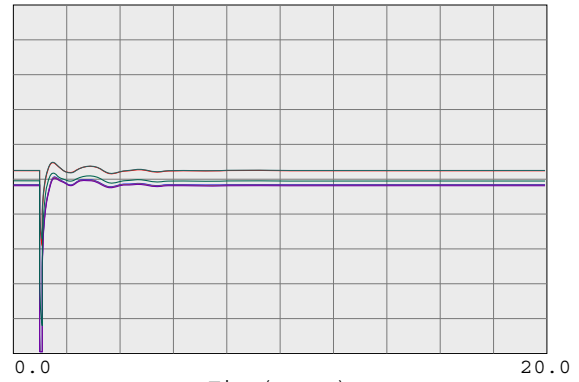
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



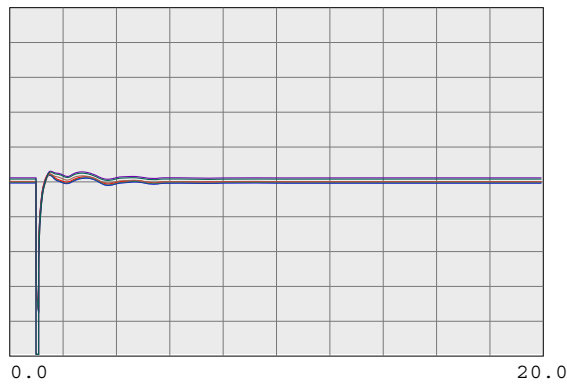
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



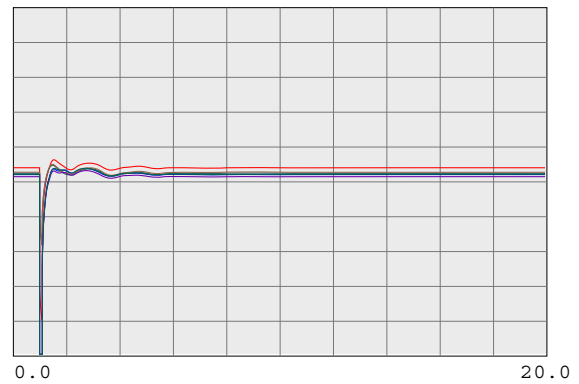
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



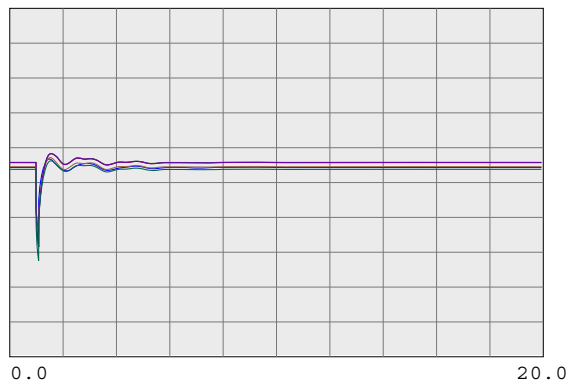
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



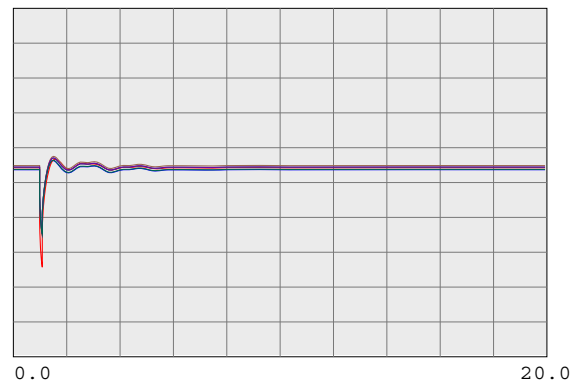
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

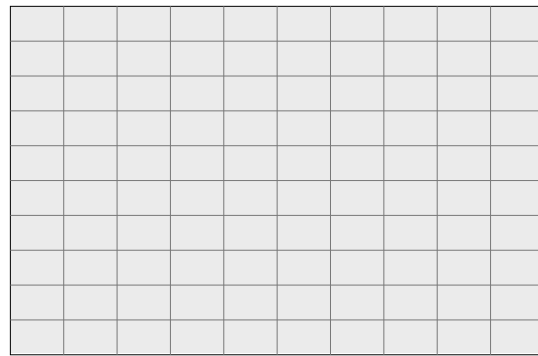
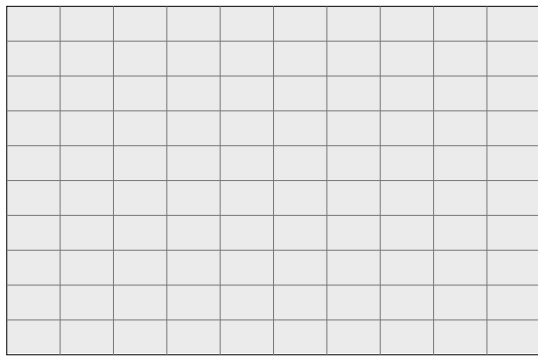
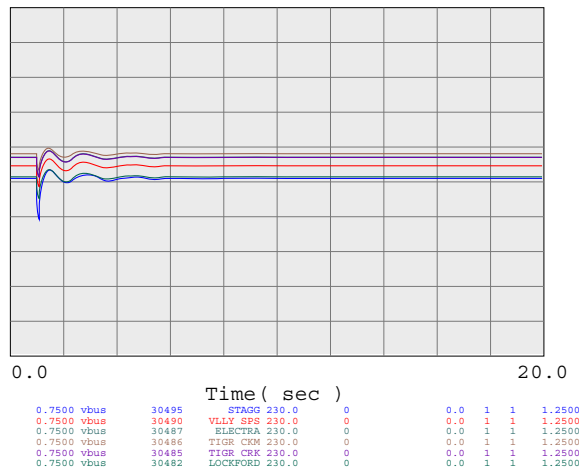
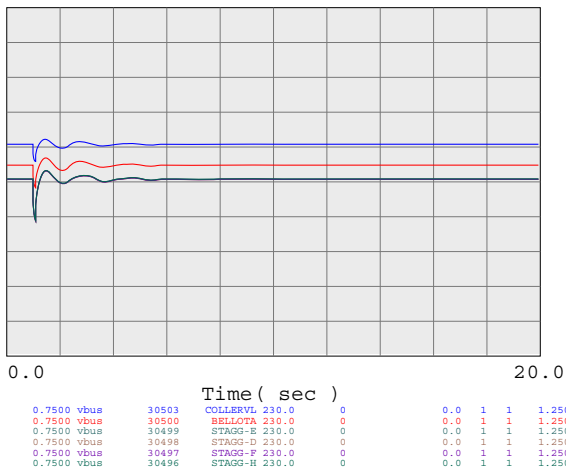
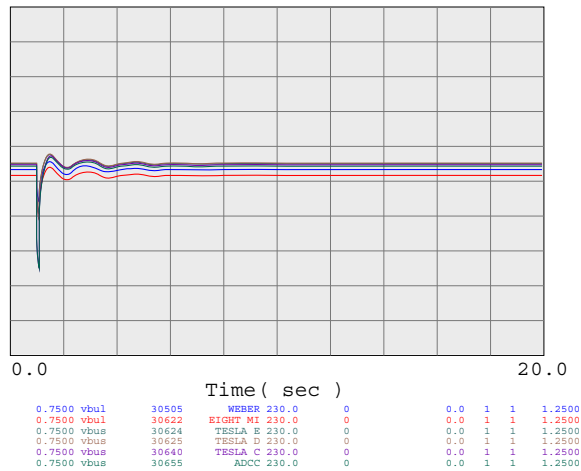
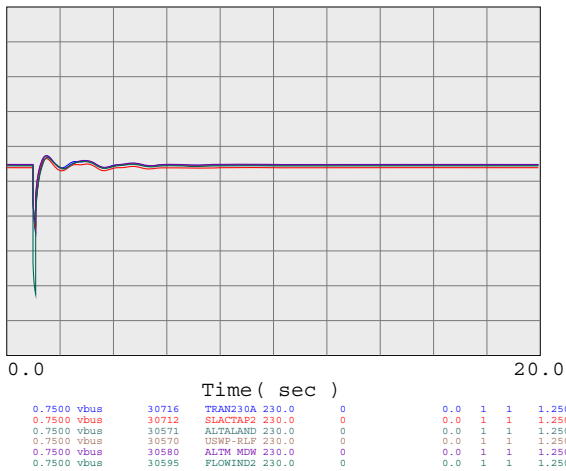
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

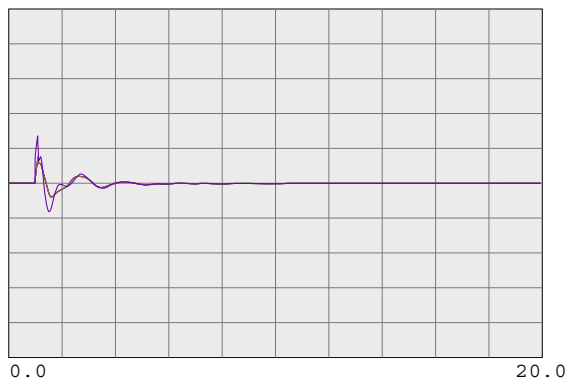
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



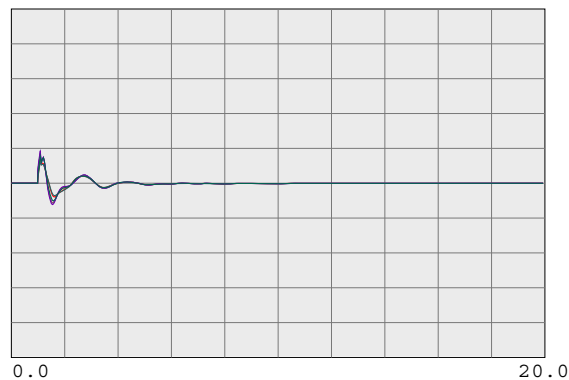
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

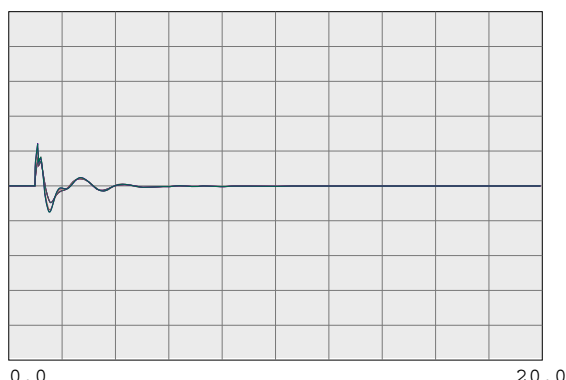
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

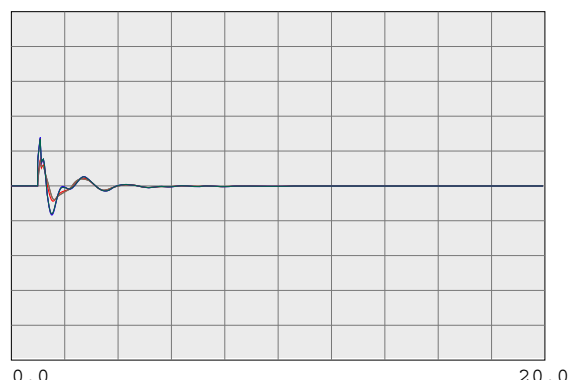
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

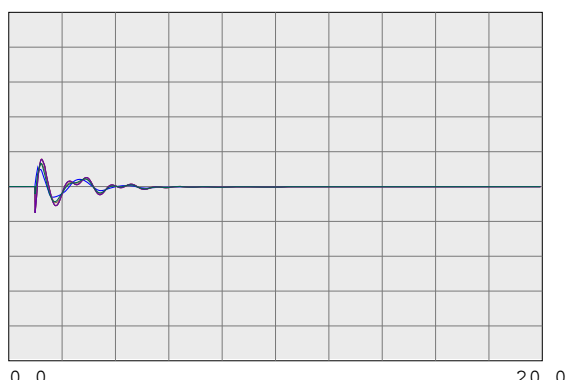
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

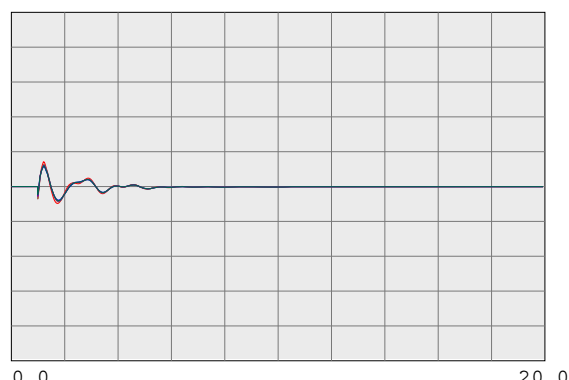
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

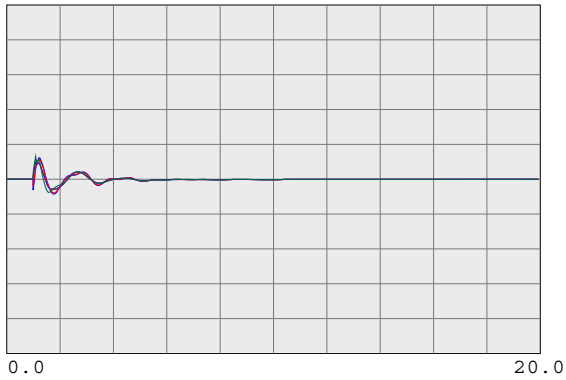
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

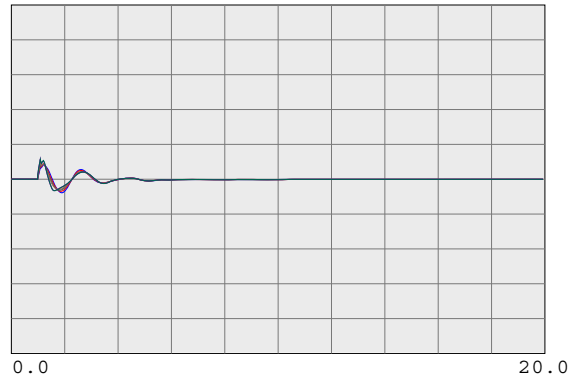
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

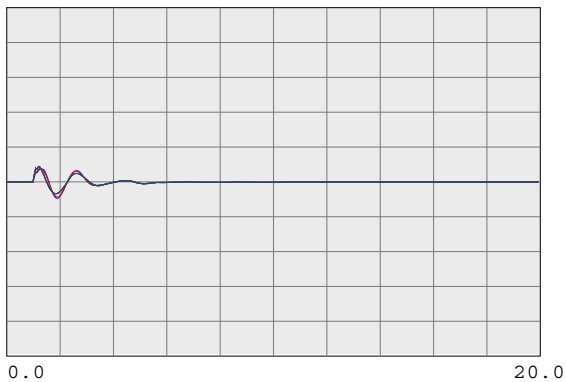
230-KV SYSTEM FREQUENCIES



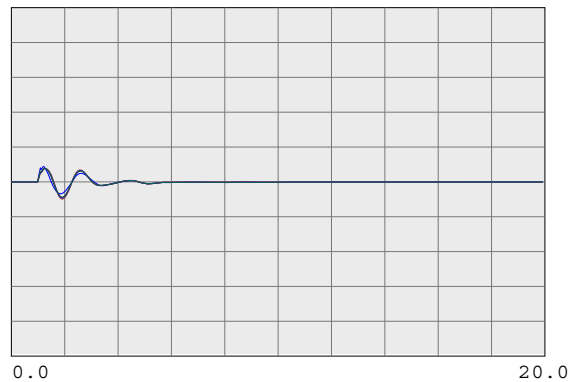
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



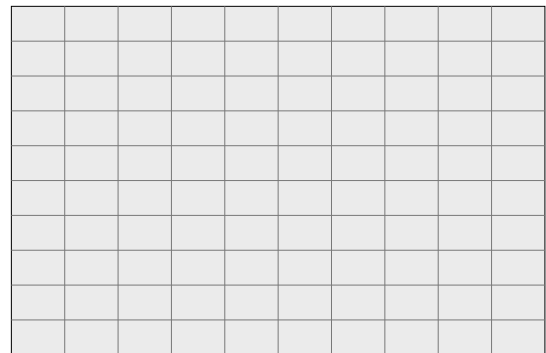
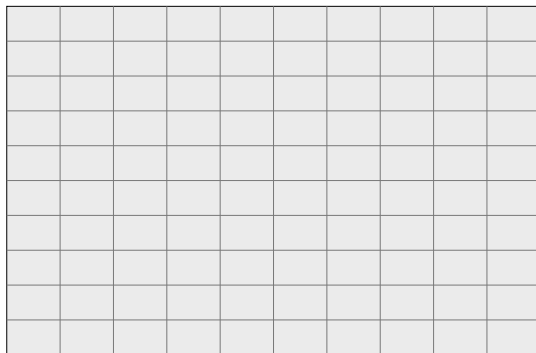
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

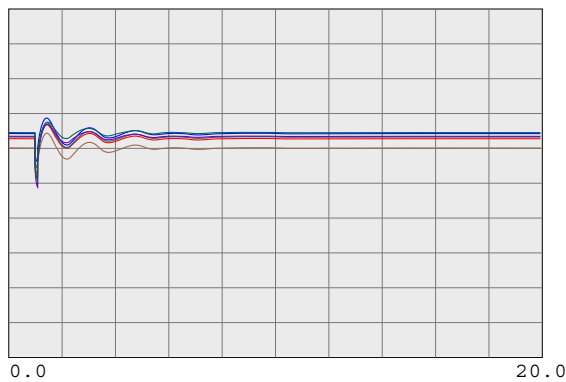


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKM 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CKK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



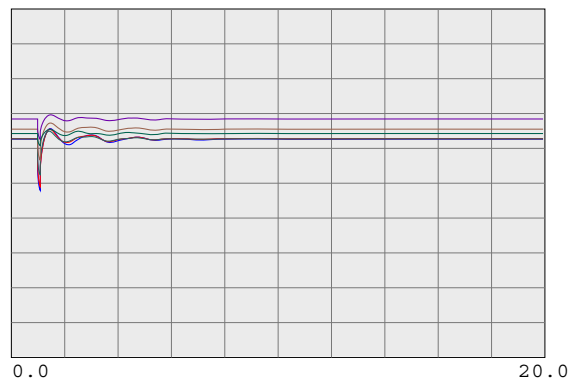
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



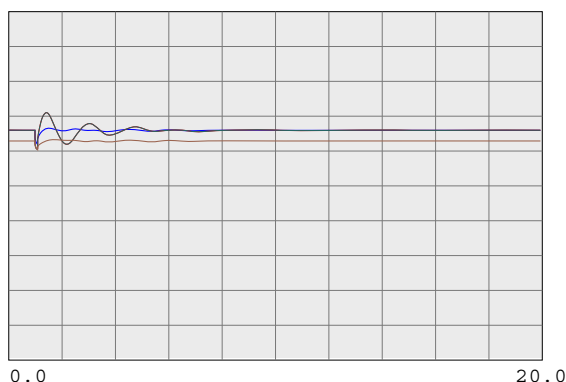
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



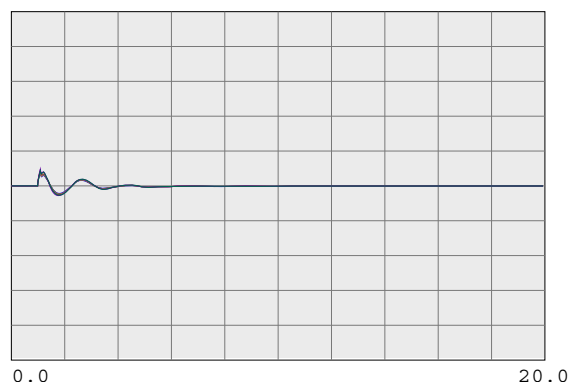
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



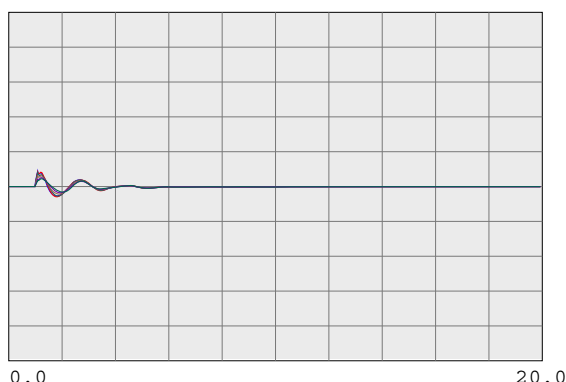
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



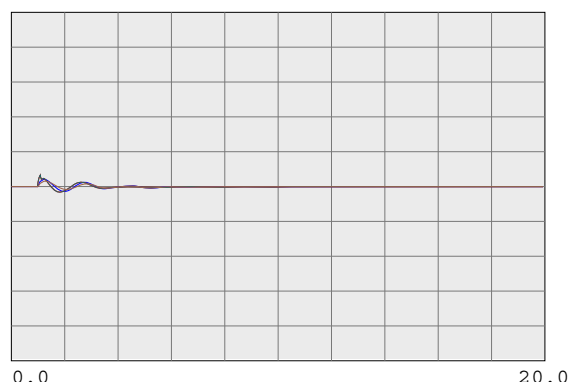
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

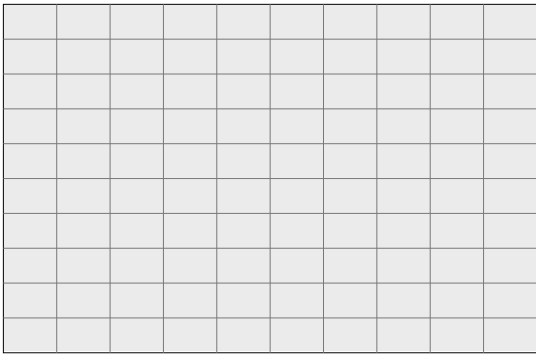
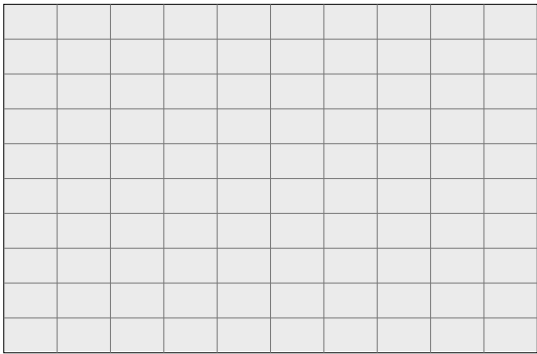
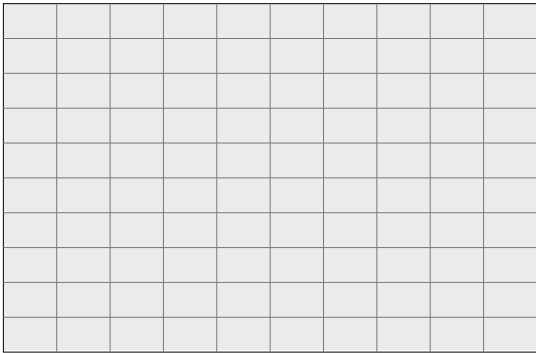
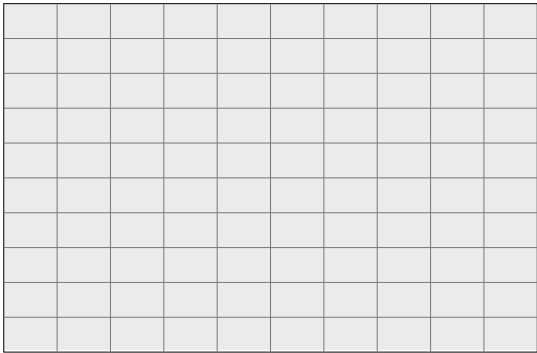
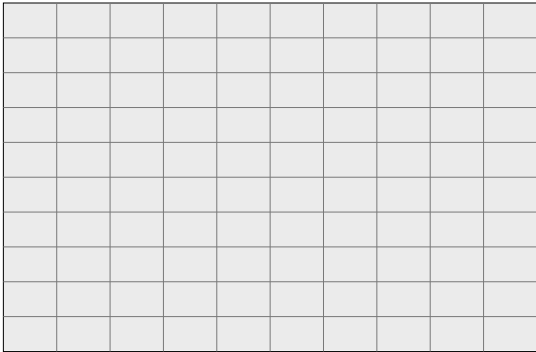
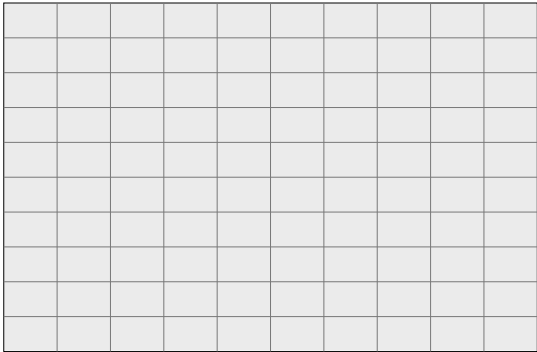
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

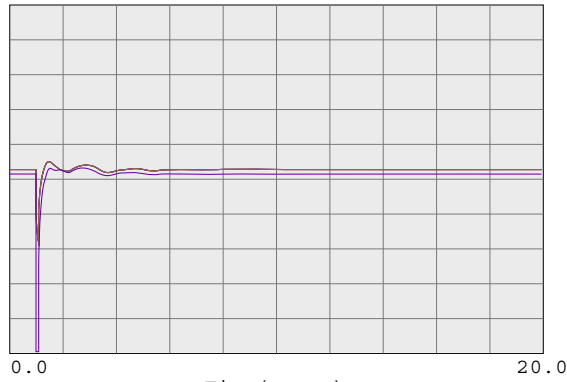
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



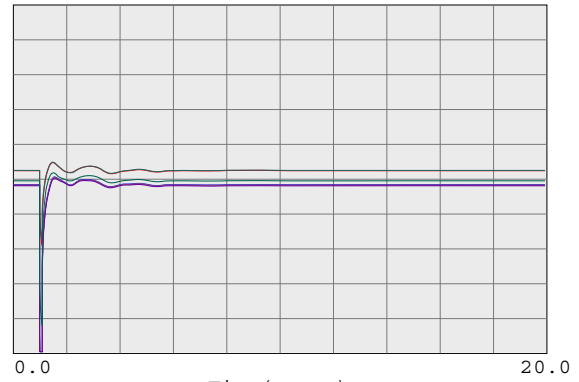
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



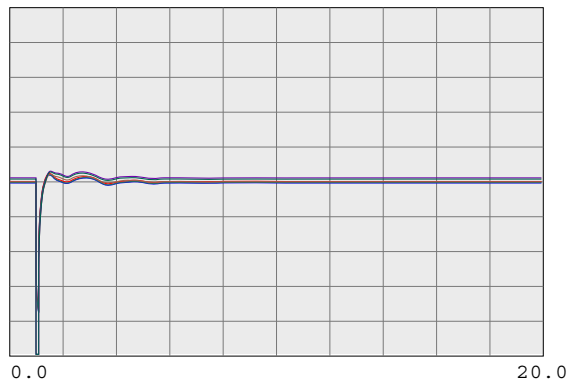
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



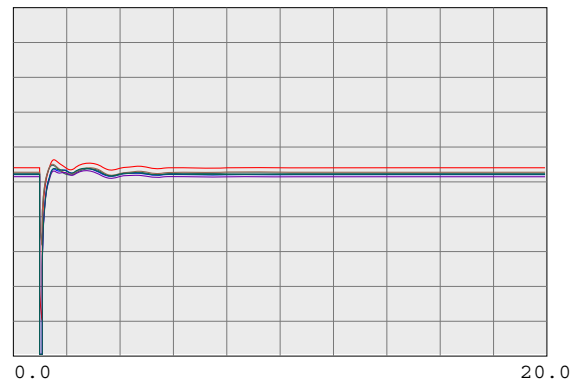
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



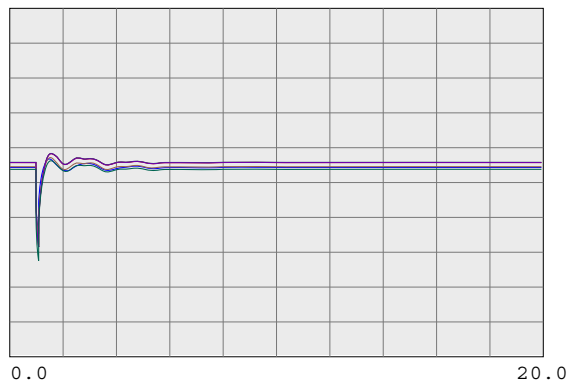
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



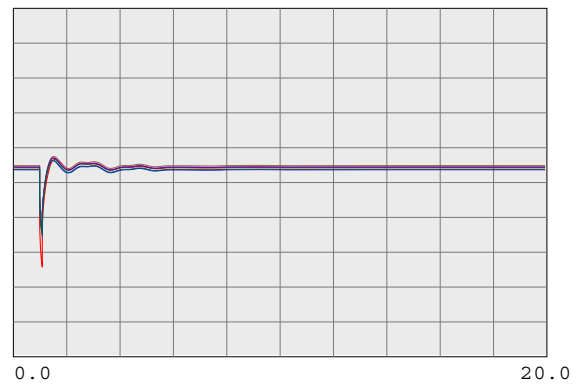
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

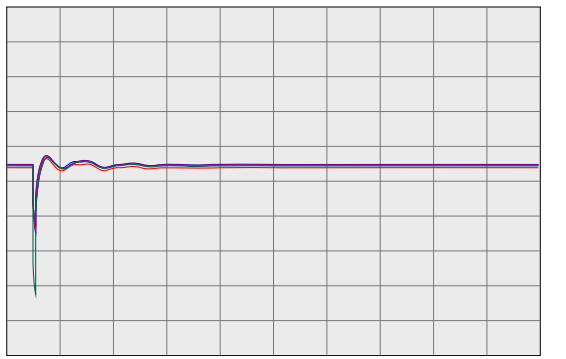
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

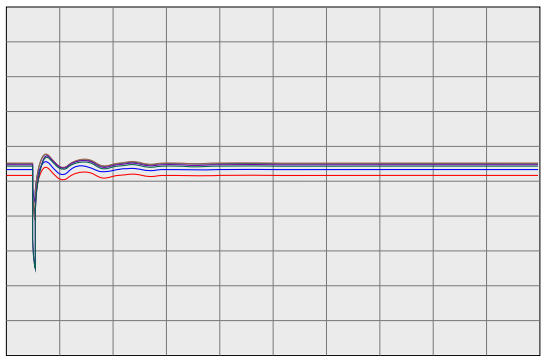
230-KV SYSTEM VOLTAGES



0.0 20.0

Time(sec)

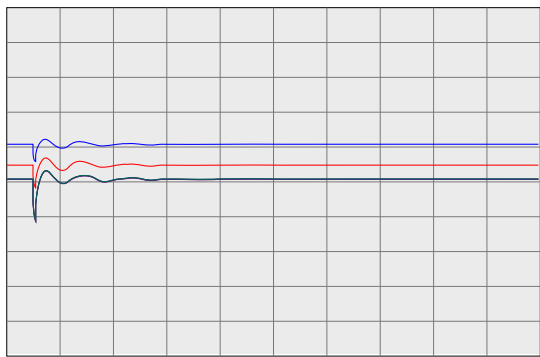
0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

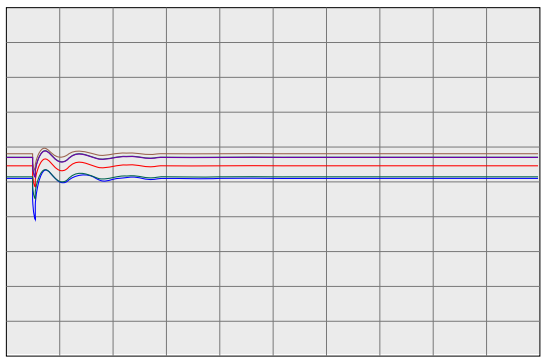
0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

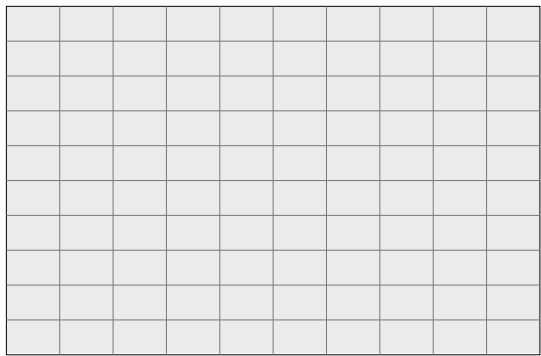
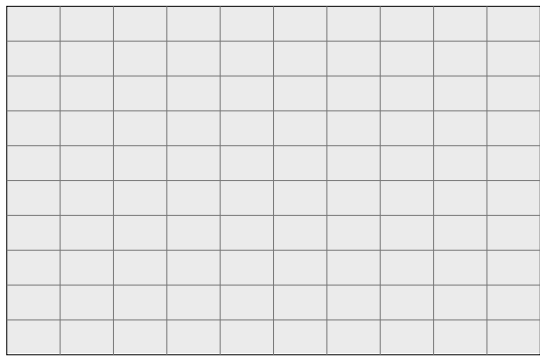
0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

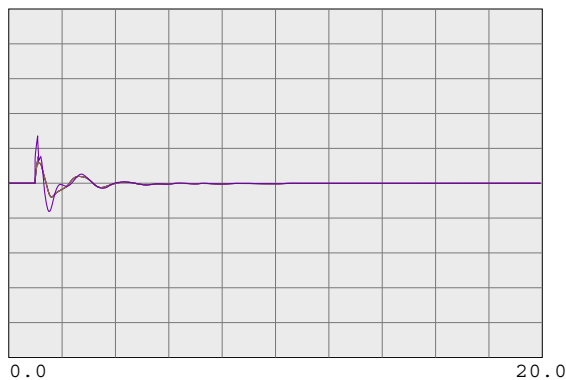
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

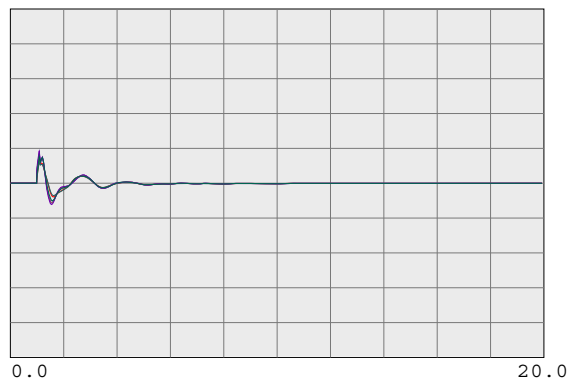
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

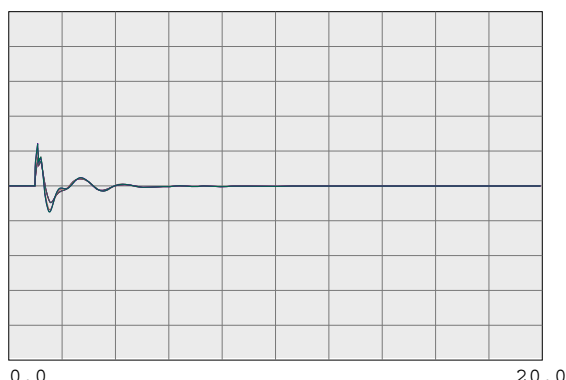
230-KV SYSTEM FREQUENCIES



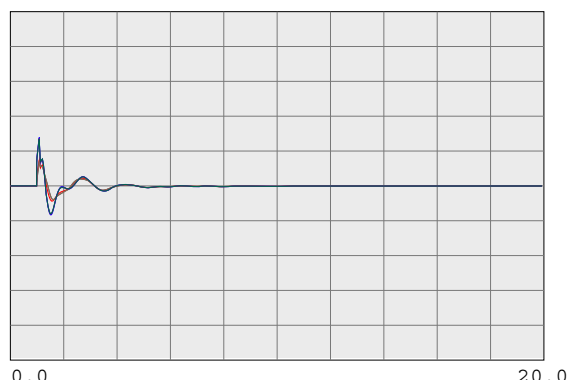
0.0 20.0
Time (sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



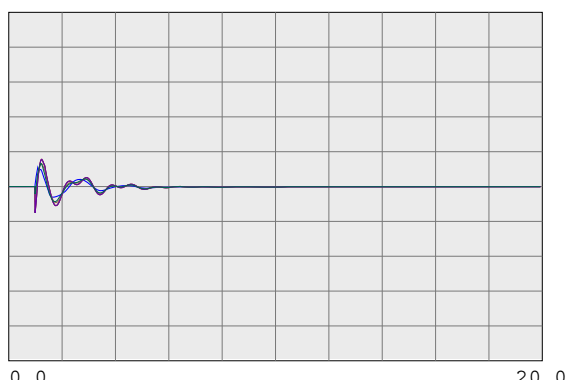
0.0 20.0
Time (sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



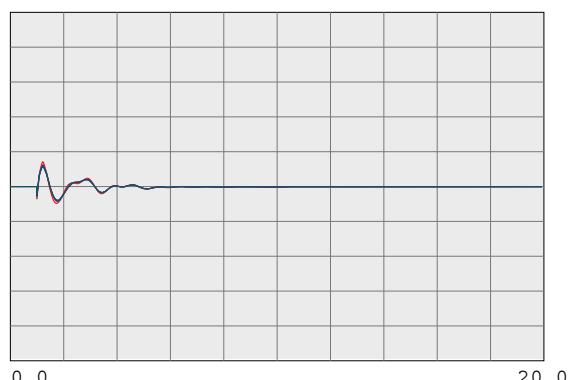
0.0 20.0
Time (sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSSTAP2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSSTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBRO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDED 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

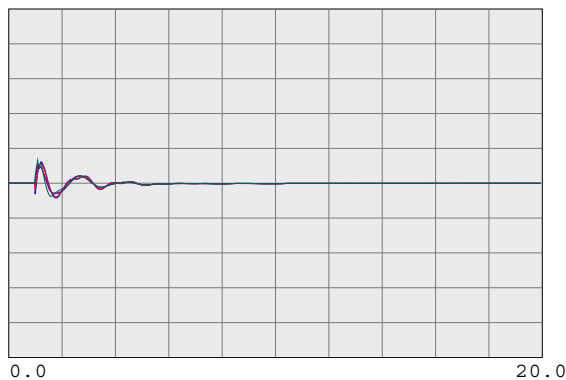
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

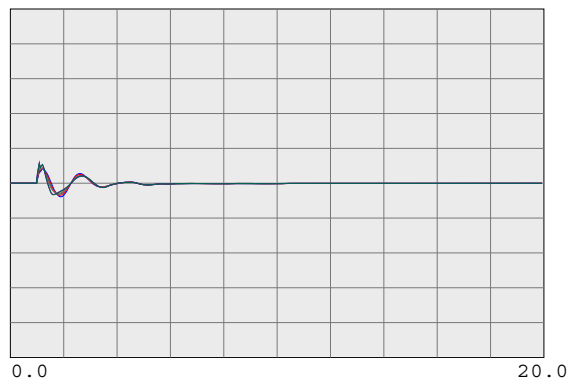
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

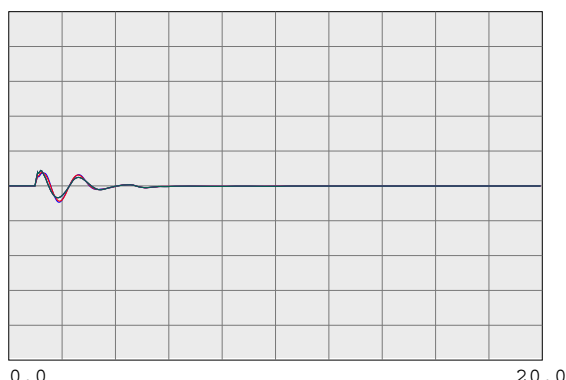
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

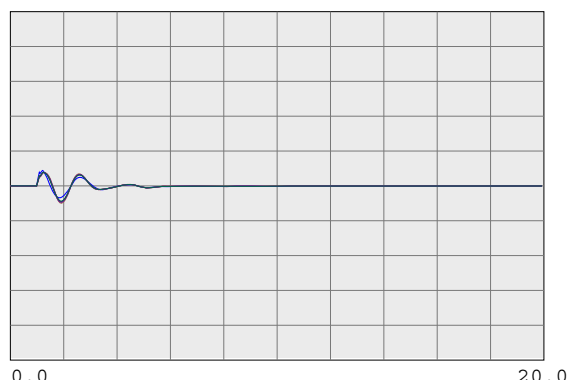
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

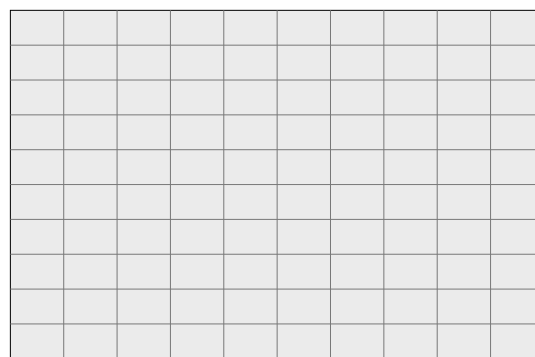
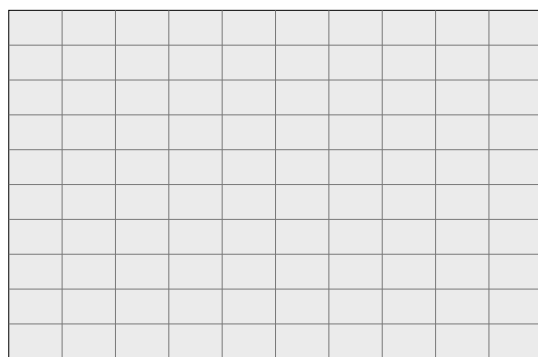
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

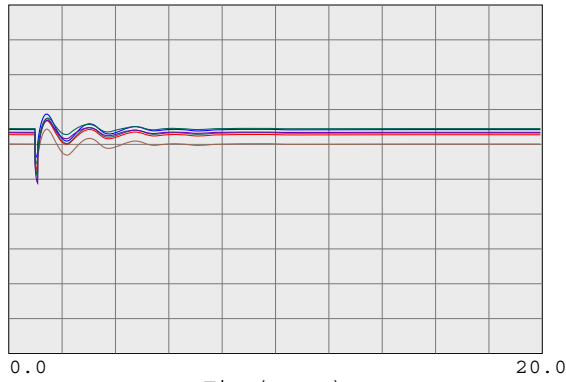
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

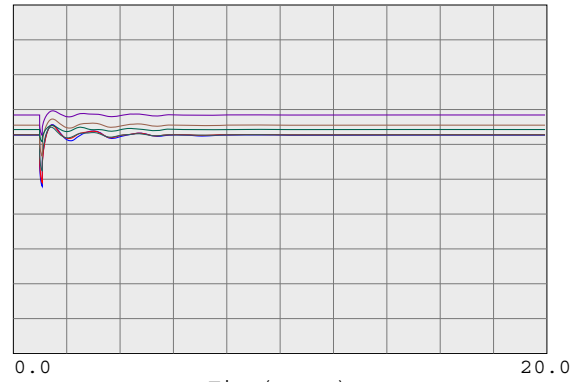
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



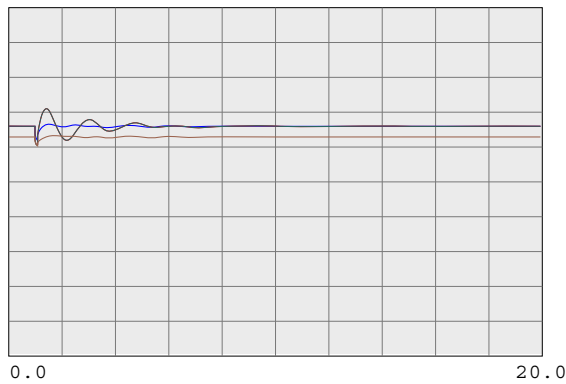
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



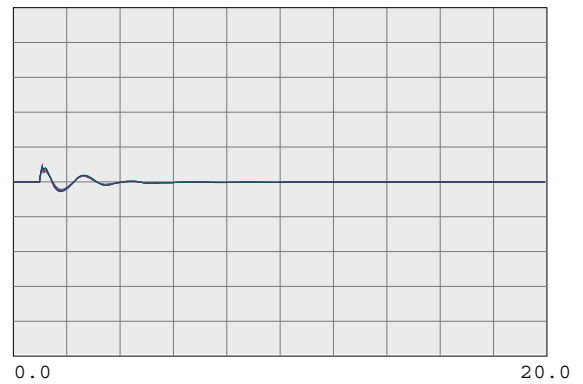
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



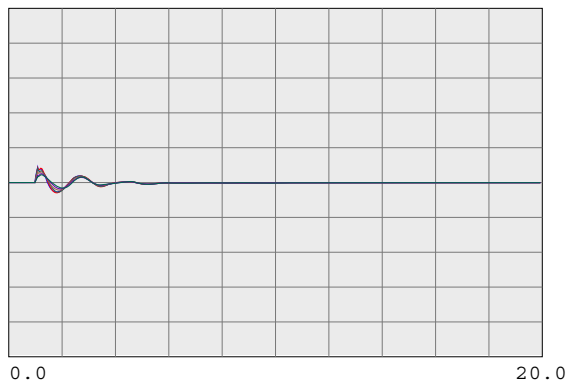
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

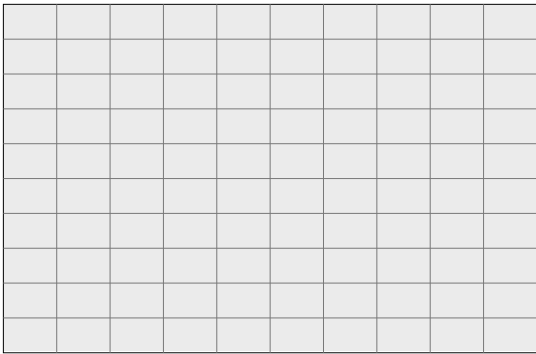
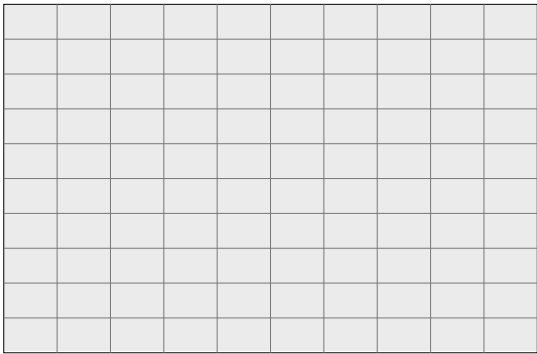
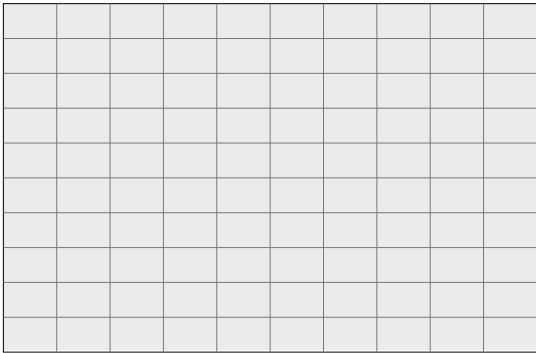
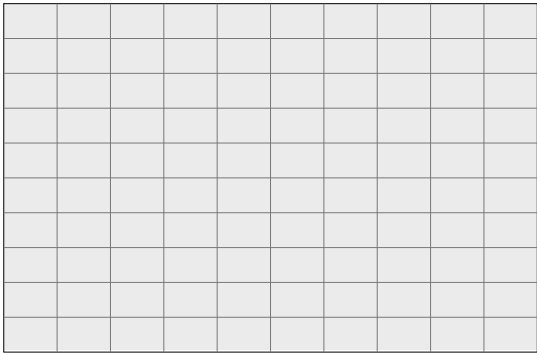
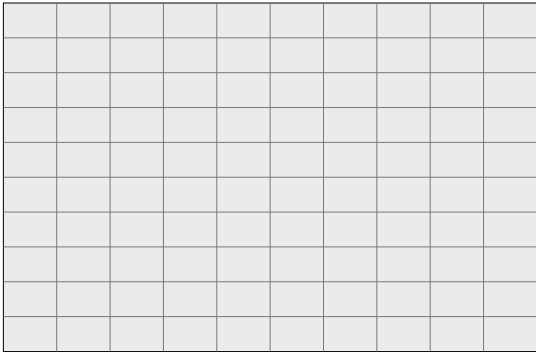
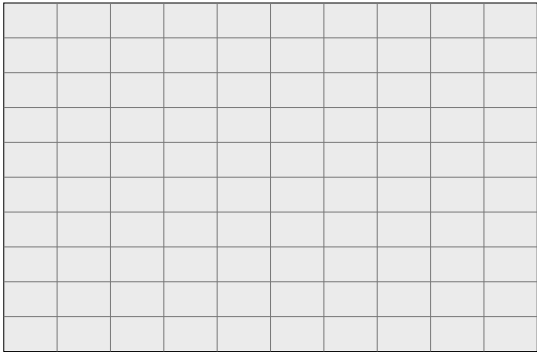
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

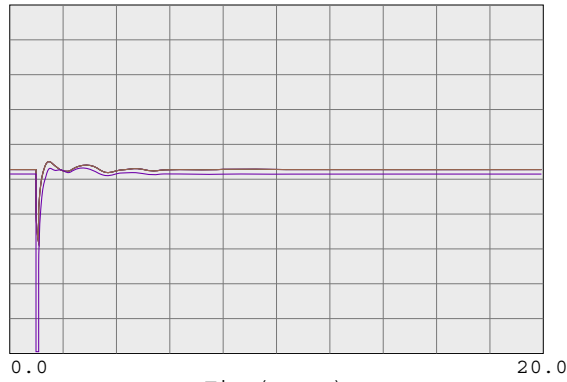
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



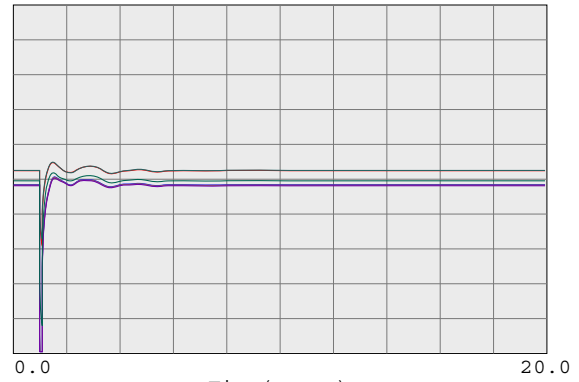
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



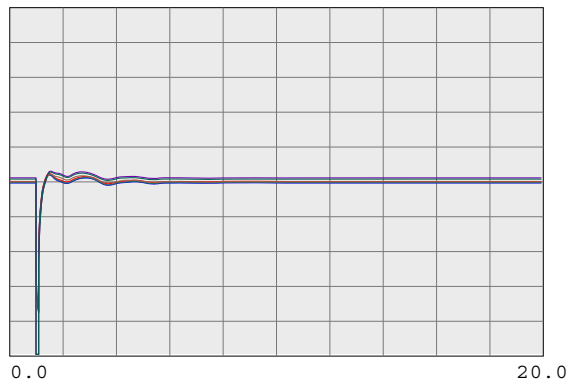
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



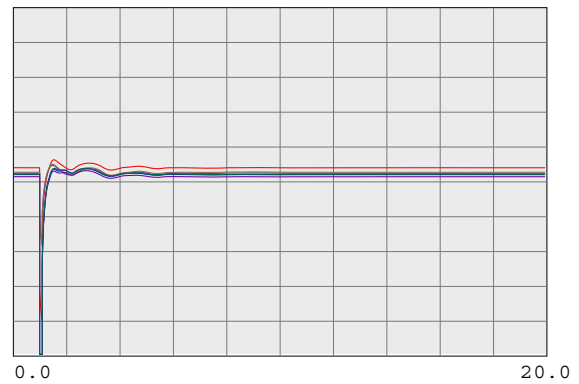
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



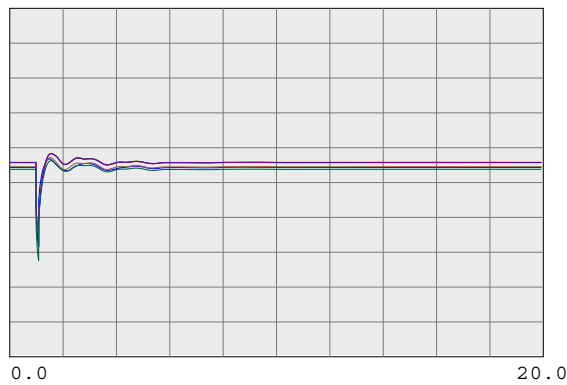
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



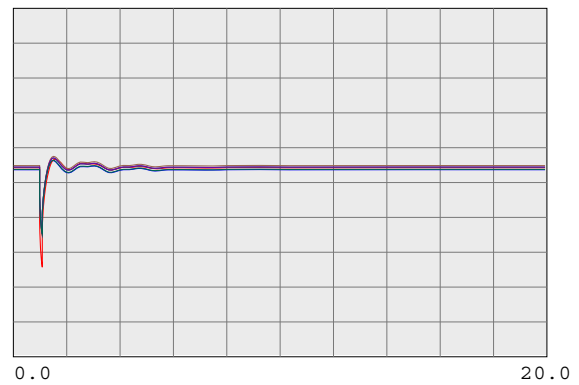
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

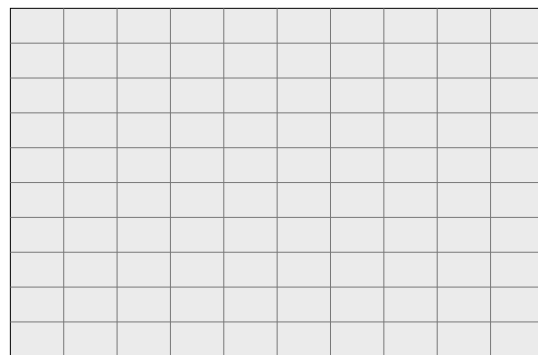
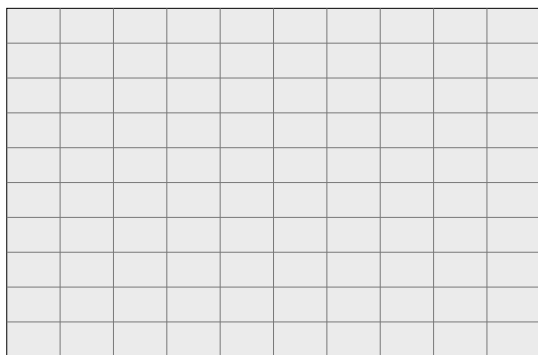
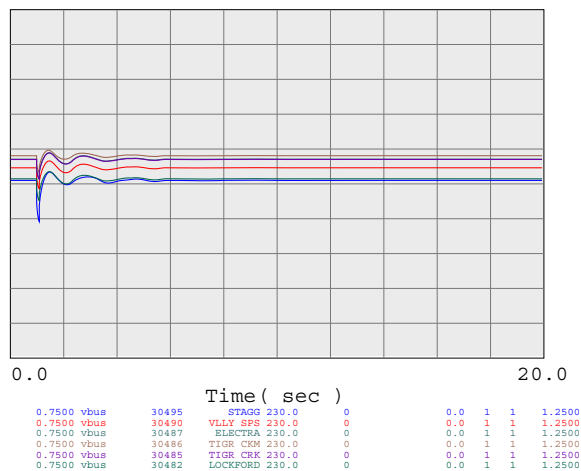
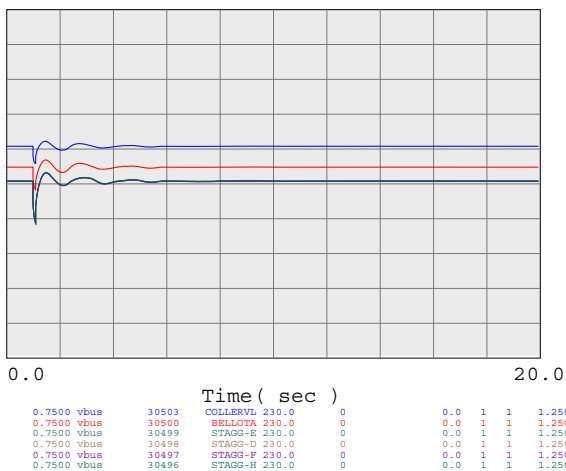
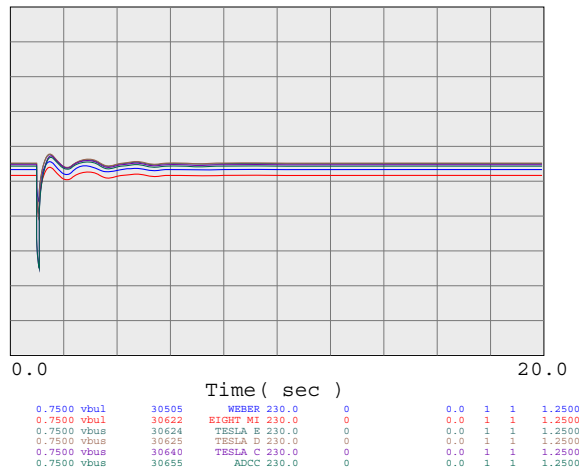
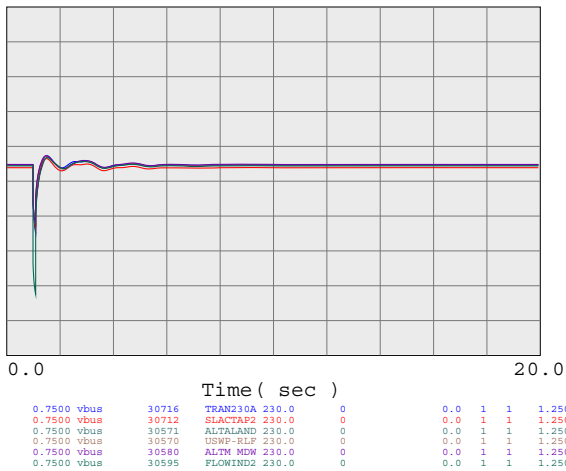
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

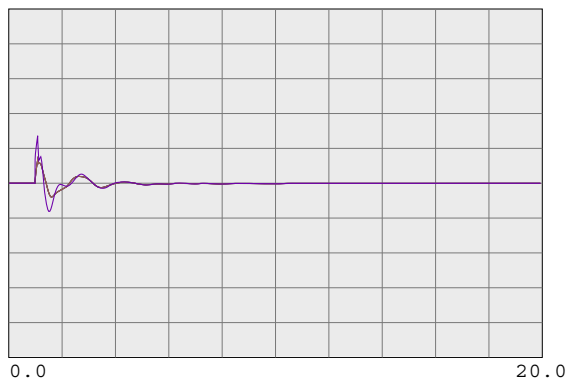
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



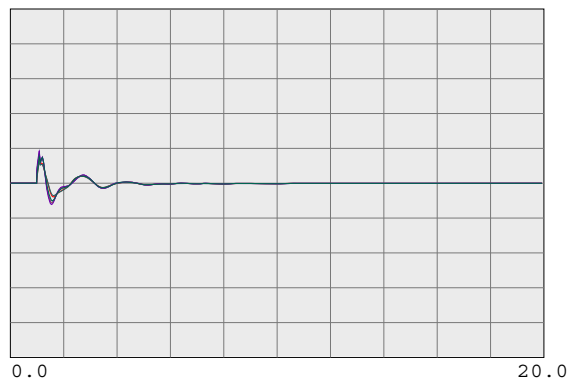
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

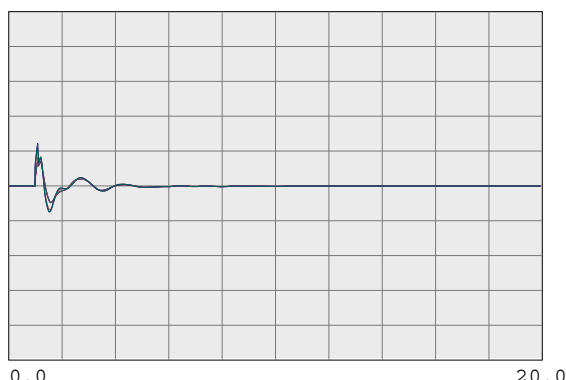
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

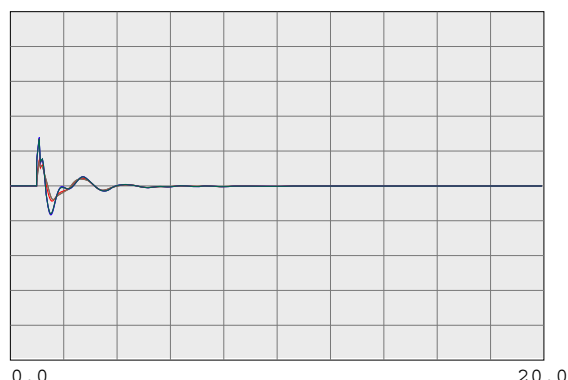
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

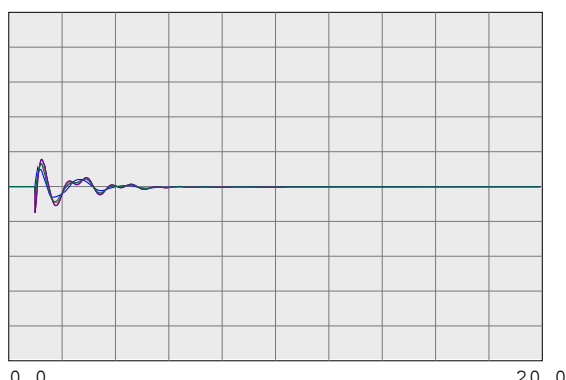
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

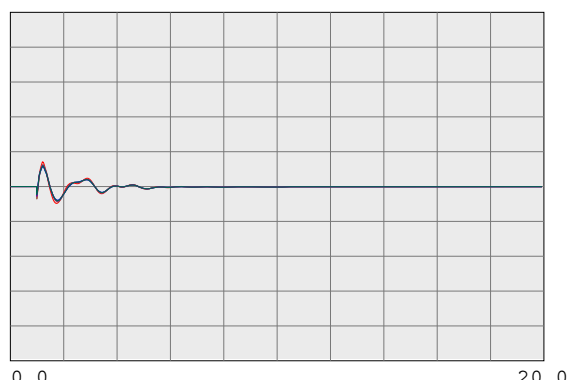
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

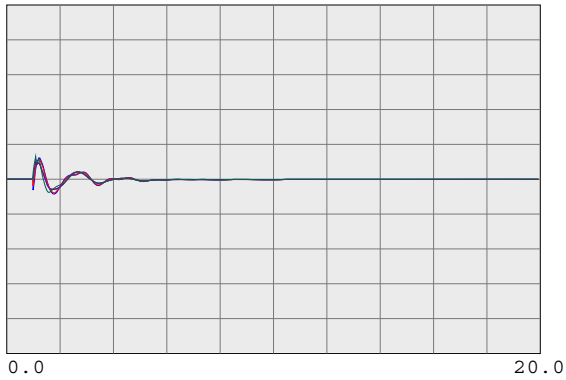
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

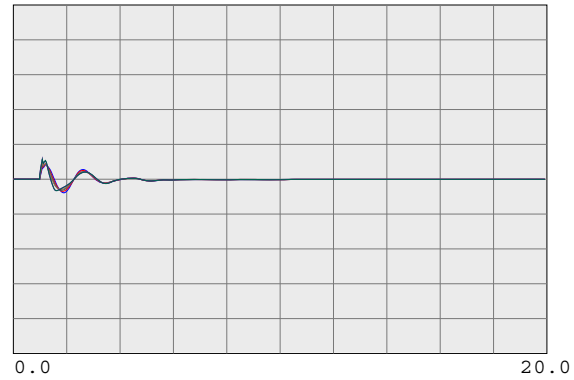
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

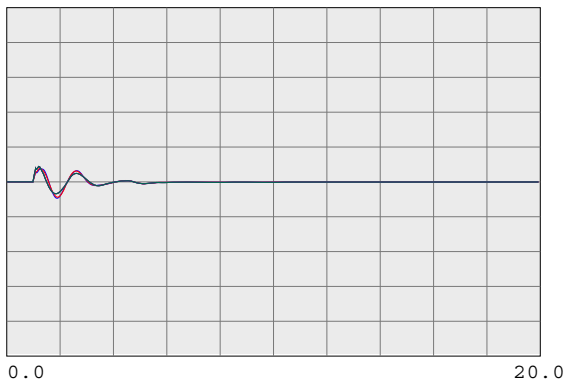
230-KV SYSTEM FREQUENCIES



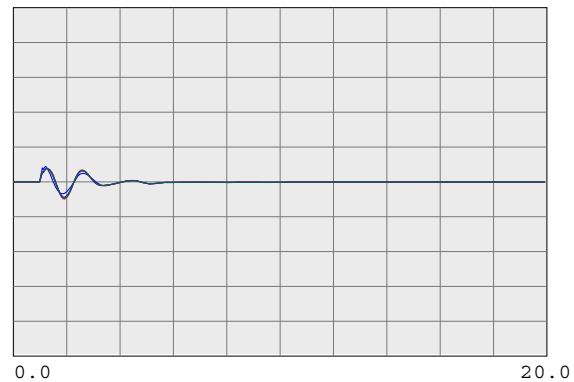
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



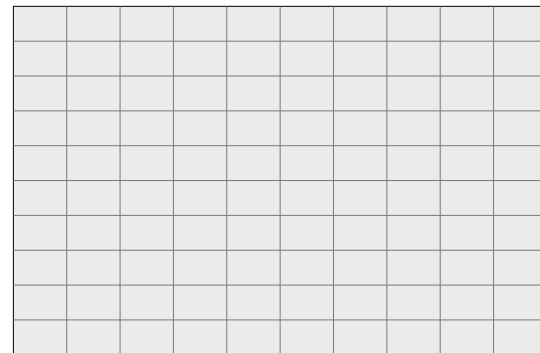
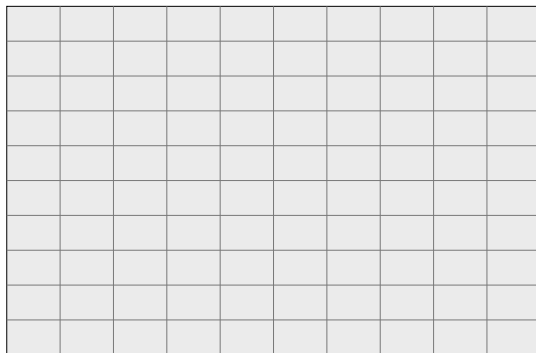
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



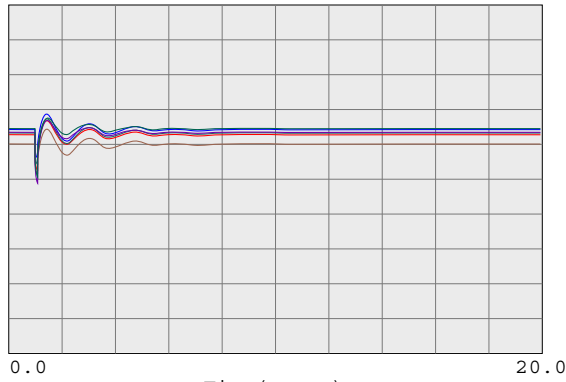
Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

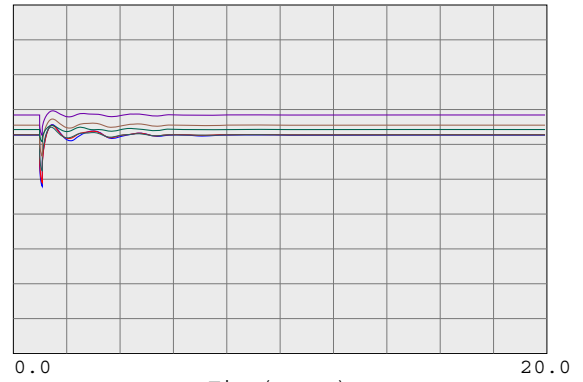


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



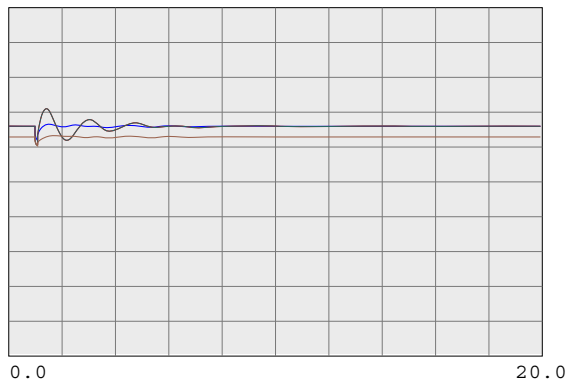
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



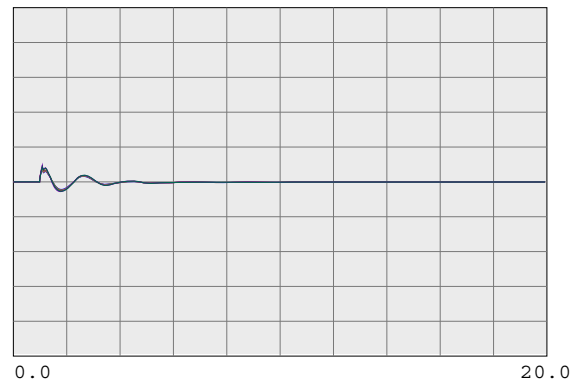
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



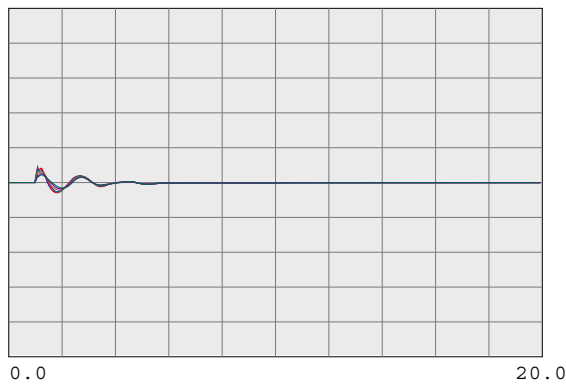
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

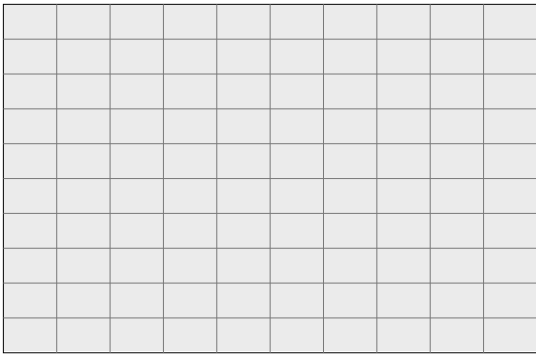
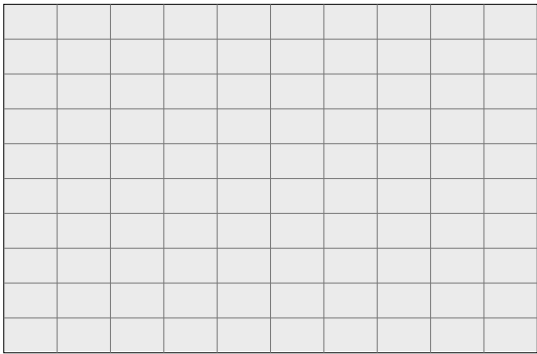
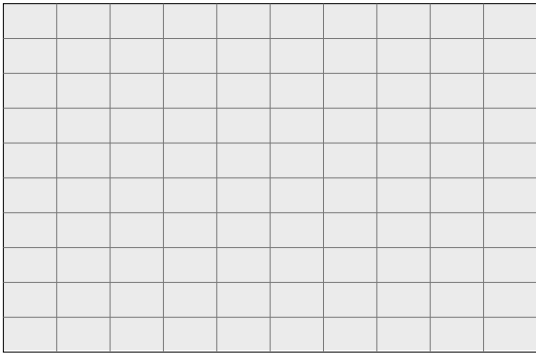
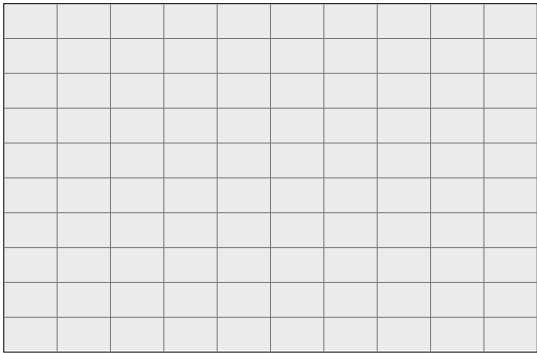
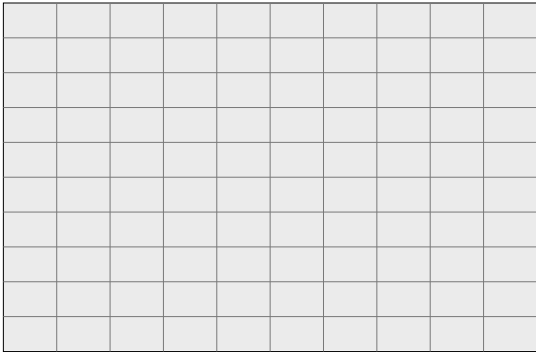
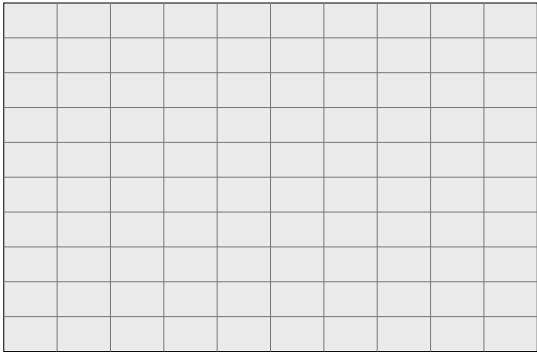
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

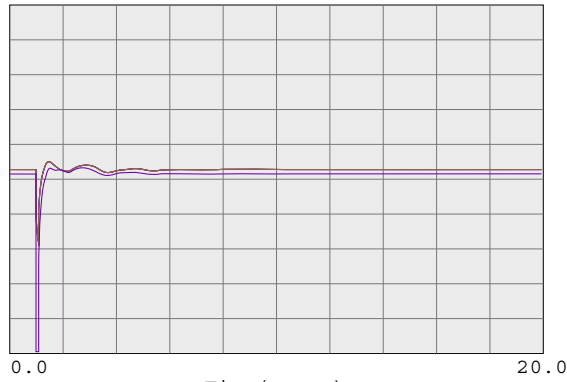
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



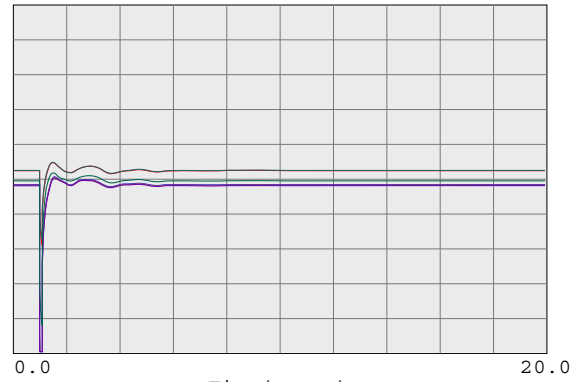
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



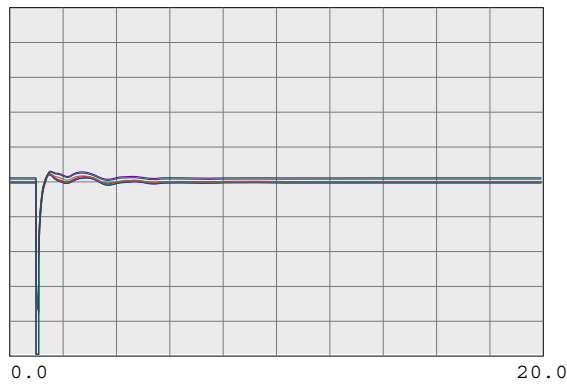
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



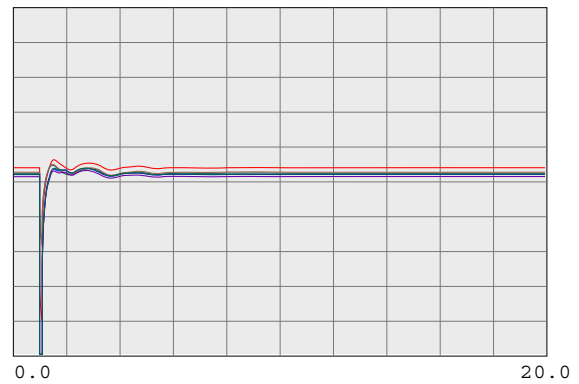
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



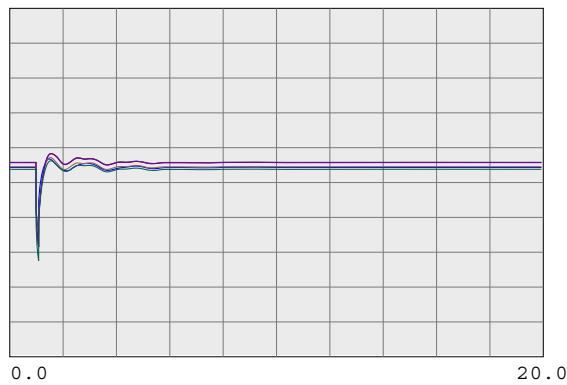
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



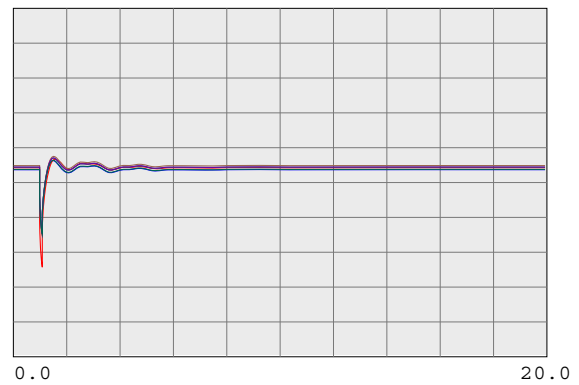
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

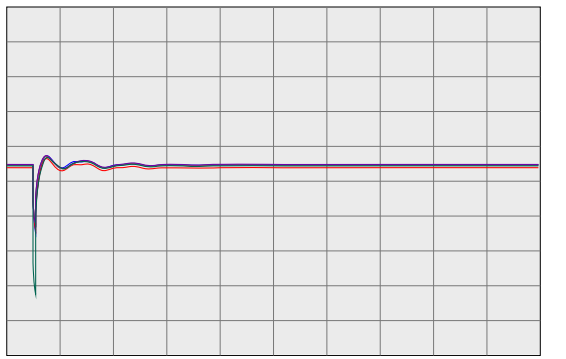
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

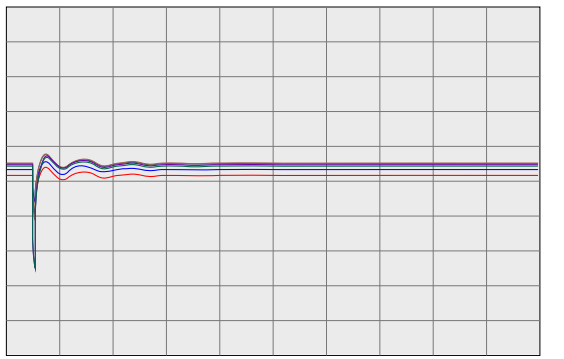
230-KV SYSTEM VOLTAGES



0.0 20.0

Time(sec)

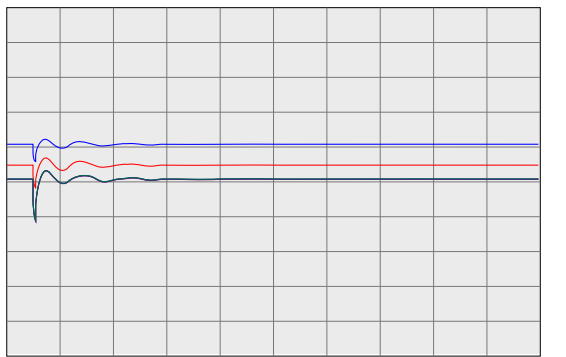
0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

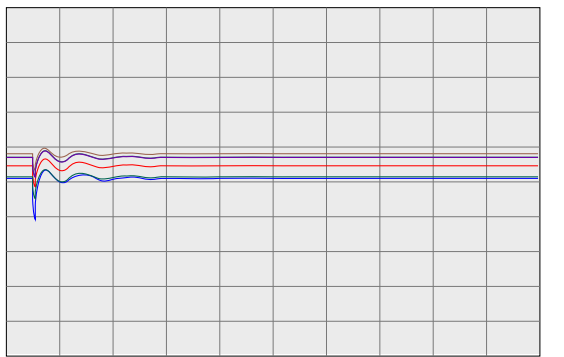
0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

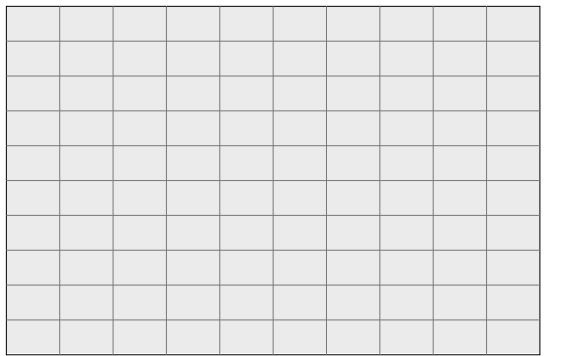
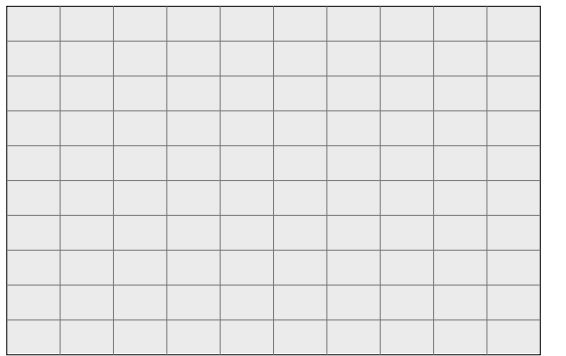
0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

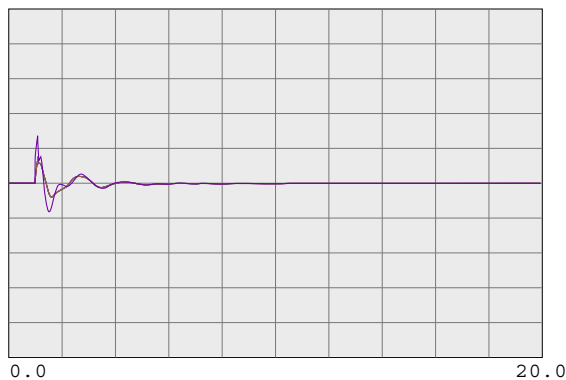
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

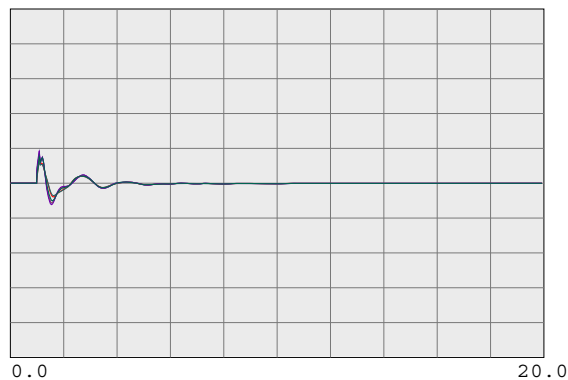
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

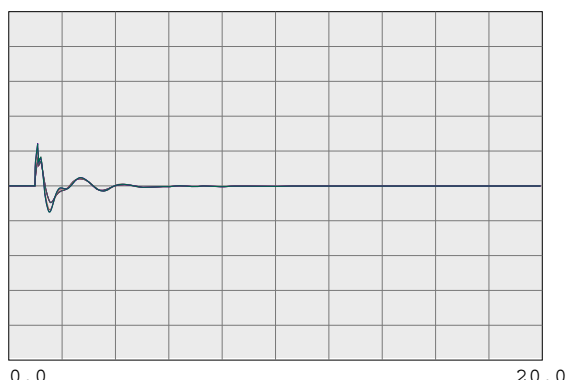
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

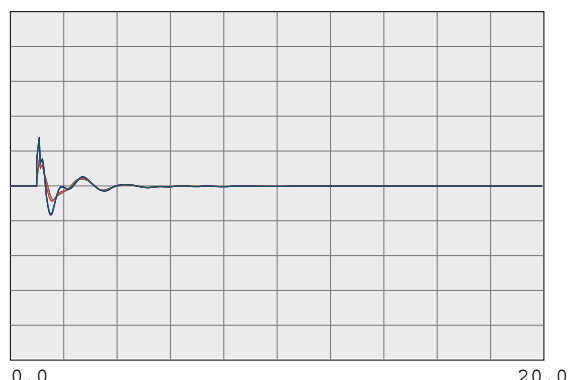
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

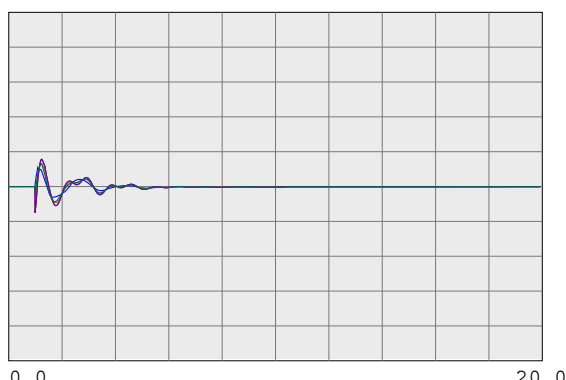
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

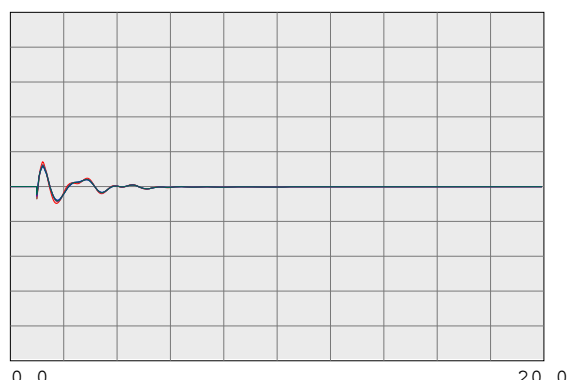
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WID MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANZJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

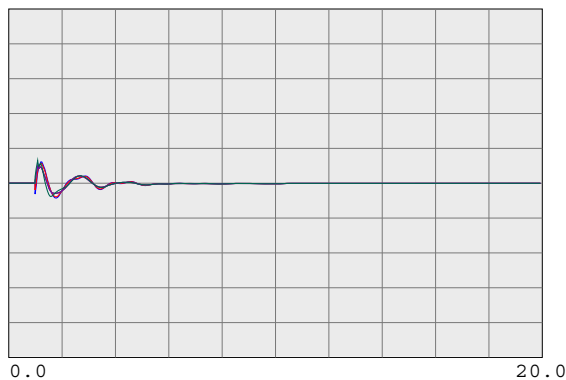
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

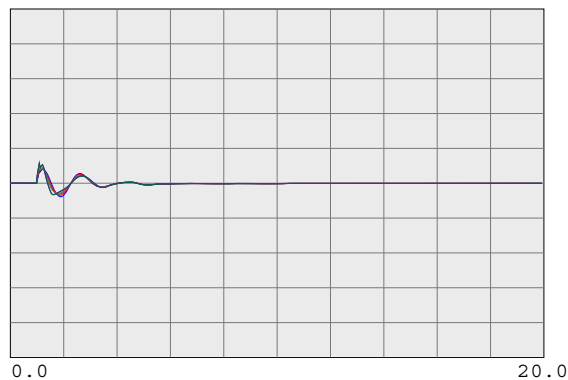
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

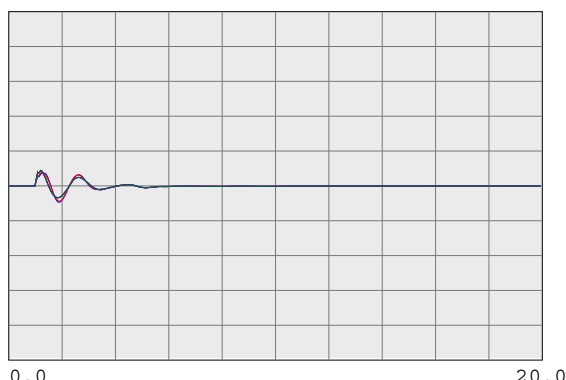
230-KV SYSTEM FREQUENCIES



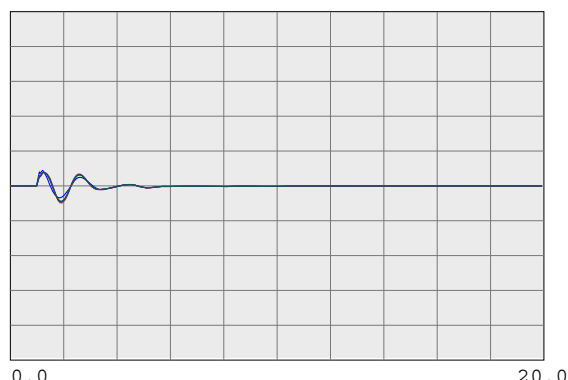
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



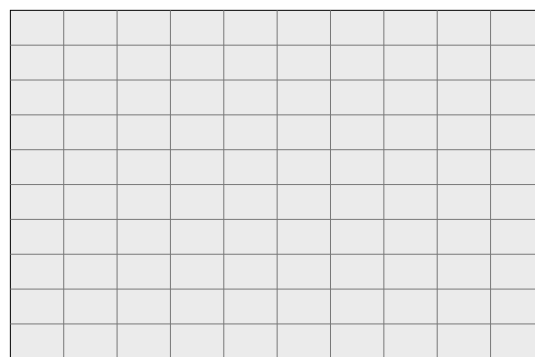
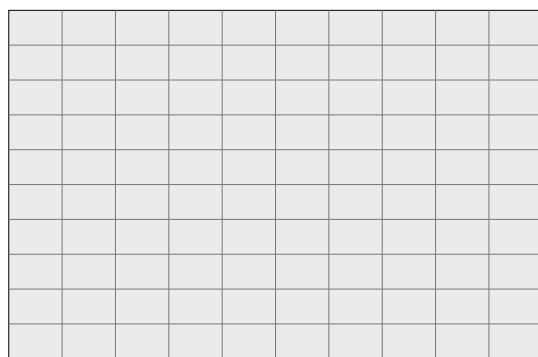
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

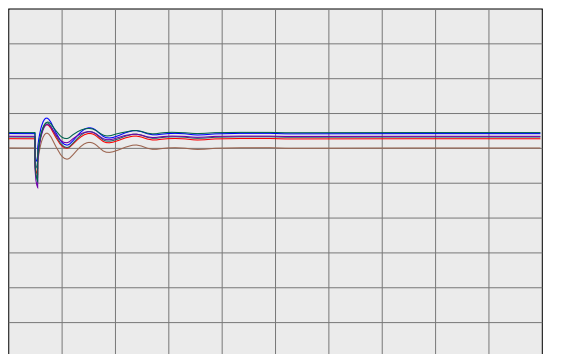
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

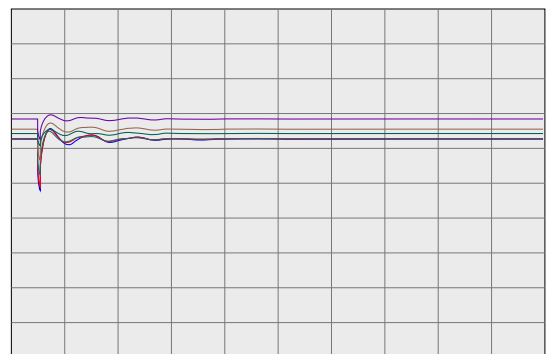
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



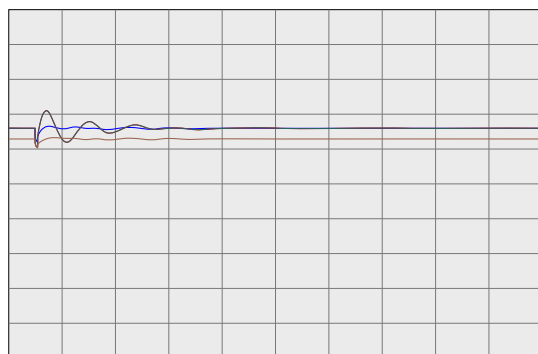
0.0 20.0

Time (sec)			
0.7500 vbus	30005	ROUND MT 500.0	0
0.7500 vbus	30015	TABLE MT 500.0	0
0.7500 vbus	30020	CLINDA 500.0	0
0.7500 vbus	30025	MAXWELL 500.0	0
0.7500 vbus	30030	VACA-DIX 500.0	0
0.7500 vbus	30035	TRACY 500.0	0



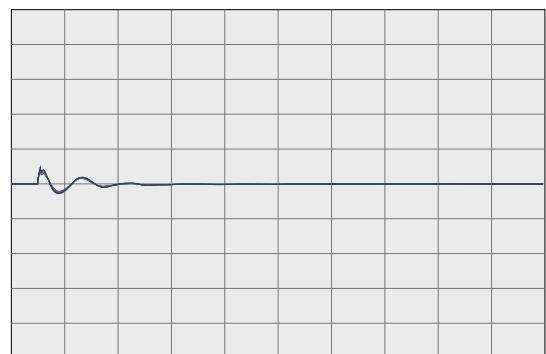
0.0 20.0

Time (sec)			
0.7500 vbus	30040	TESLA 500.0	0
0.7500 vbus	30042	METCALF 500.0	0
0.7500 vbus	30045	MOSSLAND 500.0	0
0.7500 vbus	30050	LOS BANOS 500.0	0
0.7500 vbus	30055	GATES 500.0	0
0.7500 vbus	30057	DIABLO 500.0	0



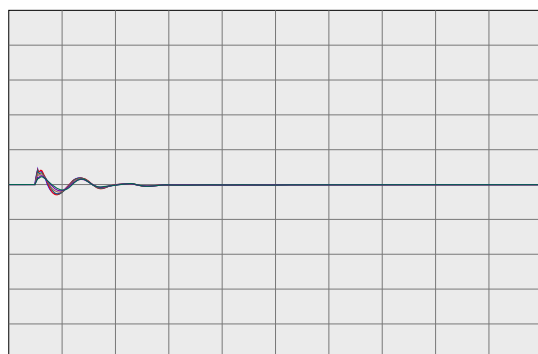
0.0 20.0

Time (sec)			
0.7500 vbus	30060	MIDWAY 500.0	0
0.7500 vbus	45035	CAPTJACK 500.0	0
0.7500 vbus	40687	MALIN 500.0	0
0.7500 vbus	24156	VINCENT 500.0	0



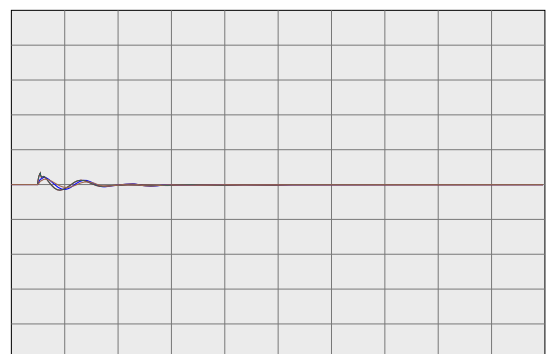
0.0 20.0

Time (sec)			
59.4000 fbus	30005	ROUND MT 500.0	0
59.4000 fbus	30015	TABLE MT 500.0	0
59.4000 fbus	30020	CLINDA 500.0	0
59.4000 fbus	30025	MAXWELL 500.0	0
59.4000 fbus	30030	VACA-DIX 500.0	0
59.4000 fbus	30035	TRACY 500.0	0



0.0 20.0

Time (sec)			
59.4000 fbus	30040	TESLA 500.0	0
59.4000 fbus	30042	METCALF 500.0	0
59.4000 fbus	30045	MOSSLAND 500.0	0
59.4000 fbus	30050	LOS BANOS 500.0	0
59.4000 fbus	30055	GATES 500.0	0
59.4000 fbus	30057	DIABLO 500.0	0



0.0 20.0

Time (sec)			
59.4000 fbus	30060	MIDWAY 500.0	0
59.4000 fbus	45035	CAPTJACK 500.0	0
59.4000 fbus	40687	MALIN 500.0	0
59.4000 fbus	24156	VINCENT 500.0	0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

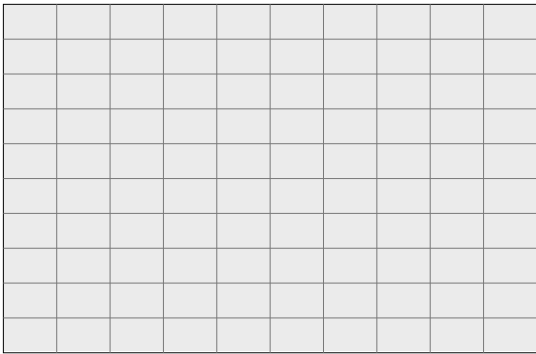
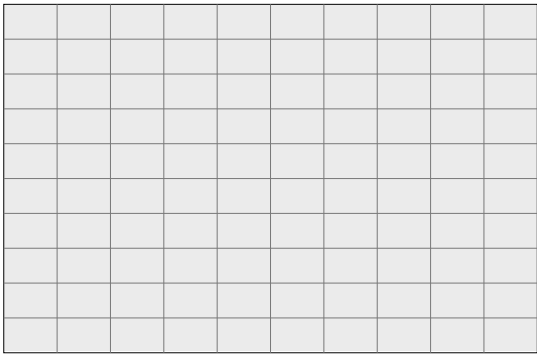
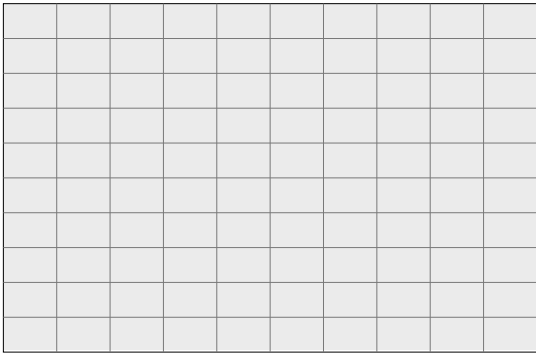
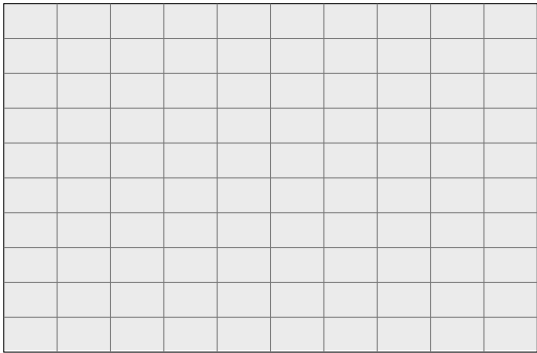
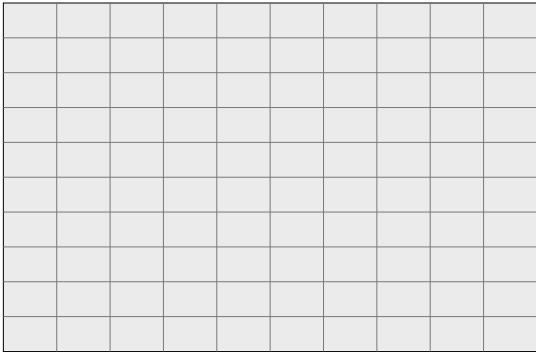
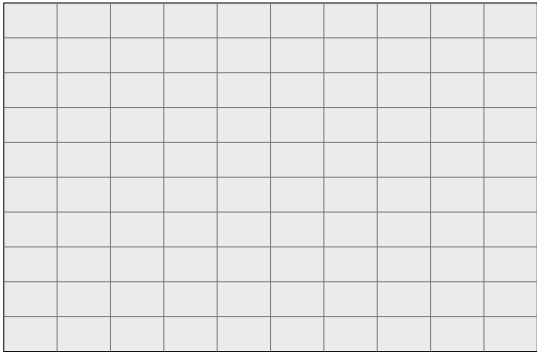
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

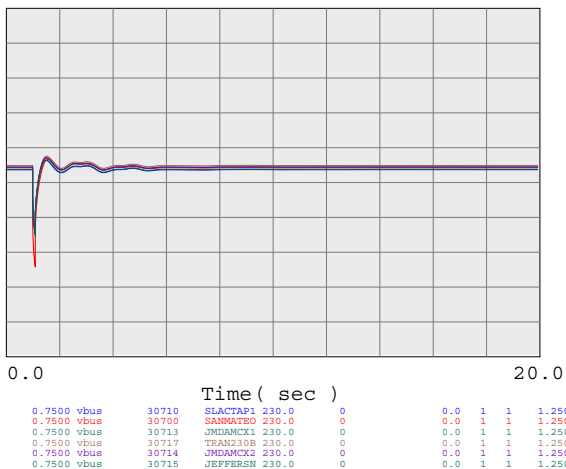
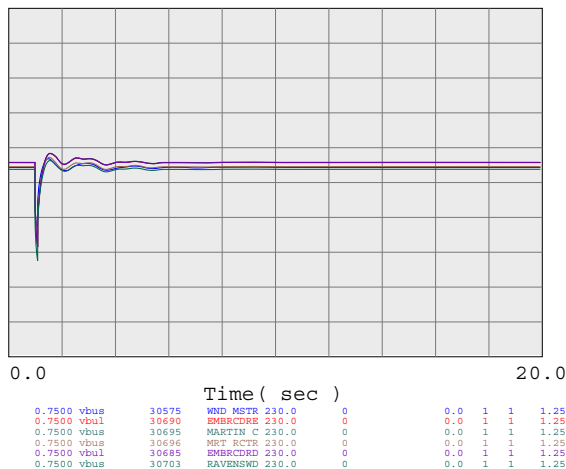
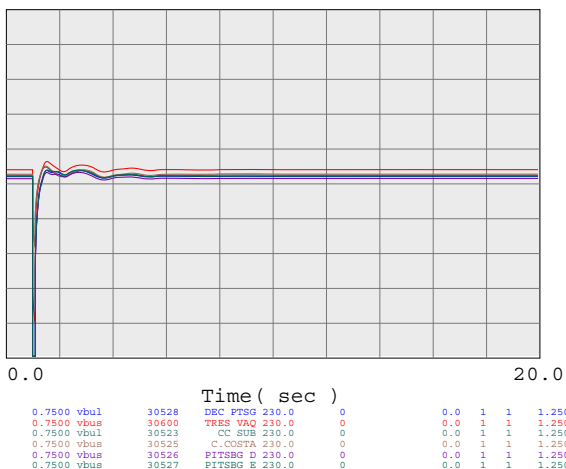
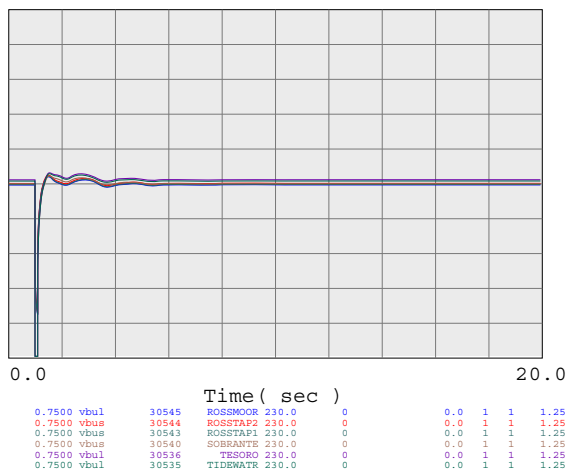
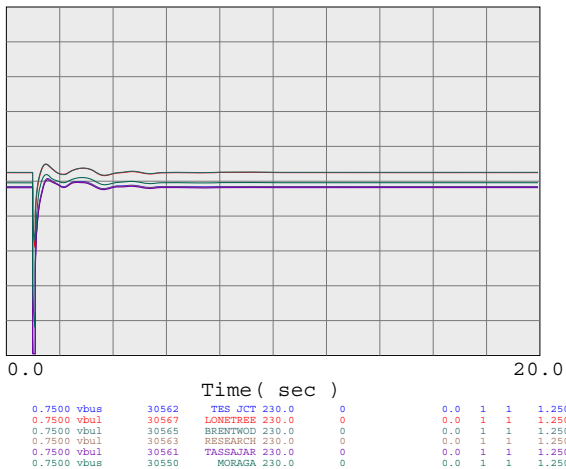
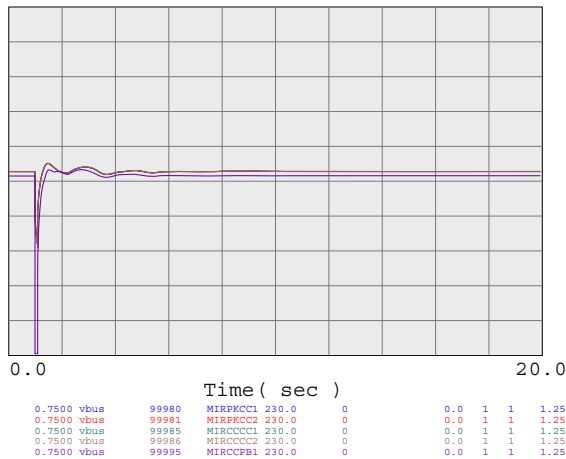
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



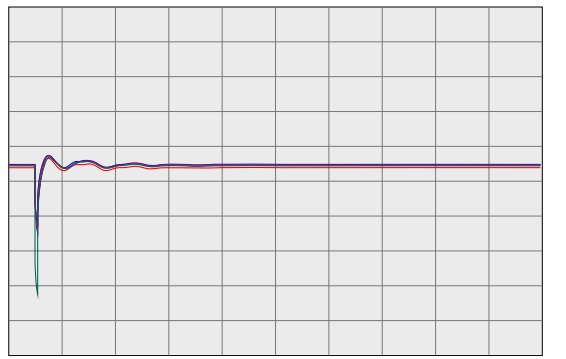
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

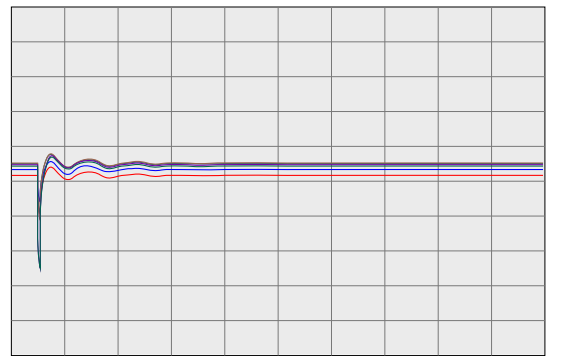
230-KV SYSTEM VOLTAGES



0.0 20.0

Time(sec)

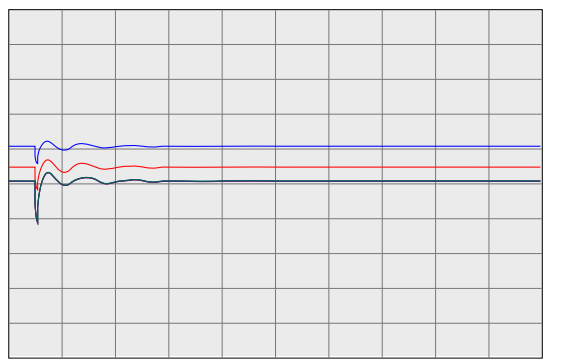
0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

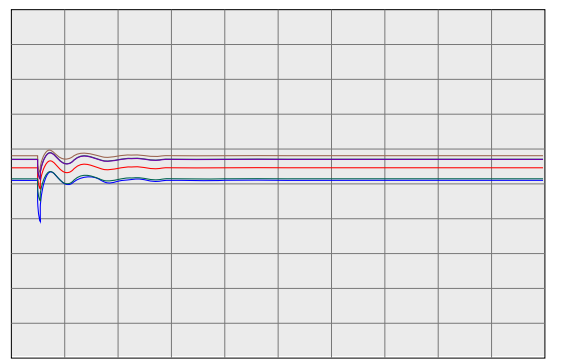
0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

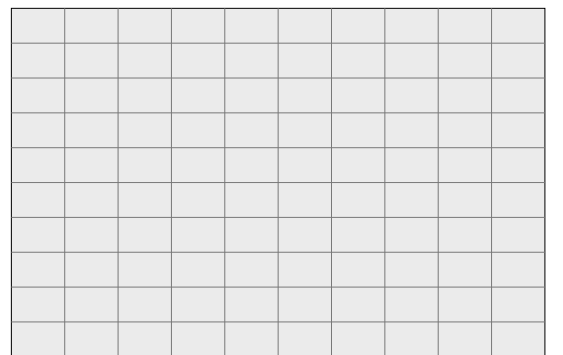
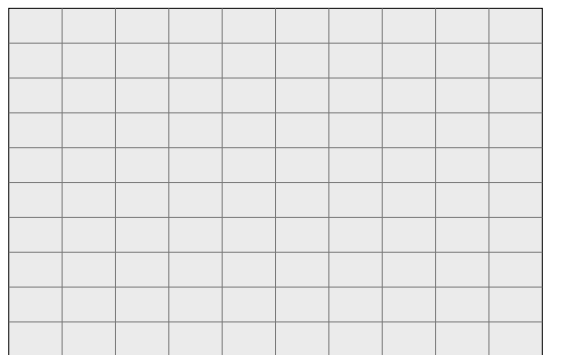
0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

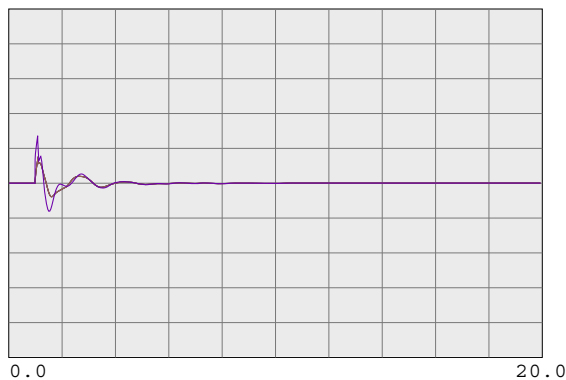
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

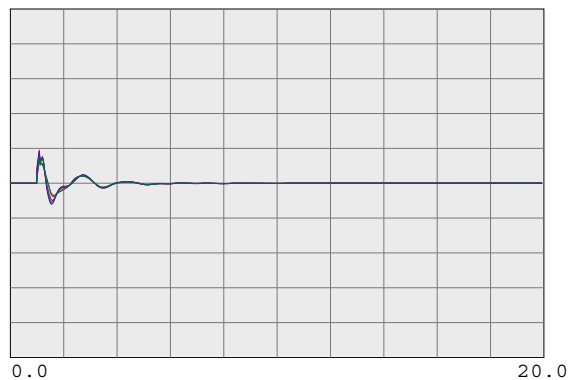
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

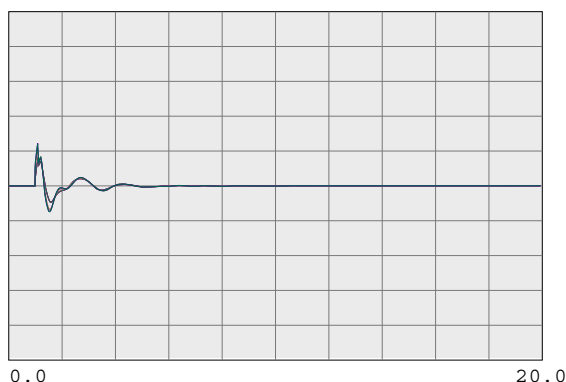
230-KV SYSTEM FREQUENCIES



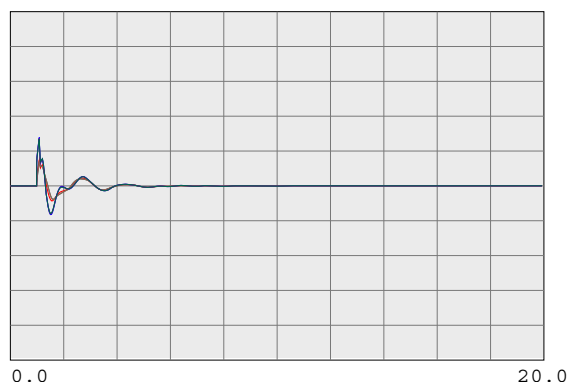
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



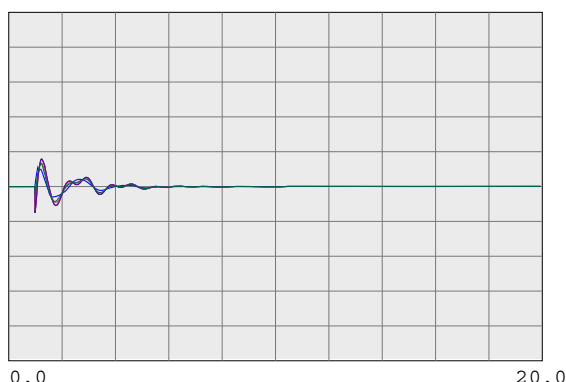
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30567</td> <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30565</td> <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30563</td> <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30561</td> <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30550</td> <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30550	MORAGA 230.0	0	0.0	1	1	60.6000



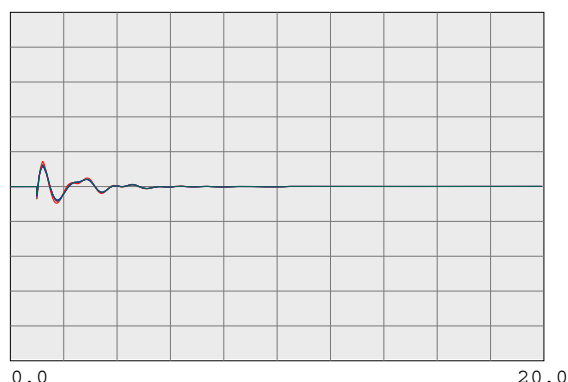
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30544 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30543 <th>ROSSAPR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30536 <th>TSOBO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30536 <th>TSOBO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TSOBO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TIDENATR 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	PITSBG E 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30685 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30685 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	RAVENSWD 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th> </td>	30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>60.6000</th>	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

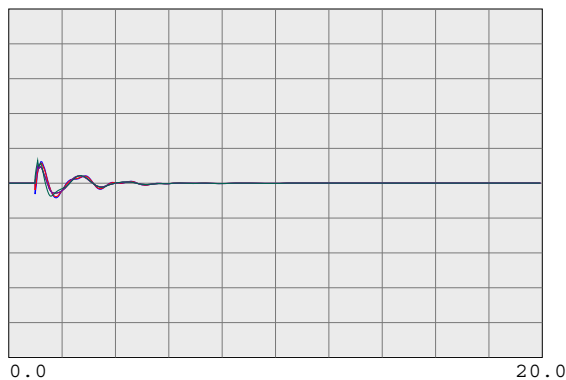
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

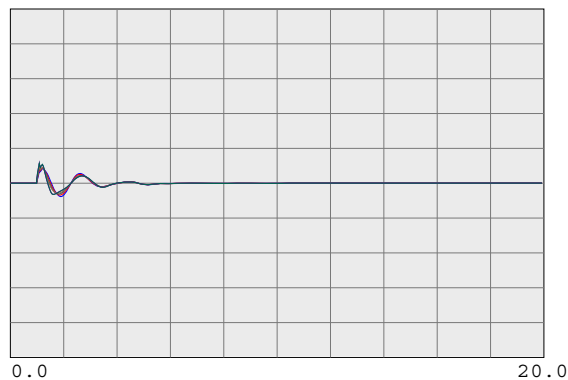
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

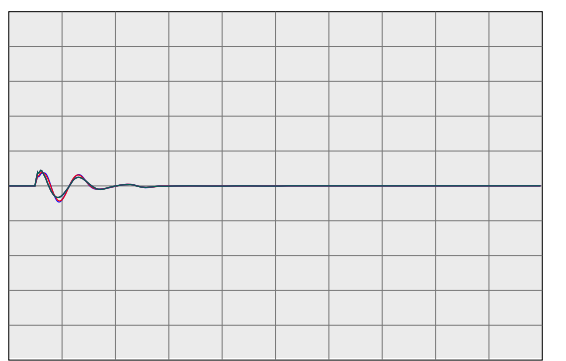
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

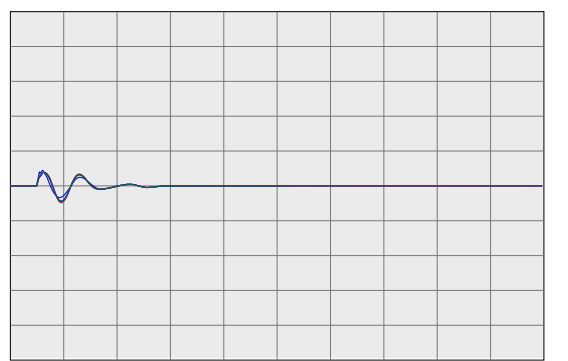
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

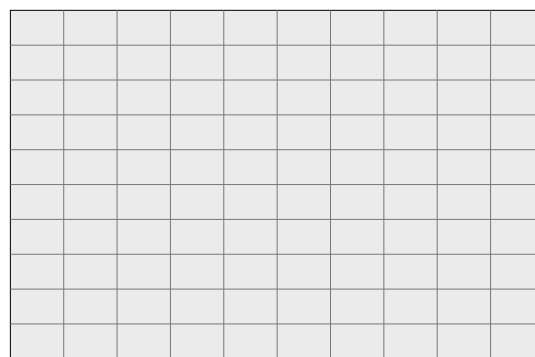
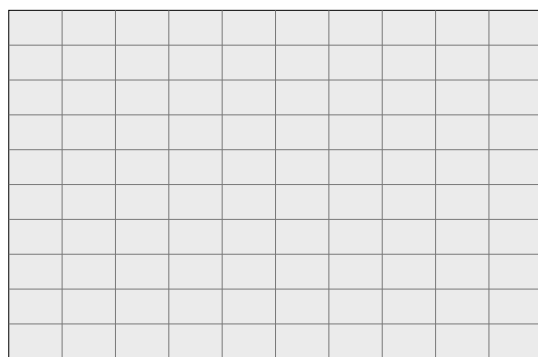
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

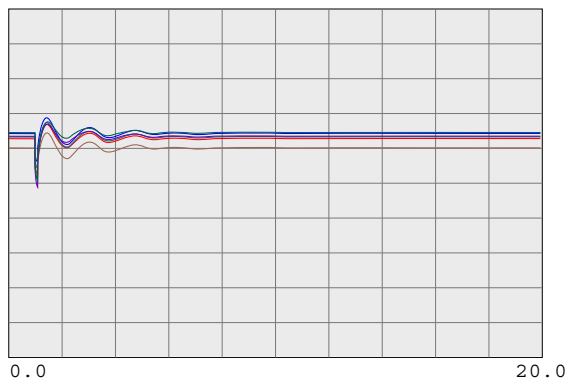
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

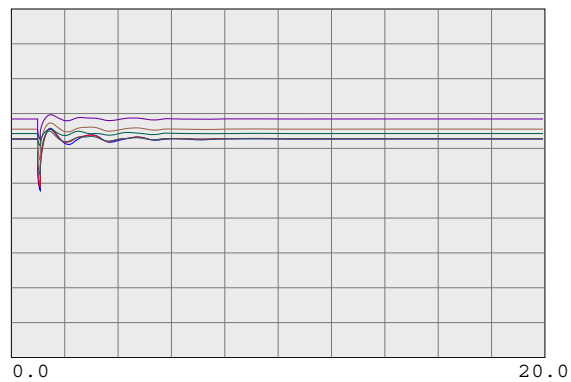
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

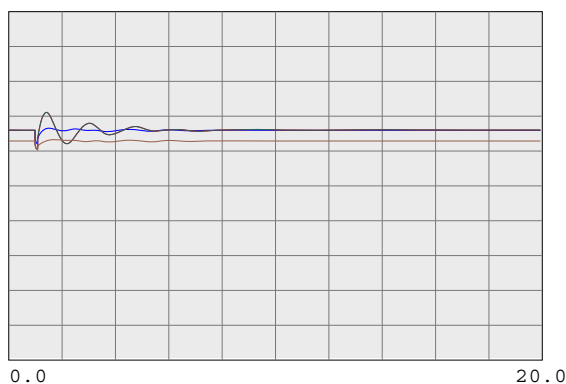
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



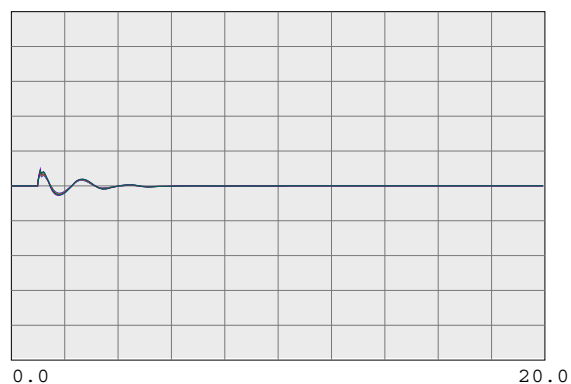
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



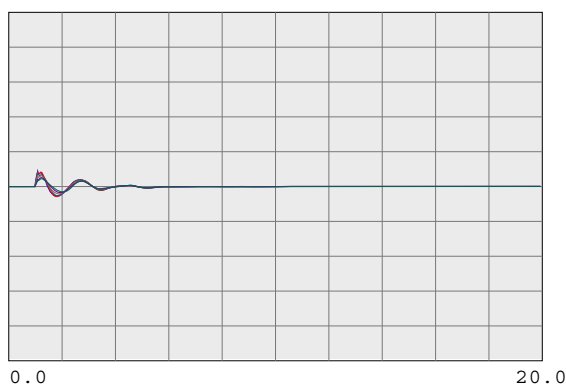
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



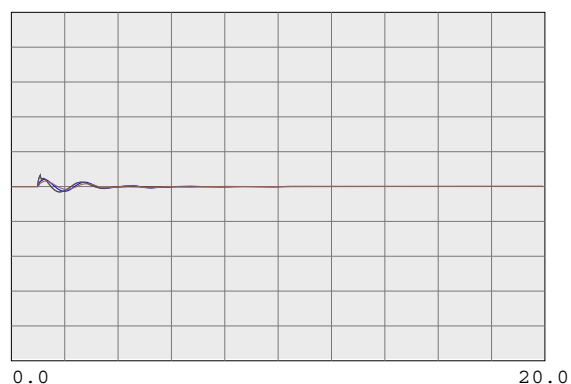
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOSBANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

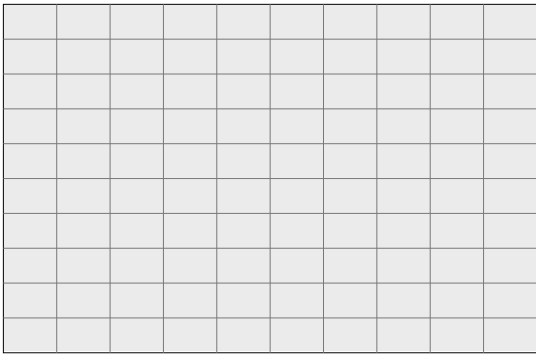
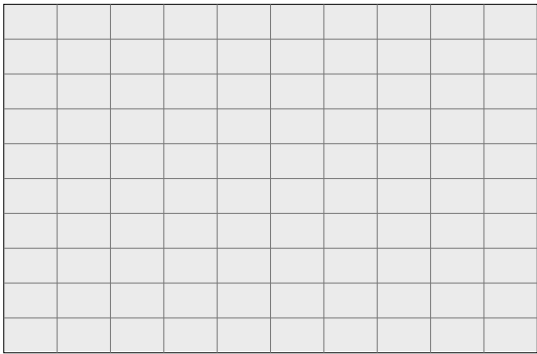
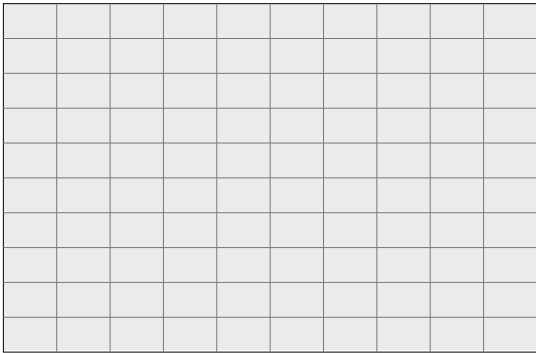
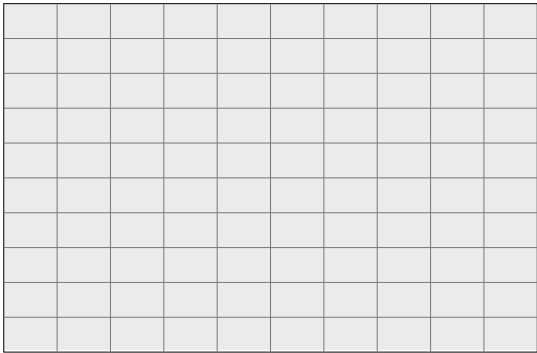
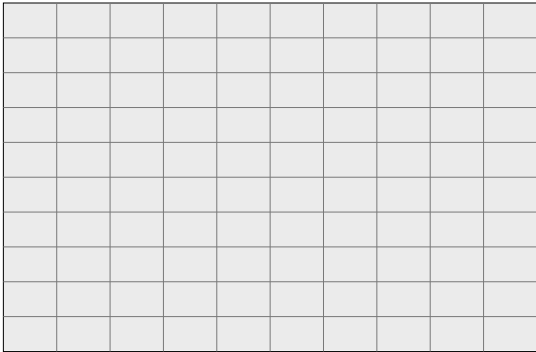
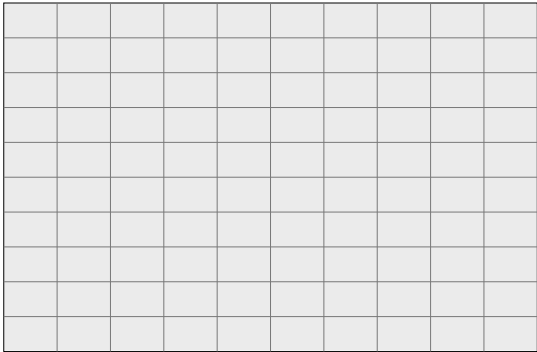
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

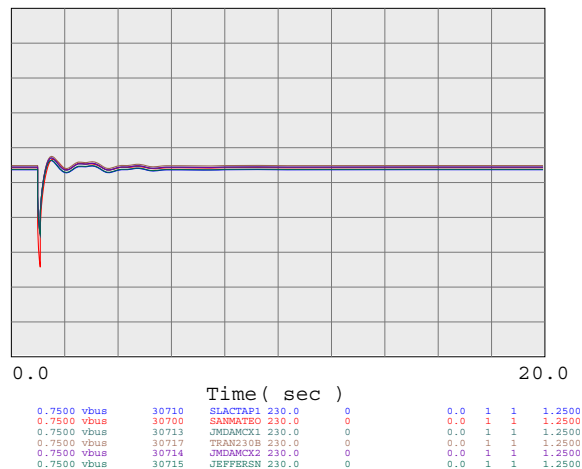
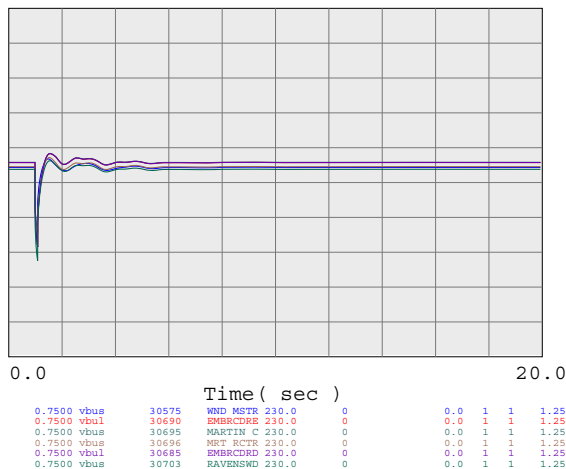
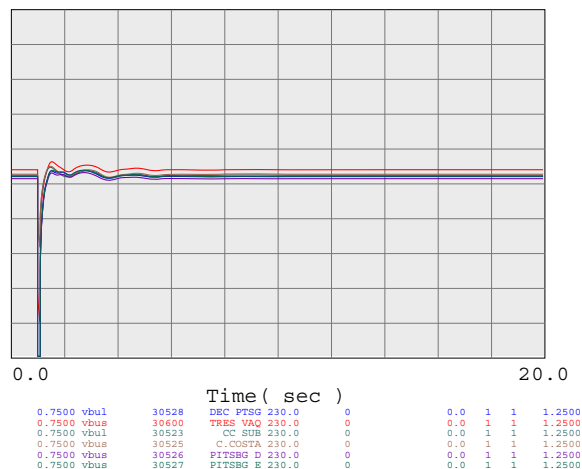
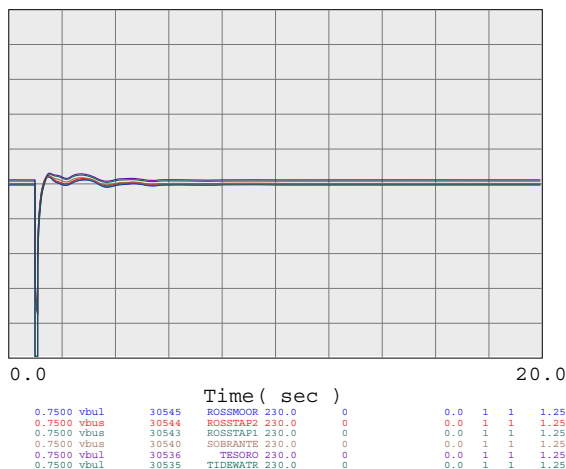
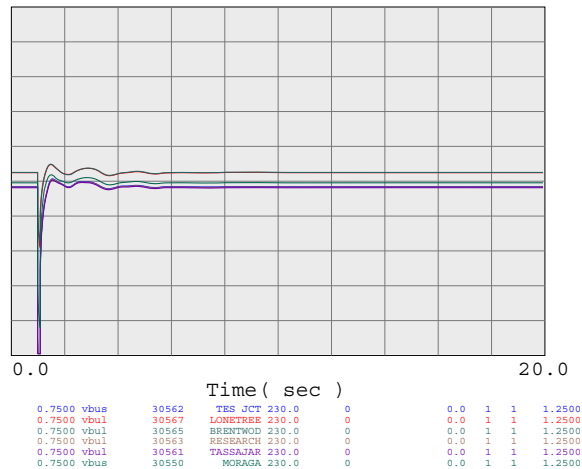
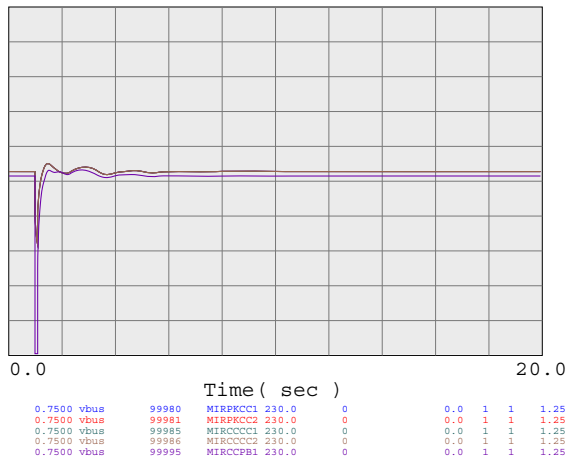
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



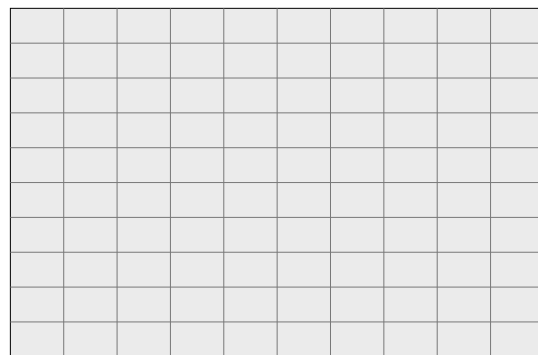
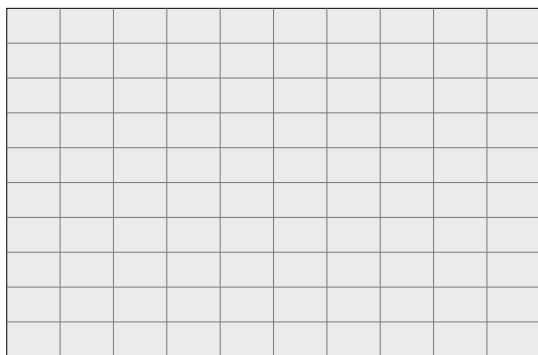
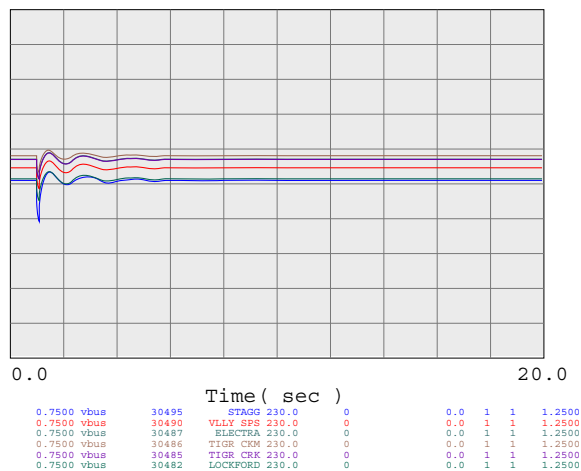
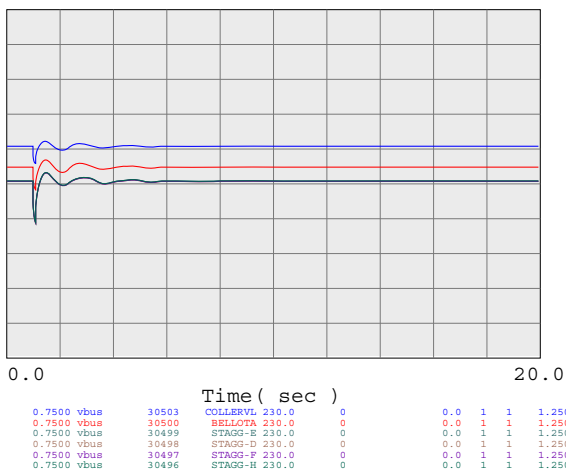
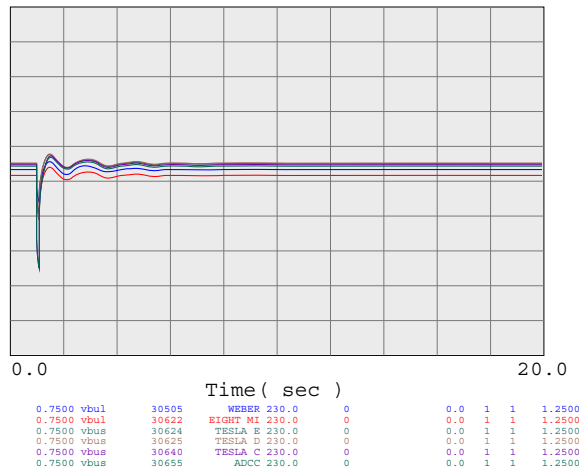
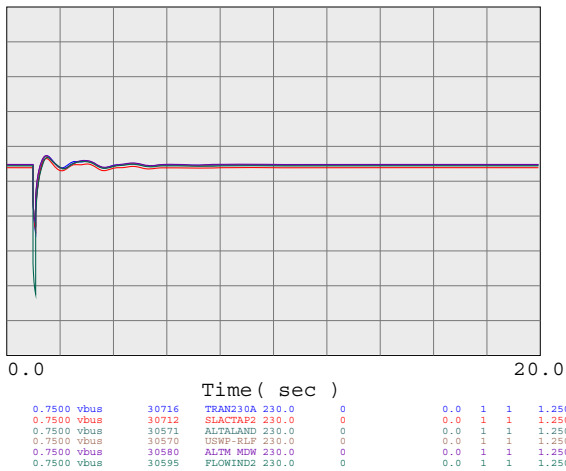
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

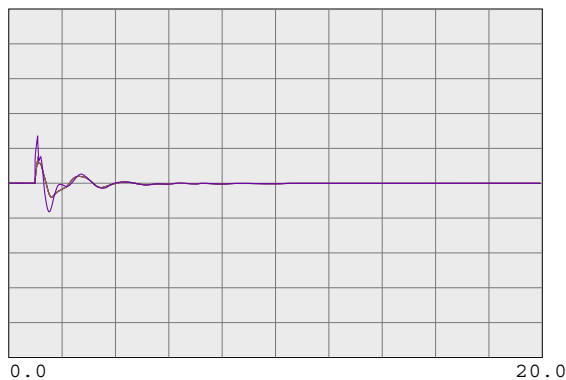


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



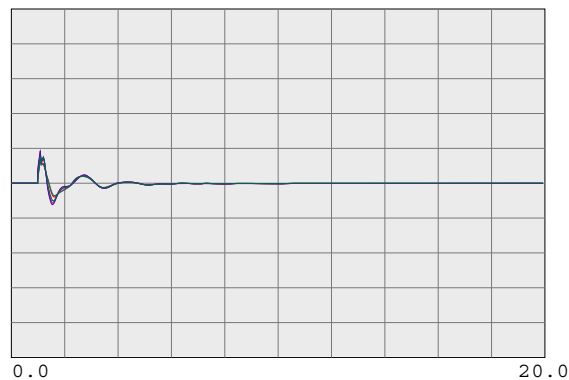
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

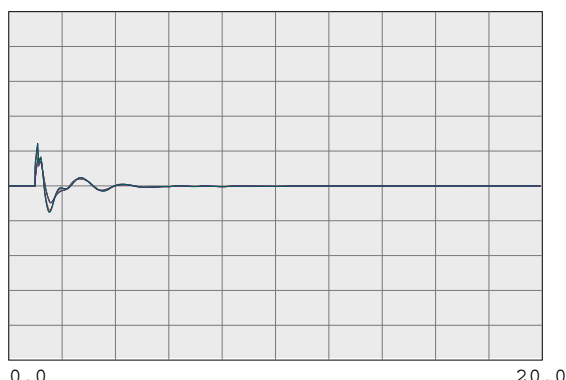
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

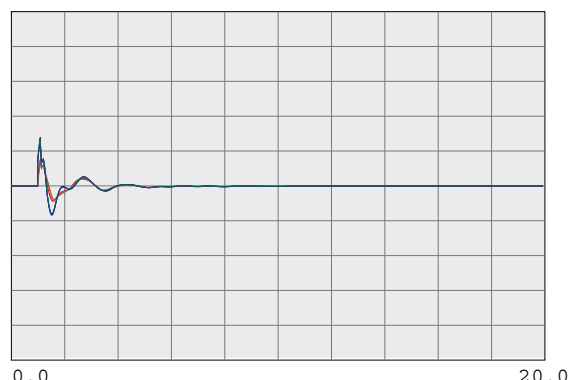
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

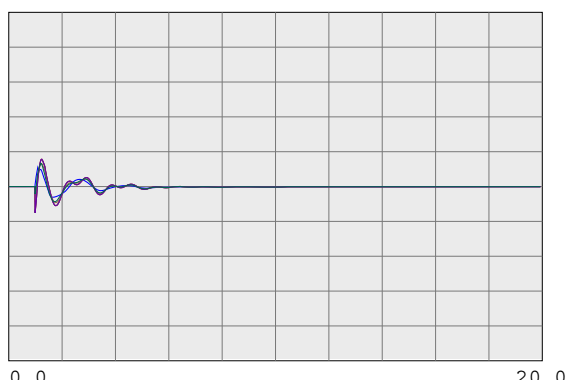
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

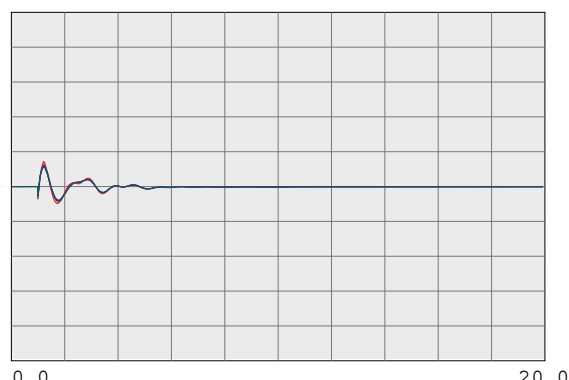
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

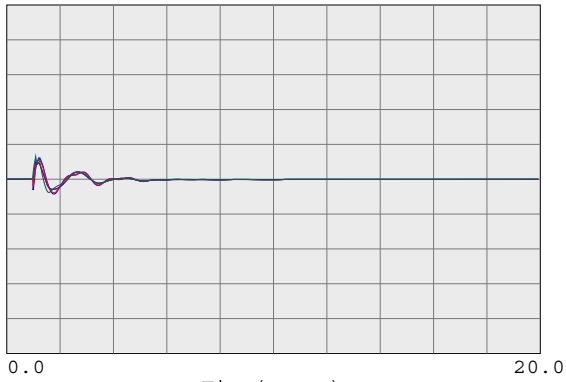
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

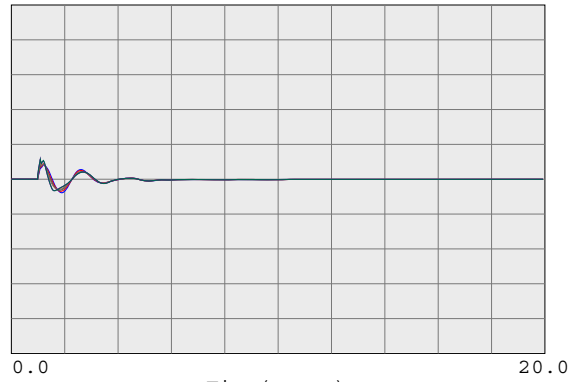
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

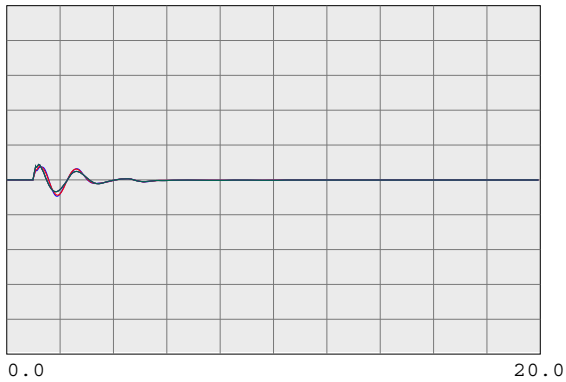
230-KV SYSTEM FREQUENCIES



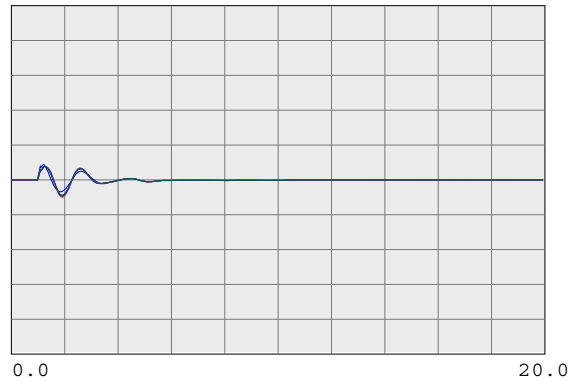
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



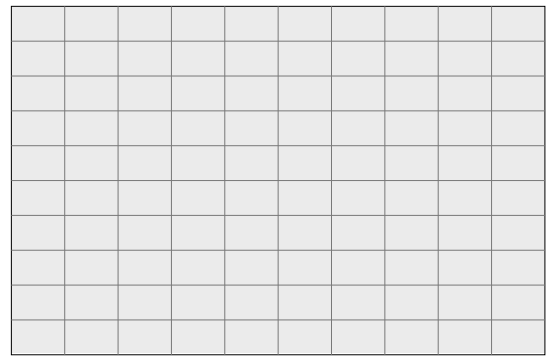
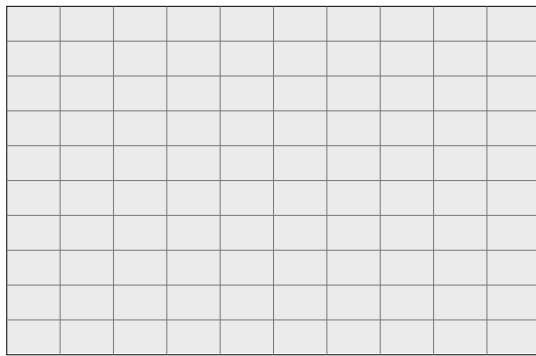
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

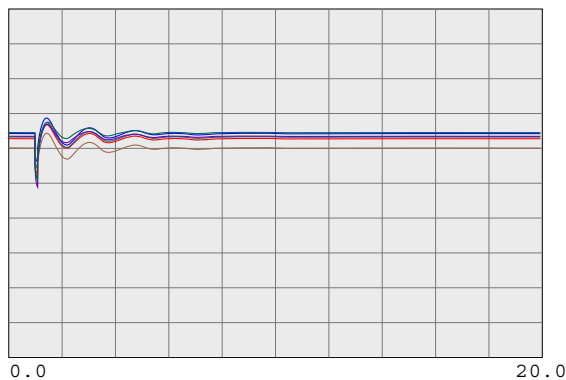


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



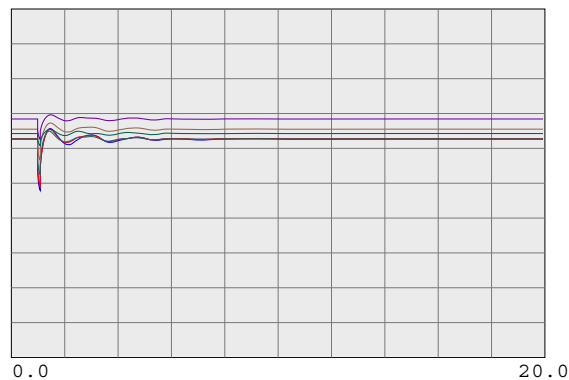
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



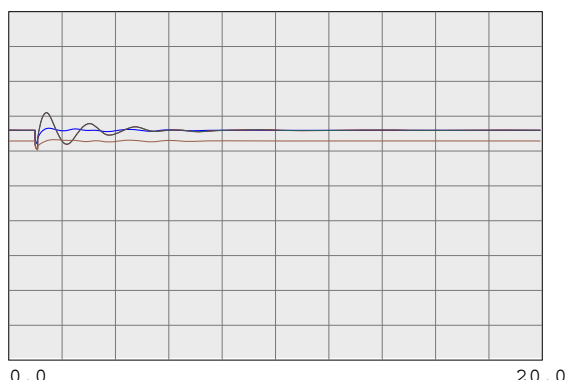
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



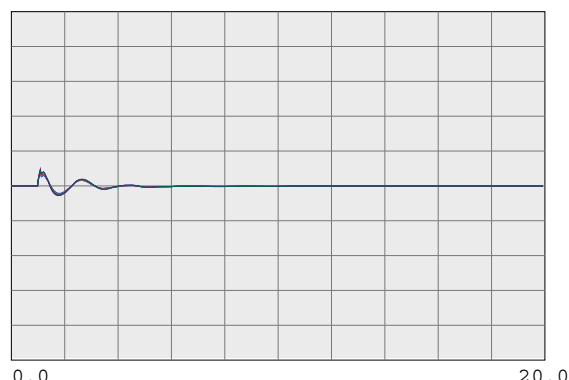
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



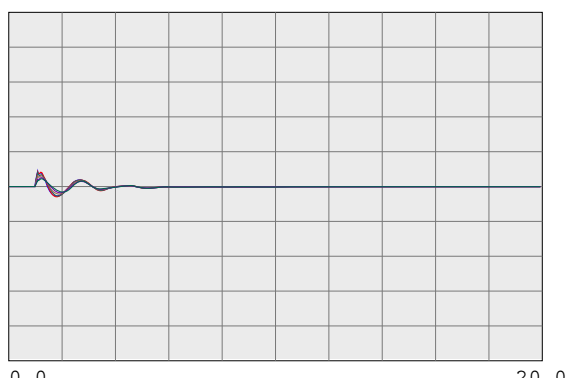
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



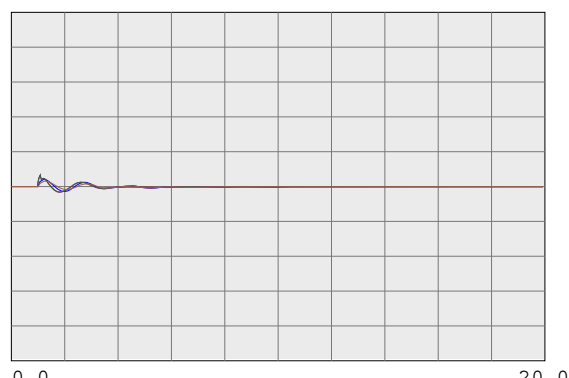
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

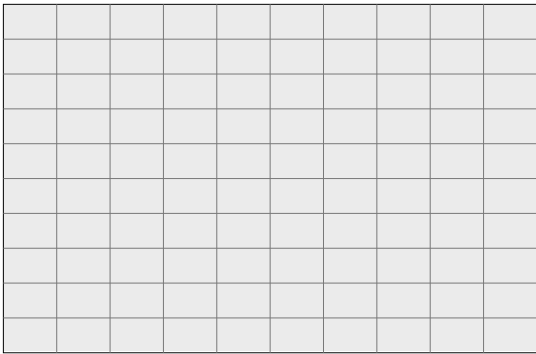
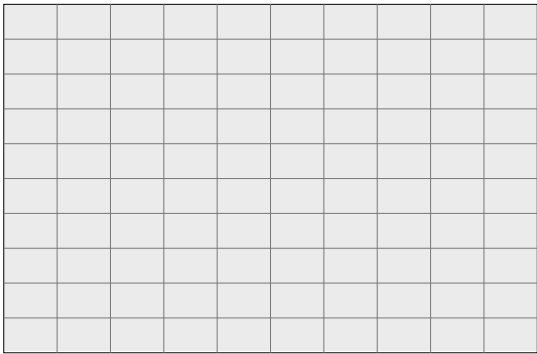
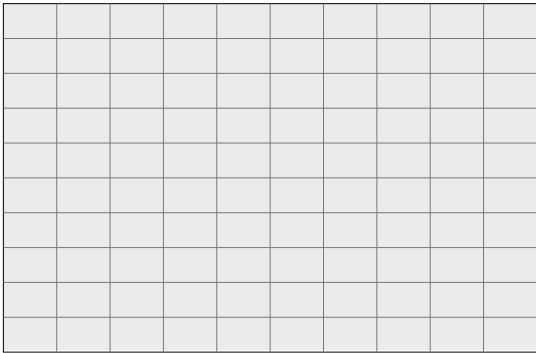
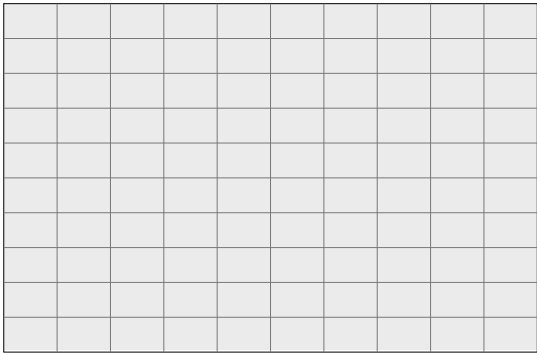
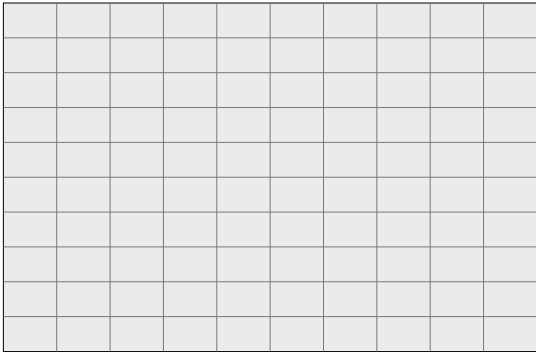
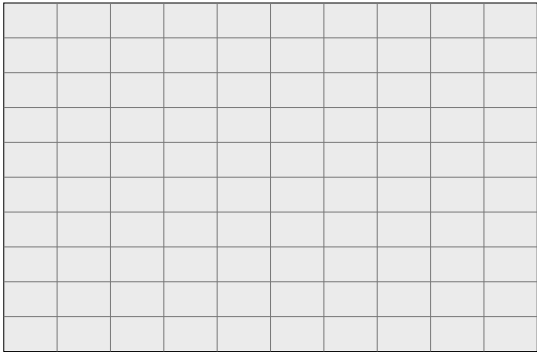
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

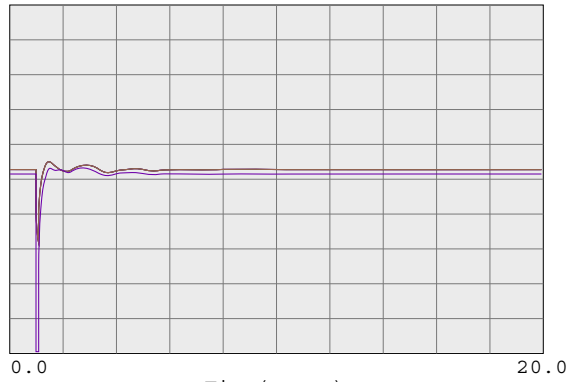
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



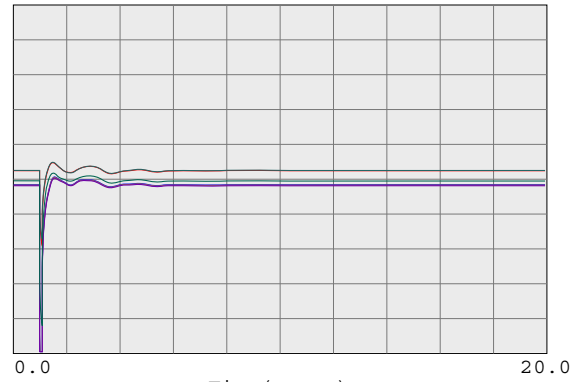
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



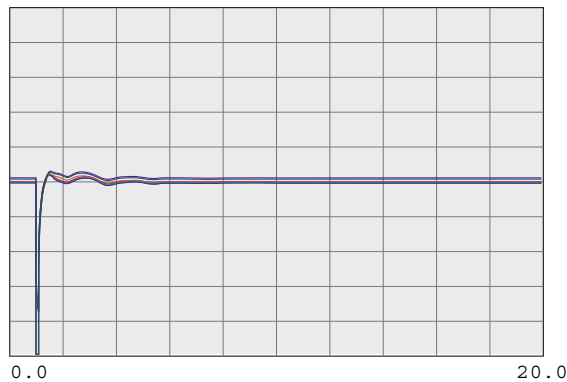
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



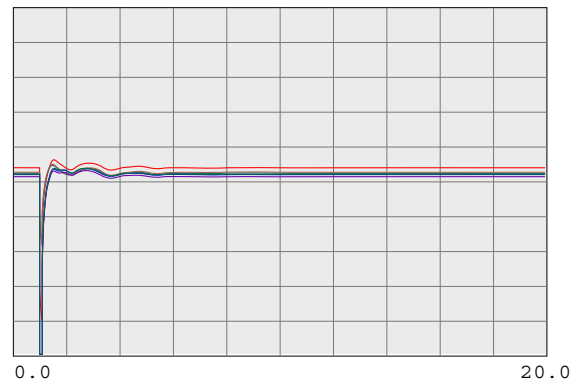
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



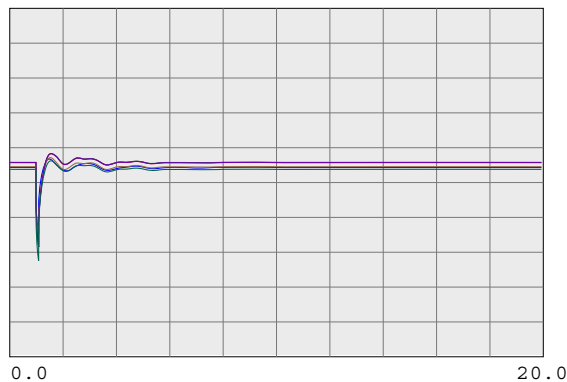
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



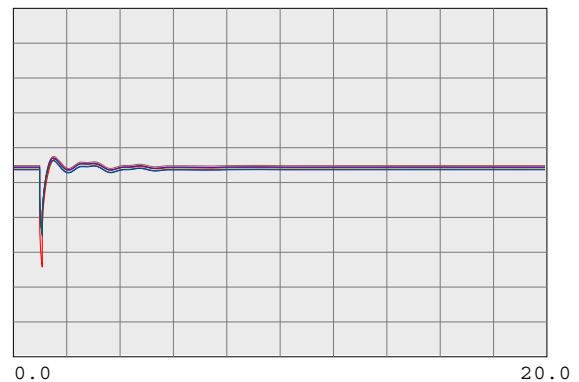
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

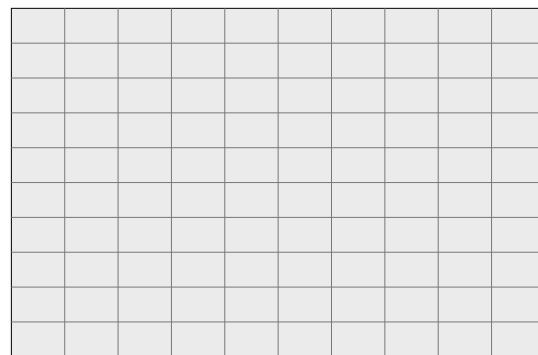
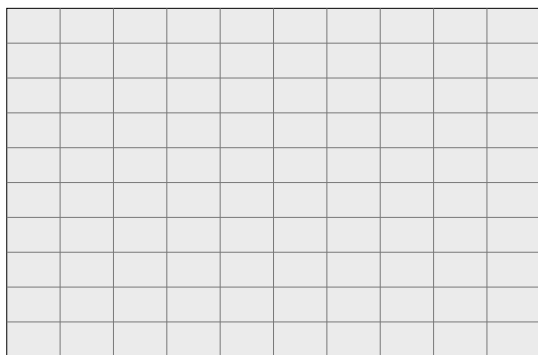
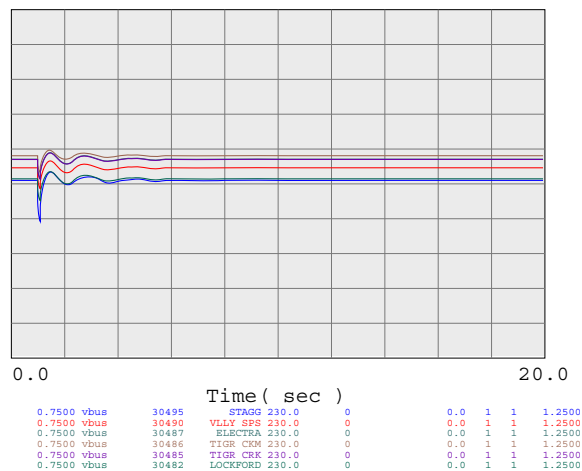
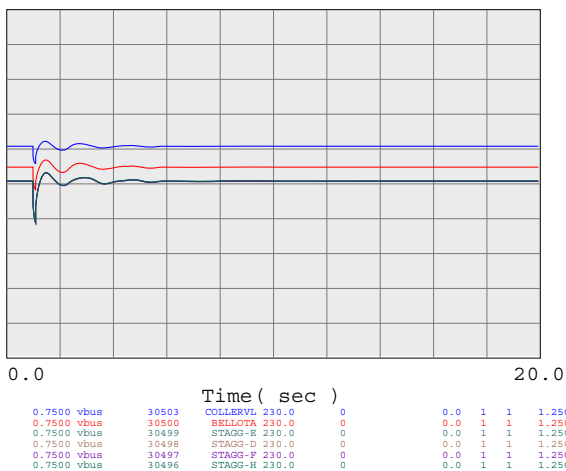
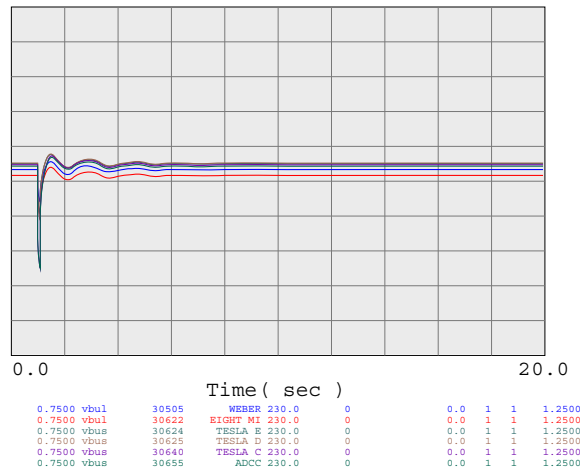
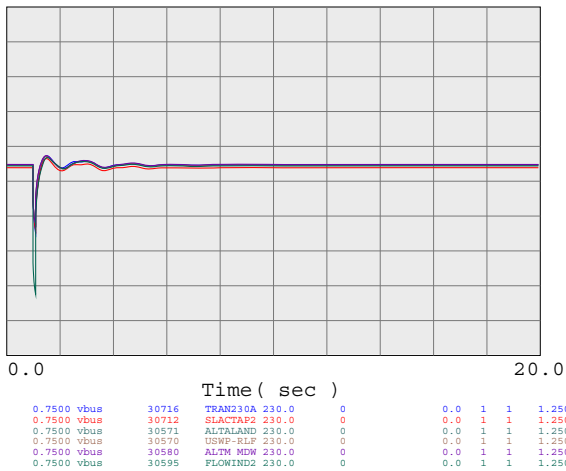
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

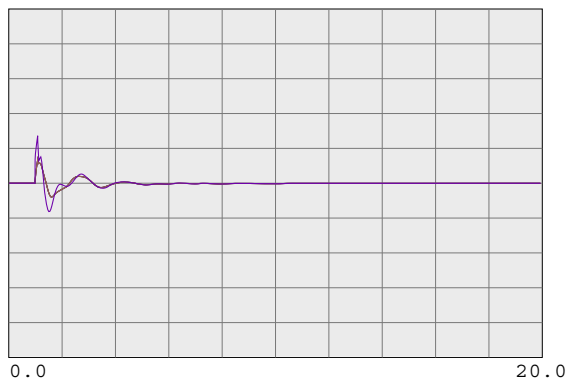
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



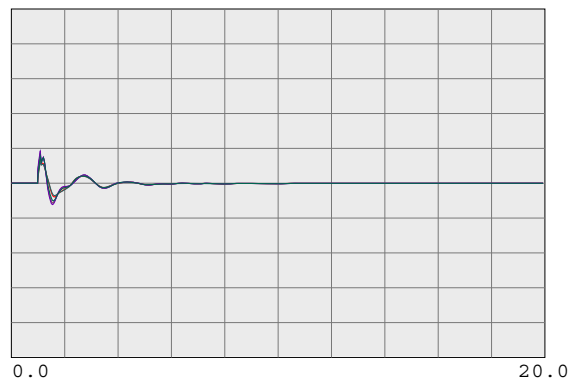
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

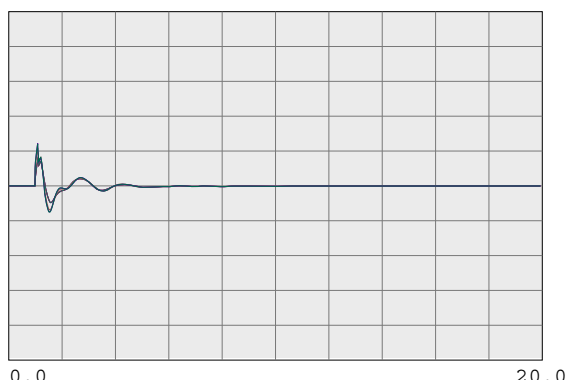
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

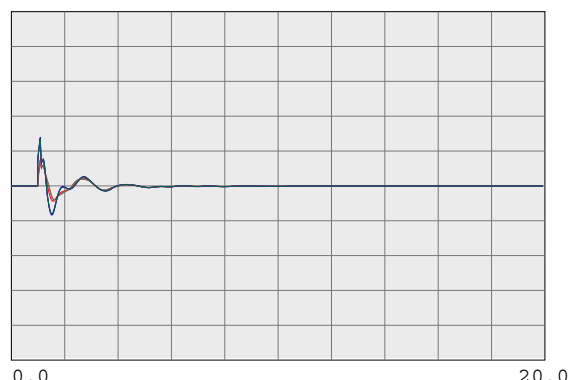
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

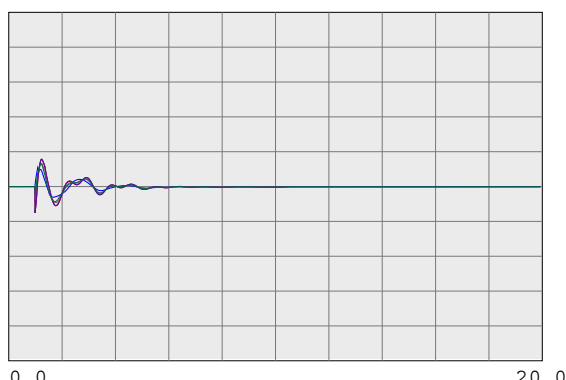
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

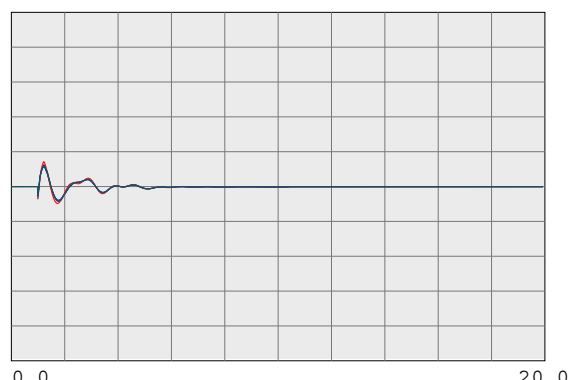
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

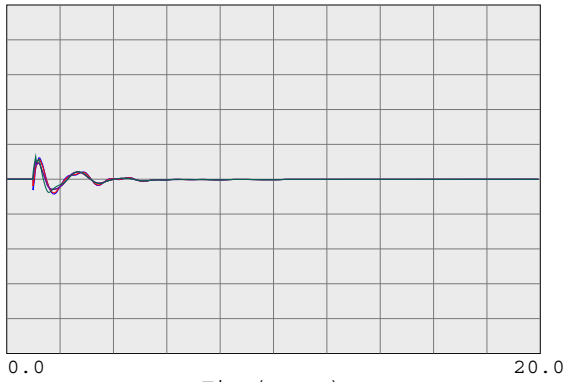
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

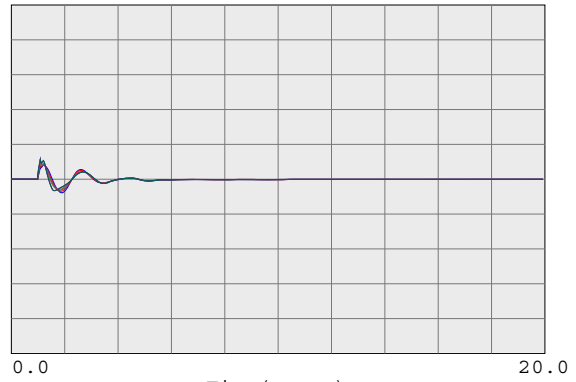
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

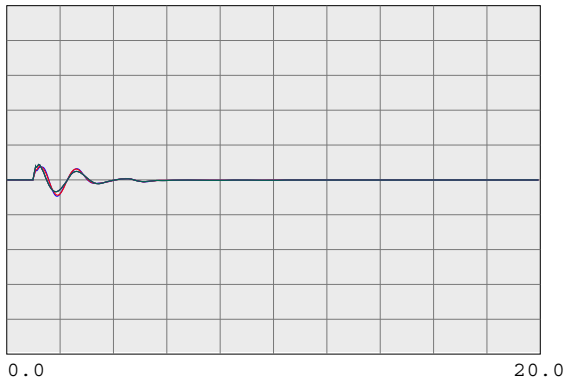
230-KV SYSTEM FREQUENCIES



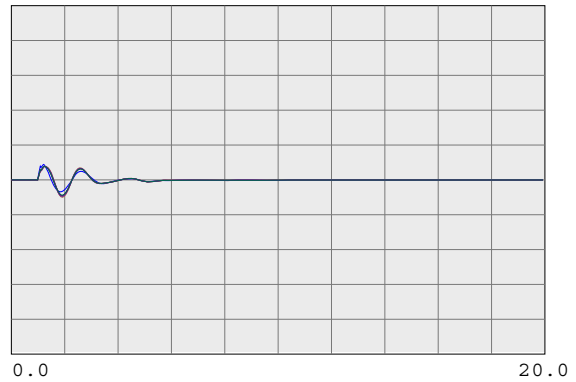
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



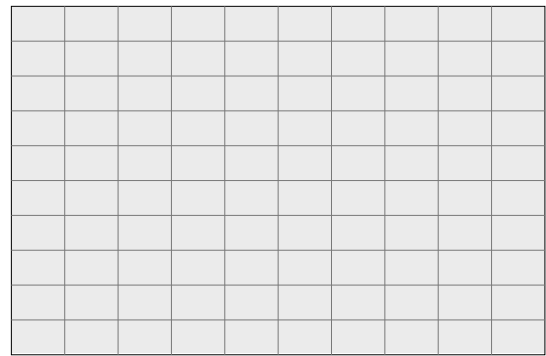
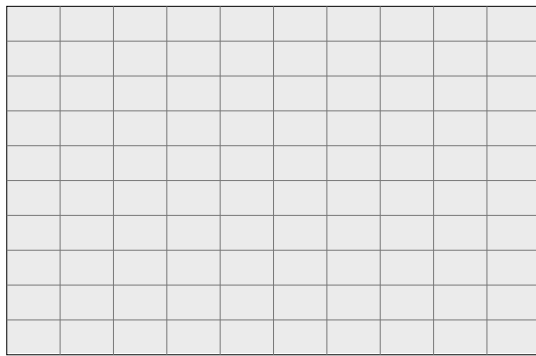
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

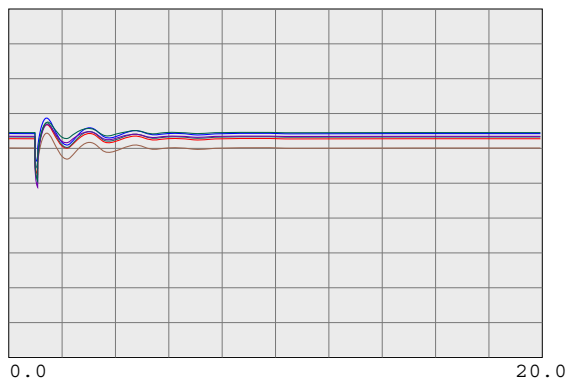


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

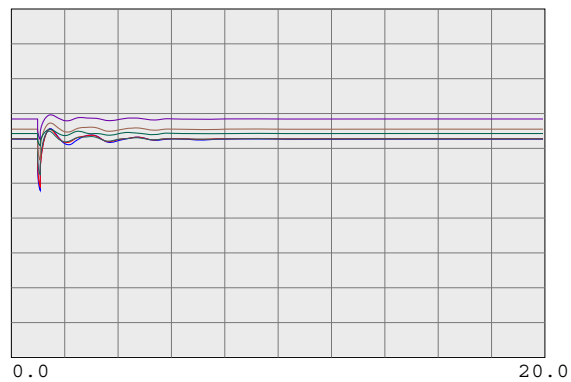


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

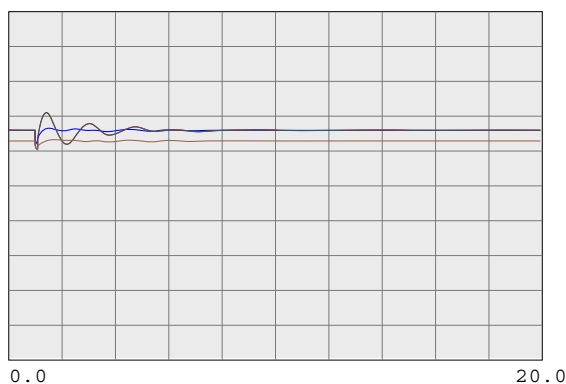
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



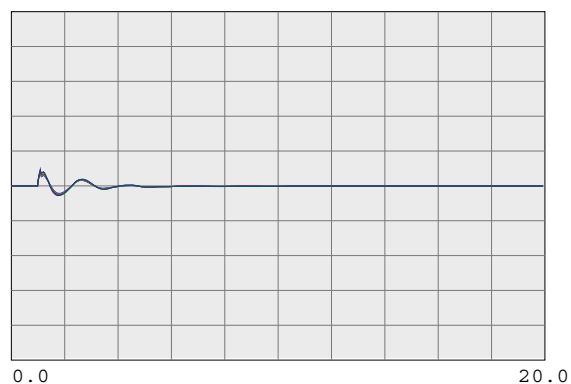
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



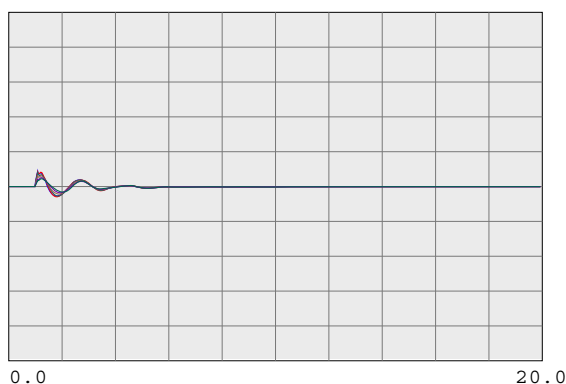
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



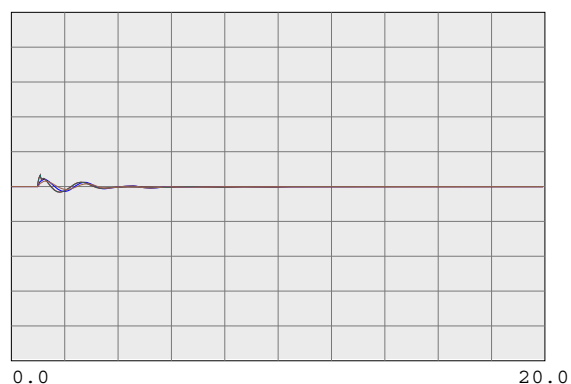
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

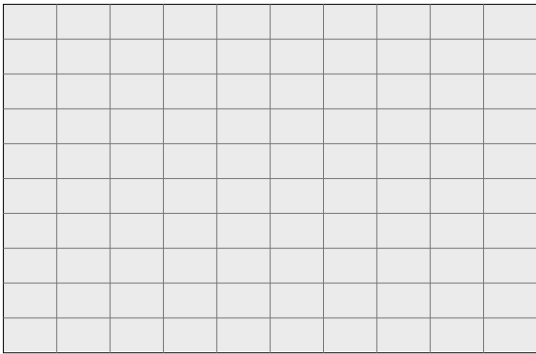
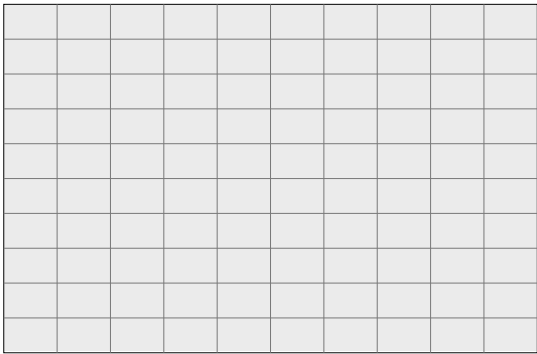
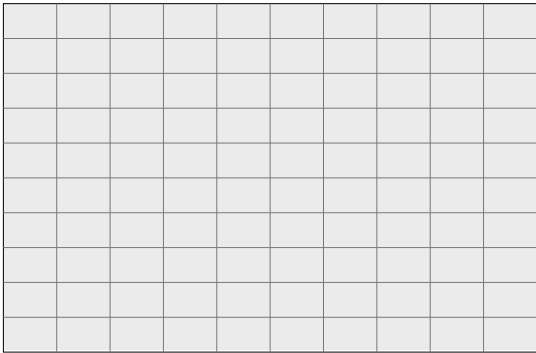
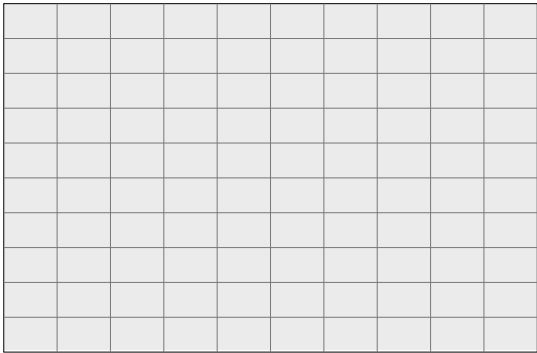
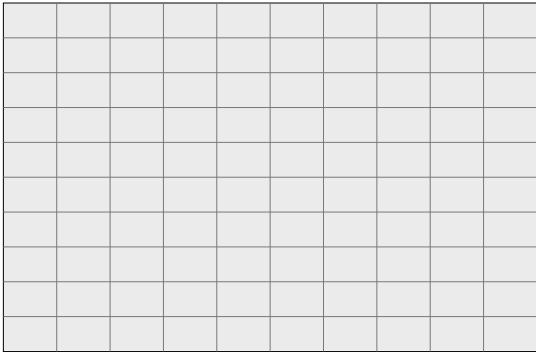
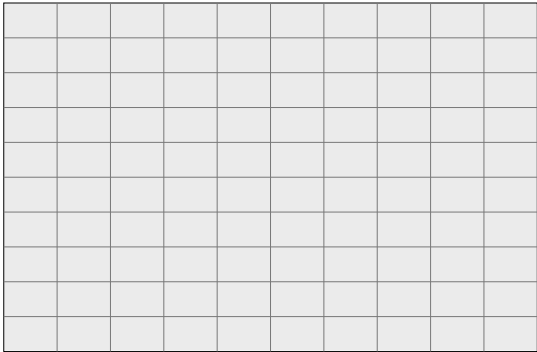
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

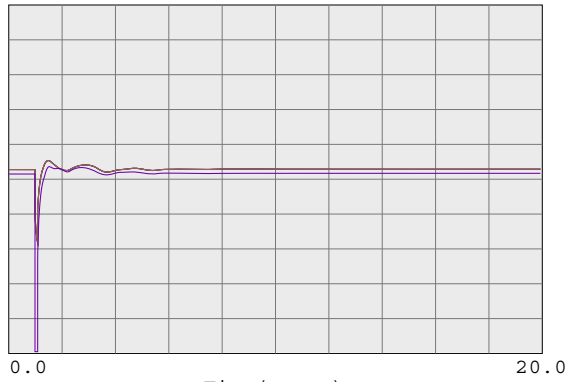
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



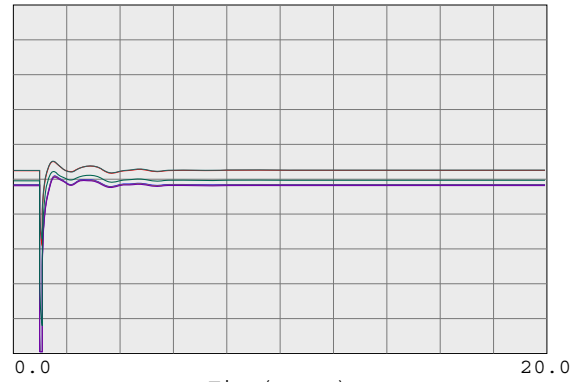
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



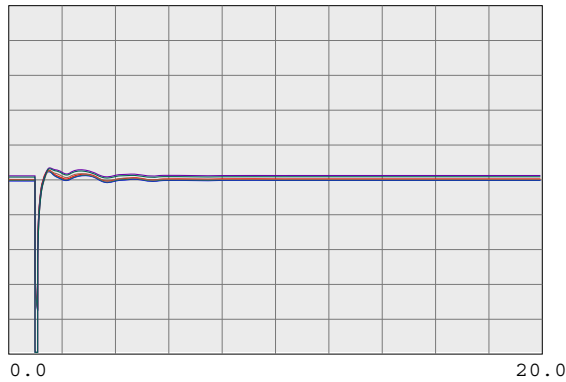
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



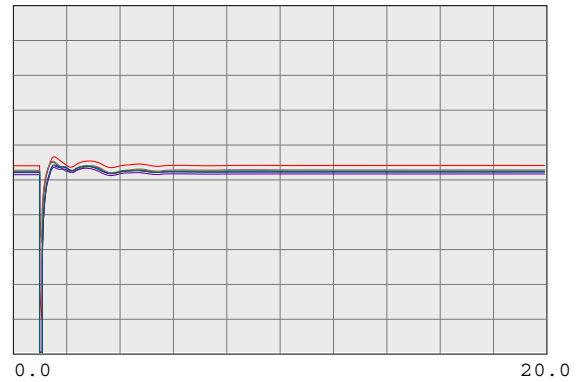
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



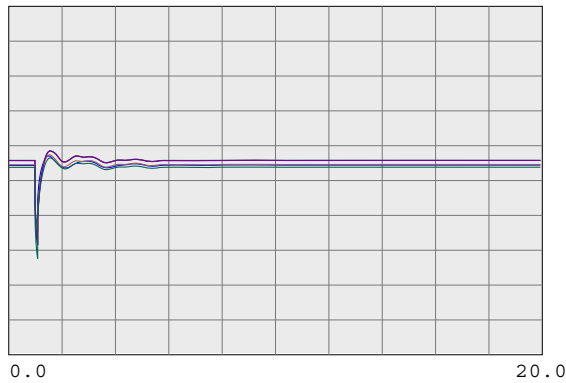
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



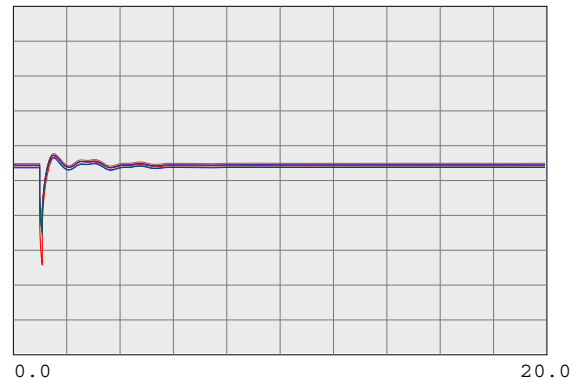
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

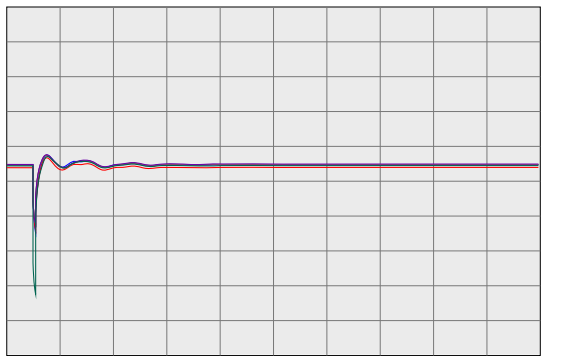
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

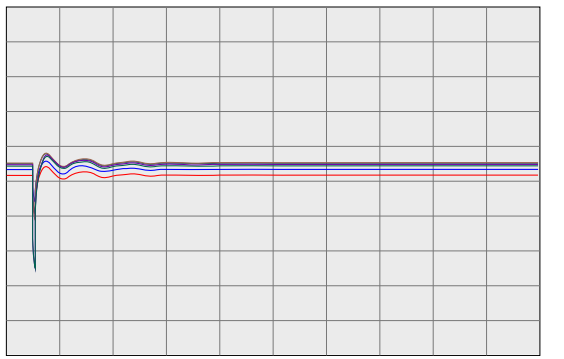
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

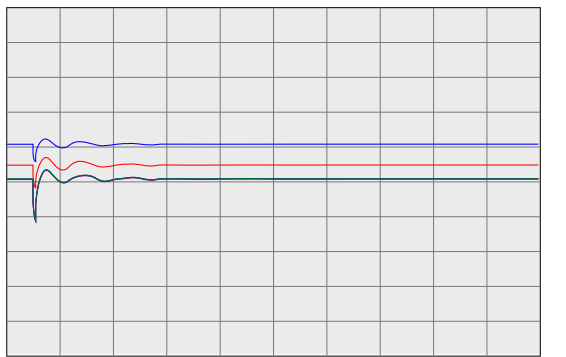
230-KV SYSTEM VOLTAGES



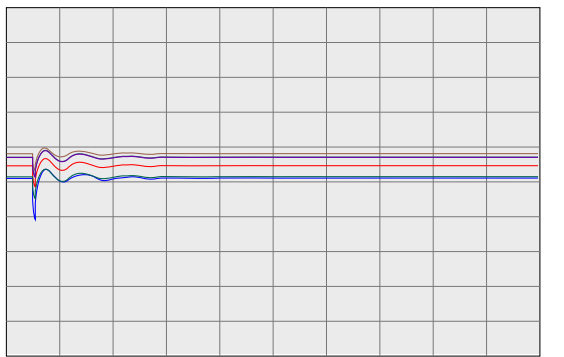
0.0 20.0
Time(sec)
0.7500 vbus 30716 TRAN230A 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30712 SLACTAP2 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30571 ALTALAND 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30570 USWP-RLF 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30580 ALTM MDW 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30595 FLOWIND2 230.0 0 0.0 1 1 1.2500



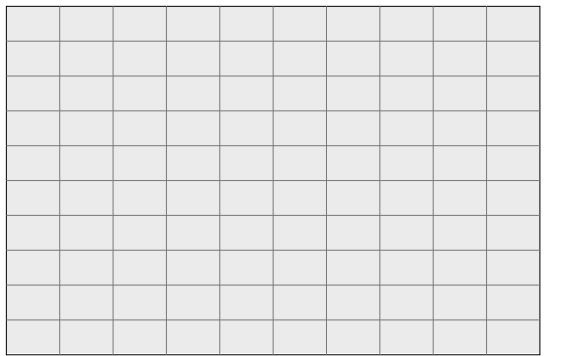
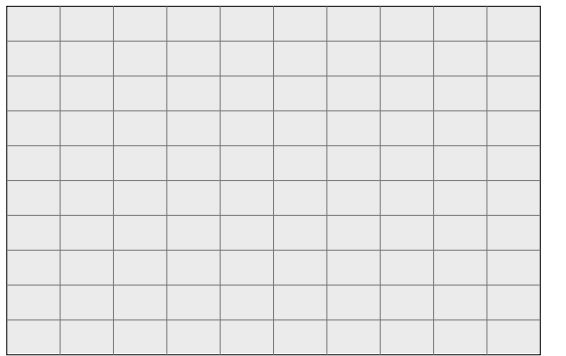
0.0 20.0
Time(sec)
0.7500 vbus 30505 WEBER 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30622 RIGHT MI 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30624 TESLA E 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30625 TESLA D 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30640 TESLA C 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30655 ADCC 230.0 0 0.0 1 1 1.2500



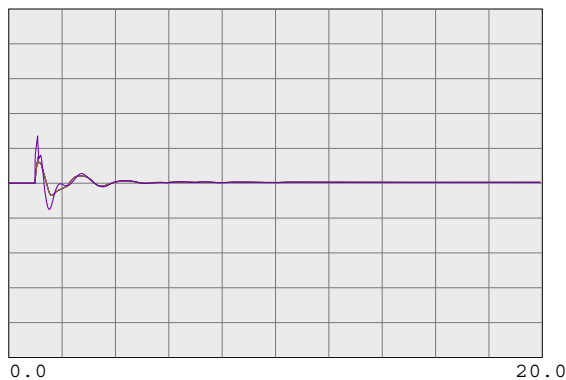
0.0 20.0
Time(sec)
0.7500 vbus 30503 COLLERVL 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30500 BELLOTA 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30499 STAGG-E 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30498 STAGG-D 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30497 STAGG-F 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30496 STAGG-H 230.0 0 0.0 1 1 1.2500



0.0 20.0
Time(sec)
0.7500 vbus 30495 STAGS 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30490 VLLY BPS 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30487 ELECTRA 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30486 TIGR CKM 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30485 TIGR CRK 230.0 0 0.0 1 1 1.2500
0.7500 vbus 30482 LOCKFORD 230.0 0 0.0 1 1 1.2500



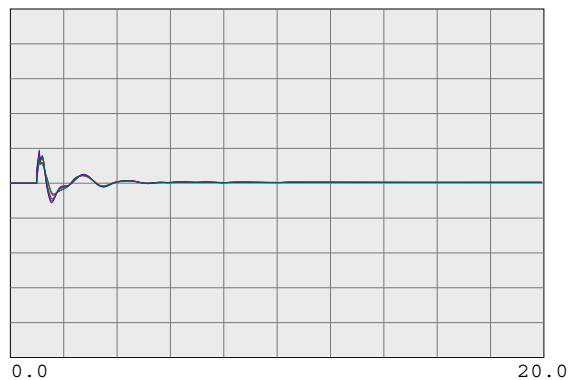
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

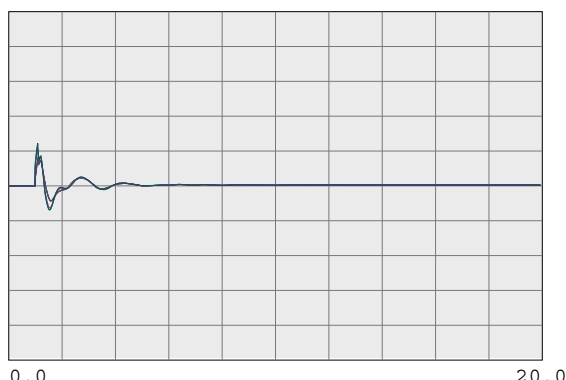
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

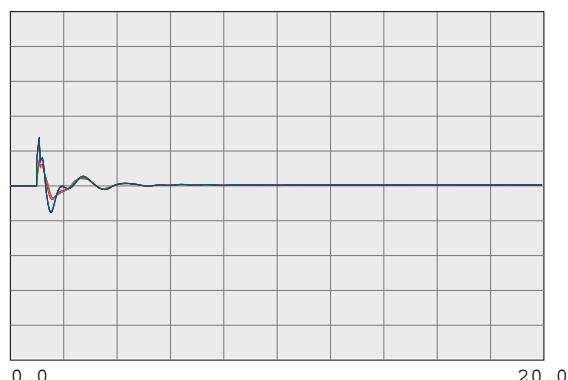
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

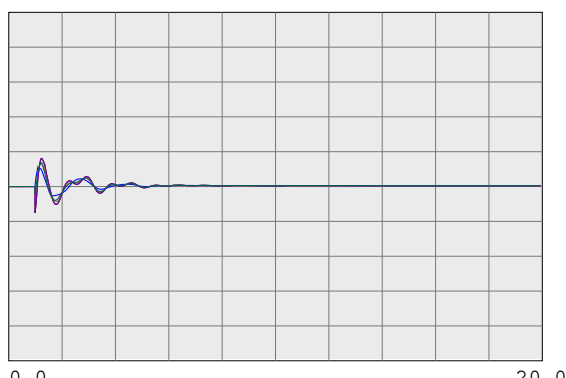
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

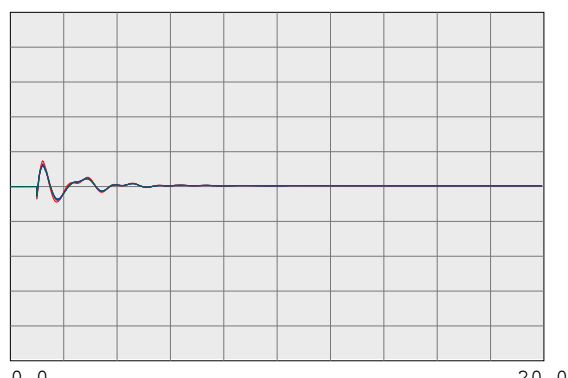
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

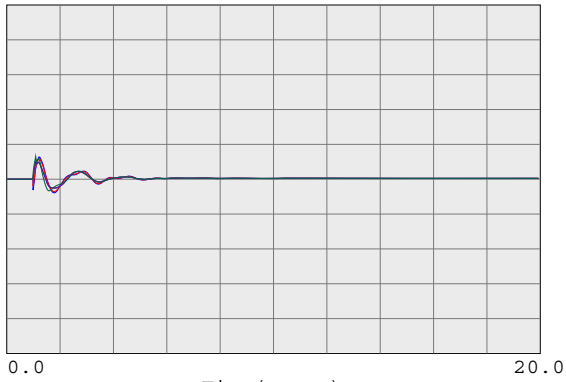
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

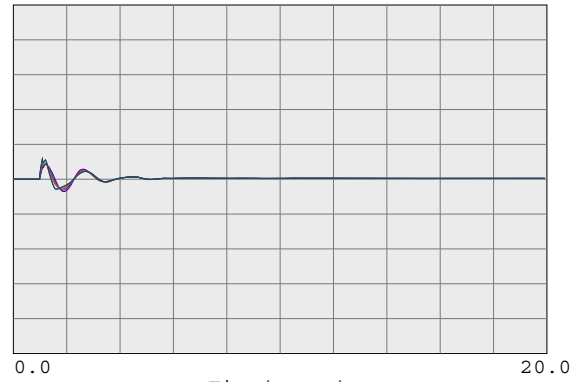
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

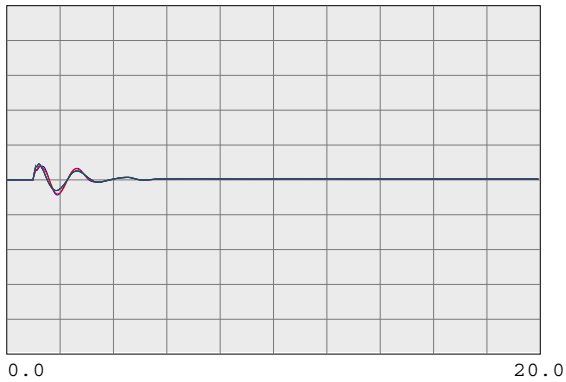
230-KV SYSTEM FREQUENCIES



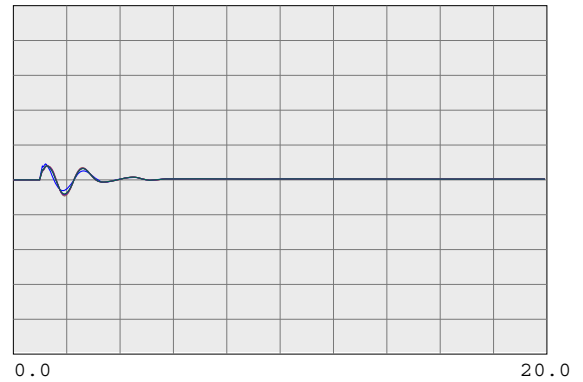
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



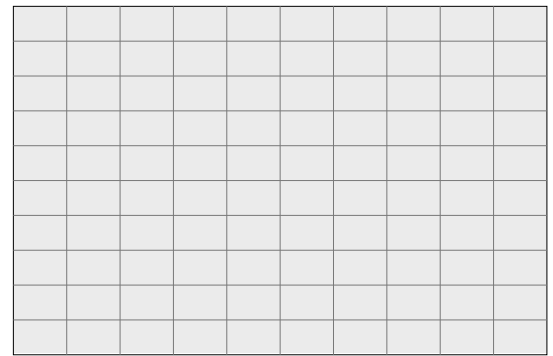
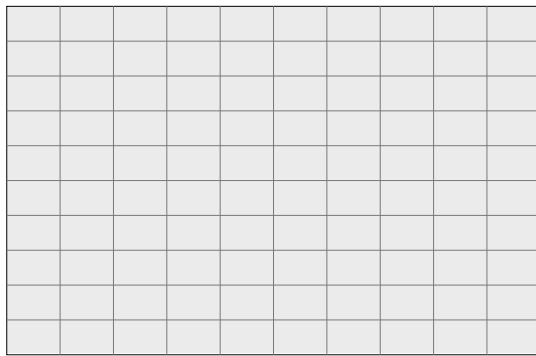
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



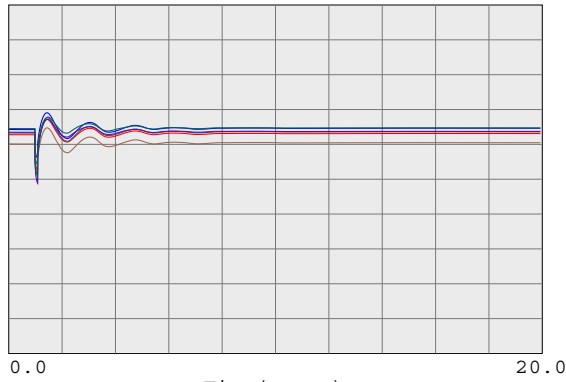
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

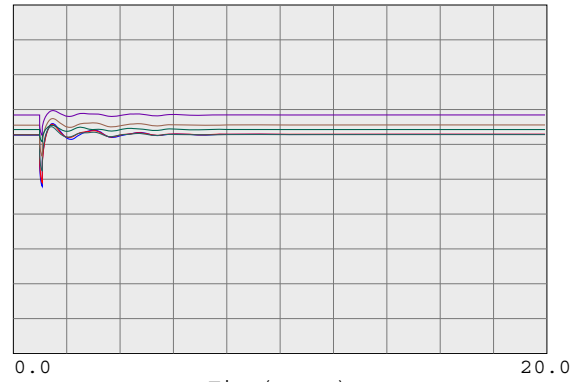


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



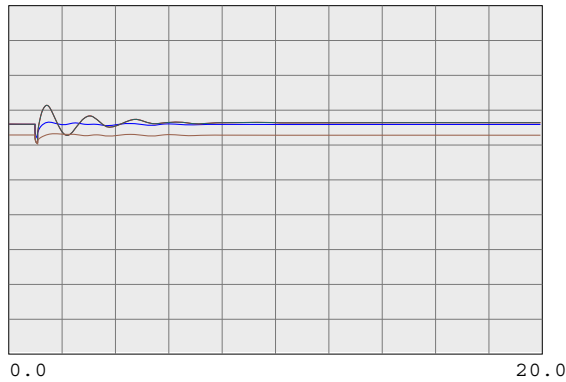
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



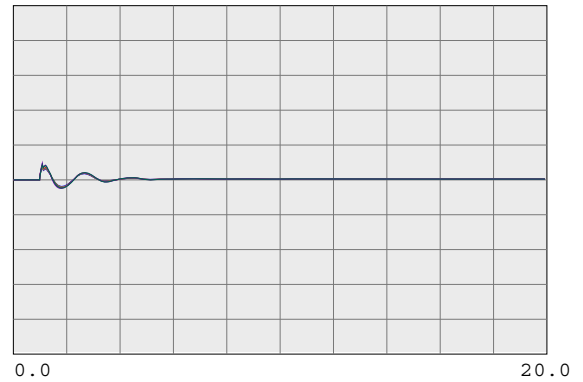
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



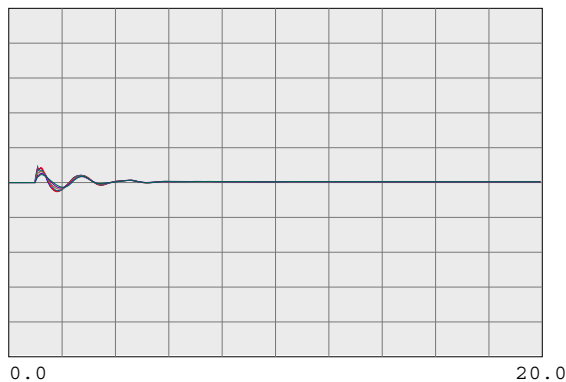
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



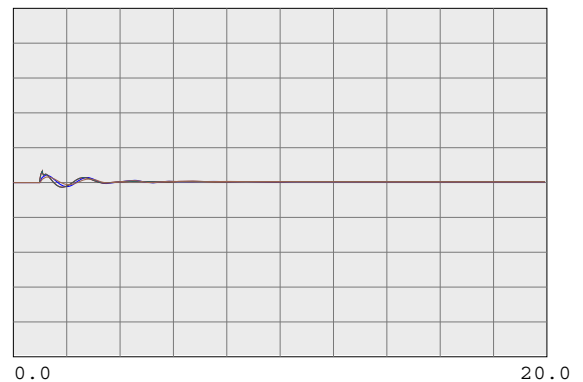
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

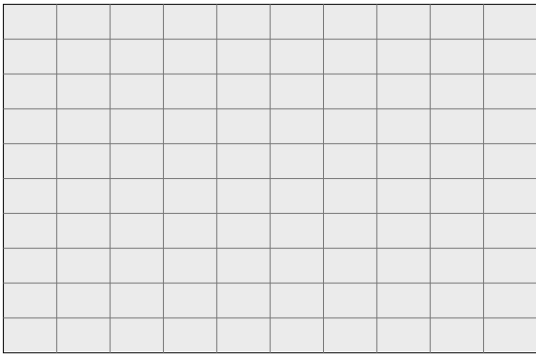
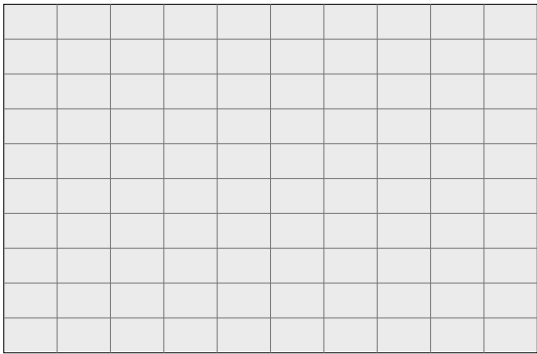
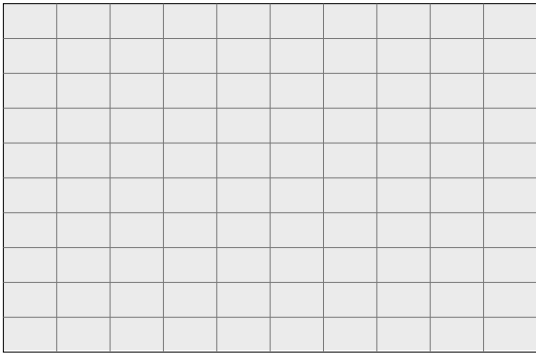
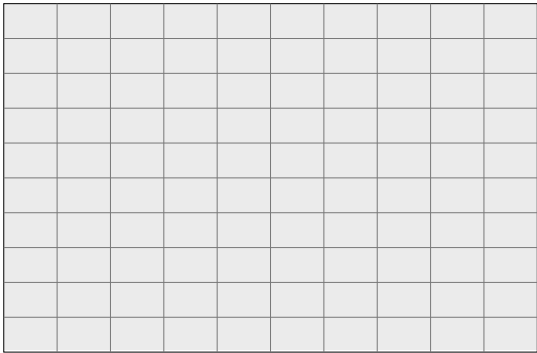
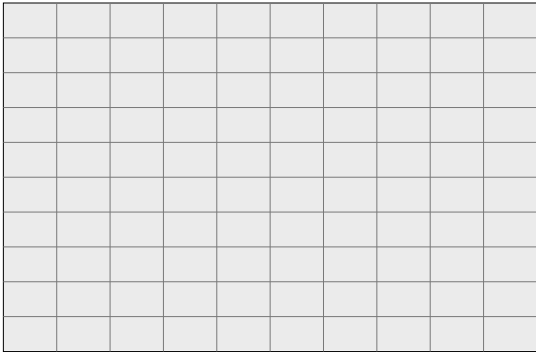
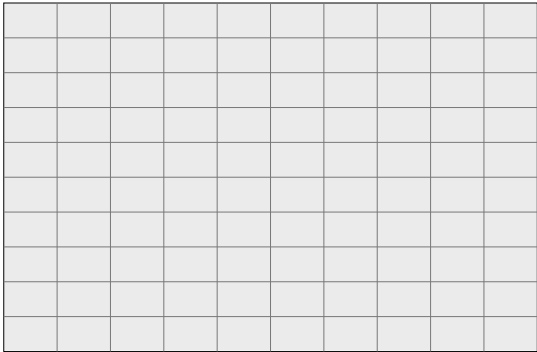
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

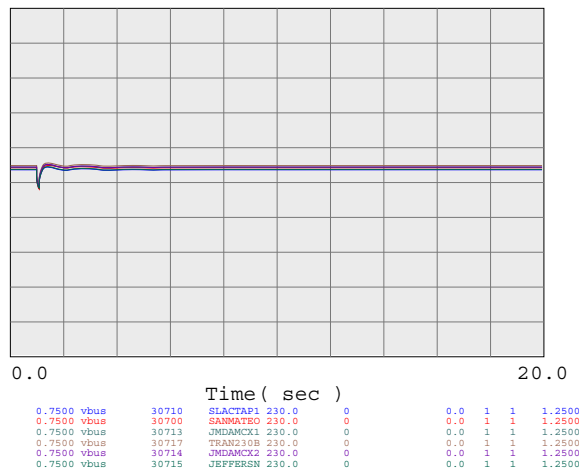
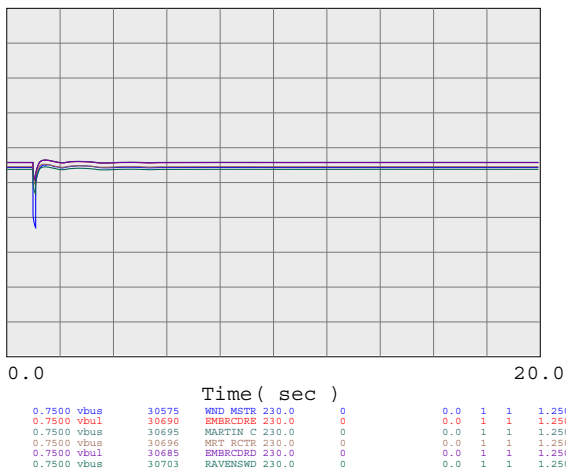
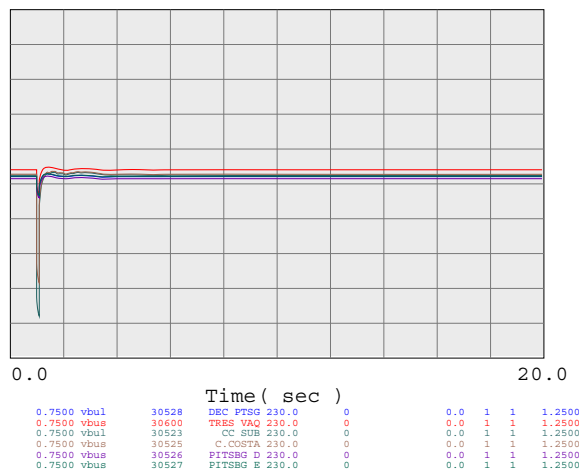
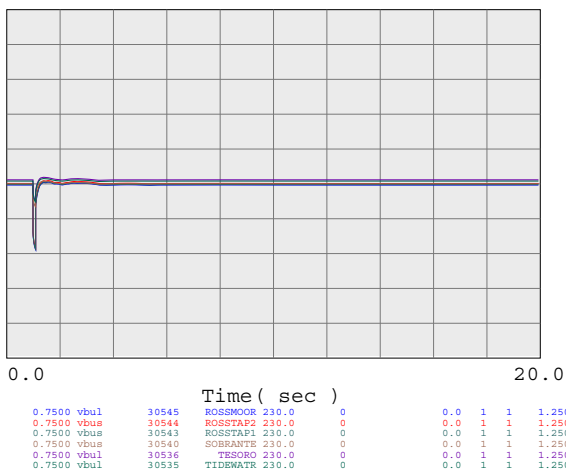
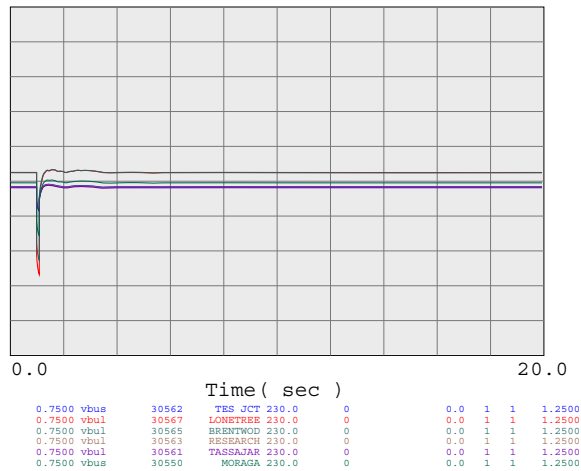
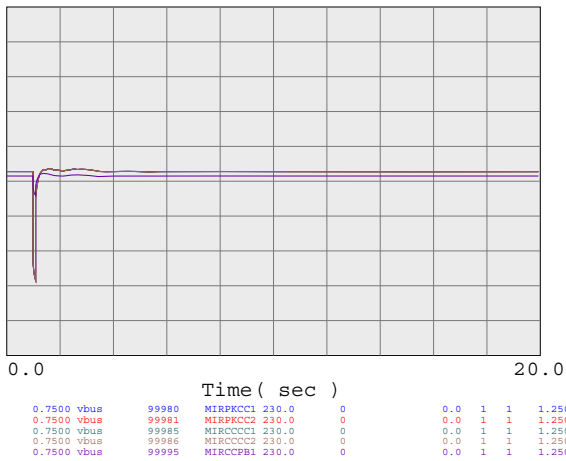
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



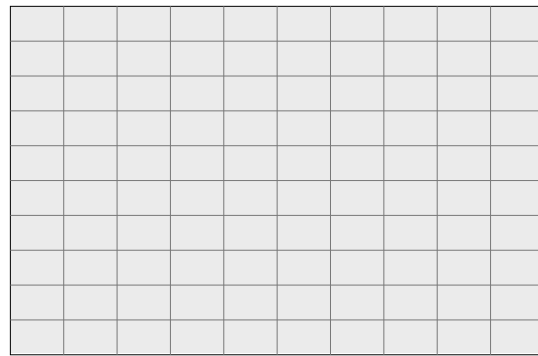
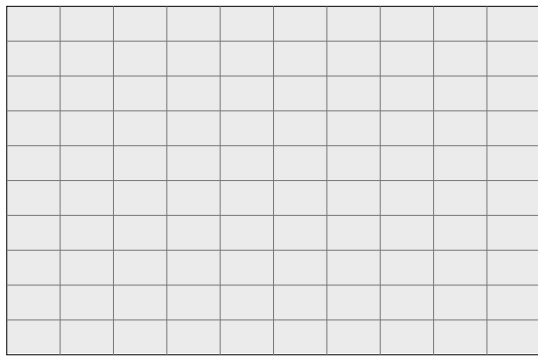
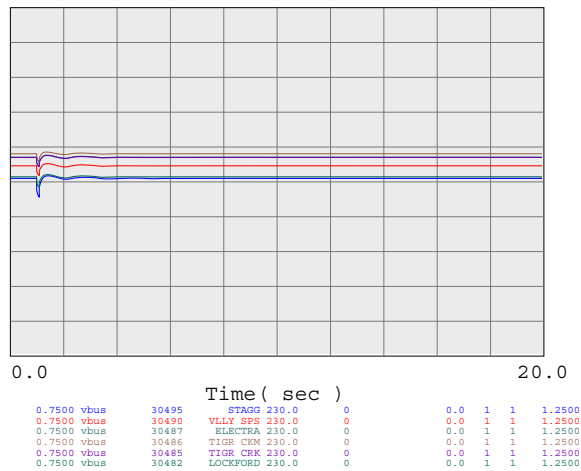
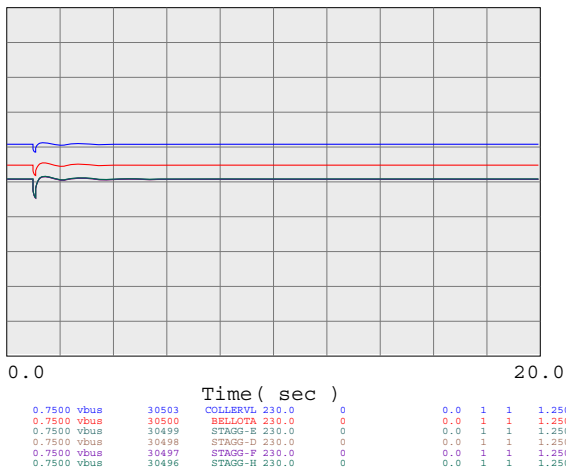
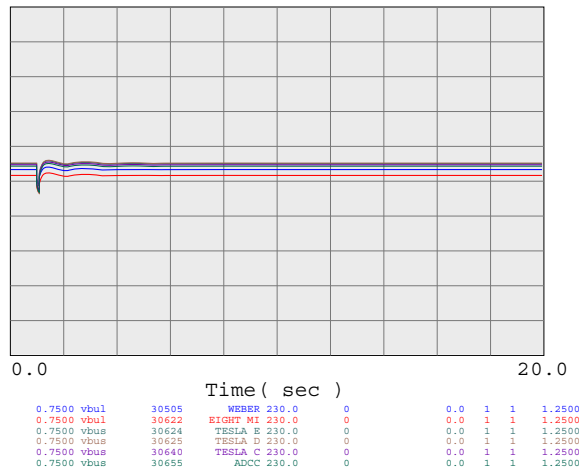
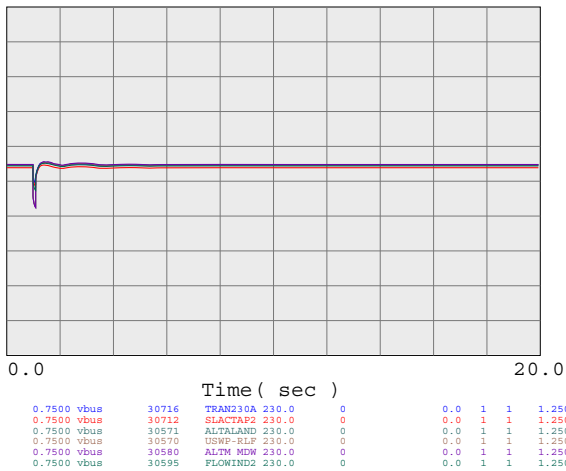
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



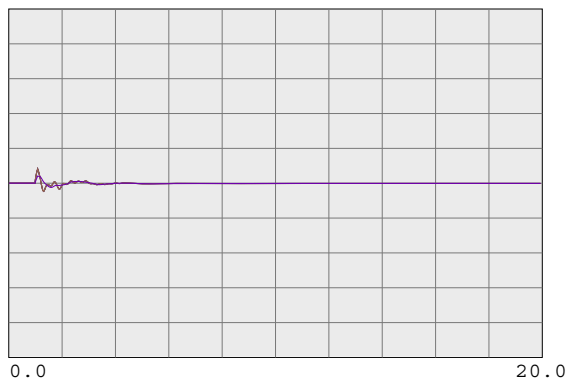
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

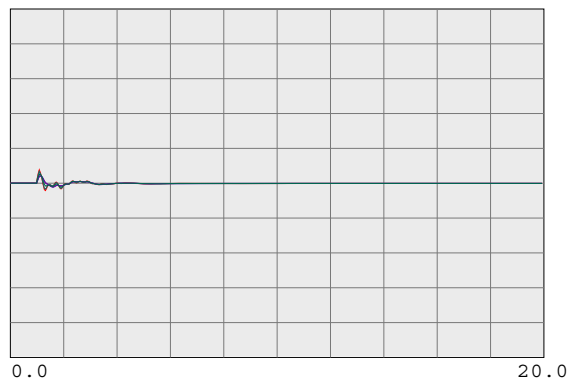
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

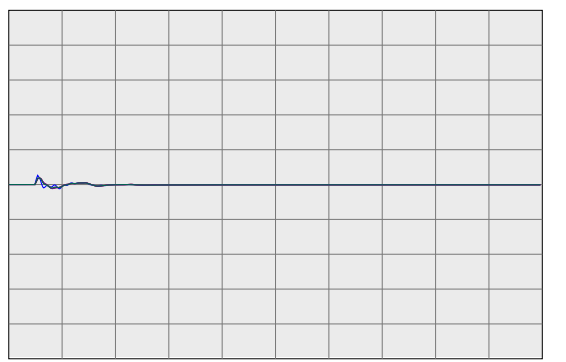
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

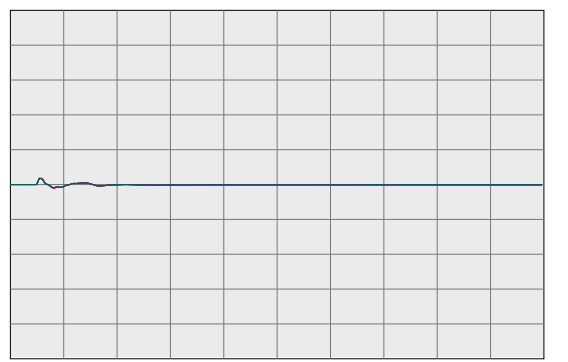
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

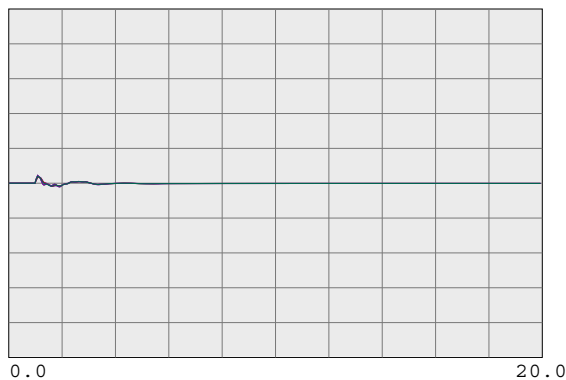
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

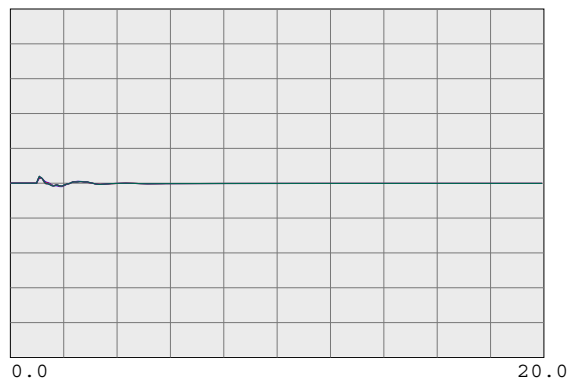
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

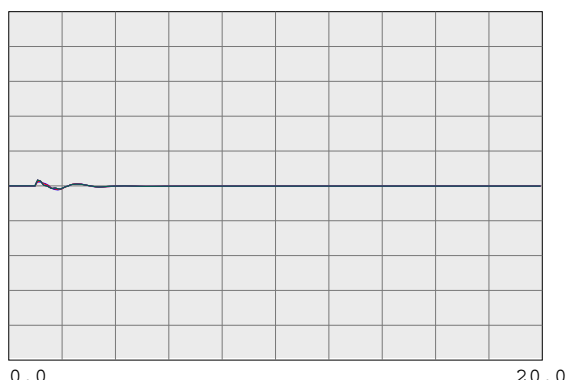
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

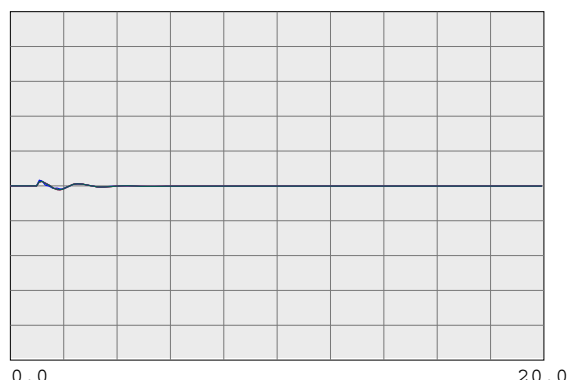
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

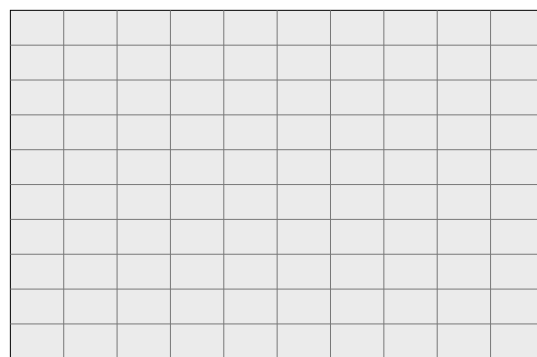
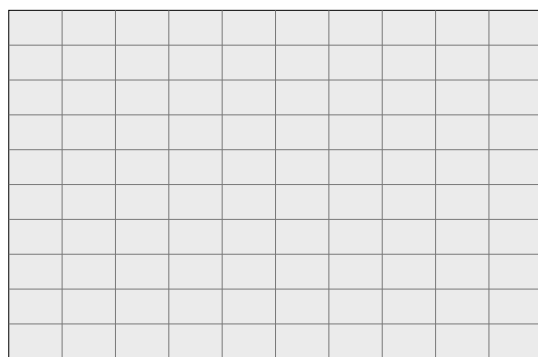
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

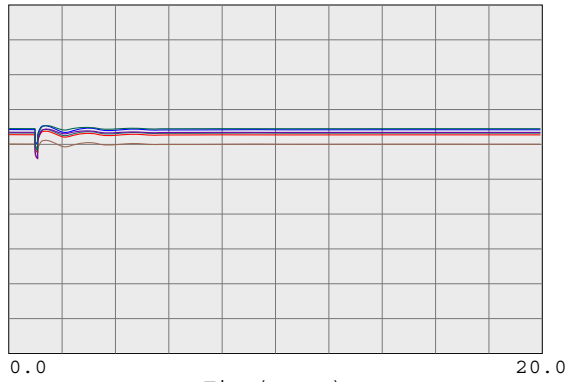
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

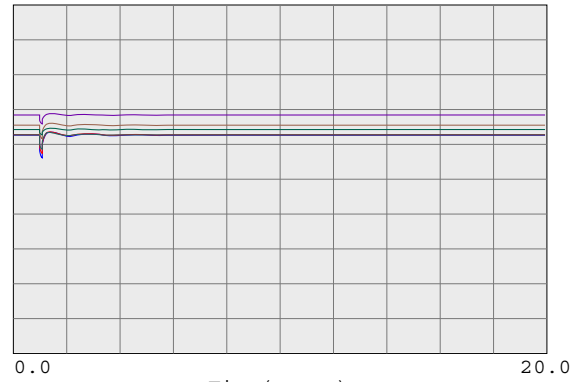
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

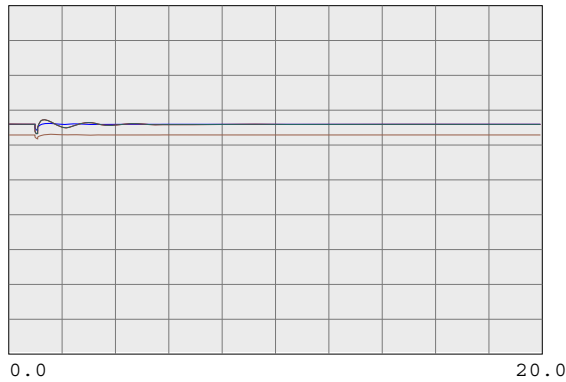
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



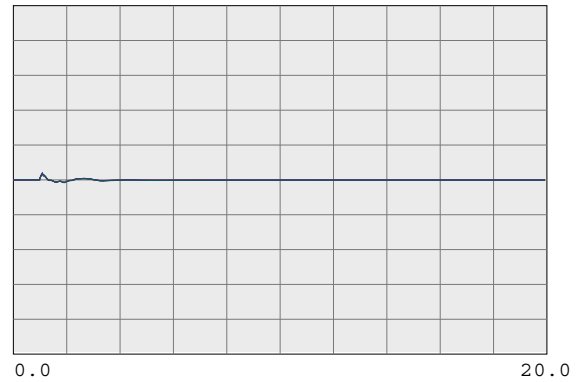
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



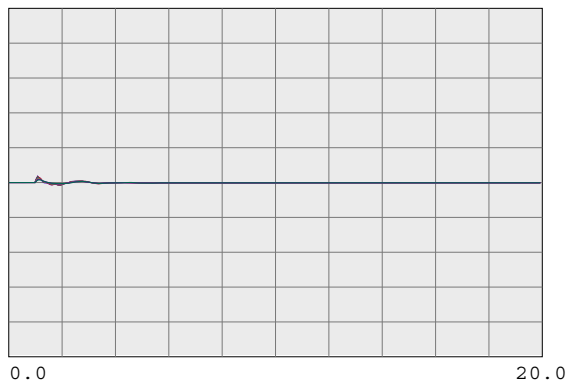
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



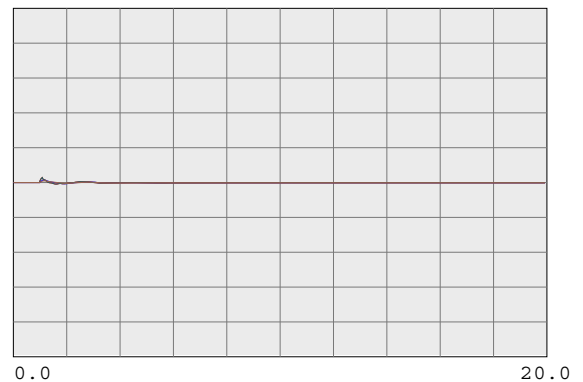
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

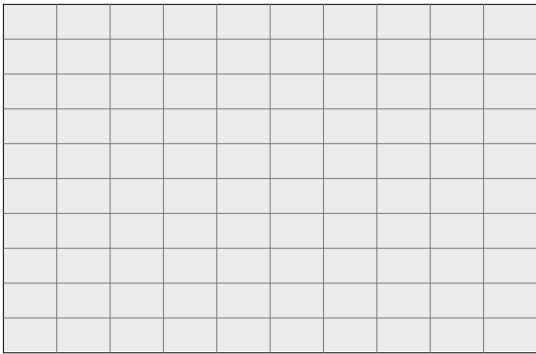
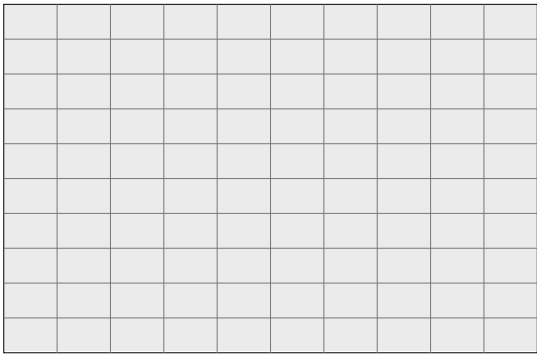
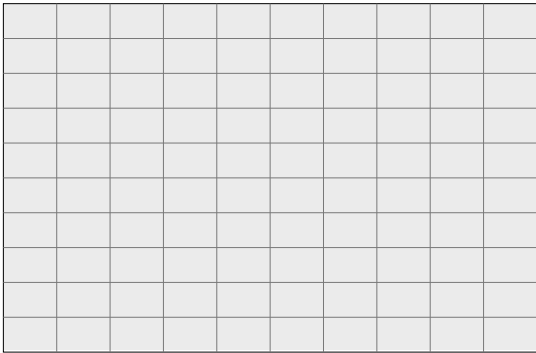
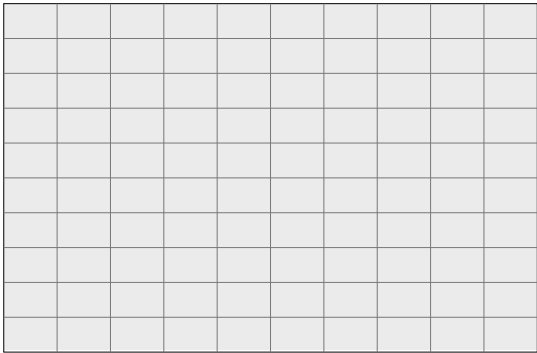
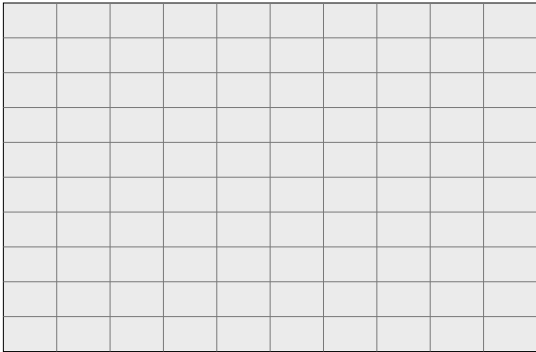
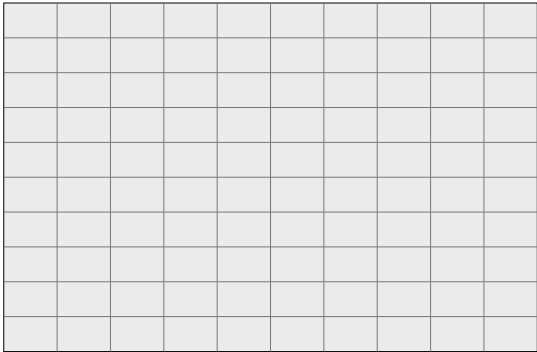
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

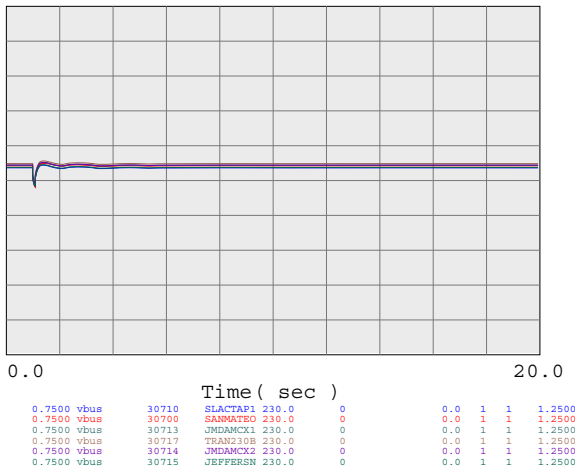
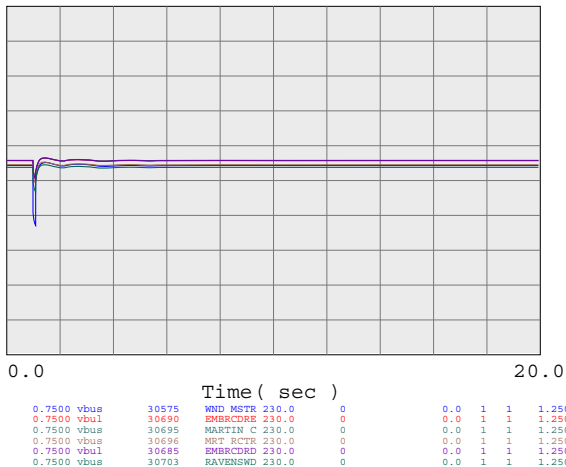
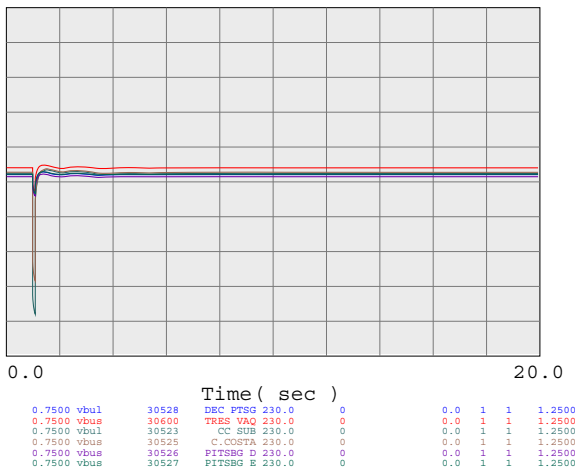
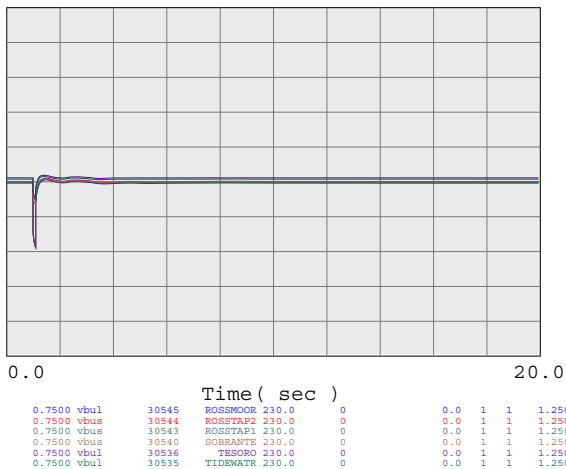
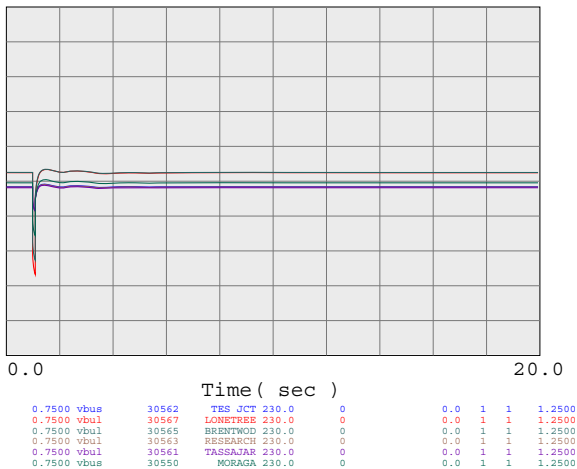
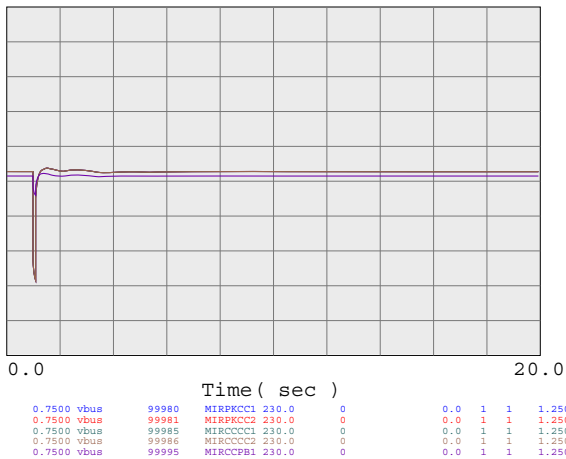
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



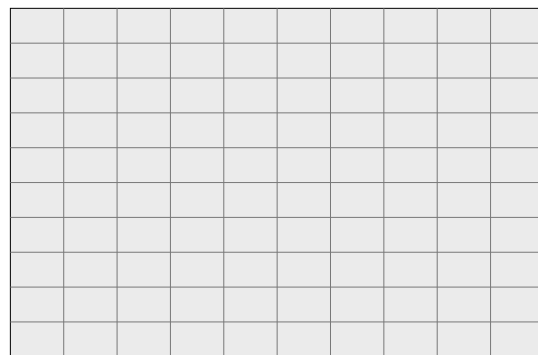
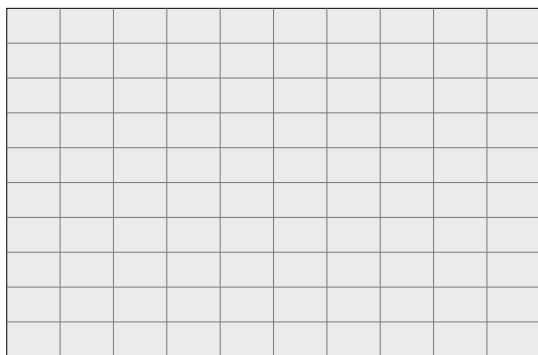
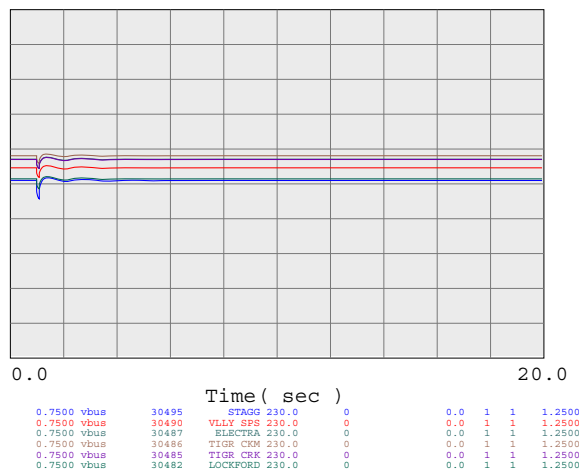
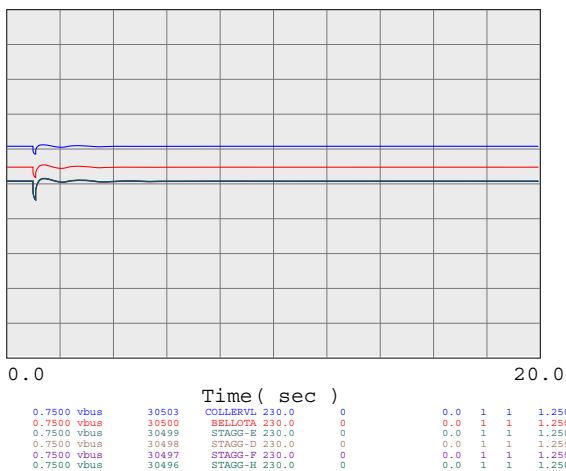
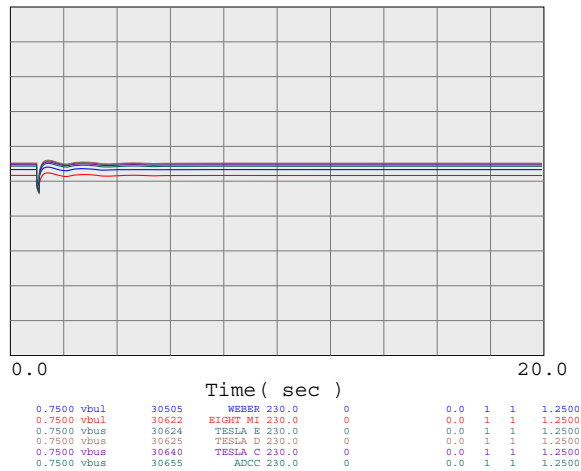
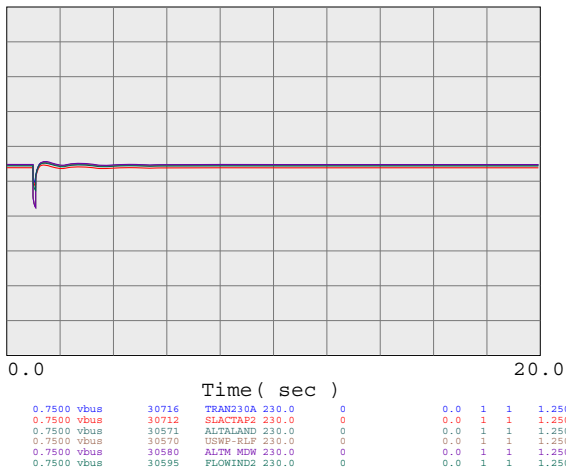
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



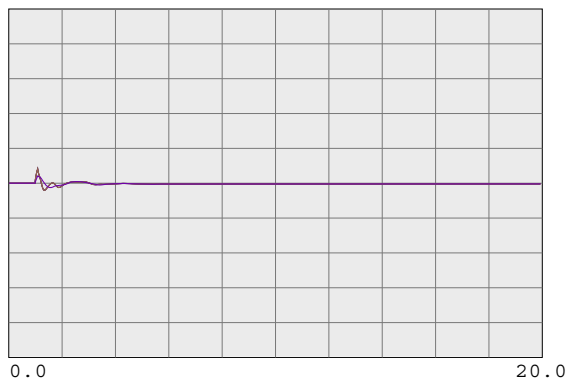
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

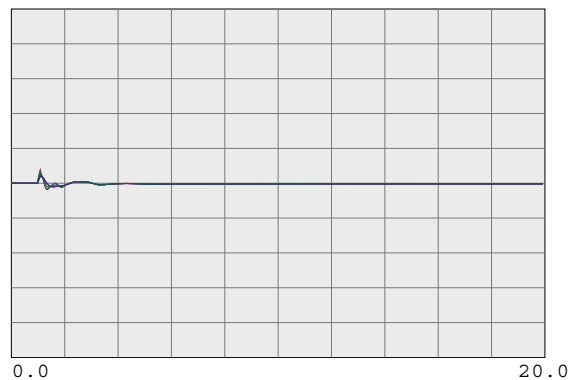
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRCCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

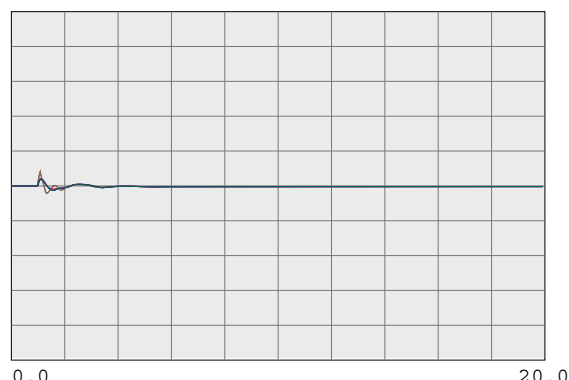
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

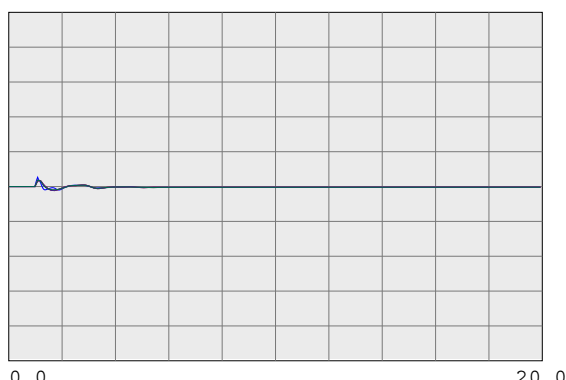
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

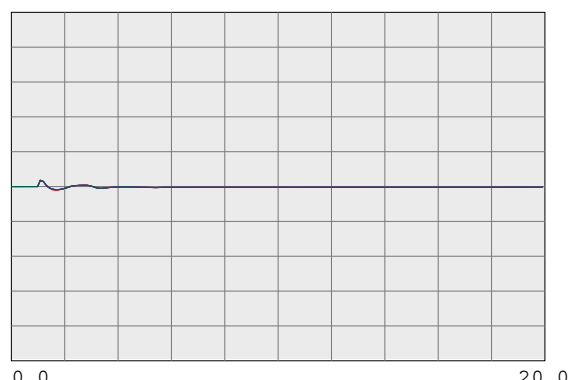
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

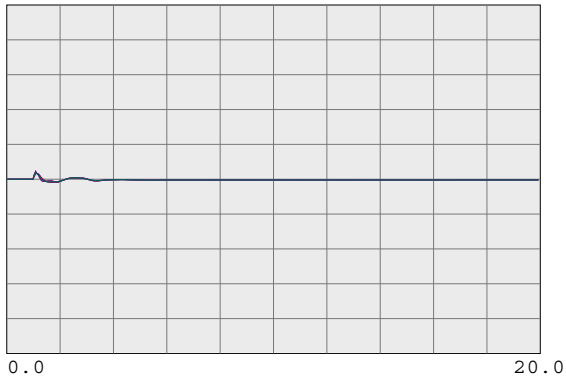
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

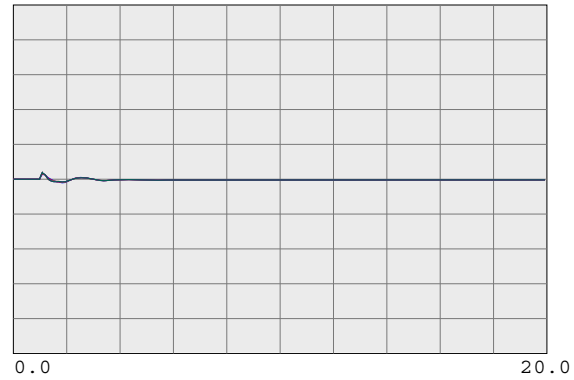
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



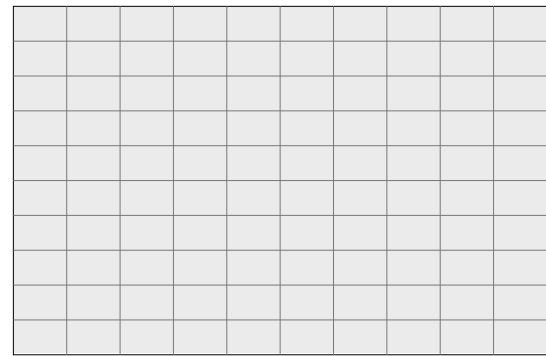
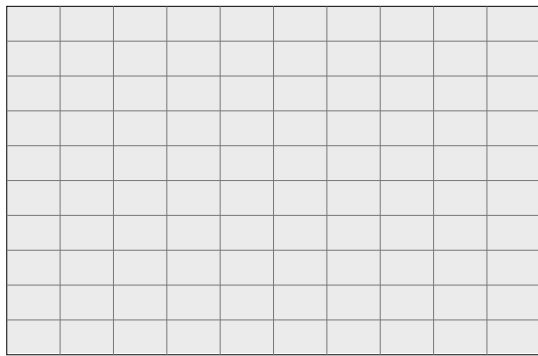
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



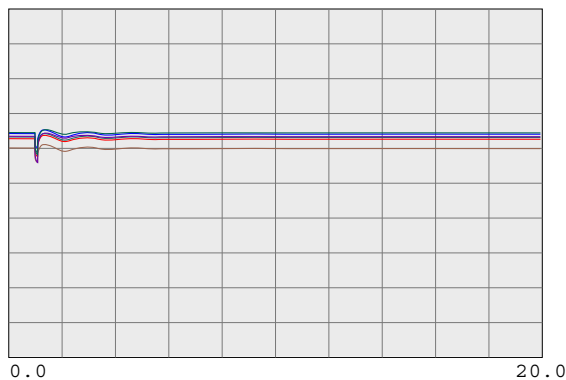
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



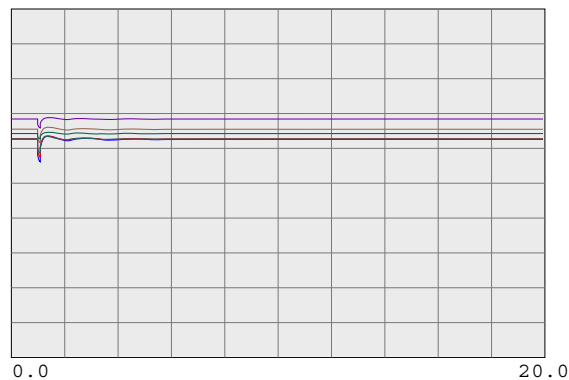
Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



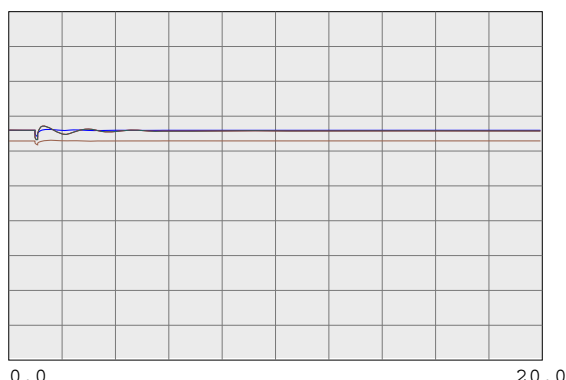
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



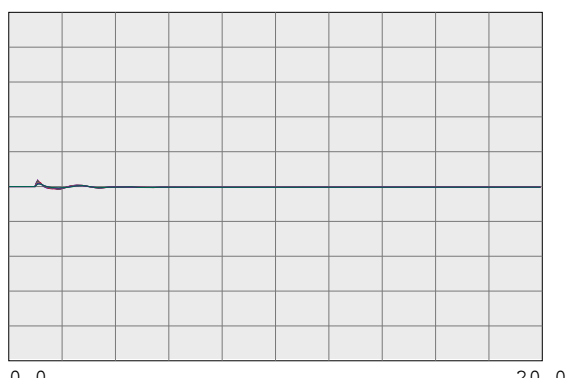
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



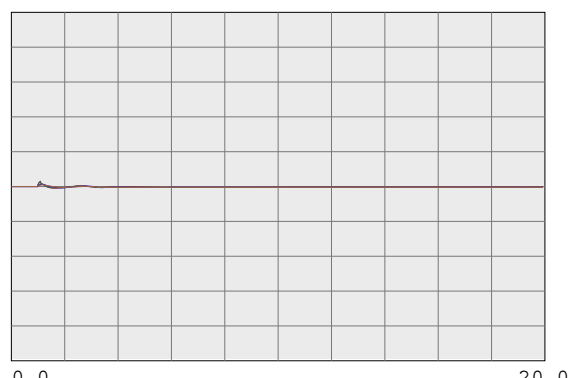
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

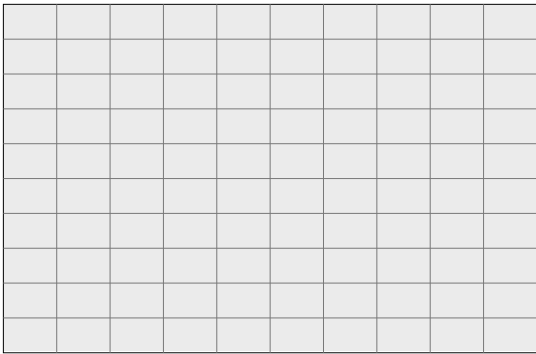
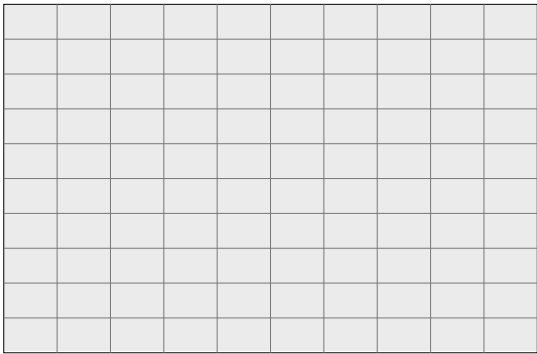
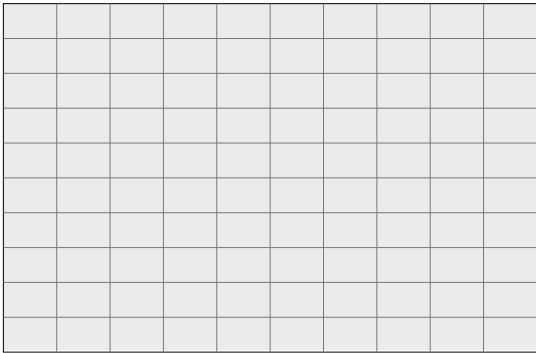
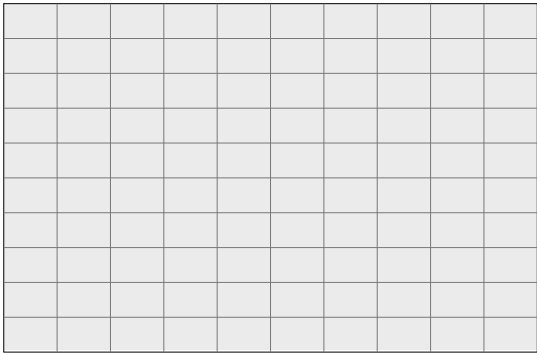
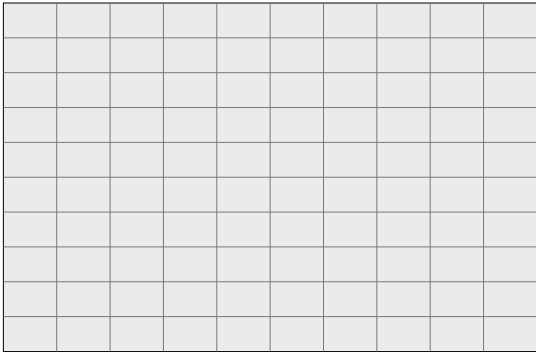
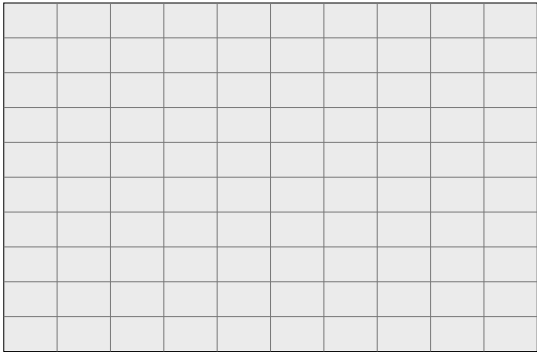
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

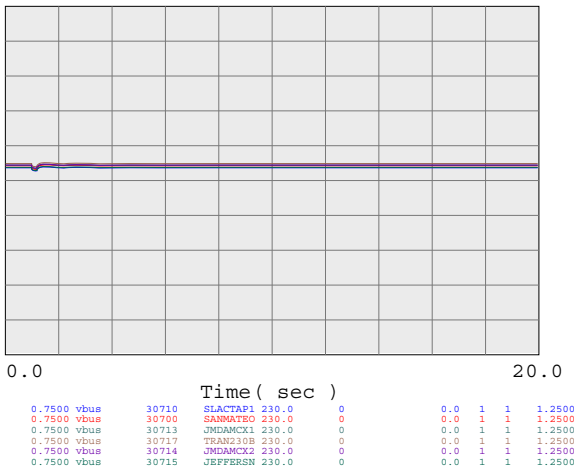
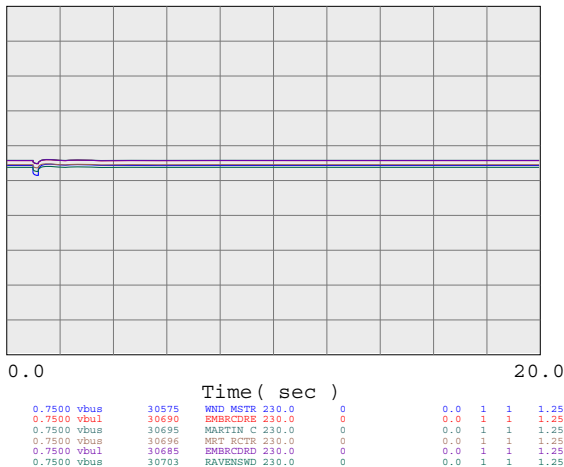
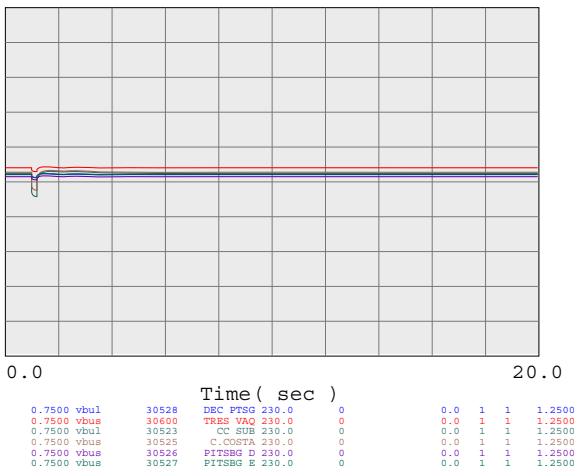
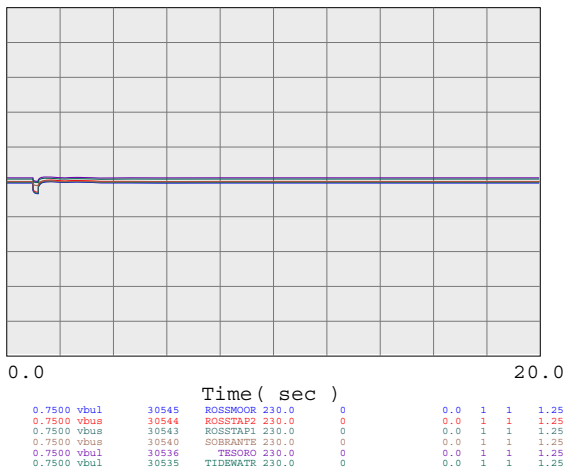
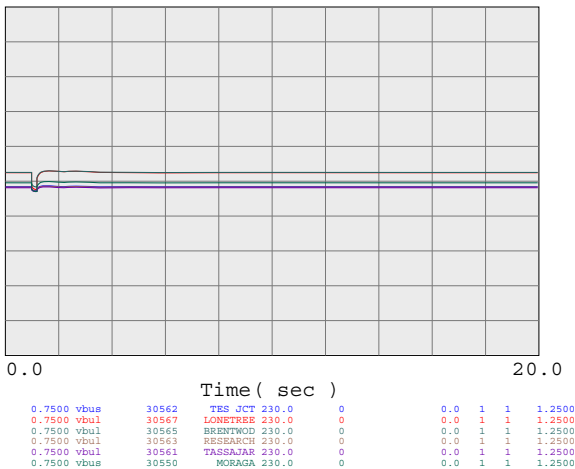
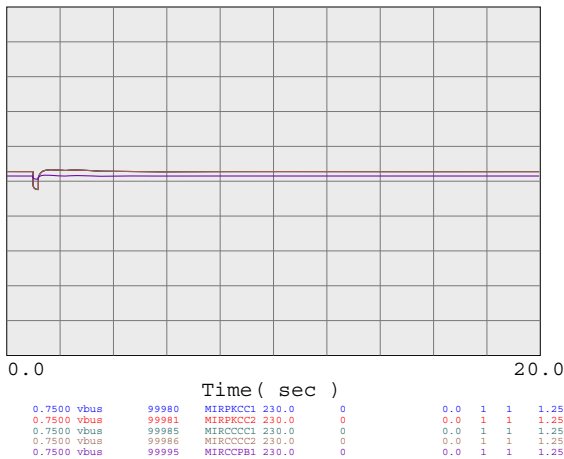
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



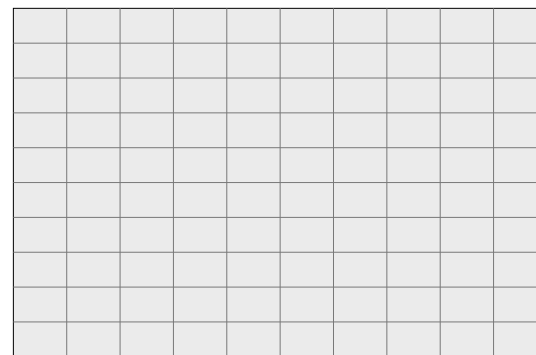
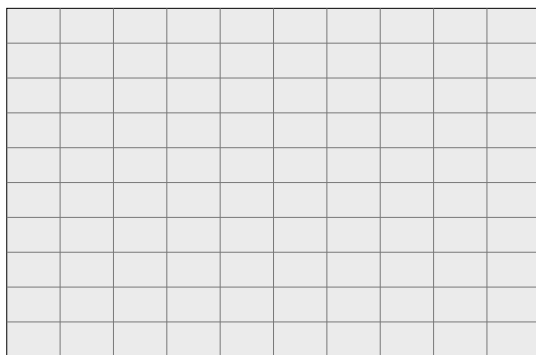
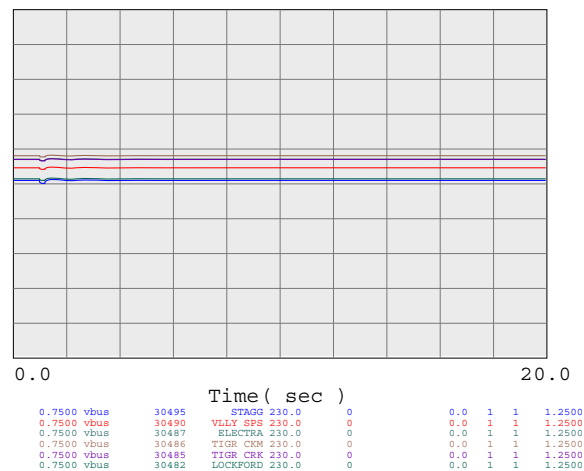
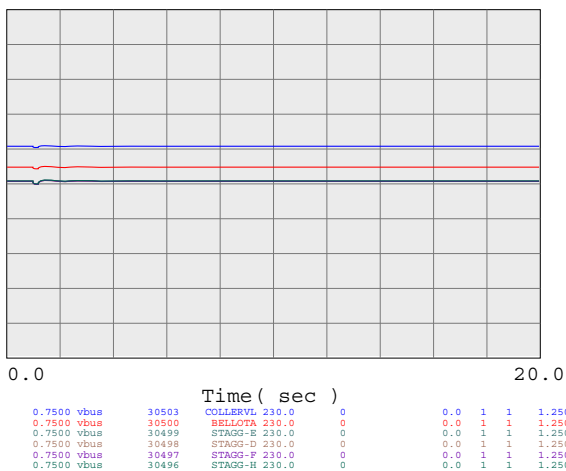
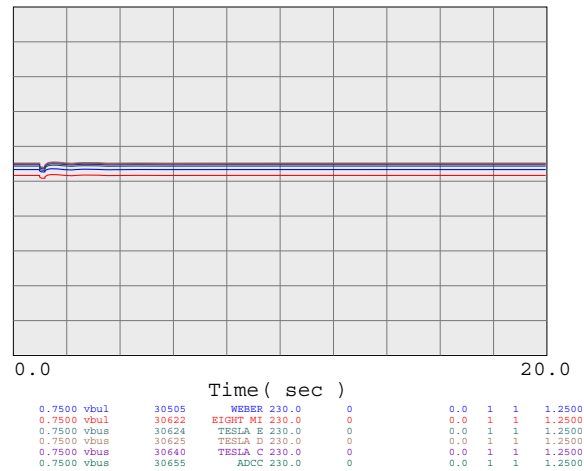
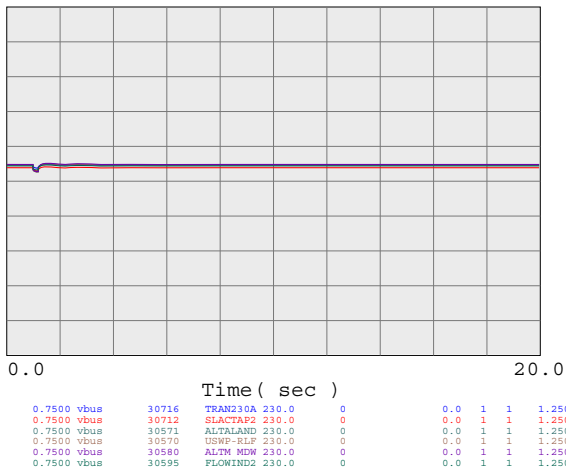
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



230-KV SYSTEM FREQUENCIES



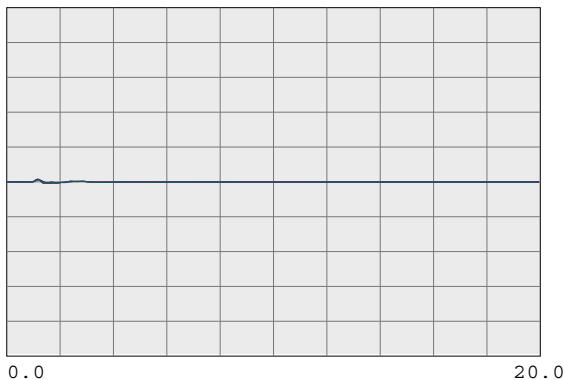
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



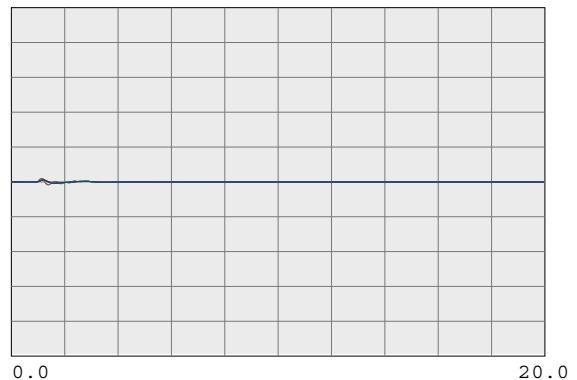
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



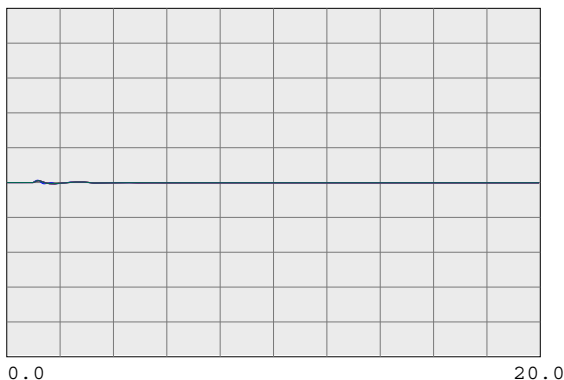
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



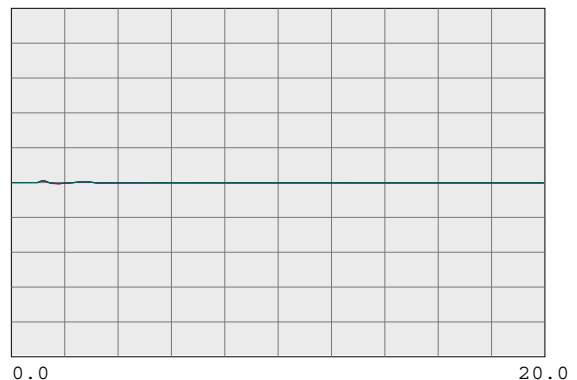
Time (sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

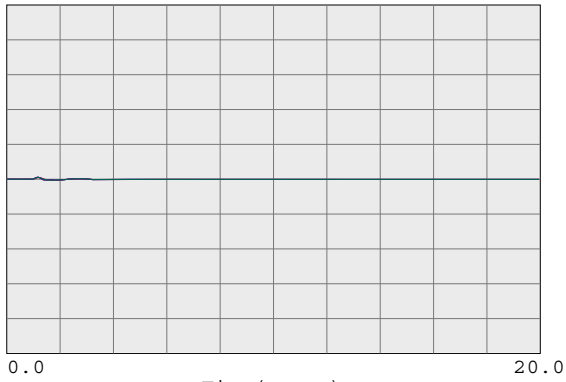
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

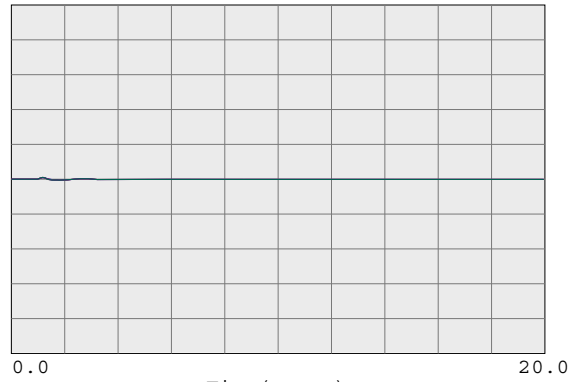
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



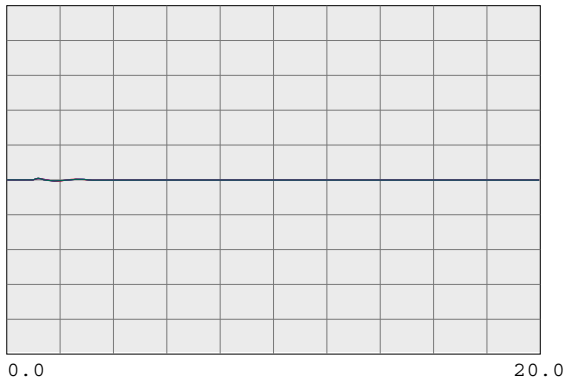
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



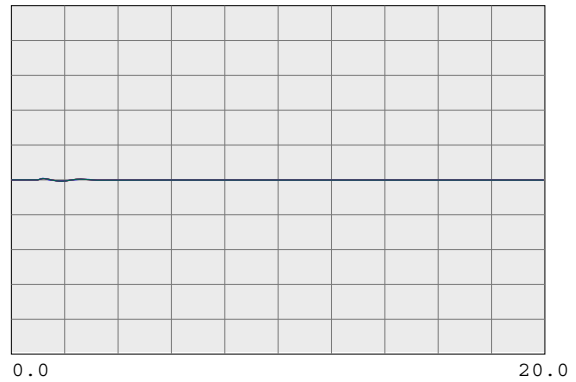
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



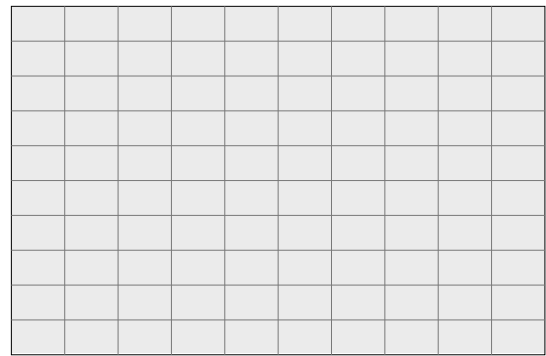
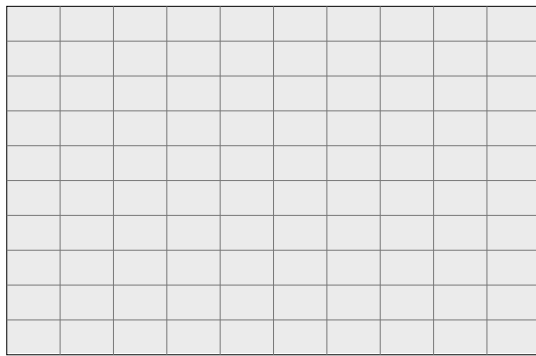
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



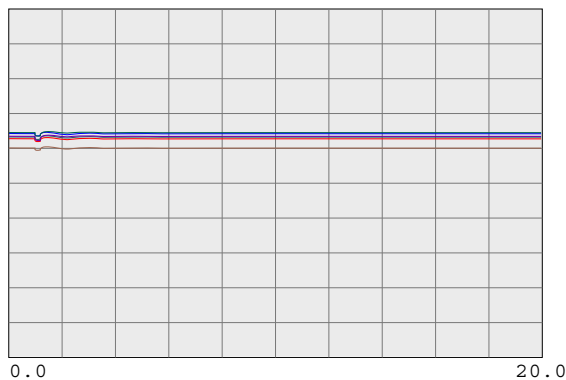
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



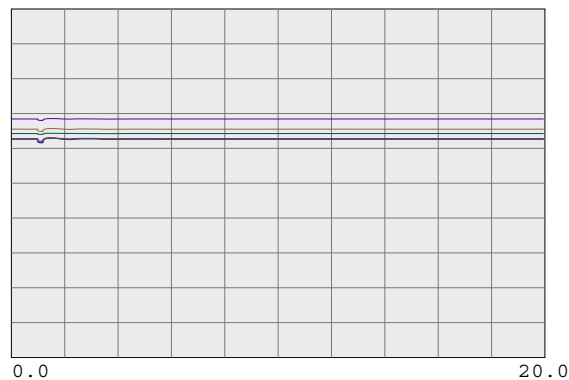
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



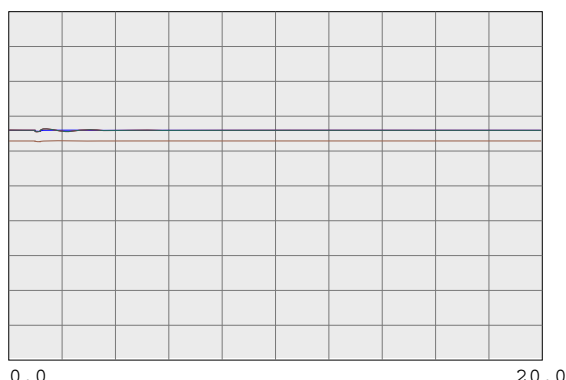
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



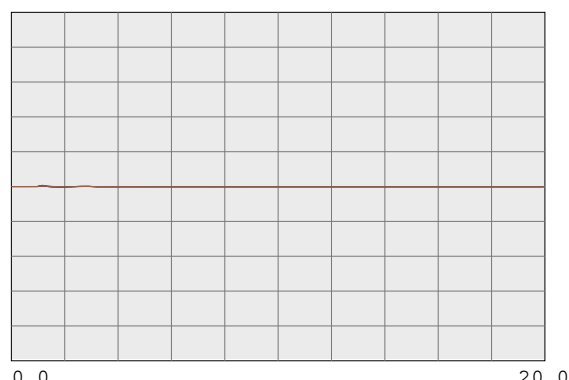
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

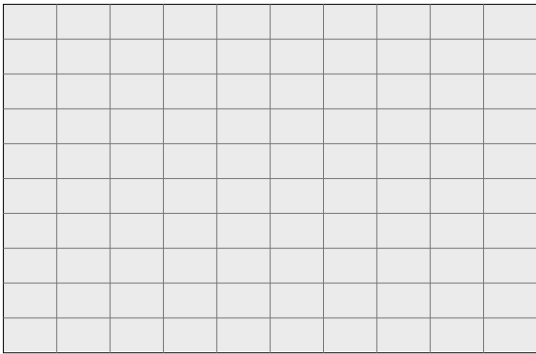
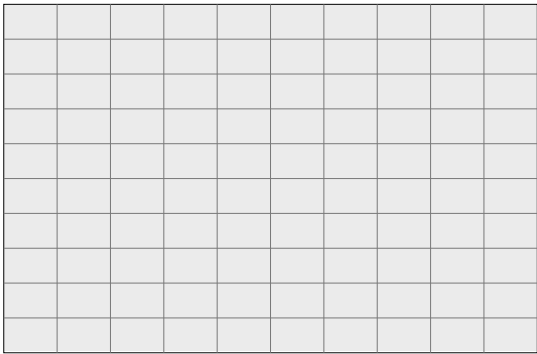
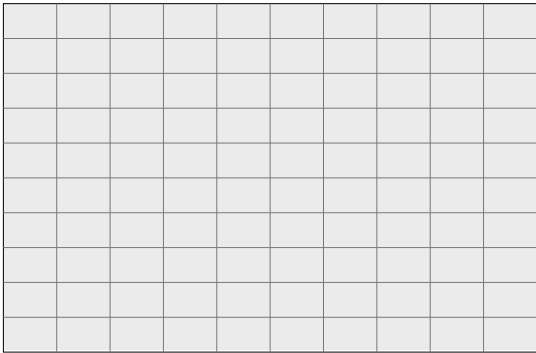
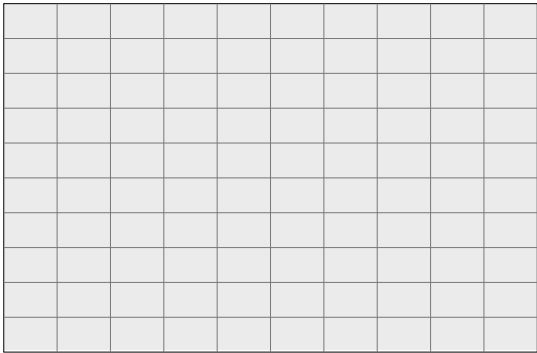
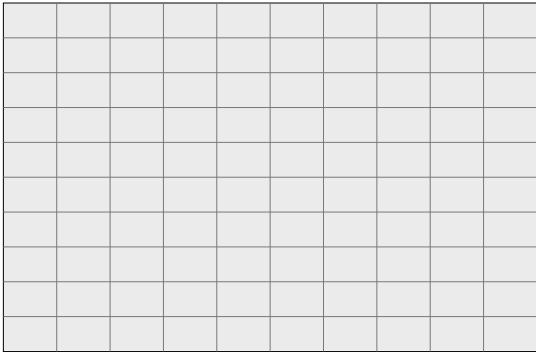
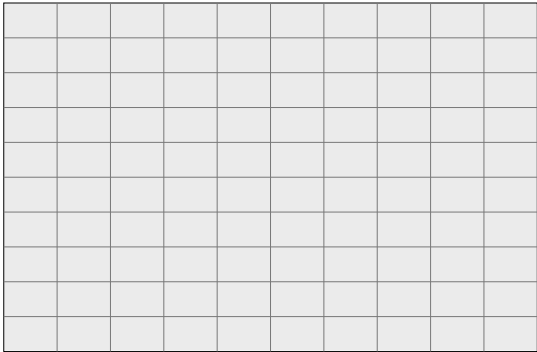
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

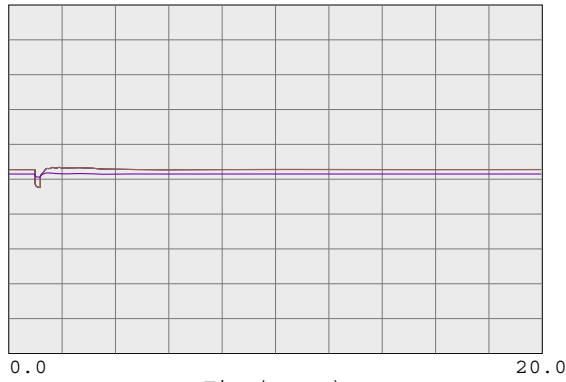
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

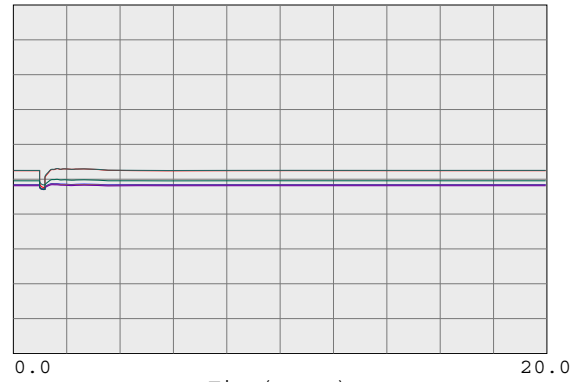


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

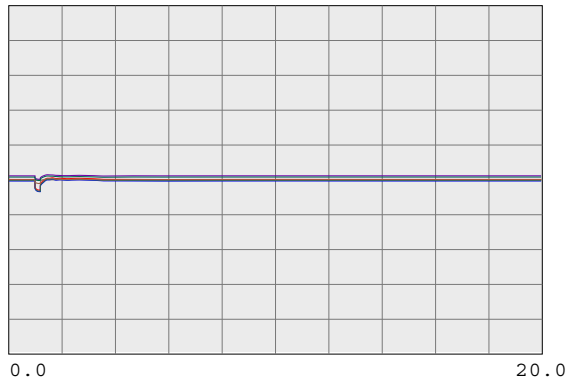
230-KV SYSTEM VOLTAGES



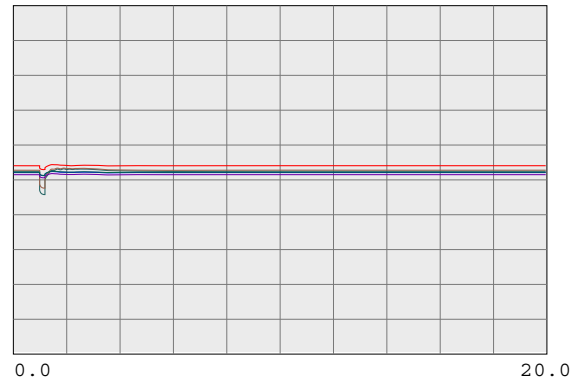
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCPB1 230.0	0	0.0	1	1	1.2500



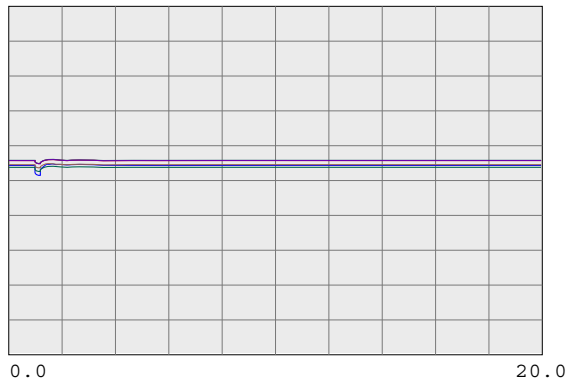
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TROSO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANZJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

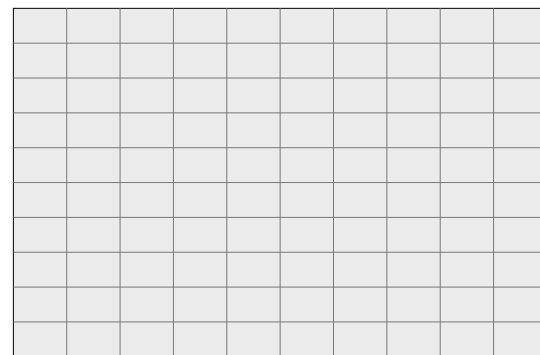
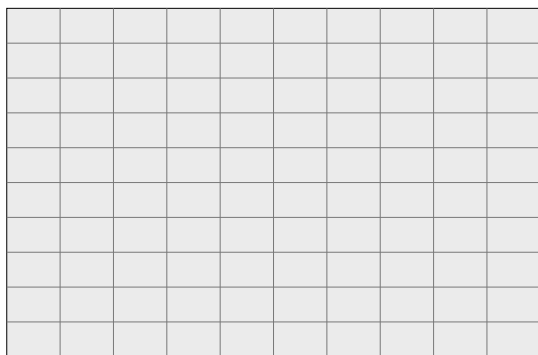
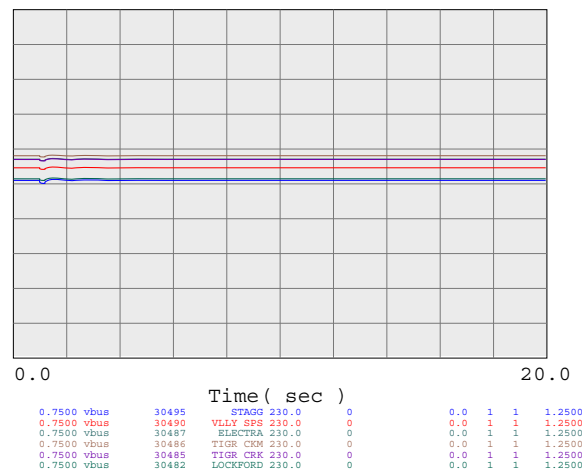
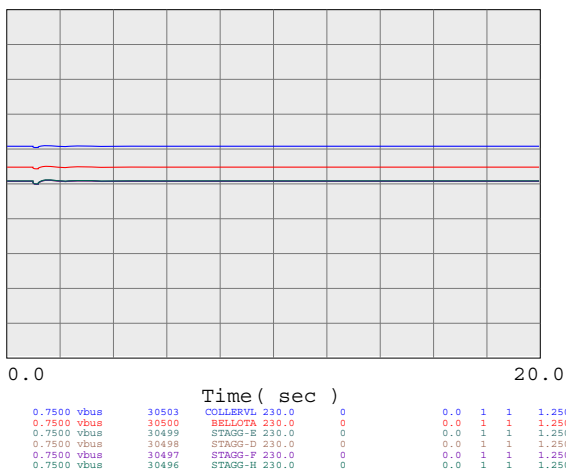
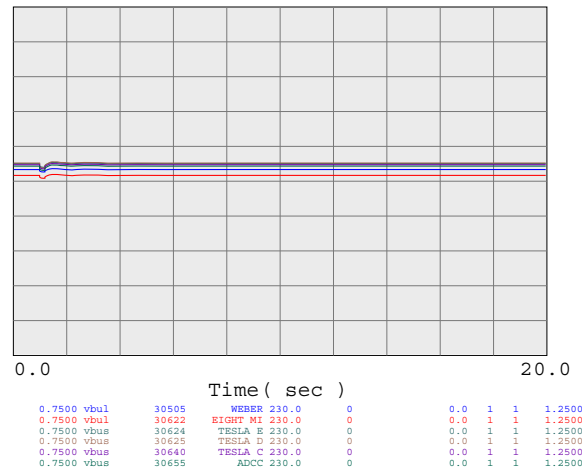
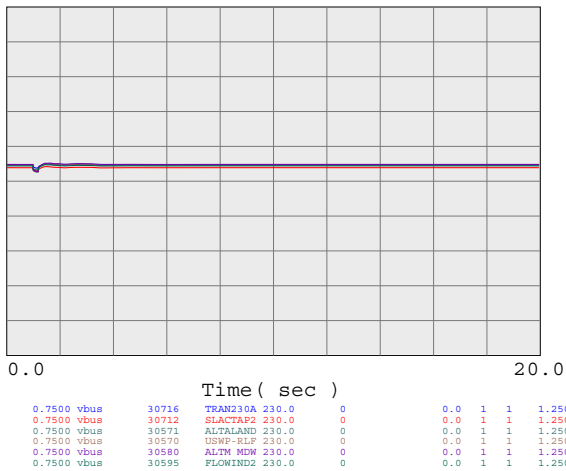
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

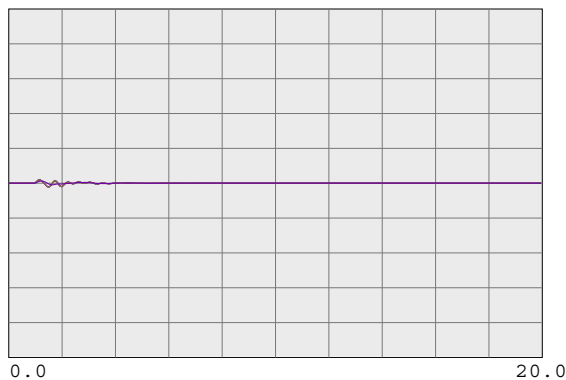
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

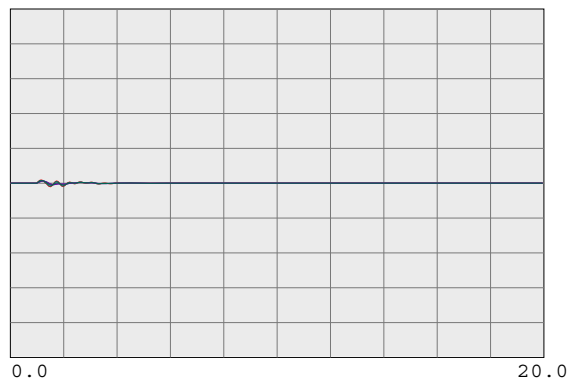
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

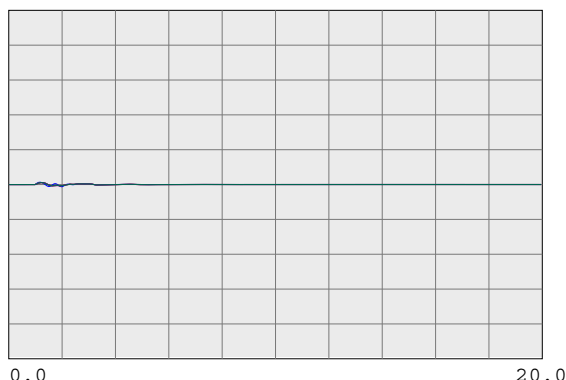
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

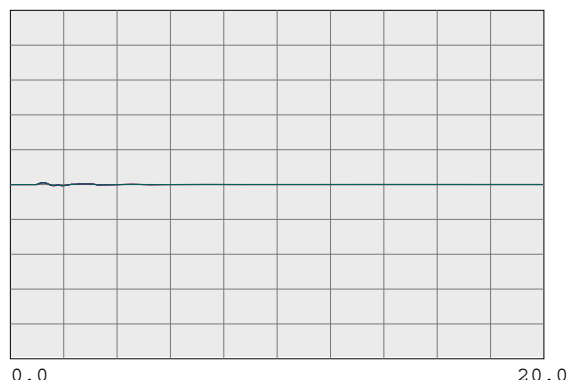
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

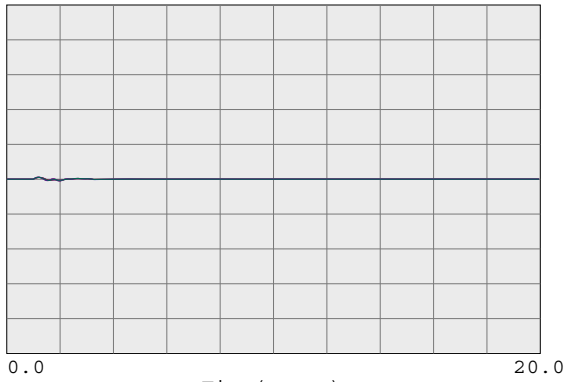
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

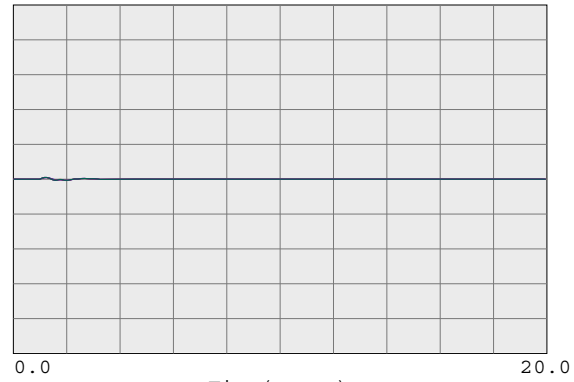
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

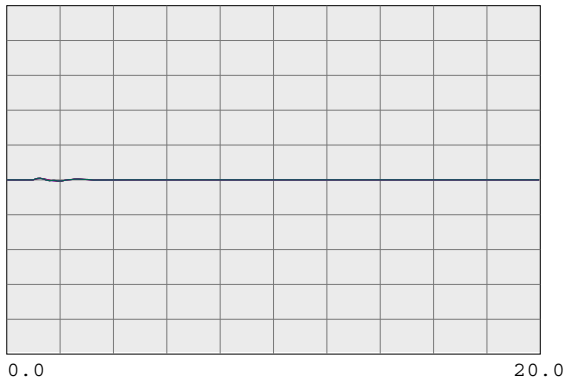
230-KV SYSTEM FREQUENCIES



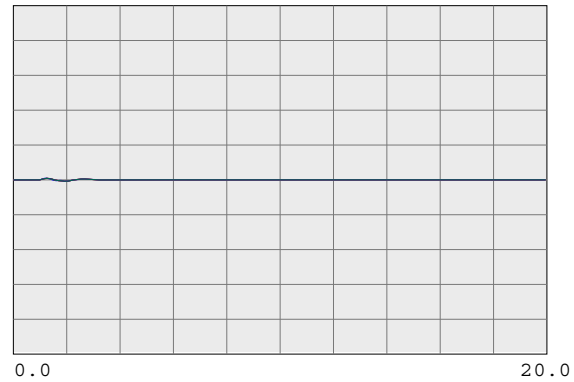
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



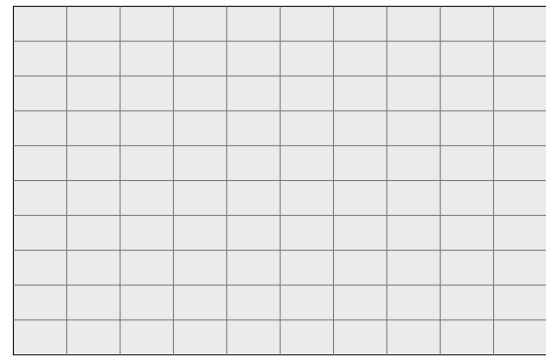
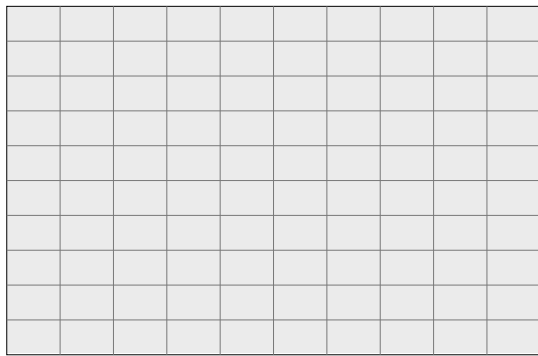
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

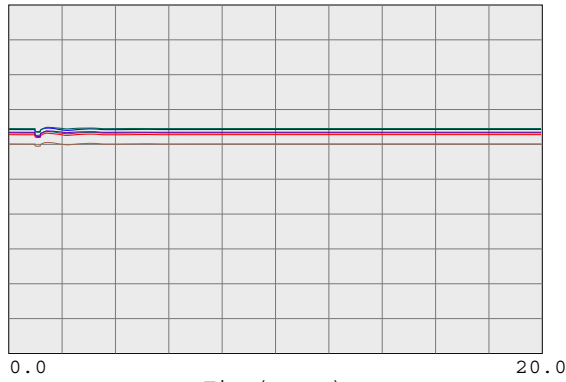


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

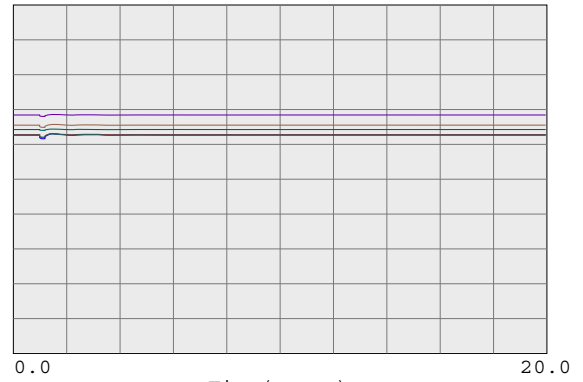


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

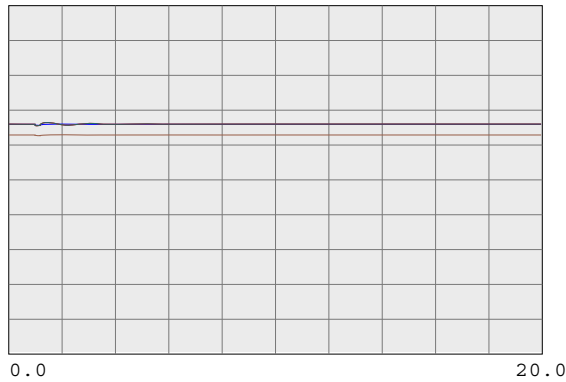
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



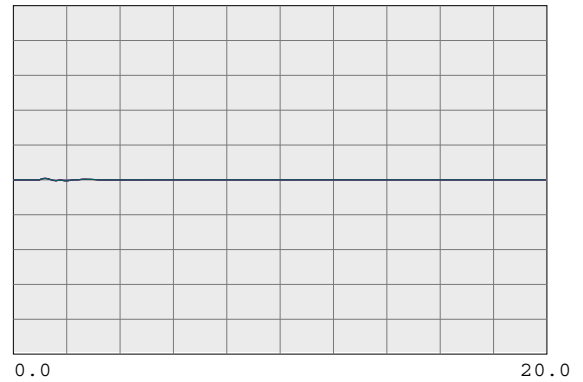
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



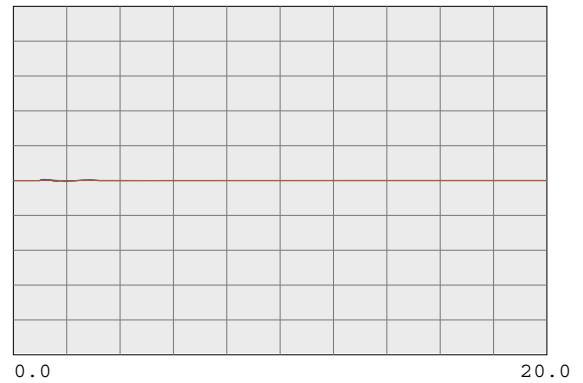
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

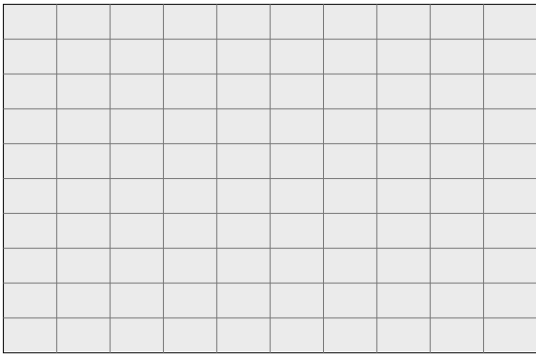
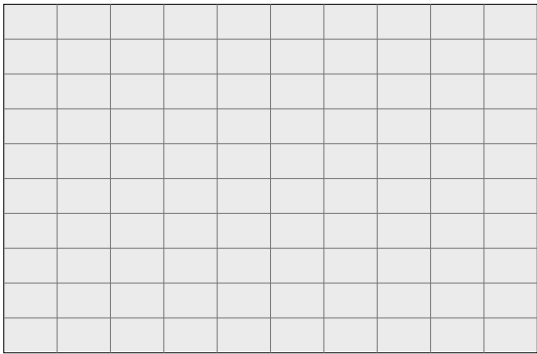
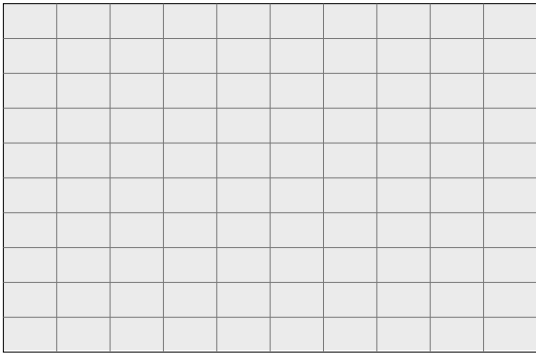
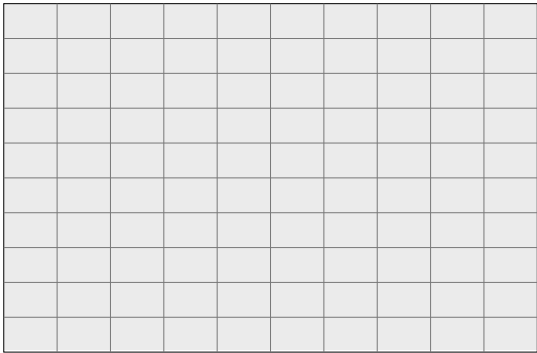
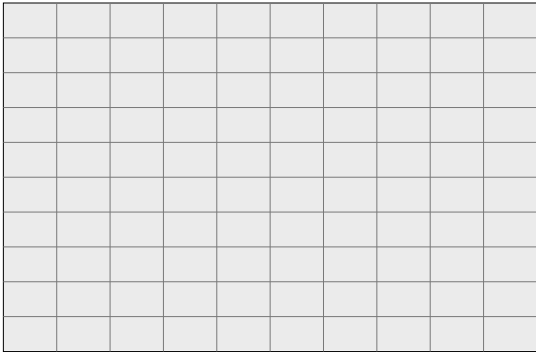
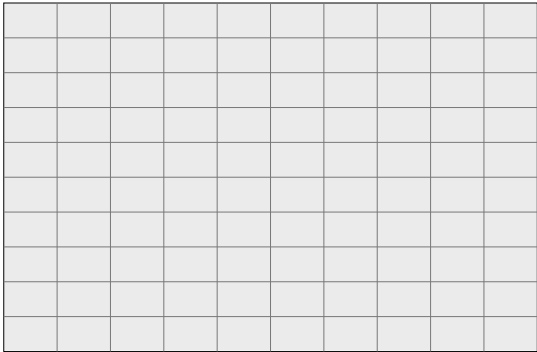
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

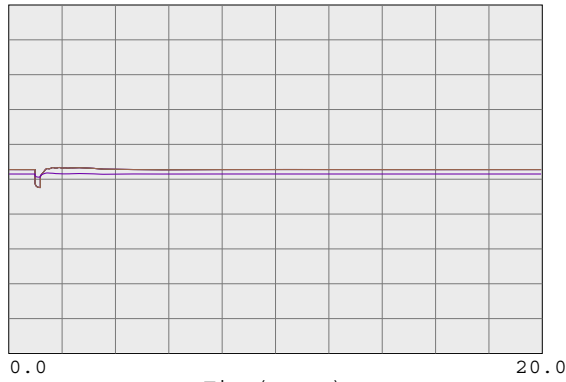
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

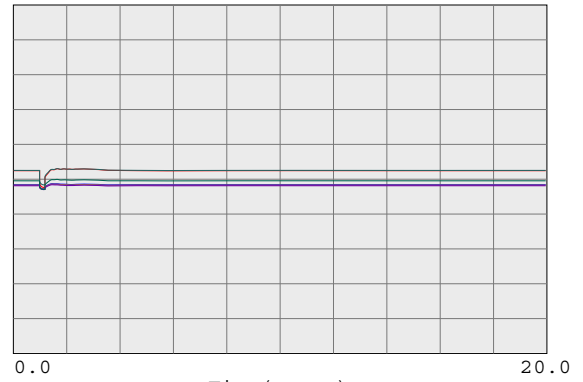


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

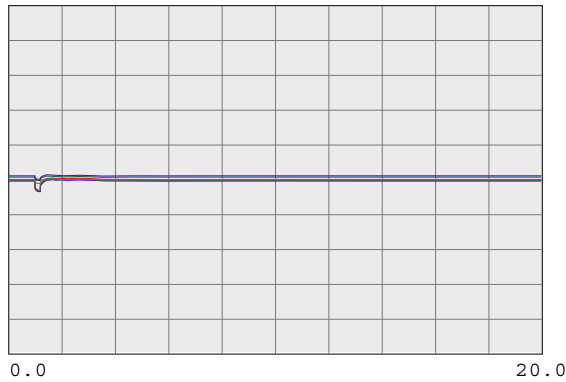
230-KV SYSTEM VOLTAGES



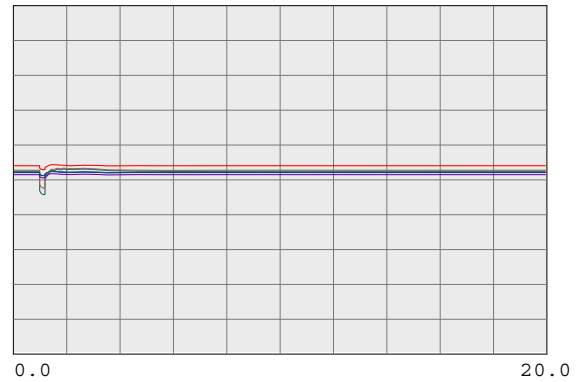
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



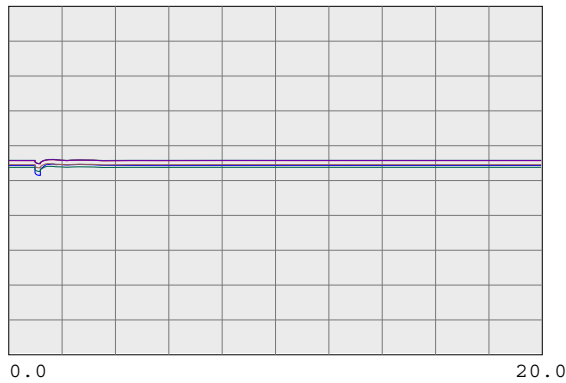
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

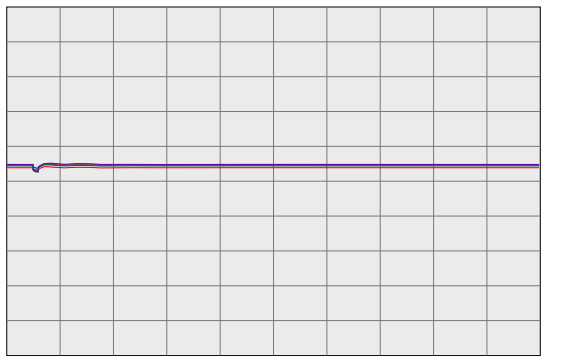
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

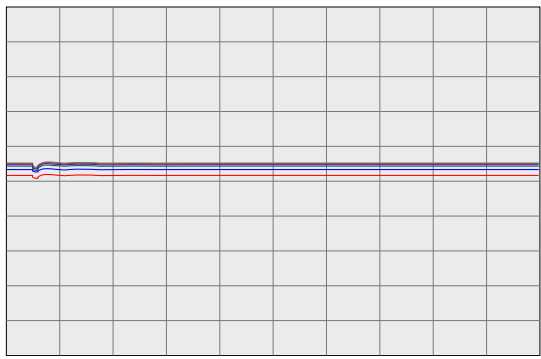
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



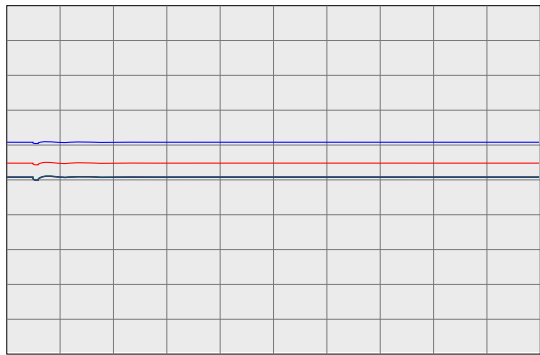
0.0 20.0

Time(sec)				
0.7500 vbus	30716	TRAN230A 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0 1 1 1.2500



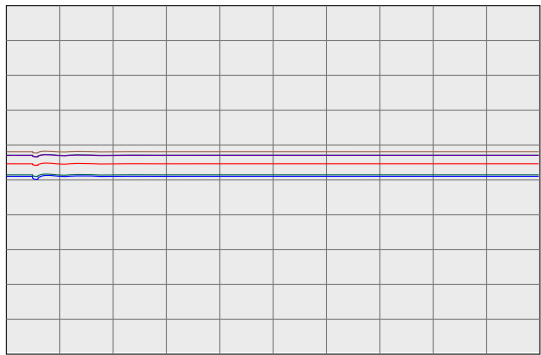
0.0 20.0

Time(sec)				
0.7500 vbus	30505	WEBER 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0 1 1 1.2500



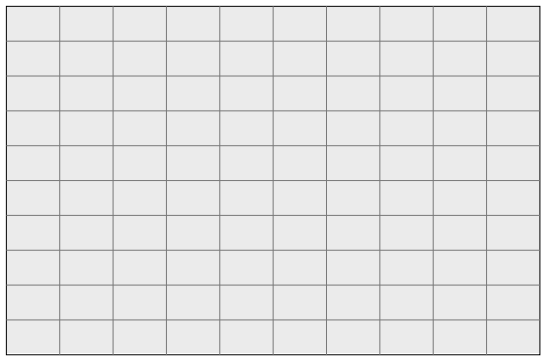
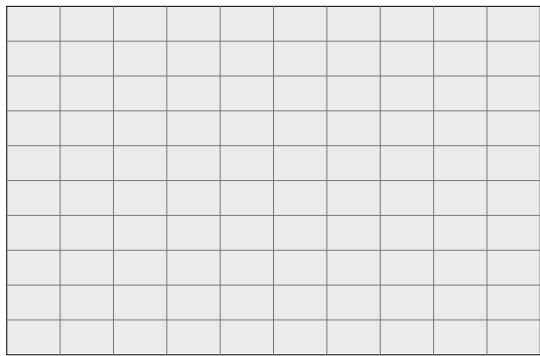
0.0 20.0

Time(sec)				
0.7500 vbus	30503	COLLIERV 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0 1 1 1.2500



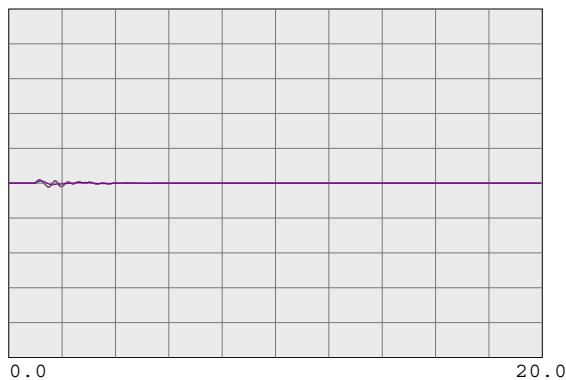
0.0 20.0

Time(sec)				
0.7500 vbus	30495	STAGS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0 1 1 1.2500



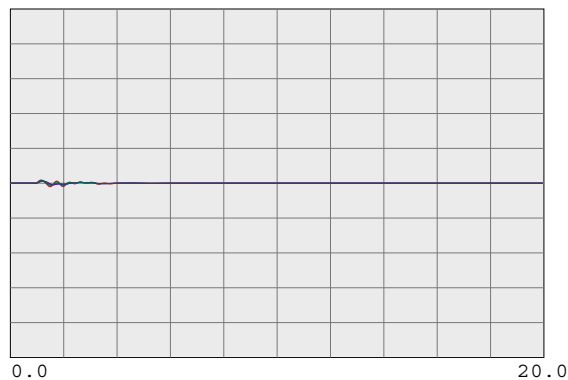
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



0.0 20.0
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



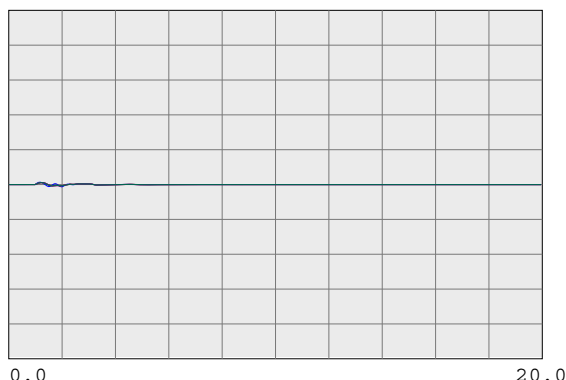
0.0 20.0
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



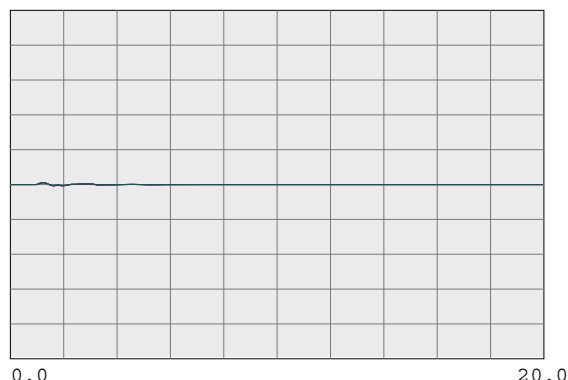
0.0 20.0
Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

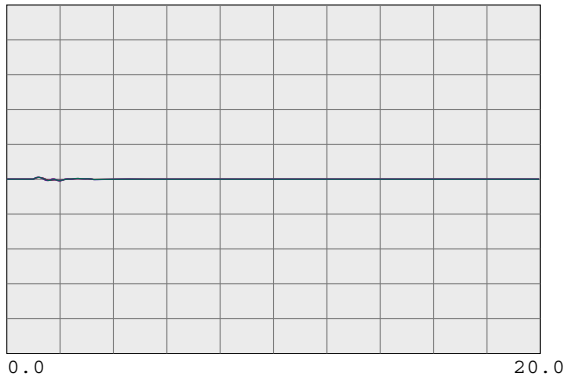
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

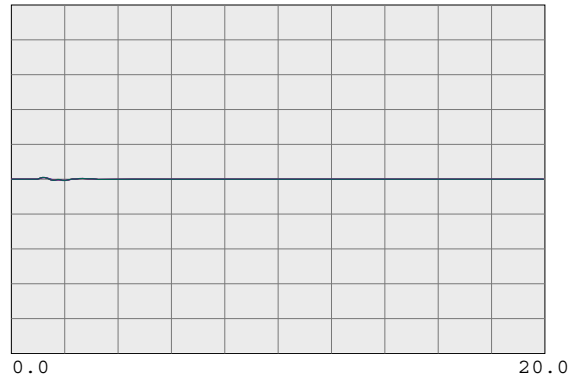
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

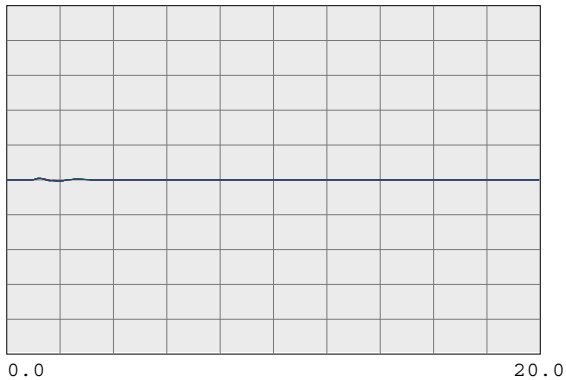
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

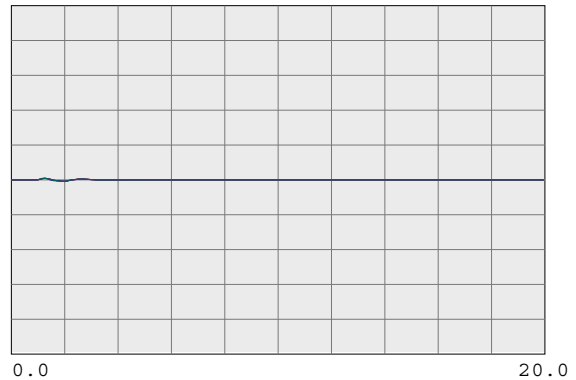
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

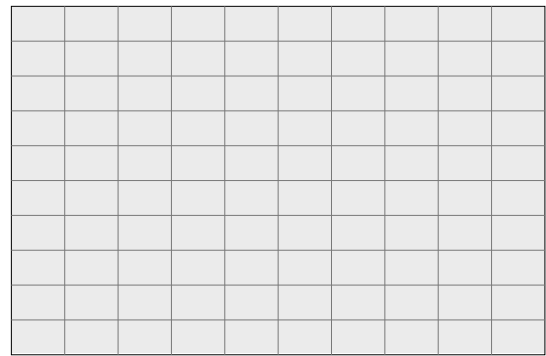
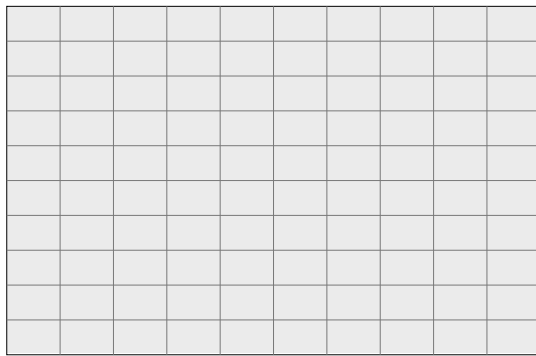
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

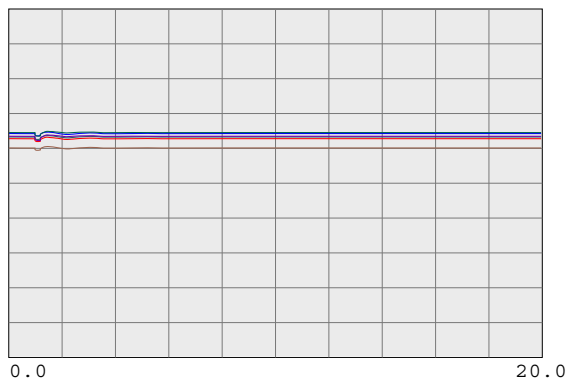
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



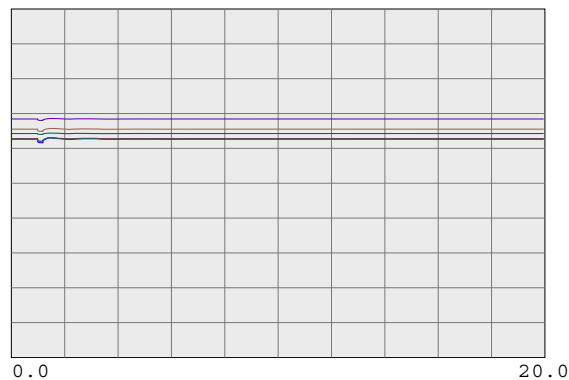
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



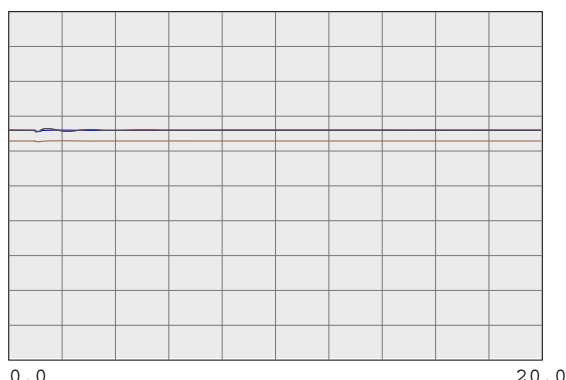
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



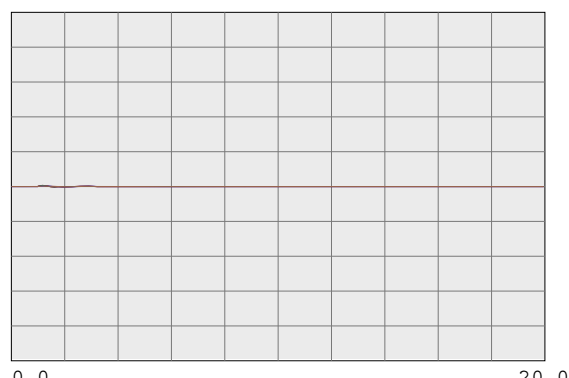
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

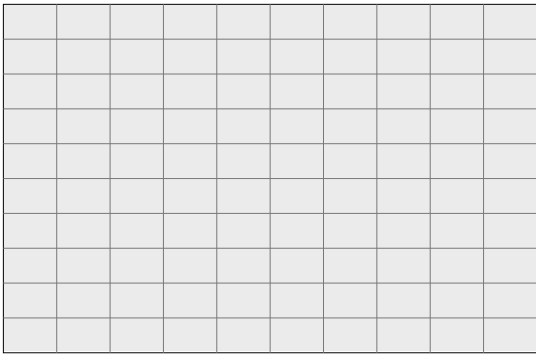
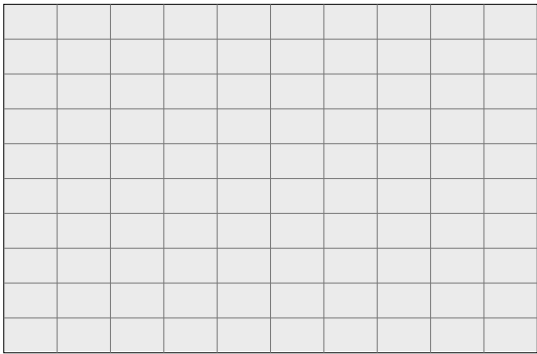
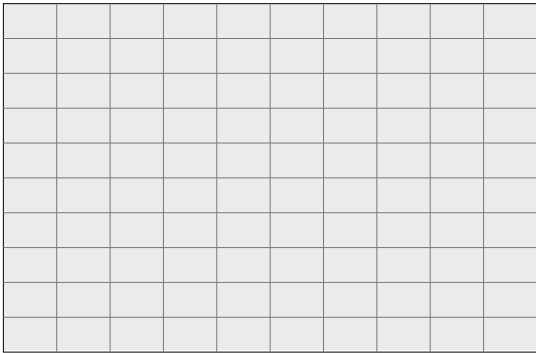
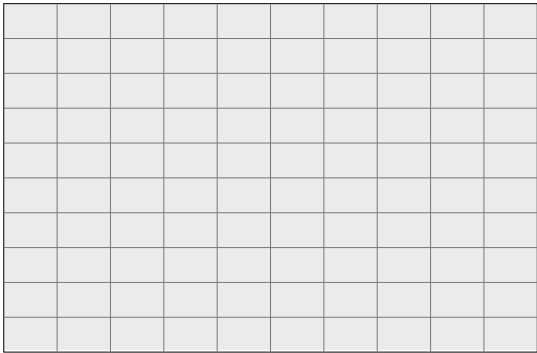
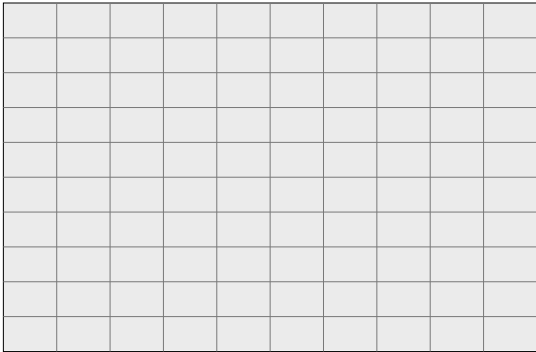
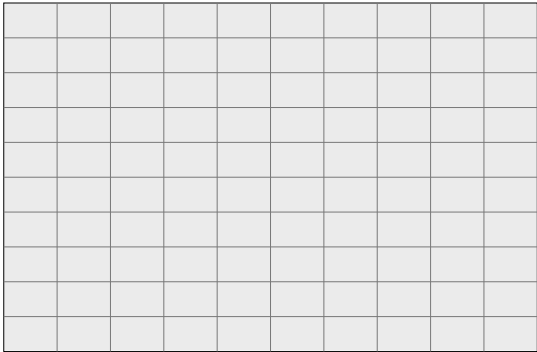
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

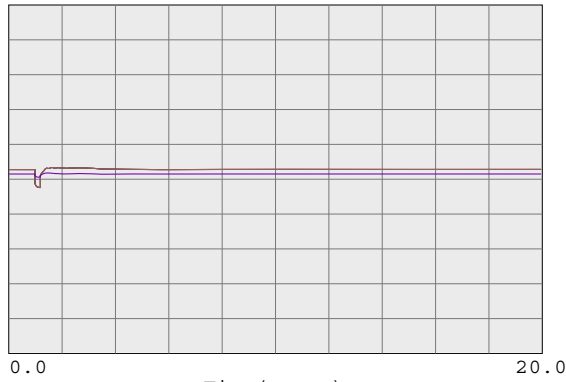
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

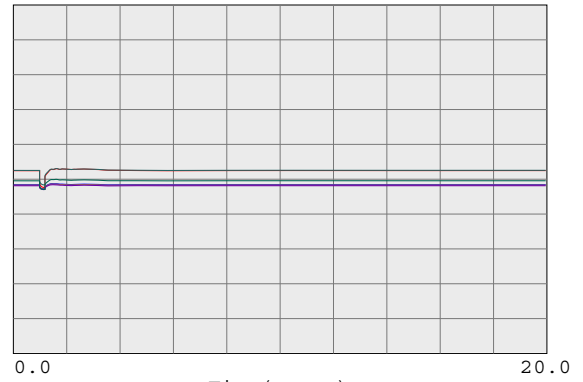


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

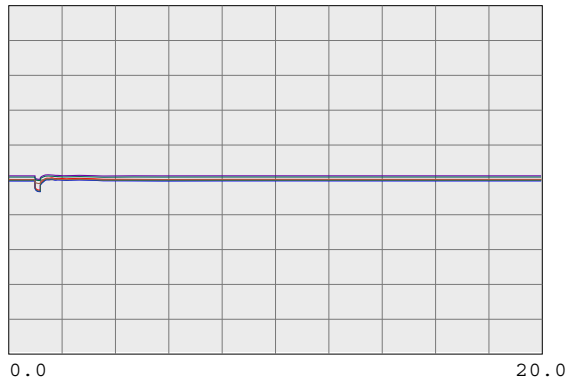
230-KV SYSTEM VOLTAGES



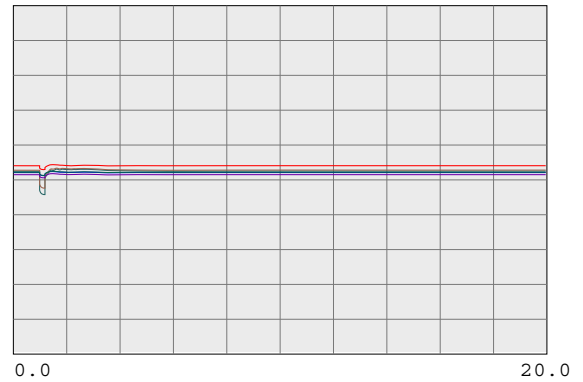
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



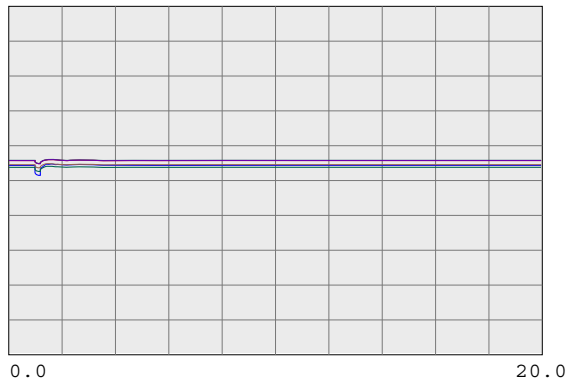
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30567 <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td> </td>	30567 <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30565</td> <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30563</td> <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30561</td> <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30550</td> <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30544 <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30544 <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30543 <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30543 <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30525 <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30525 <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30685 <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30685 <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

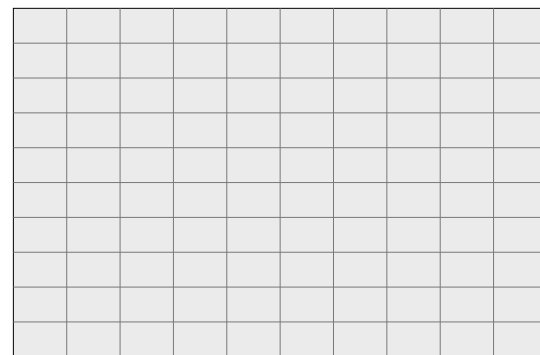
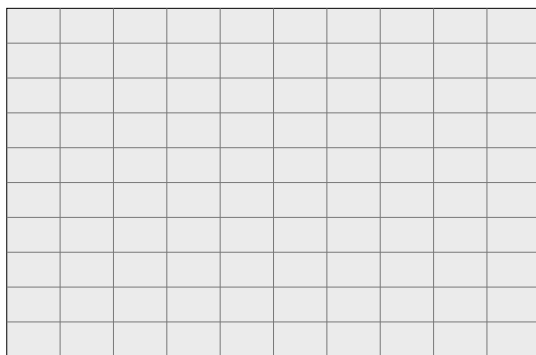
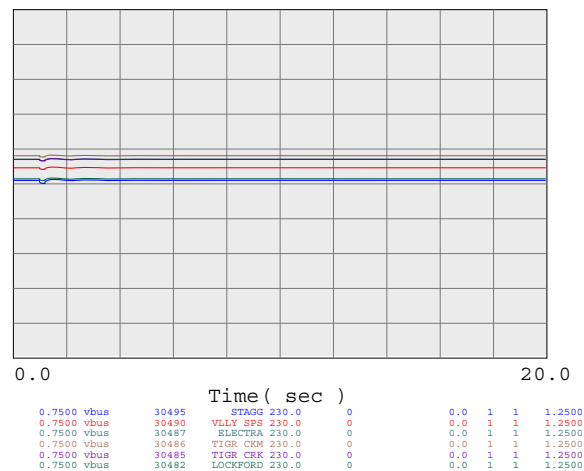
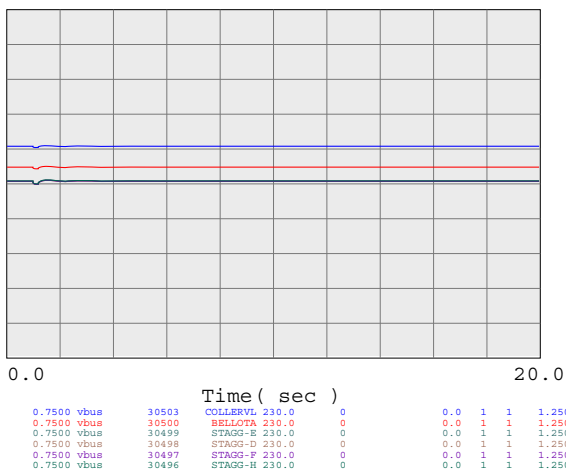
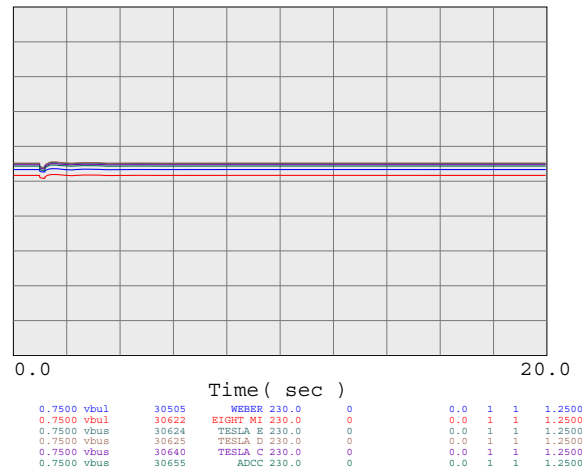
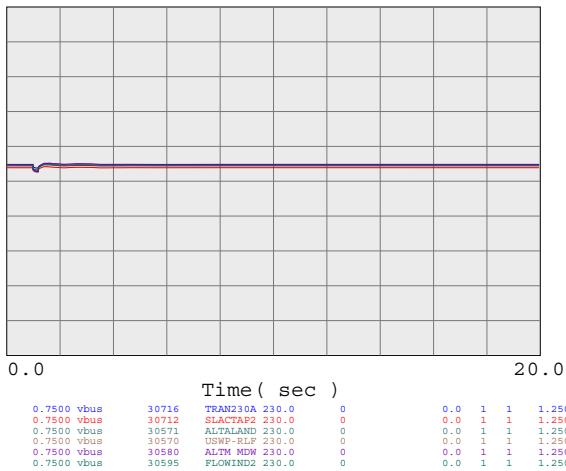
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



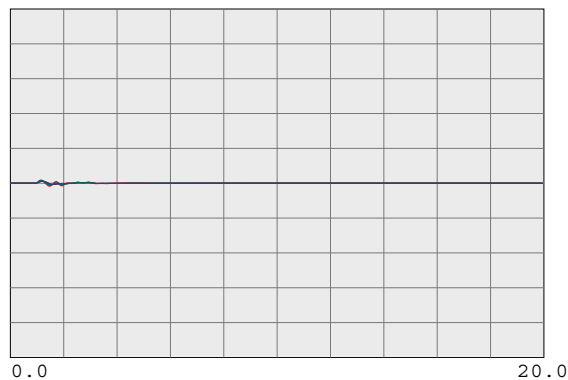
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

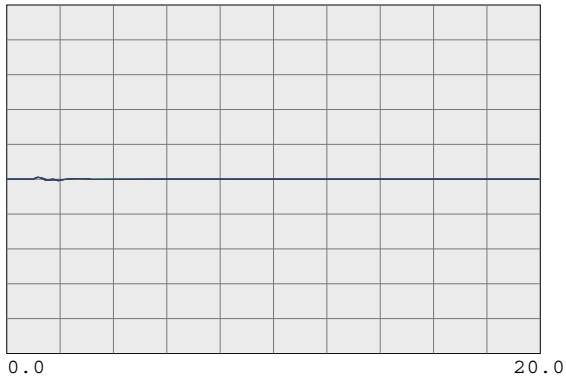
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

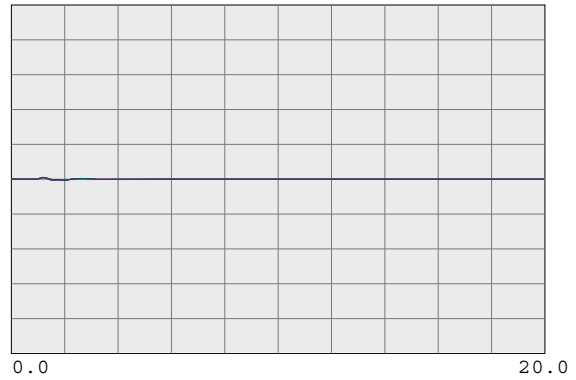
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



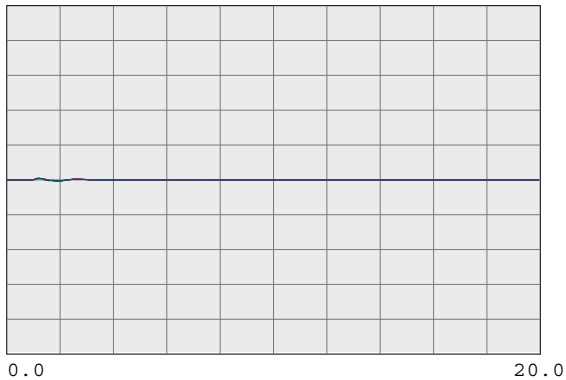
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



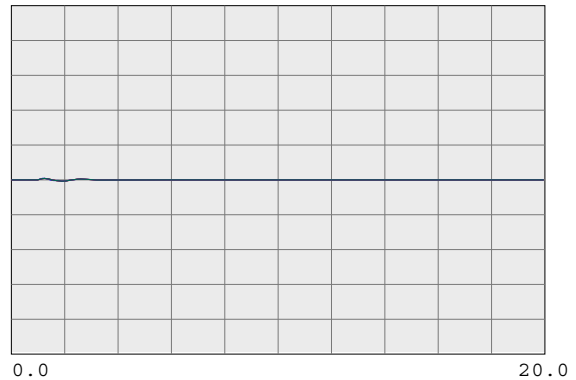
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



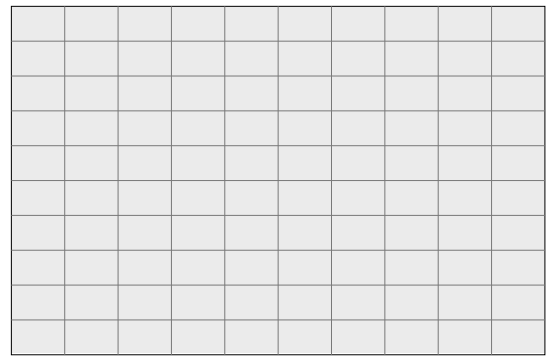
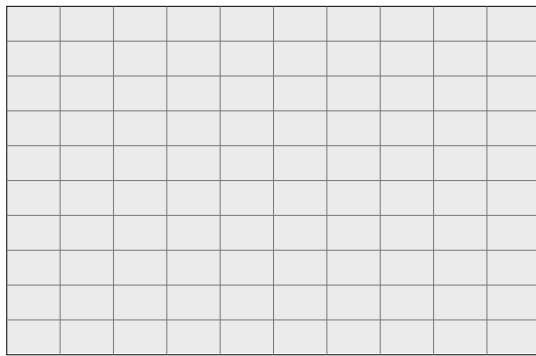
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



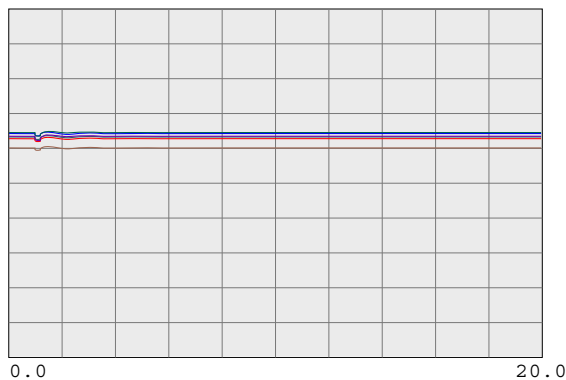
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



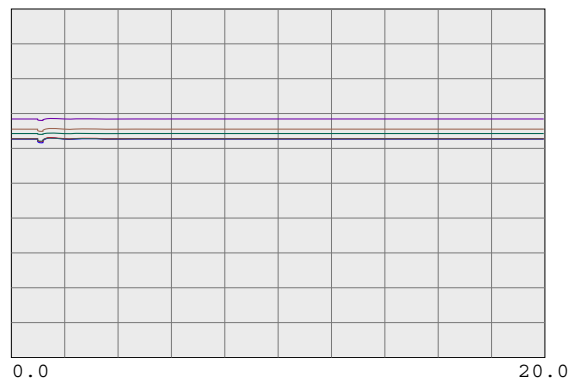
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



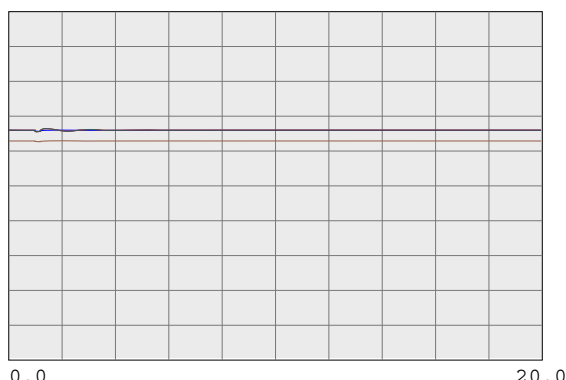
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



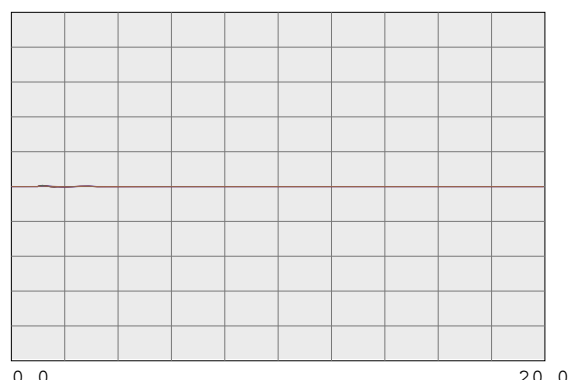
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

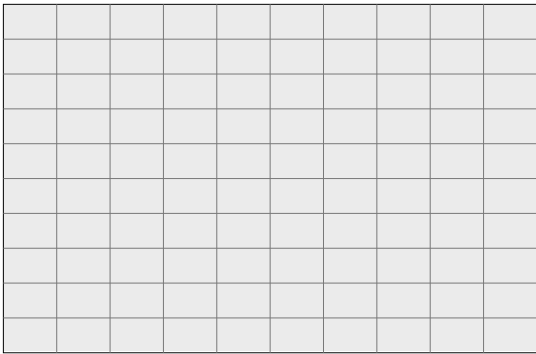
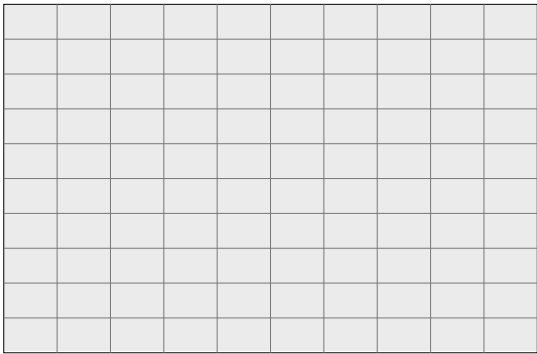
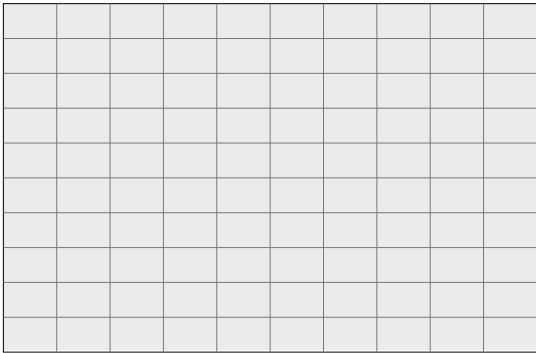
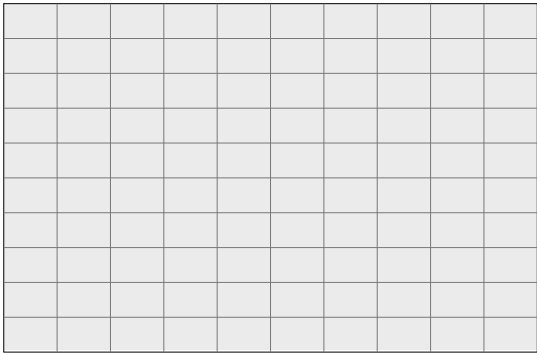
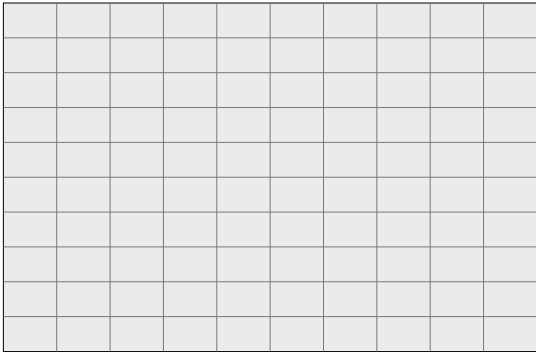
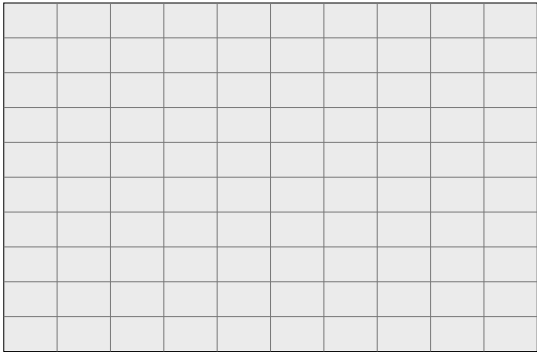
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

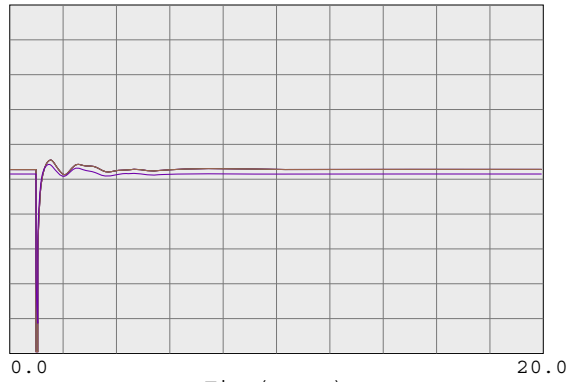
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



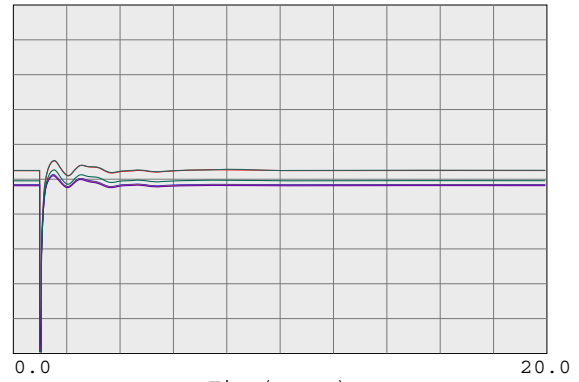
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



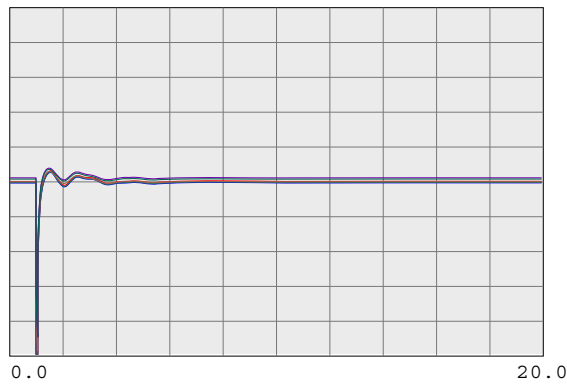
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



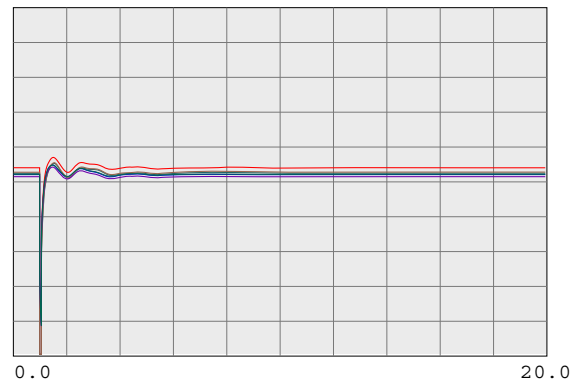
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



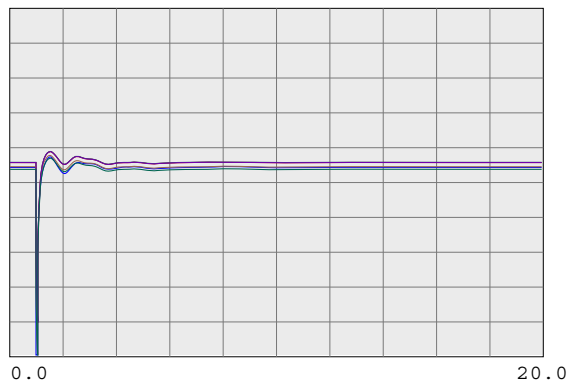
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TRISBORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



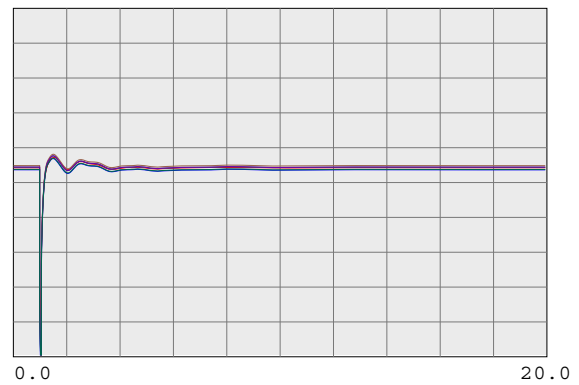
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

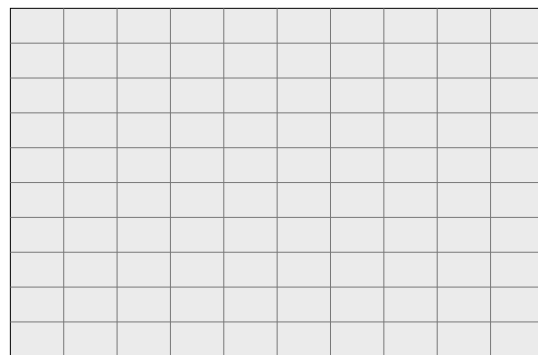
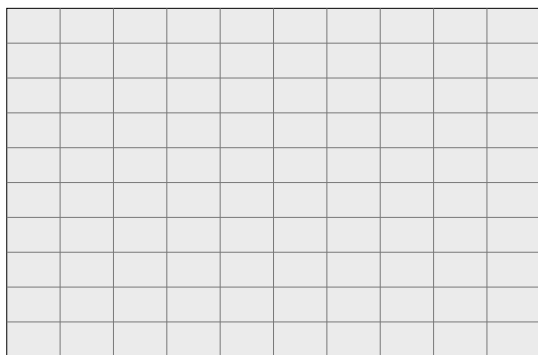
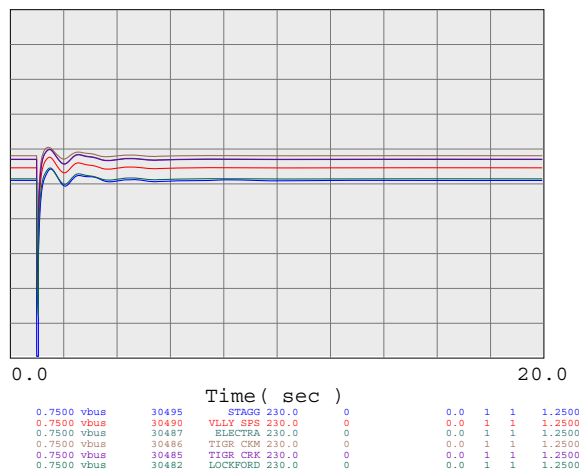
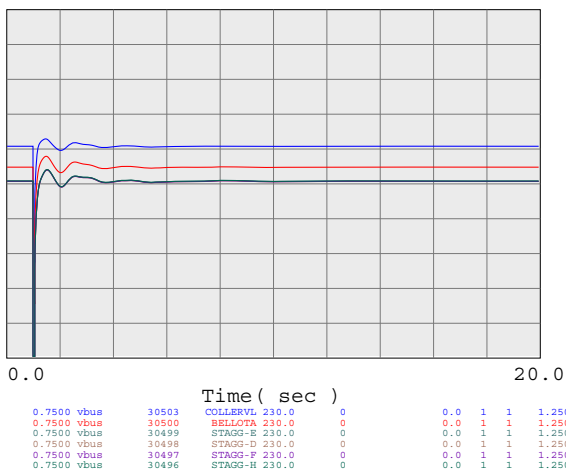
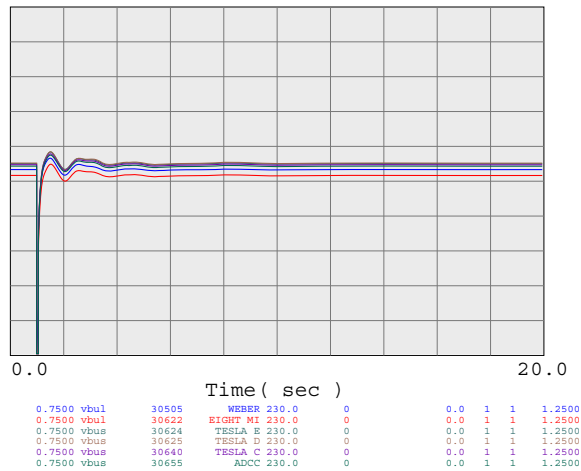
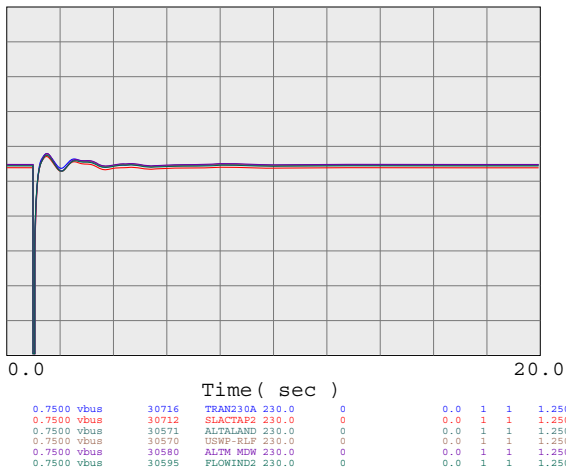
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

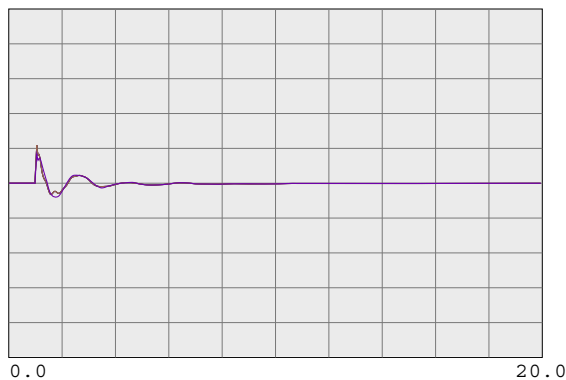
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

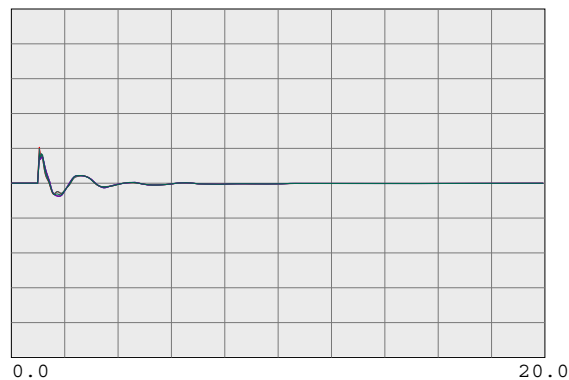
230-KV SYSTEM VOLTAGES



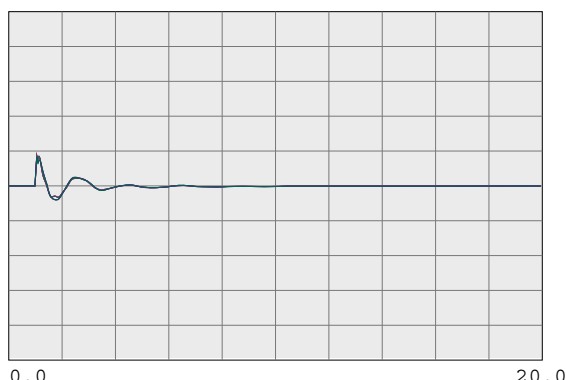
230-KV SYSTEM FREQUENCIES



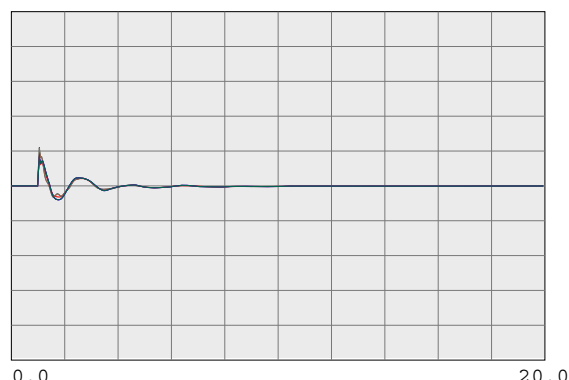
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



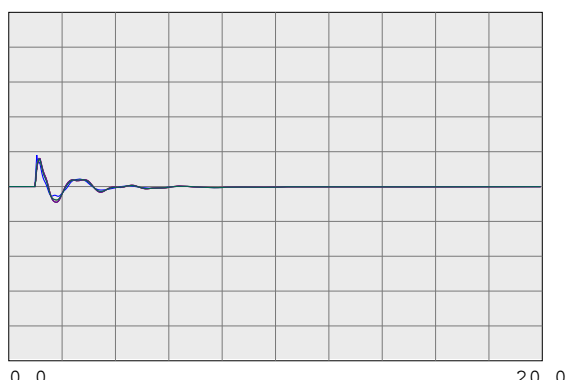
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



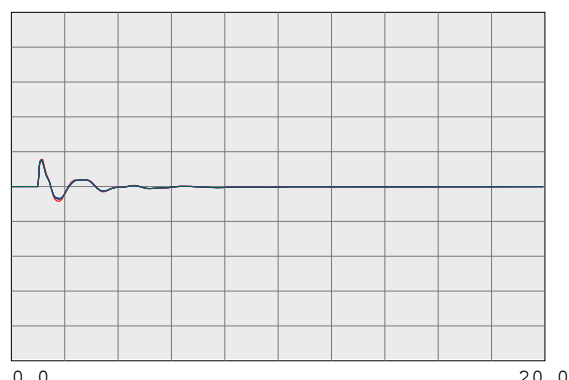
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDED 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

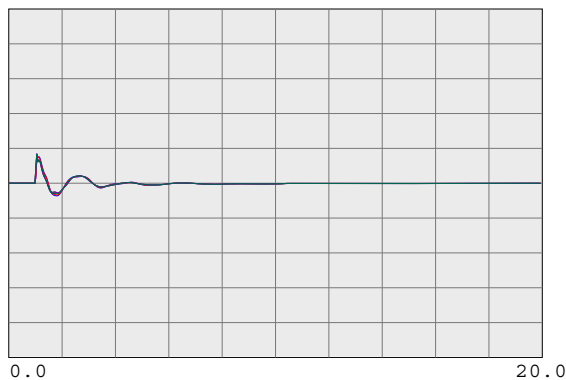
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

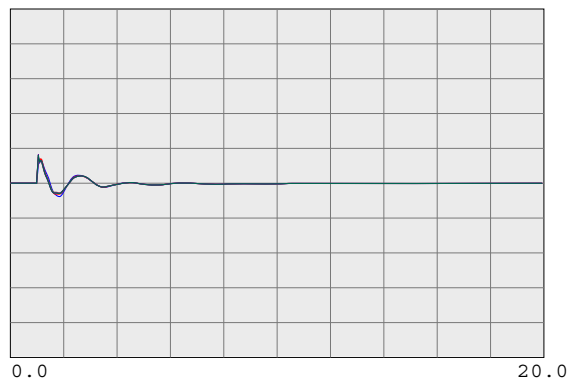
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

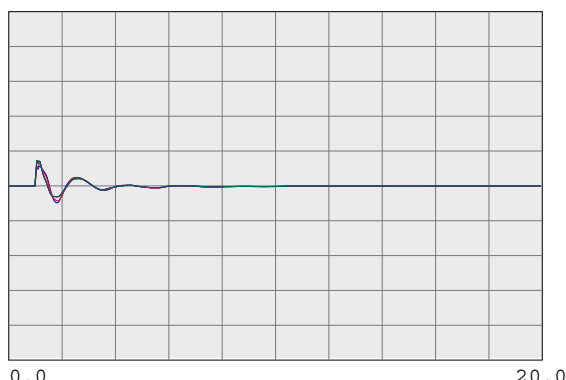
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

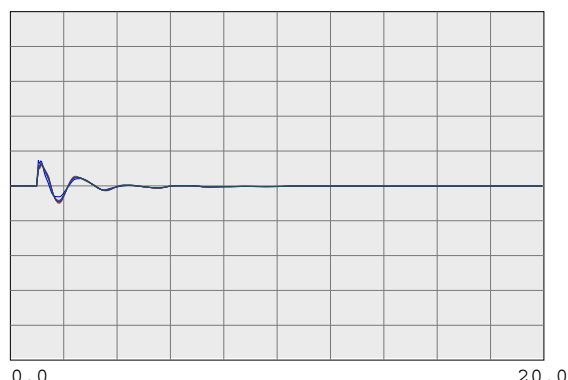
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

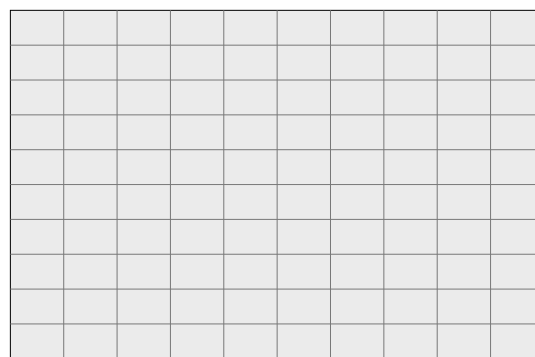
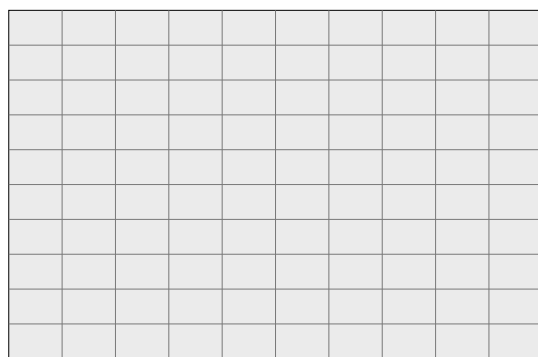
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

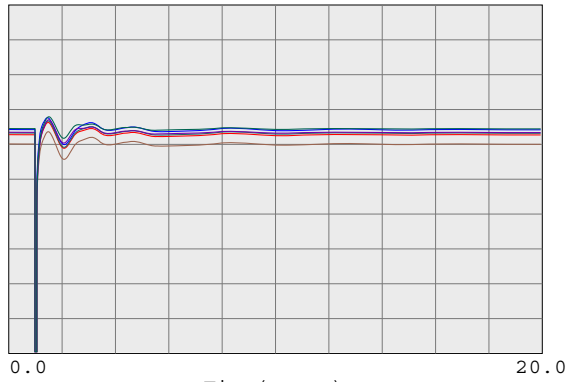
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

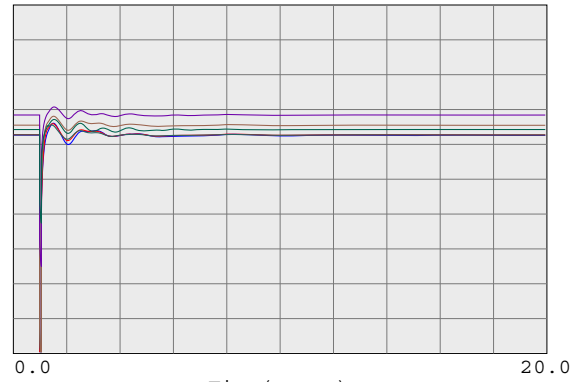
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

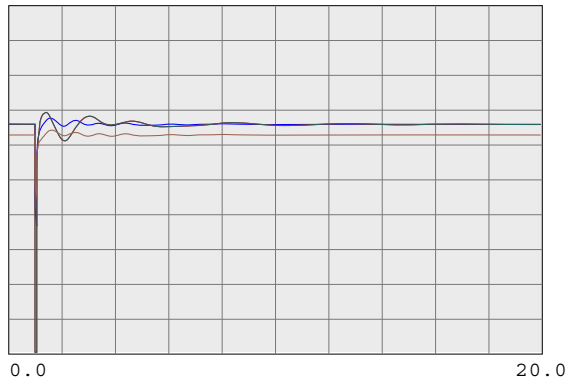
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



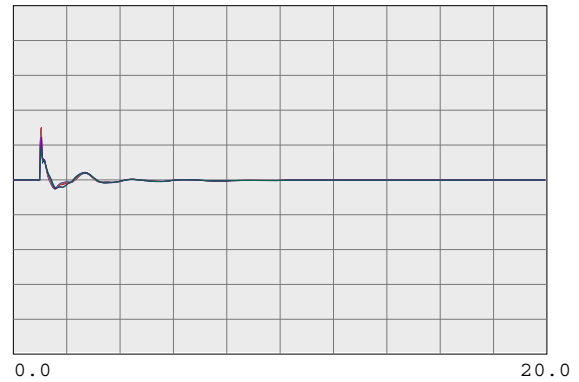
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30005	ROUND MT 500.0	0	0.0
0.7500 vbus	30015	TABLE MT 500.0	0	0.0
0.7500 vbus	30020	GLINDA 500.0	0	0.0
0.7500 vbus	30025	MAXWELL 500.0	0	0.0
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0
0.7500 vbus	30035	TRACY 500.0	0	0.0



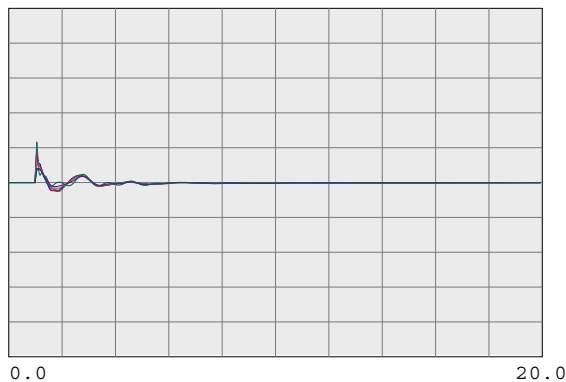
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30040	TESLA 500.0	0	0.0
0.7500 vbus	30042	METCALF 500.0	0	0.0
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0
0.7500 vbus	30055	GATES 500.0	0	0.0
0.7500 vbus	30057	DIABLO 500.0	0	0.0



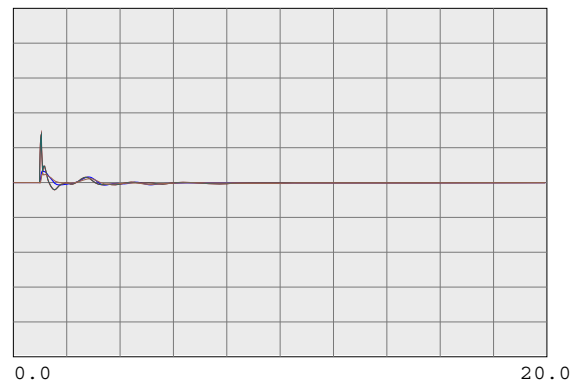
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30060	MIDWAY 500.0	0	0.0
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0
0.7500 vbus	40687	MALIN 500.0	0	0.0
0.7500 vbus	24156	VINCENT 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30005	ROUND MT 500.0	0	0.0
59.4000 fbus	30015	TABLE MT 500.0	0	0.0
59.4000 fbus	30020	GLINDA 500.0	0	0.0
59.4000 fbus	30025	MAXWELL 500.0	0	0.0
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0
59.4000 fbus	30035	TRACY 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30040	TESLA 500.0	0	0.0
59.4000 fbus	30042	METCALF 500.0	0	0.0
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0
59.4000 fbus	30055	GATES 500.0	0	0.0
59.4000 fbus	30057	DIABLO 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30060	MIDWAY 500.0	0	0.0
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0
59.4000 fbus	40687	MALIN 500.0	0	0.0
59.4000 fbus	24156	VINCENT 500.0	0	0.0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

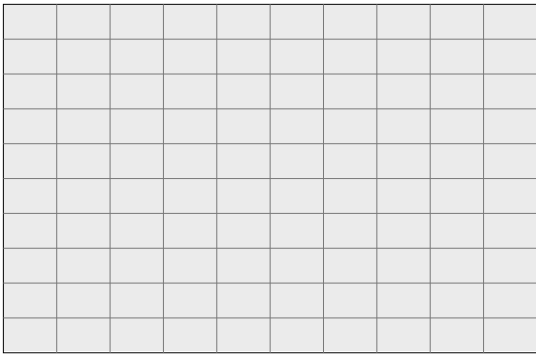
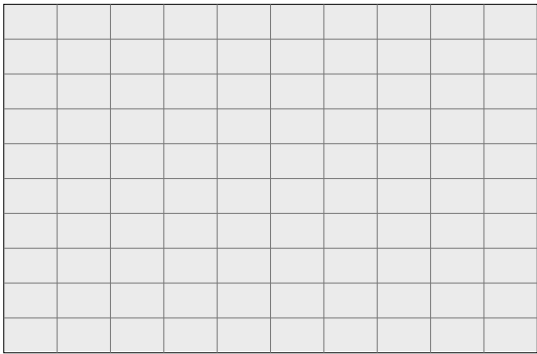
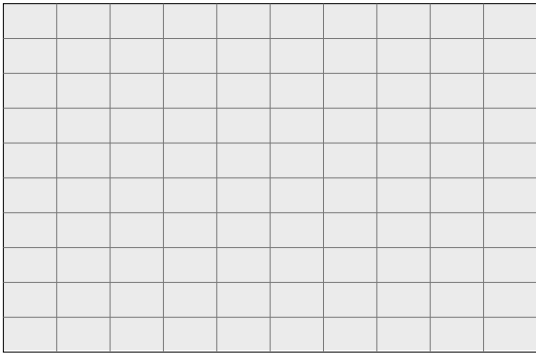
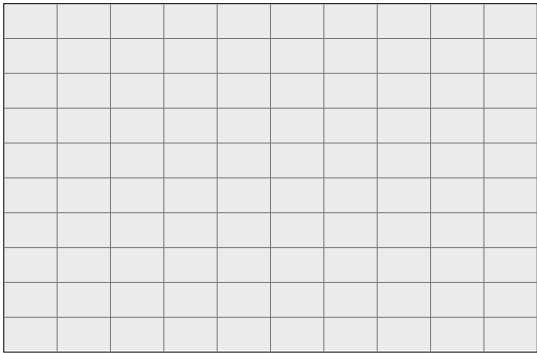
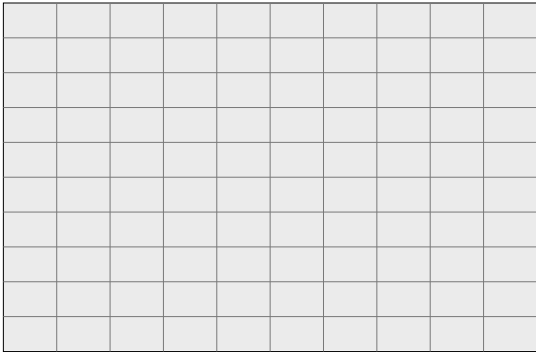
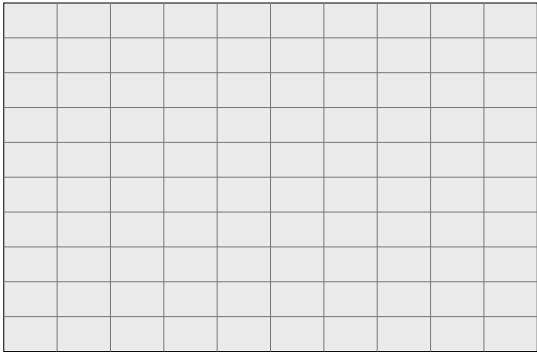
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

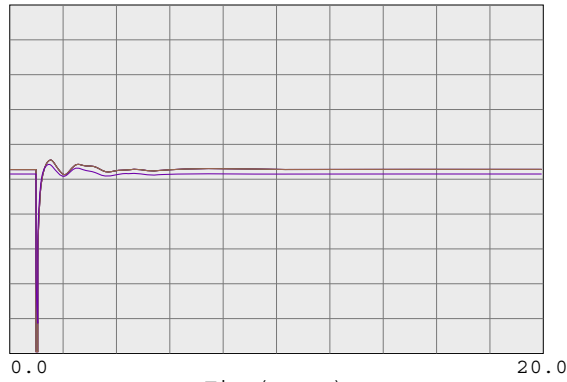
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

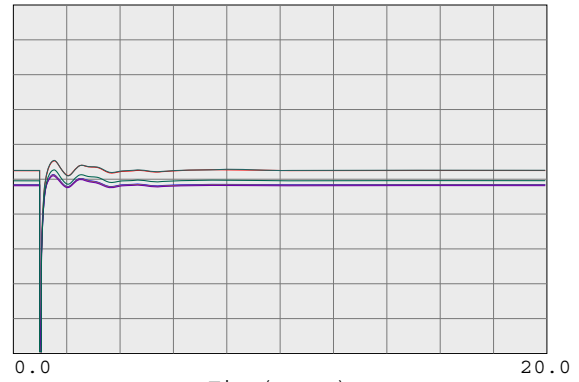


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

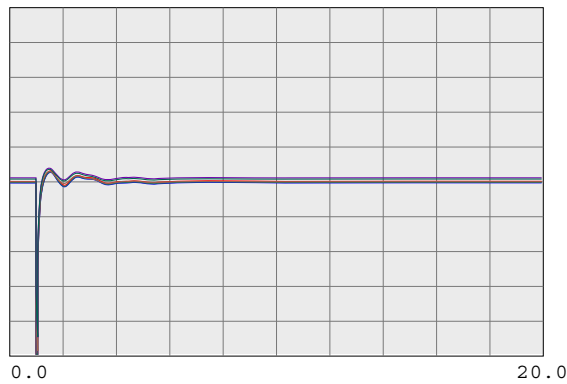
230-KV SYSTEM VOLTAGES



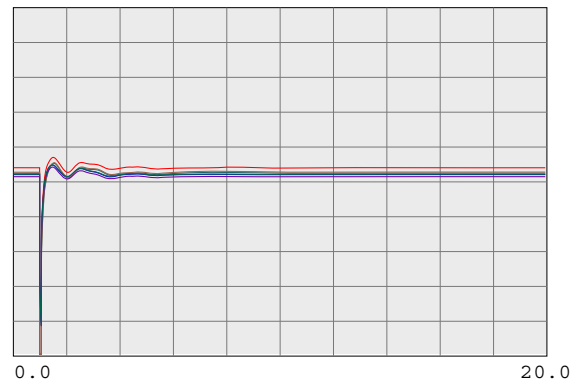
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



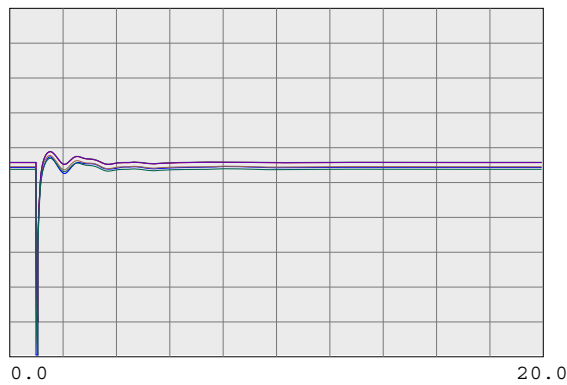
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONSTREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONSTREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



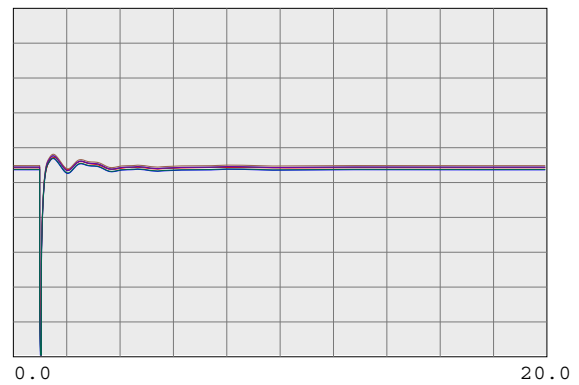
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

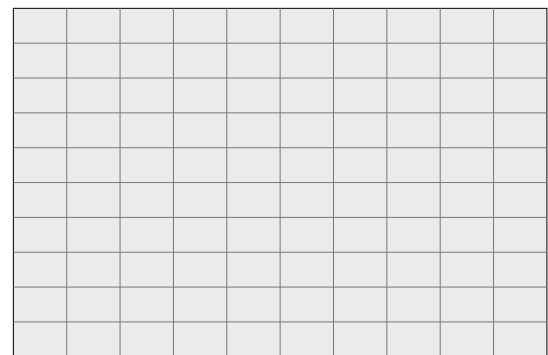
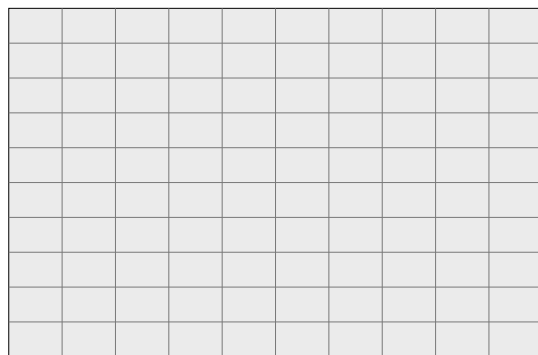
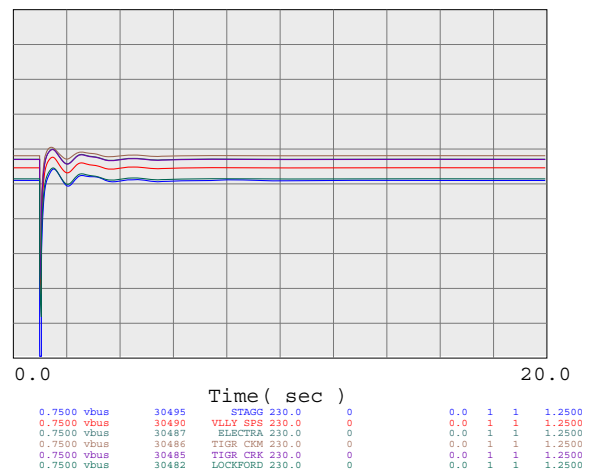
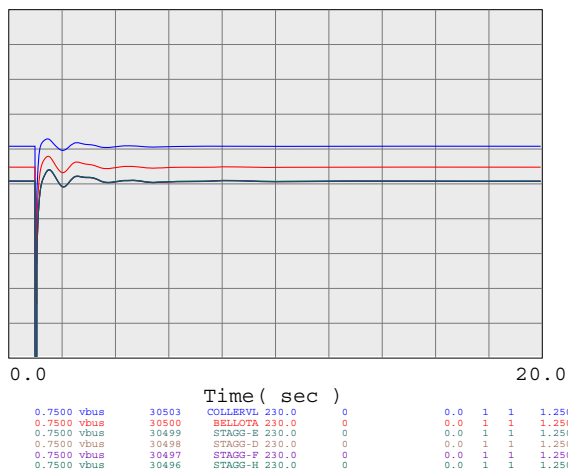
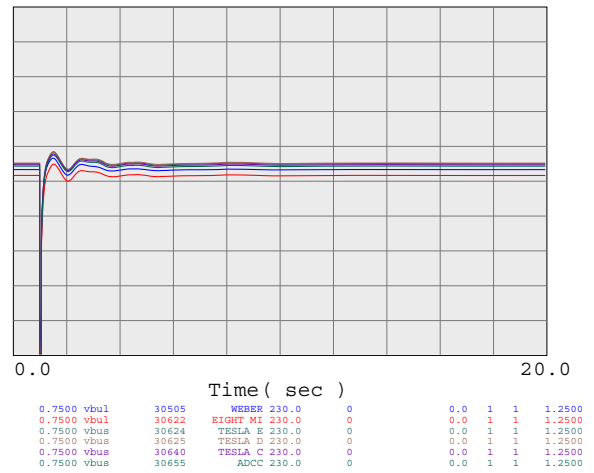
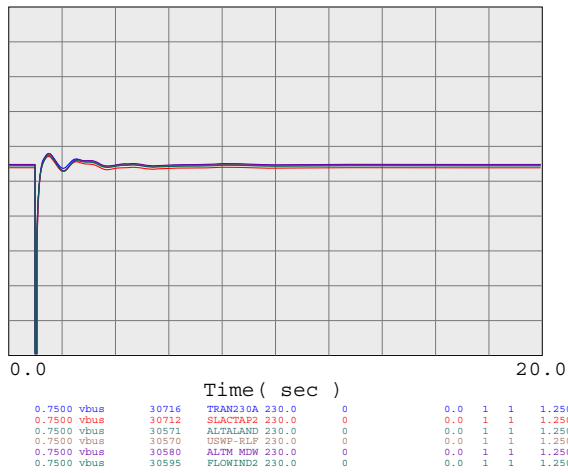
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

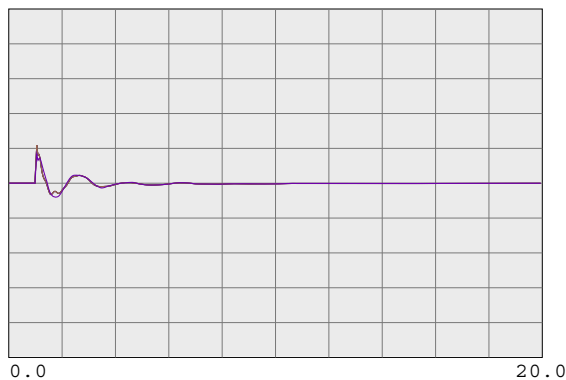
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

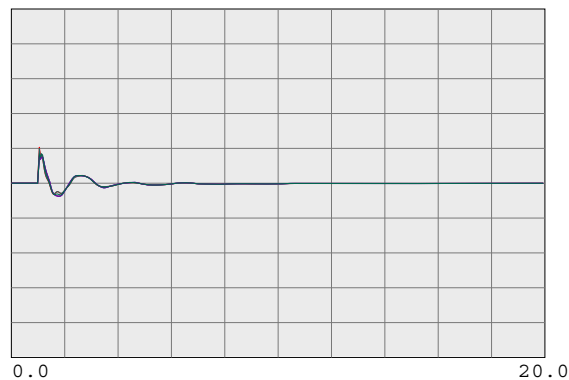
230-KV SYSTEM VOLTAGES



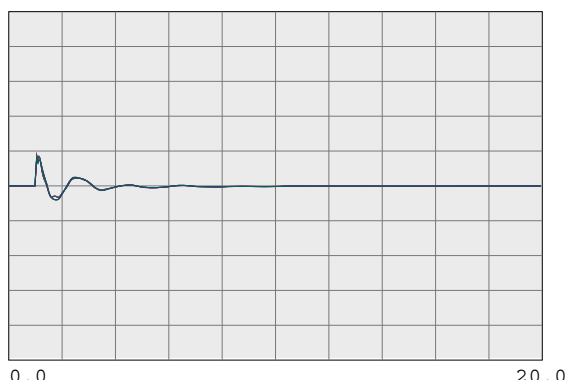
230-KV SYSTEM FREQUENCIES



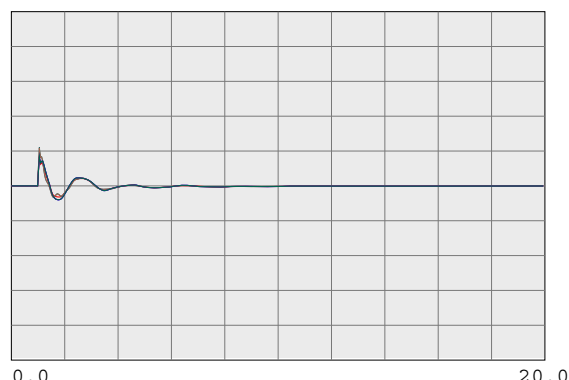
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



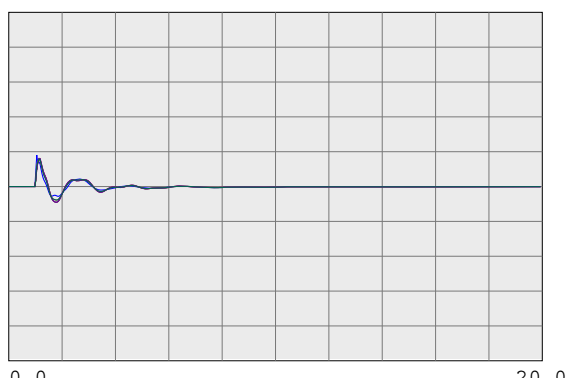
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



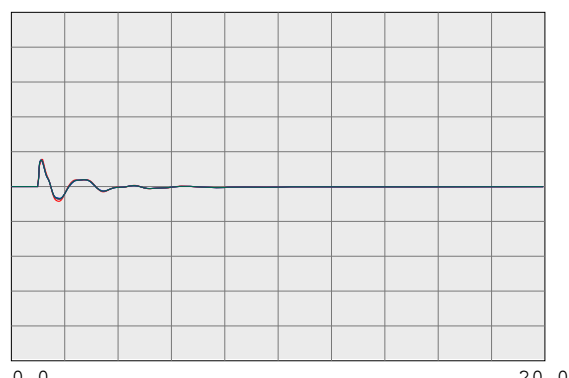
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAPR1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANSJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

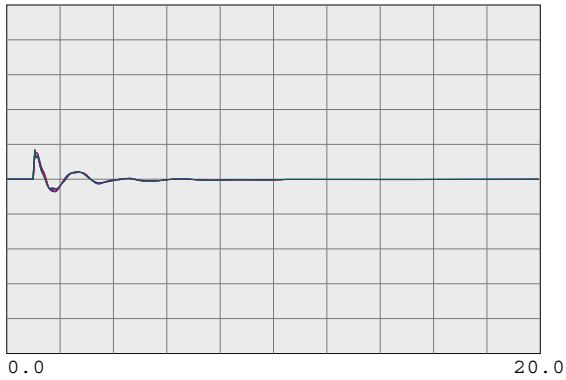
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

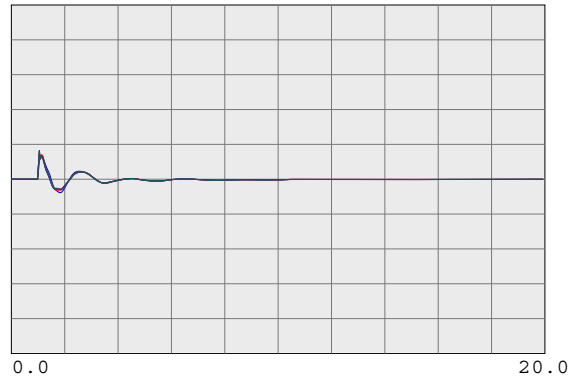
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

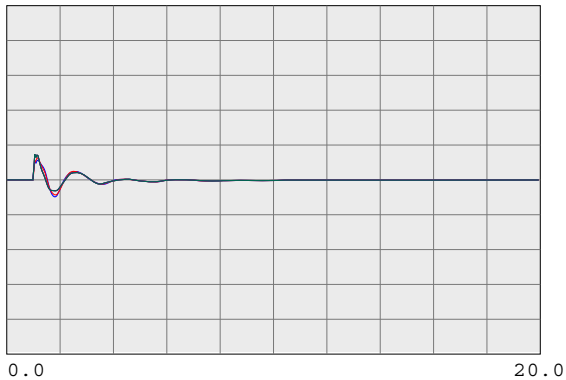
230-KV SYSTEM FREQUENCIES



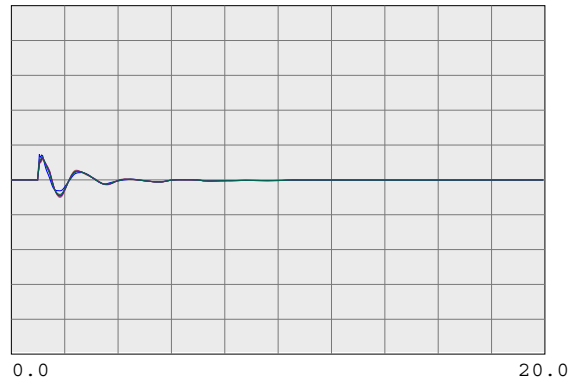
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



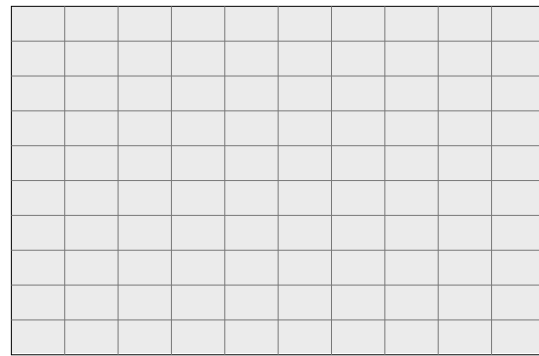
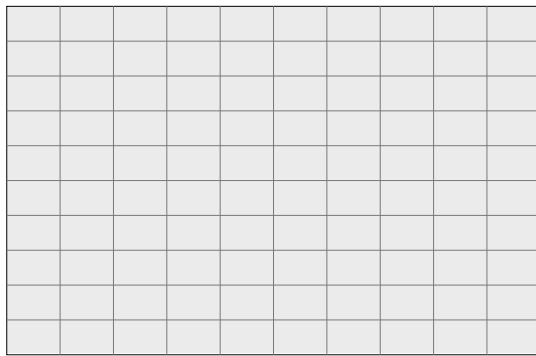
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



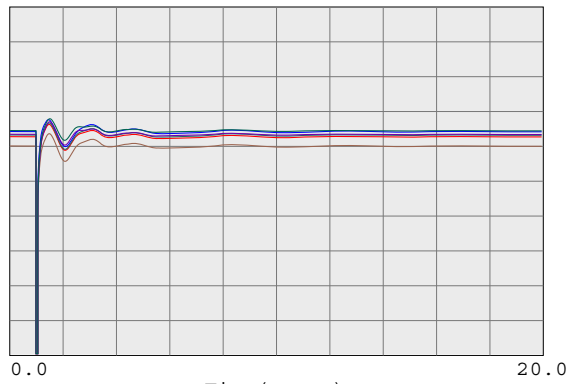
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

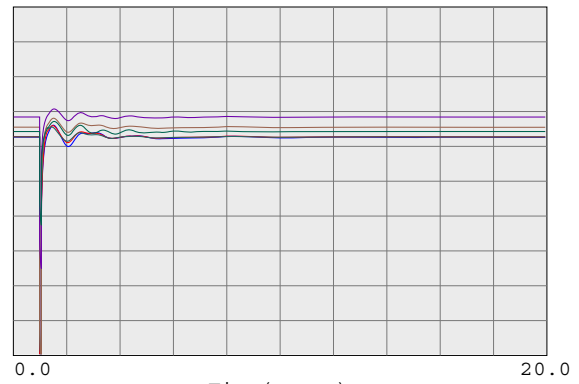


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



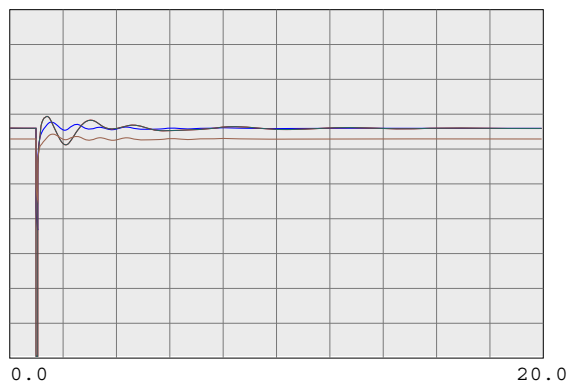
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



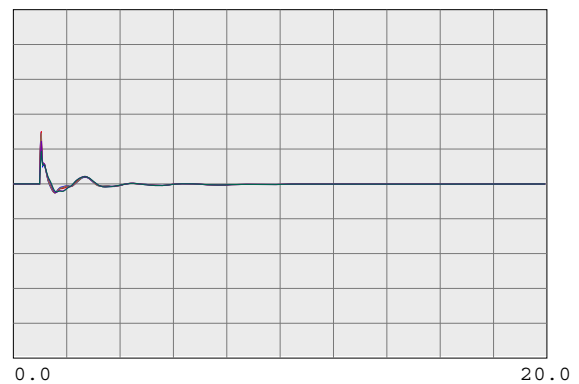
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



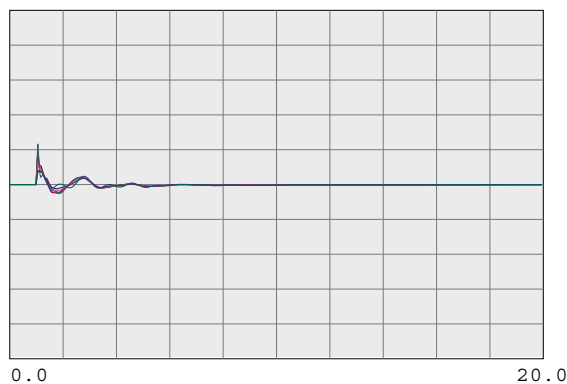
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



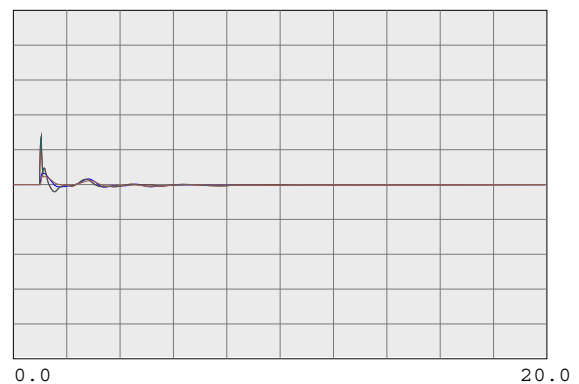
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

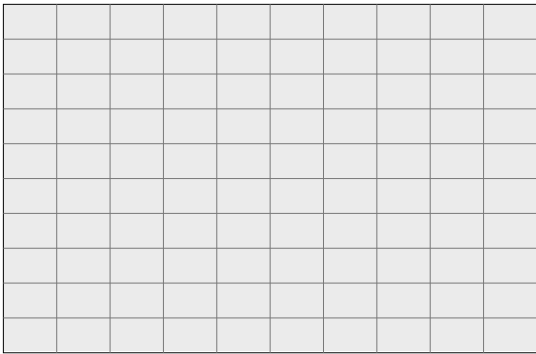
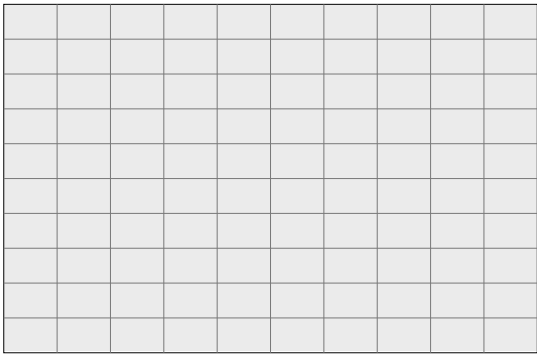
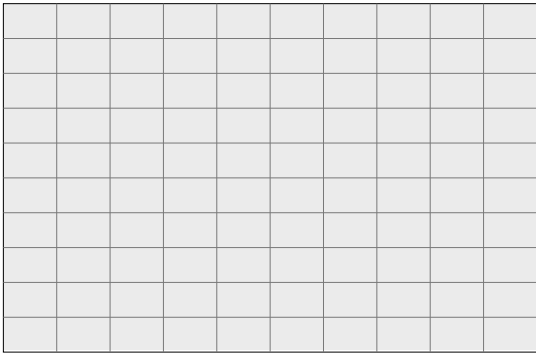
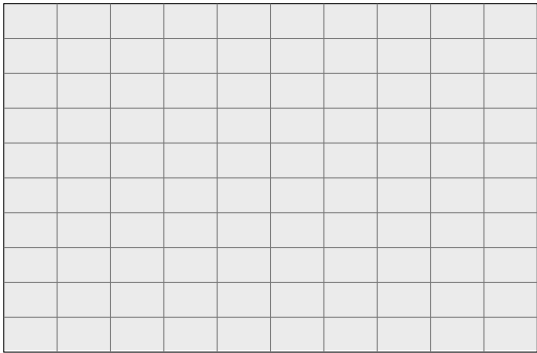
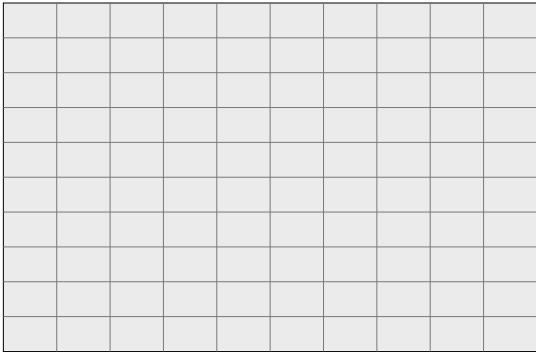
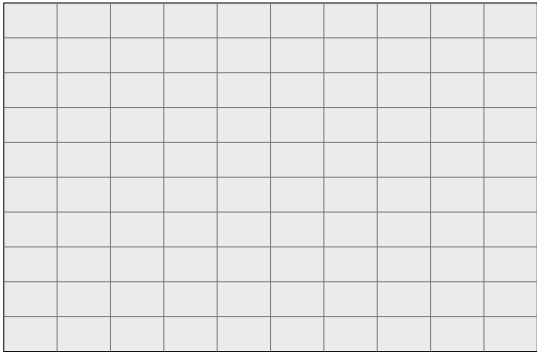
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

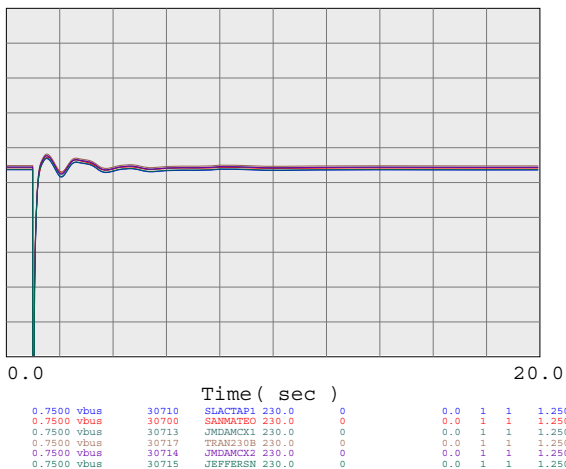
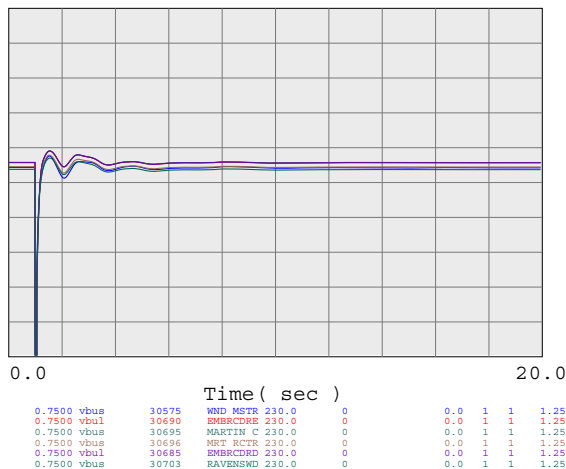
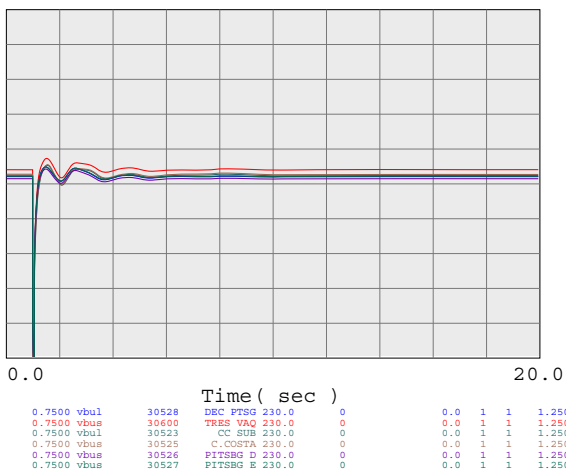
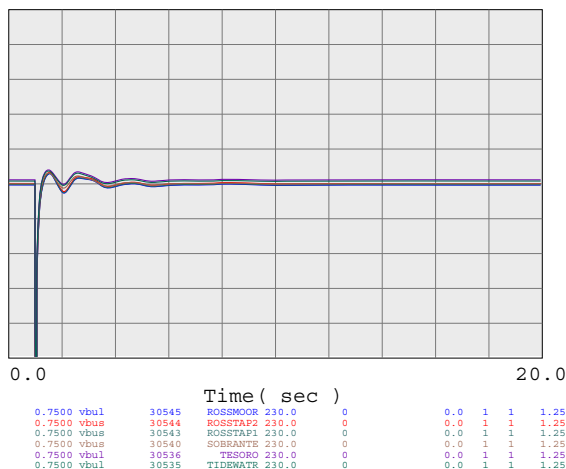
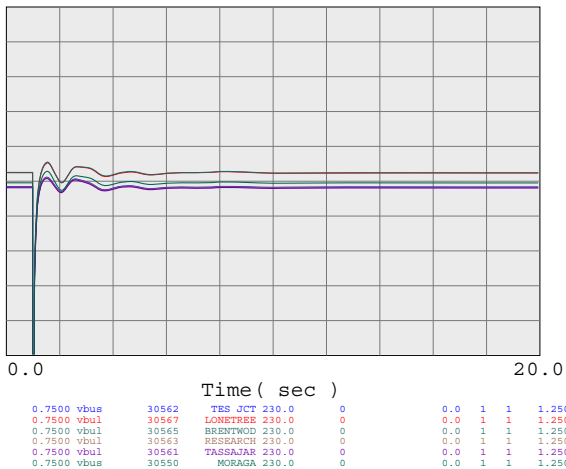
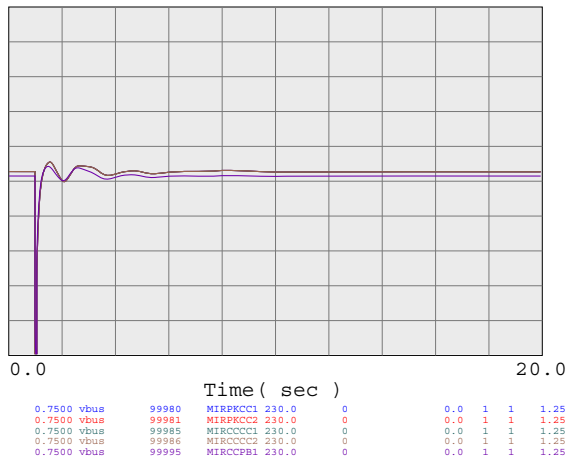
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



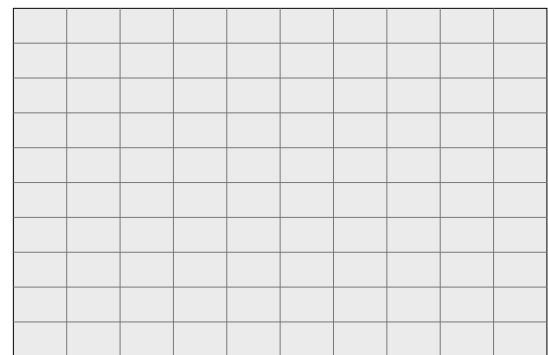
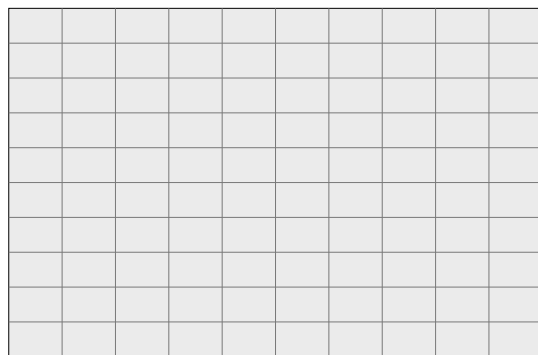
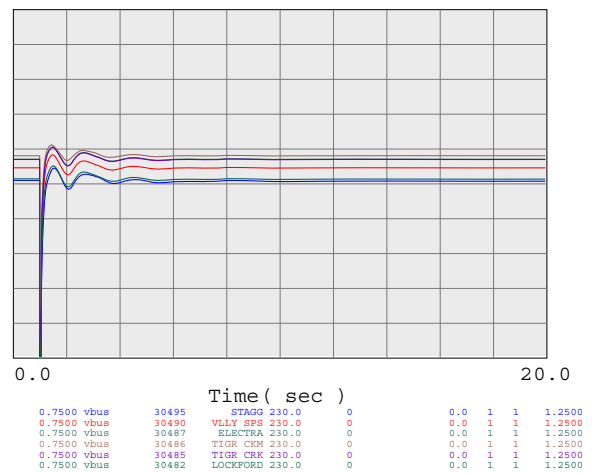
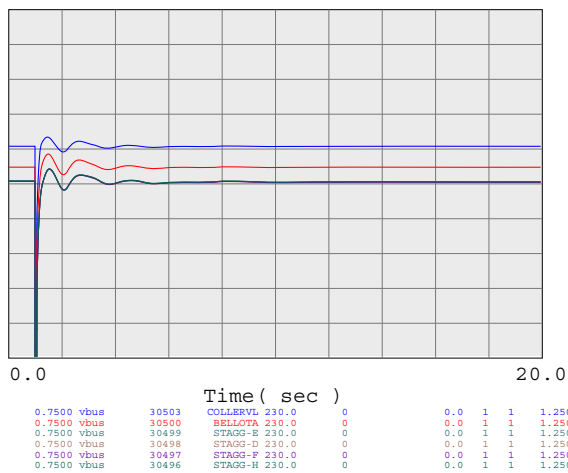
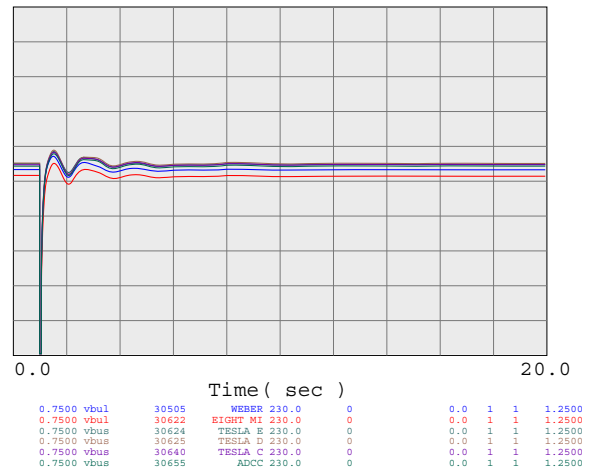
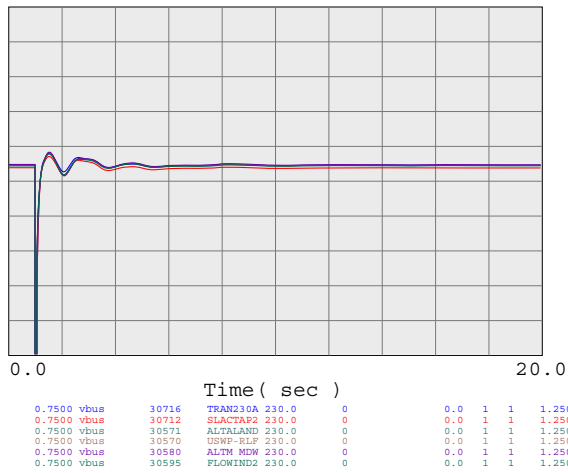
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

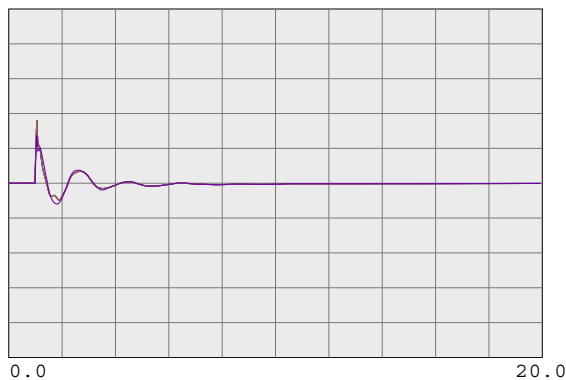


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



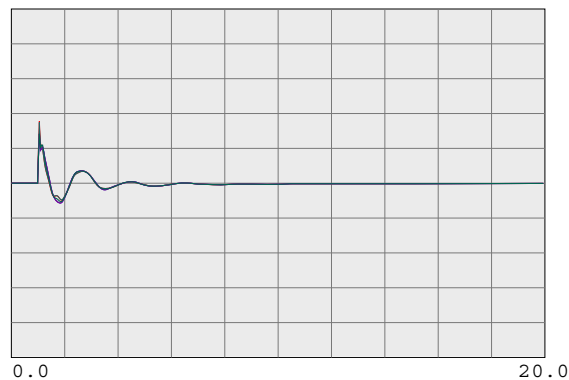
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

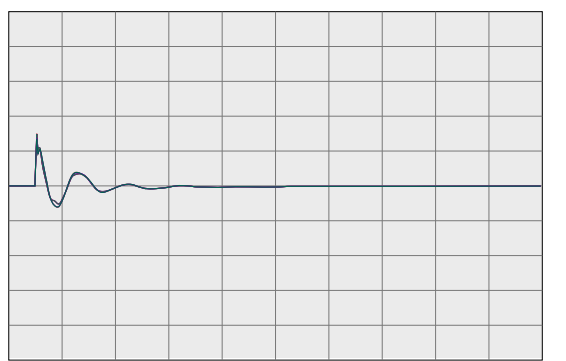
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

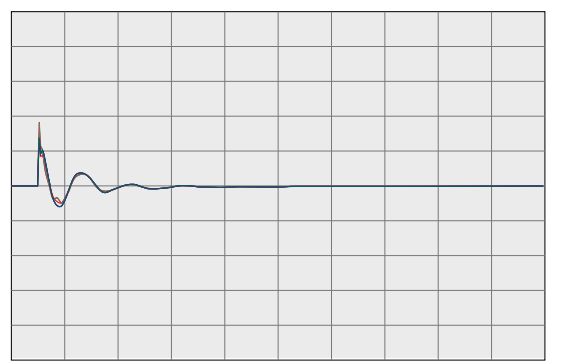
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

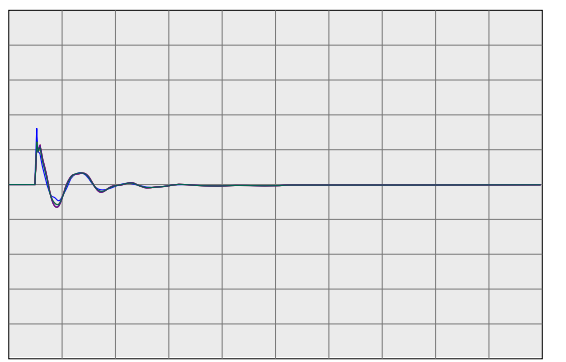
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

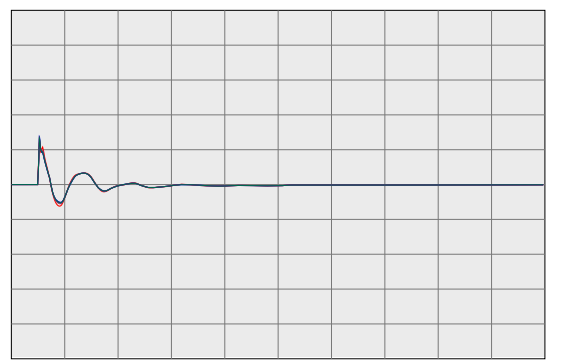
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

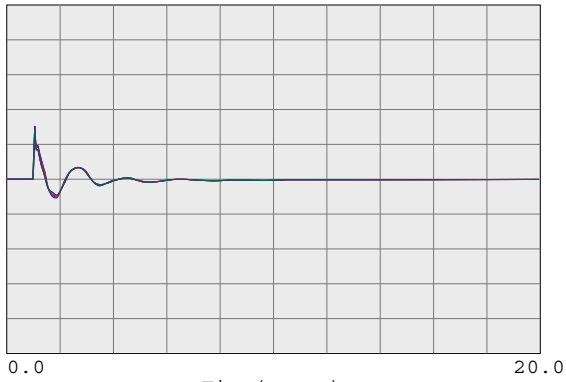
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

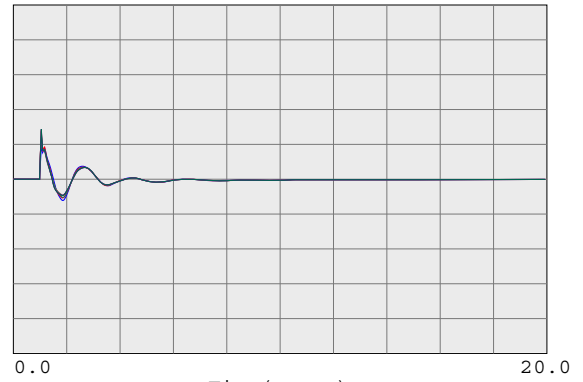
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

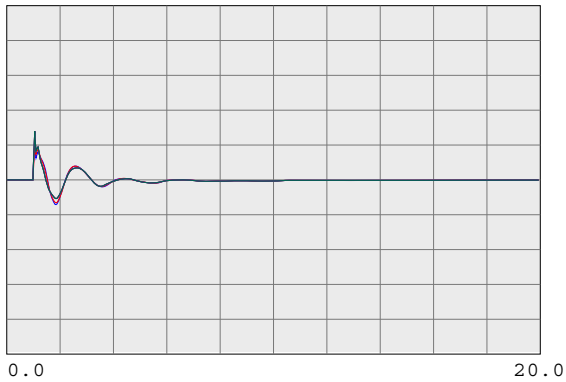
230-KV SYSTEM FREQUENCIES



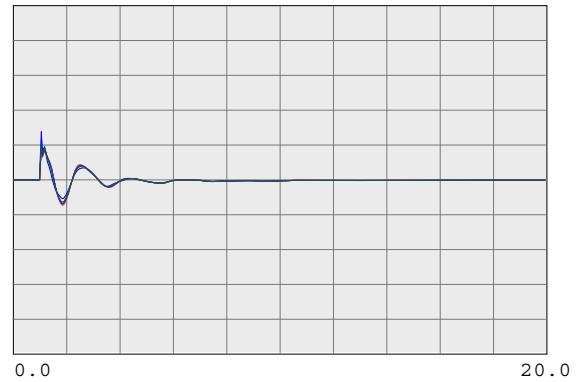
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



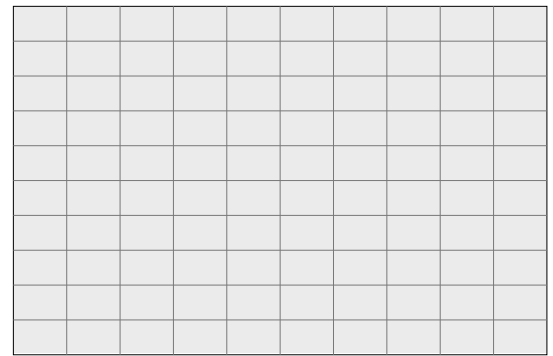
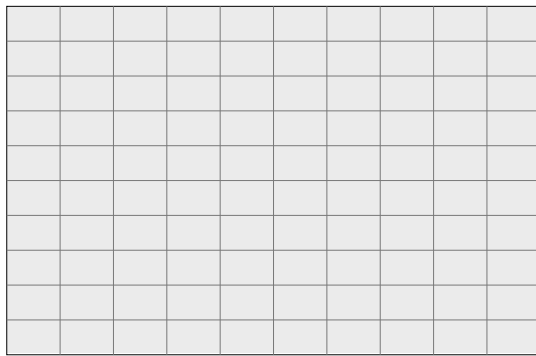
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

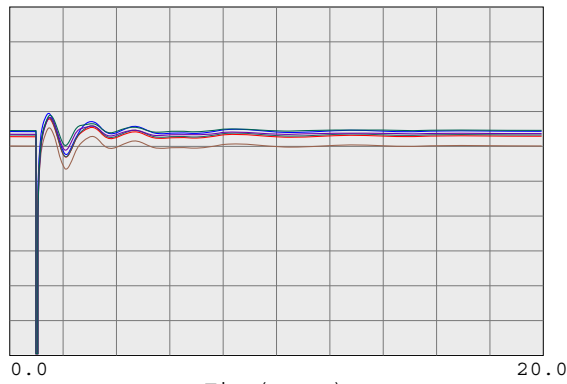


Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

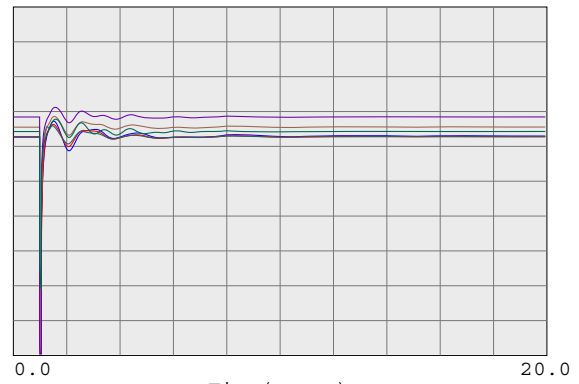


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

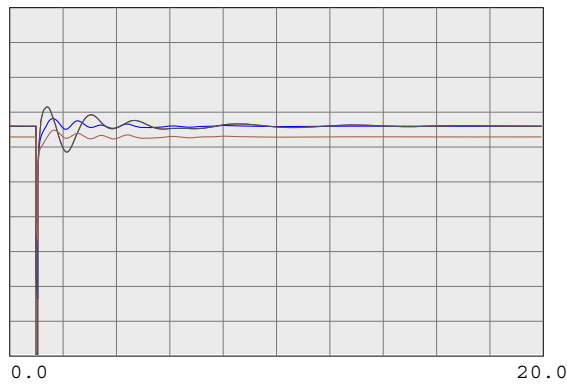
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



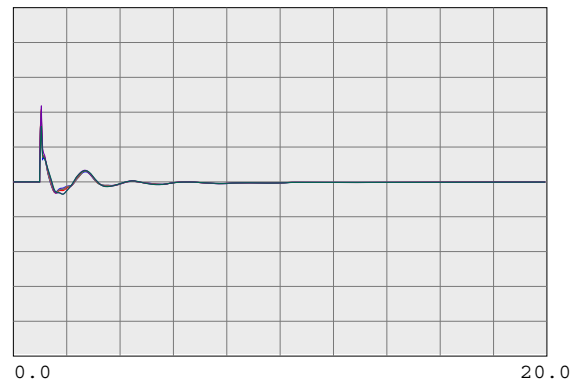
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



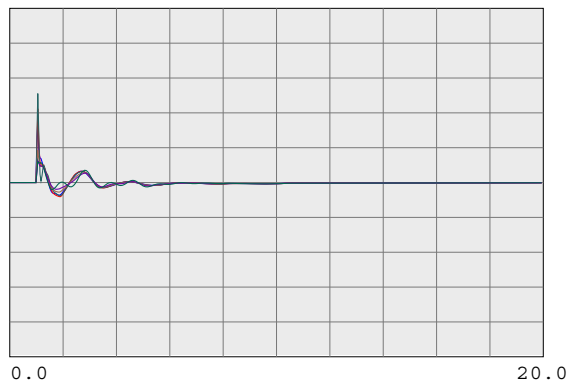
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOS BANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



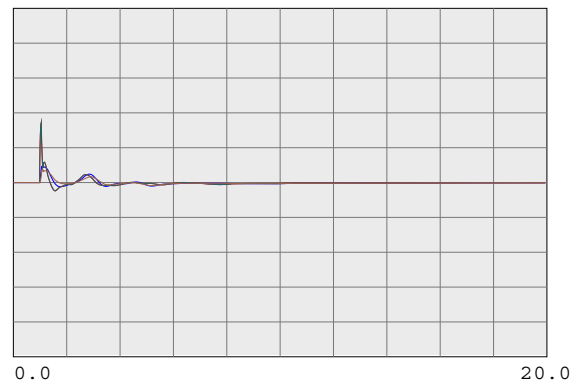
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30015	TABLE MT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30020	GLINDA 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30025	MAXWELL 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30030	VACA-DIX 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30035	TRACY 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30042	METCALF 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30045	MOSSLAND 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30050</td> <td>LOS BANOS 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30050	LOS BANOS 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30055	GATES 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30057	DIABLO 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTACK 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	45035	CAPTACK 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	40687	MALIN 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	24156	VINCENT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

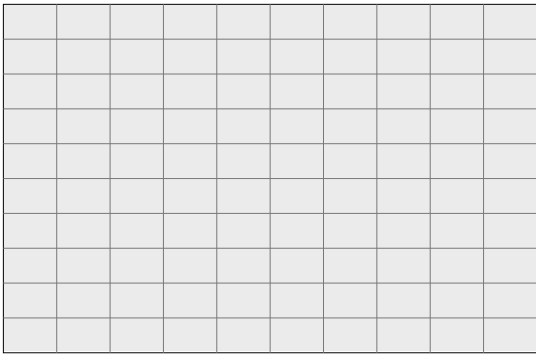
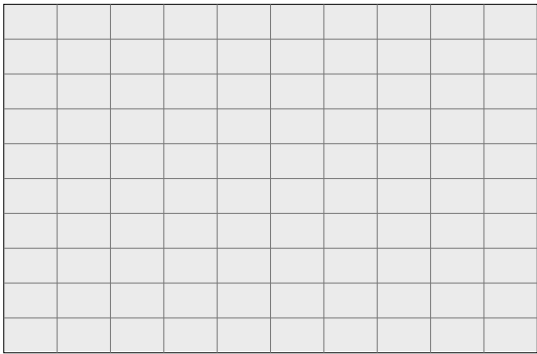
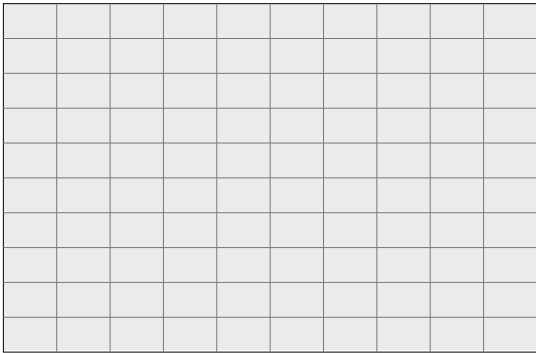
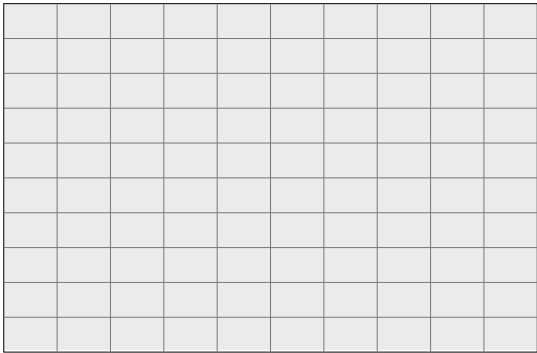
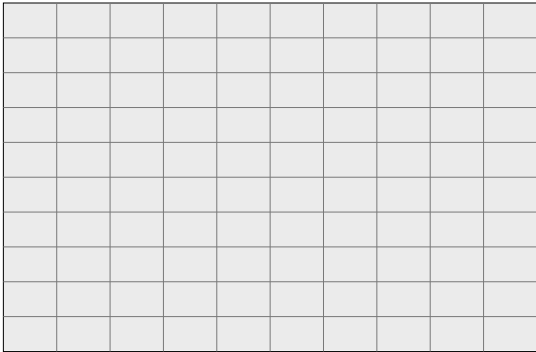
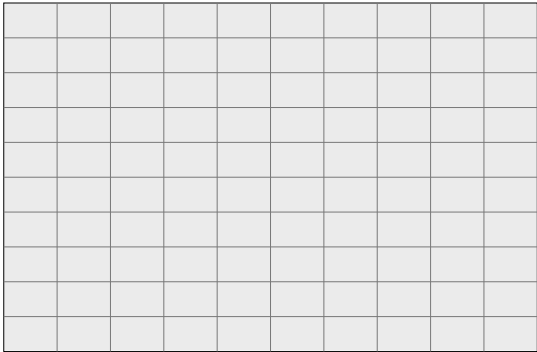
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

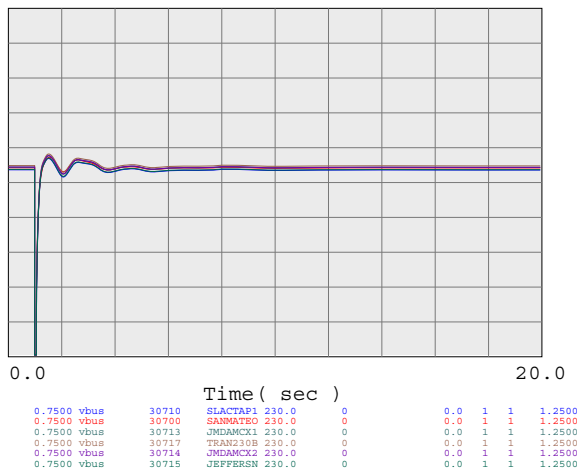
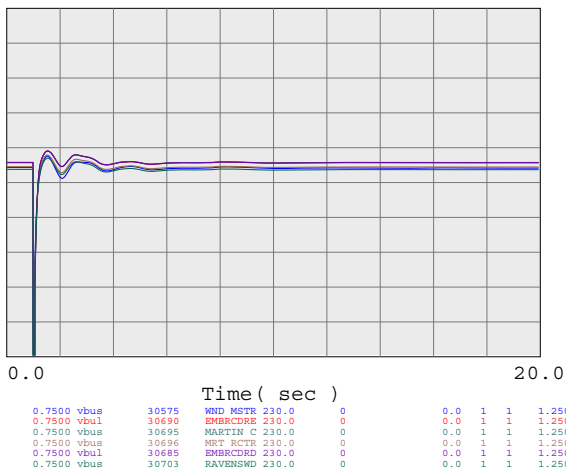
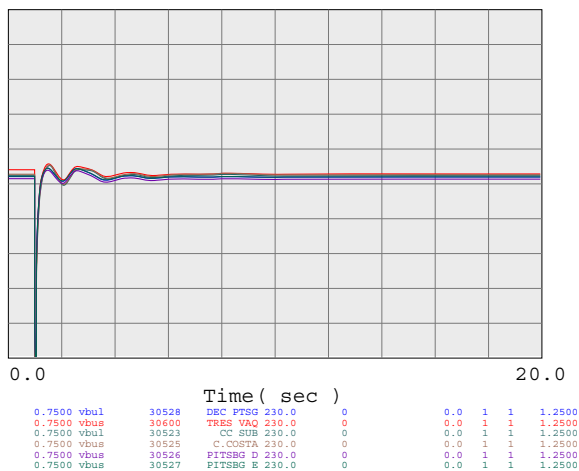
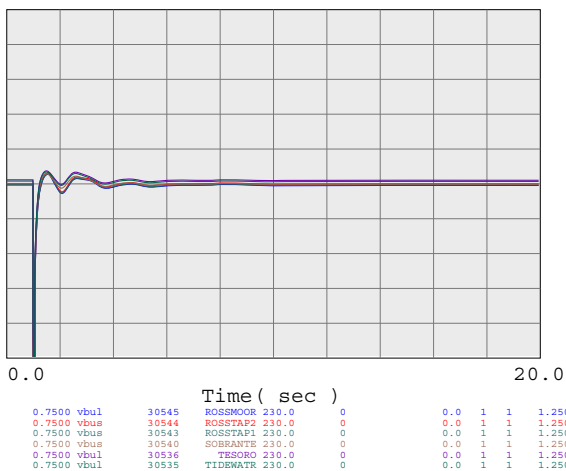
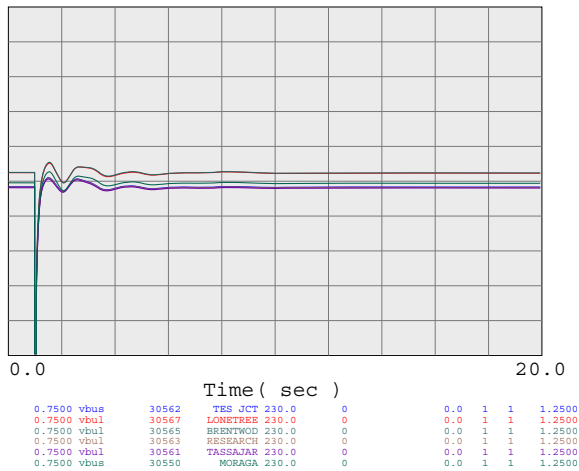
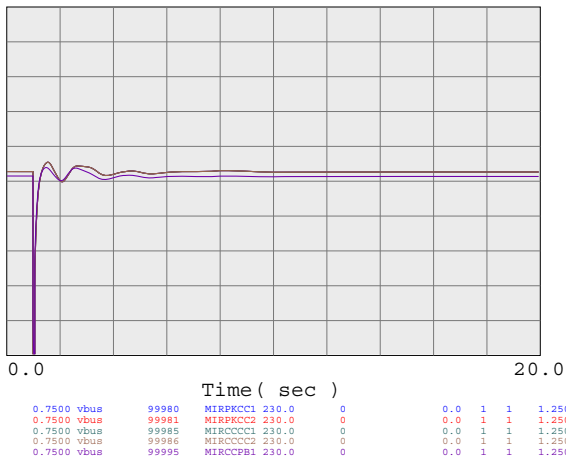
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



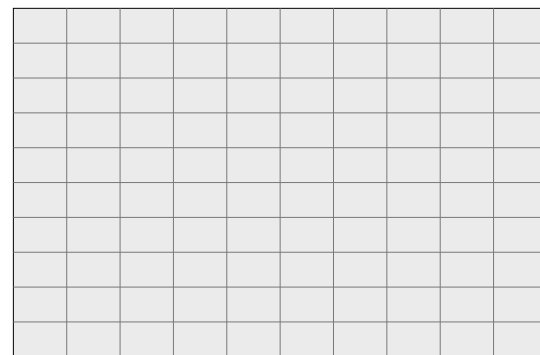
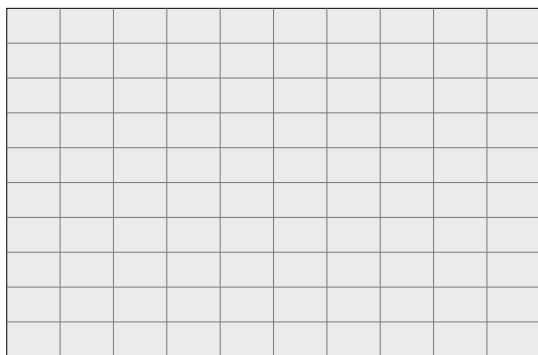
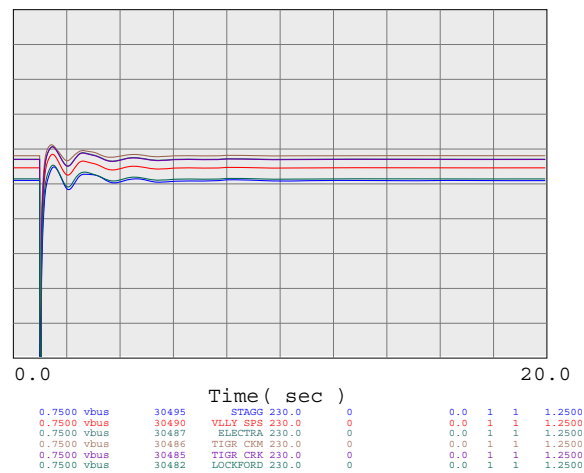
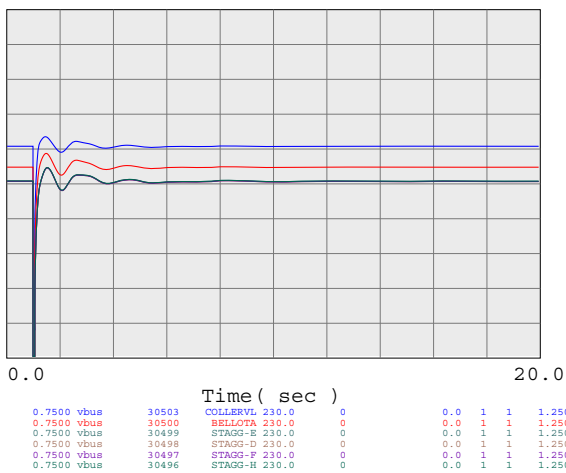
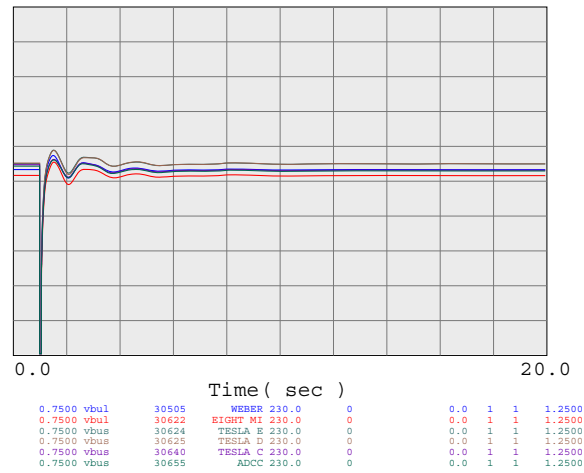
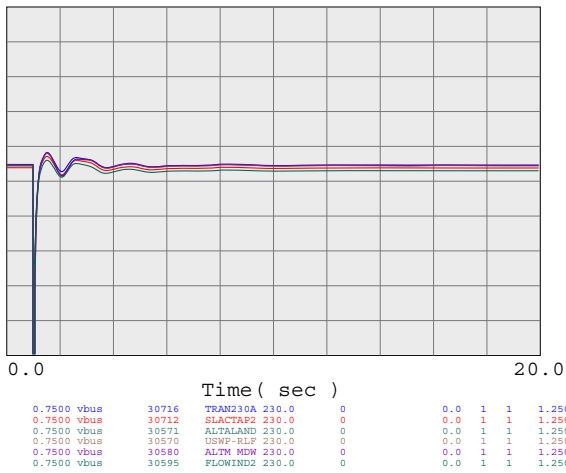
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

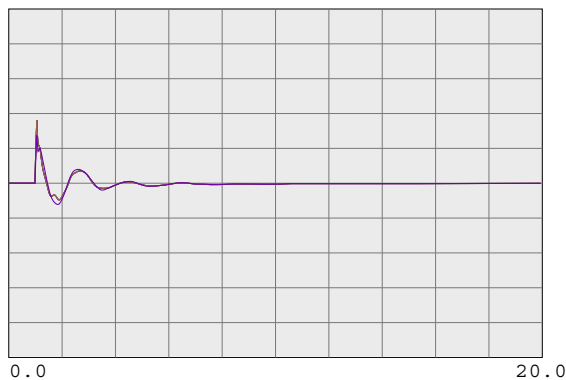


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



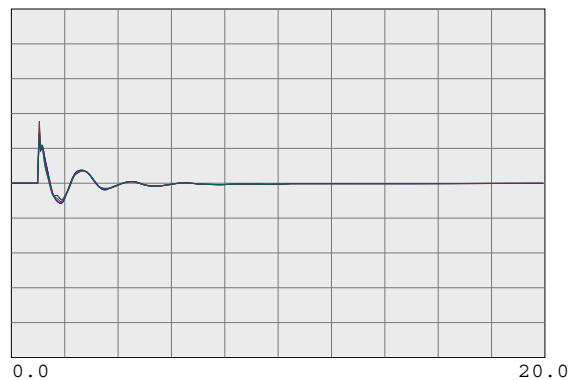
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

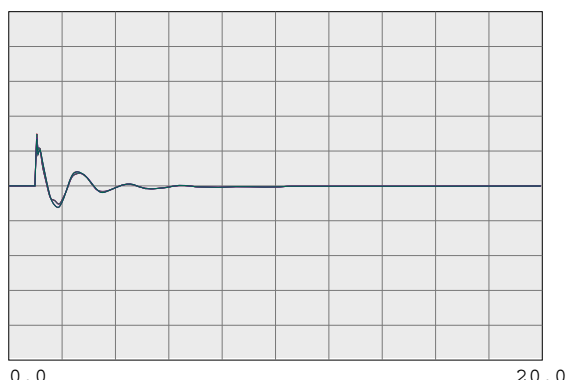
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

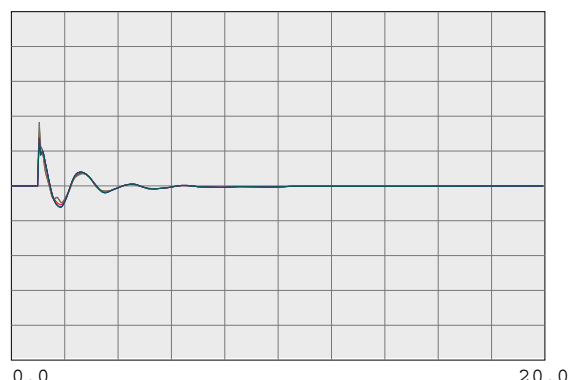
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

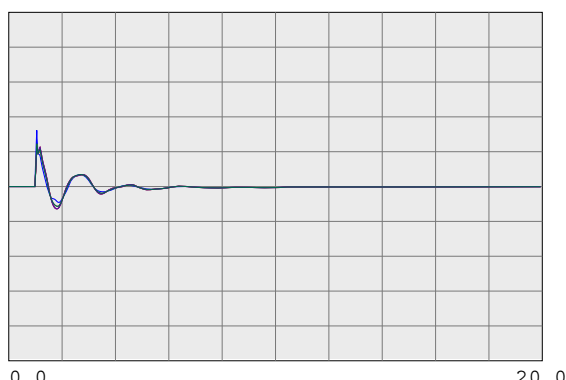
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

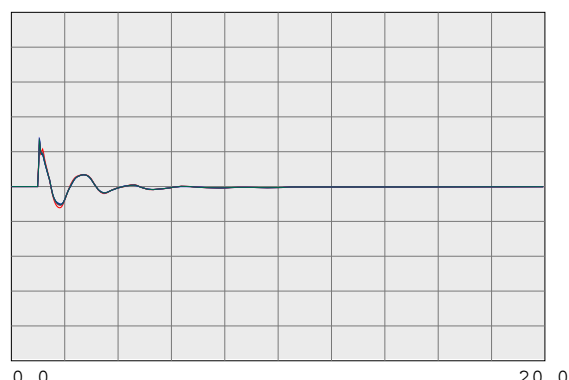
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

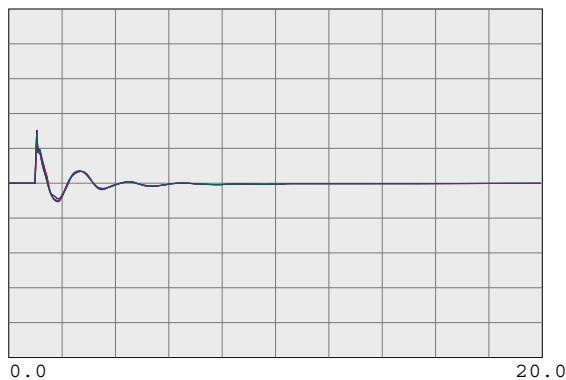
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

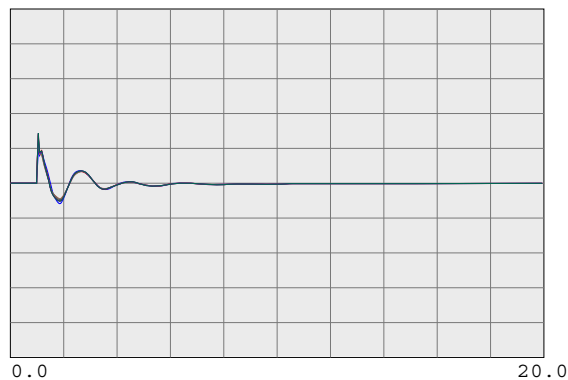
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

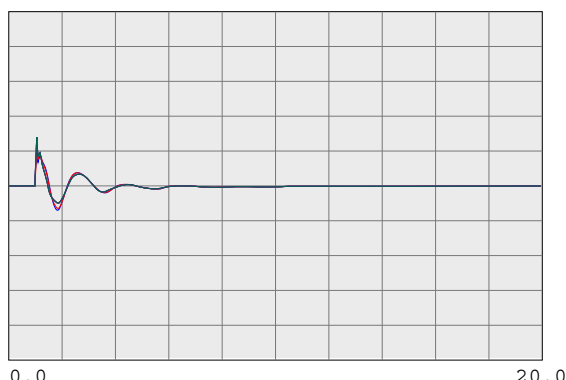
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

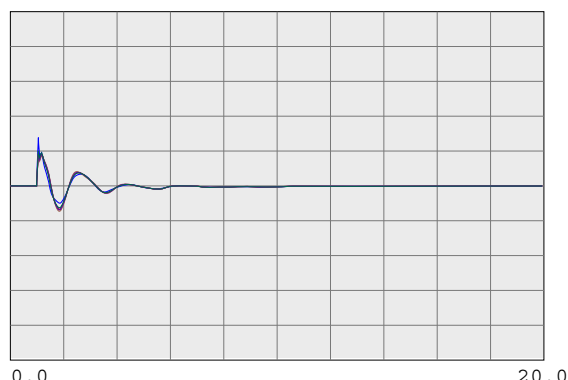
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

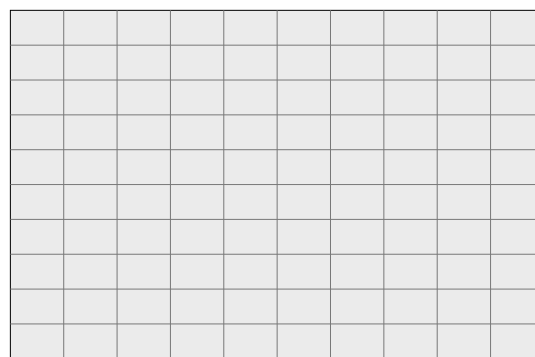
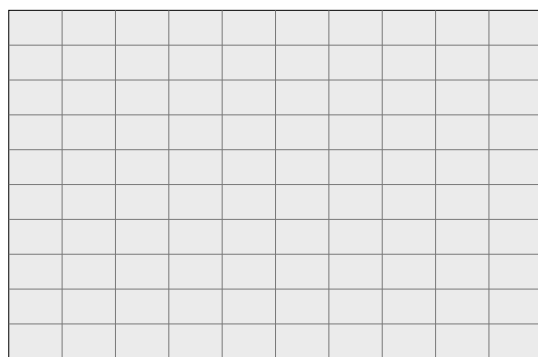
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

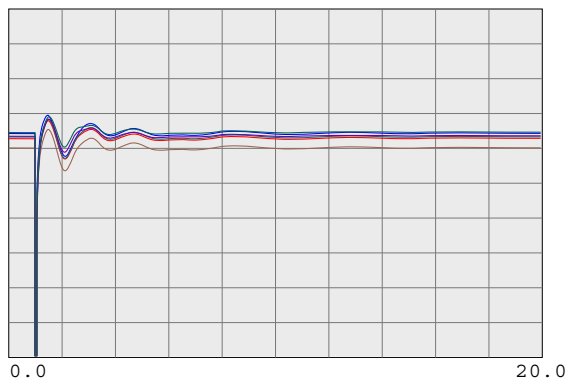
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

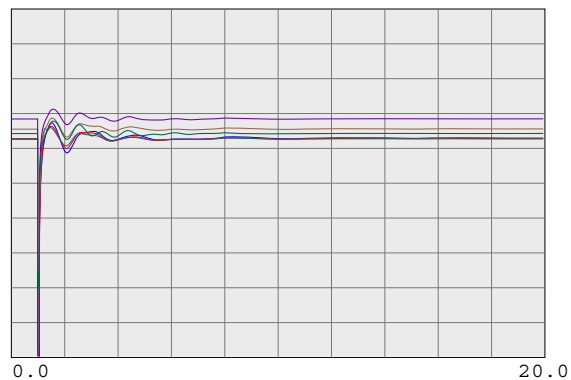
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

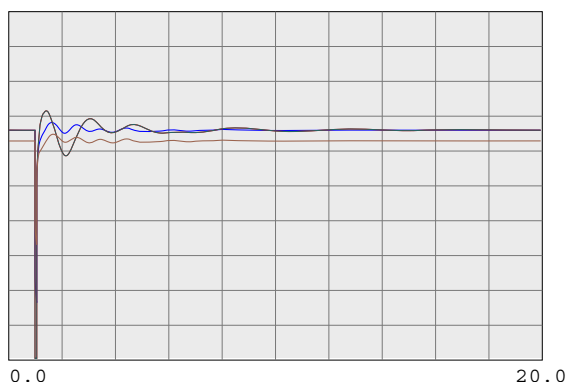
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



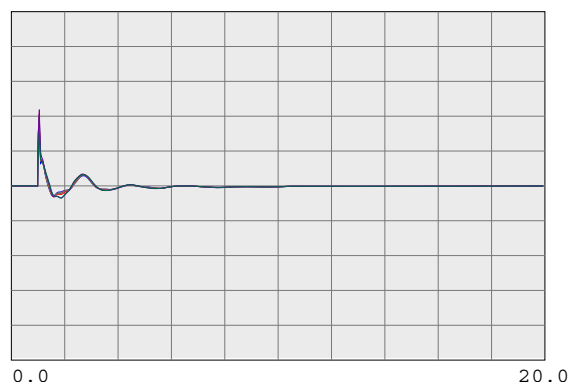
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30005	ROUND MT 500.0	0	0.0
0.7500 vbus	30015	TABLE MT 500.0	0	0.0
0.7500 vbus	30020	GLINDA 500.0	0	0.0
0.7500 vbus	30025	MAXWELL 500.0	0	0.0
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0
0.7500 vbus	30035	TRACY 500.0	0	0.0



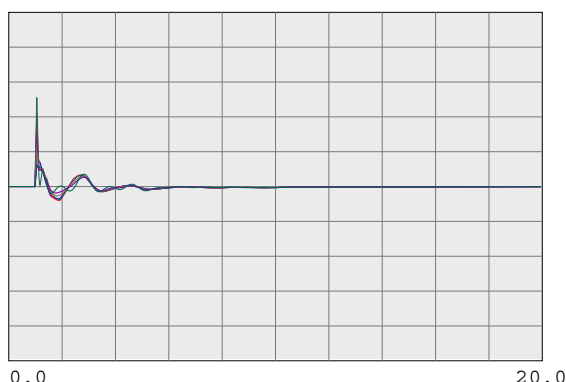
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30040	TESLA 500.0	0	0.0
0.7500 vbus	30042	METCALF 500.0	0	0.0
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0
0.7500 vbus	30055	GATES 500.0	0	0.0
0.7500 vbus	30057	DIABLO 500.0	0	0.0



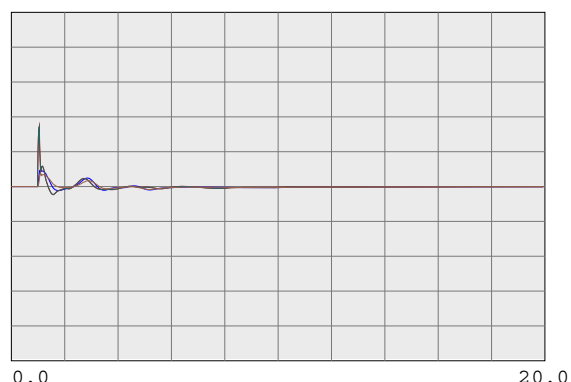
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30060	MIDWAY 500.0	0	0.0
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0
0.7500 vbus	40687	MALIN 500.0	0	0.0
0.7500 vbus	24156	VINCENT 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30005	ROUND MT 500.0	0	0.0
59.4000 fbus	30015	TABLE MT 500.0	0	0.0
59.4000 fbus	30020	GLINDA 500.0	0	0.0
59.4000 fbus	30025	MAXWELL 500.0	0	0.0
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0
59.4000 fbus	30035	TRACY 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30040	TESLA 500.0	0	0.0
59.4000 fbus	30042	METCALF 500.0	0	0.0
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0
59.4000 fbus	30055	GATES 500.0	0	0.0
59.4000 fbus	30057	DIABLO 500.0	0	0.0



Time (sec)	0.0	1	1	60.6000
59.4000 fbus	30060	MIDWAY 500.0	0	0.0
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0
59.4000 fbus	40687	MALIN 500.0	0	0.0
59.4000 fbus	24156	VINCENT 500.0	0	0.0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

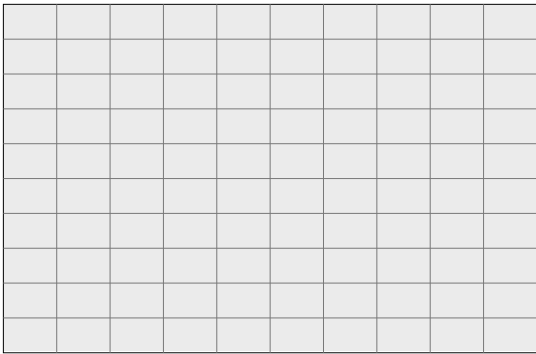
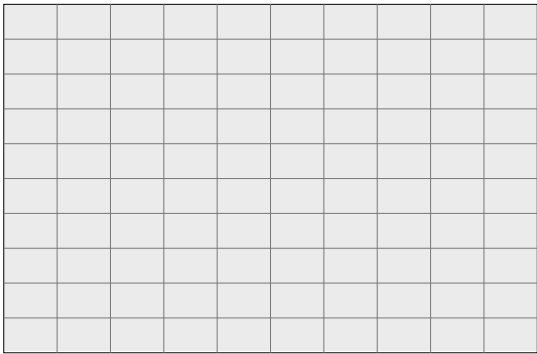
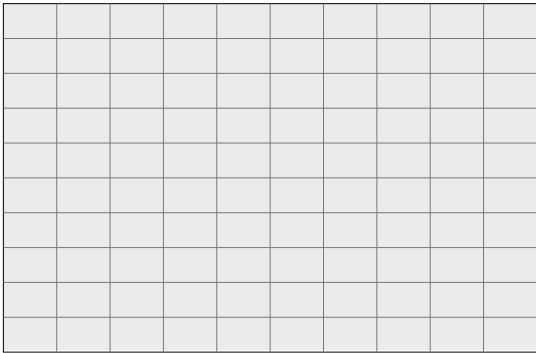
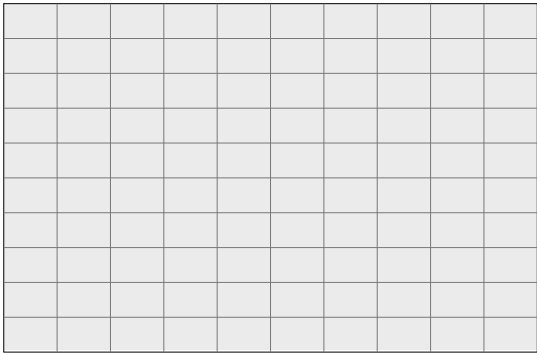
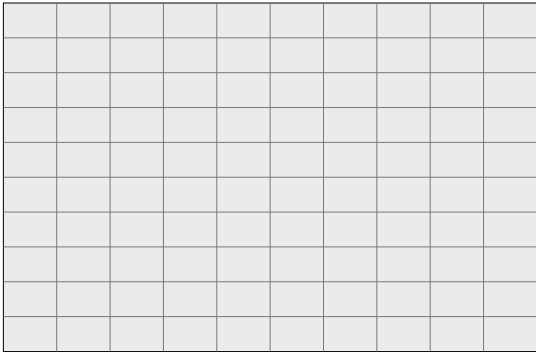
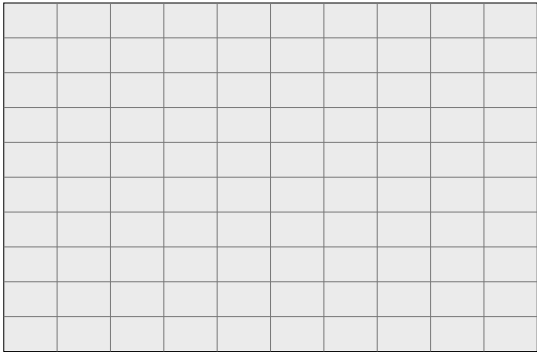
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

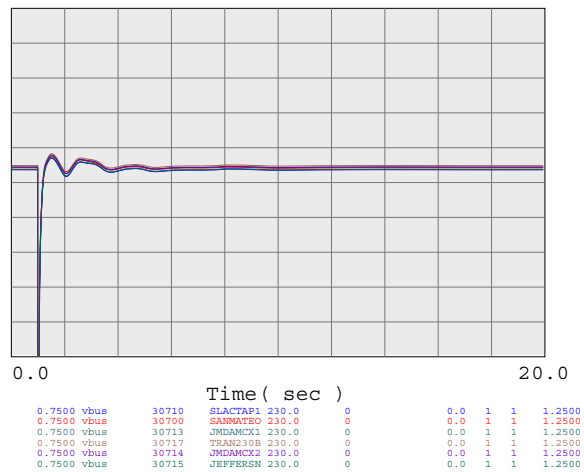
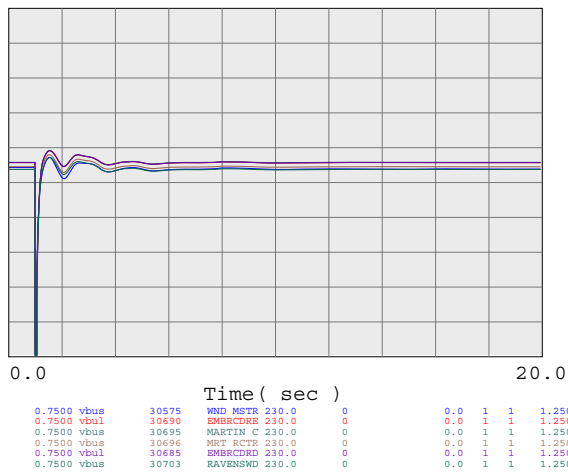
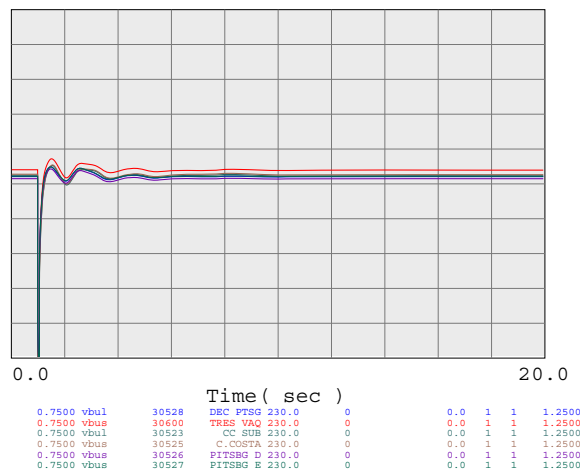
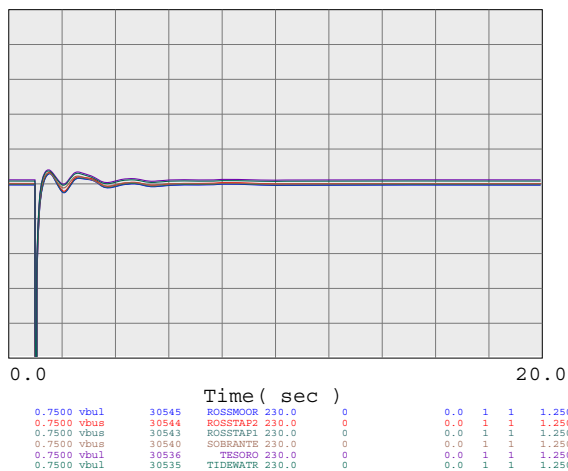
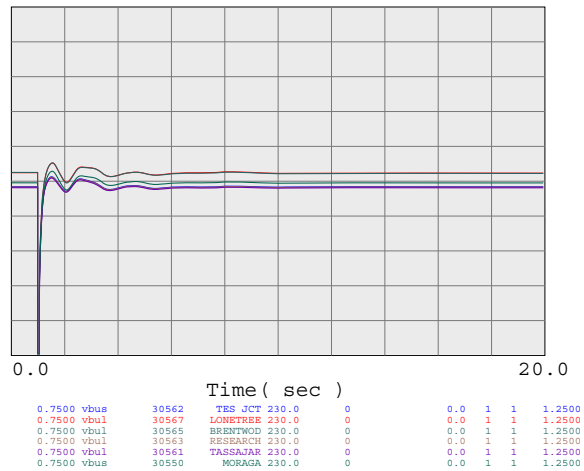
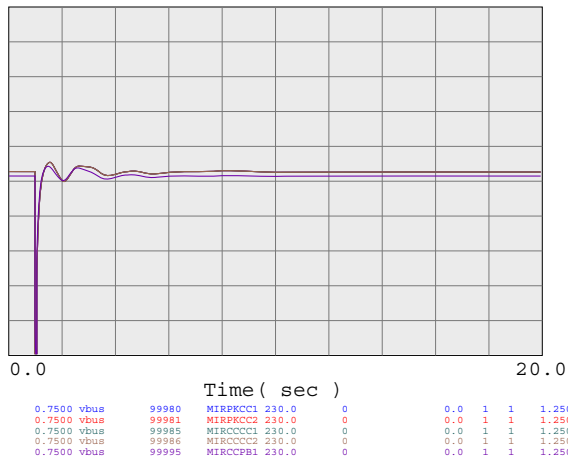
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



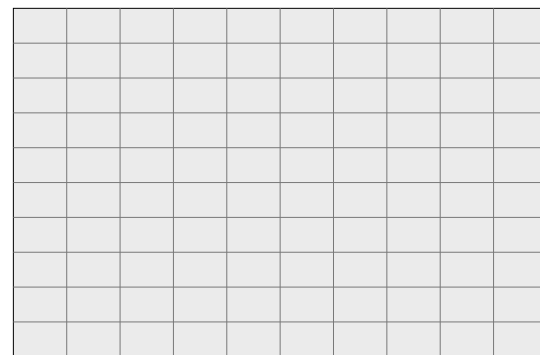
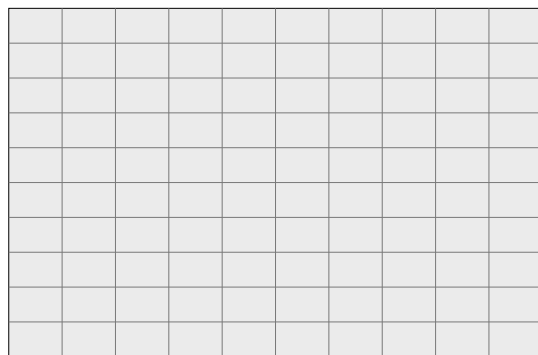
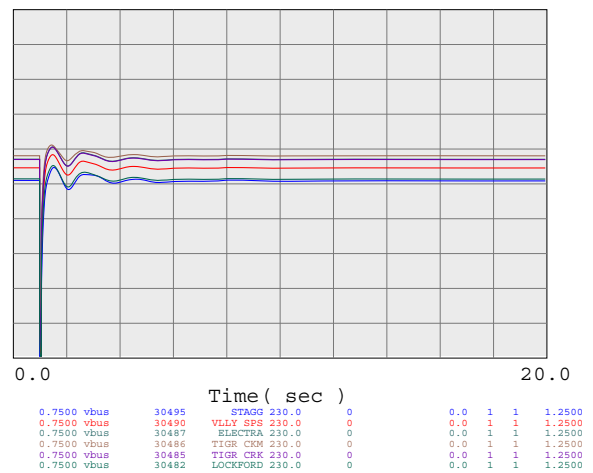
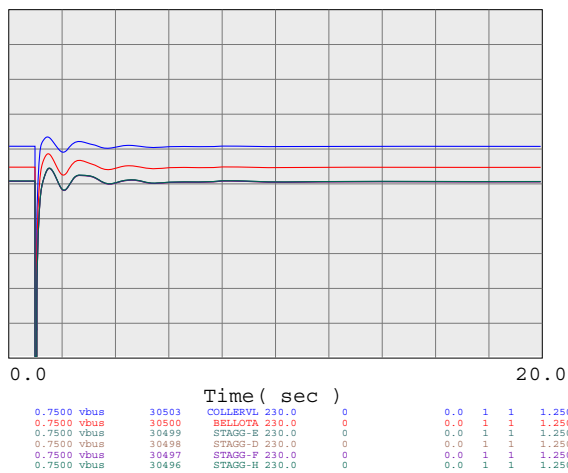
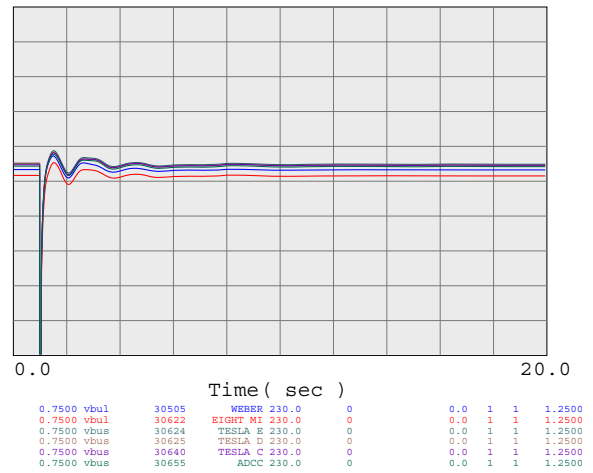
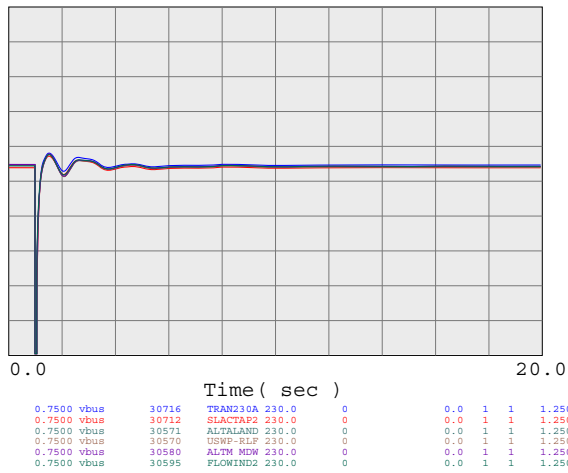
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

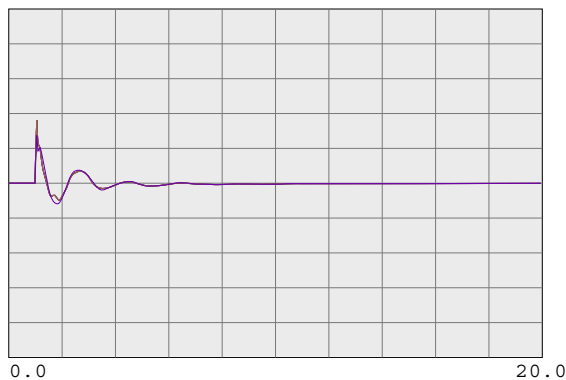


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



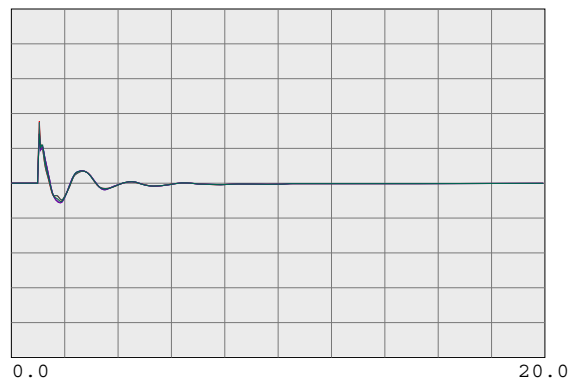
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

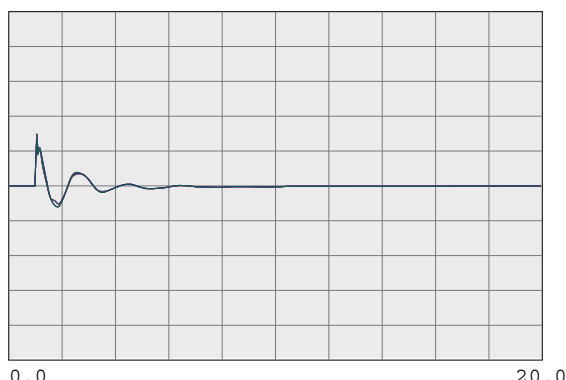
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

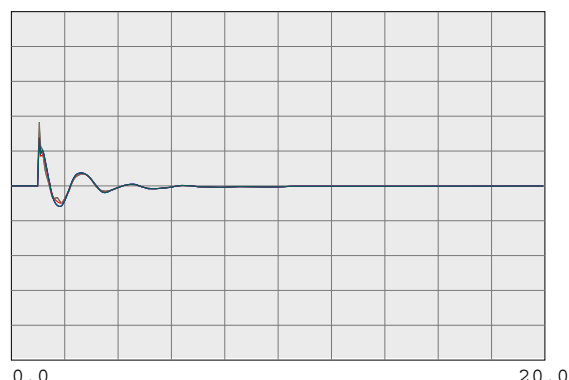
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

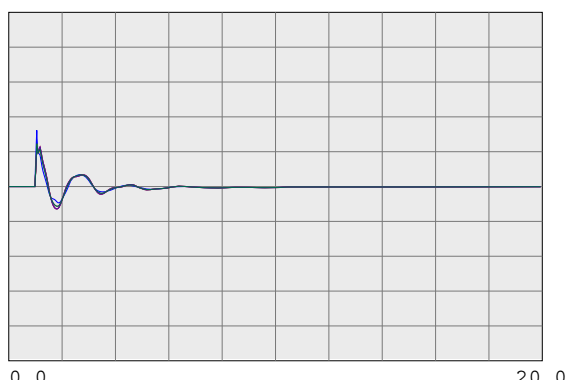
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

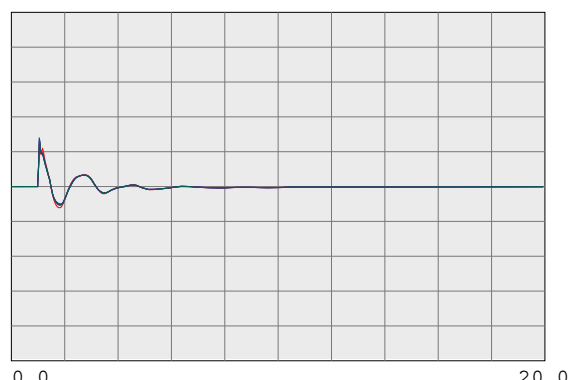
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

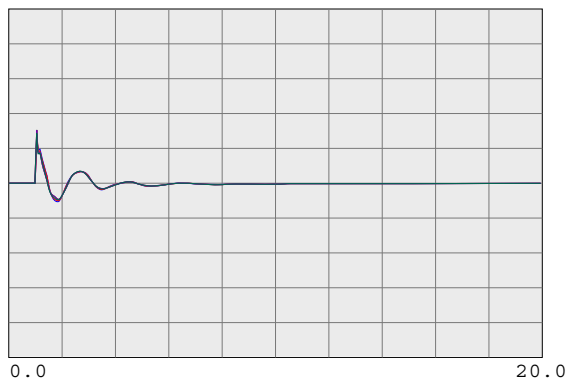
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

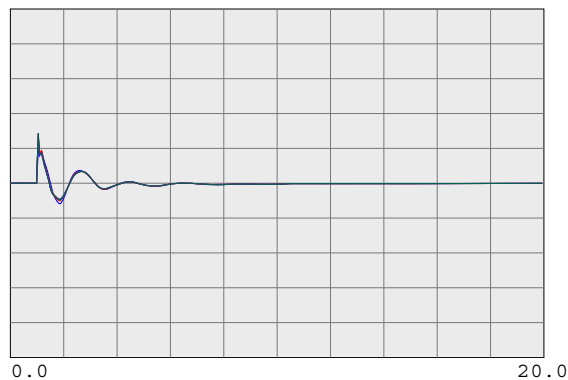
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

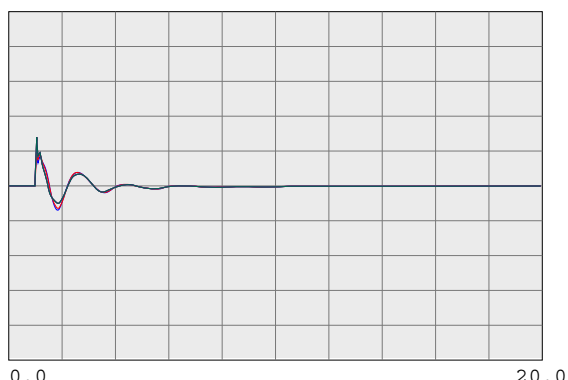
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

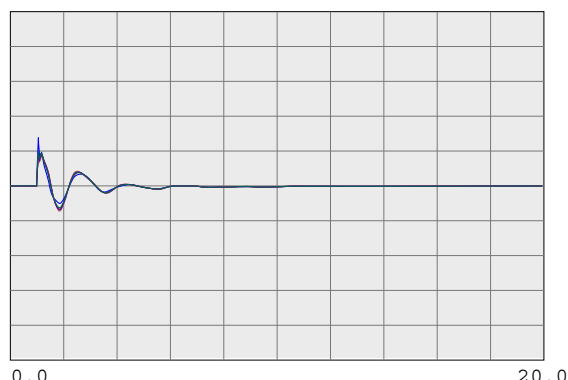
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

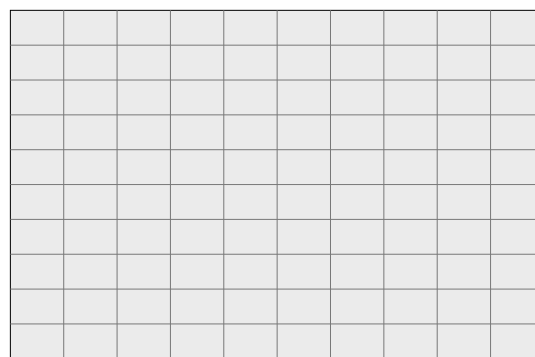
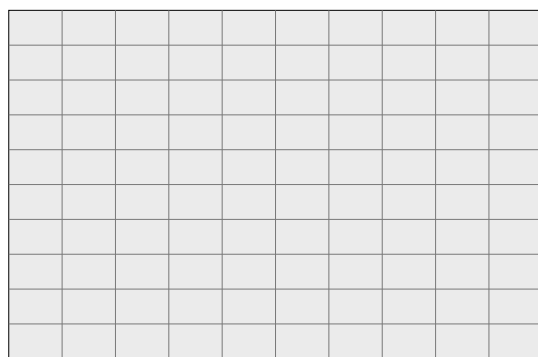
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

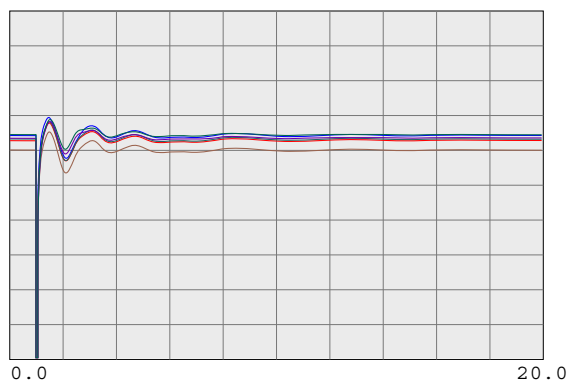
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

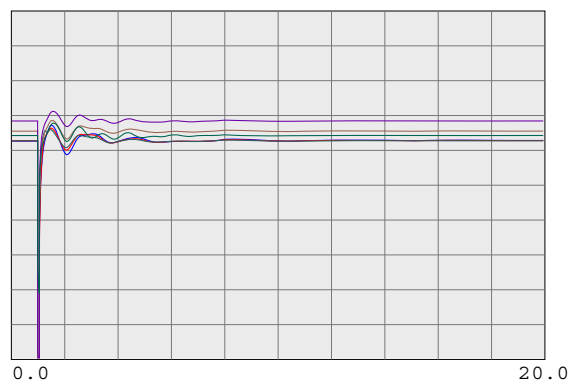
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



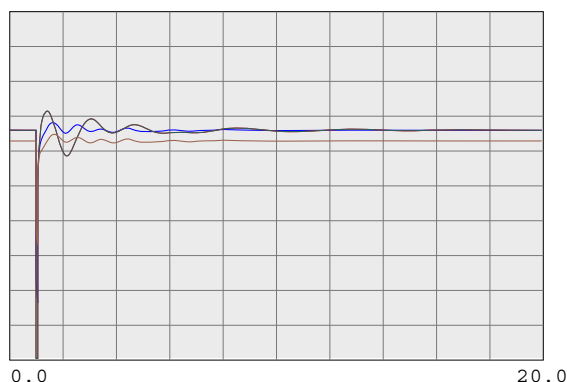
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



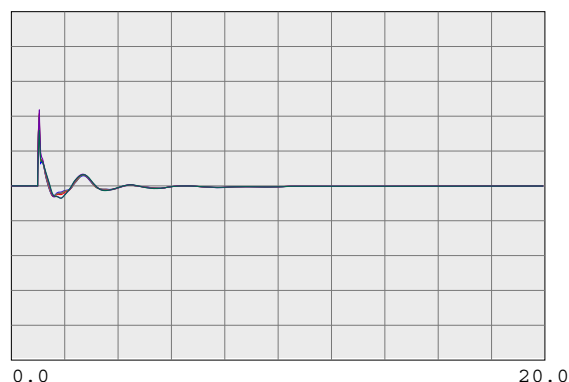
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



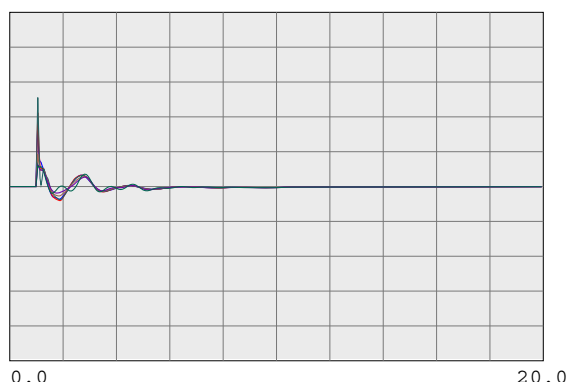
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



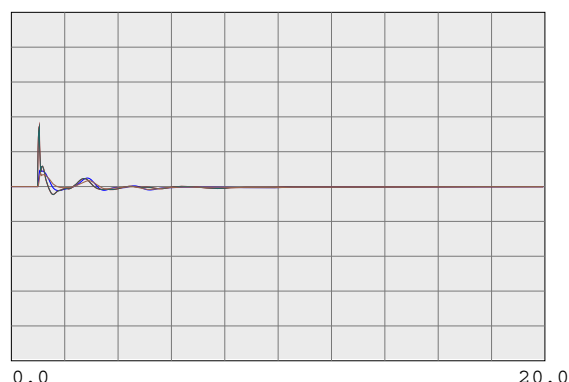
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

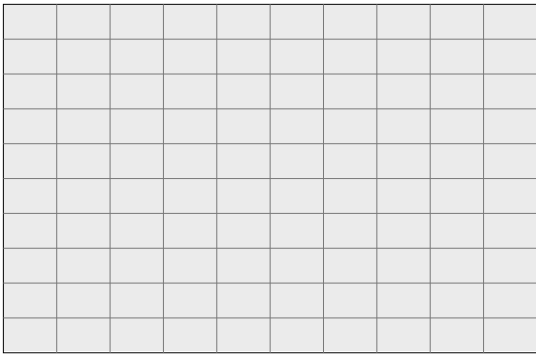
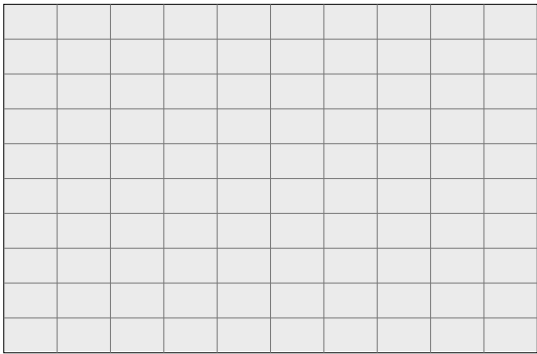
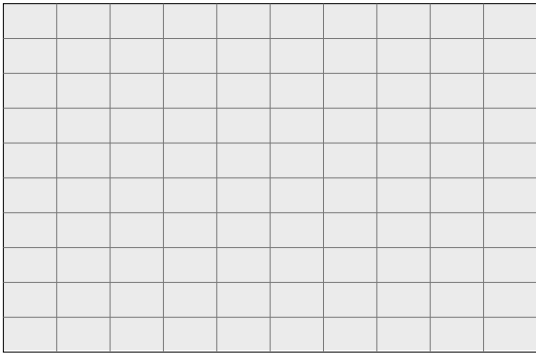
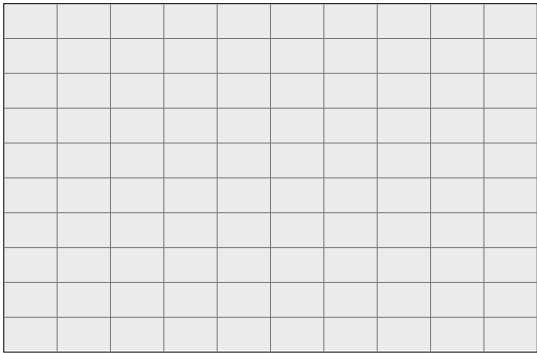
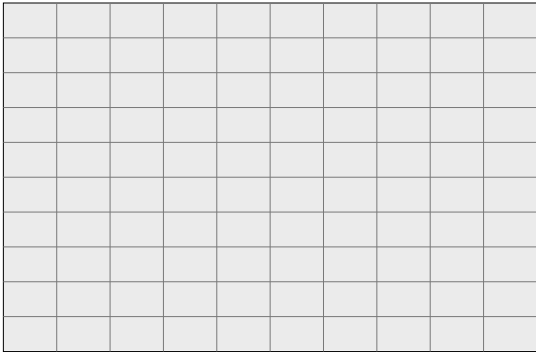
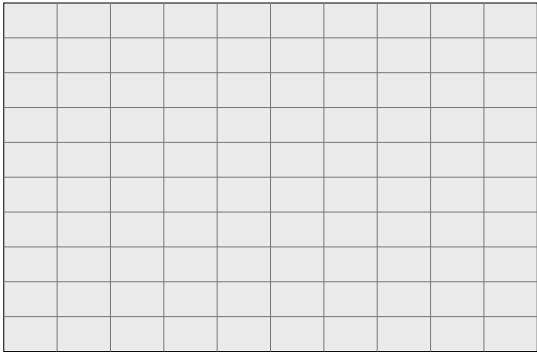
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

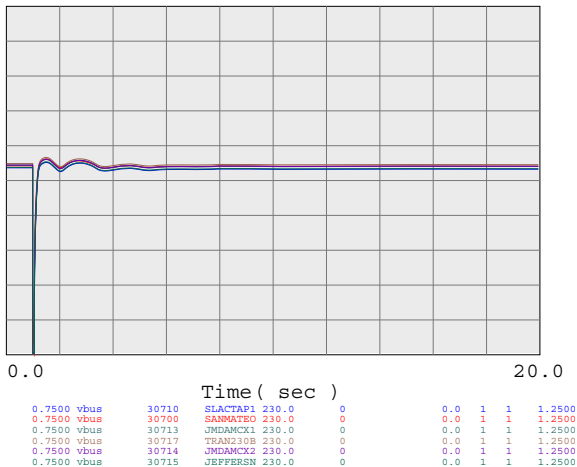
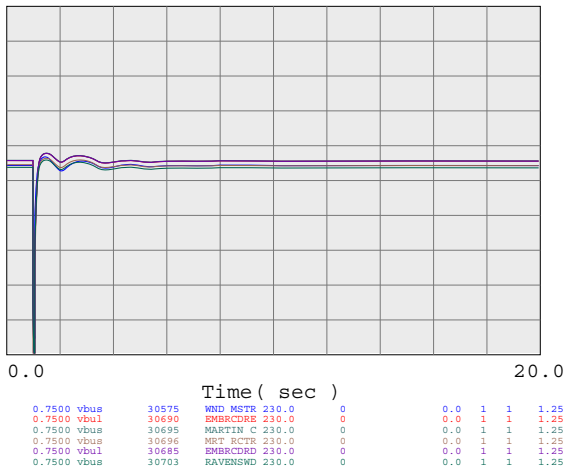
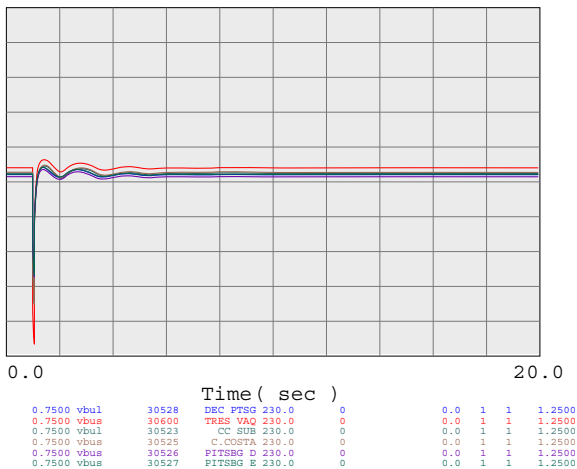
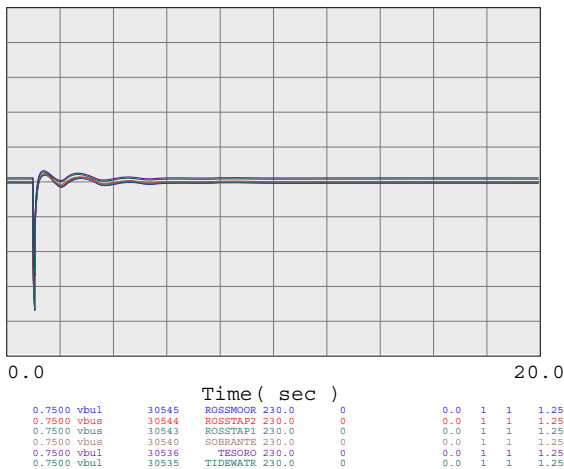
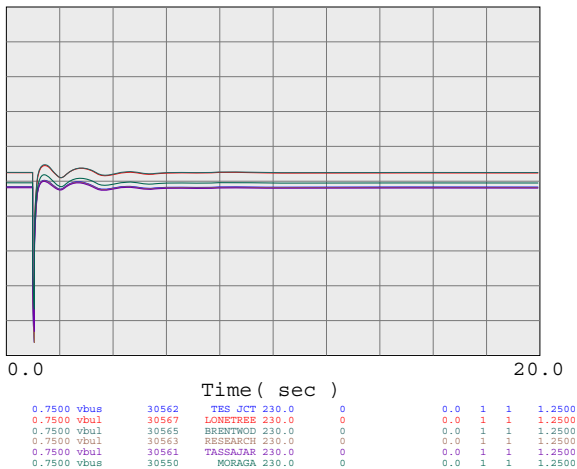
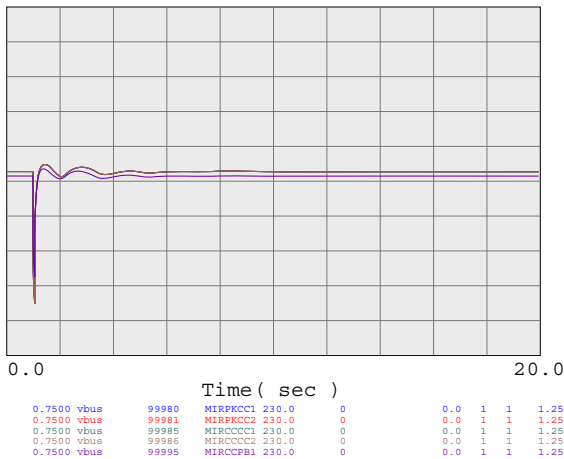
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



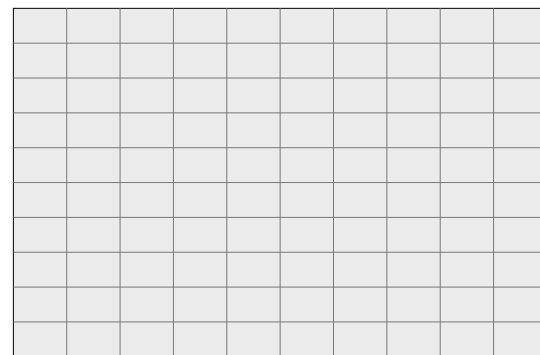
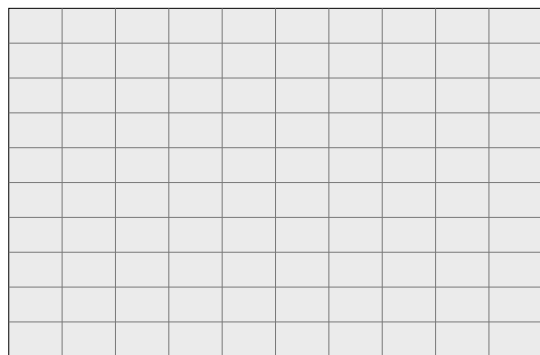
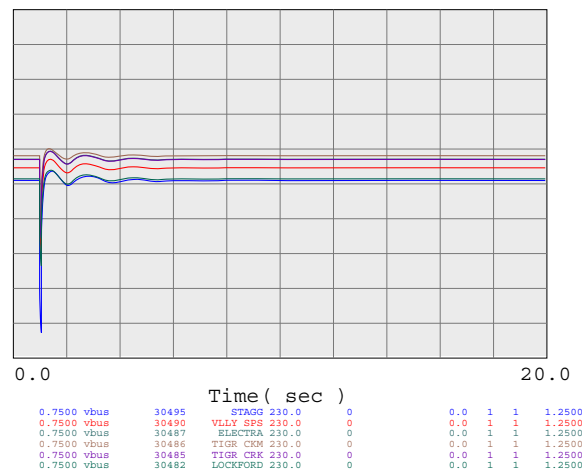
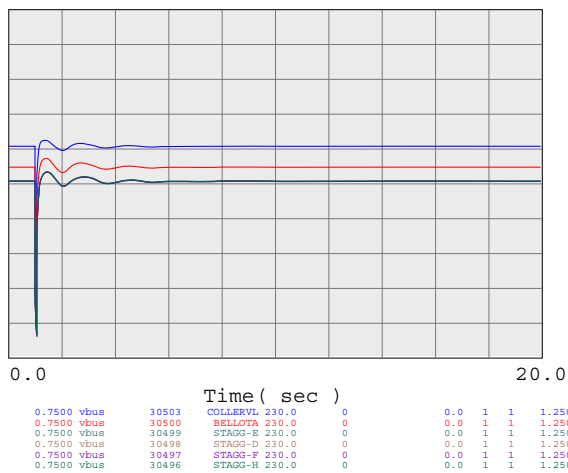
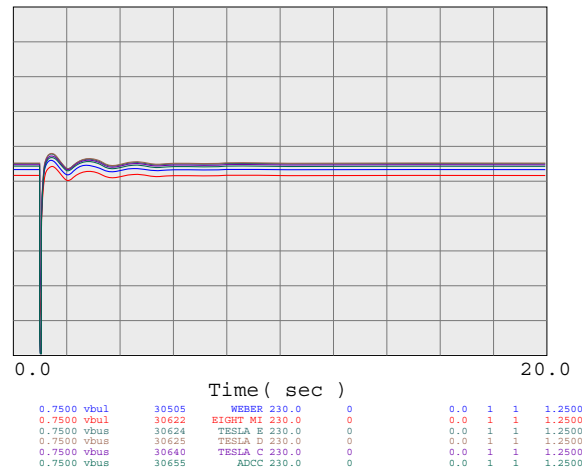
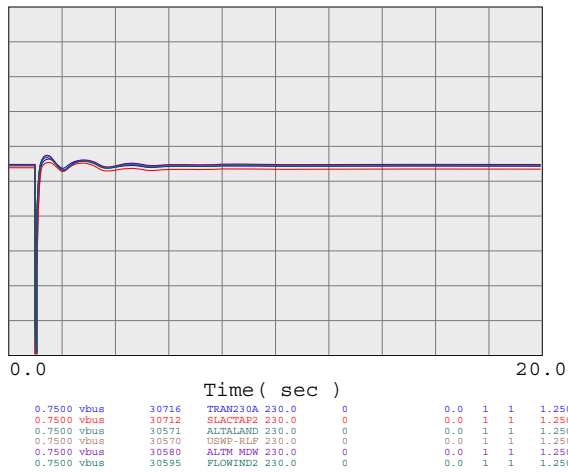
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

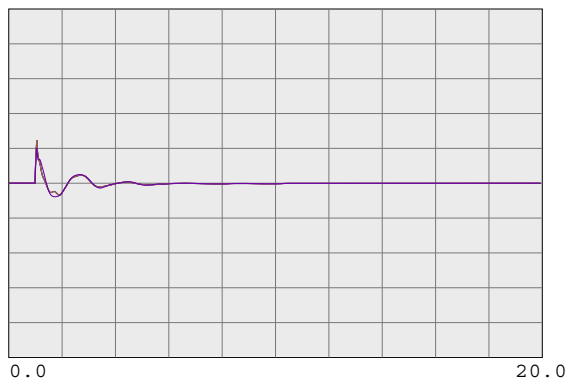


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



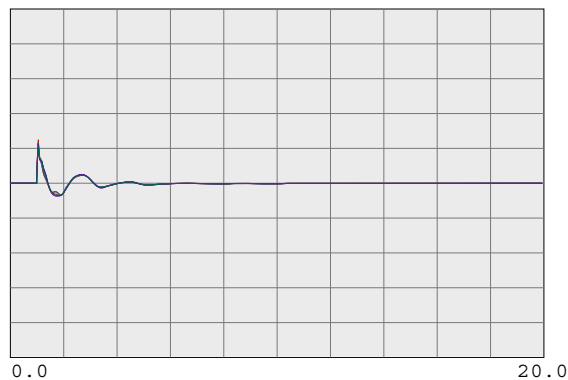
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

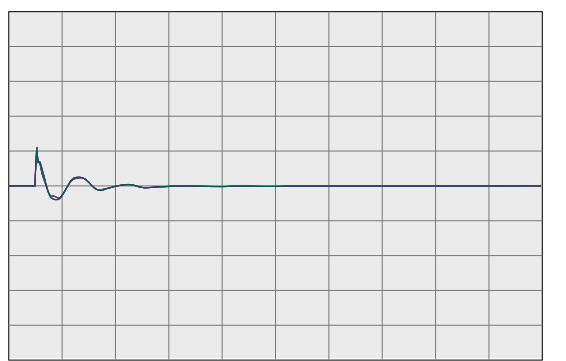
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

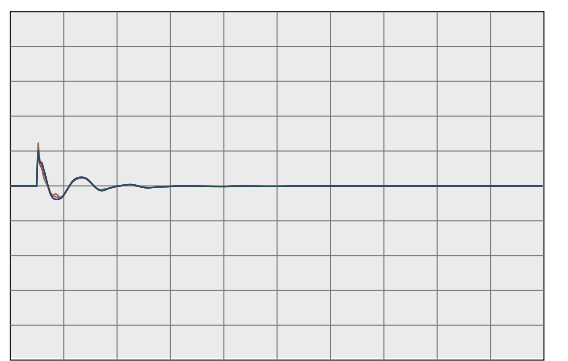
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

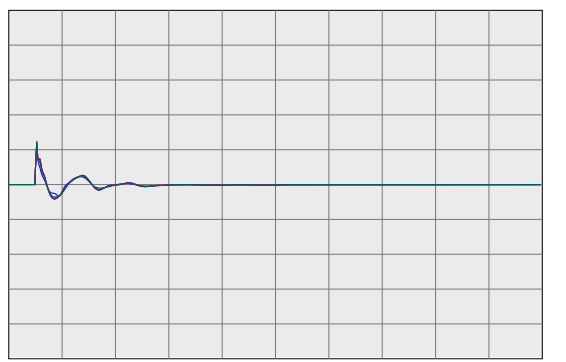
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

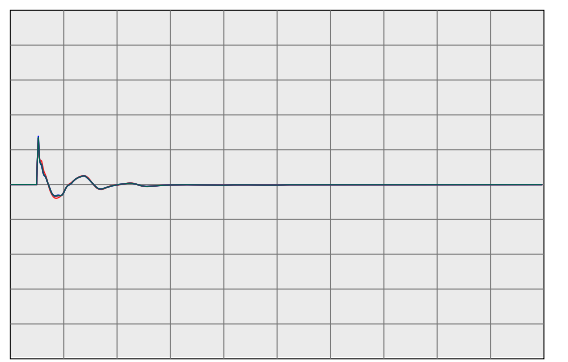
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

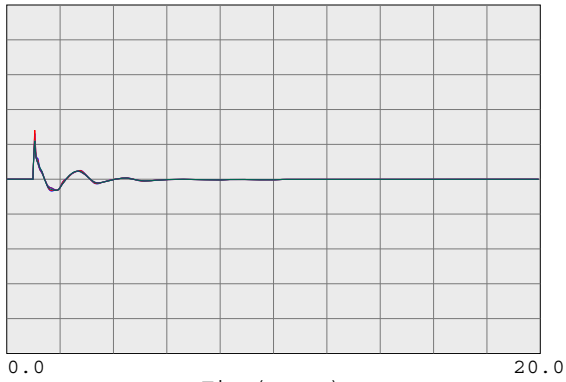
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

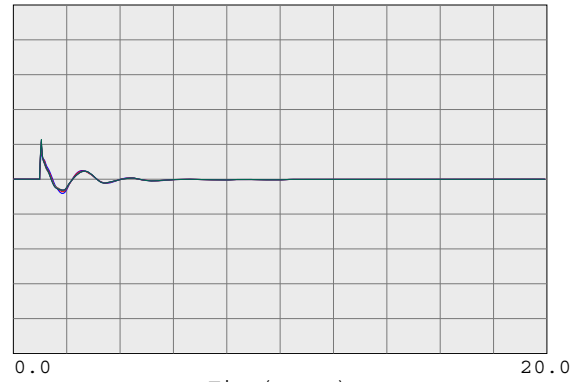
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

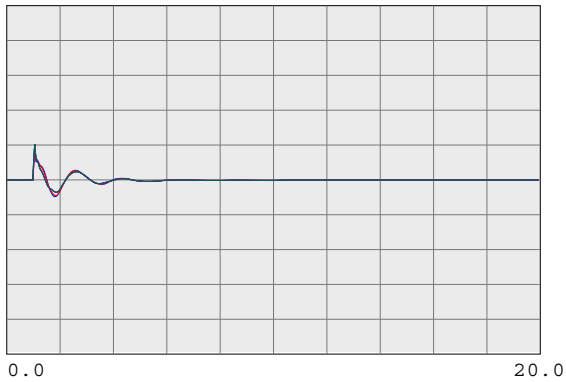
230-KV SYSTEM FREQUENCIES



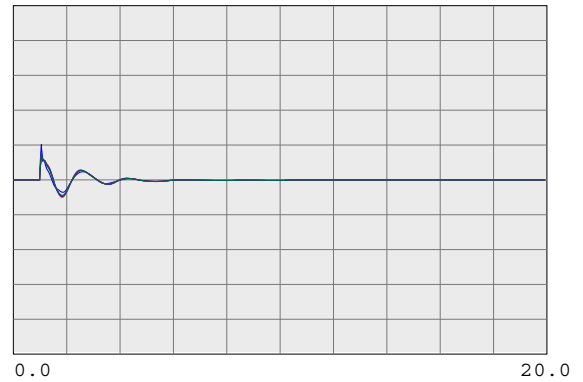
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



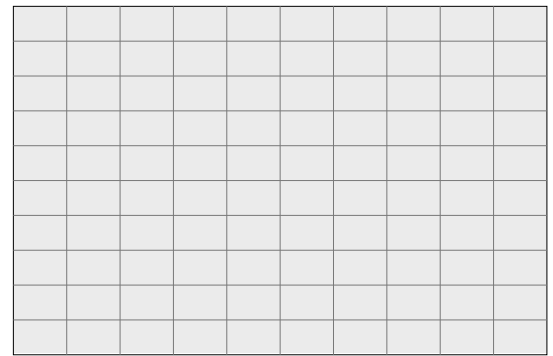
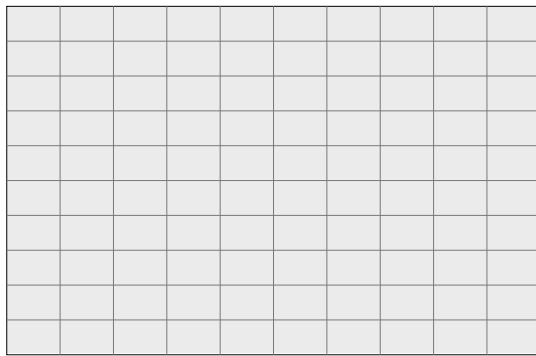
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



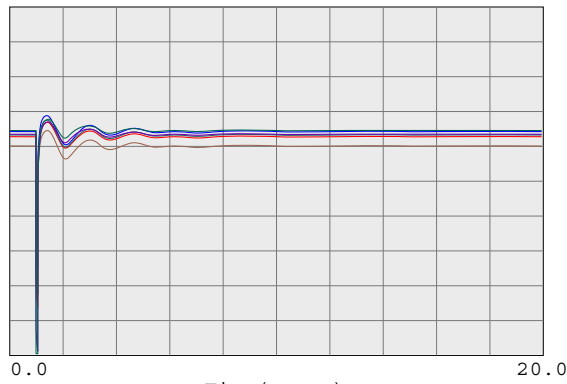
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



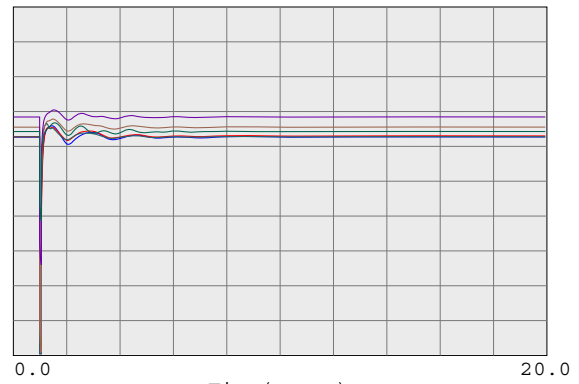
Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



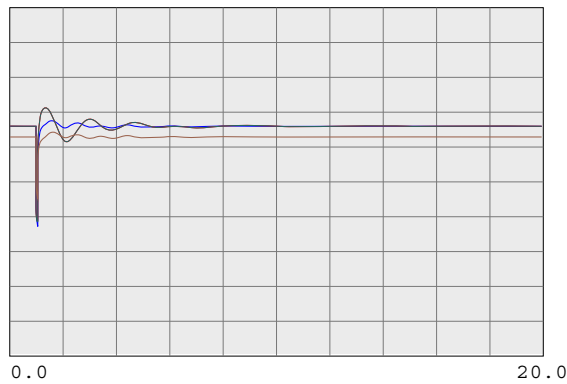
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



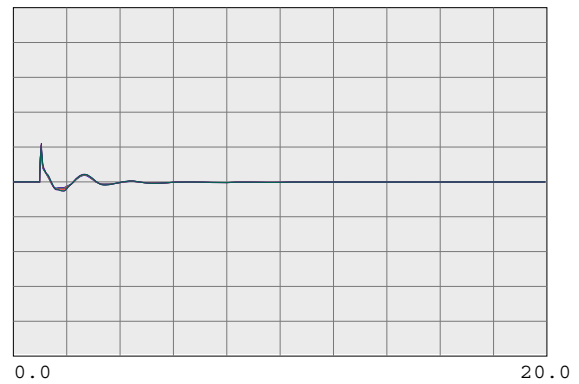
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



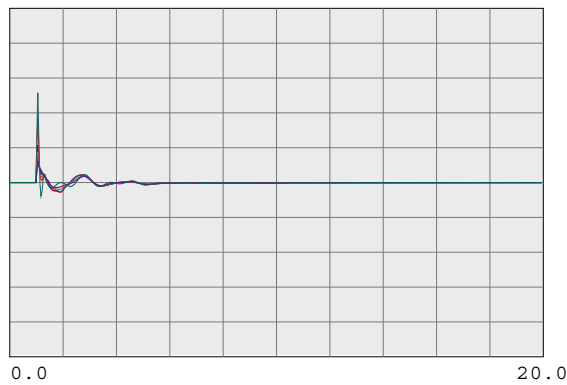
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



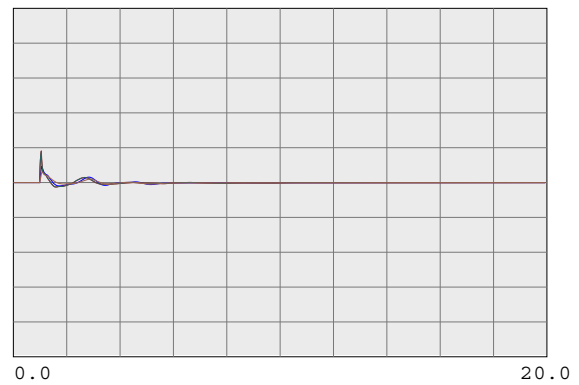
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

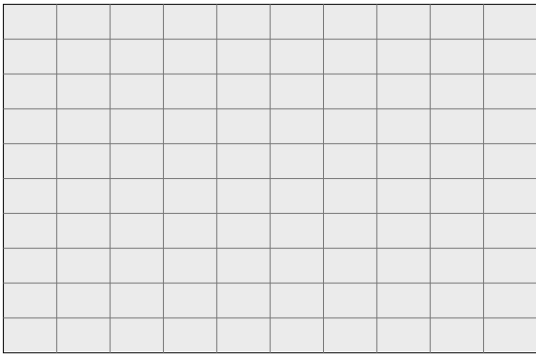
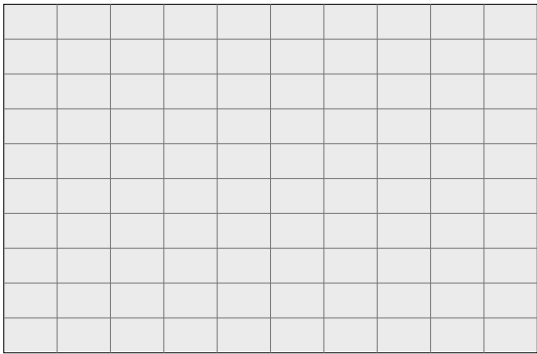
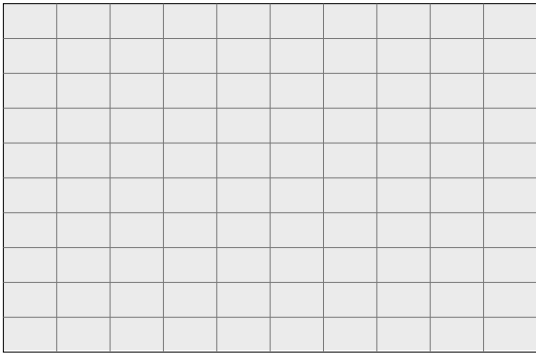
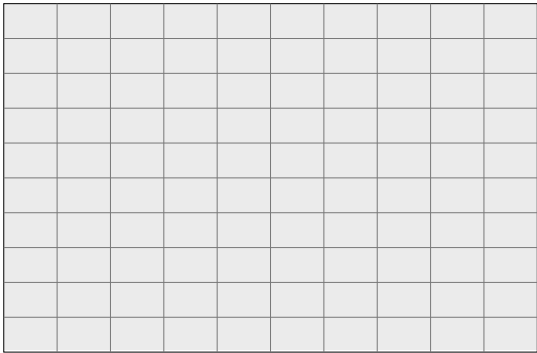
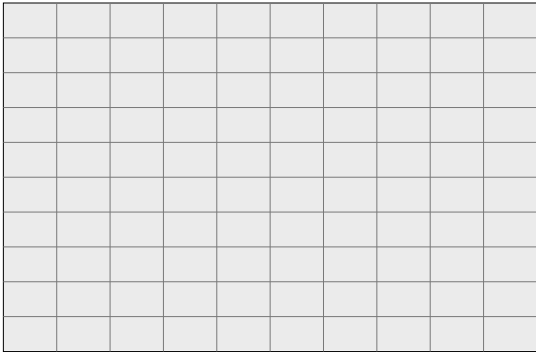
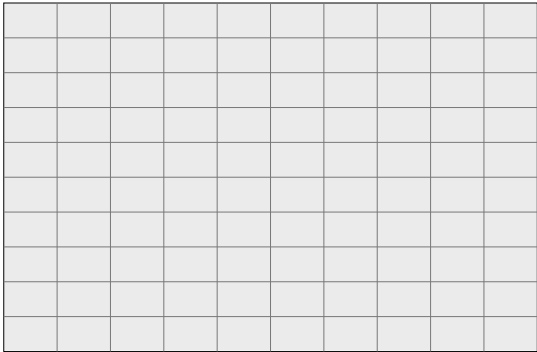
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

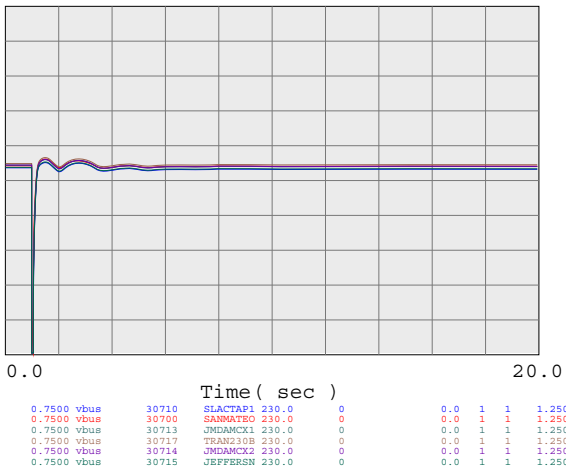
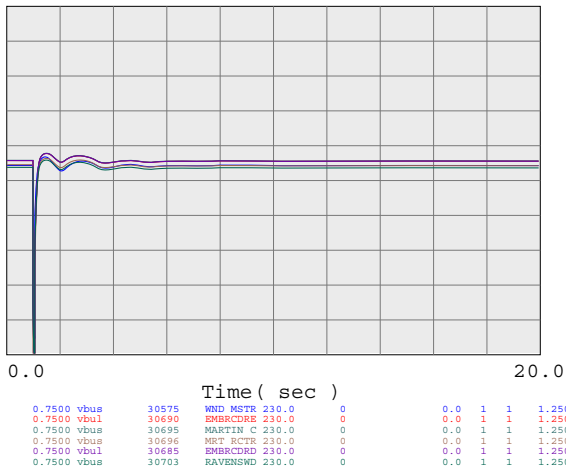
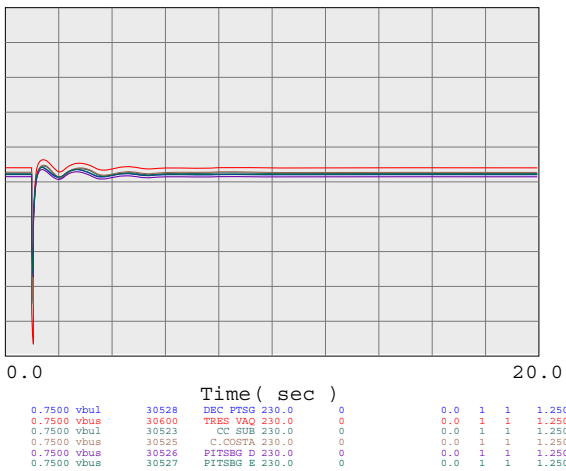
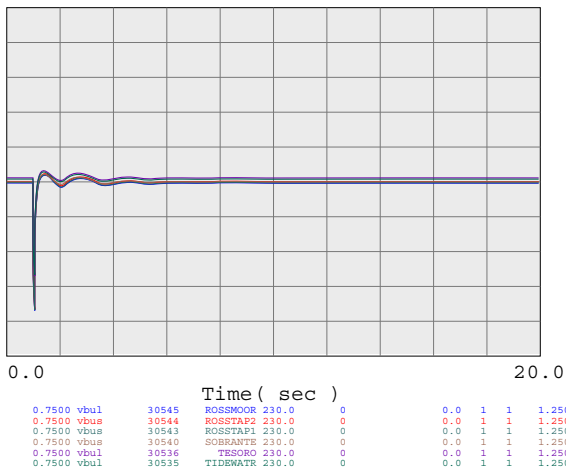
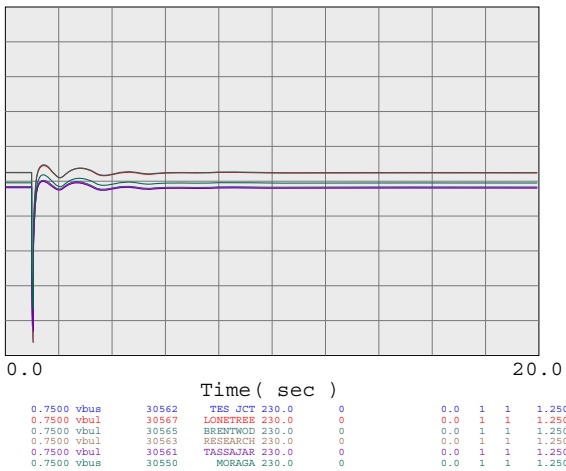
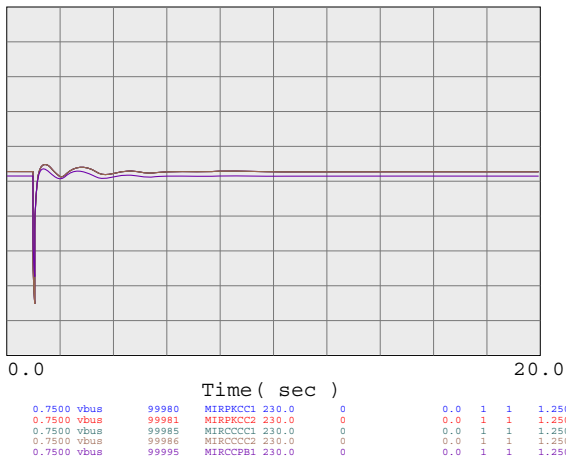
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



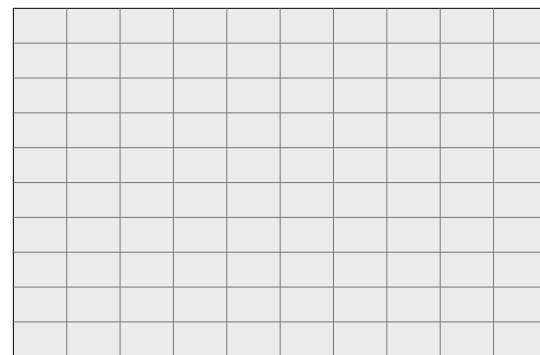
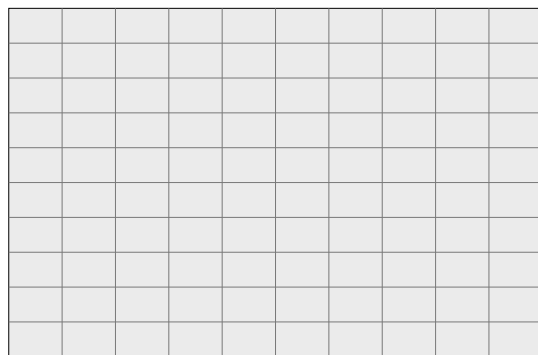
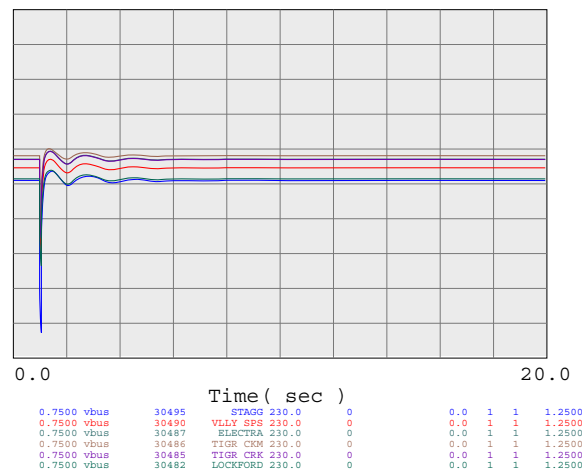
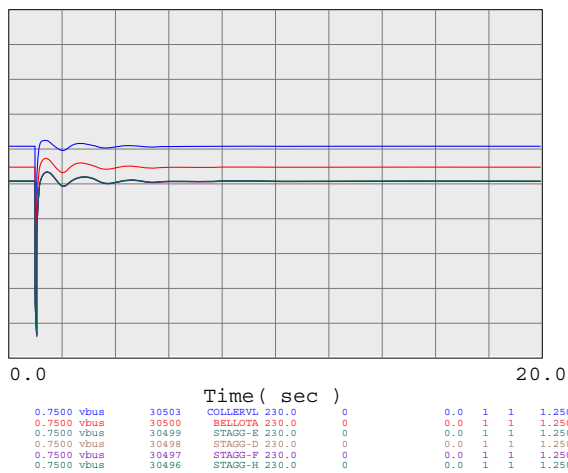
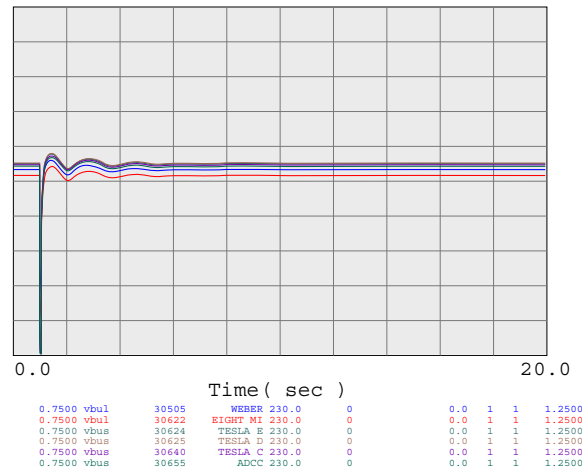
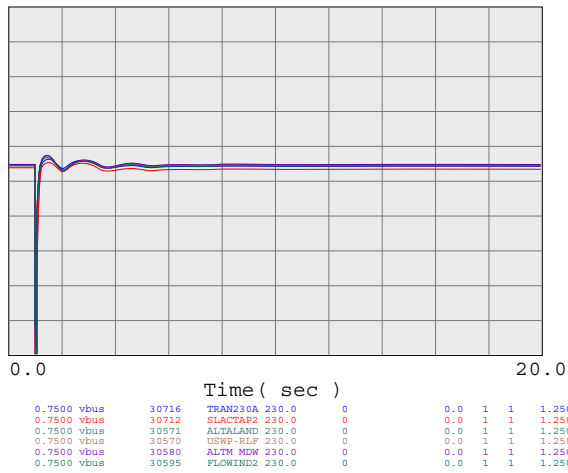
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

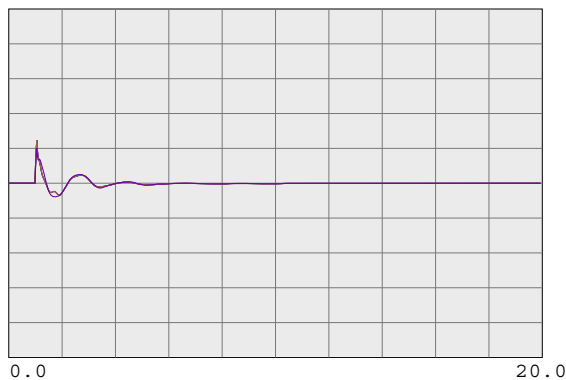


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

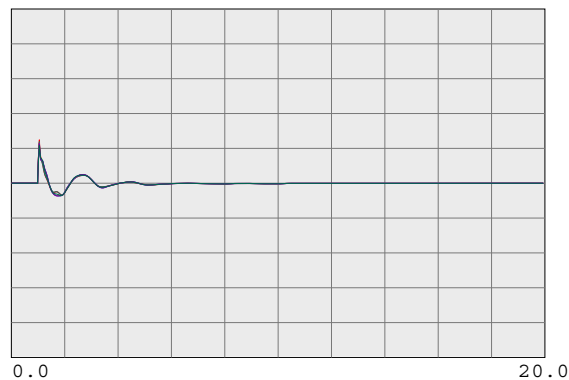


230-KV SYSTEM FREQUENCIES



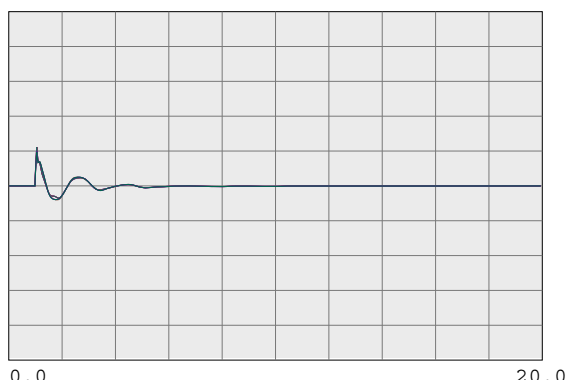
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



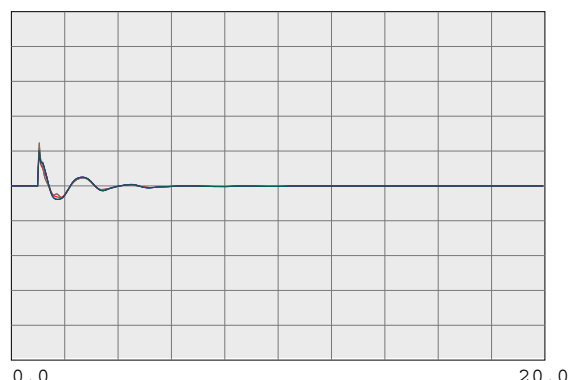
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



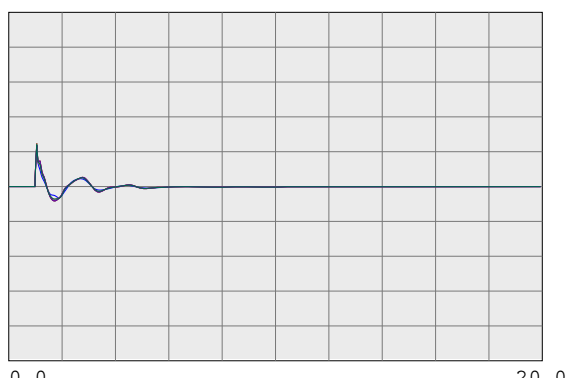
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



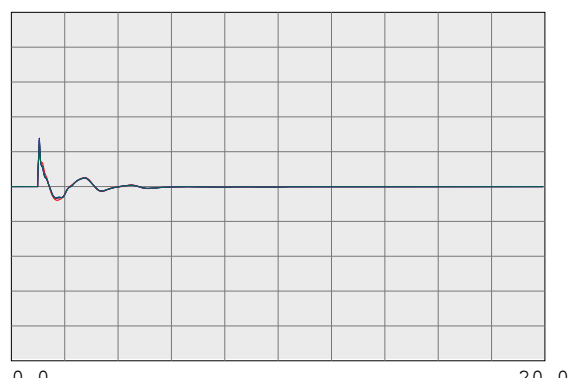
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

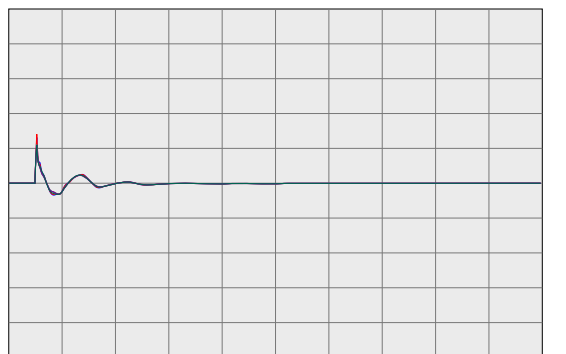
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

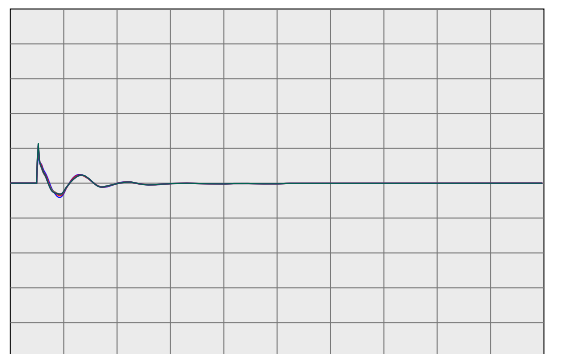
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

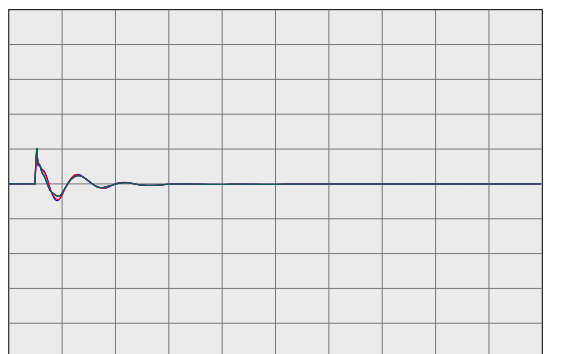
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

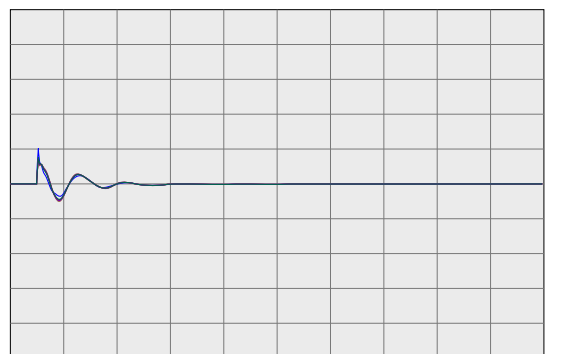
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

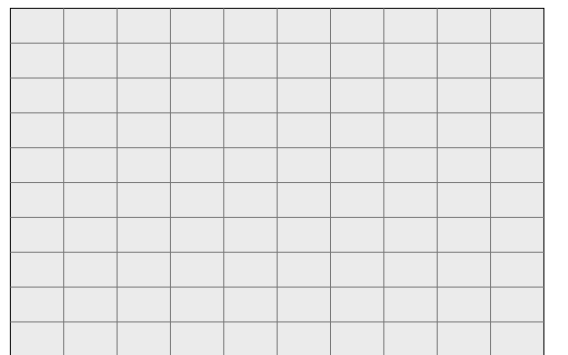
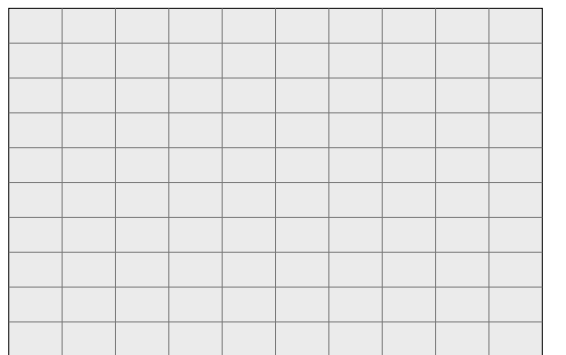
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

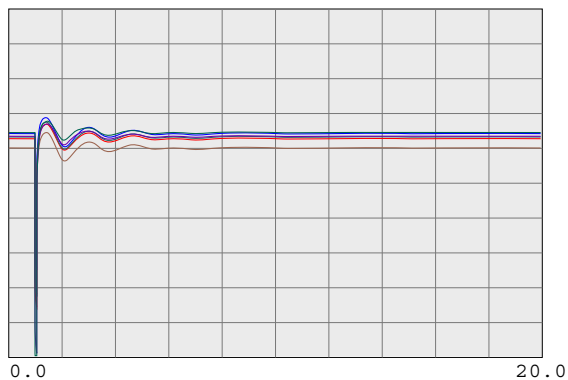
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

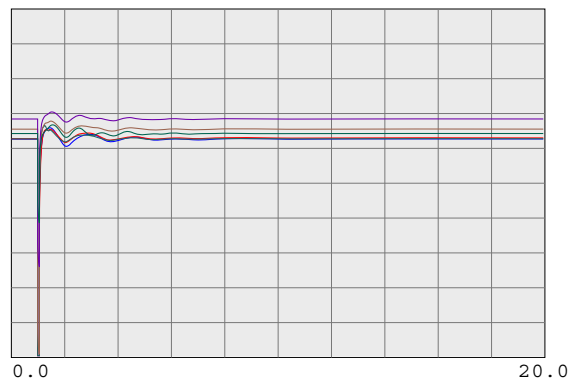
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

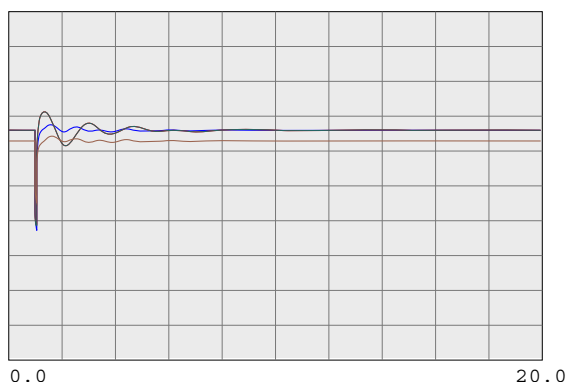
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



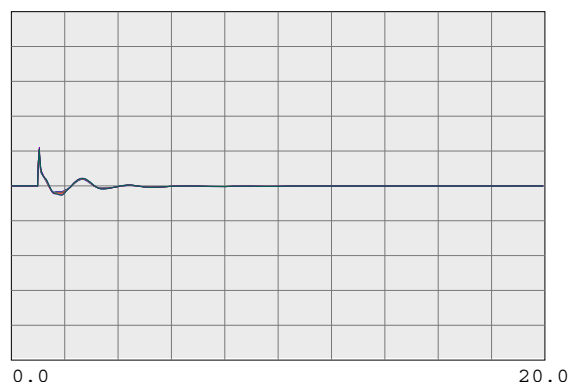
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



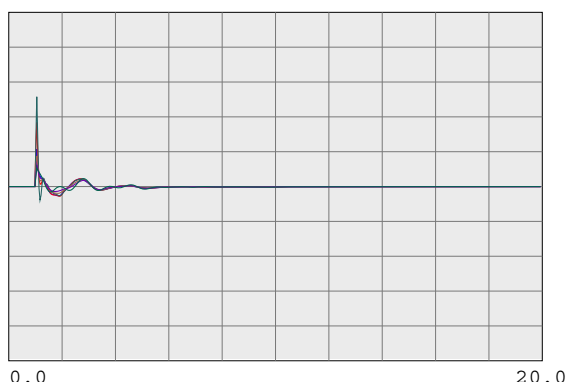
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



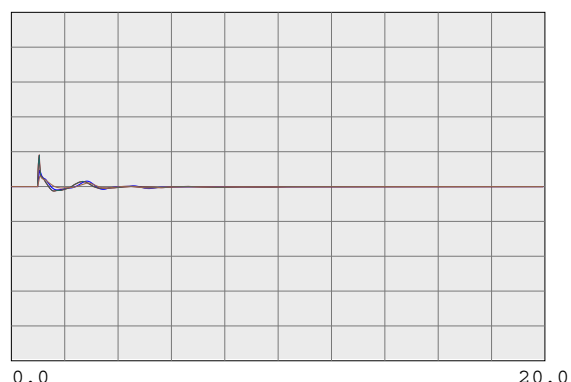
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOSBANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

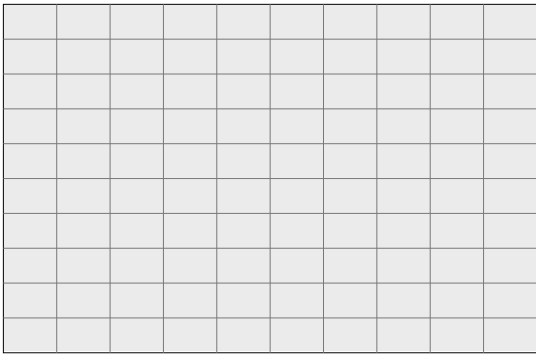
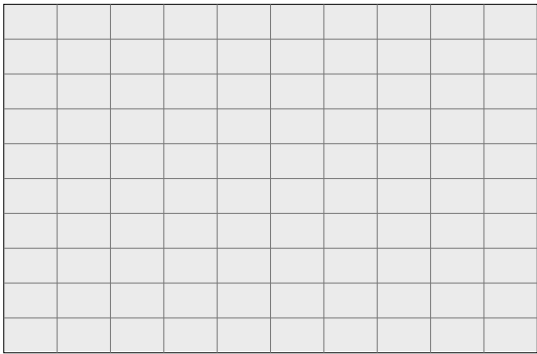
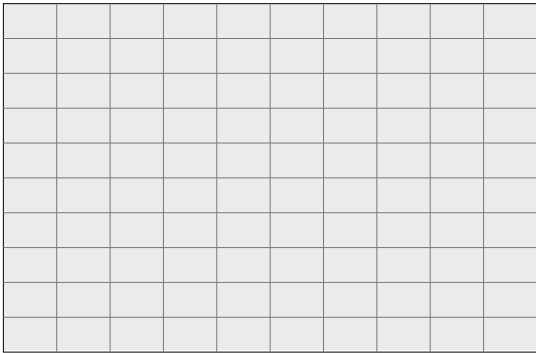
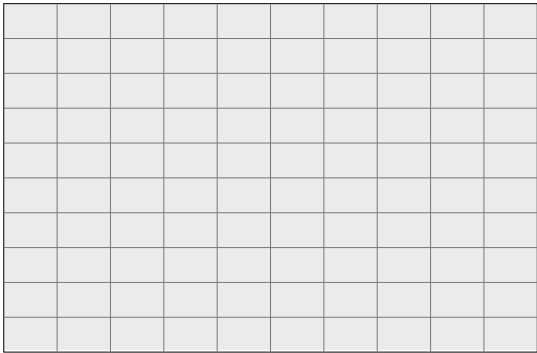
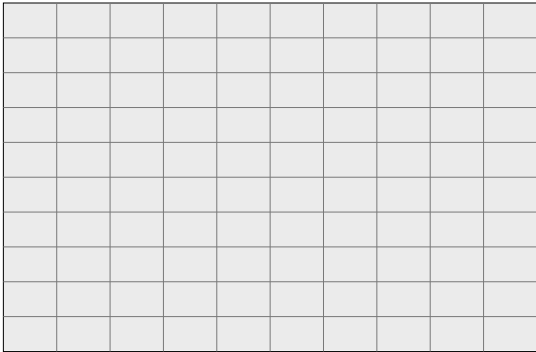
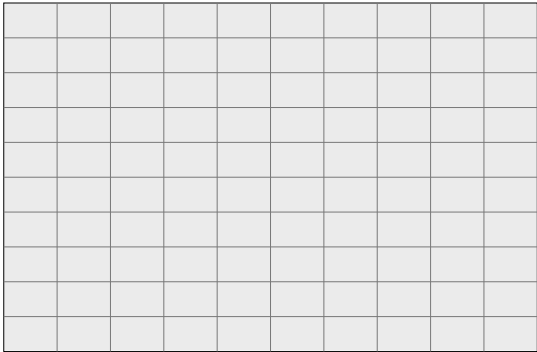
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

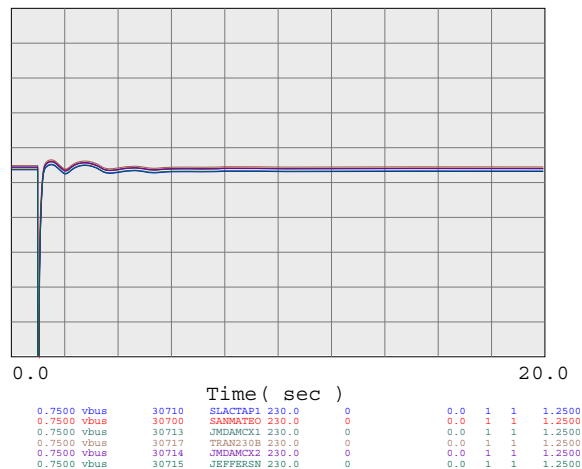
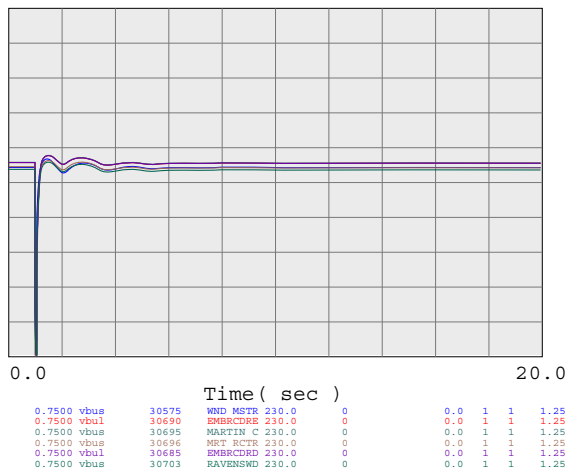
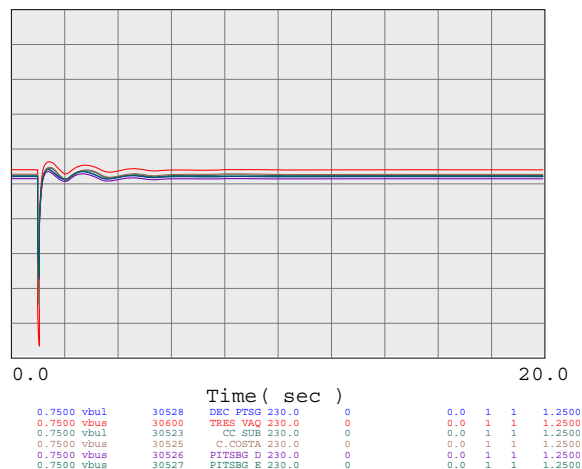
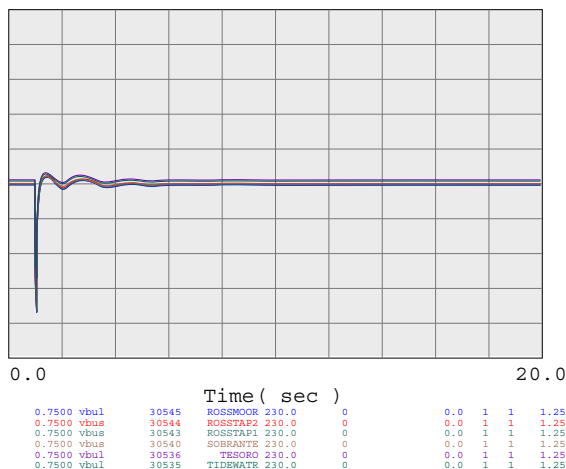
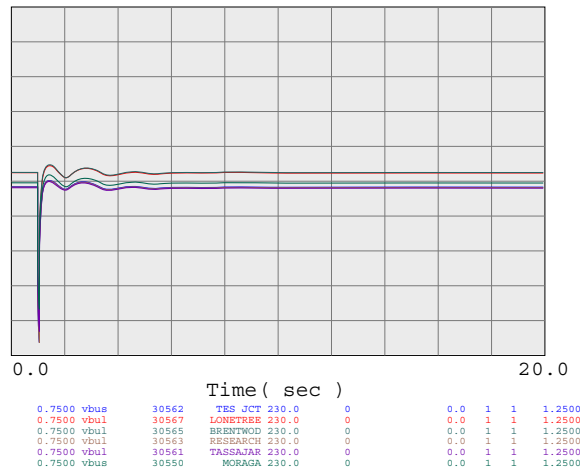
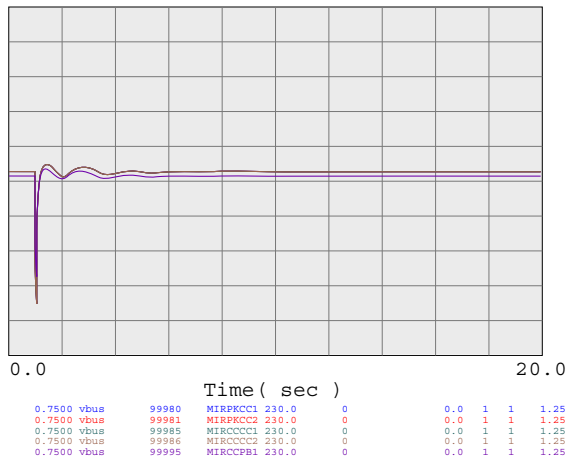
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



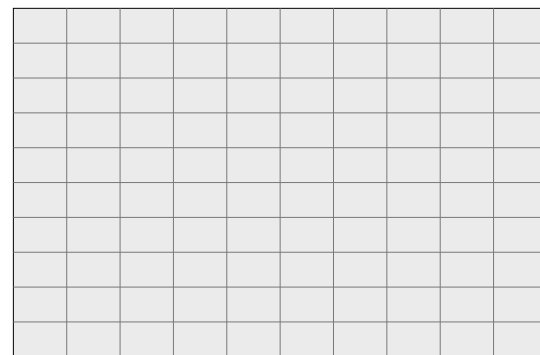
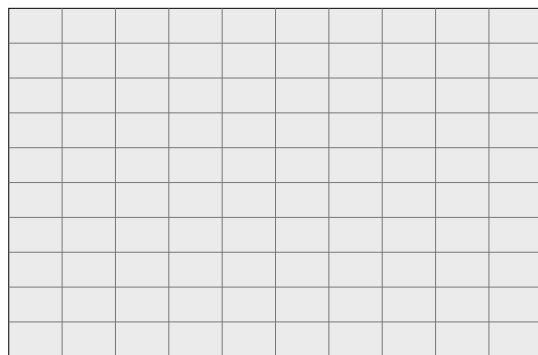
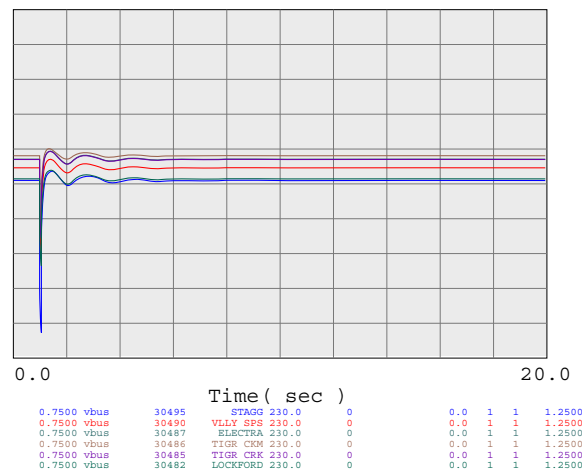
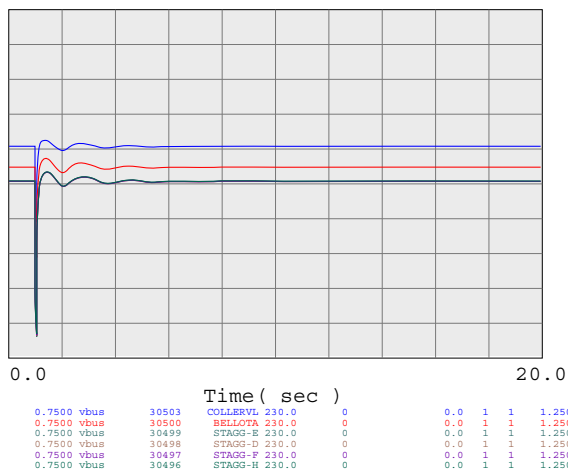
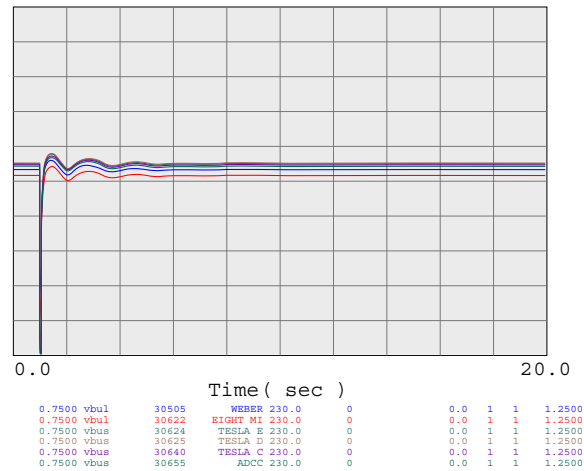
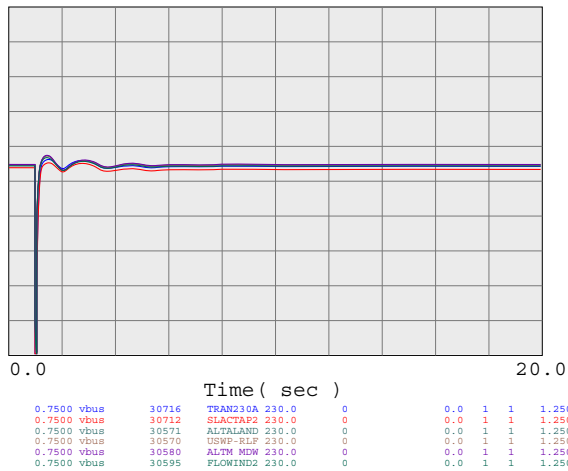
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

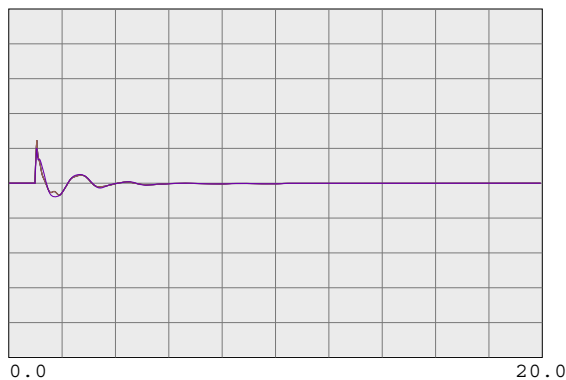


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

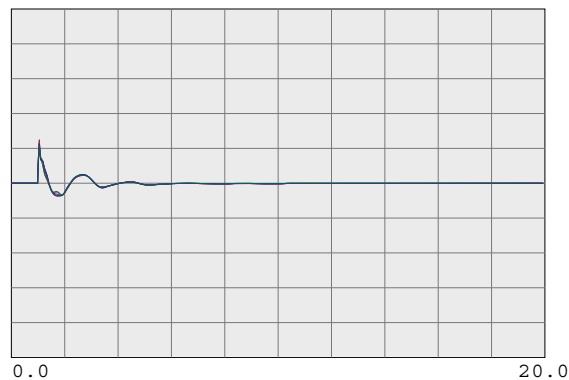


230-KV SYSTEM FREQUENCIES



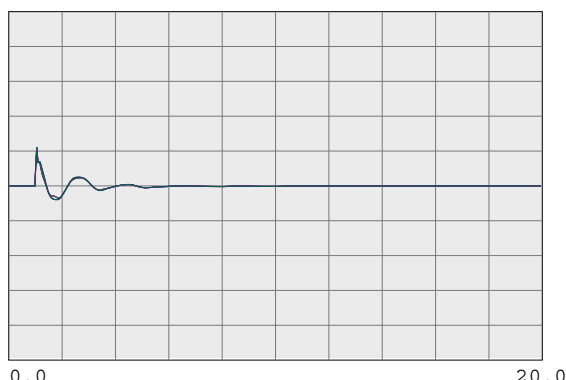
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRCCPB1 230.0	0	0.0	1	1	60.6000



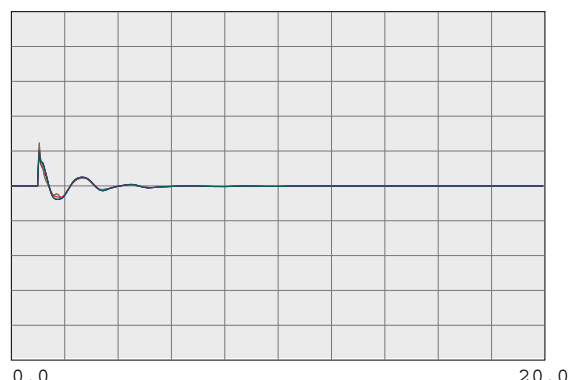
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



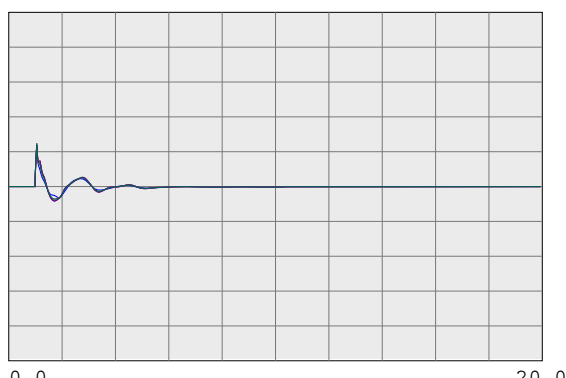
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



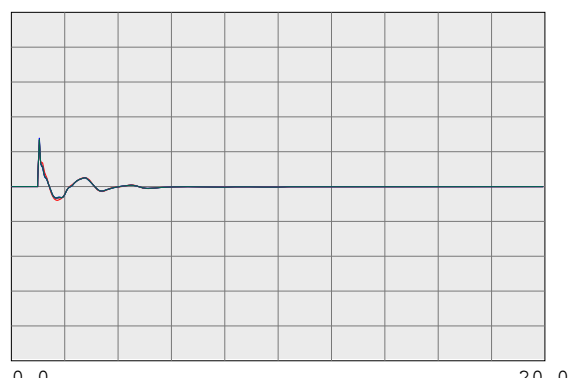
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

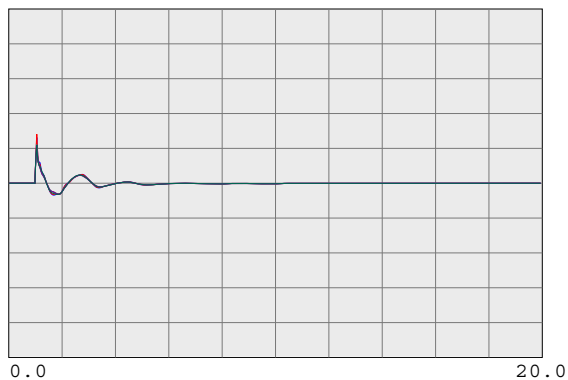
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

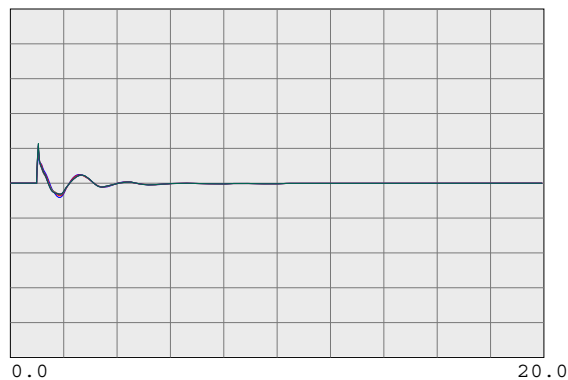
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

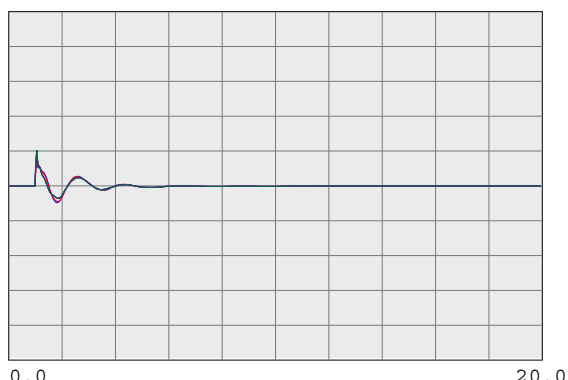
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

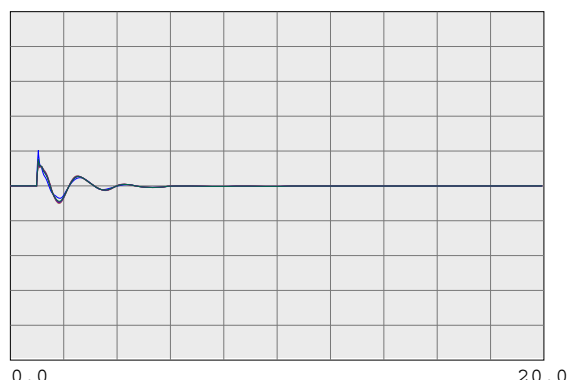
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

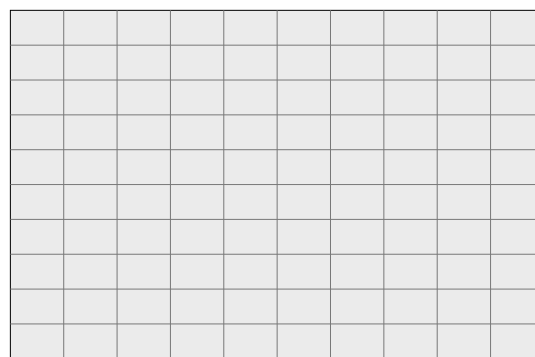
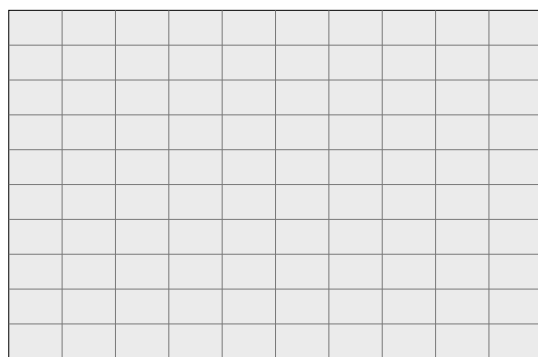
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

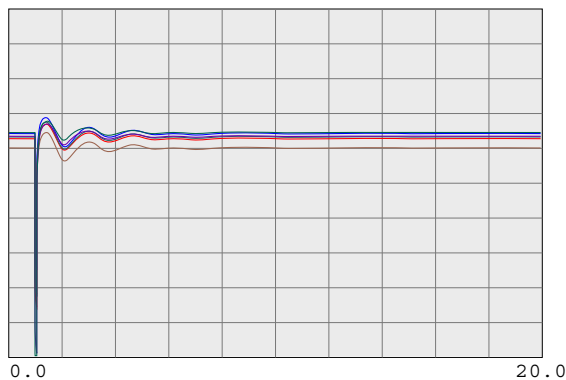
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

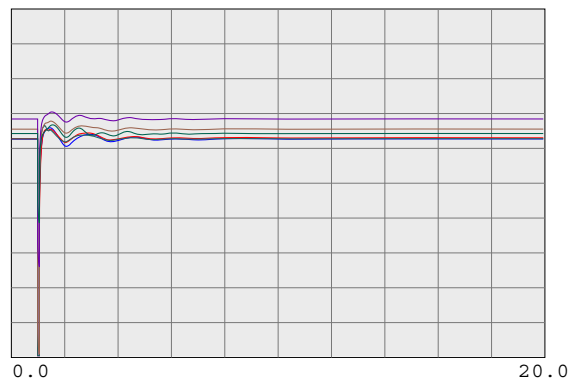
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



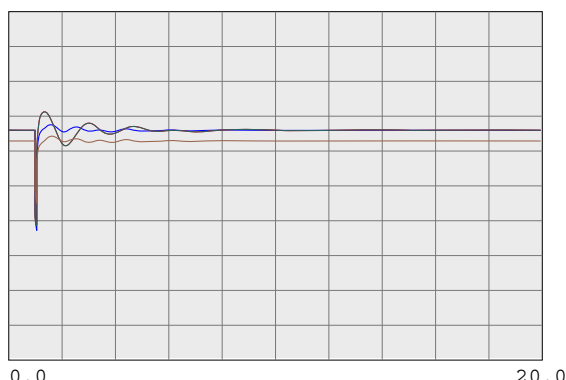
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



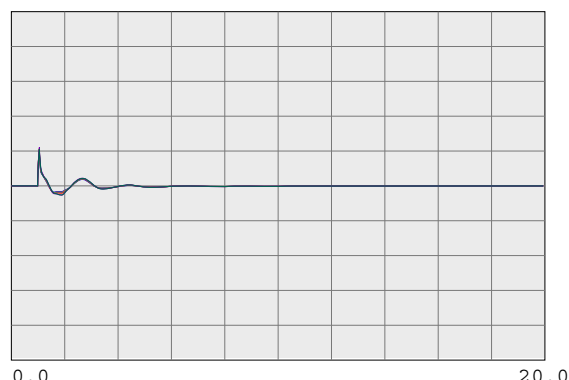
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



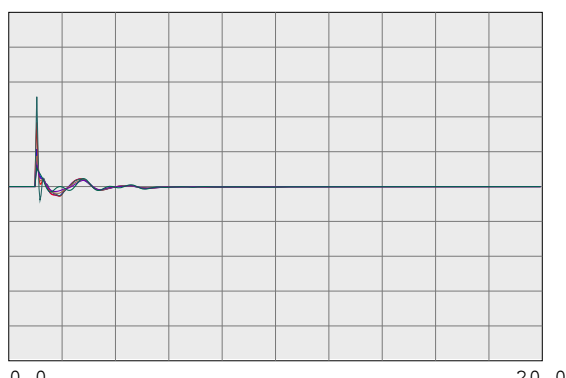
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



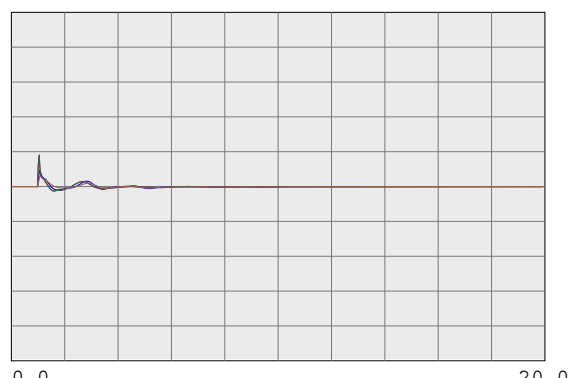
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

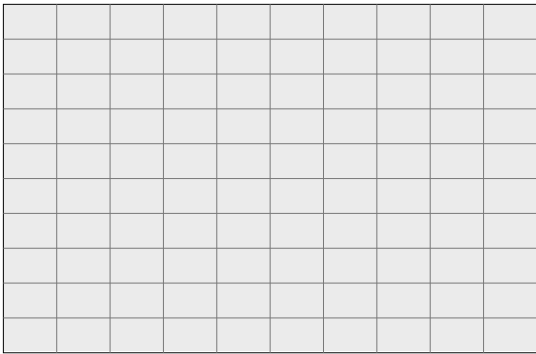
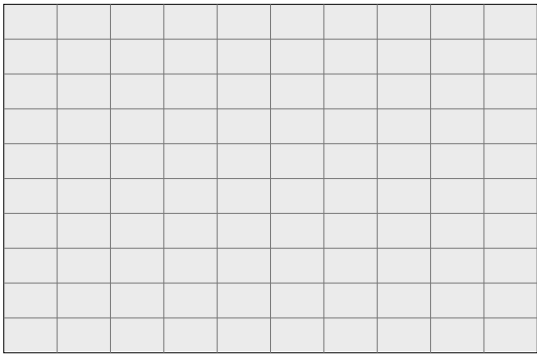
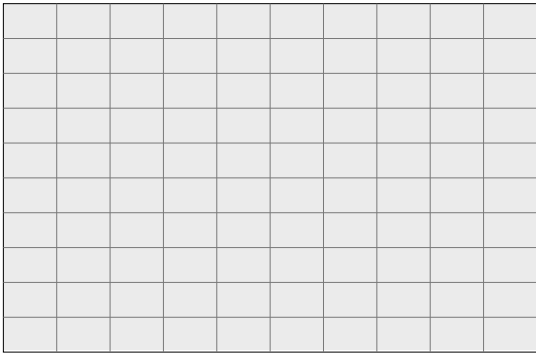
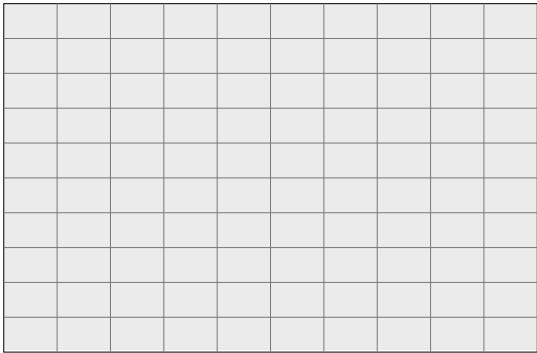
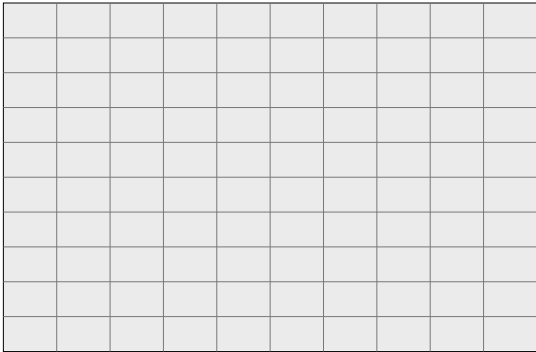
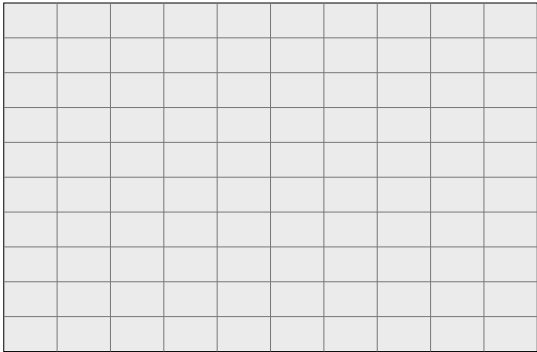
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

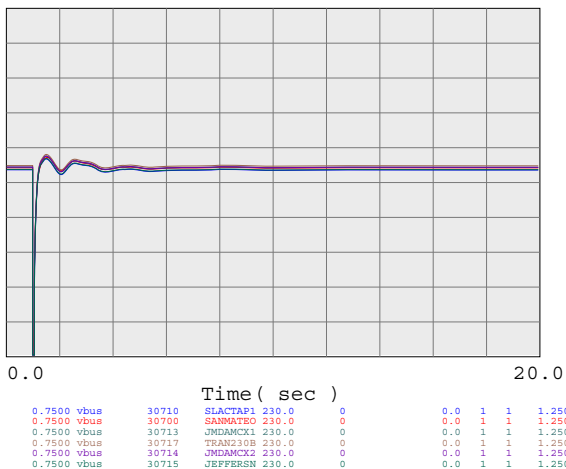
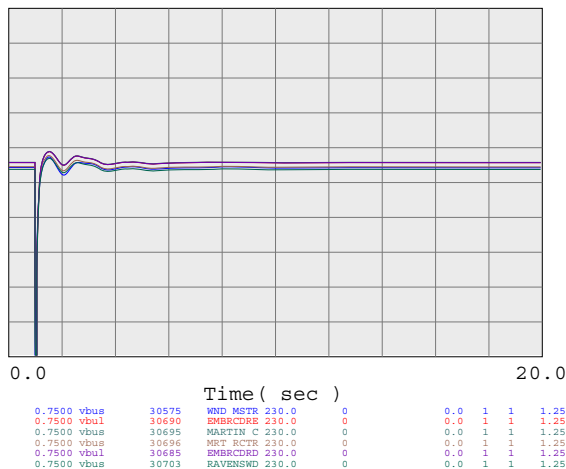
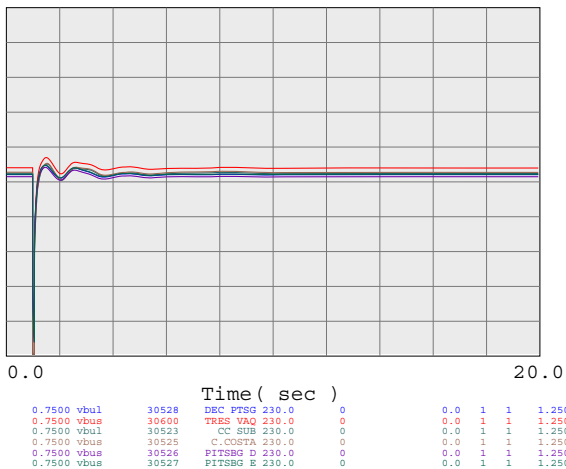
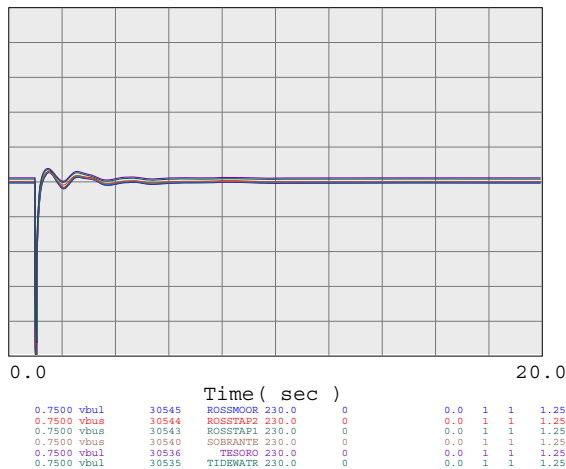
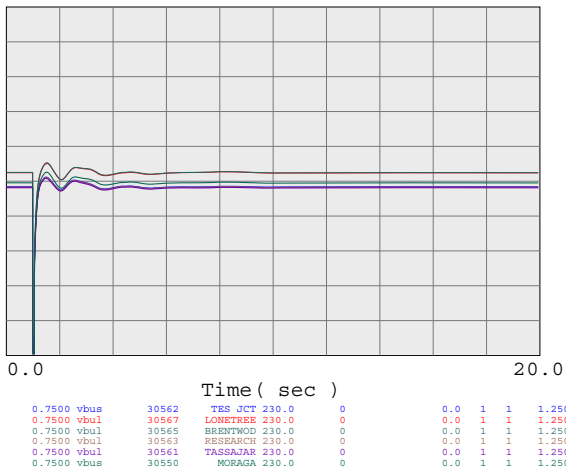
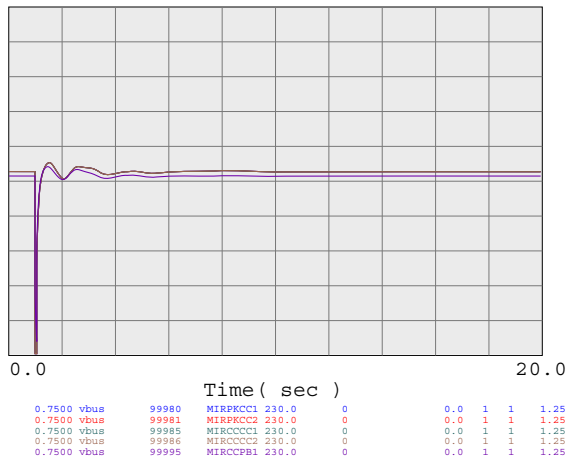
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



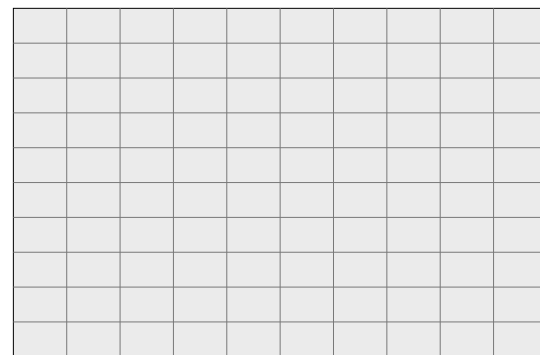
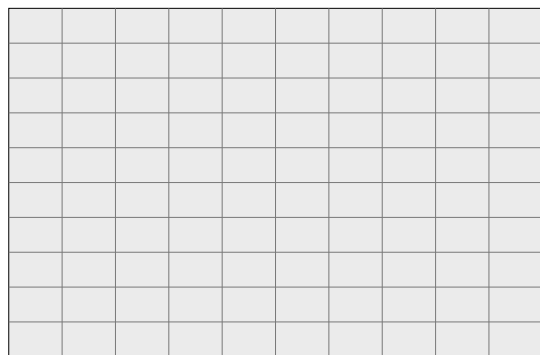
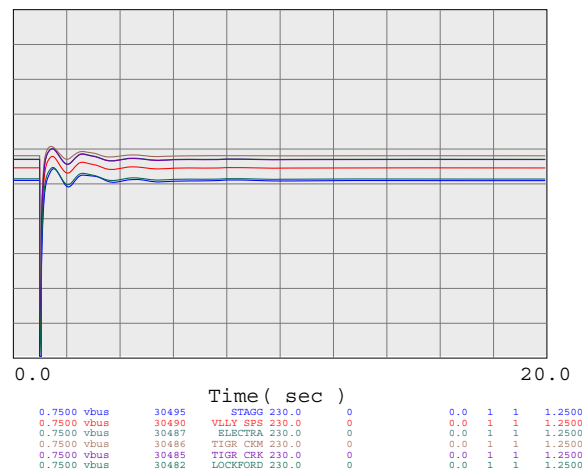
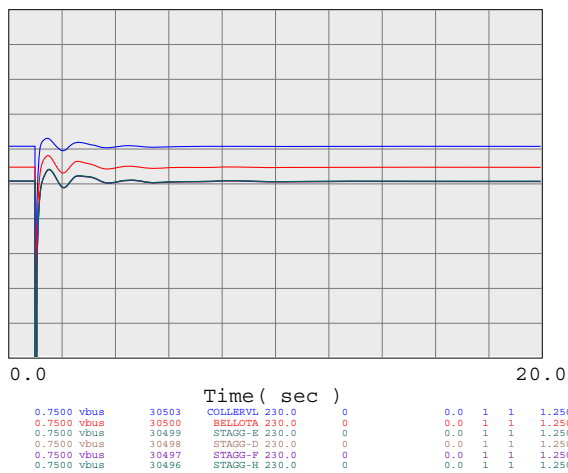
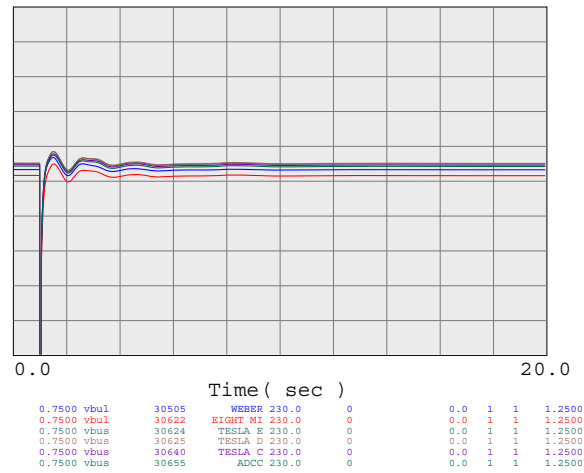
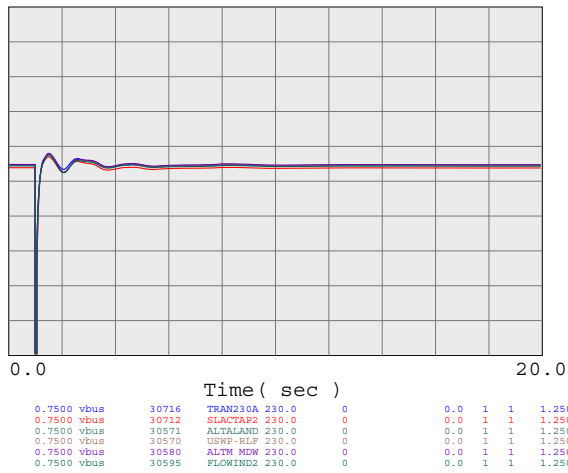
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

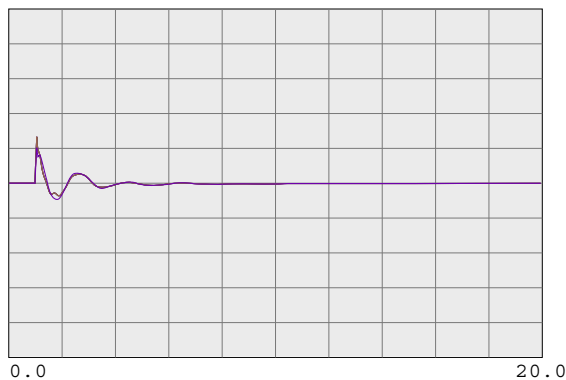


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



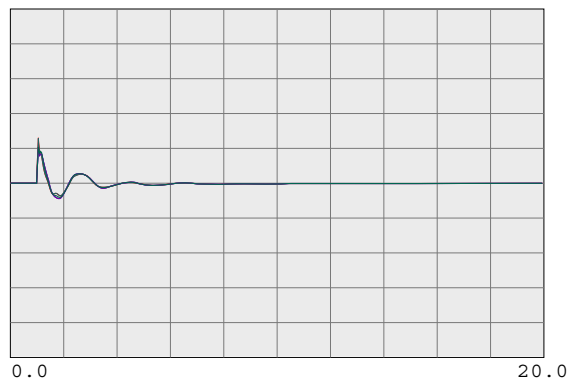
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

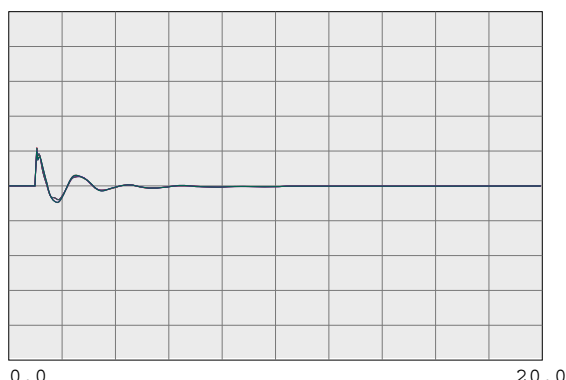
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

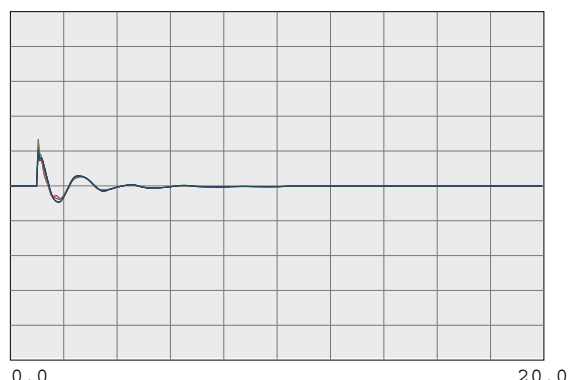
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

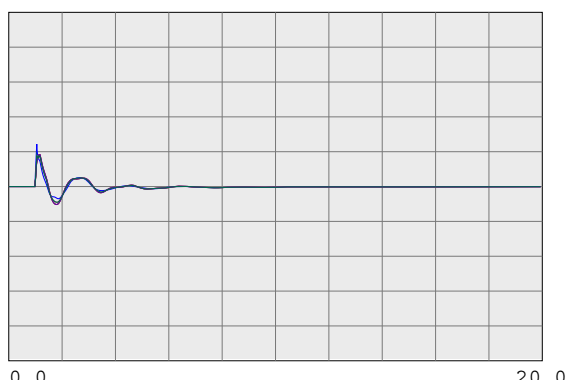
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TRISBO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

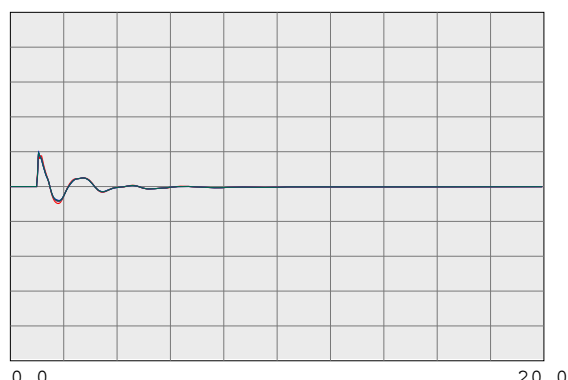
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

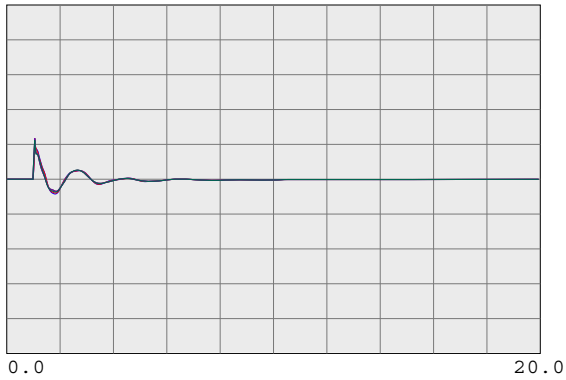
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

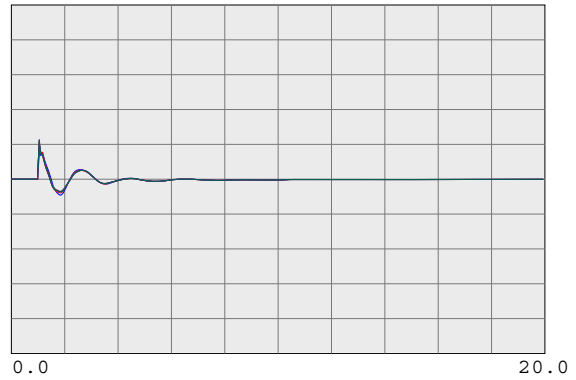
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

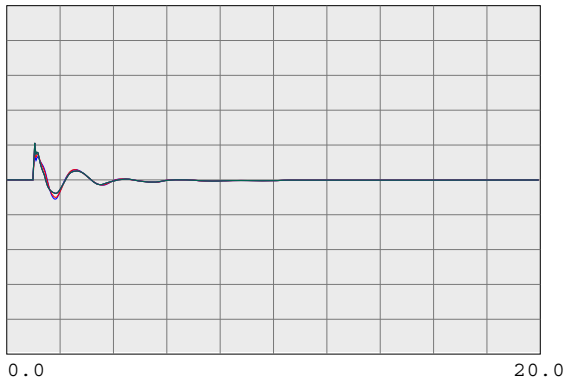
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

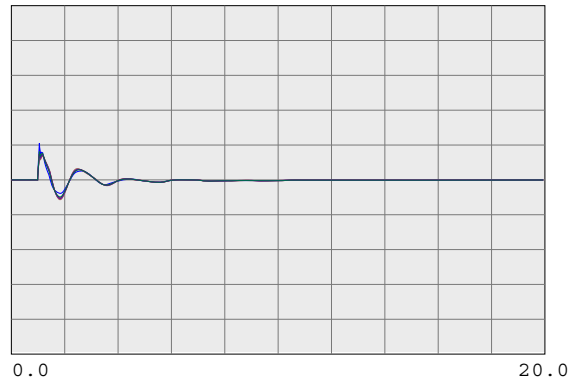
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

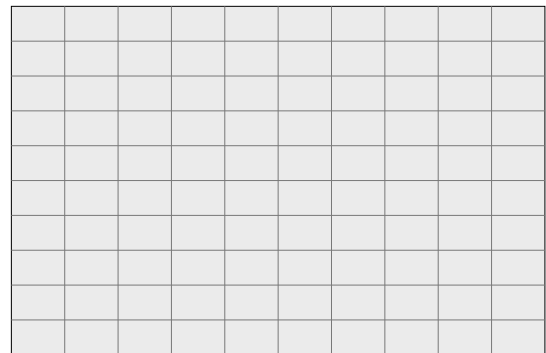
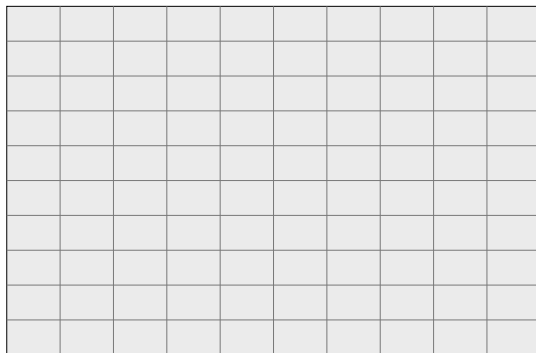
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

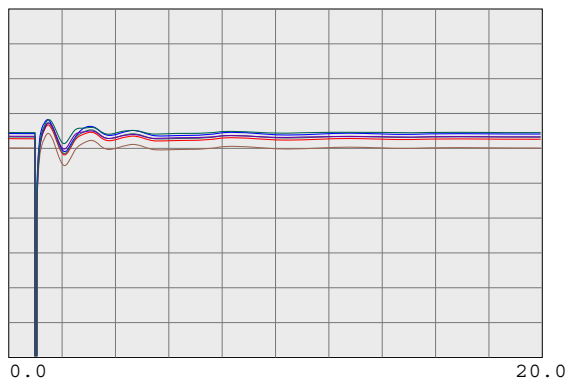
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000

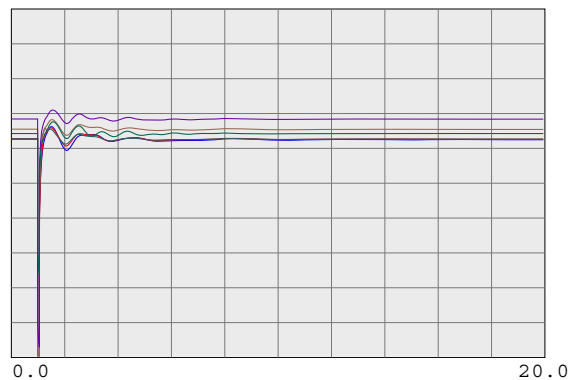


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

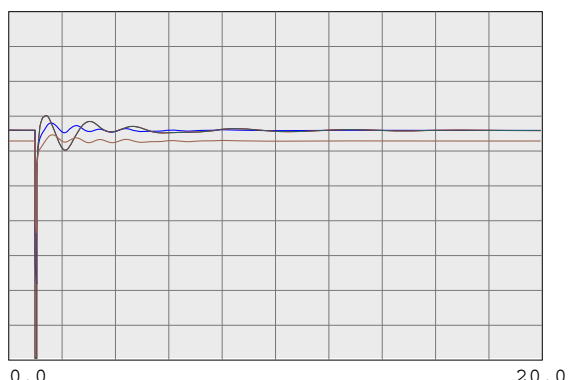
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



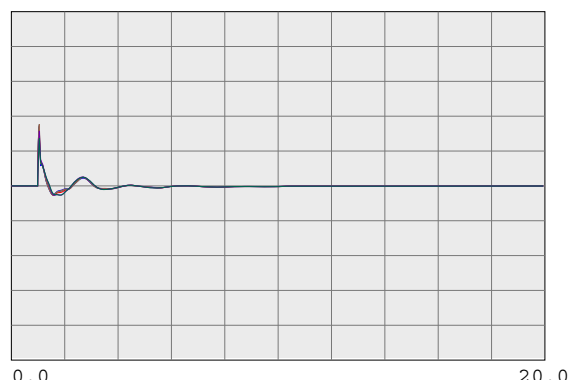
Time (sec)			
0.7500 vbus	30005	ROUND MT 500.0	0
0.7500 vbus	30015	TABLE MT 500.0	0
0.7500 vbus	30020	CLINDA 500.0	0
0.7500 vbus	30025	MAXWELL 500.0	0
0.7500 vbus	30030	VACA-DIX 500.0	0
0.7500 vbus	30035	TRACY 500.0	0



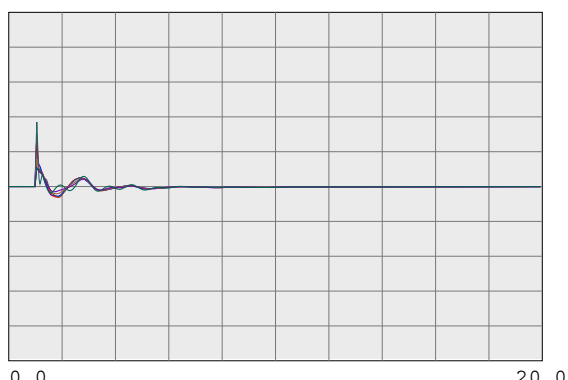
Time (sec)			
0.7500 vbus	30040	TESLA 500.0	0
0.7500 vbus	30042	METCALF 500.0	0
0.7500 vbus	30045	MOSSLAND 500.0	0
0.7500 vbus	30050	LOS BANOS 500.0	0
0.7500 vbus	30055	GATES 500.0	0
0.7500 vbus	30057	DIABLO 500.0	0



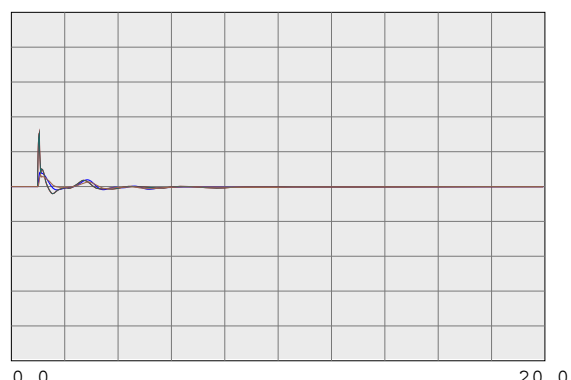
Time (sec)			
0.7500 vbus	30060	MIDWAY 500.0	0
0.7500 vbus	45035	CAPTACK 500.0	0
0.7500 vbus	40687	MALIN 500.0	0
0.7500 vbus	24156	VINCENT 500.0	0



Time (sec)			
59.4000 fbus	30005	ROUND MT 500.0	0
59.4000 fbus	30015	TABLE MT 500.0	0
59.4000 fbus	30020	CLINDA 500.0	0
59.4000 fbus	30025	MAXWELL 500.0	0
59.4000 fbus	30030	VACA-DIX 500.0	0
59.4000 fbus	30035	TRACY 500.0	0



Time (sec)			
59.4000 fbus	30040	TESLA 500.0	0
59.4000 fbus	30042	METCALF 500.0	0
59.4000 fbus	30045	MOSSLAND 500.0	0
59.4000 fbus	30050	LOS BANOS 500.0	0
59.4000 fbus	30055	GATES 500.0	0
59.4000 fbus	30057	DIABLO 500.0	0



Time (sec)			
59.4000 fbus	30060	MIDWAY 500.0	0
59.4000 fbus	45035	CAPTACK 500.0	0
59.4000 fbus	40687	MALIN 500.0	0
59.4000 fbus	24156	VINCENT 500.0	0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

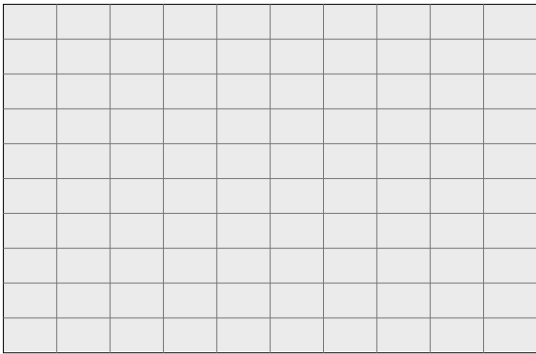
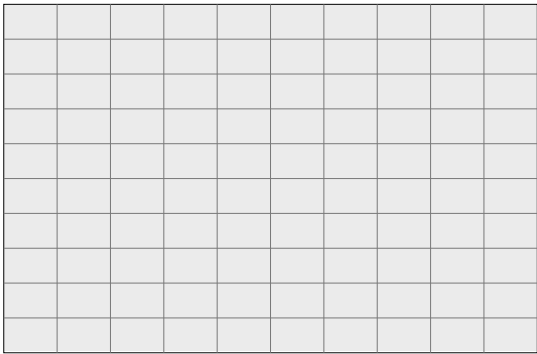
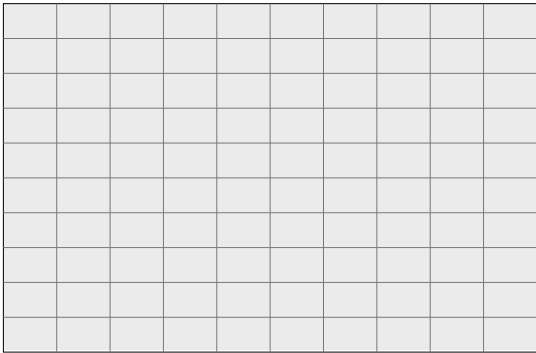
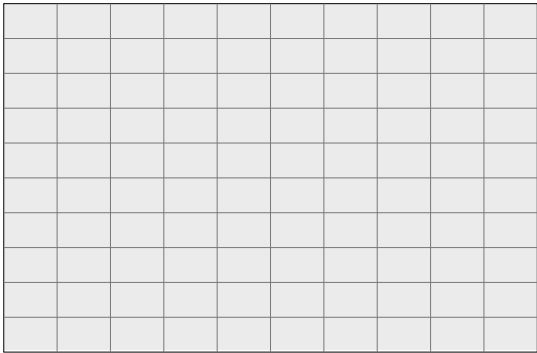
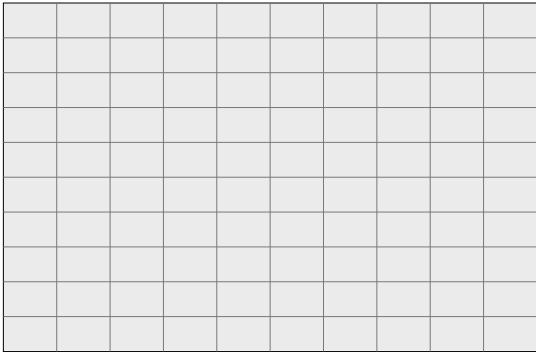
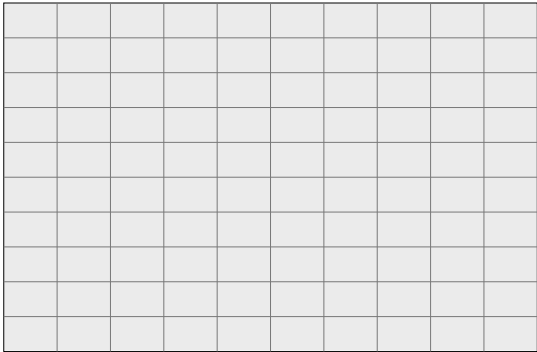
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

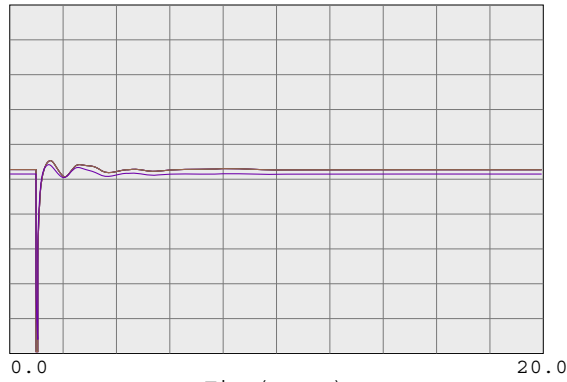
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



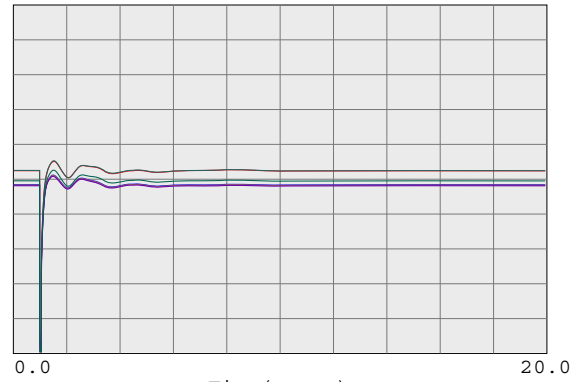
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



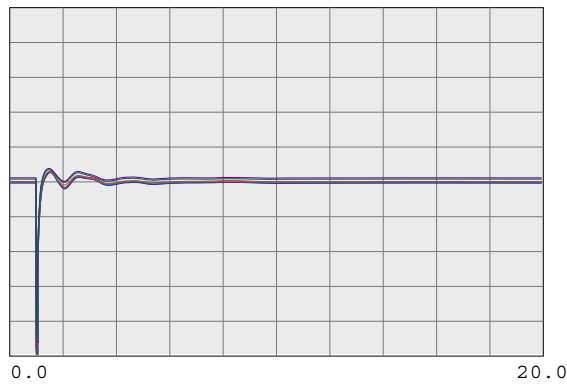
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



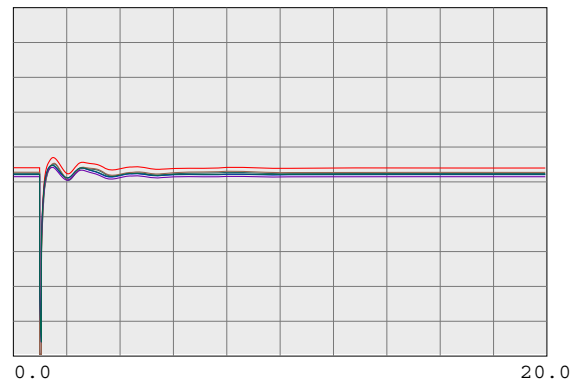
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



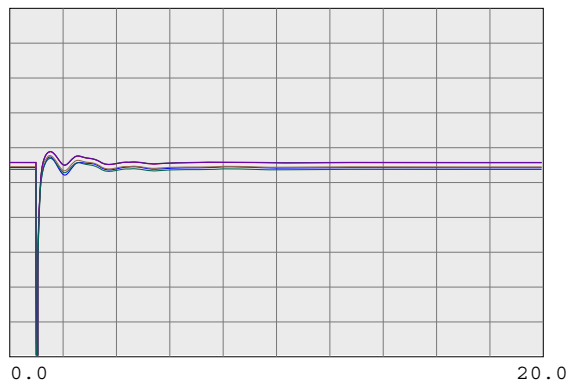
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



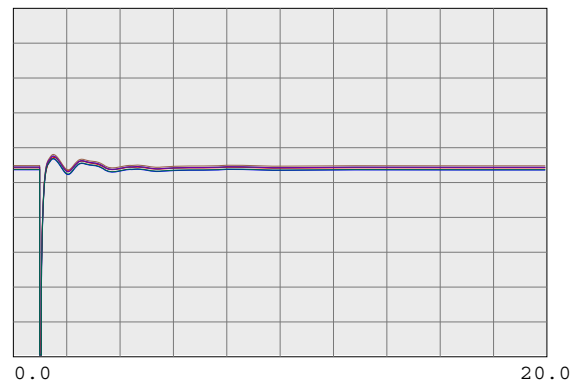
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

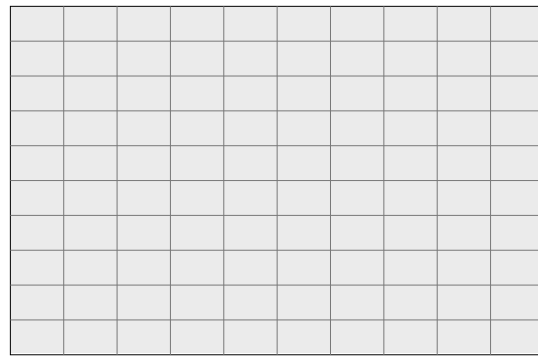
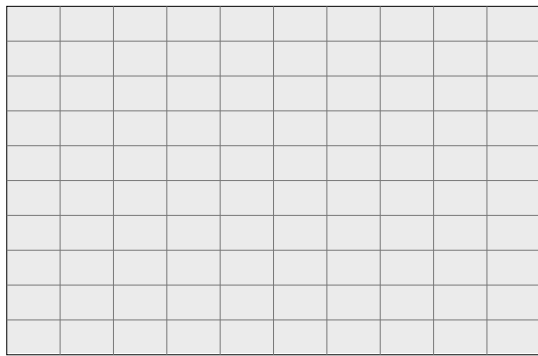
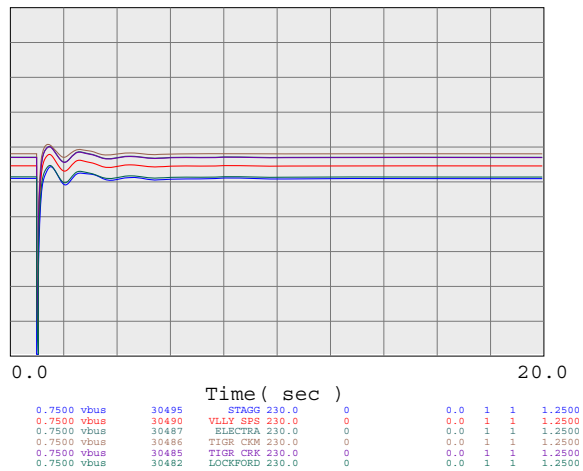
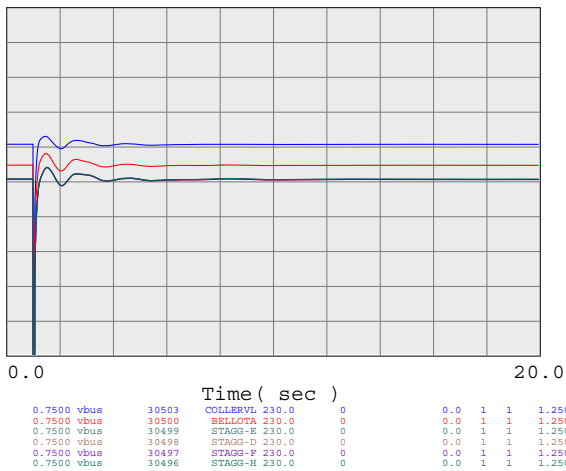
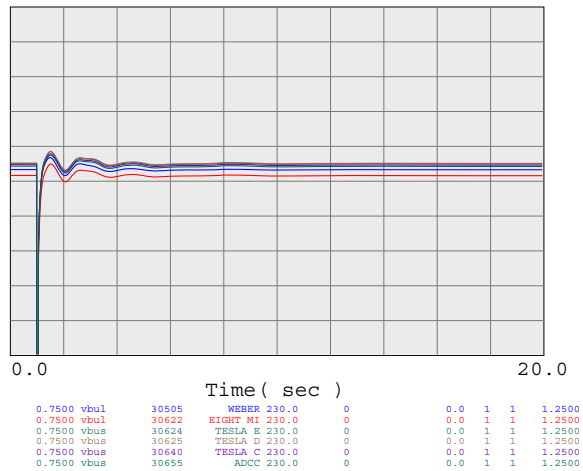
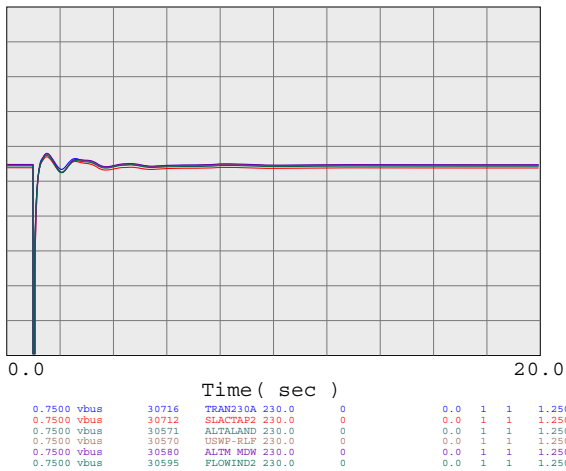
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

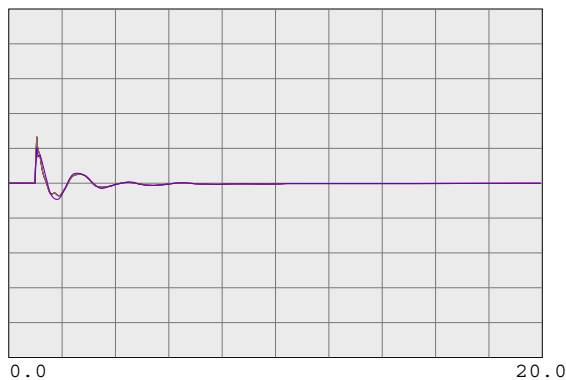
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



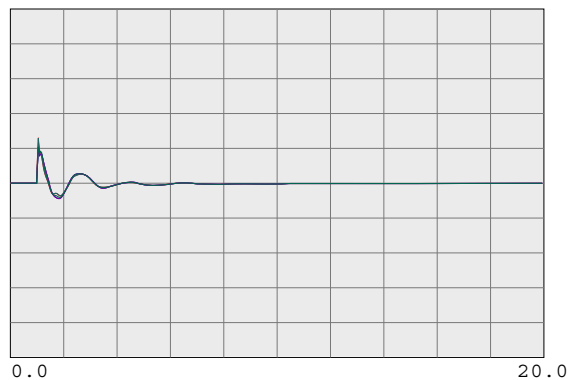
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

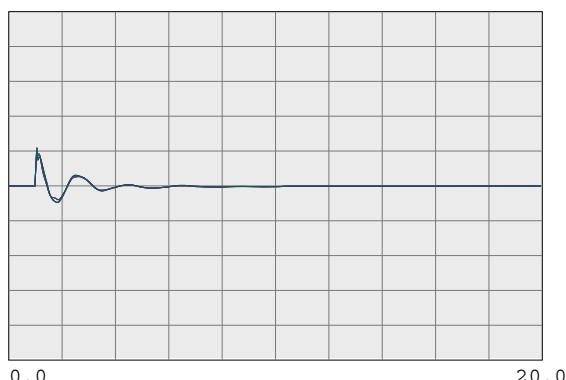
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

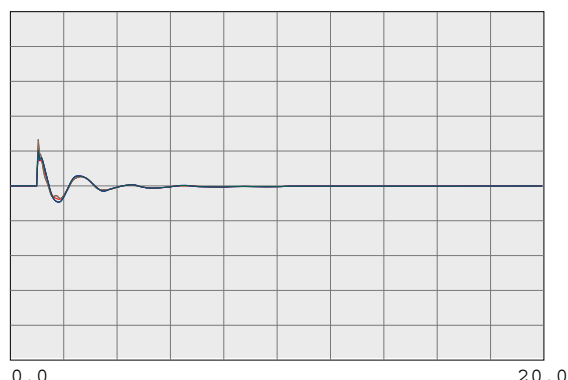
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

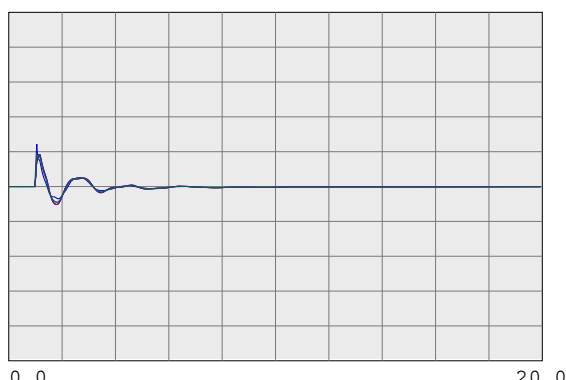
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

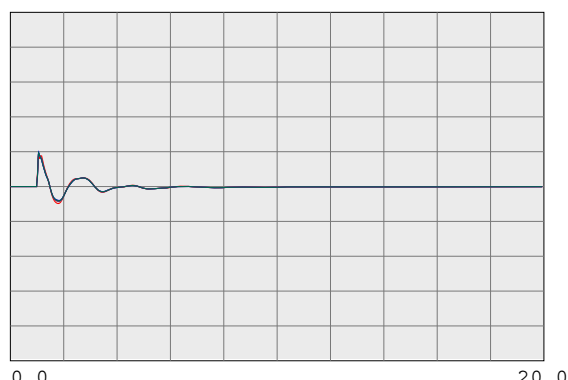
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

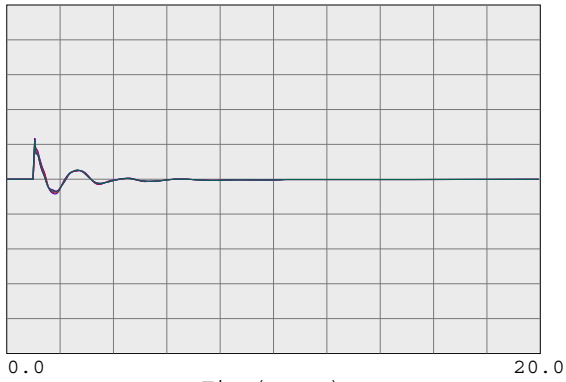
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

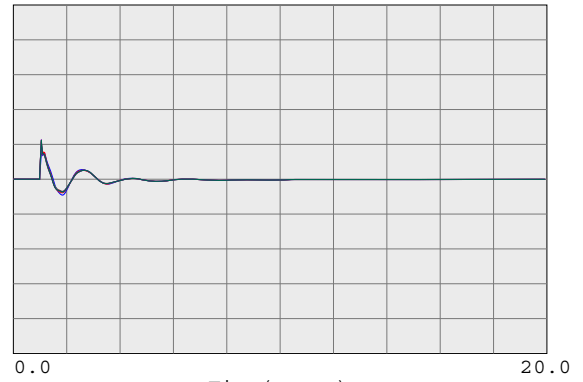
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

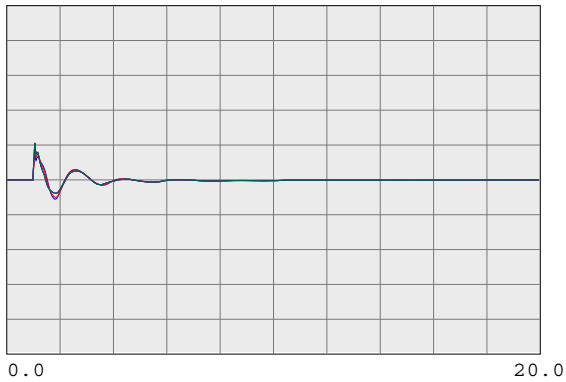
230-KV SYSTEM FREQUENCIES



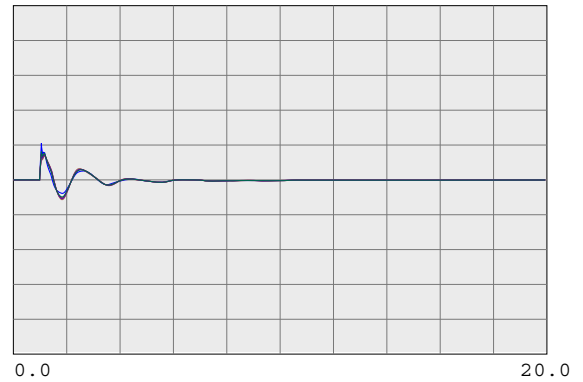
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



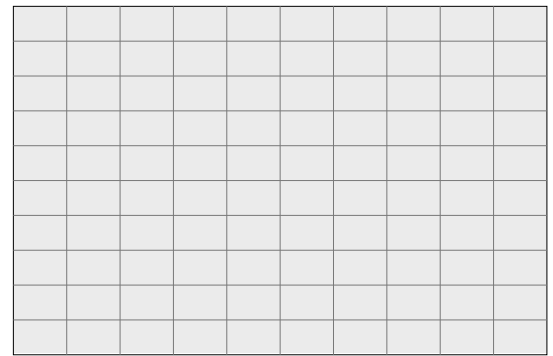
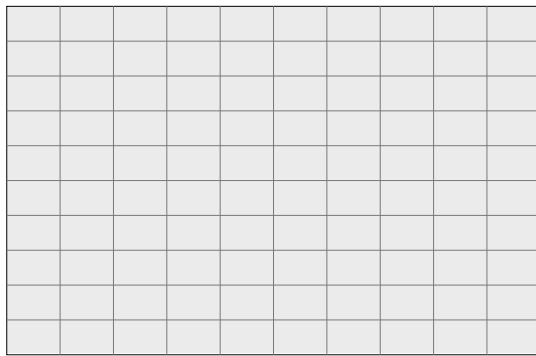
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



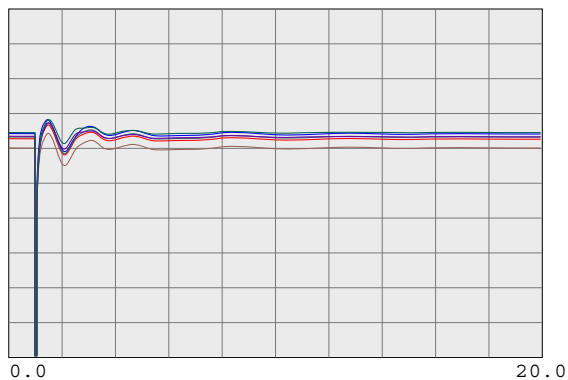
Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

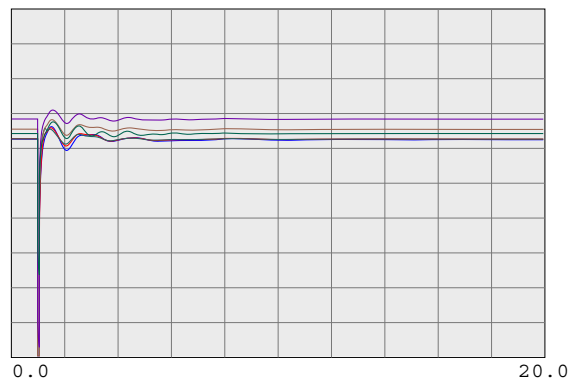


500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



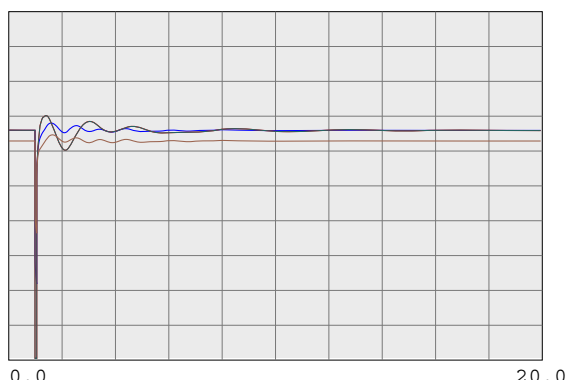
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



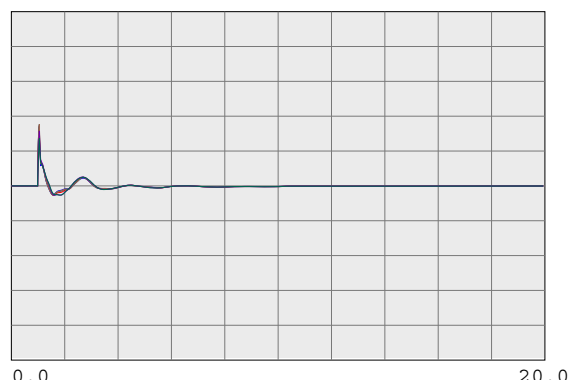
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



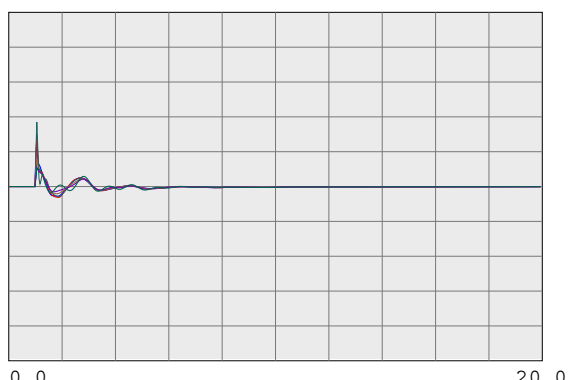
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



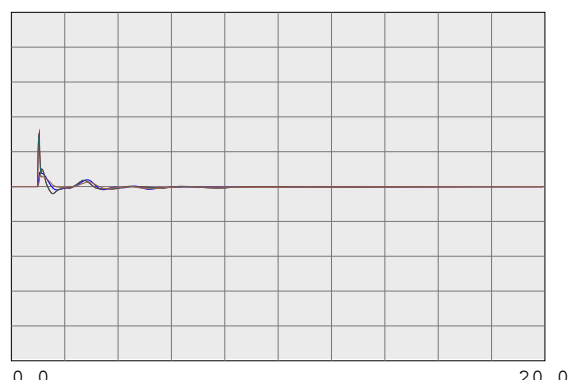
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

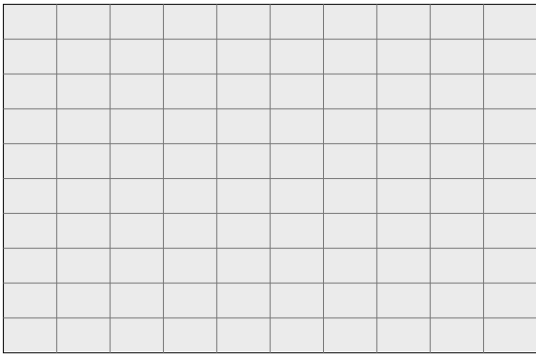
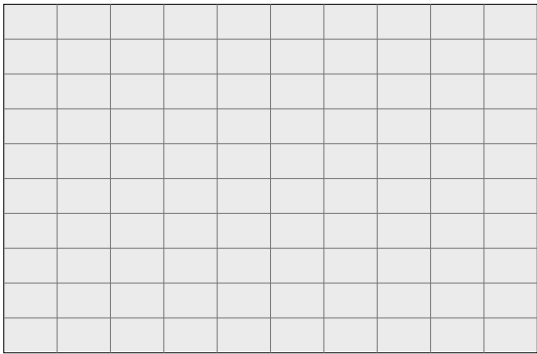
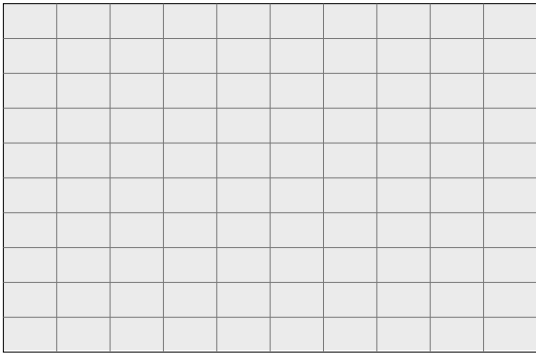
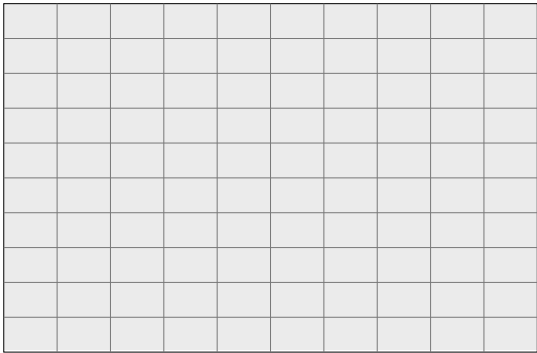
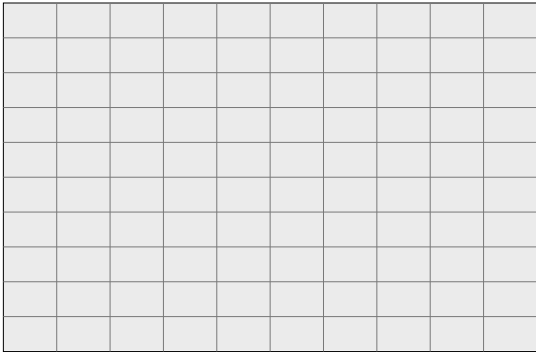
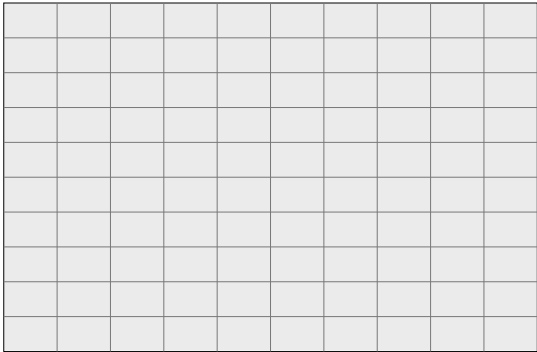
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

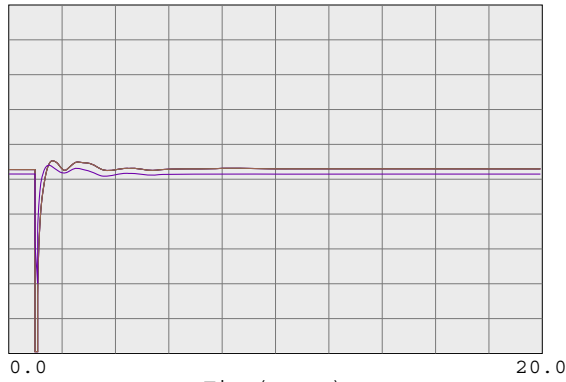
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



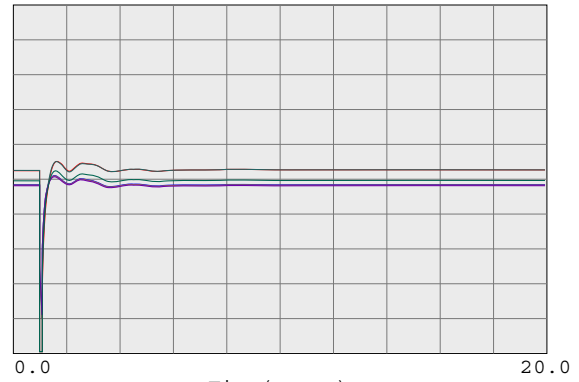
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



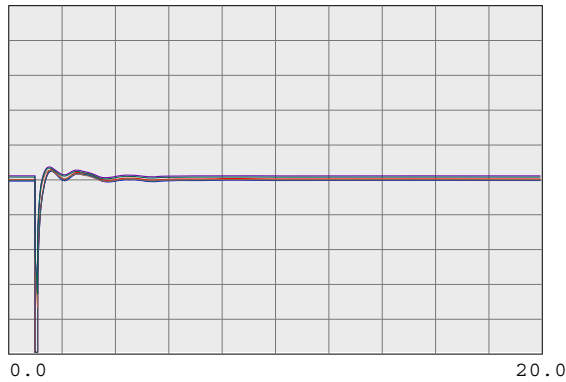
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



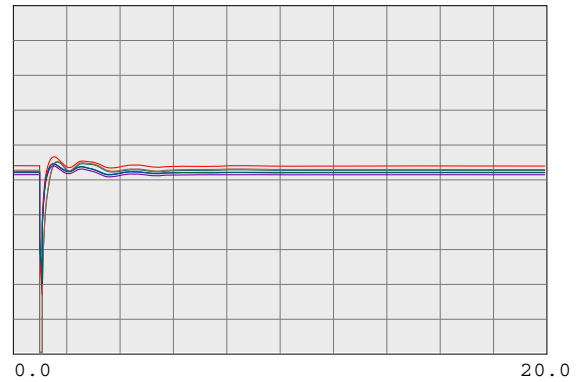
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



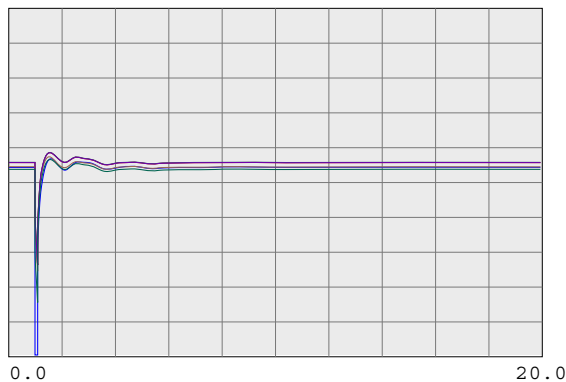
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



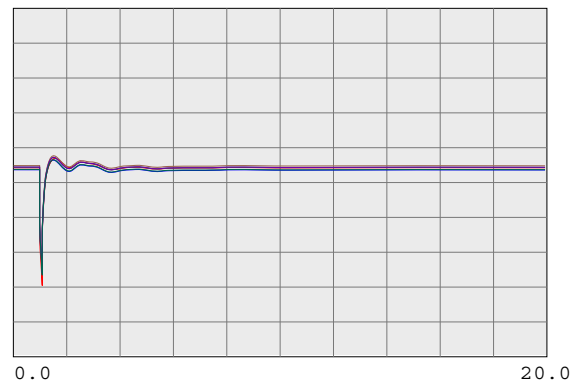
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

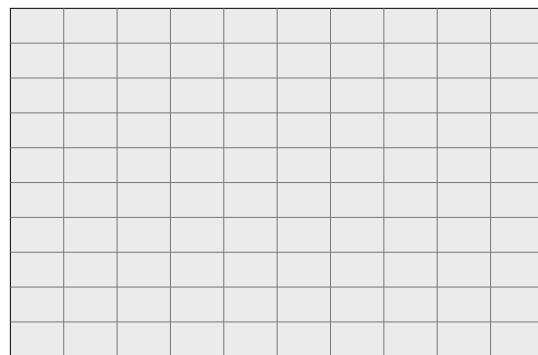
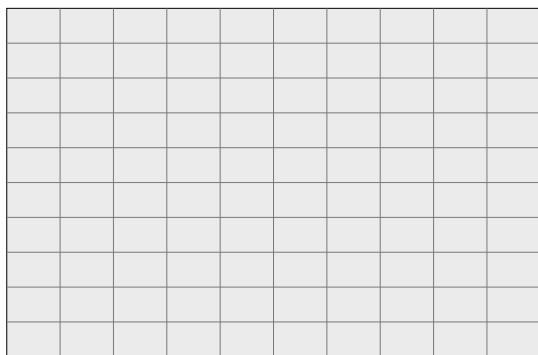
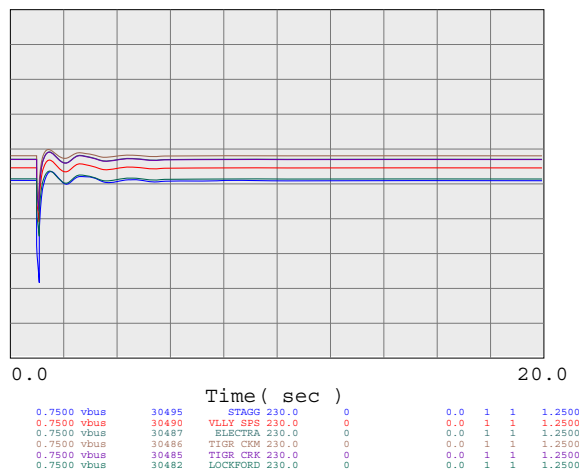
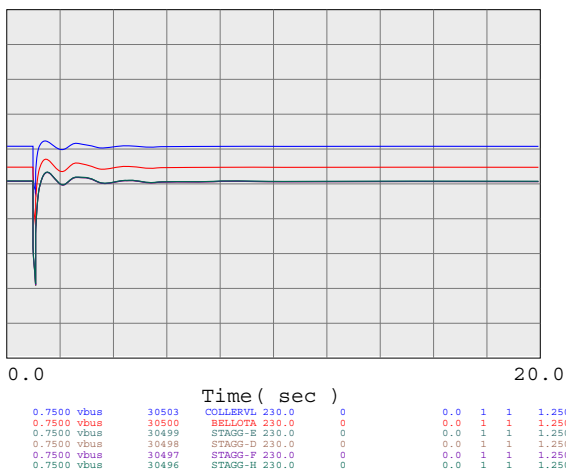
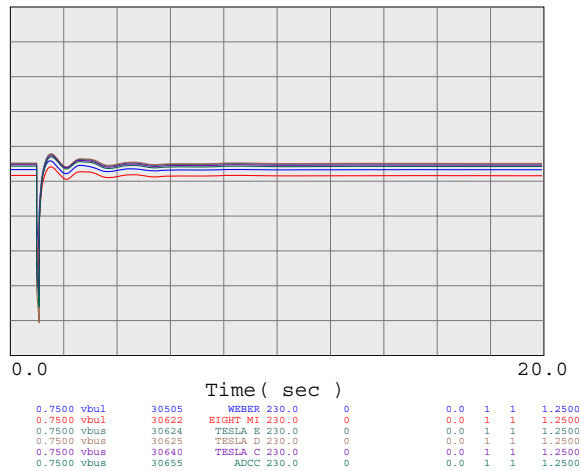
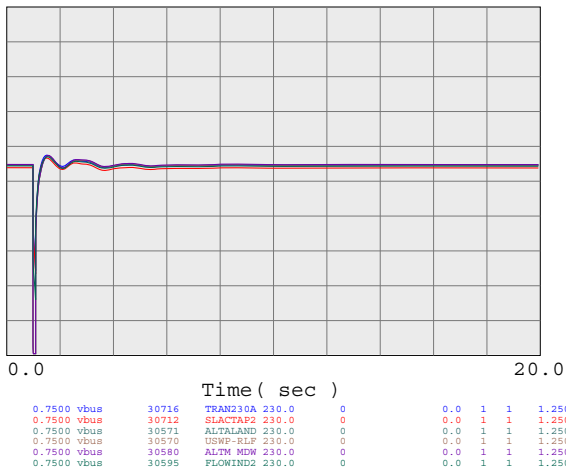
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

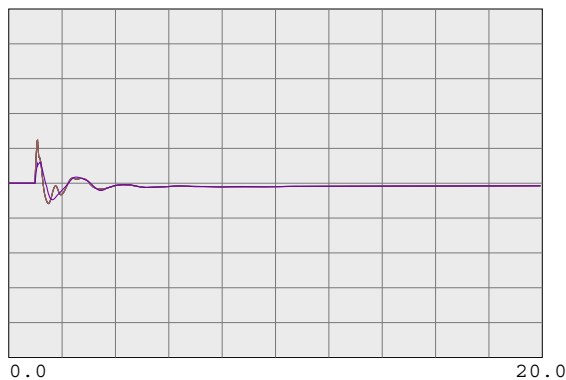
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



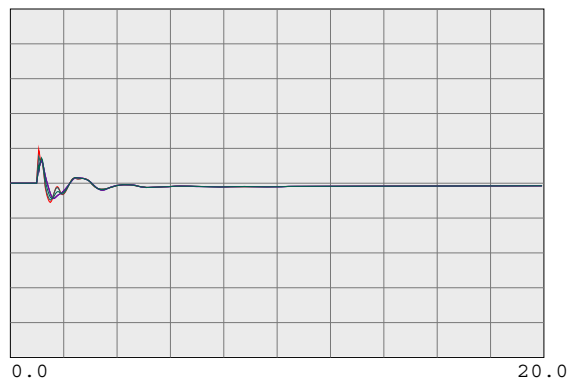
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

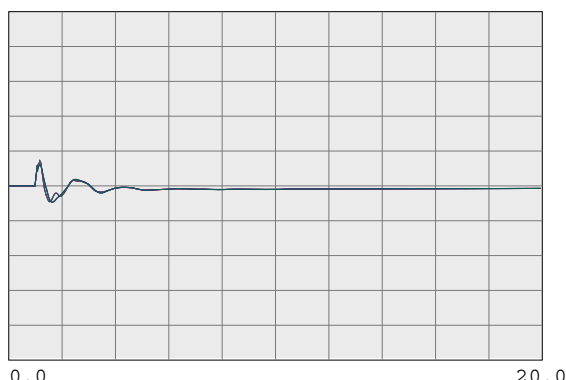
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

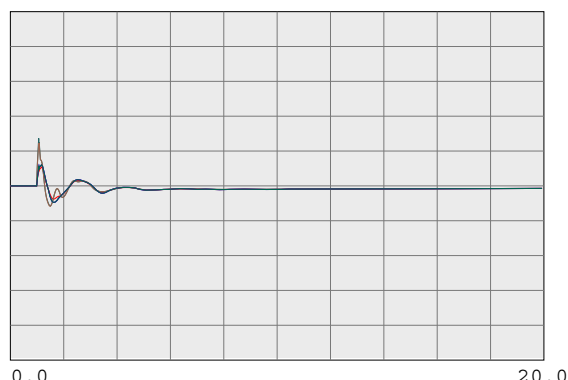
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

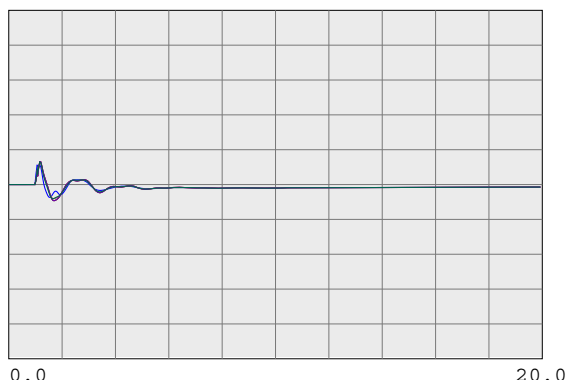
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

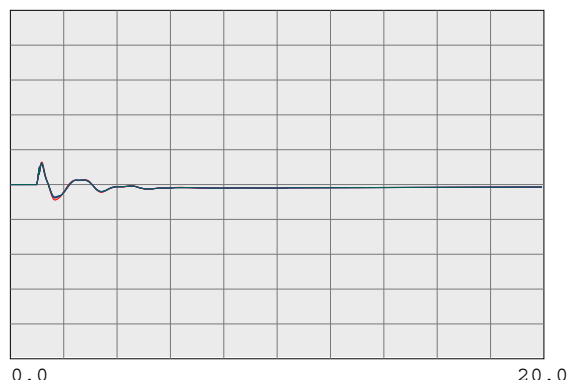
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

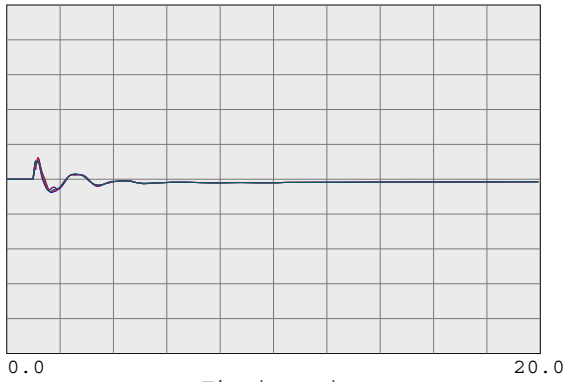
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

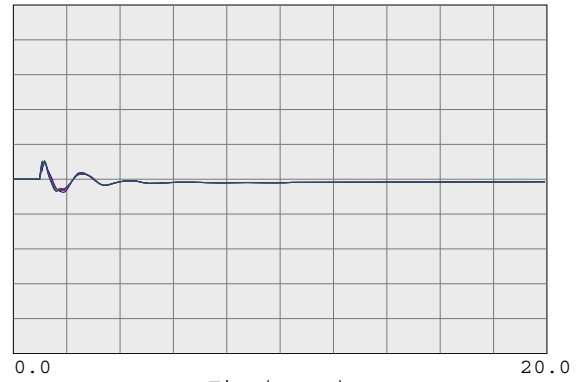
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

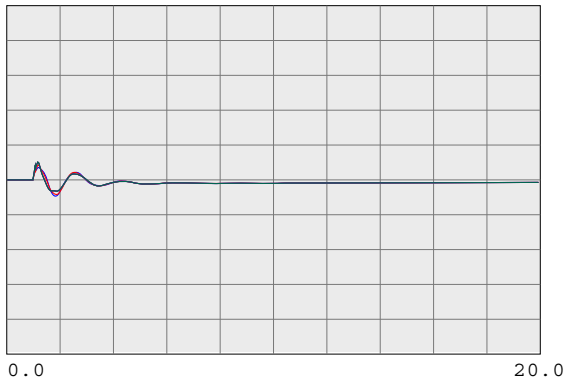
230-KV SYSTEM FREQUENCIES



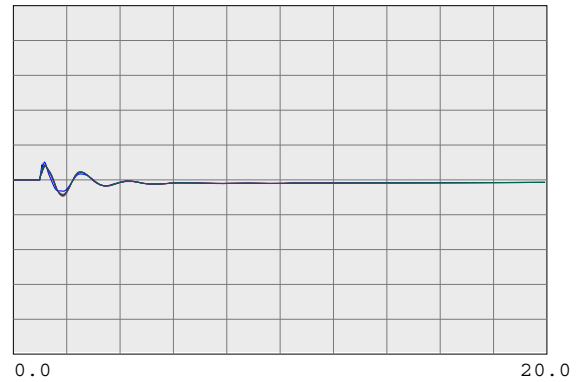
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



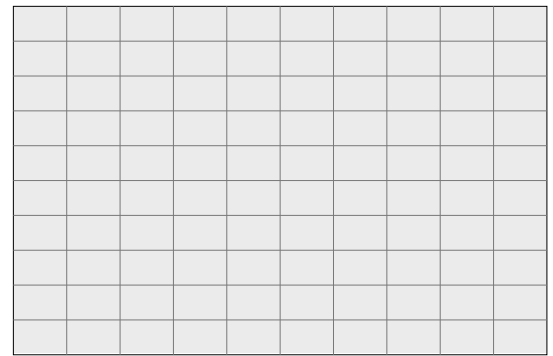
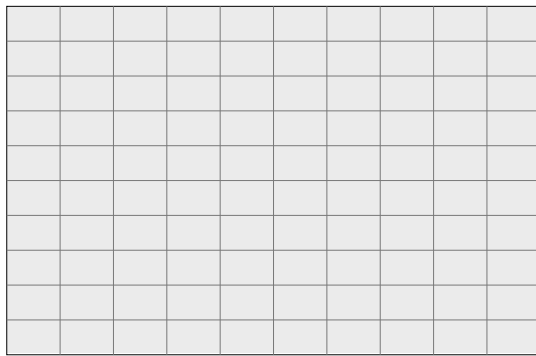
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



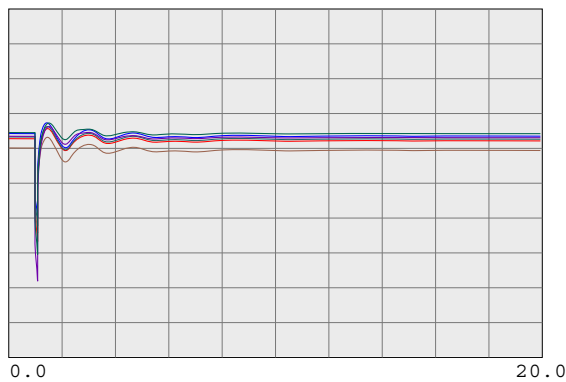
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



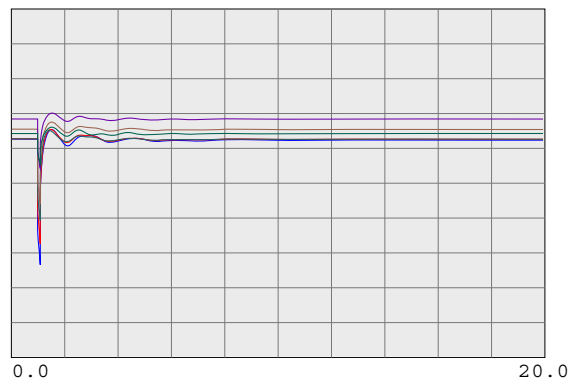
Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



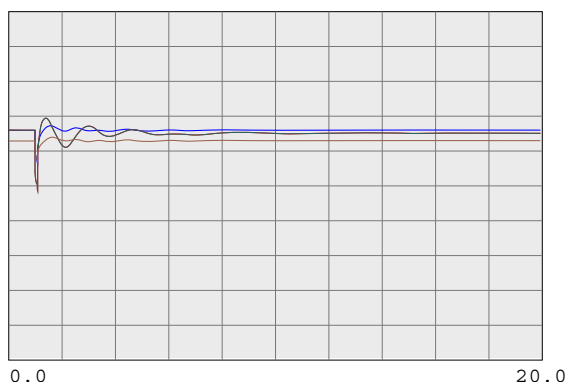
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



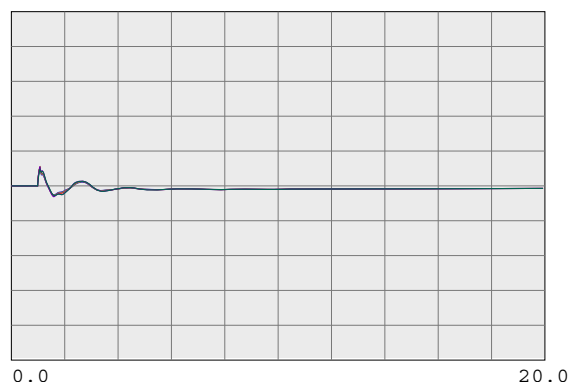
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



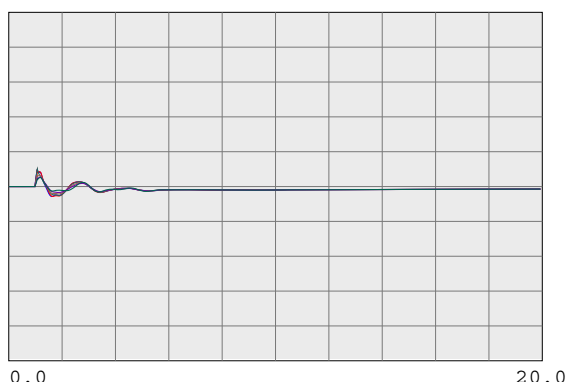
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



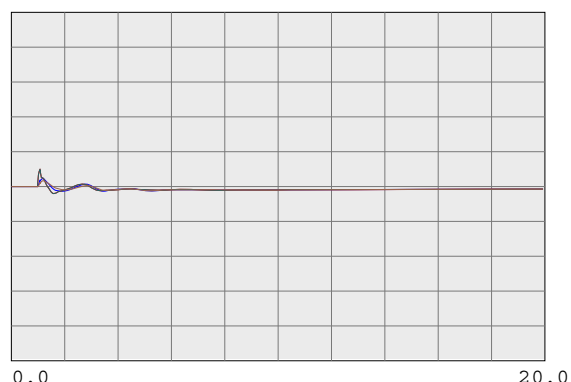
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOS BANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOS BANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

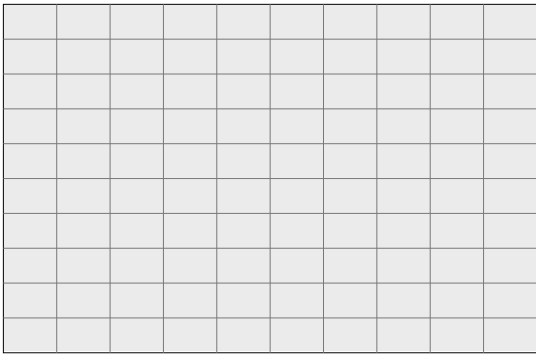
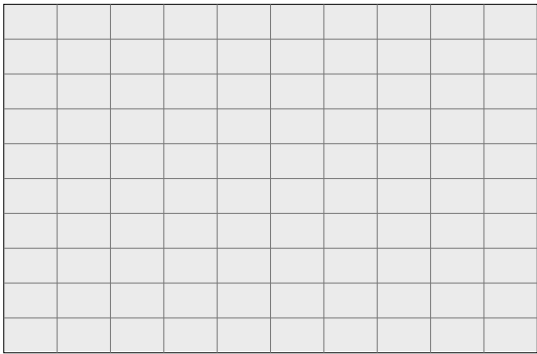
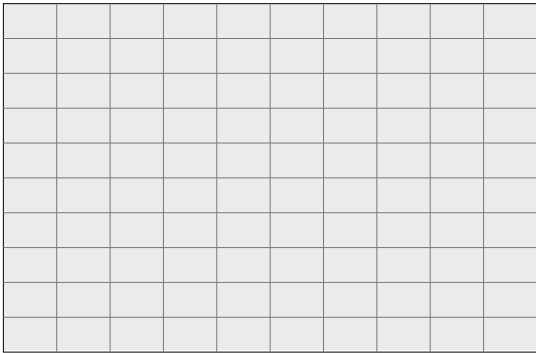
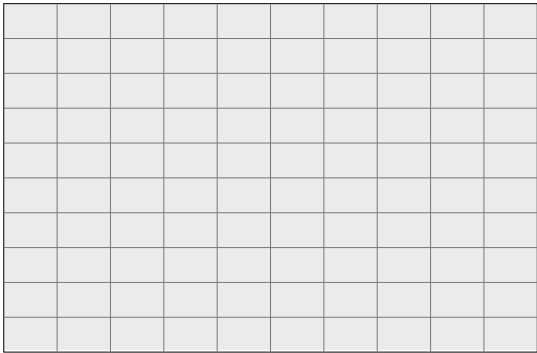
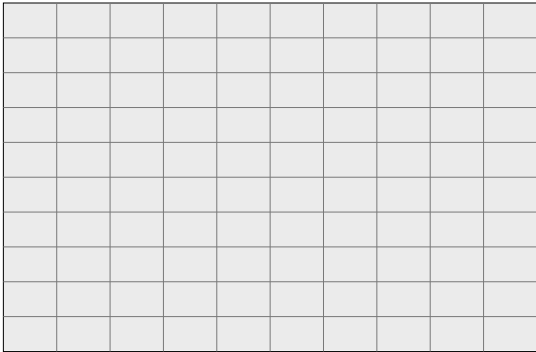
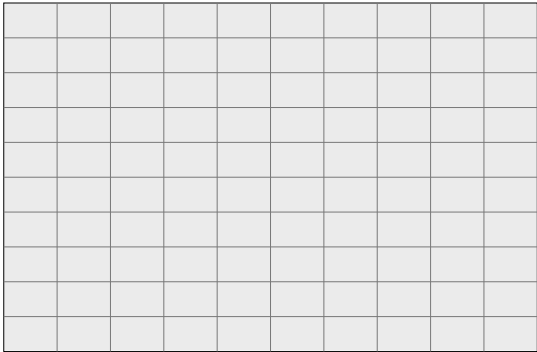
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

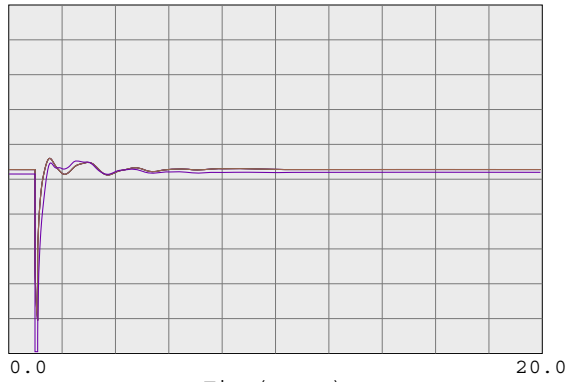
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



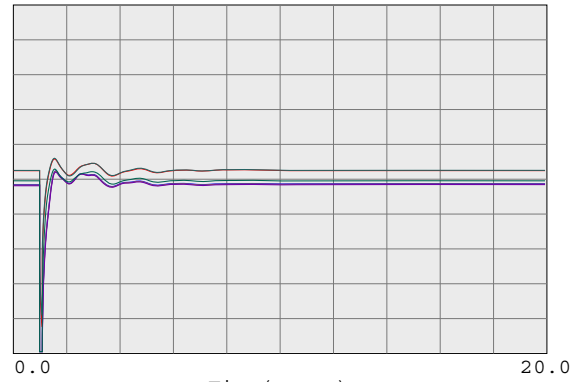
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



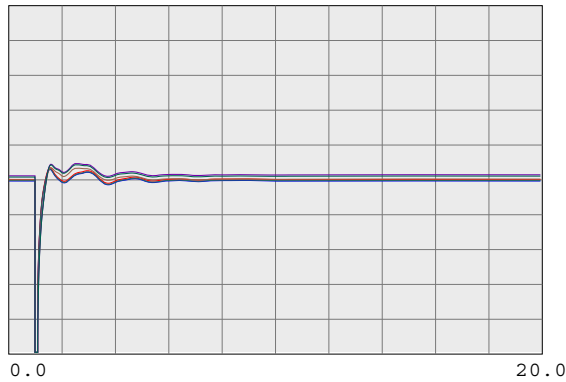
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



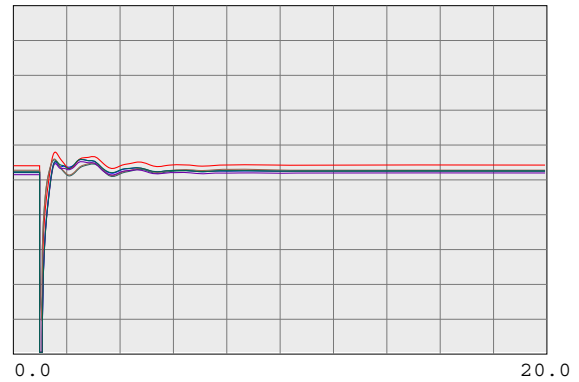
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



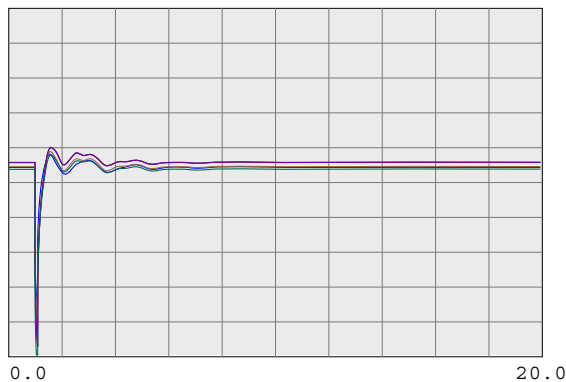
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



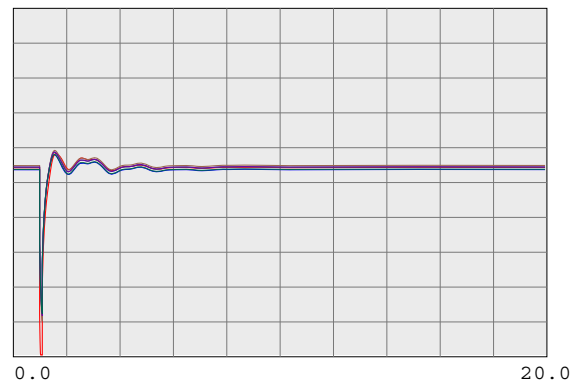
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

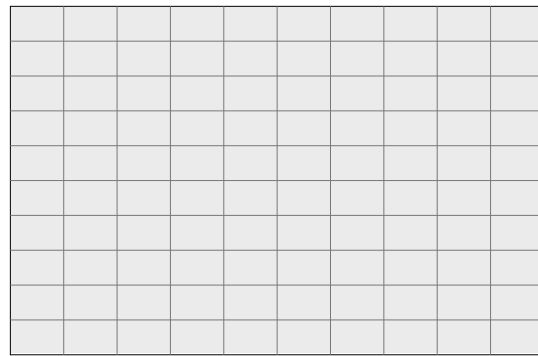
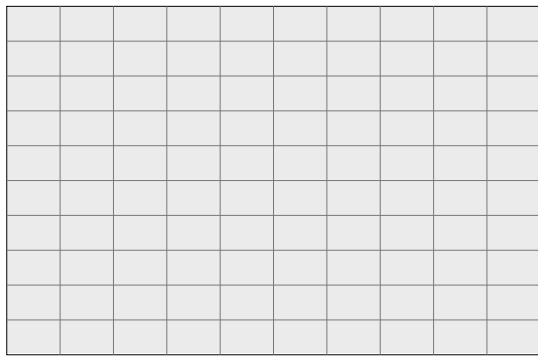
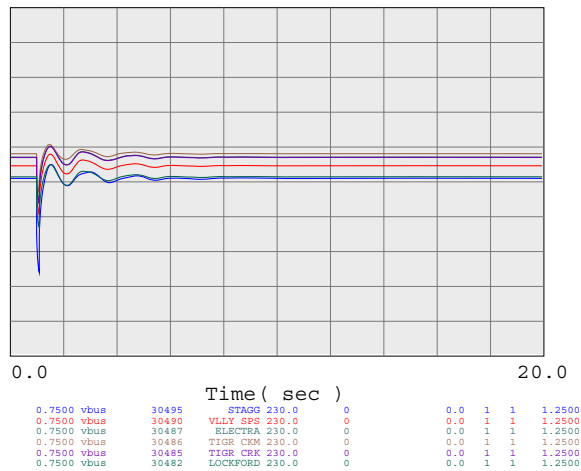
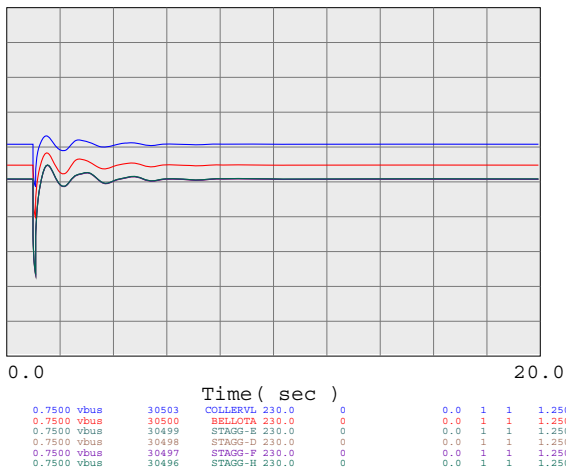
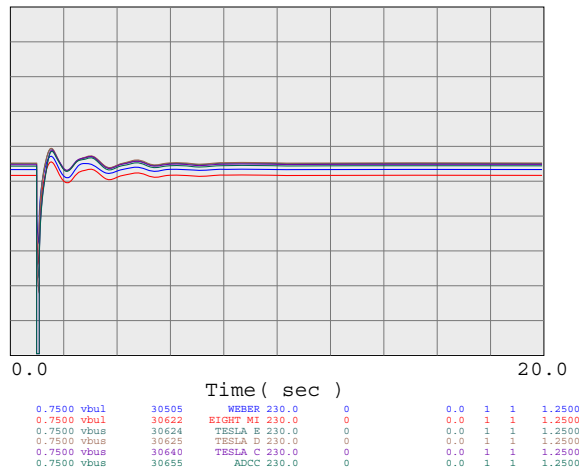
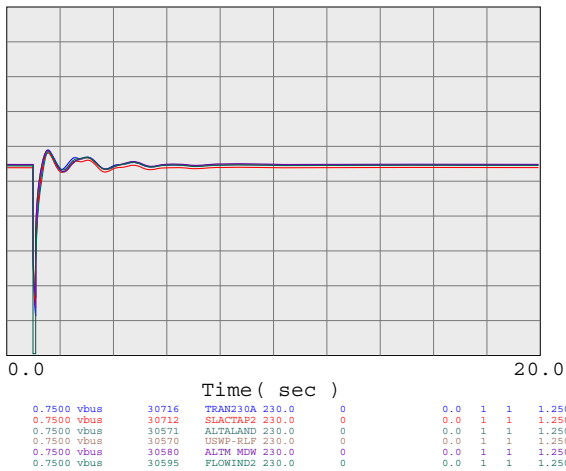
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

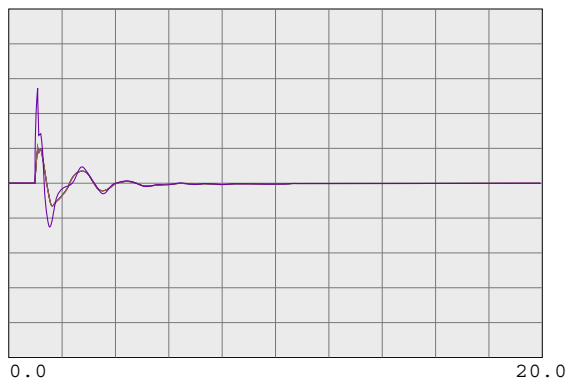
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

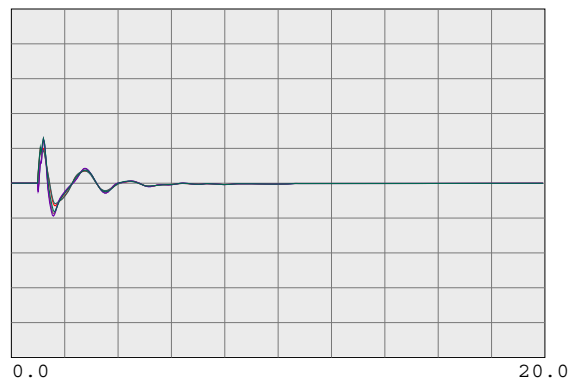
230-KV SYSTEM VOLTAGES



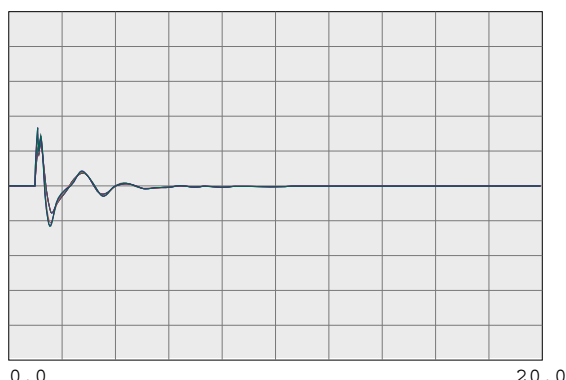
230-KV SYSTEM FREQUENCIES



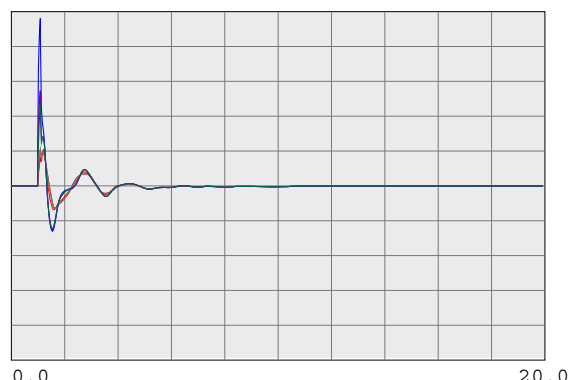
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCPB1 230.0 0 0.0 1 1 60.6000



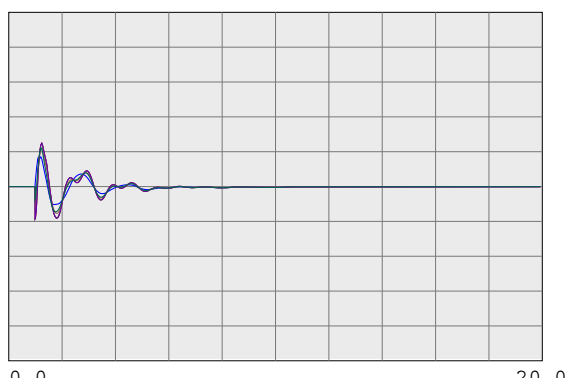
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



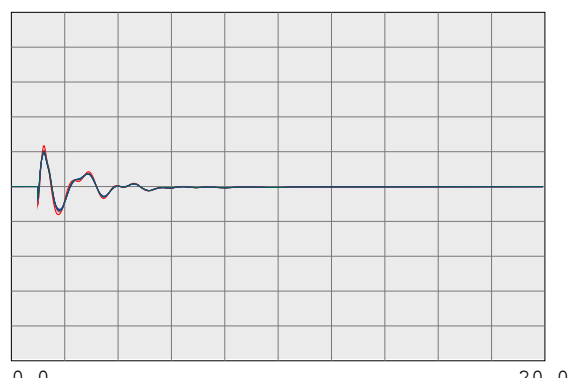
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSSTAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSSTAR1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANSJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

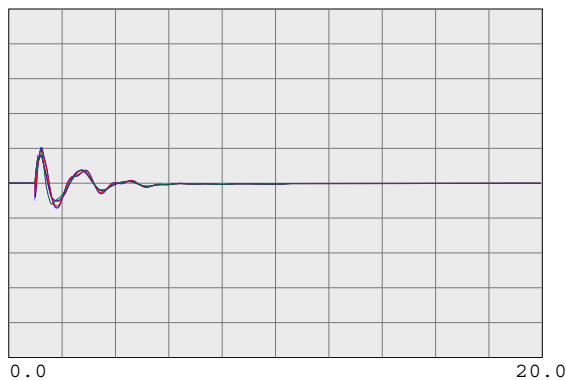
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

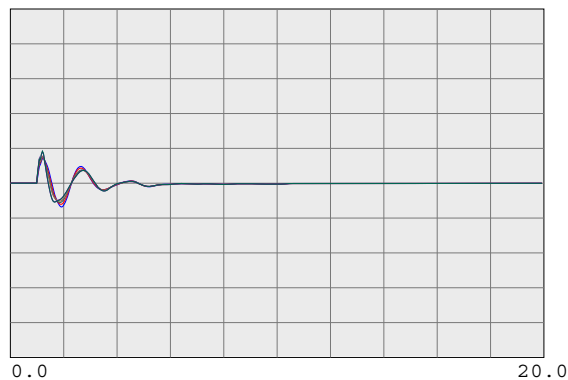
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

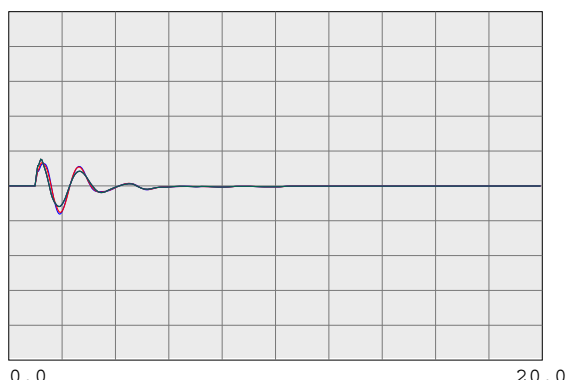
230-KV SYSTEM FREQUENCIES



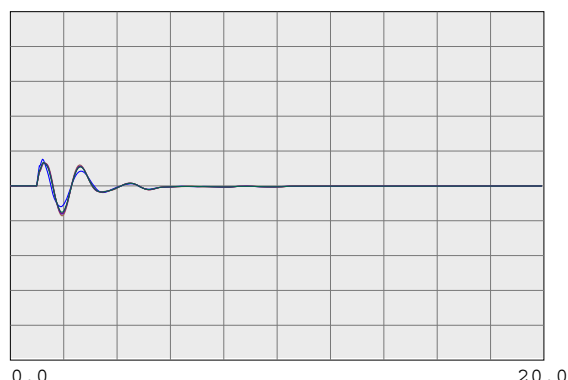
Time (sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



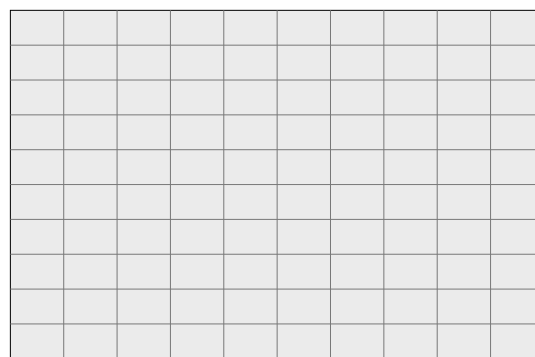
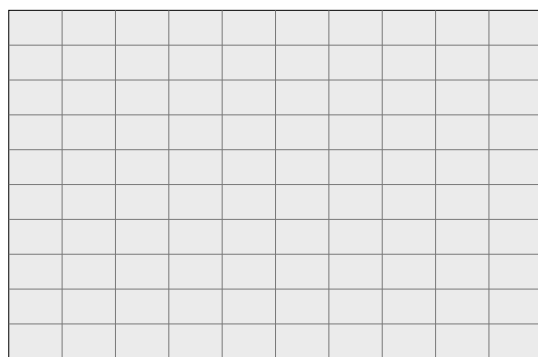
Time (sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

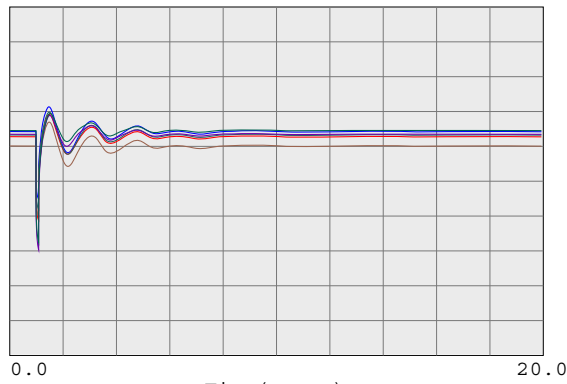
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

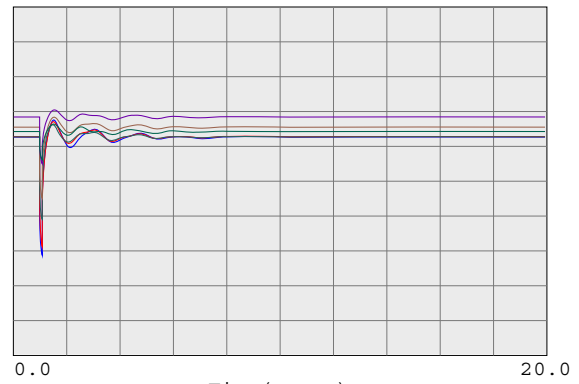
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



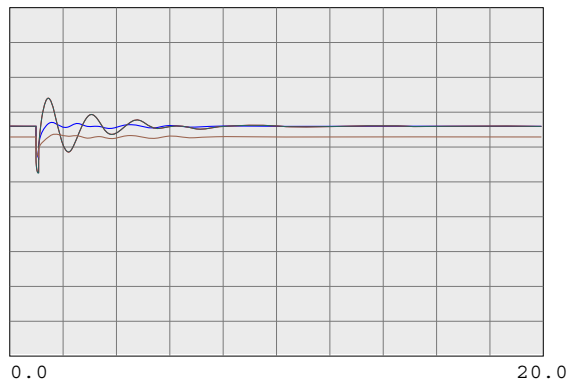
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



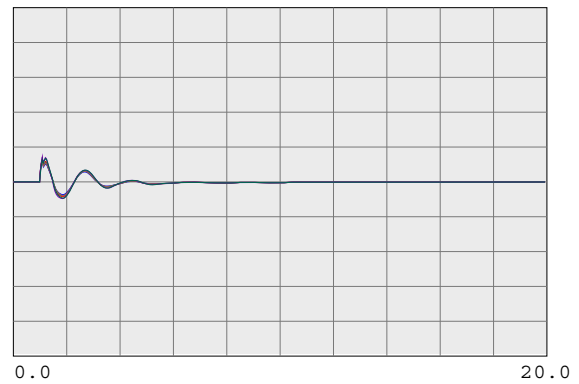
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



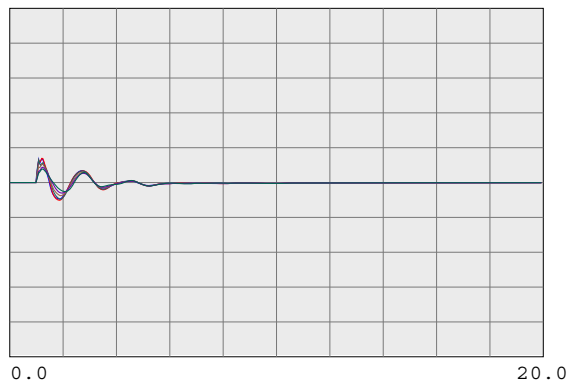
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



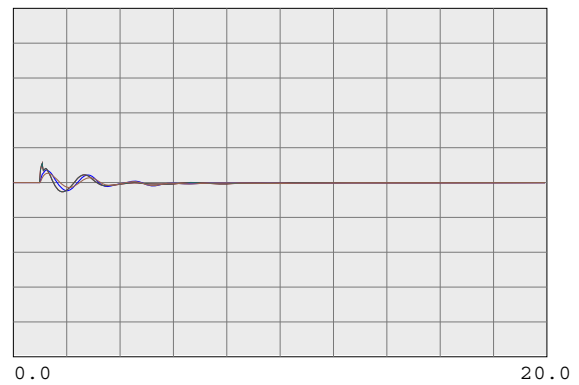
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

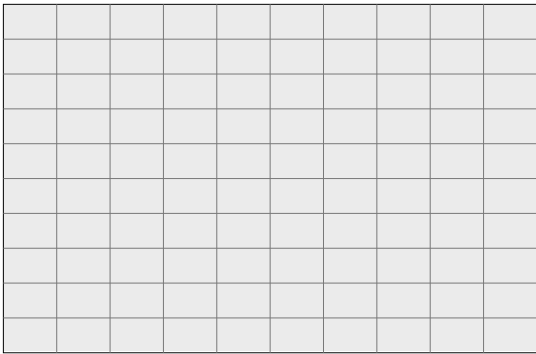
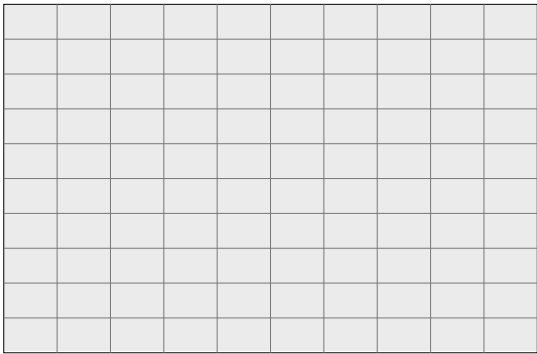
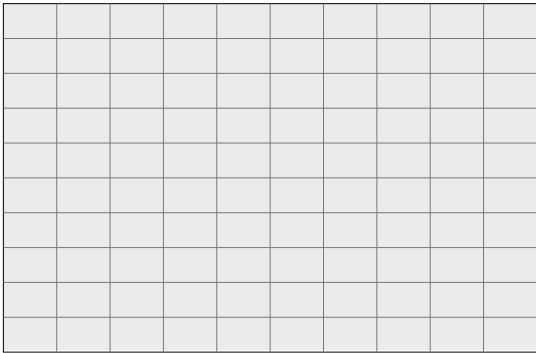
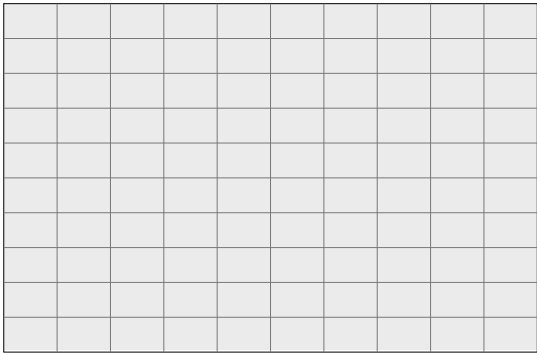
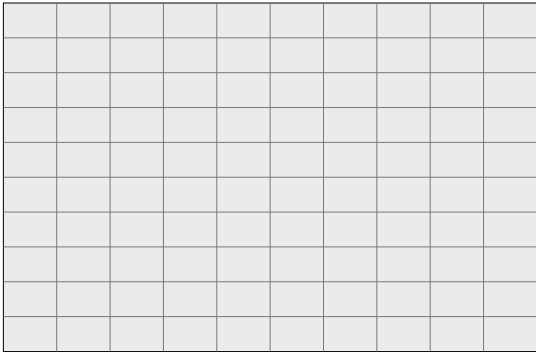
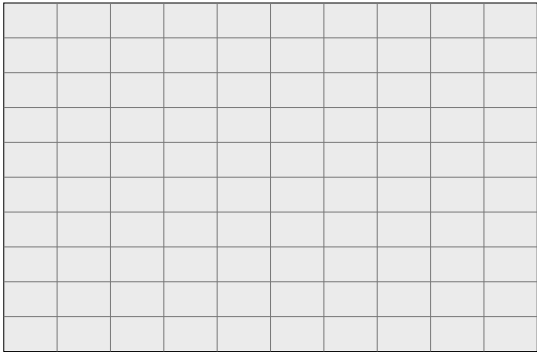
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

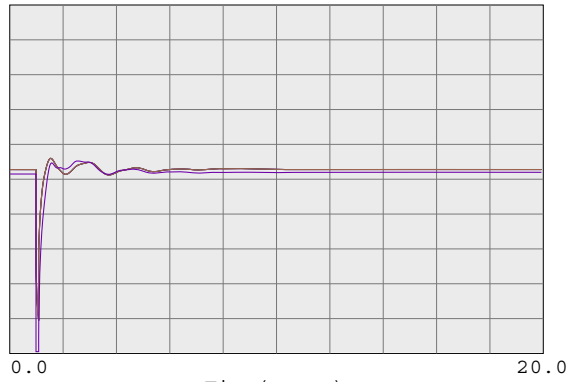
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



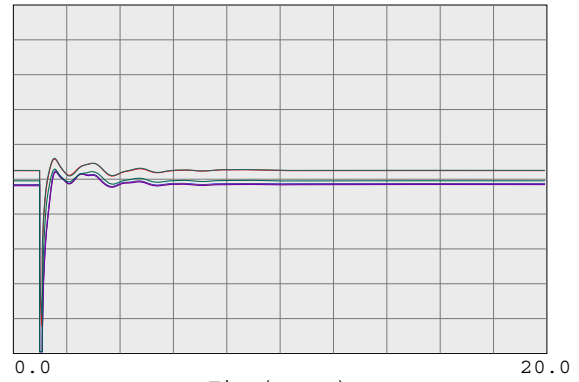
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



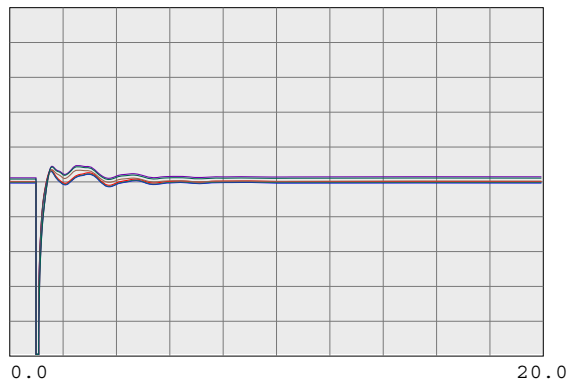
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



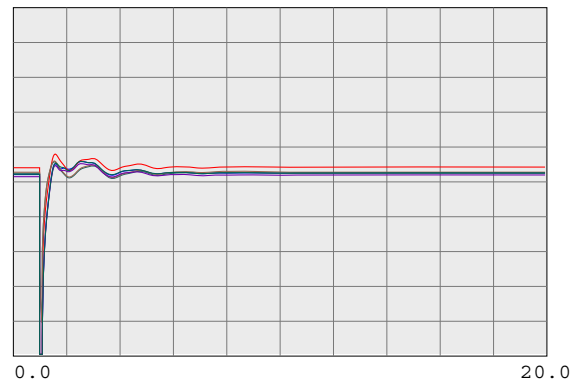
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



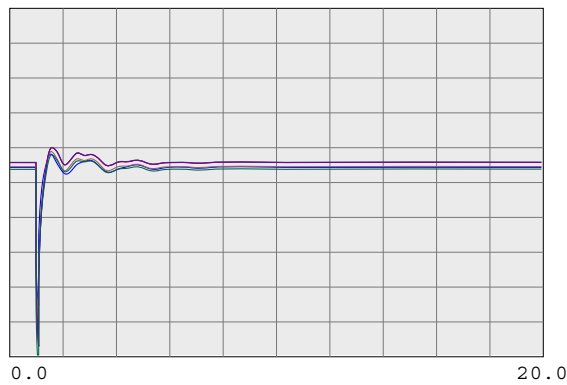
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



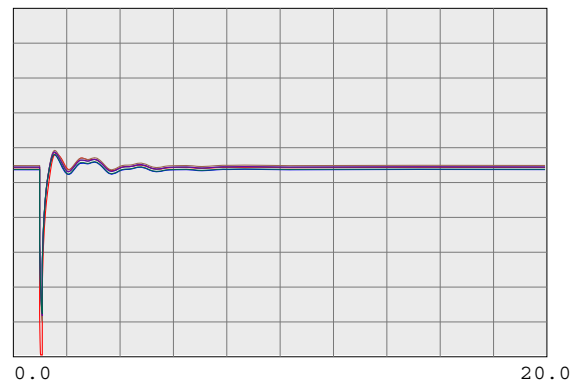
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

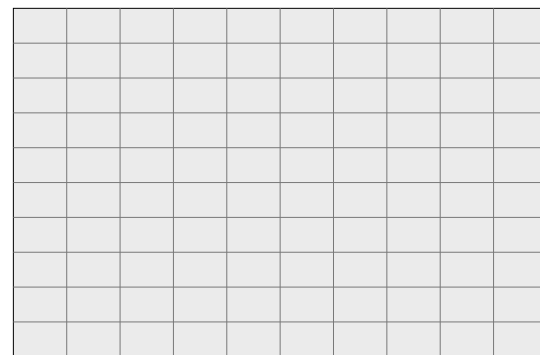
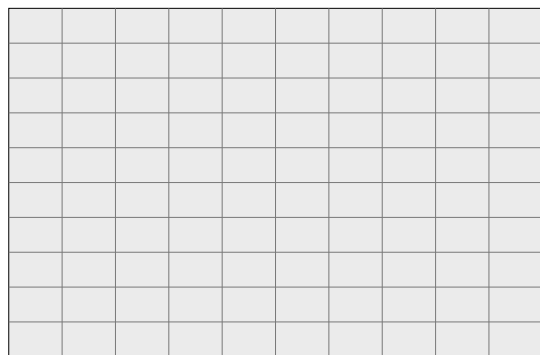
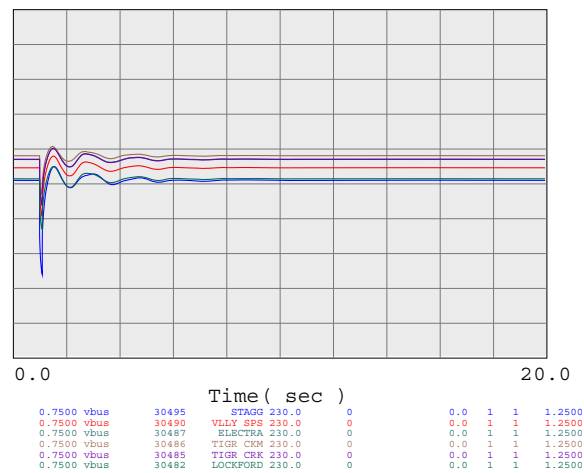
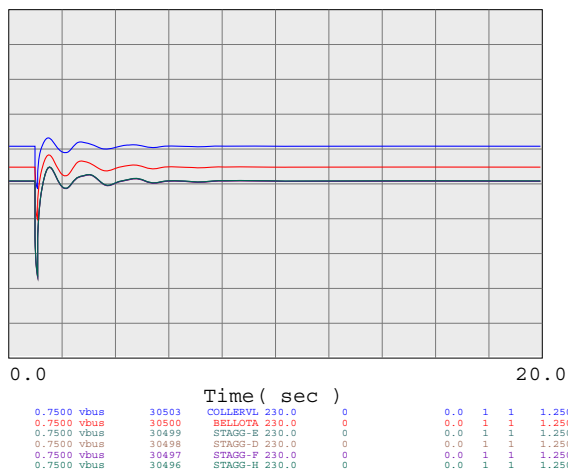
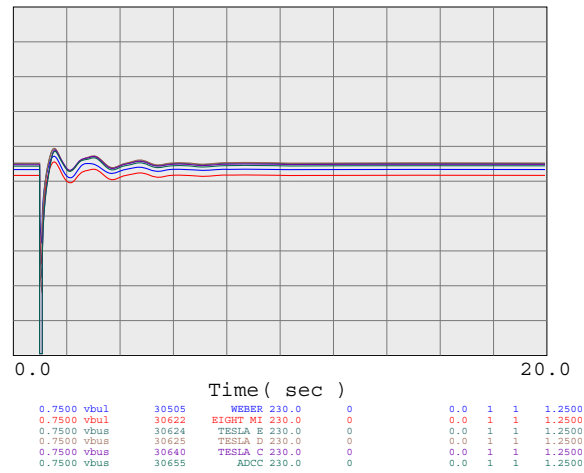
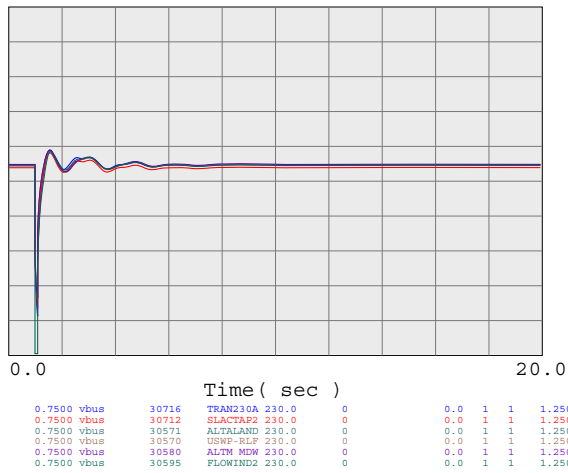
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

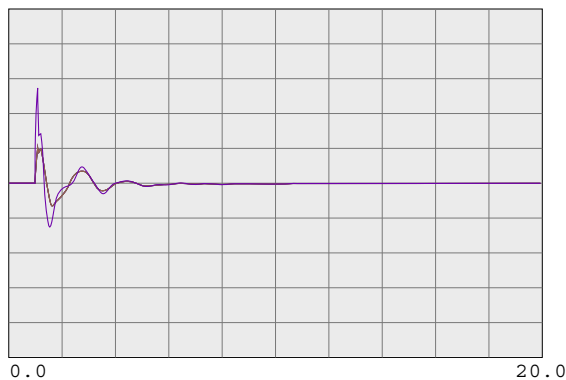
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



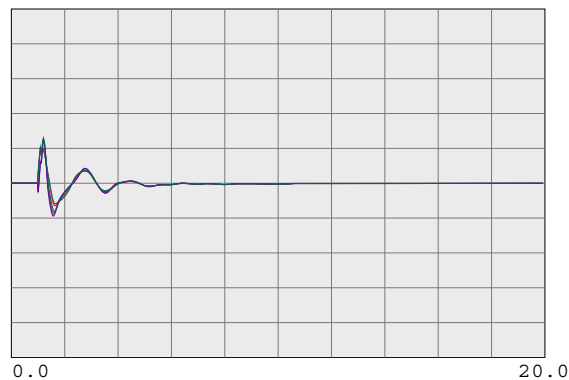
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

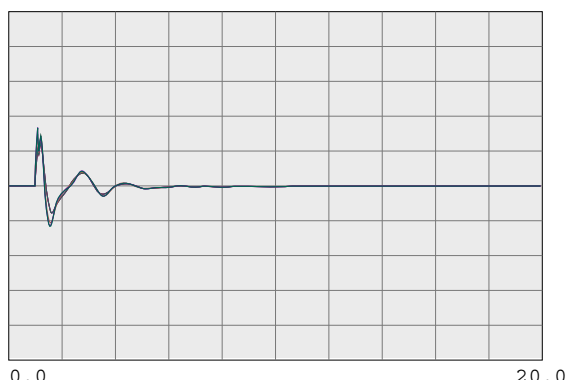
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

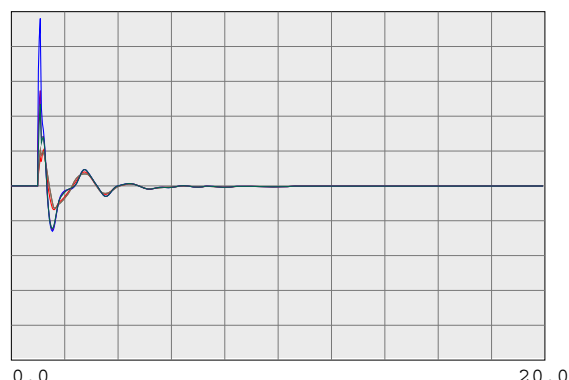
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

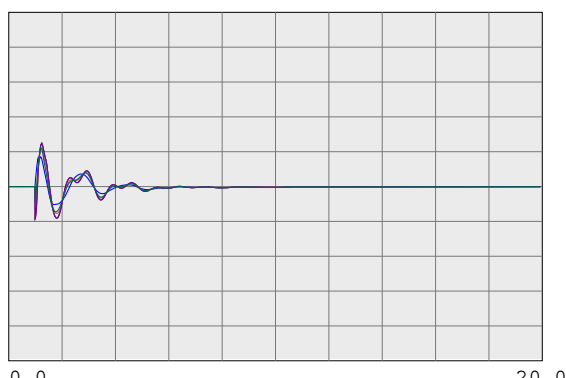
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

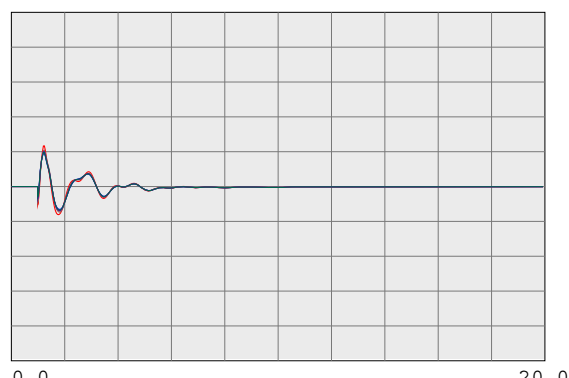
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

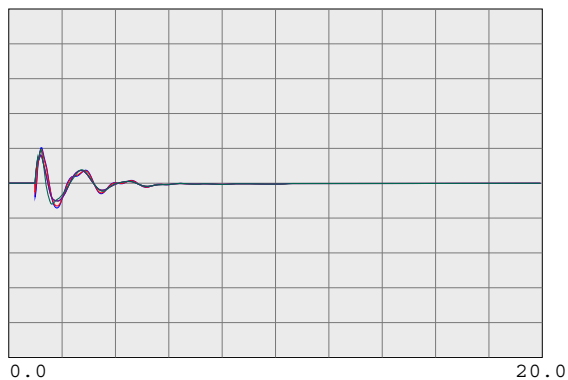
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

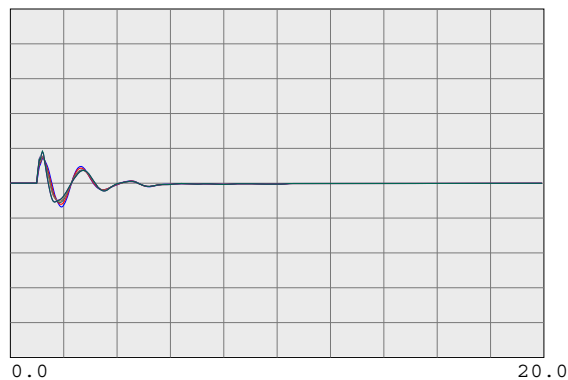
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

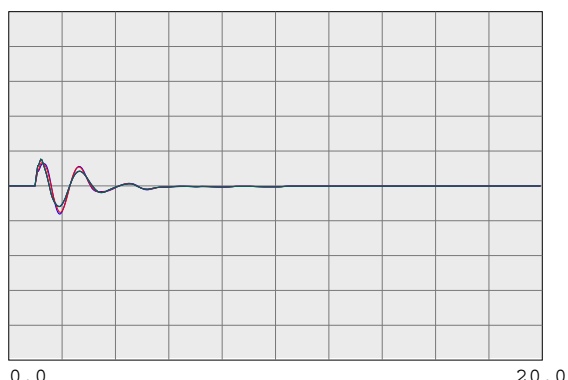
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

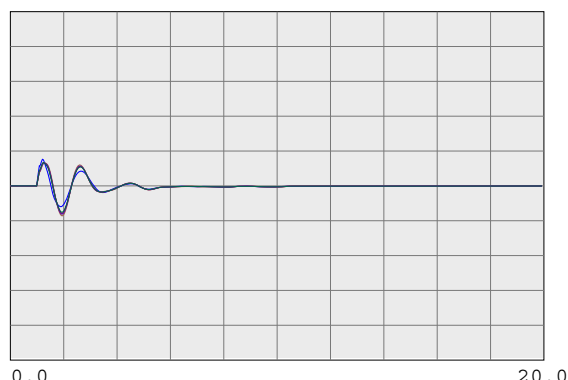
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

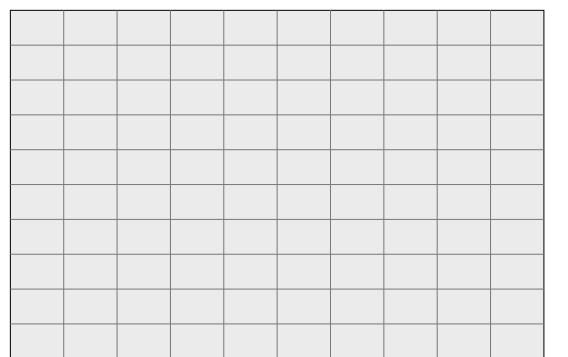
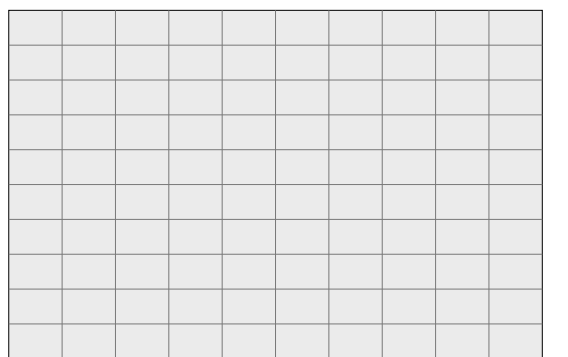
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

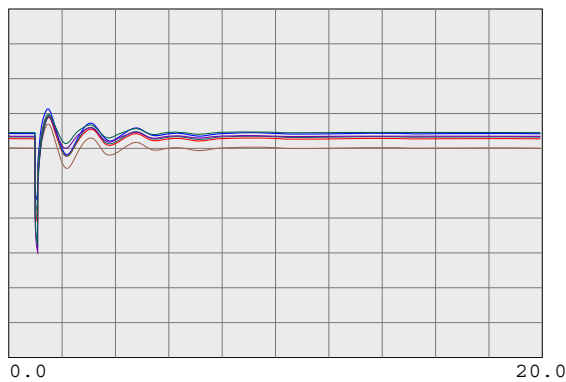
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

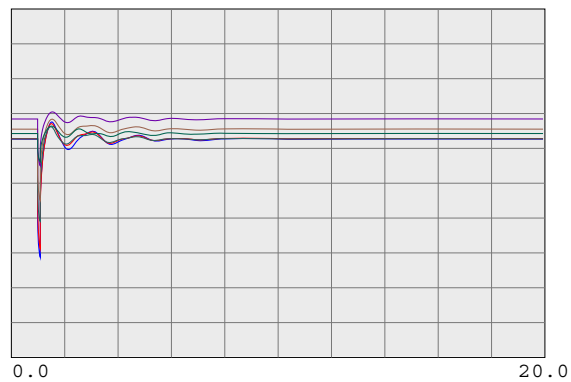
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



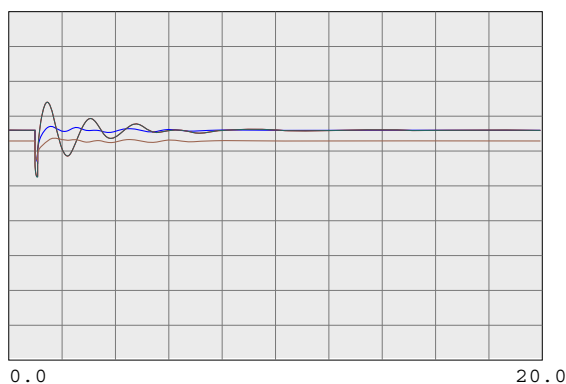
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



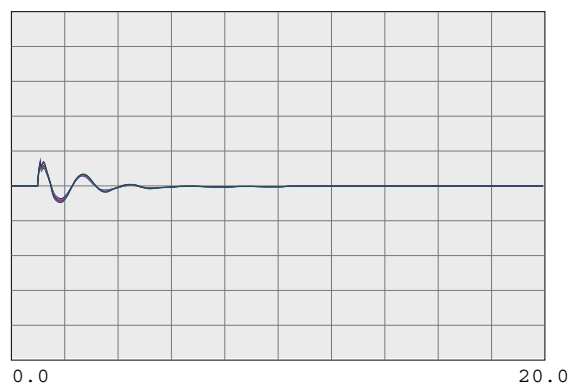
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



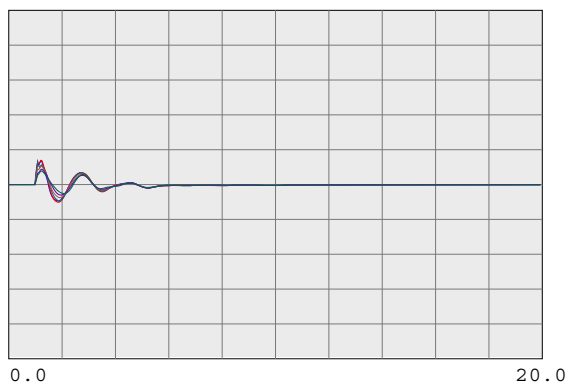
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



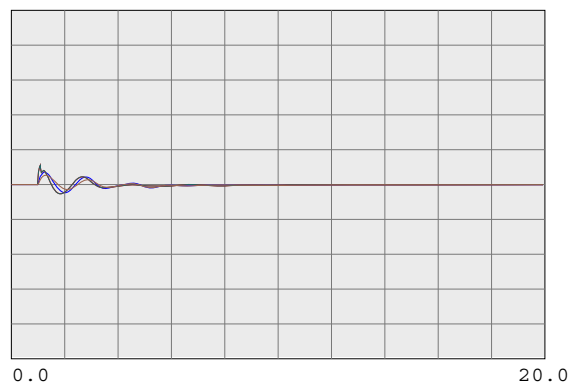
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

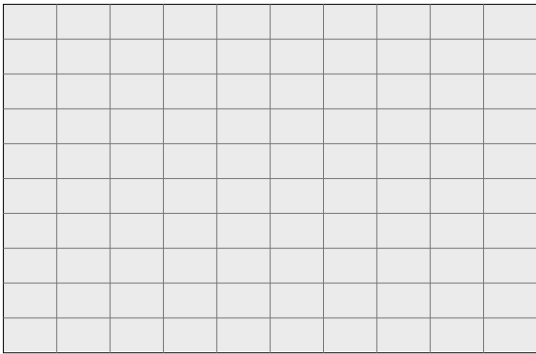
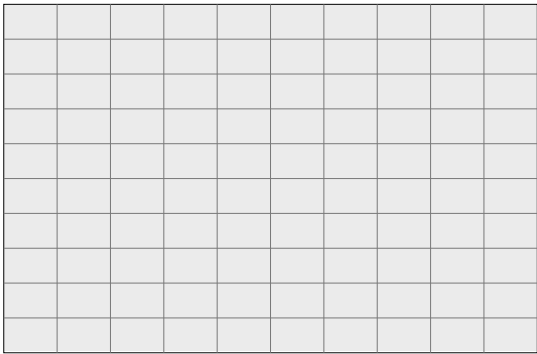
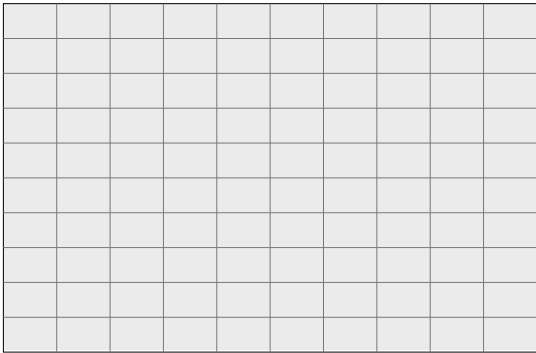
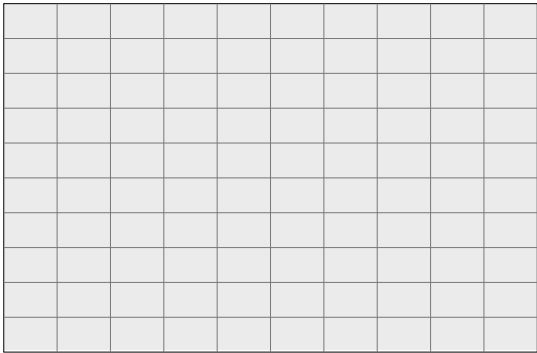
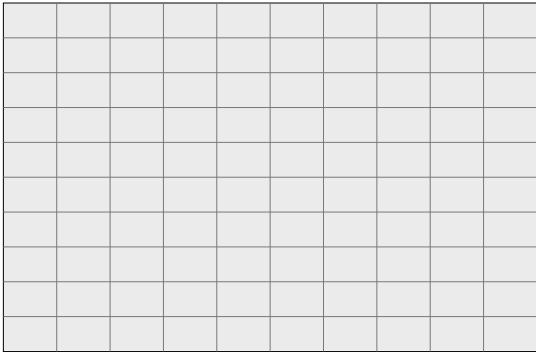
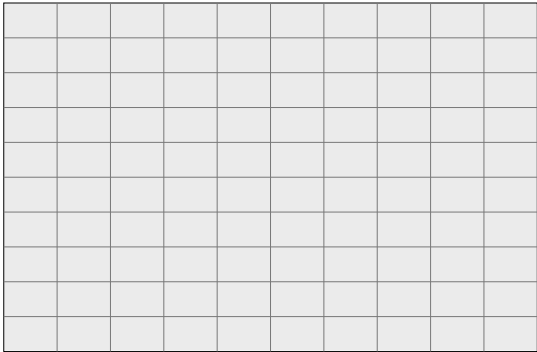
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

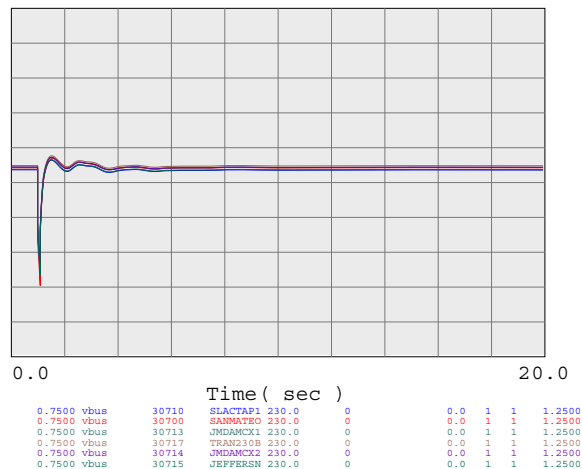
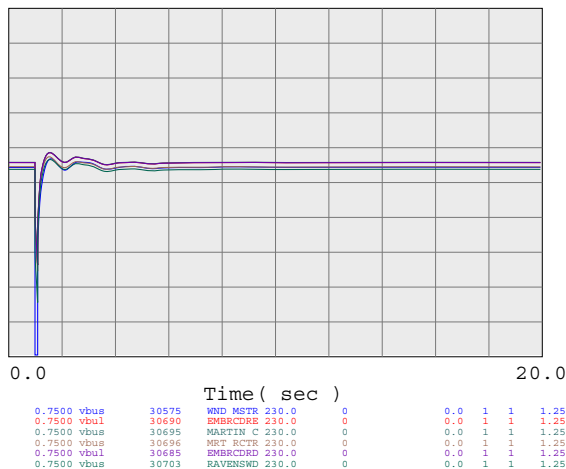
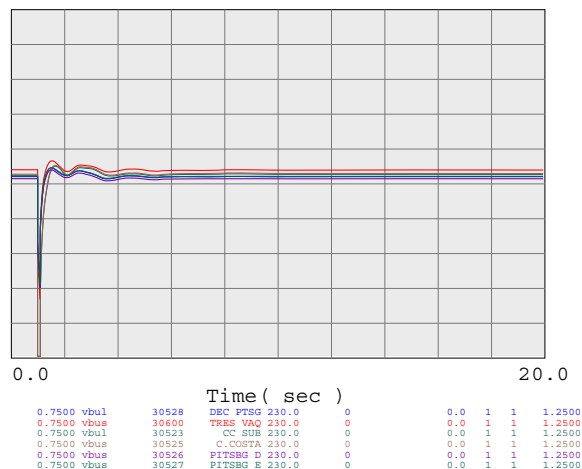
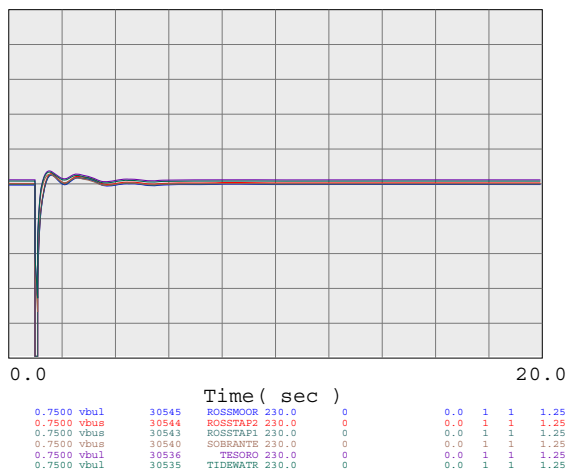
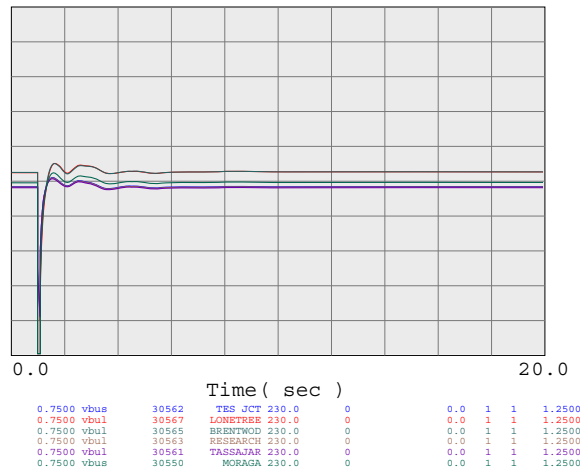
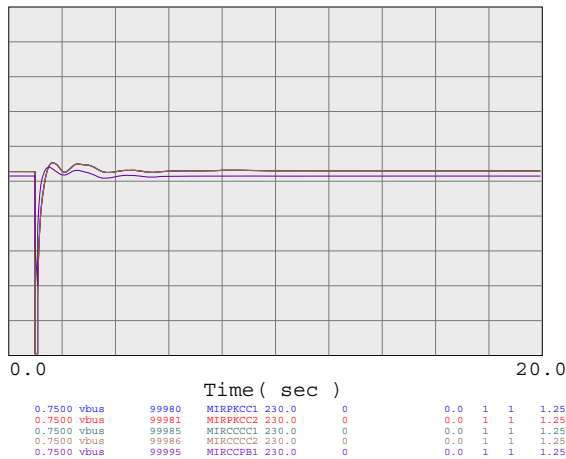
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



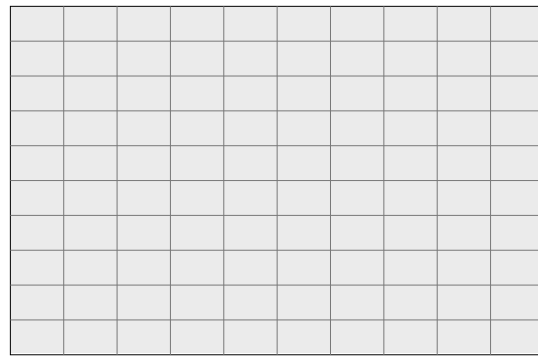
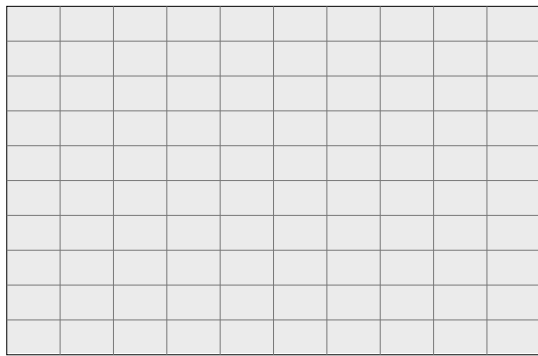
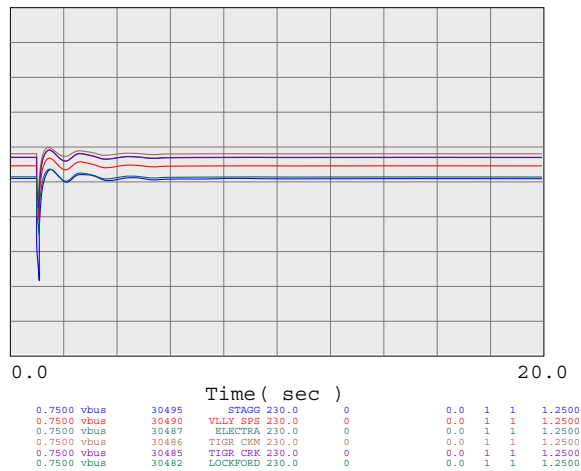
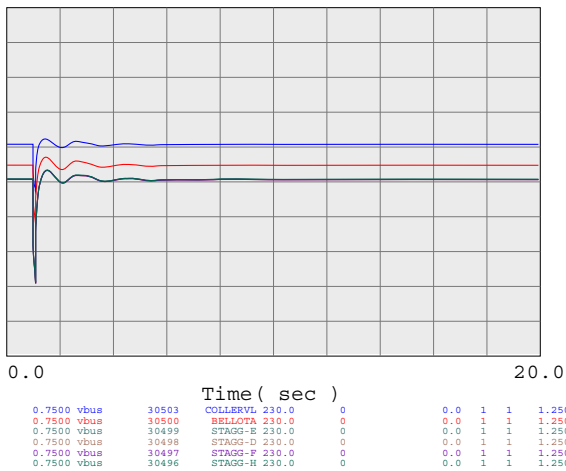
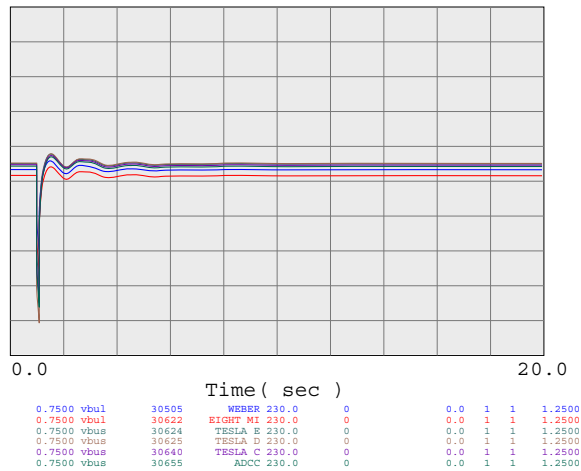
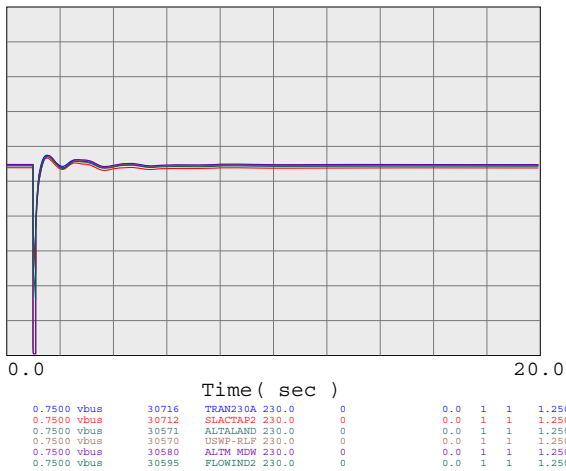
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



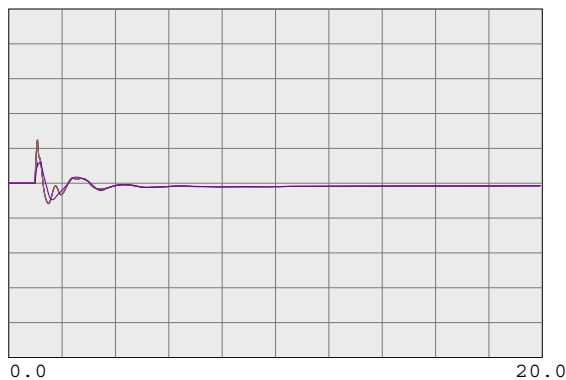
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

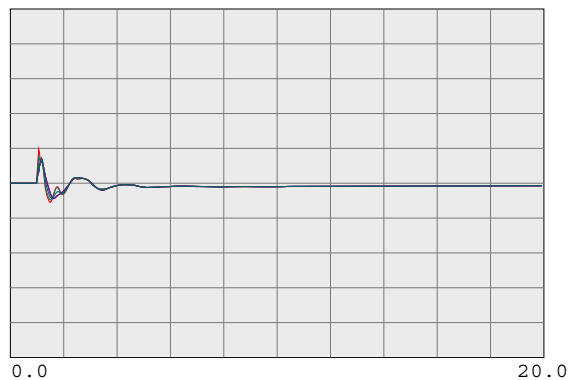
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

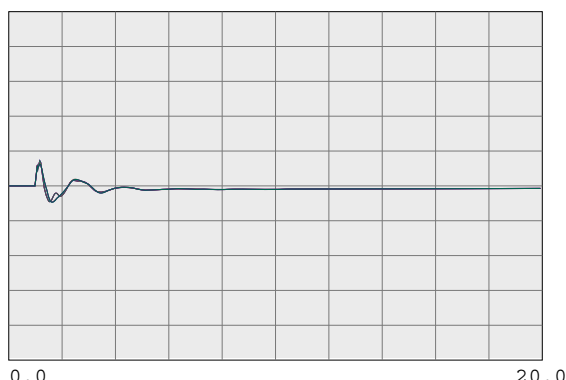
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

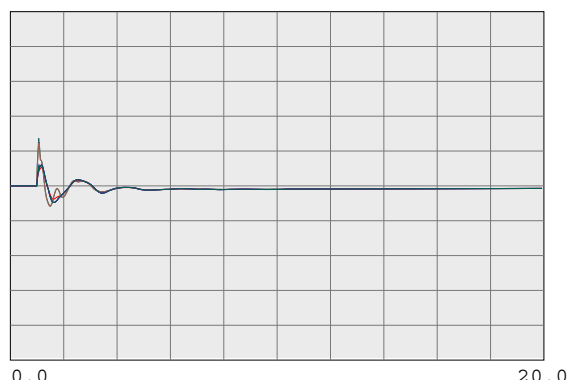
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

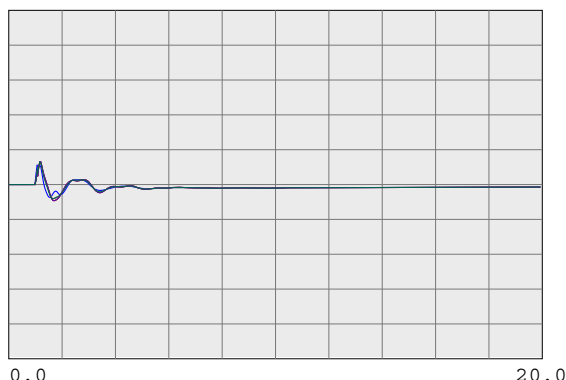
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

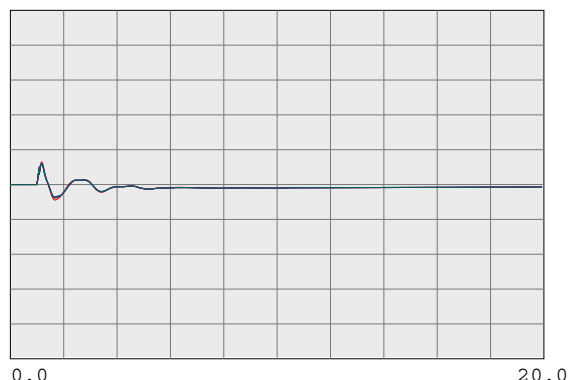
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

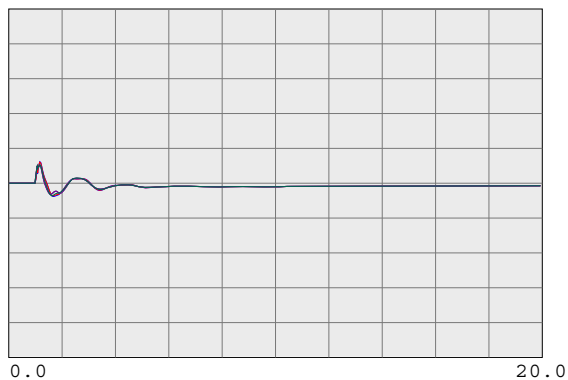
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

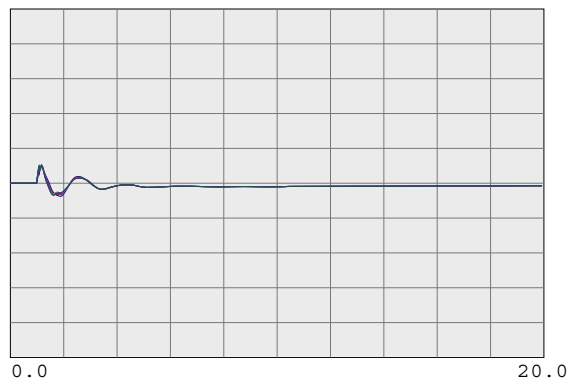
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

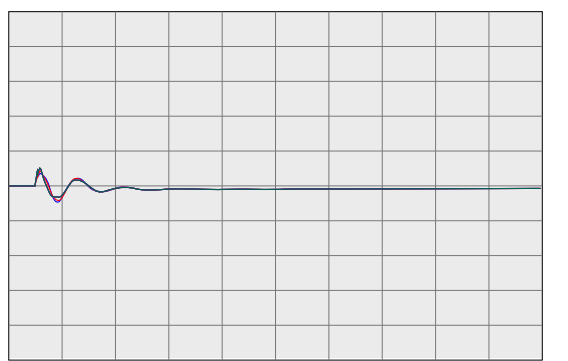
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

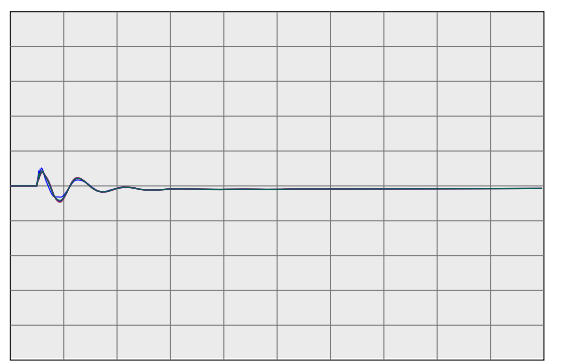
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

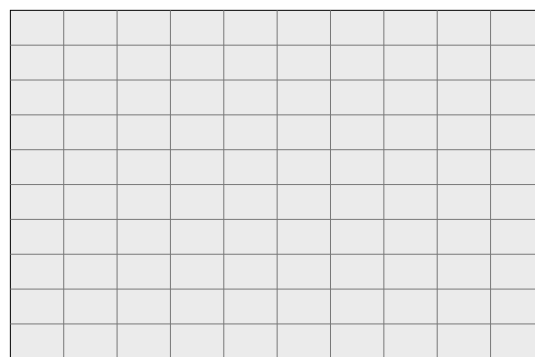
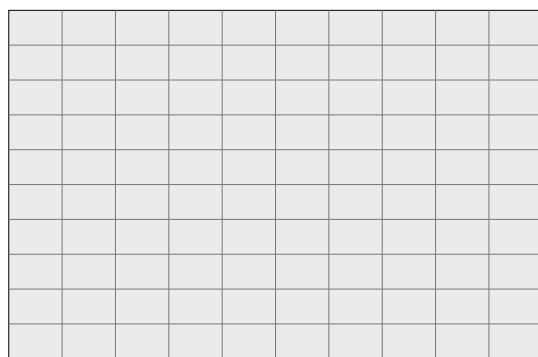
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

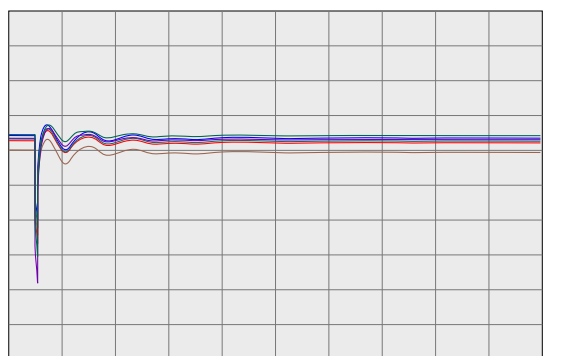
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

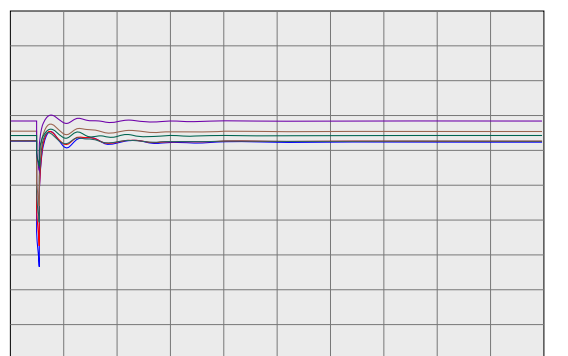
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



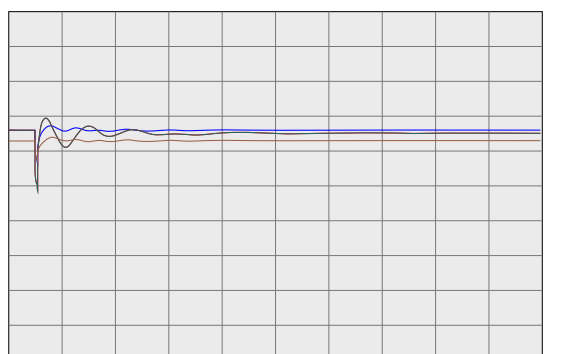
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



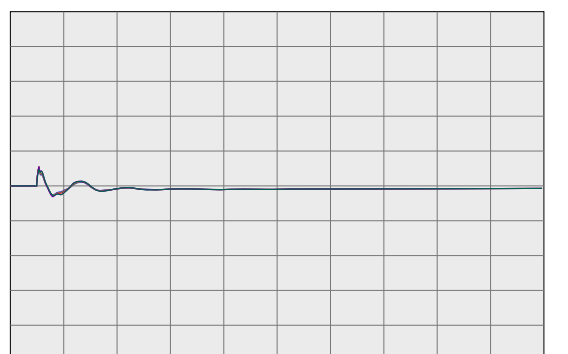
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



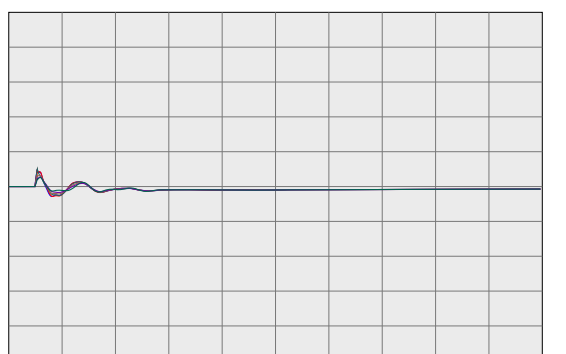
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



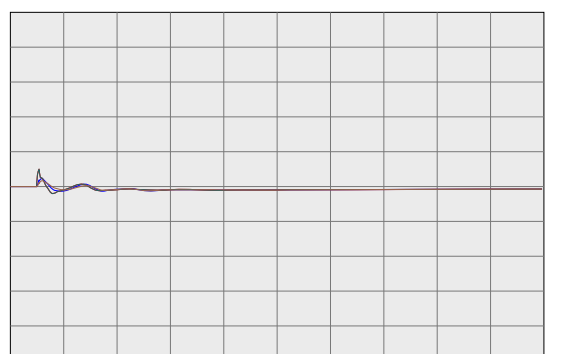
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

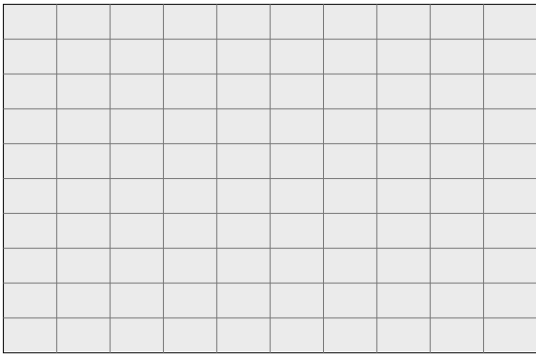
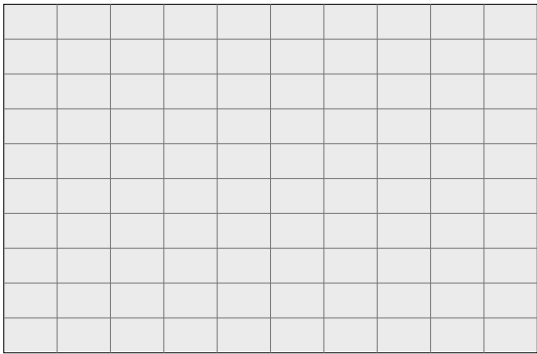
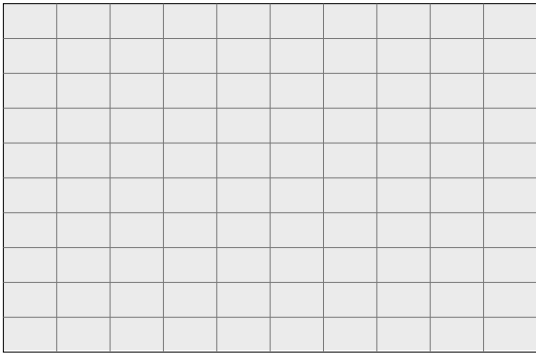
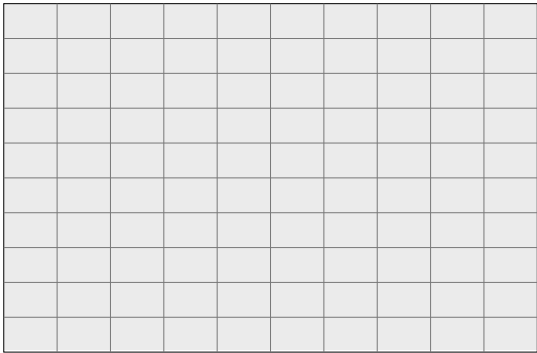
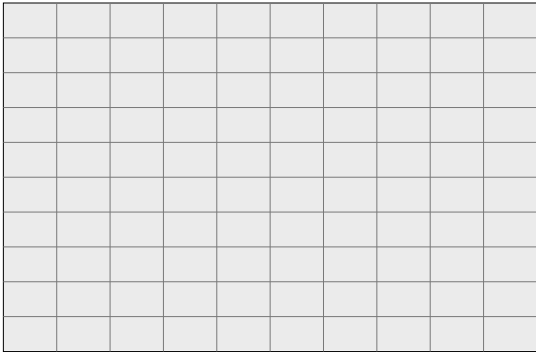
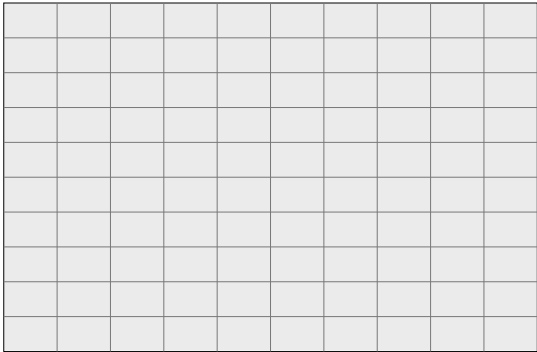
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

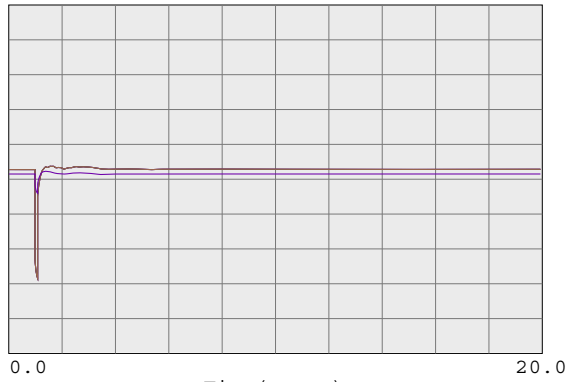
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



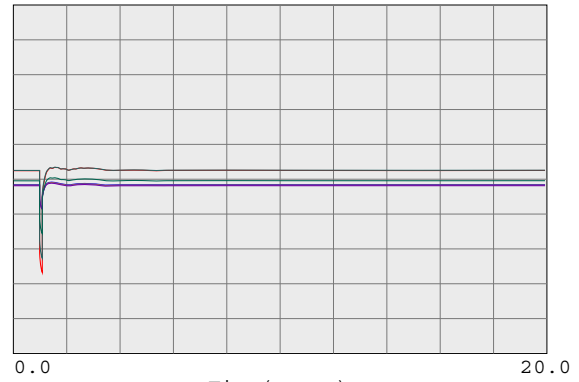
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



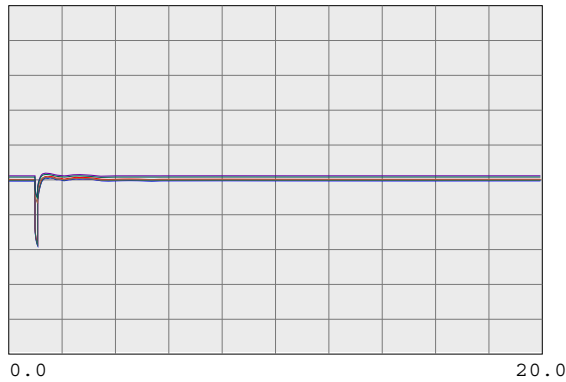
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



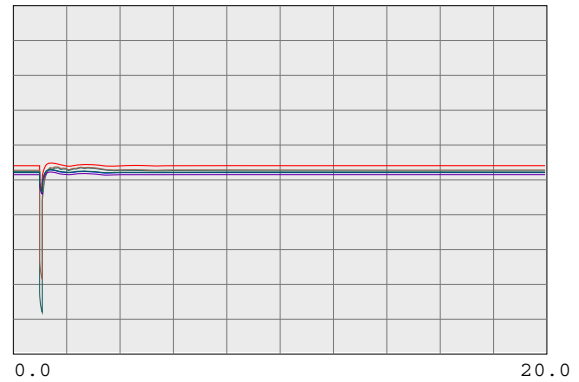
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



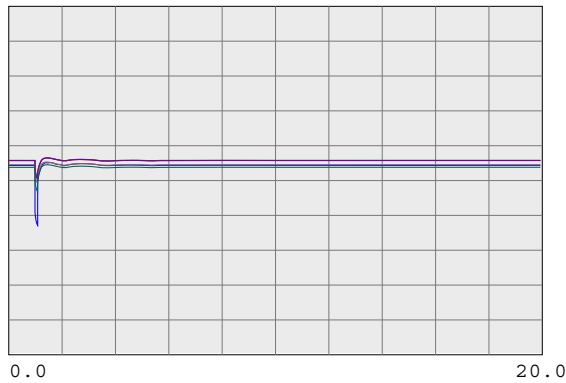
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



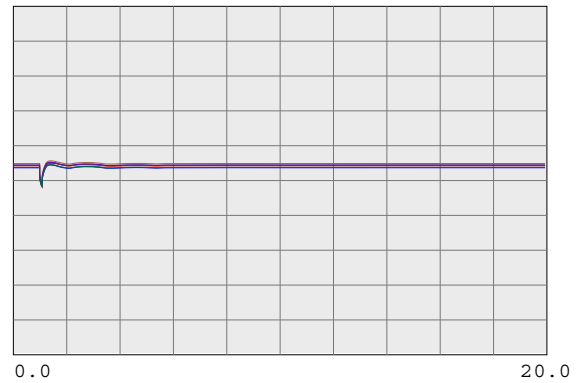
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

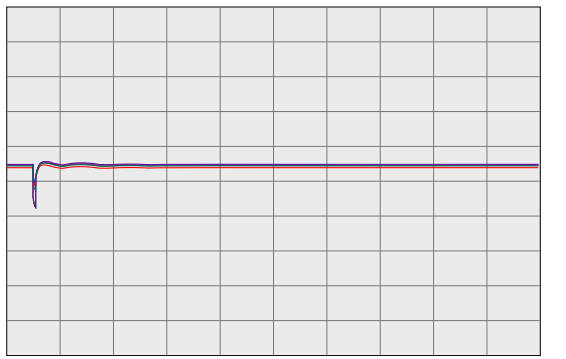
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

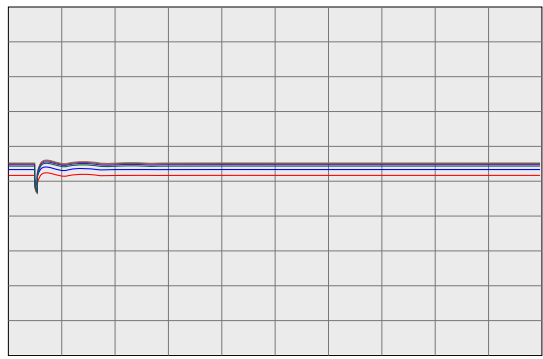
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



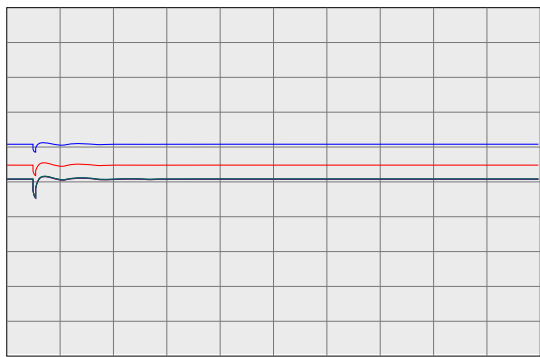
0.0 20.0

Time(sec)				
0.7500 vbus	30716	TRAN230A 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0 1 1 1.2500



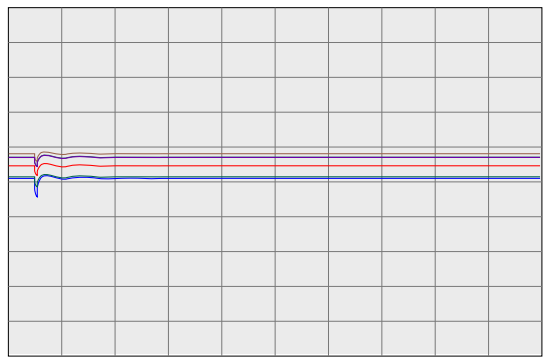
0.0 20.0

Time(sec)				
0.7500 vbus	30505	WEBER 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0 1 1 1.2500



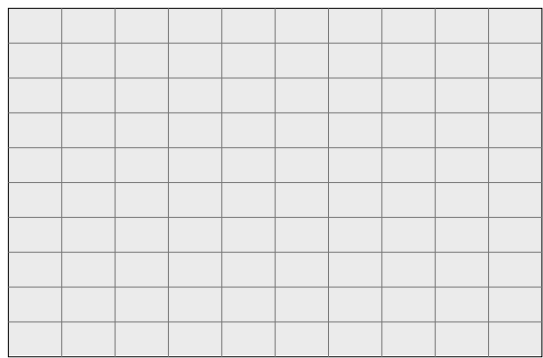
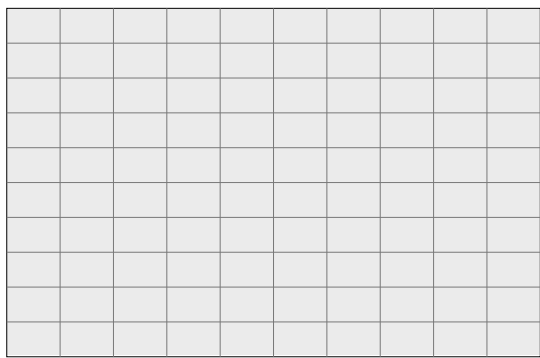
0.0 20.0

Time(sec)				
0.7500 vbus	30503	COLLIERV 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30500	BELOTA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0 1 1 1.2500



0.0 20.0

Time(sec)				
0.7500 vbus	30495	STAGS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0 1 1 1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

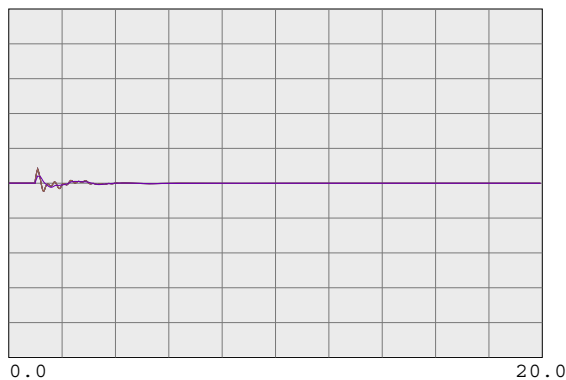
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

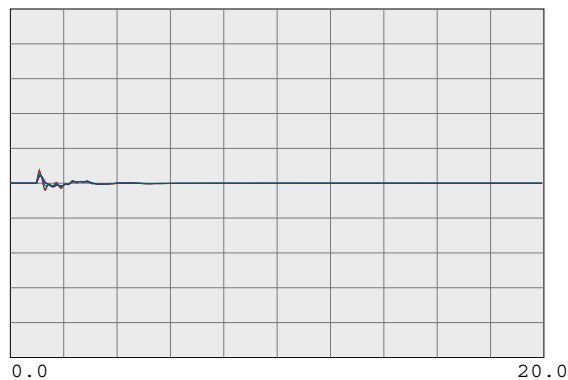
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

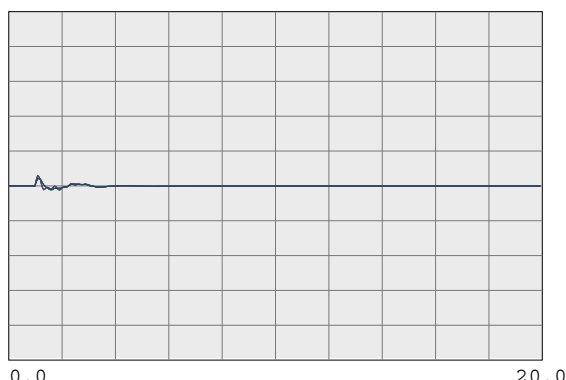
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

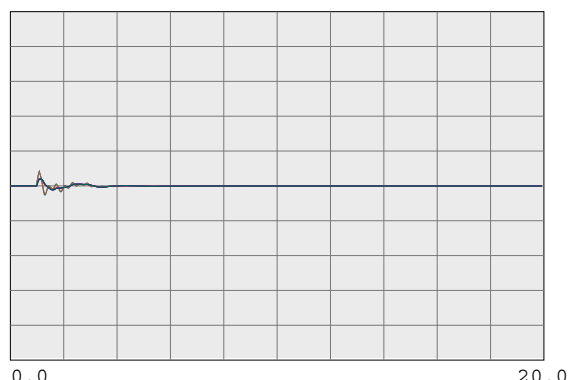
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

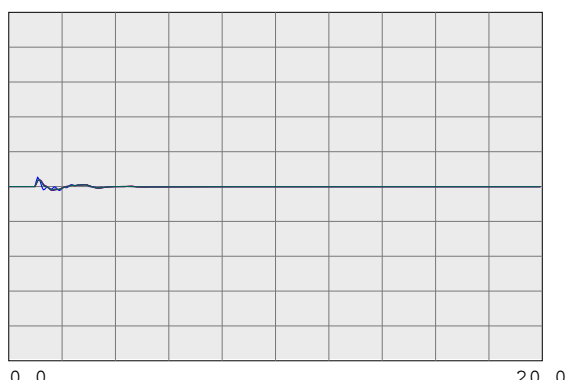
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

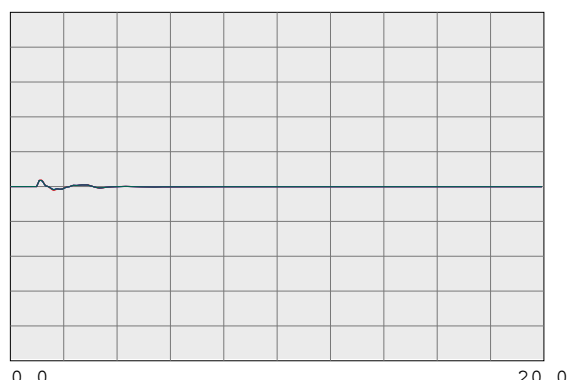
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

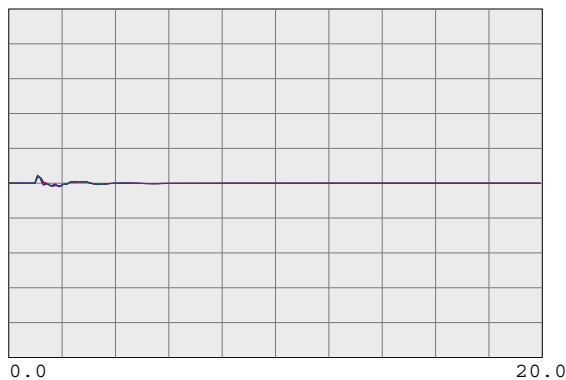
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

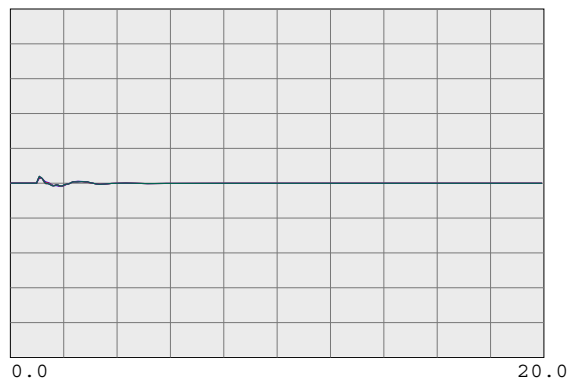
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

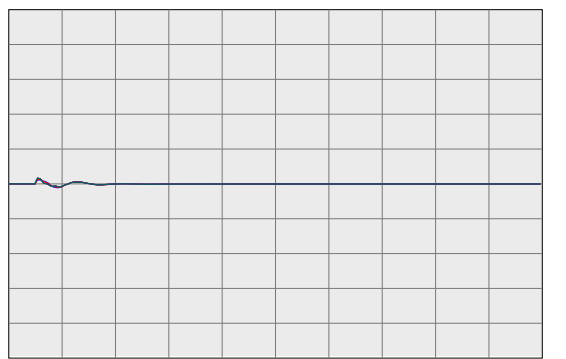
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 Fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

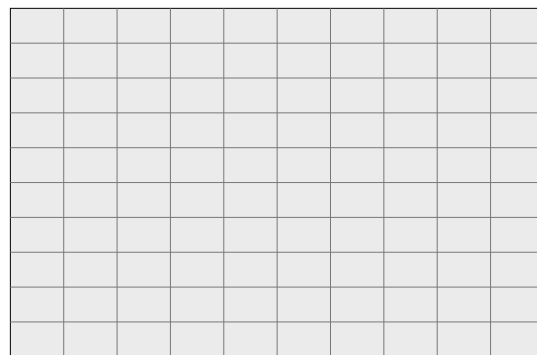
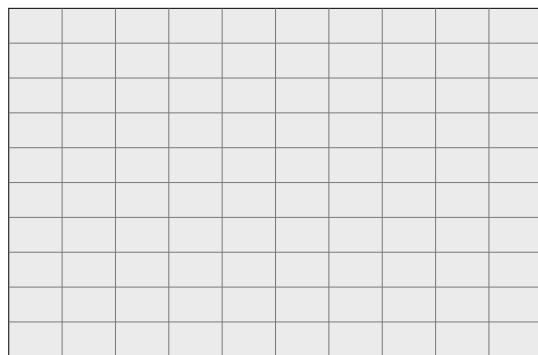
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 Fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

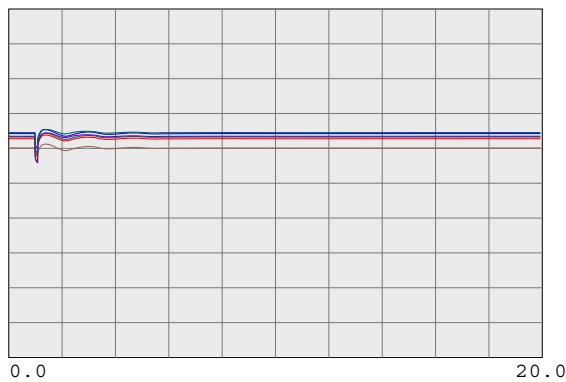
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

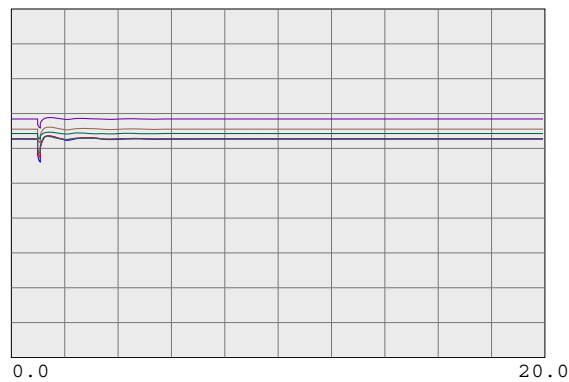
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



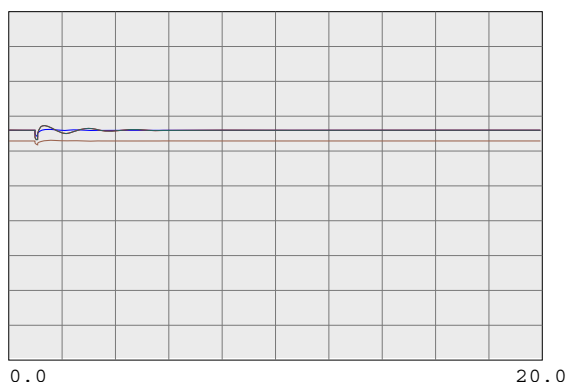
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



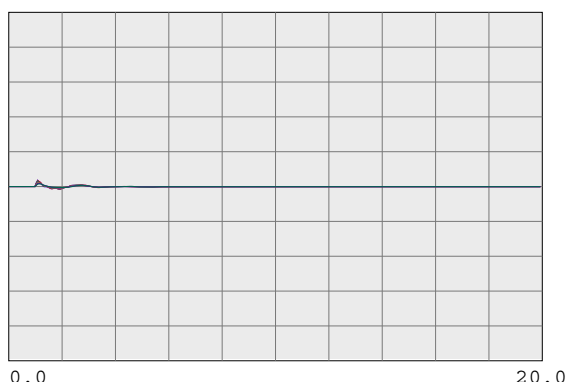
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



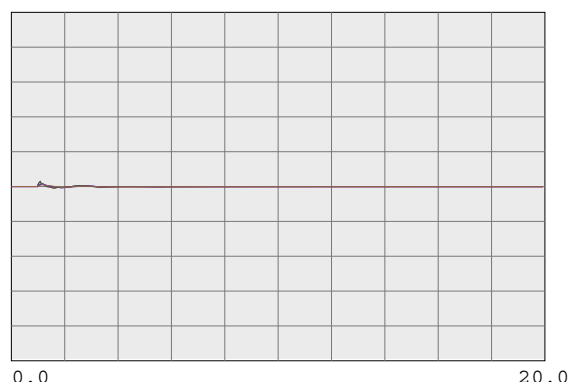
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

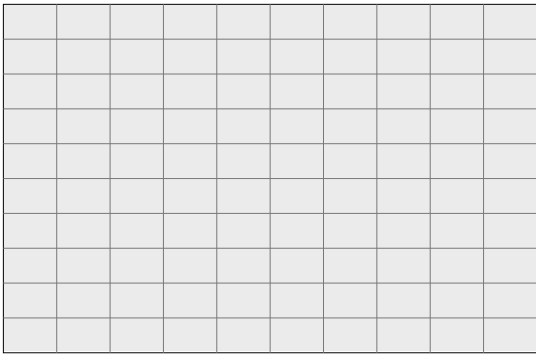
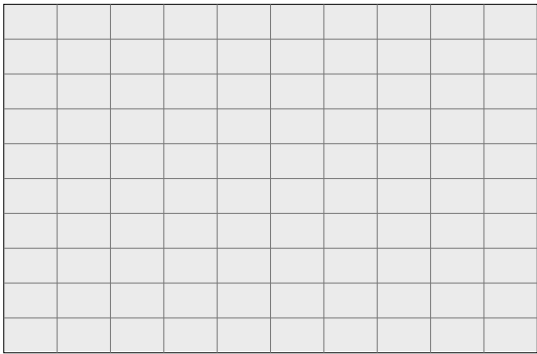
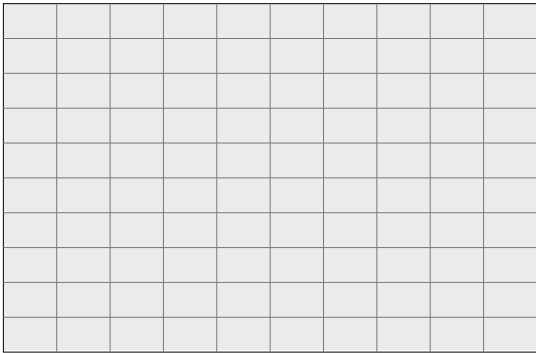
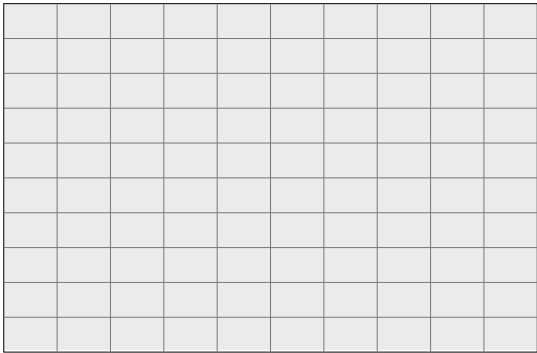
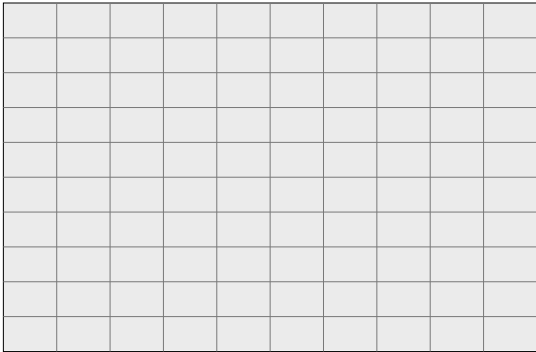
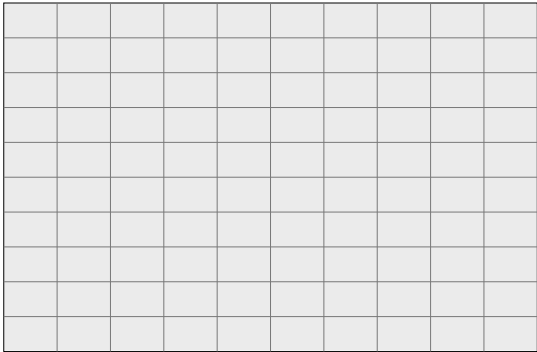
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

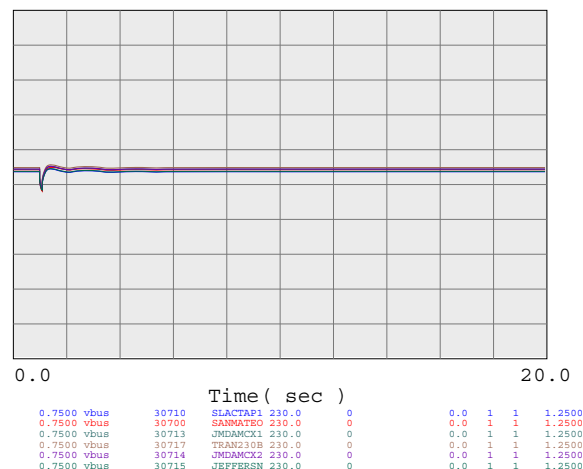
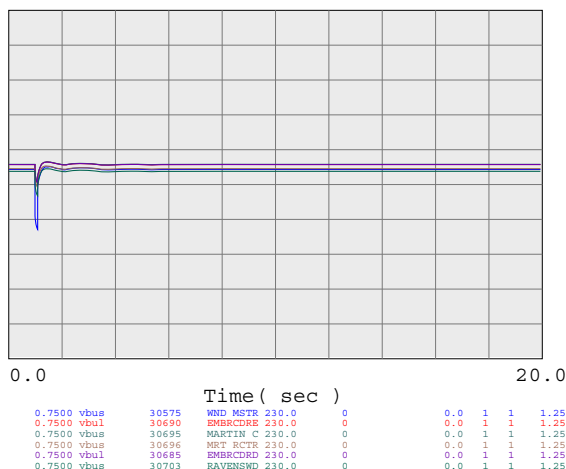
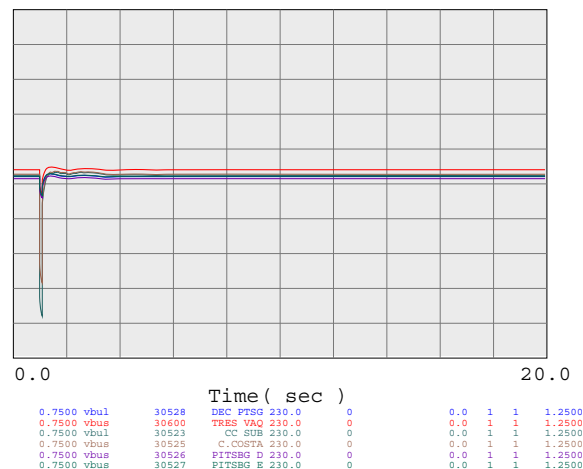
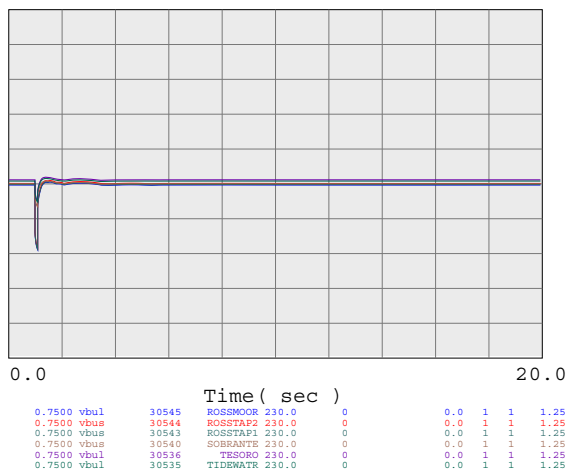
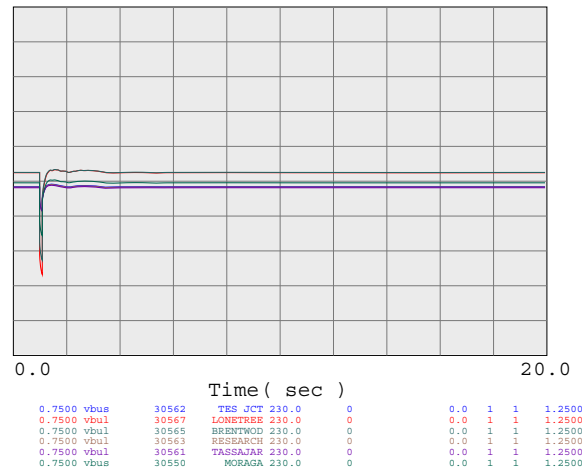
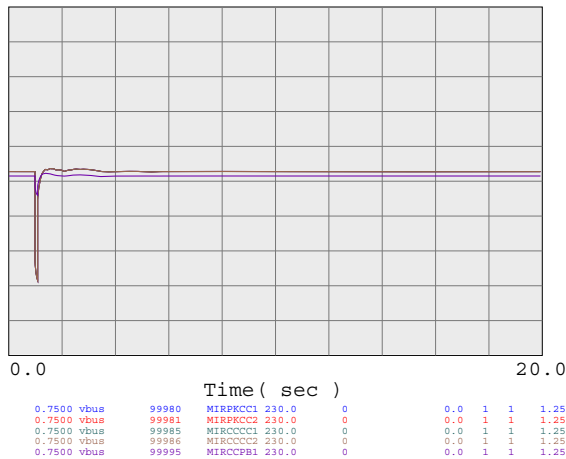
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



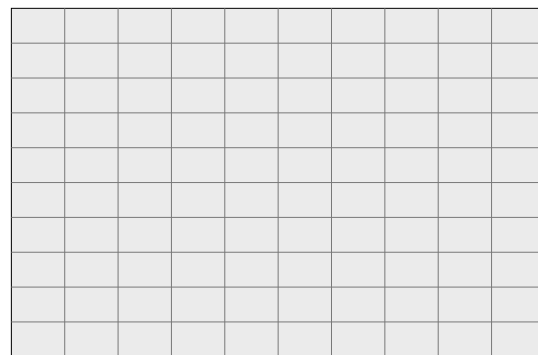
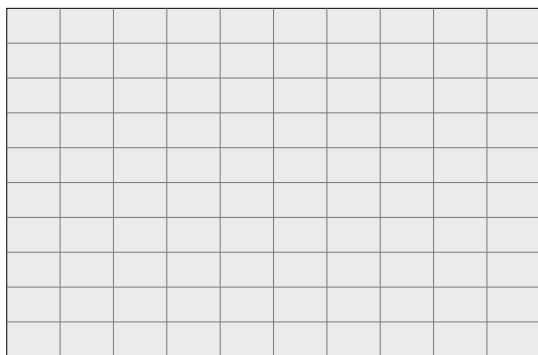
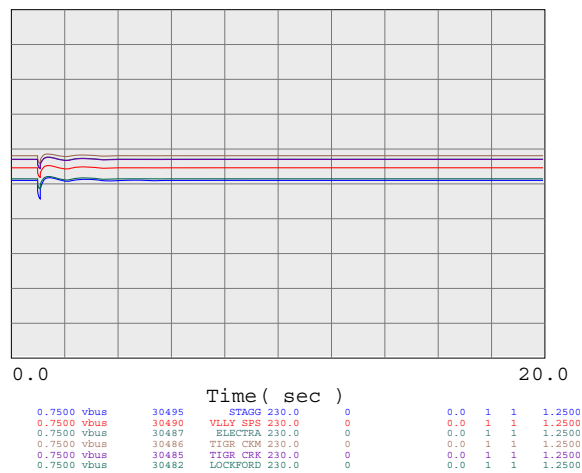
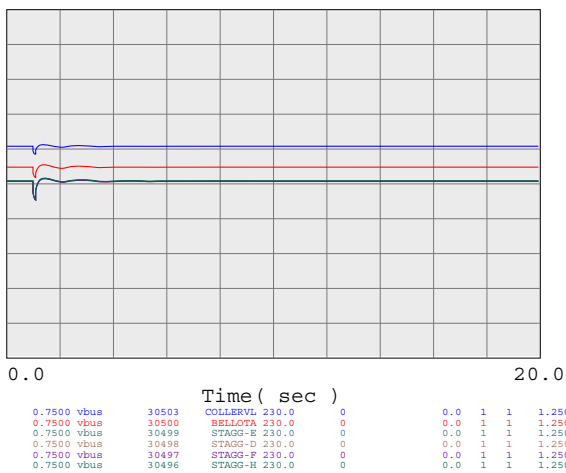
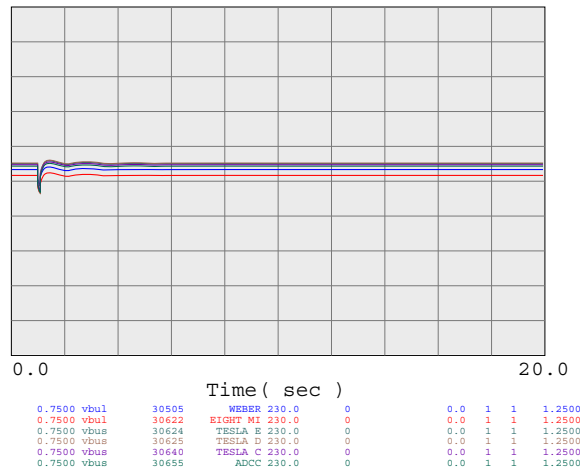
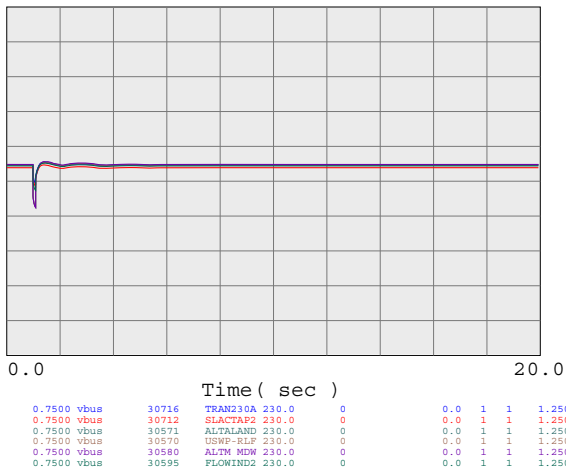
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

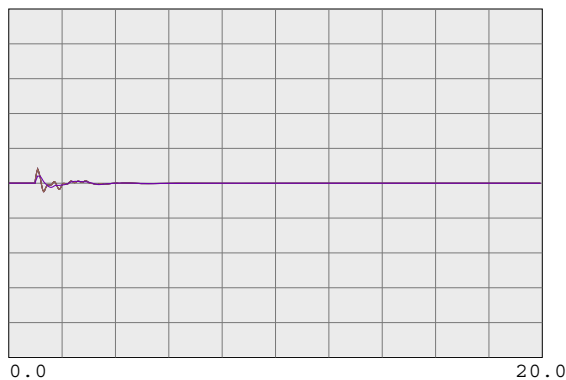


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



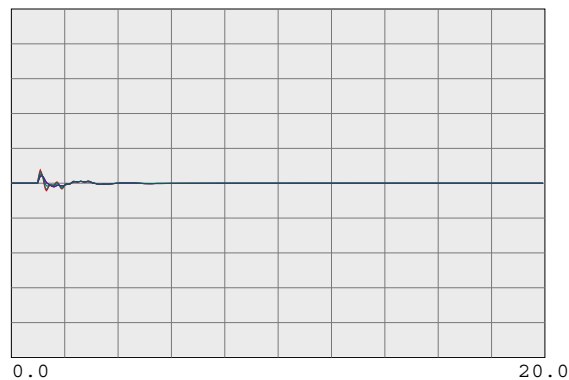
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

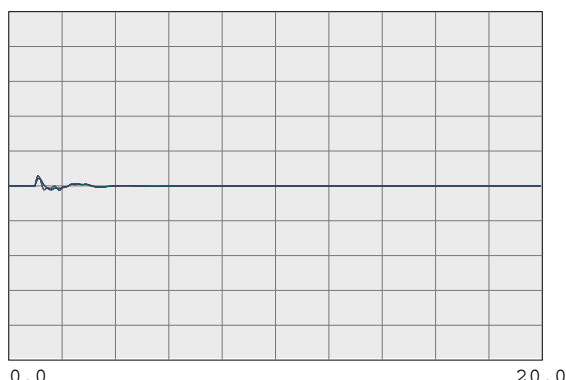
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

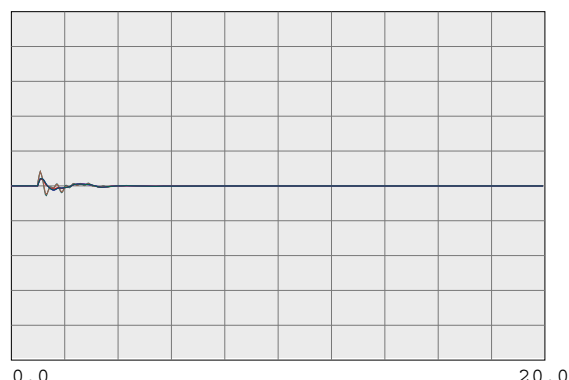
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

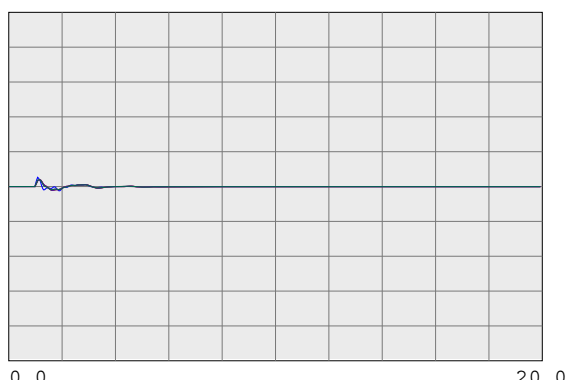
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

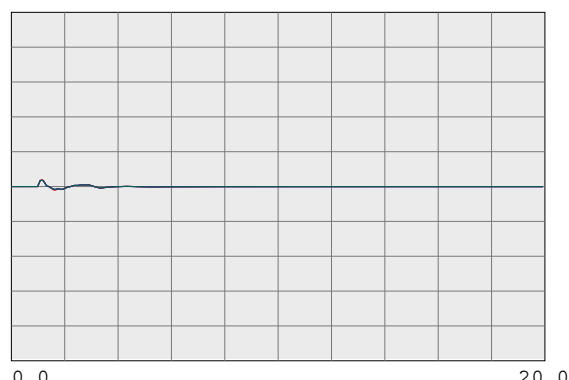
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

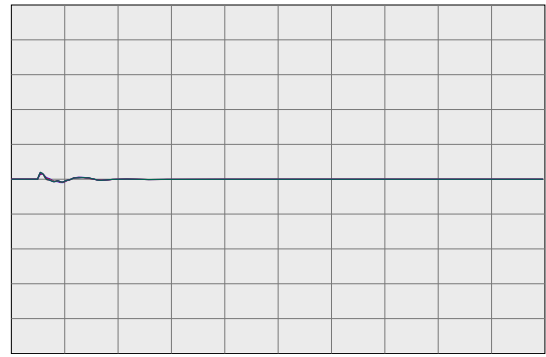
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

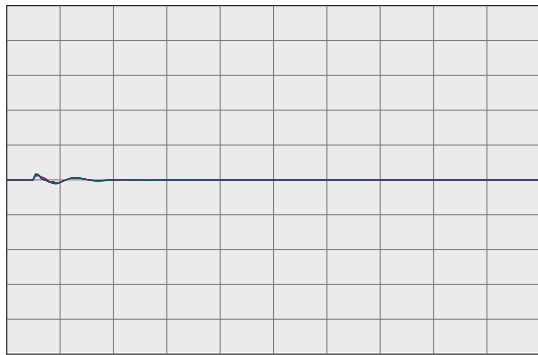
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

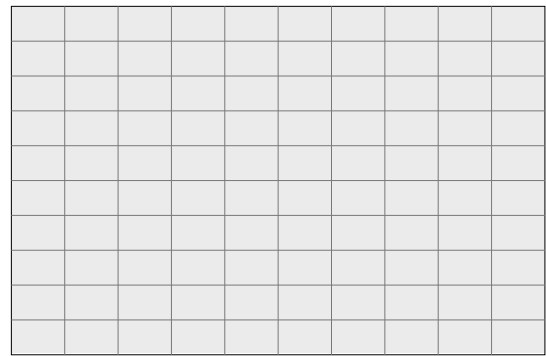
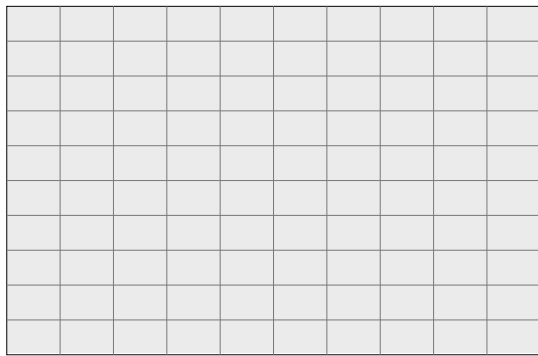
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

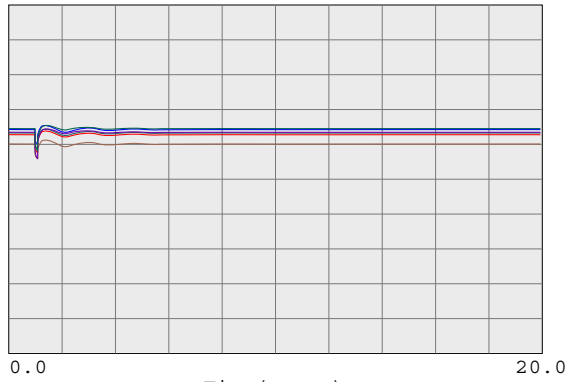
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

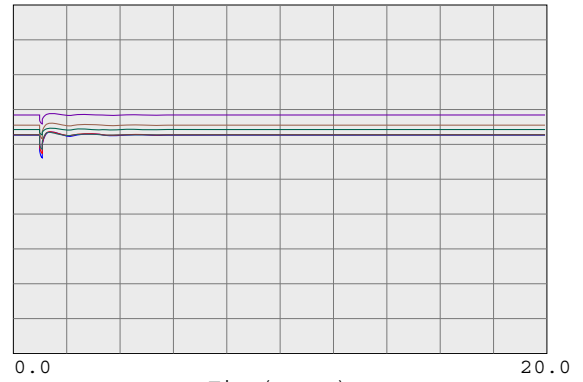
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



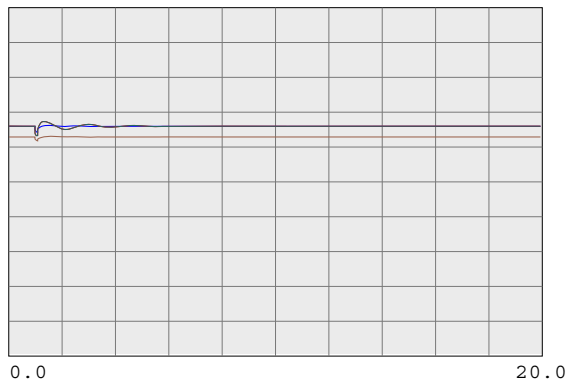
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



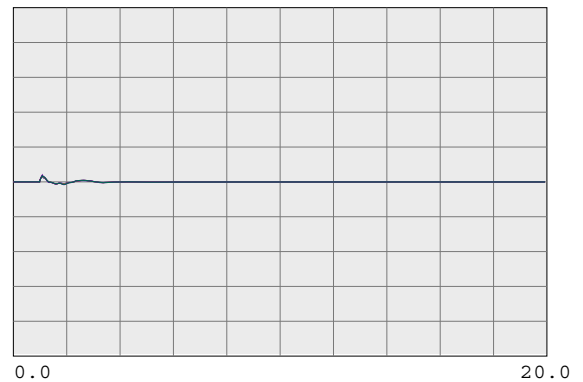
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



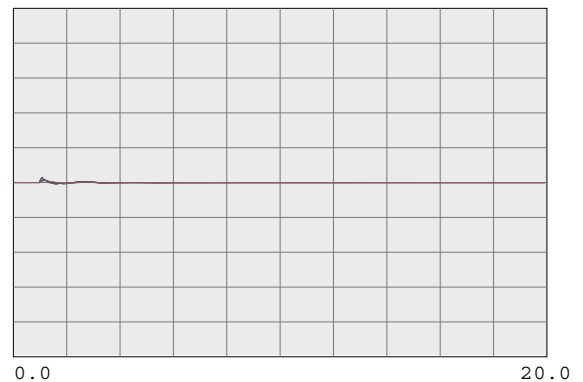
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

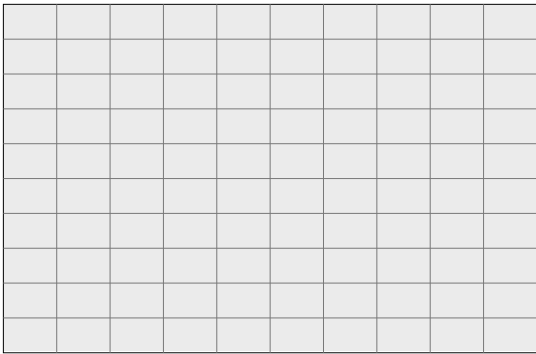
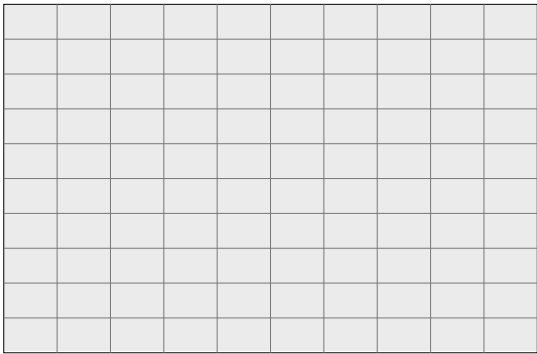
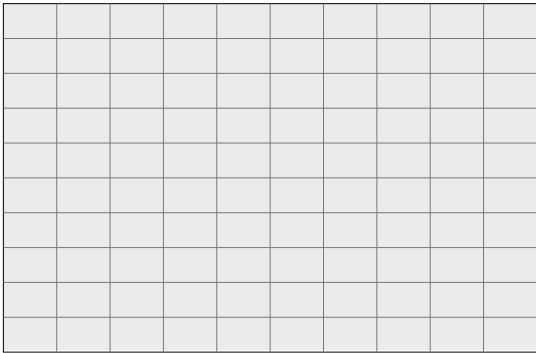
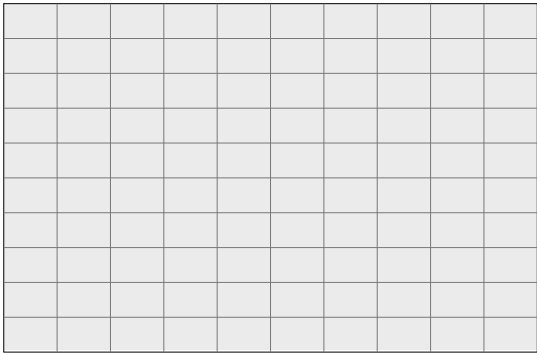
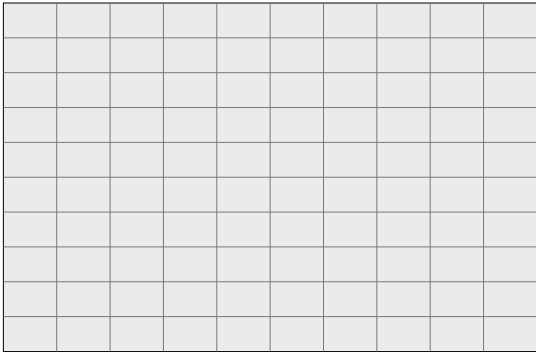
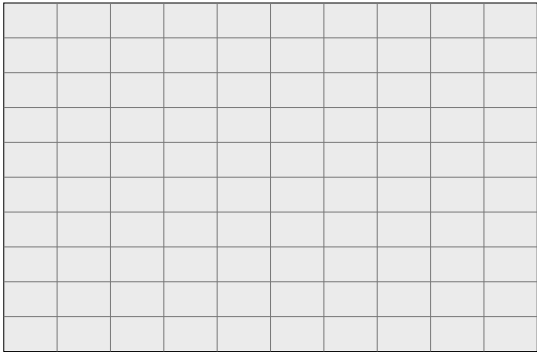
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

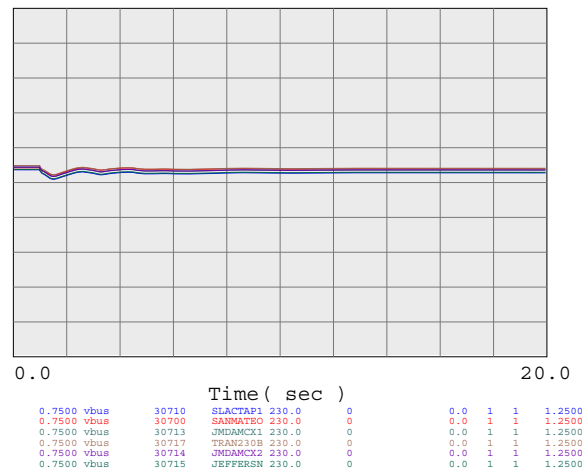
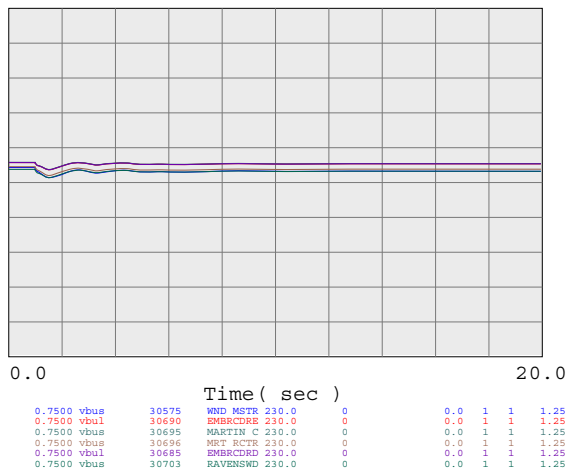
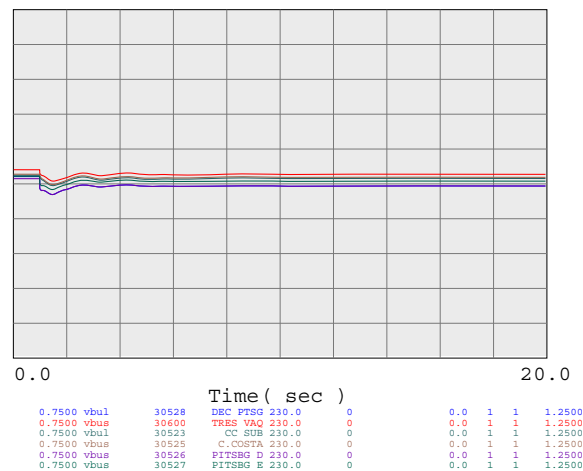
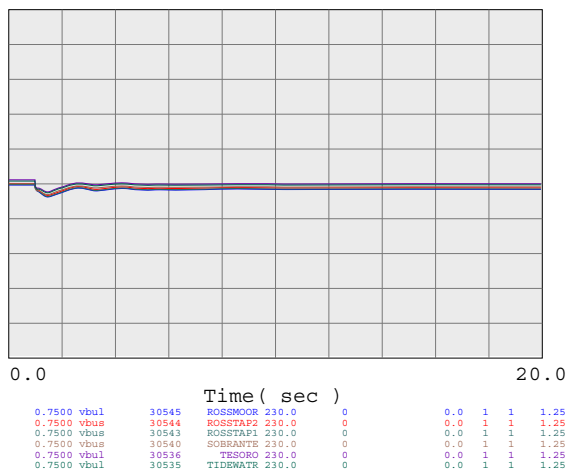
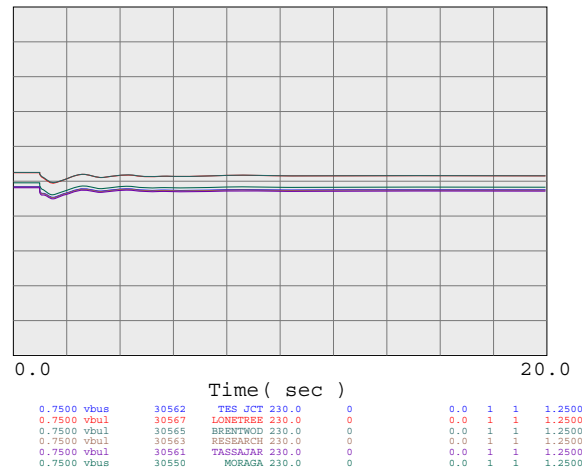
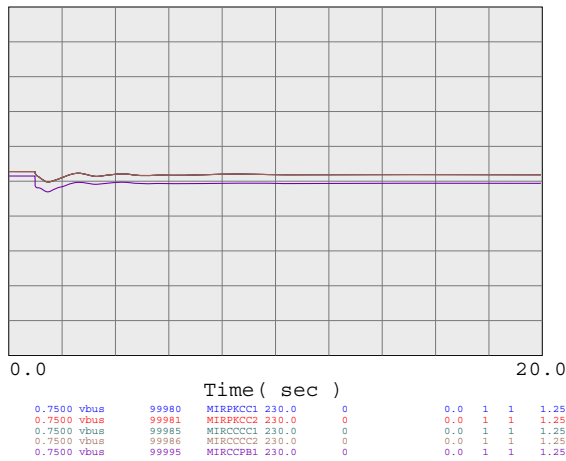
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



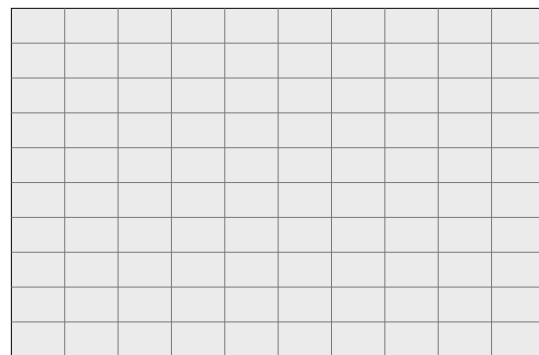
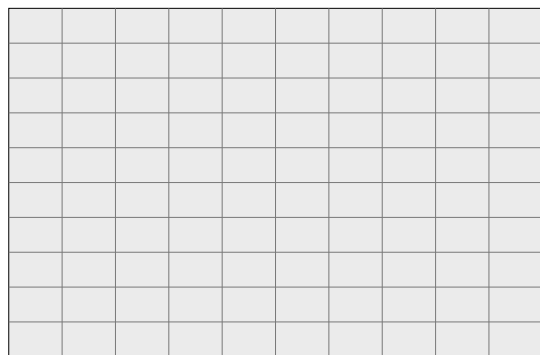
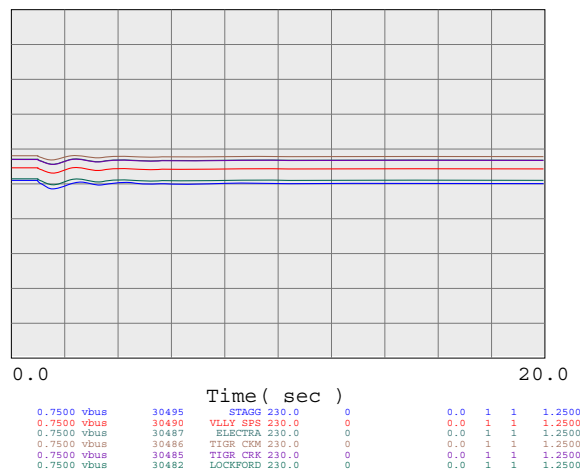
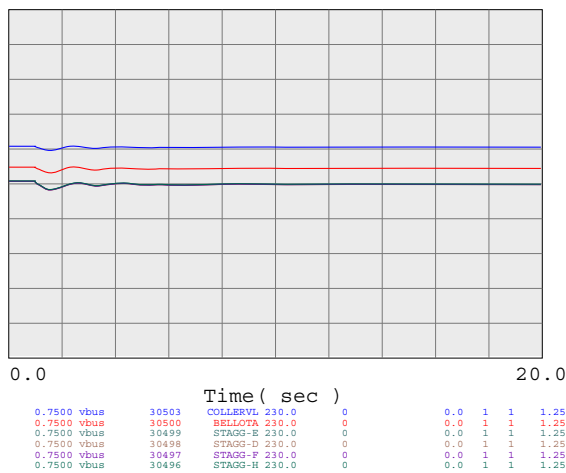
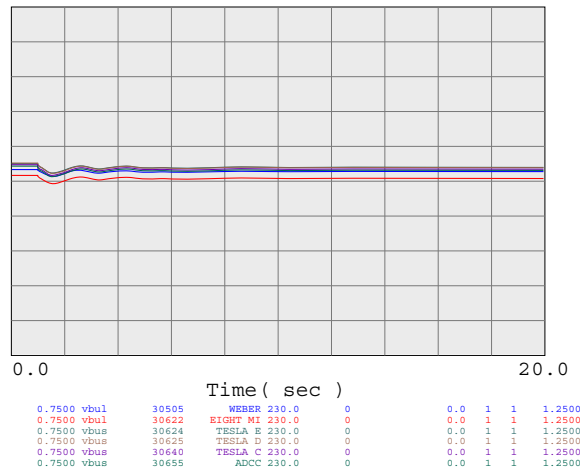
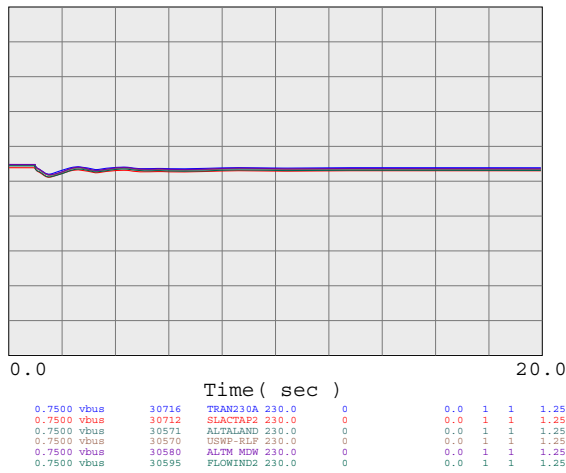
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

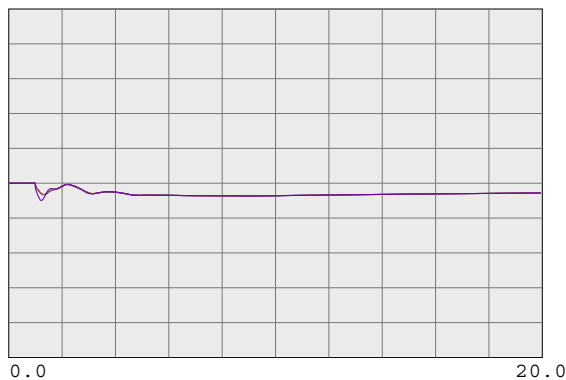


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



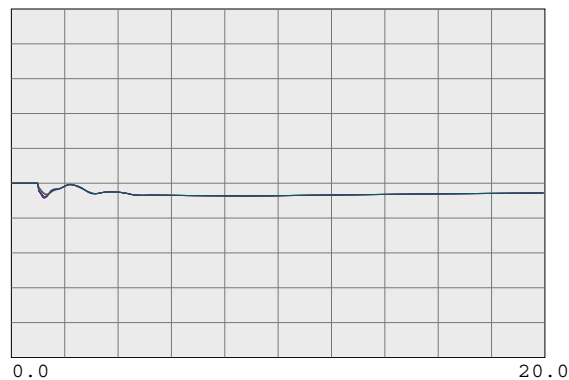
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

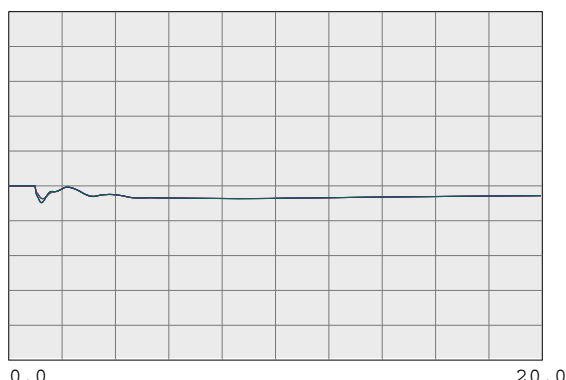
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

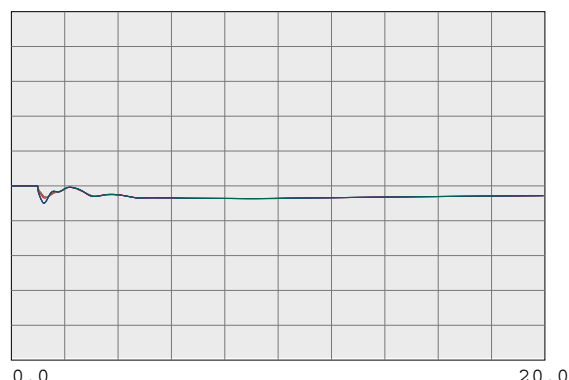
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

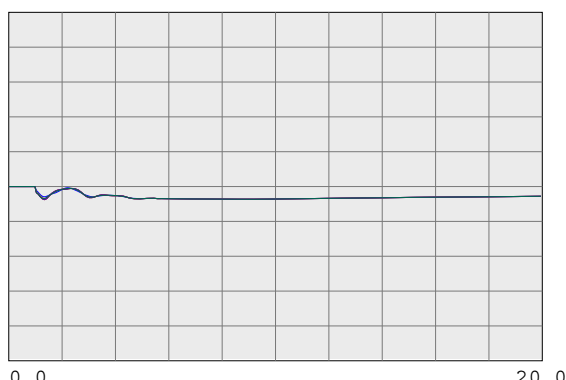
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

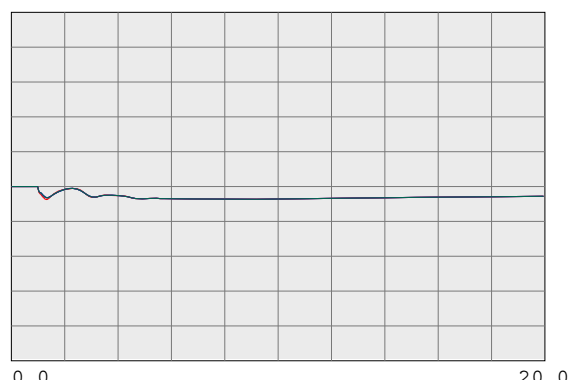
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

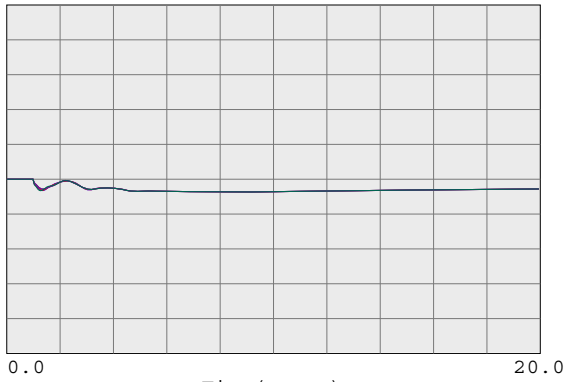
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

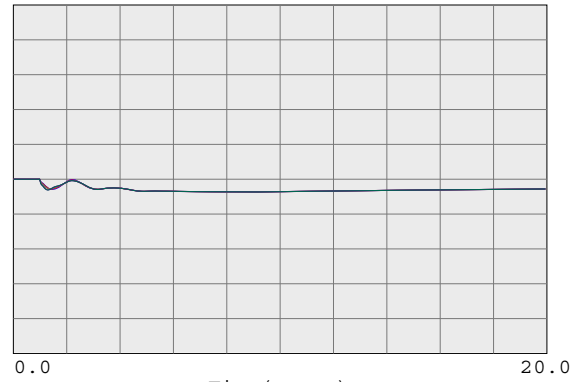
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

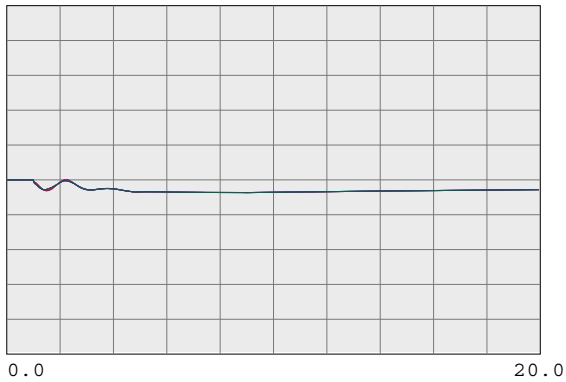
230-KV SYSTEM FREQUENCIES



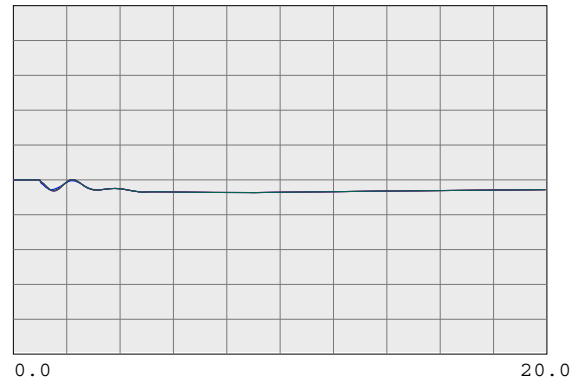
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



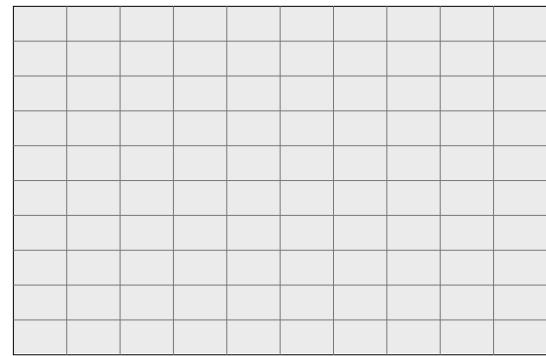
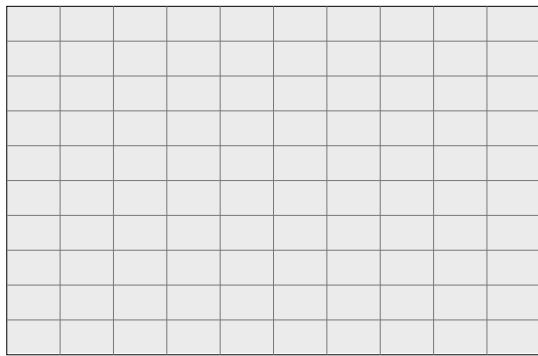
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



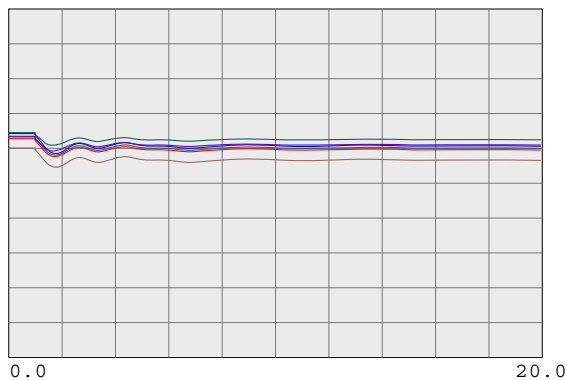
Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



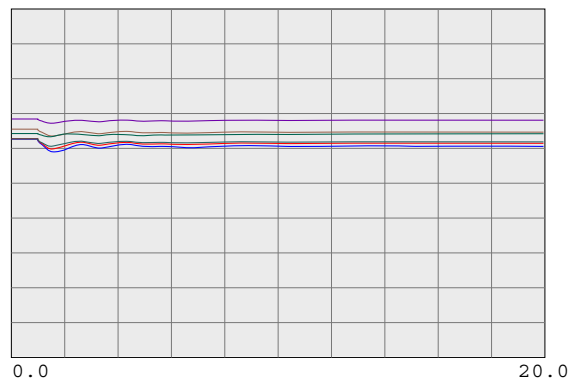
Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



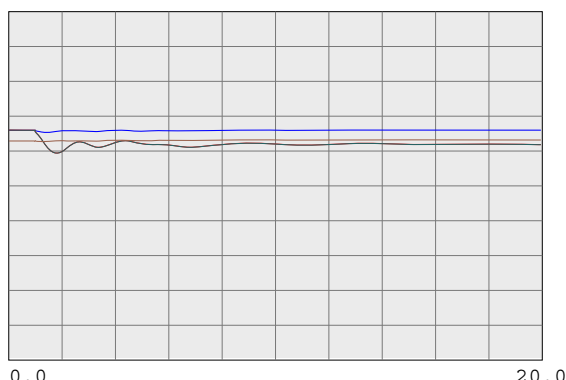
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



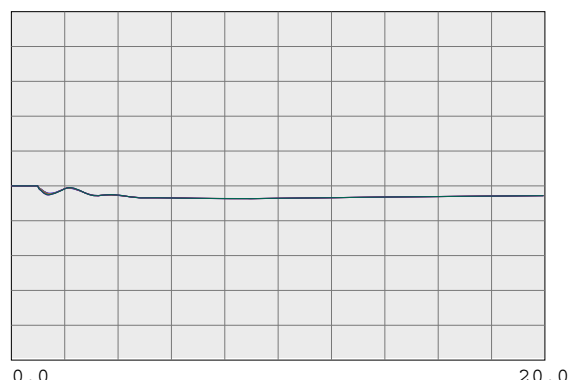
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



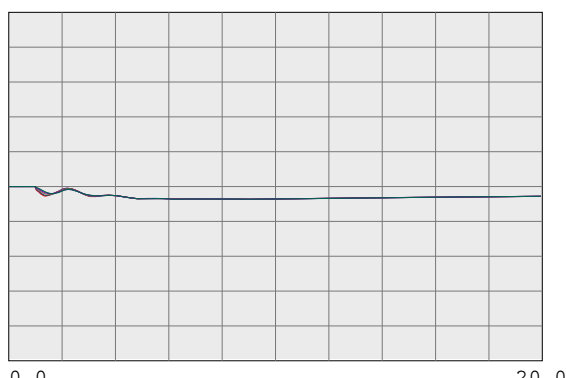
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



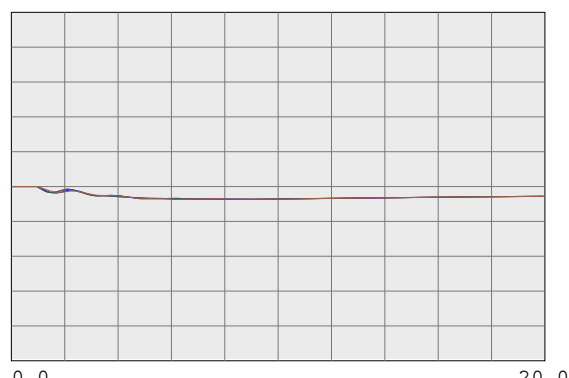
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

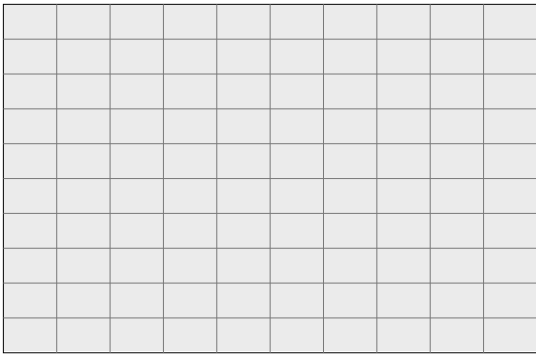
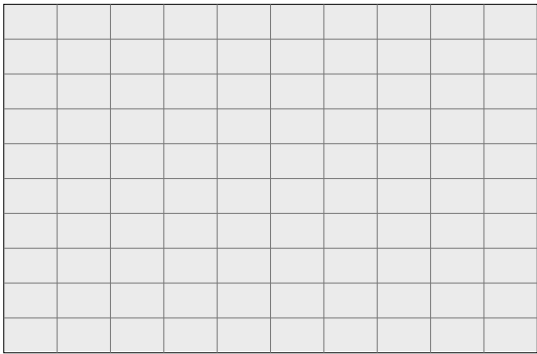
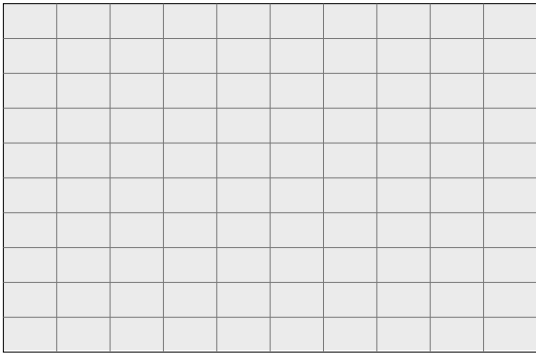
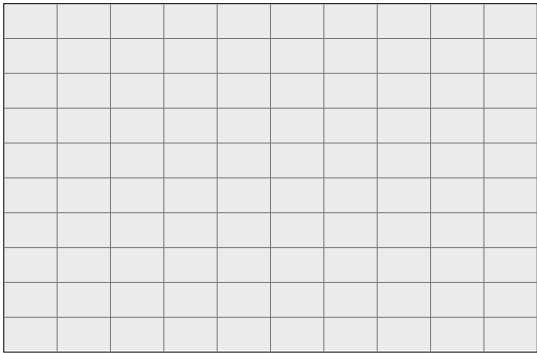
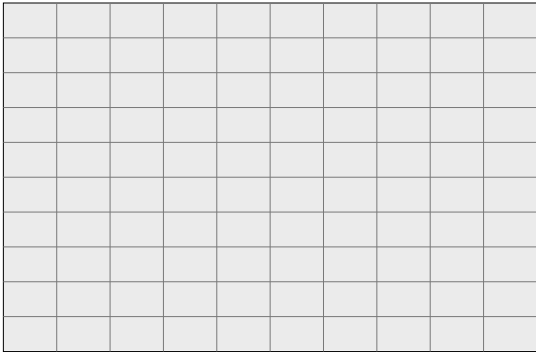
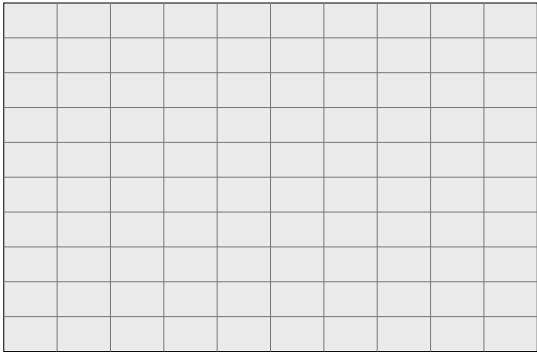
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

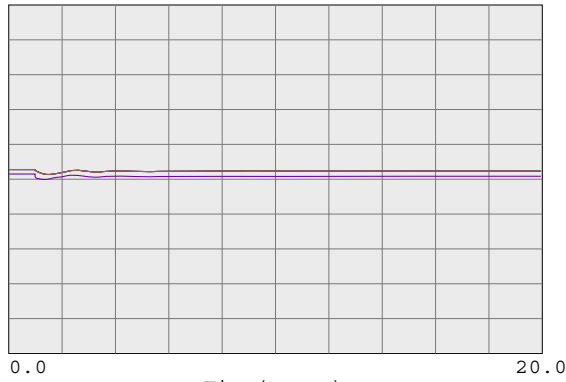
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

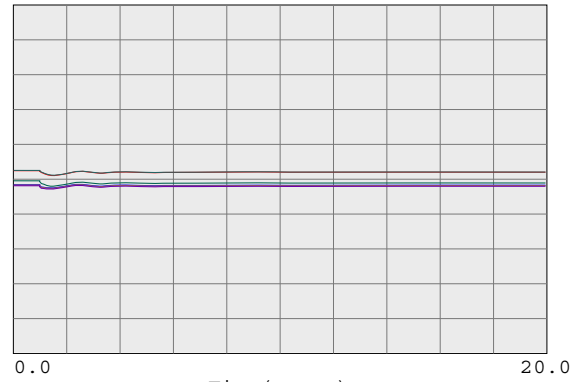
230-KV SYSTEM VOLTAGES



0.0 20.0

Time (sec)

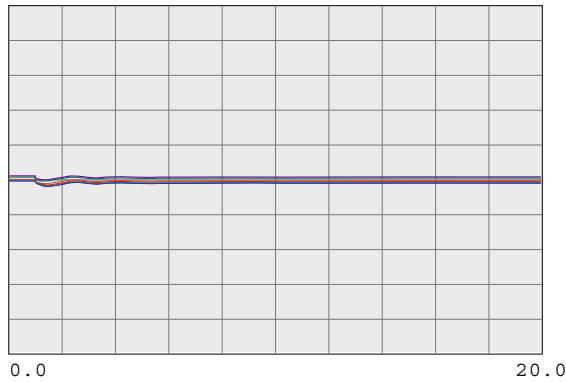
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

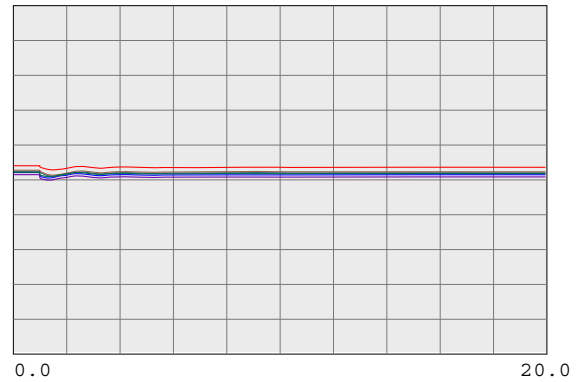
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

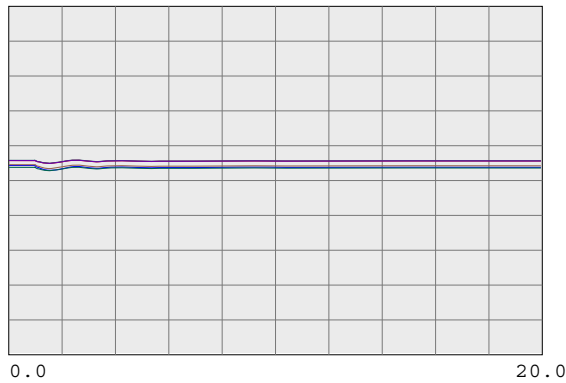
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

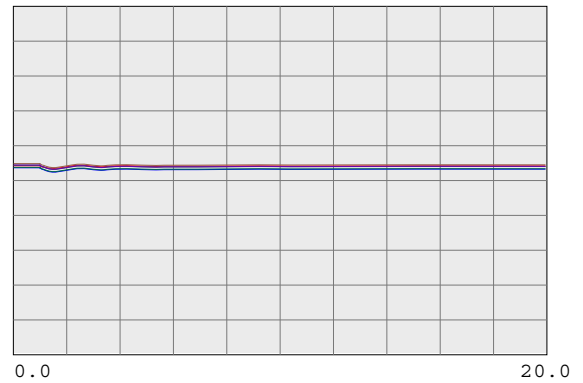
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

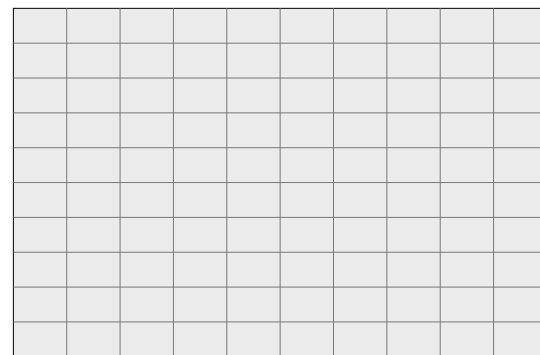
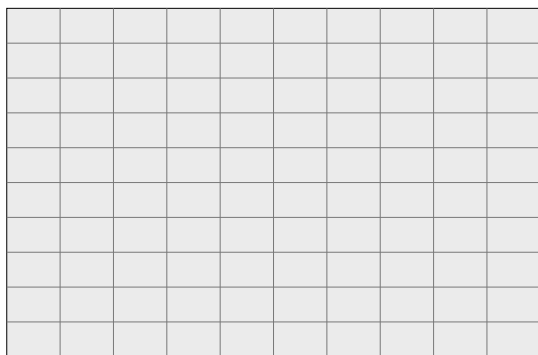
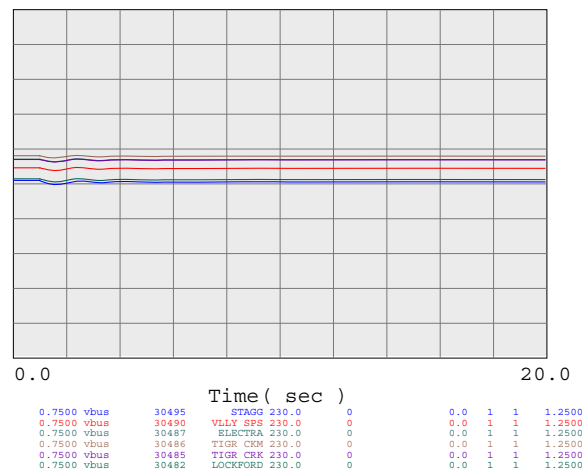
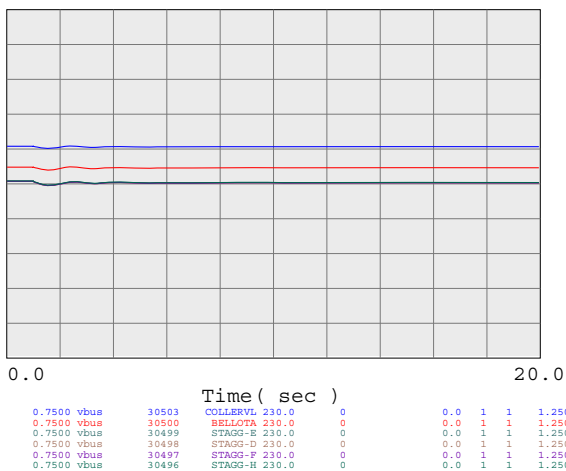
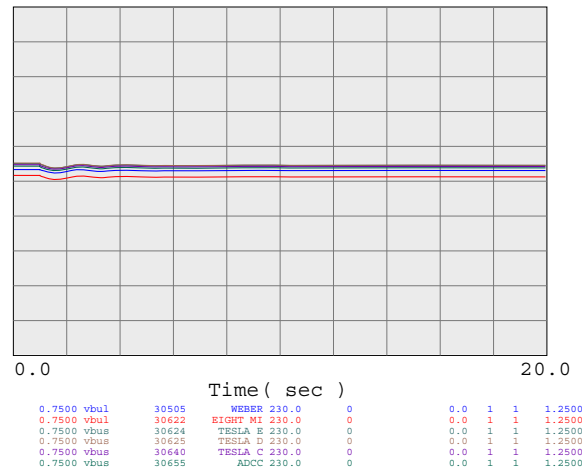
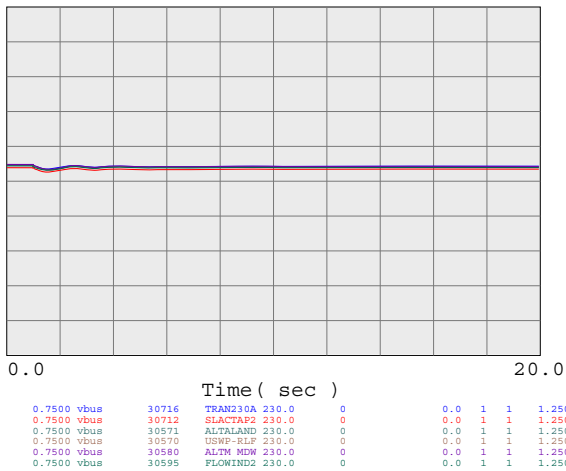
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

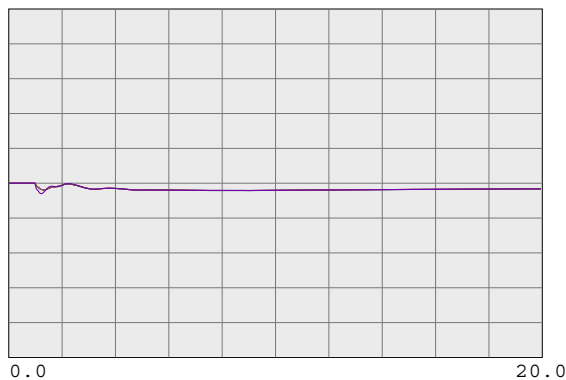
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

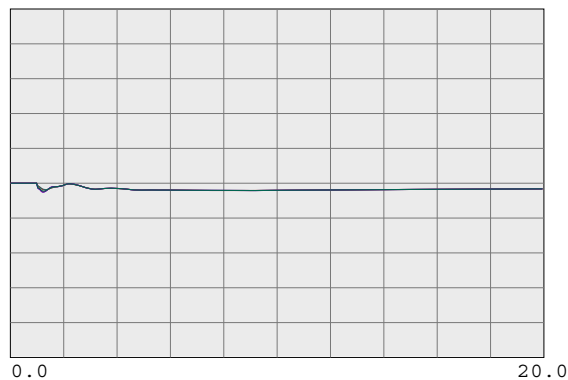
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

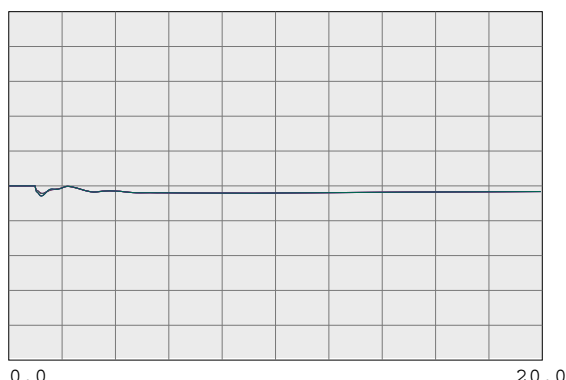
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

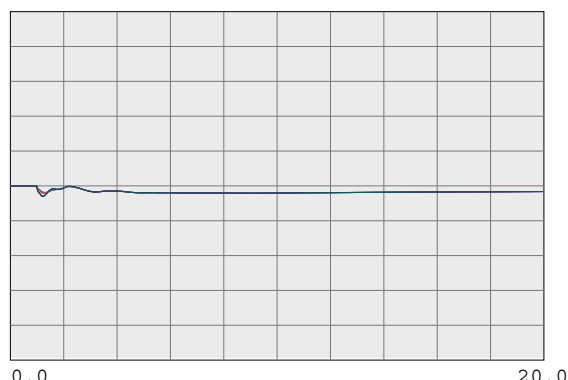
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

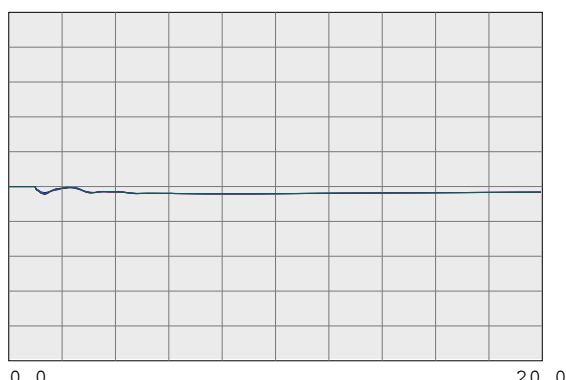
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

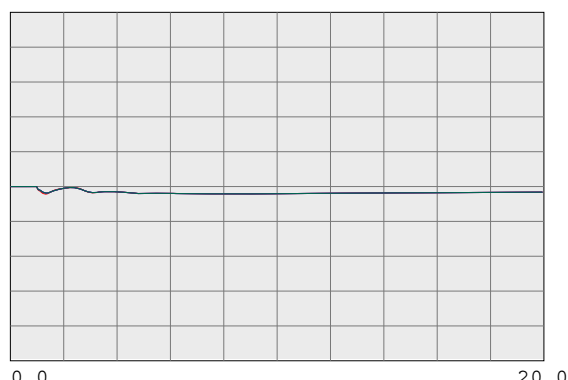
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

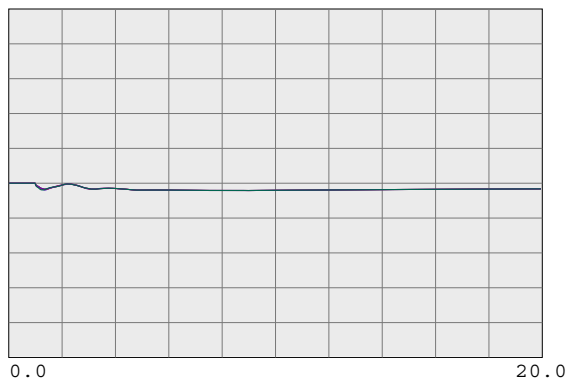
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

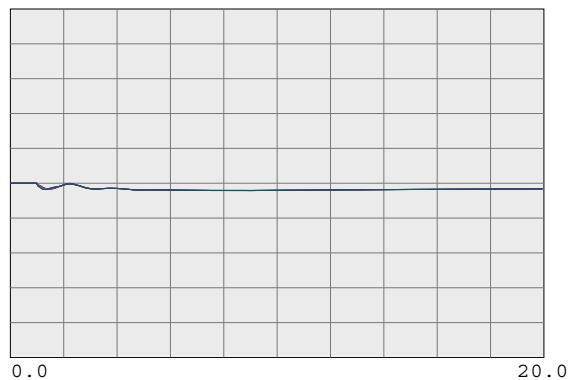
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

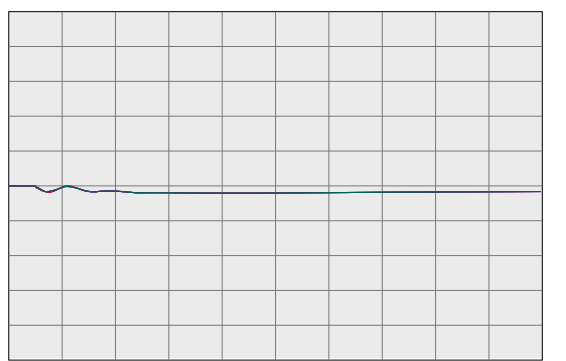
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

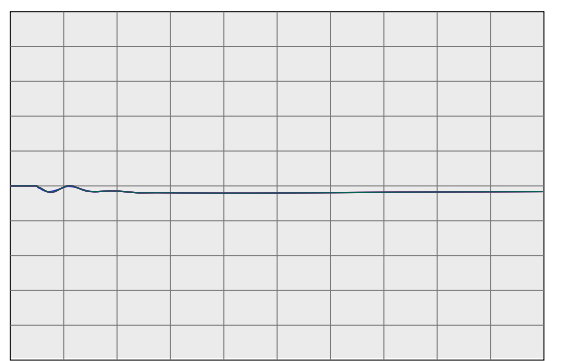
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

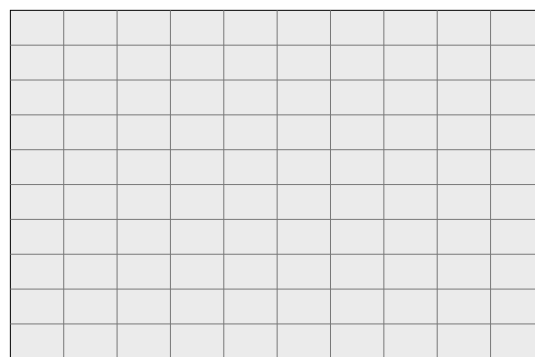
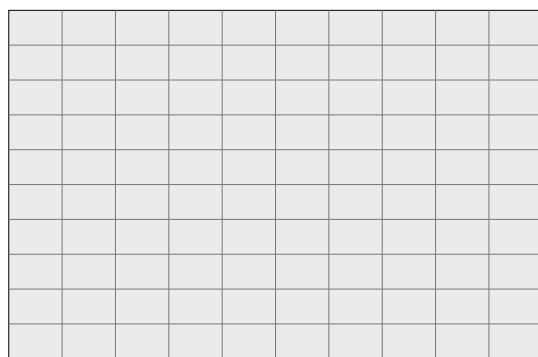
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

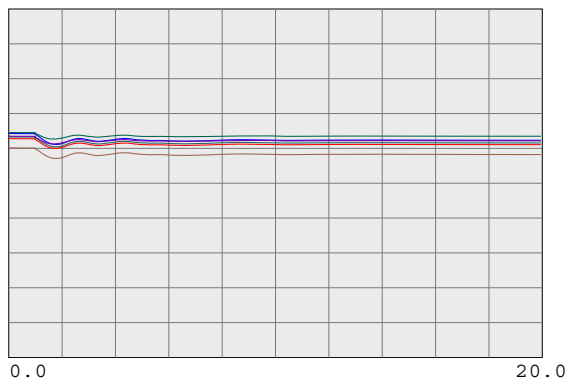
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

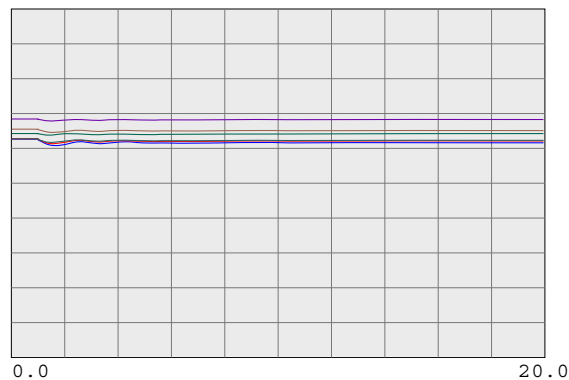
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

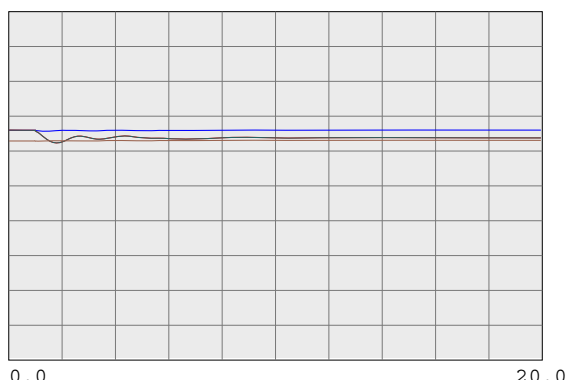
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



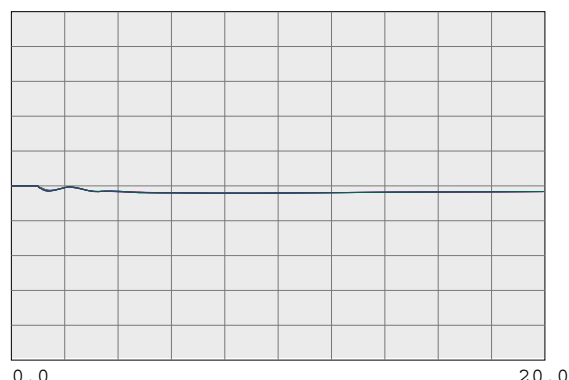
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



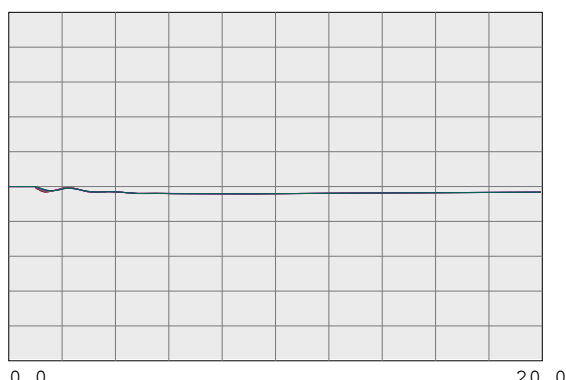
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



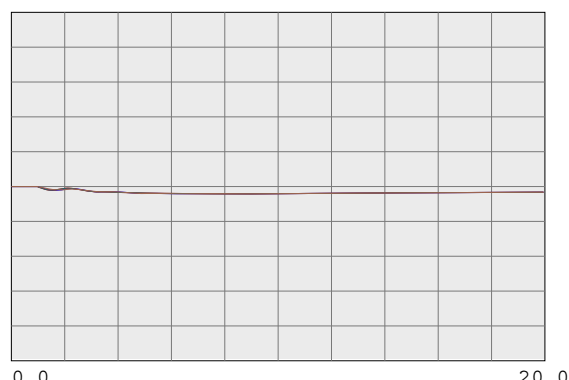
59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30015	TABLE MT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30020	GLINDA 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30025	MAXWELL 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30030	VACA-DIX 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30035	TRACY 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30042	METCALF 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30045	MOSSLAND 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30050	LOSBANOS 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30055	GATES 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	30057	DIABLO 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	45035	CAPTJACK 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	40687	MALIN 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1 <td>1</td> <td>60.6000</td> </td></td>	24156	VINCENT 500.0	0	0.0 <td>1 <td>1</td> <td>60.6000</td> </td>	1 <td>1</td> <td>60.6000</td>	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

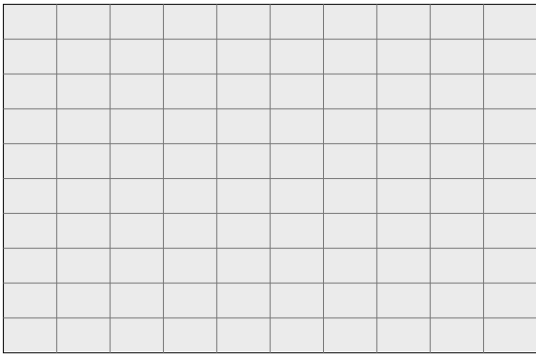
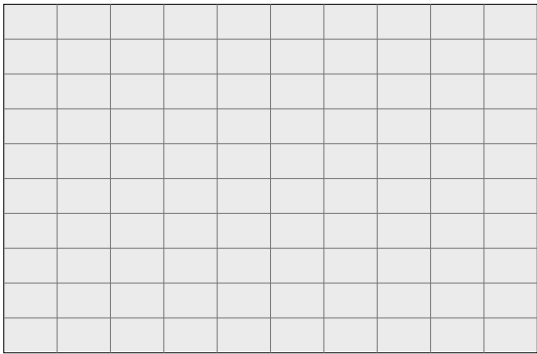
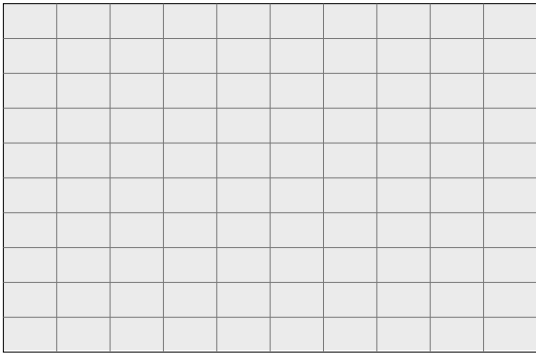
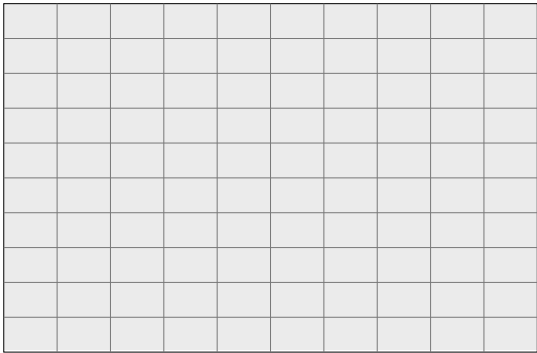
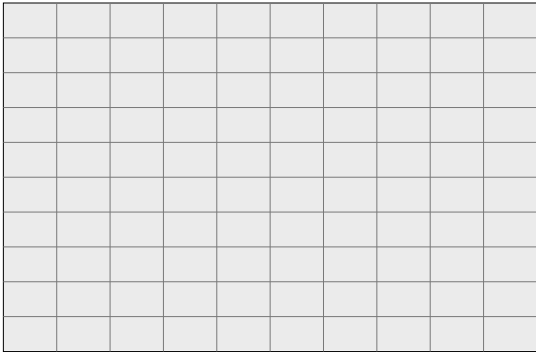
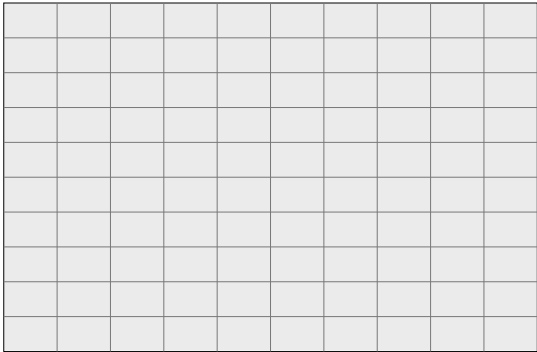
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

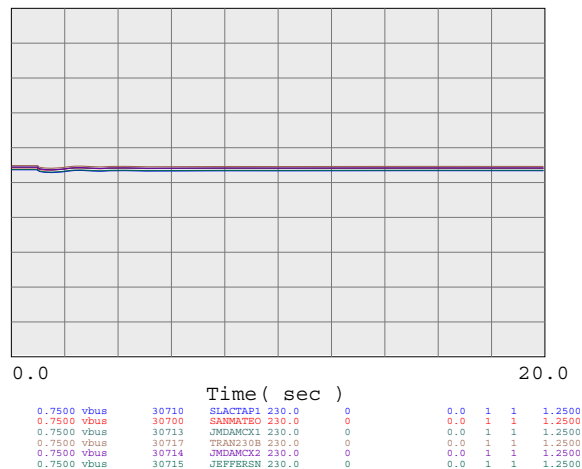
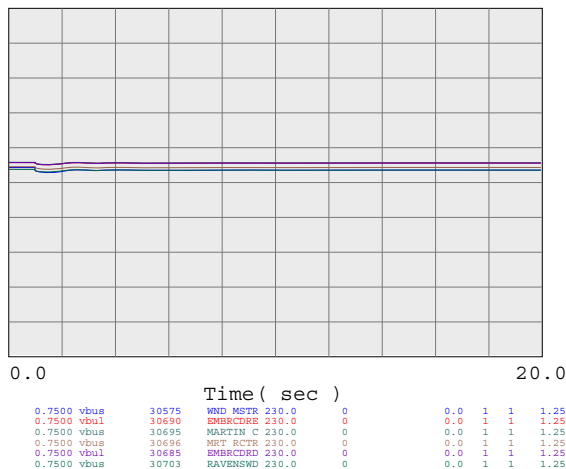
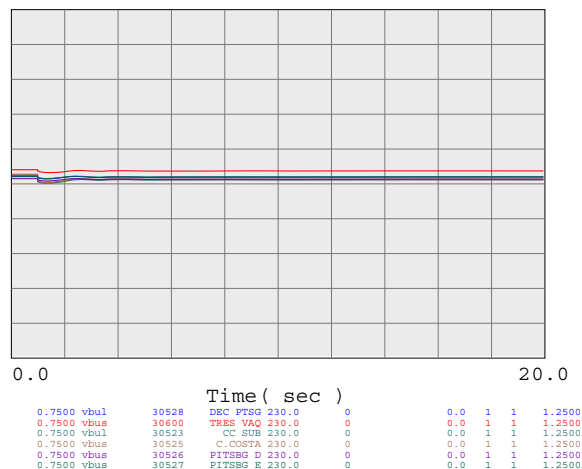
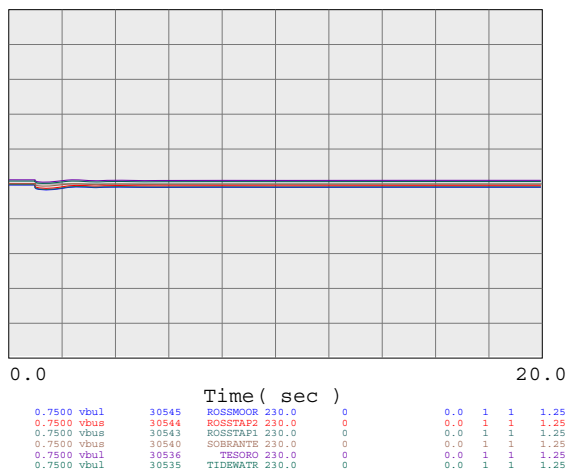
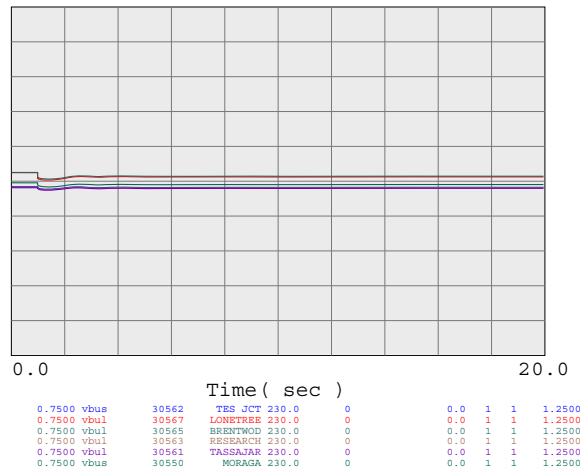
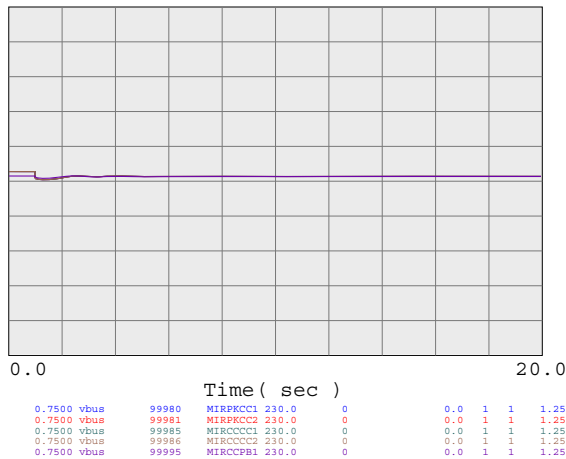
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



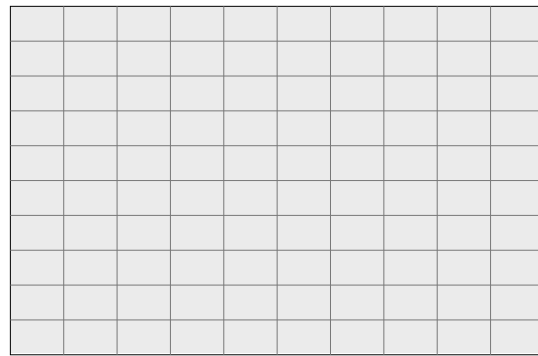
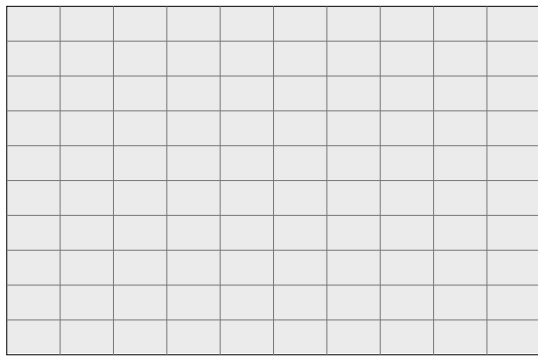
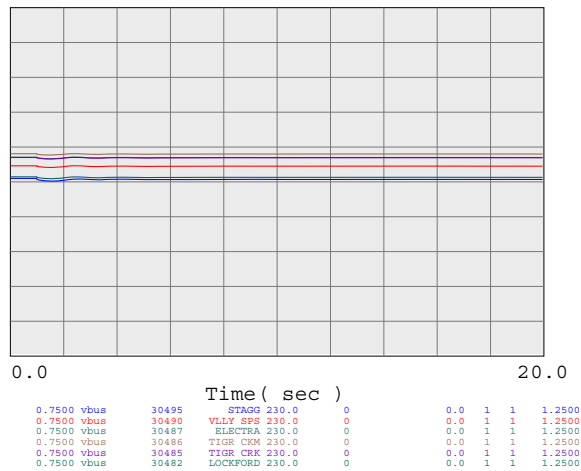
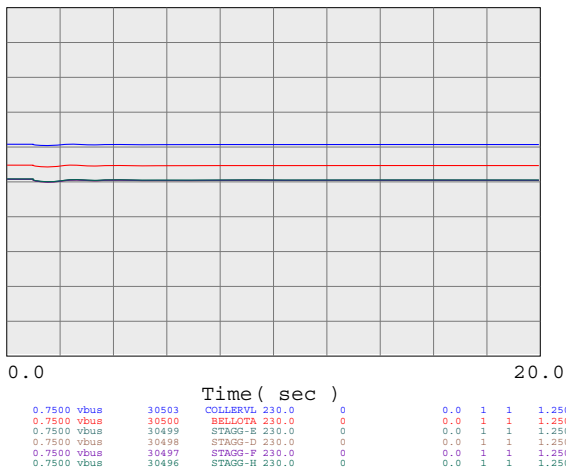
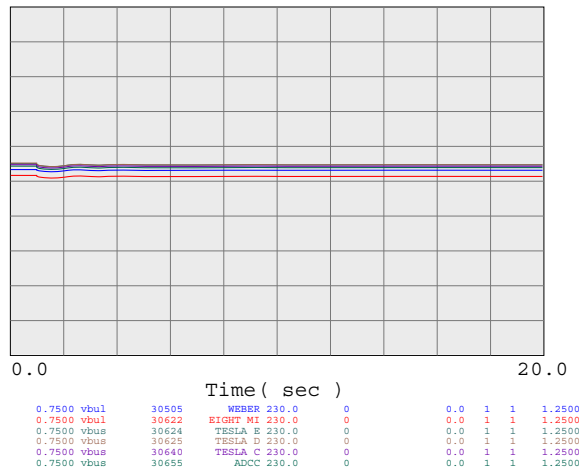
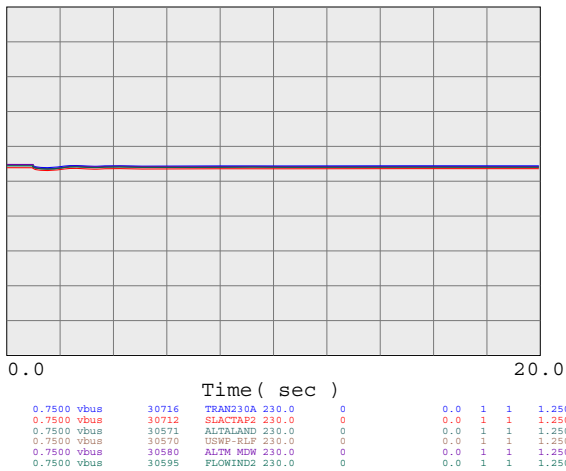
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



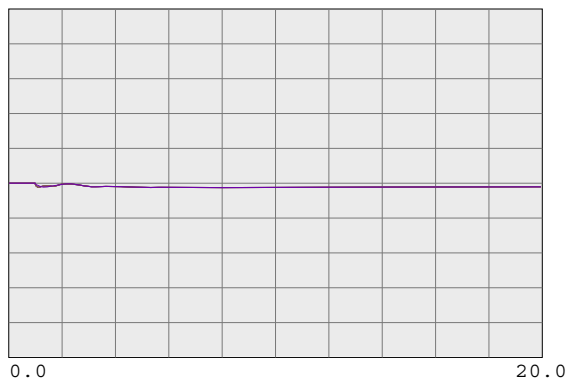
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

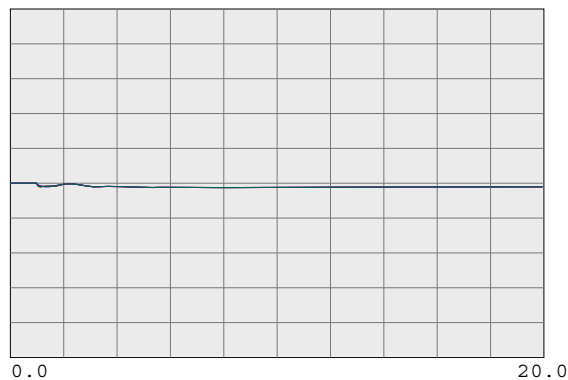
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

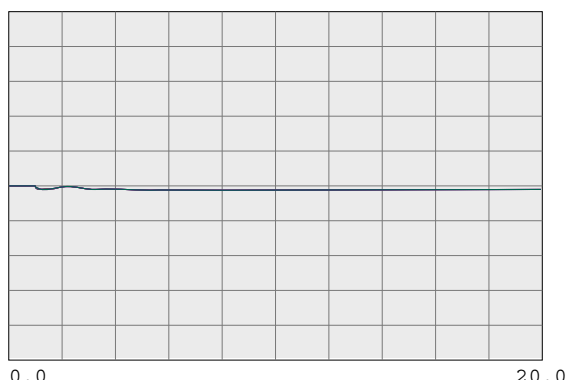
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

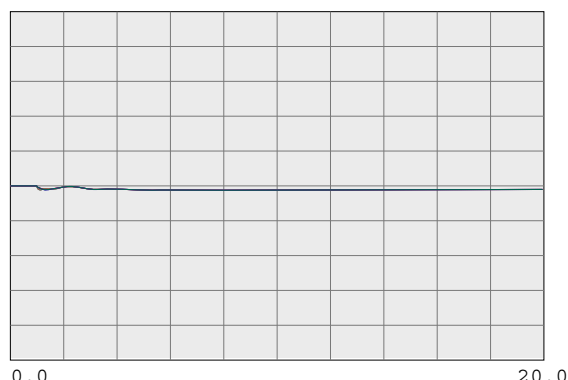
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

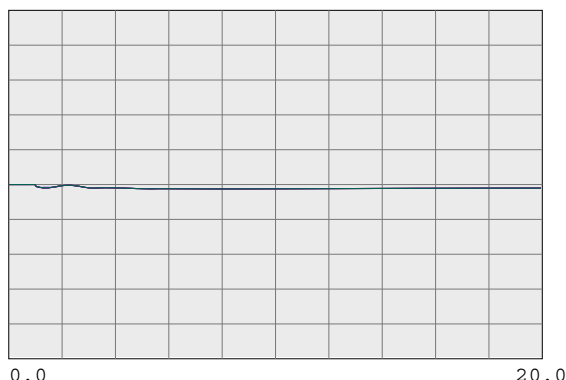
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

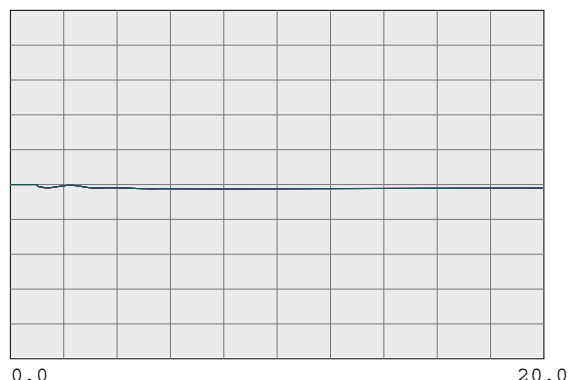
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

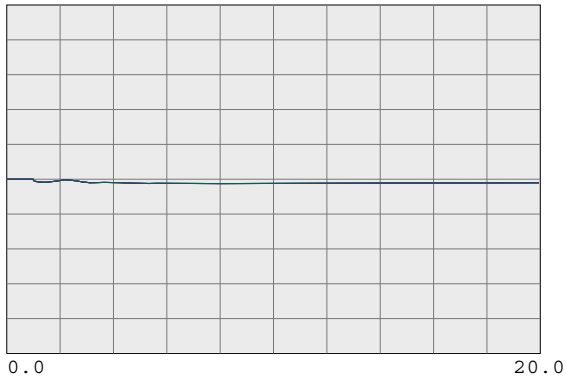
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

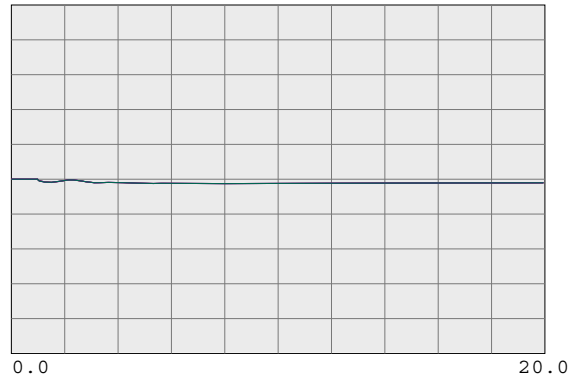
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

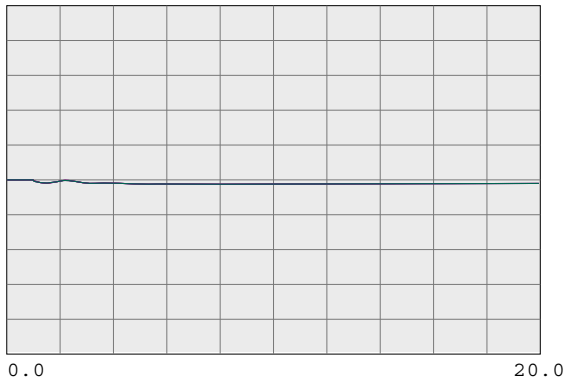
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

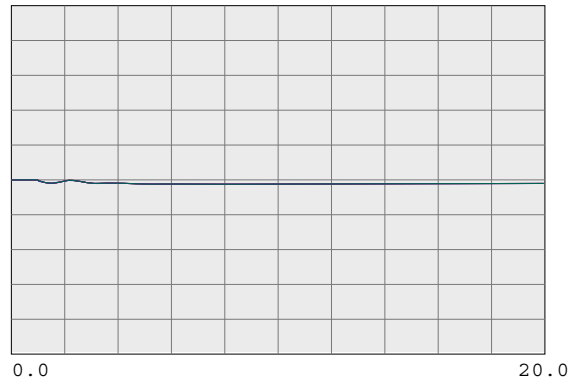
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

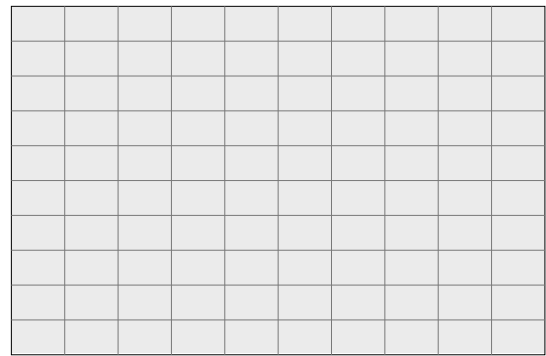
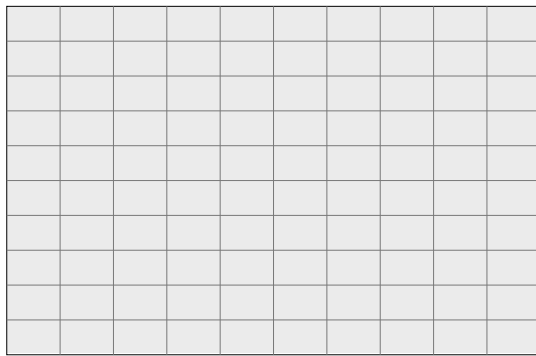
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

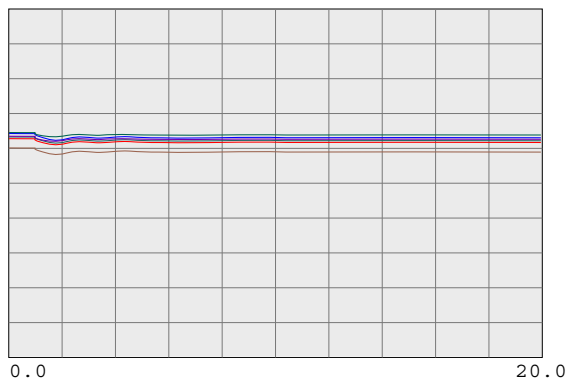
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



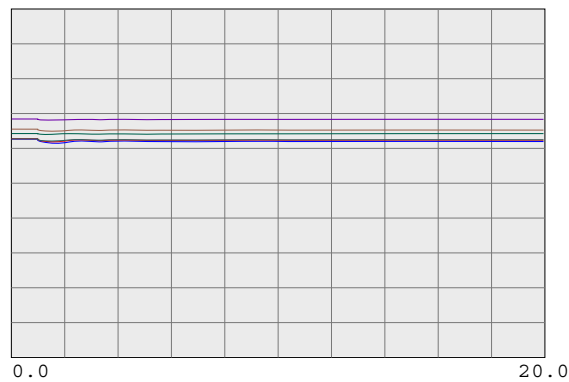
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



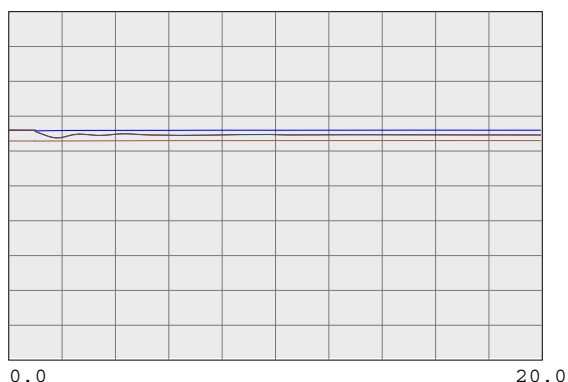
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



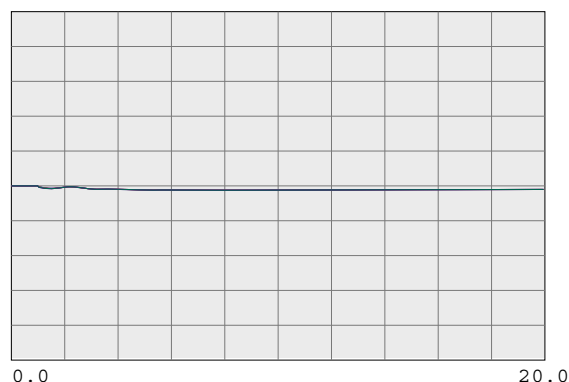
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



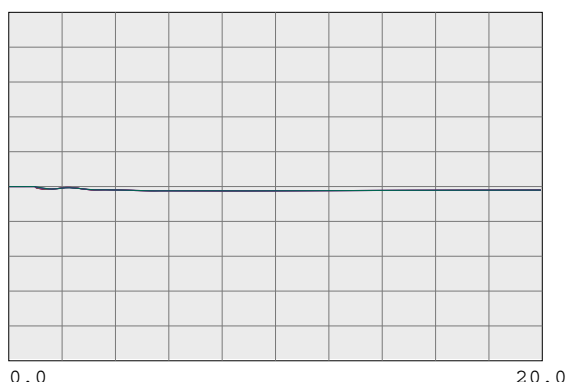
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



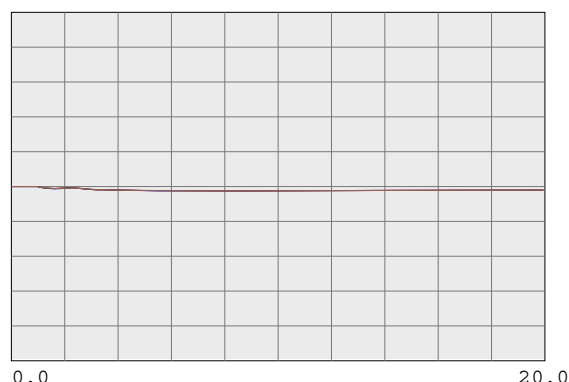
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

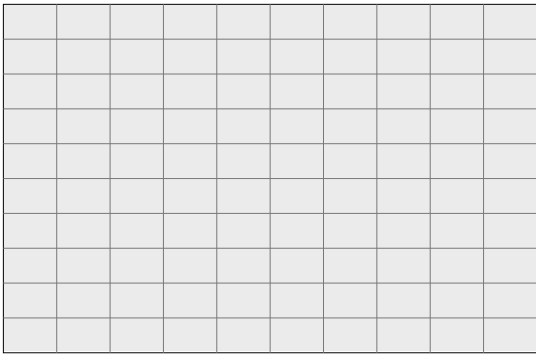
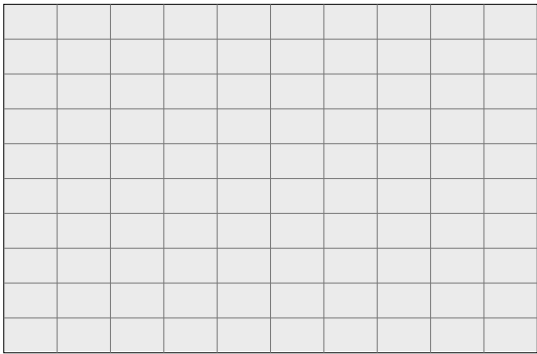
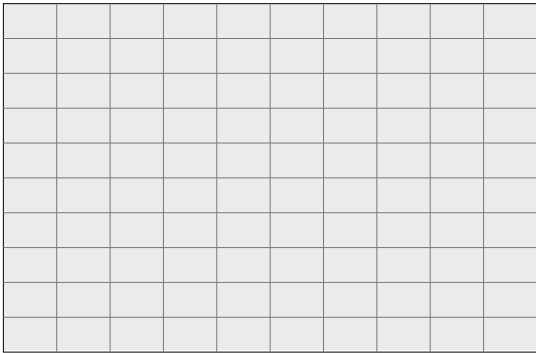
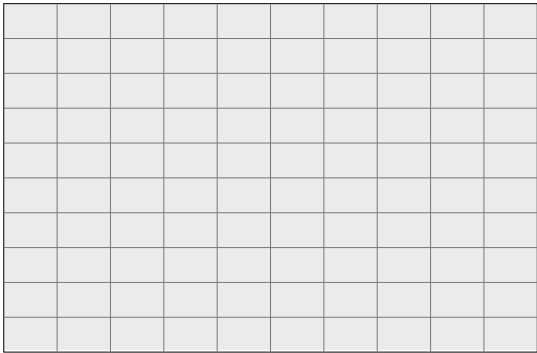
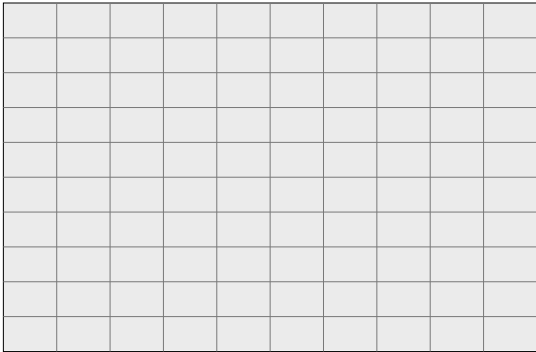
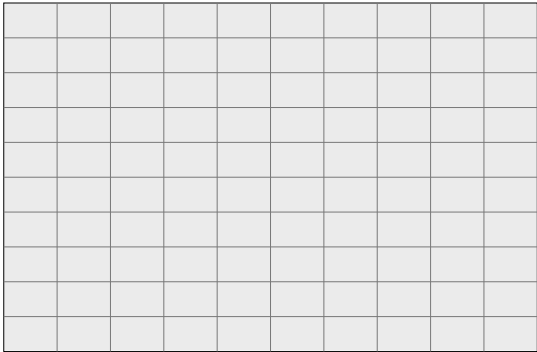
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

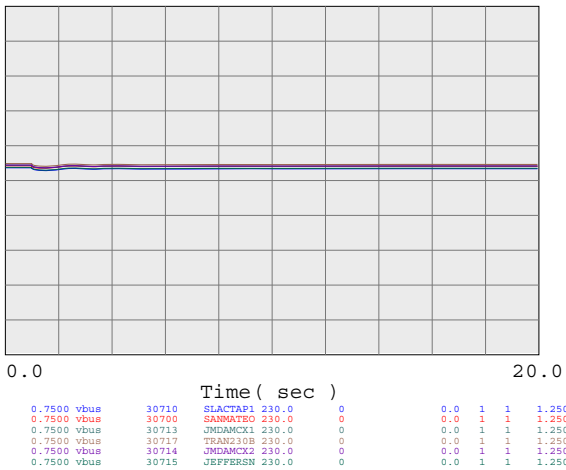
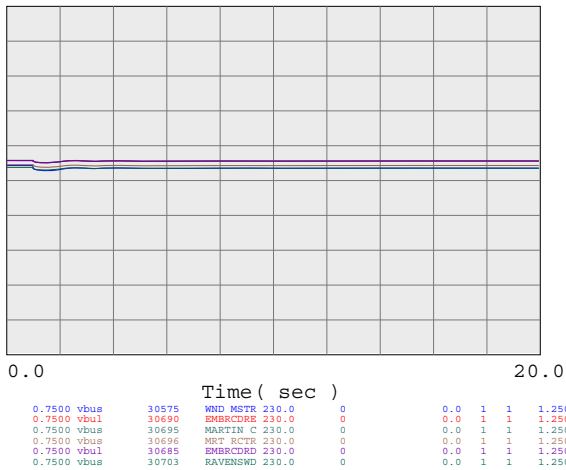
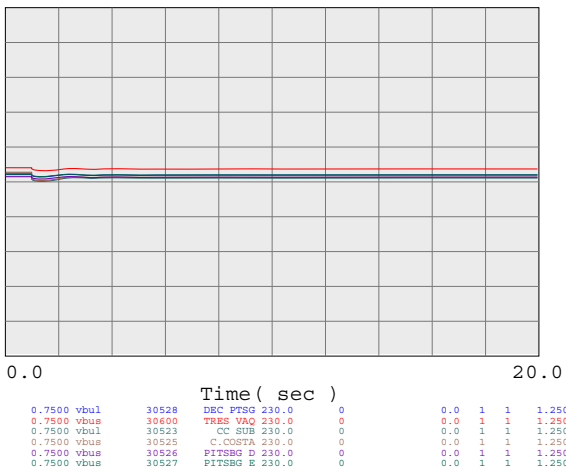
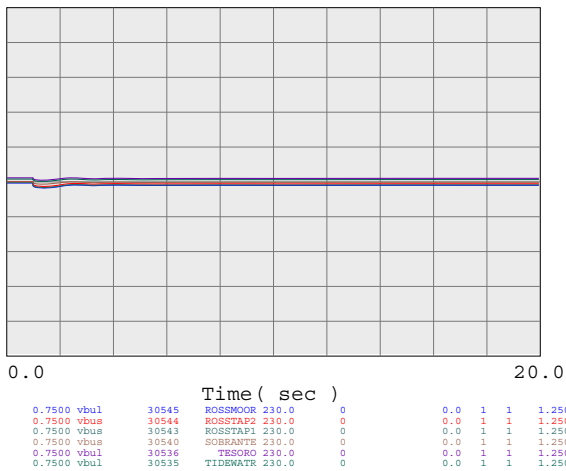
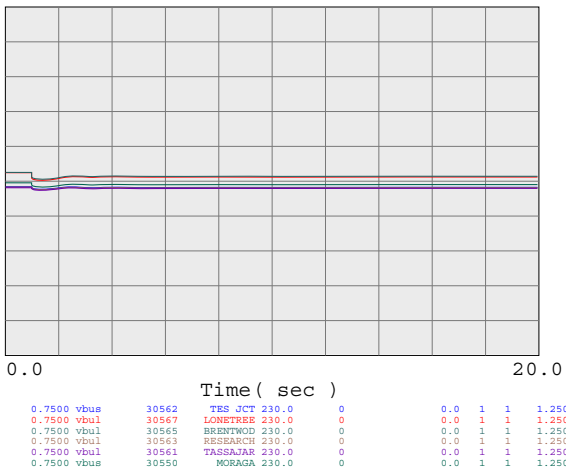
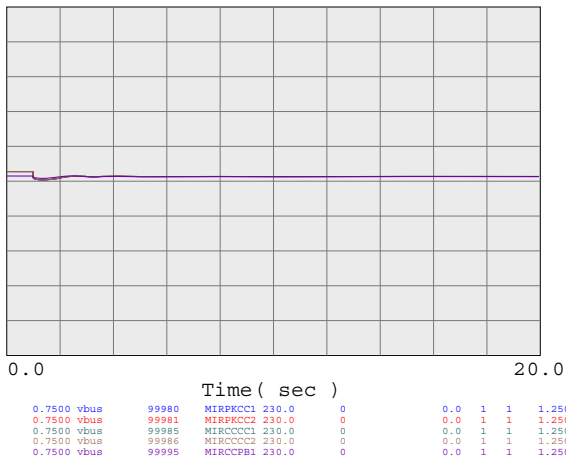
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



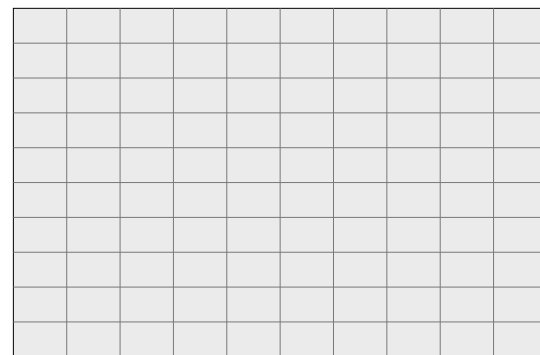
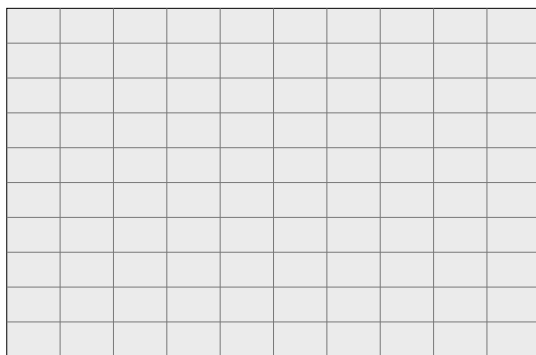
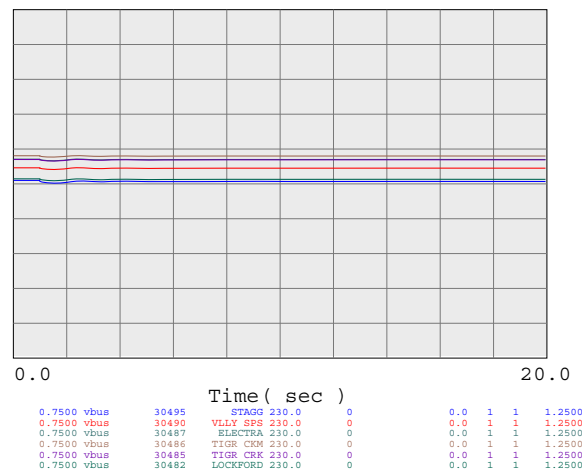
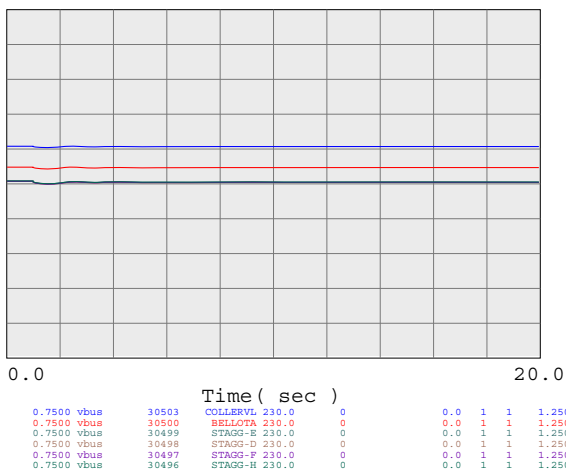
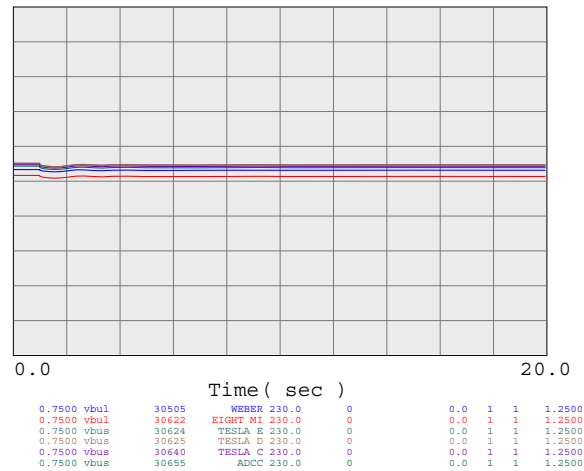
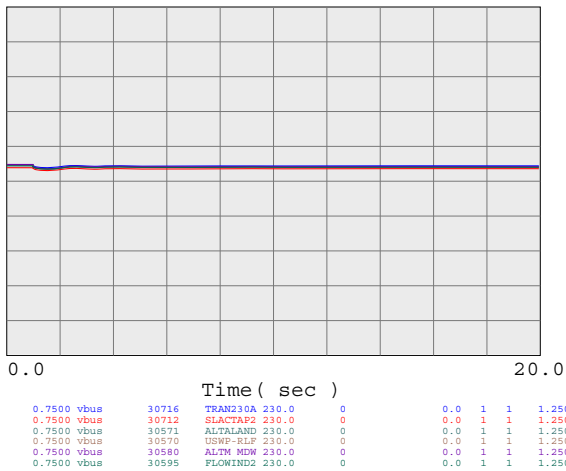
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



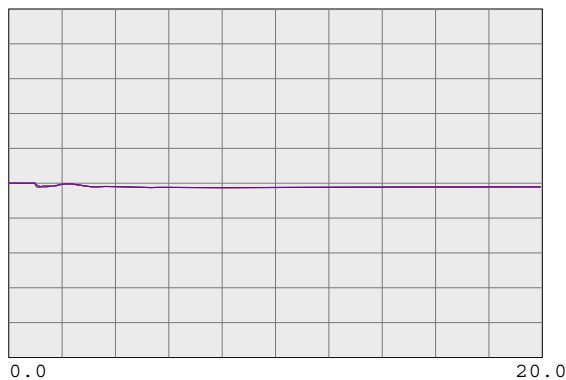
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

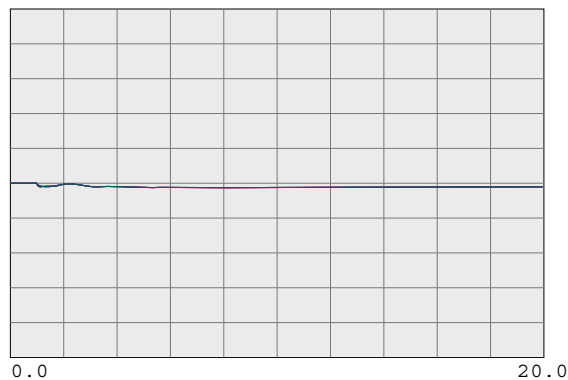
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

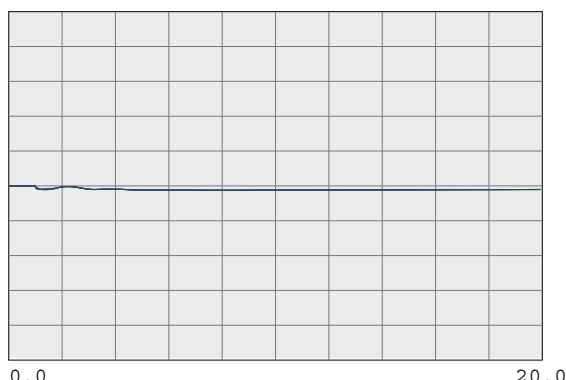
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

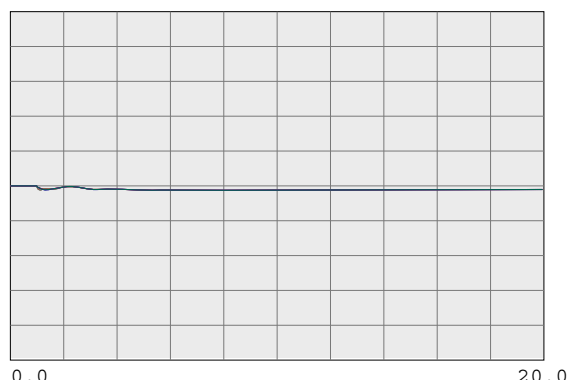
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

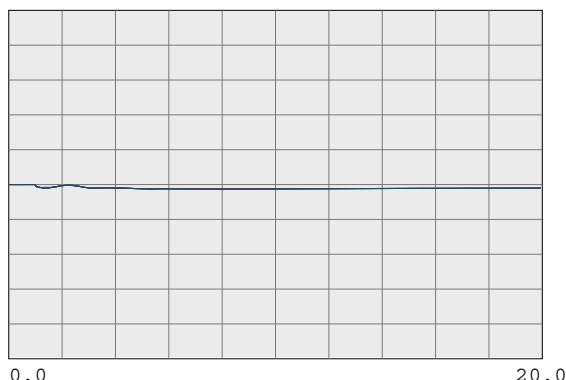
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

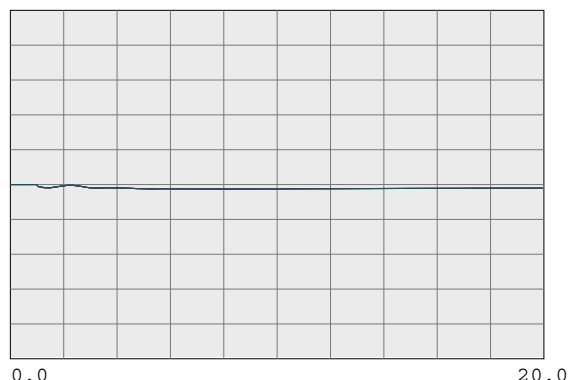
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

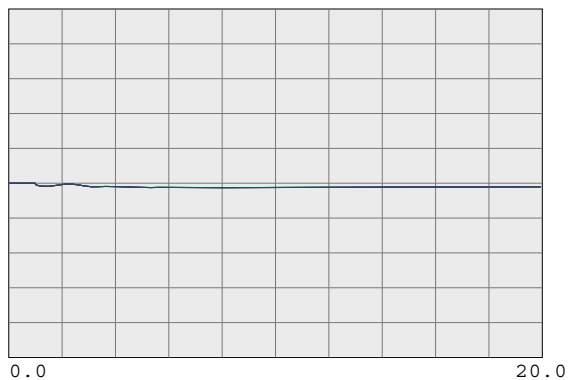
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

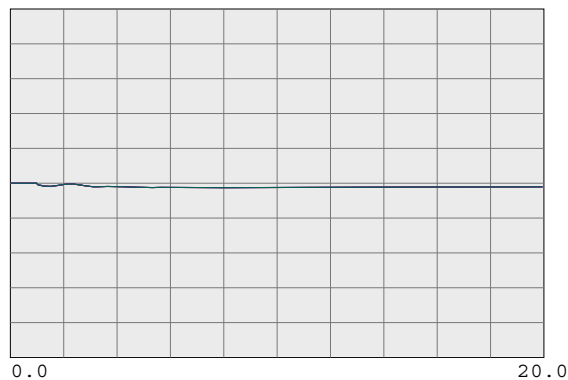
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

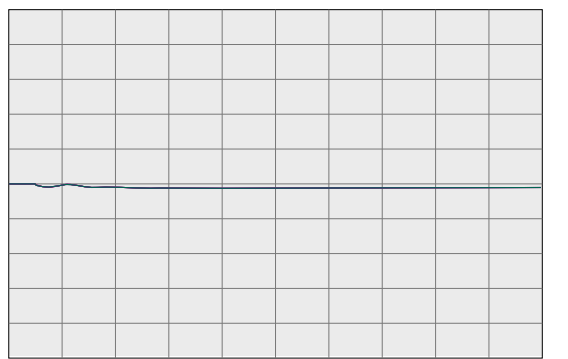
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

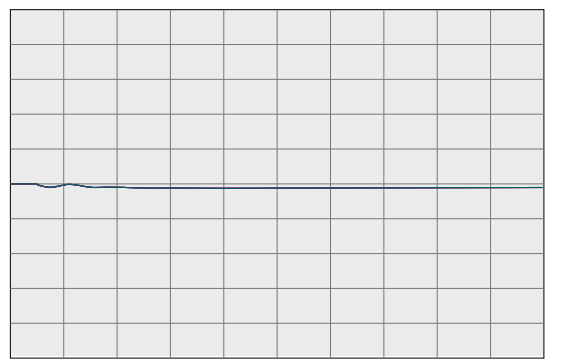
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

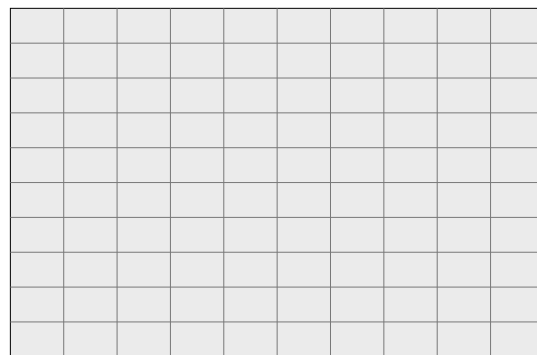
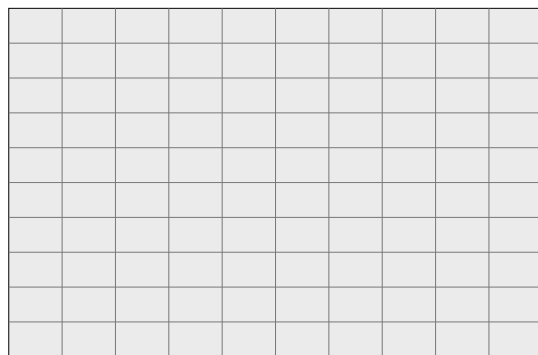
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

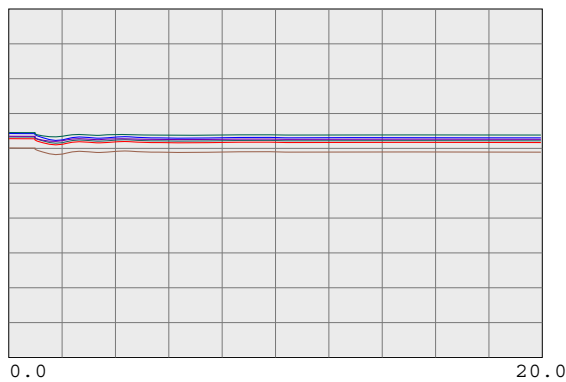
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

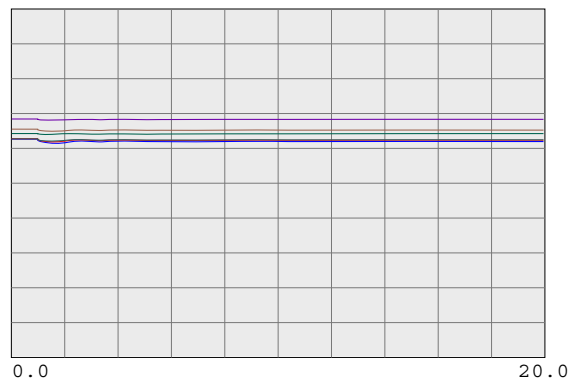
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



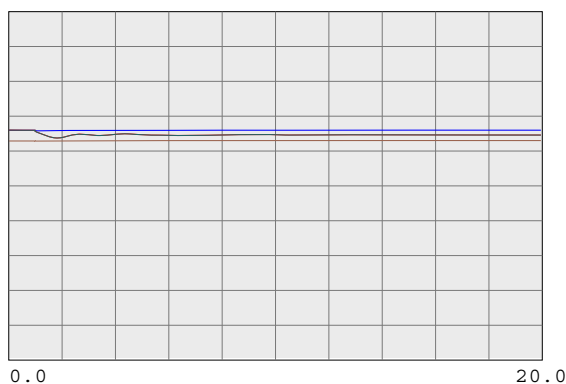
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



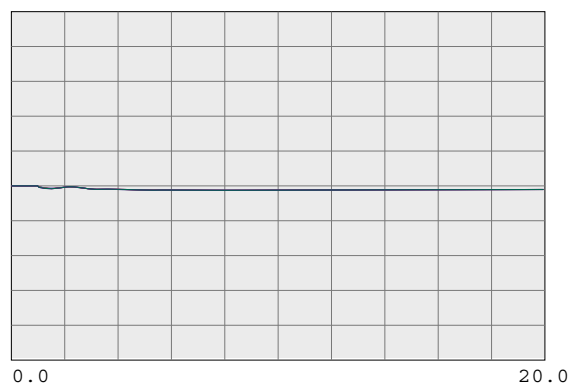
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



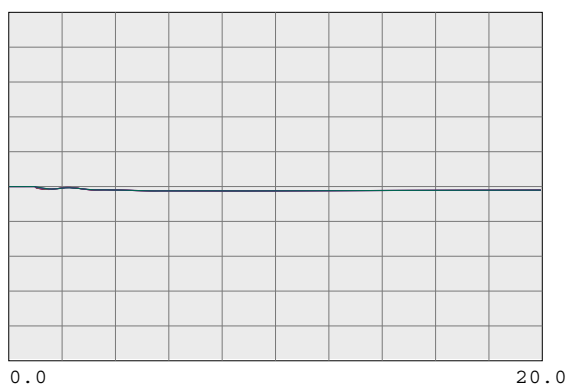
Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



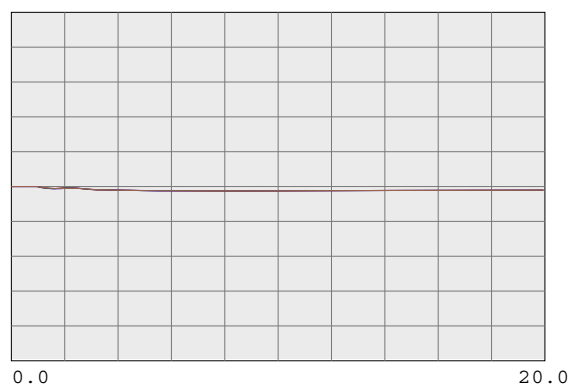
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

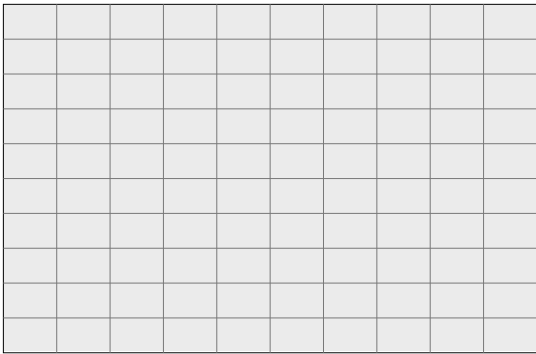
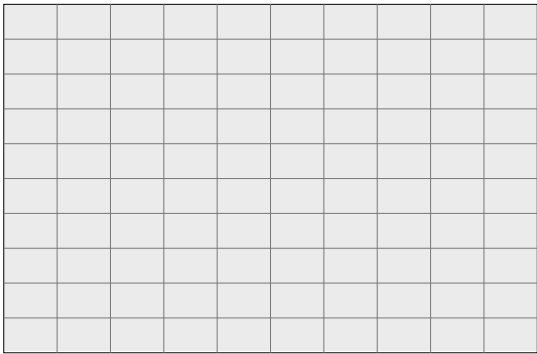
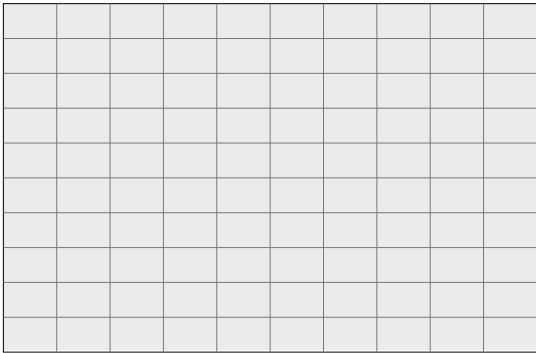
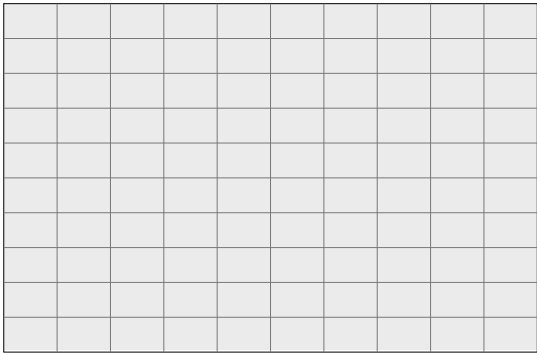
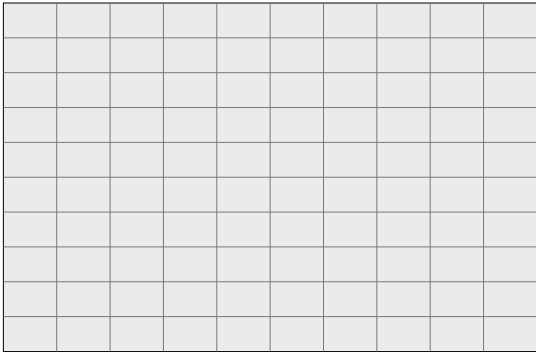
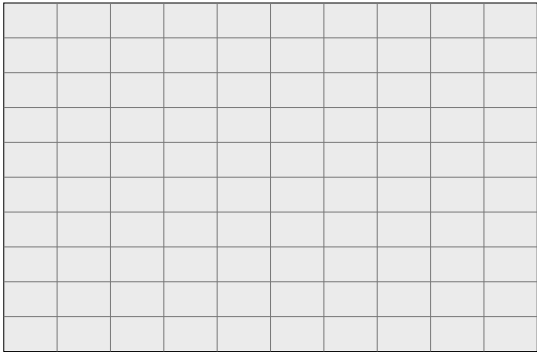
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

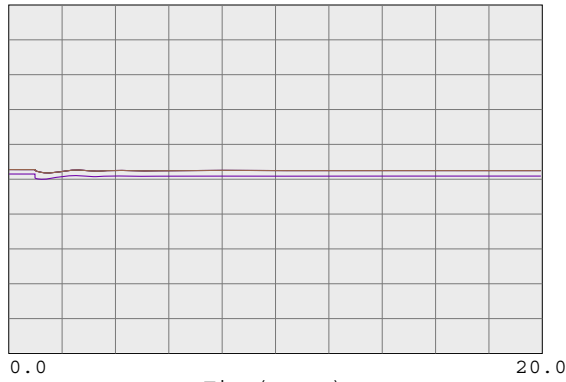
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT

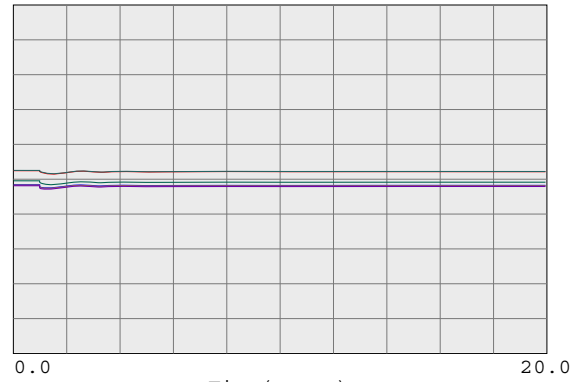


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

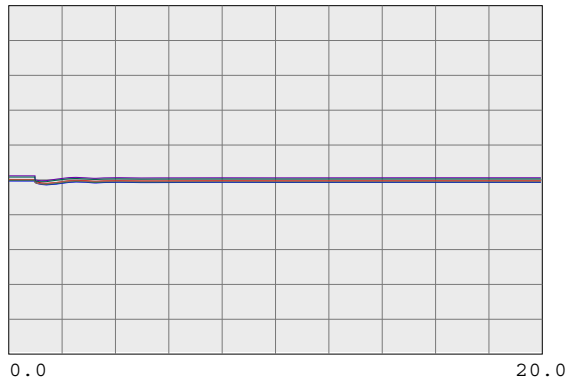
230-KV SYSTEM VOLTAGES



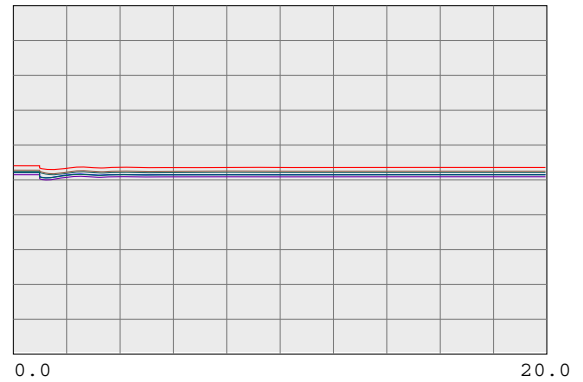
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



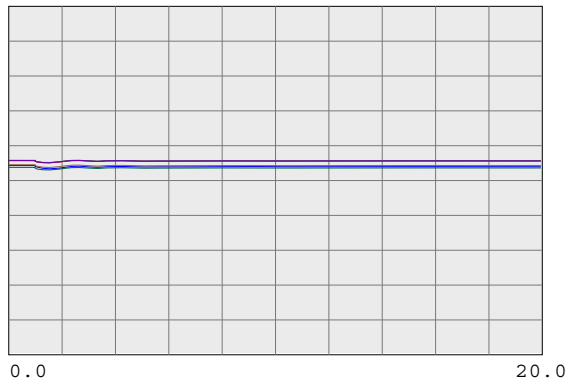
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30567</td> <td>LONETREE 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30565</td> <td>BRENTWOOD 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30563</td> <td>RESEARCH 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30561</td> <td>TASSAJAR 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30550</td> <td>MORAGA 230.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



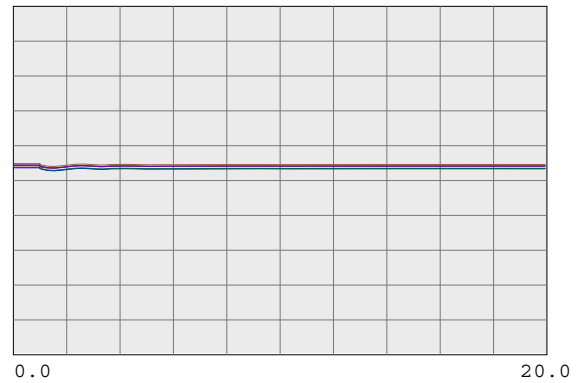
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30544 <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30544 <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30543 <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30543 <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30540 <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30536 <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30535 <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30600 <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30523 <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30525 <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30526 <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30527 <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30690 <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30695 <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30696 <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30685 <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30685 <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30703 <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30700 <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30713 <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30717 <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30714 <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th> </td>	30715 <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

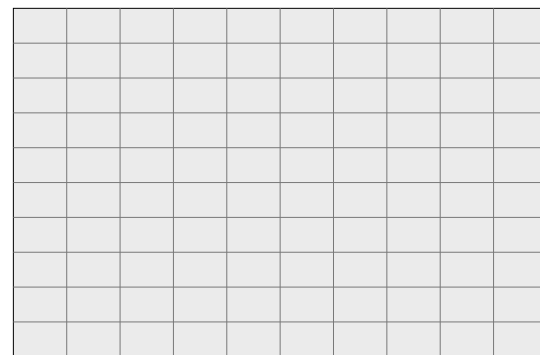
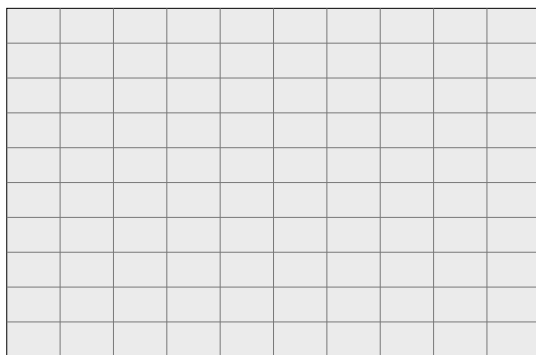
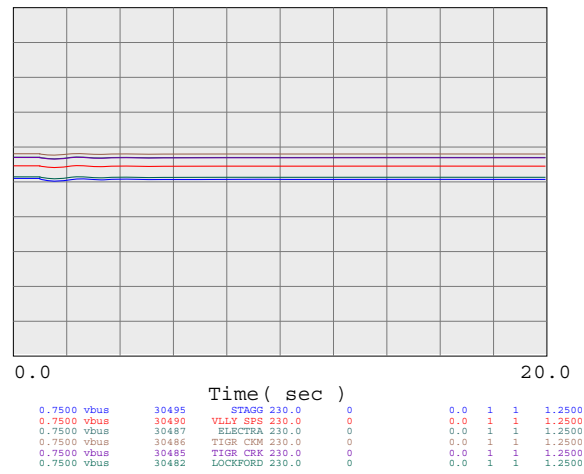
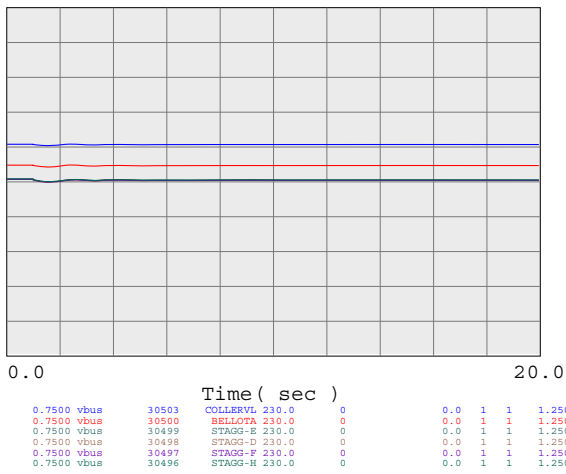
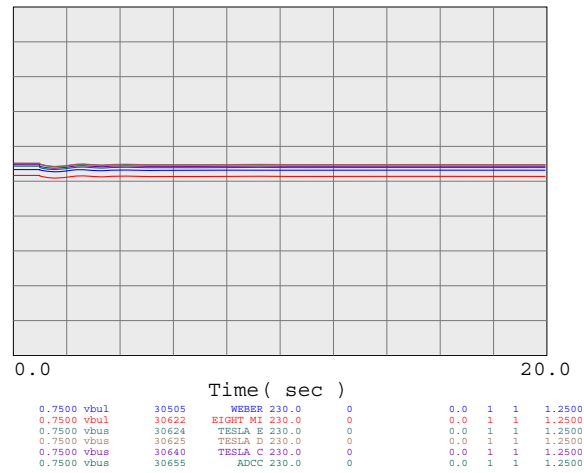
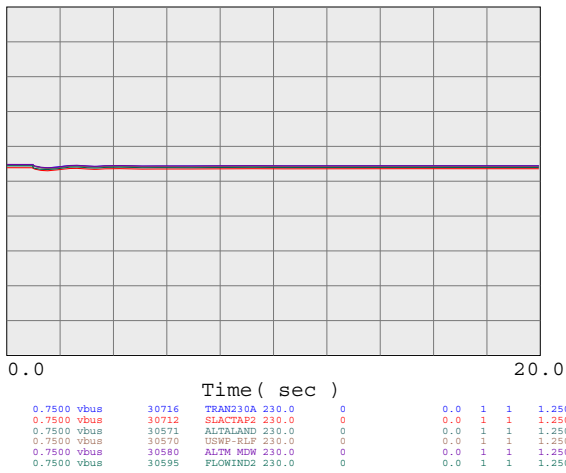
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

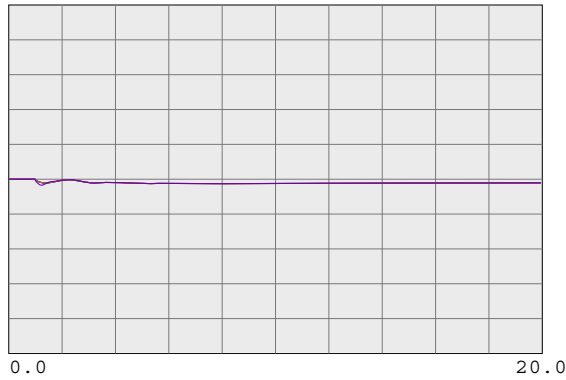
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

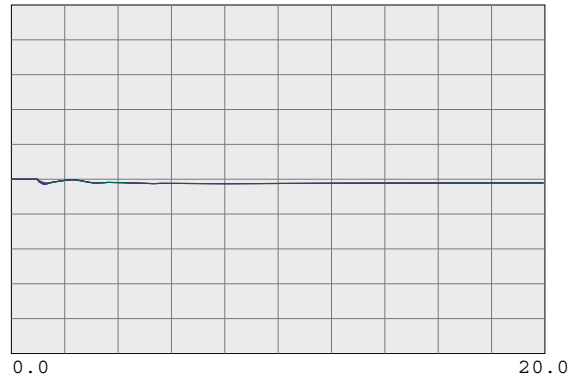


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

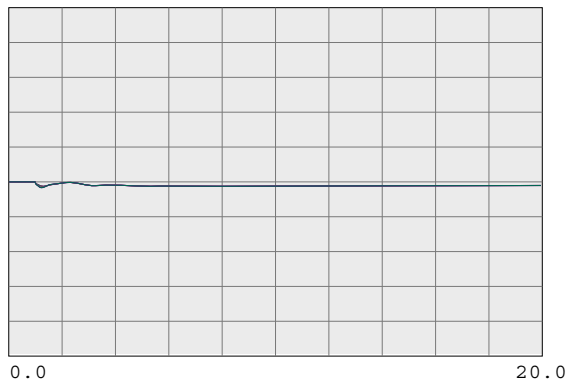
230-KV SYSTEM FREQUENCIES



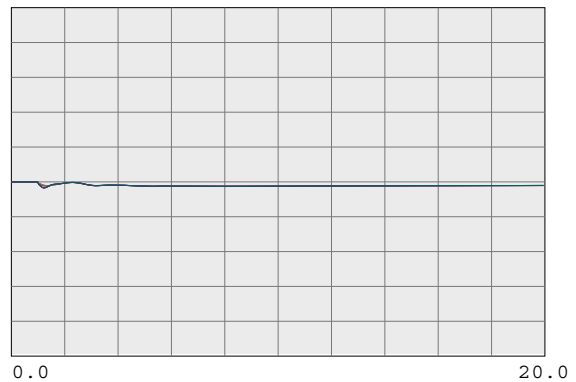
Time (sec)				
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0 1 1 60.6000



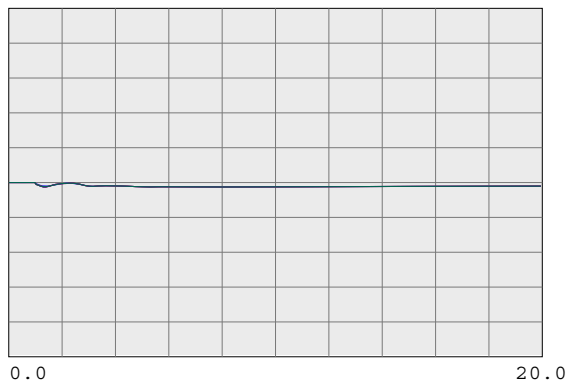
Time (sec)				
59.4000 fbus	30562	TES JCT 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0 1 1 60.6000



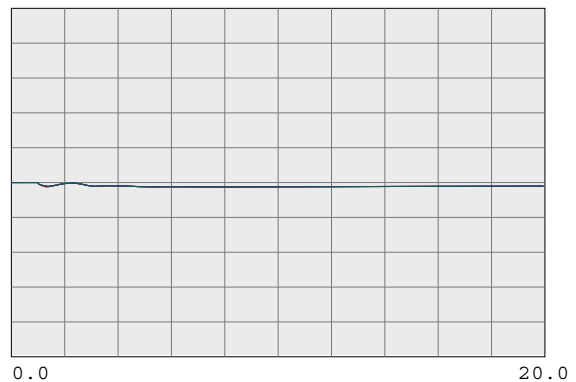
Time (sec)				
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30575	WIND MSTR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30710	SLACTAP1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

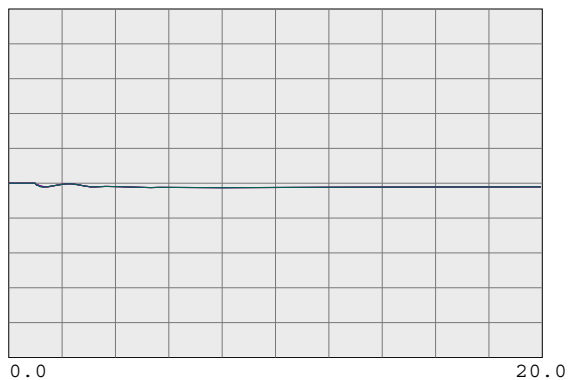
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

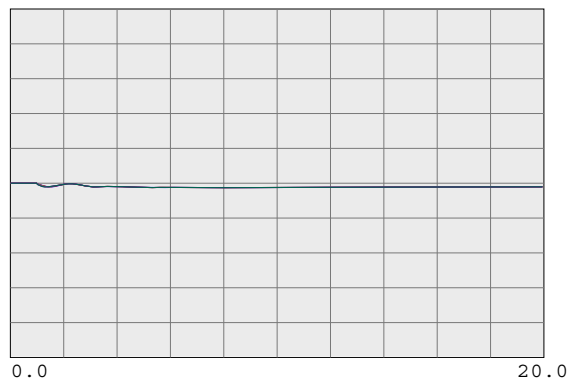
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

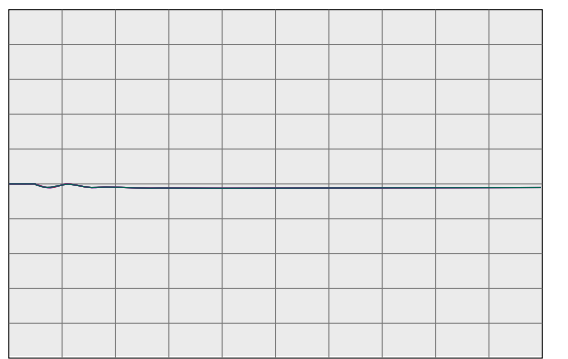
230-KV SYSTEM FREQUENCIES



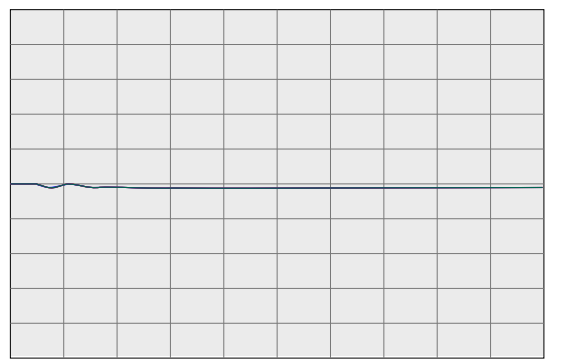
Time (sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



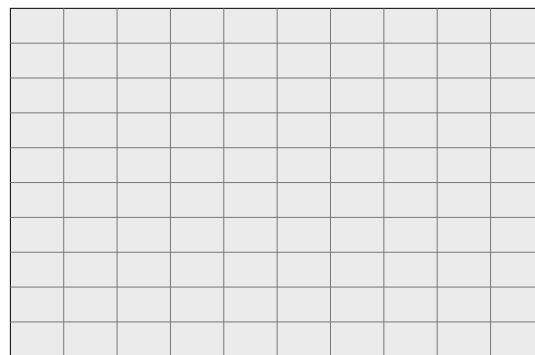
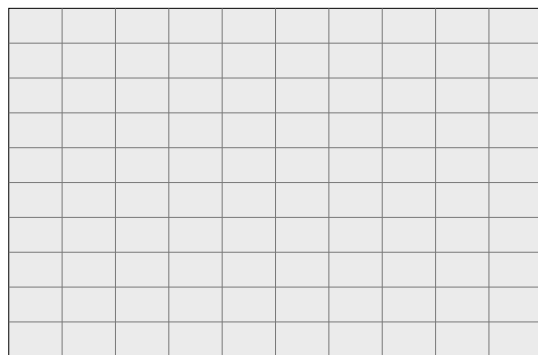
Time (sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

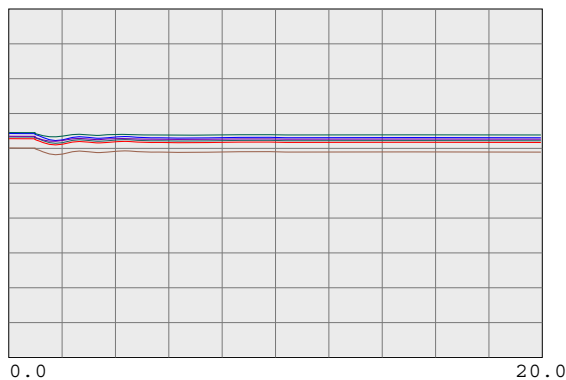
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

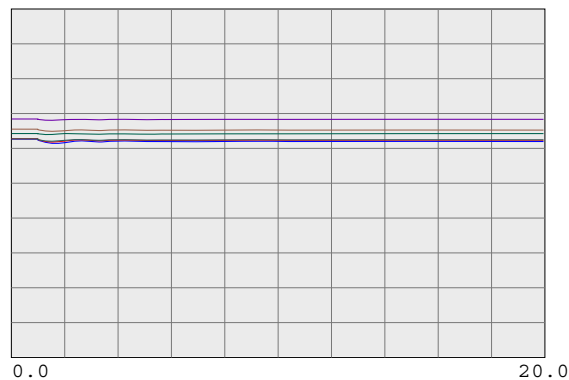
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



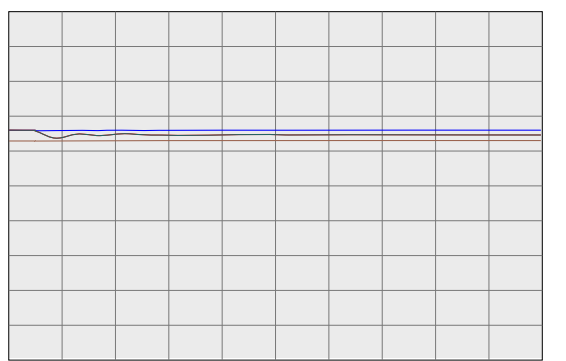
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



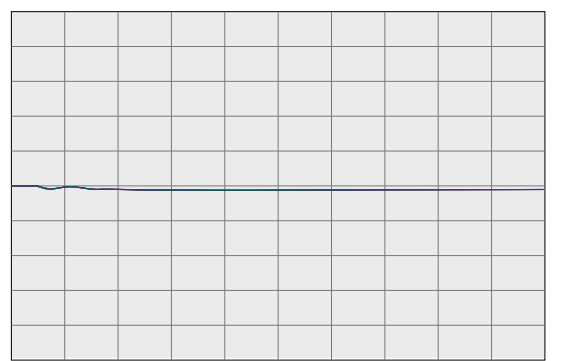
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



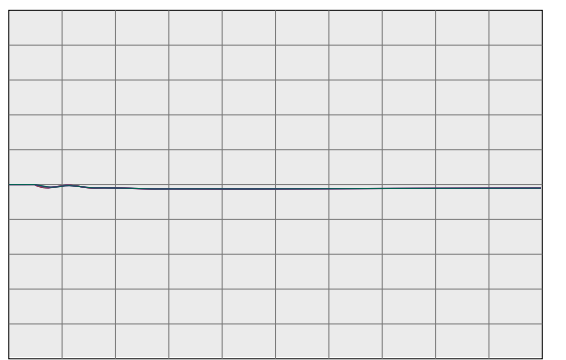
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



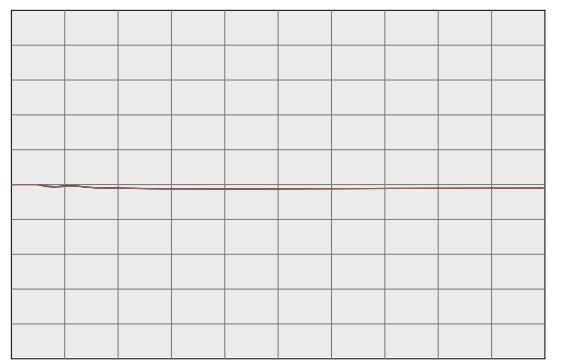
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

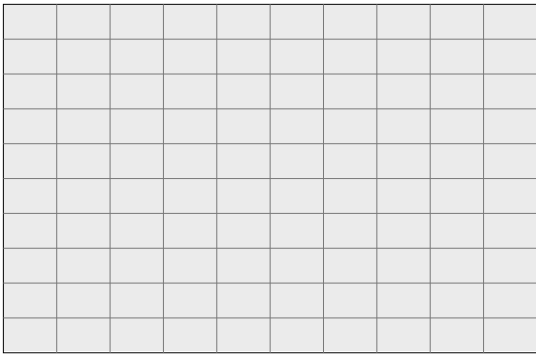
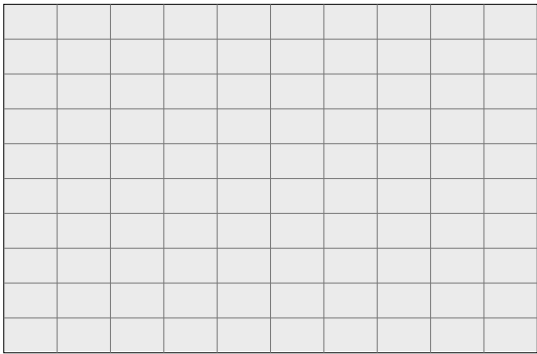
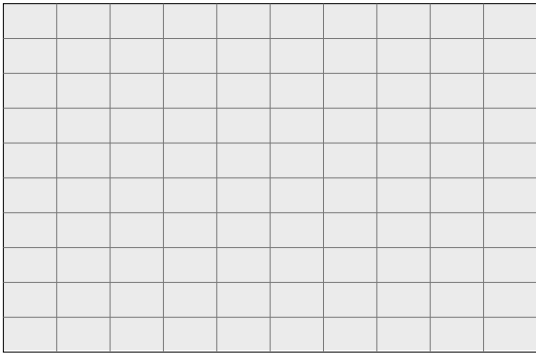
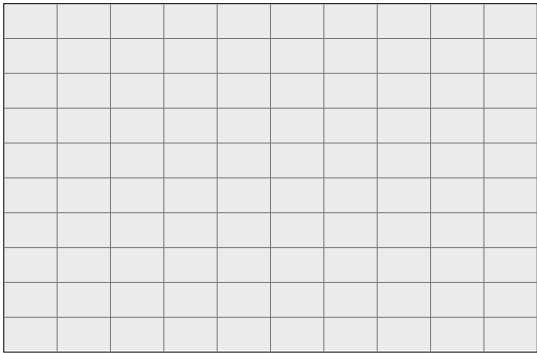
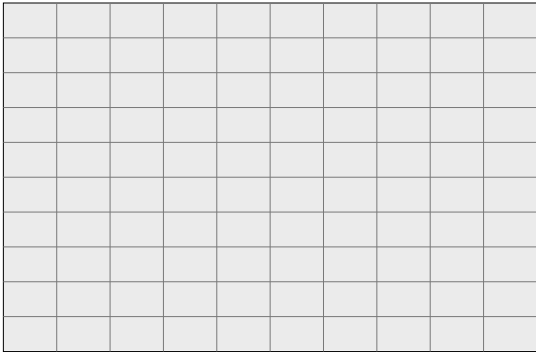
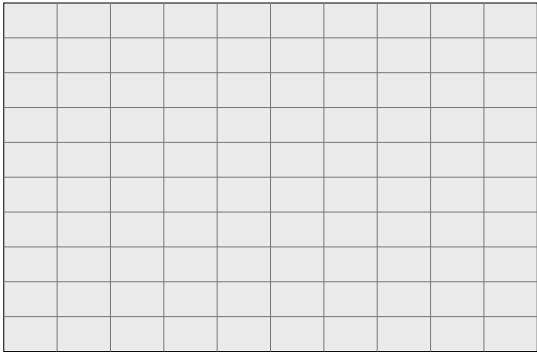
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

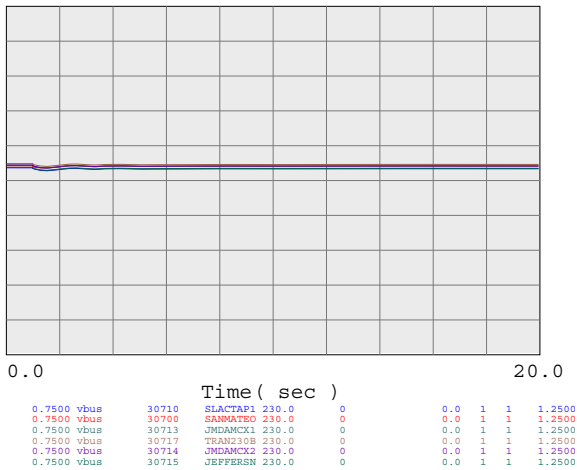
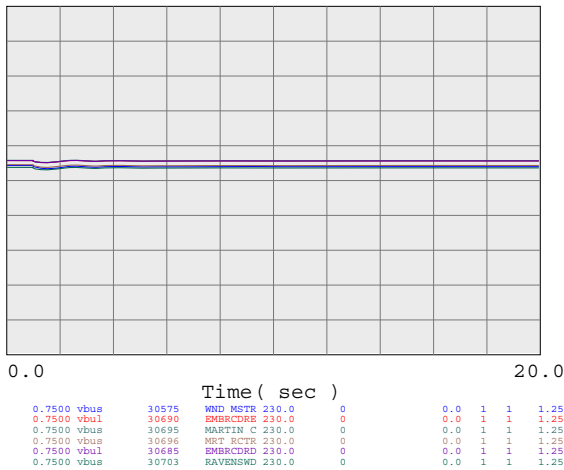
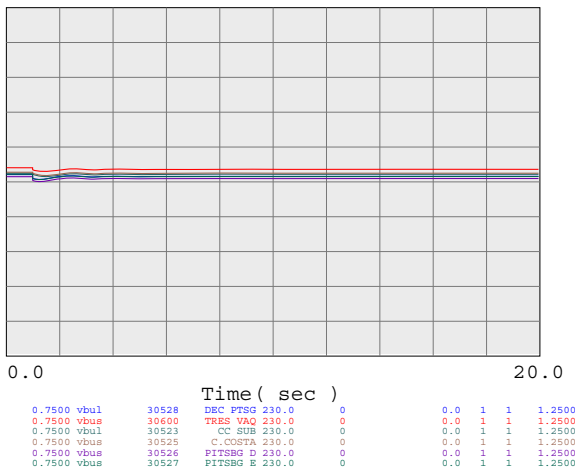
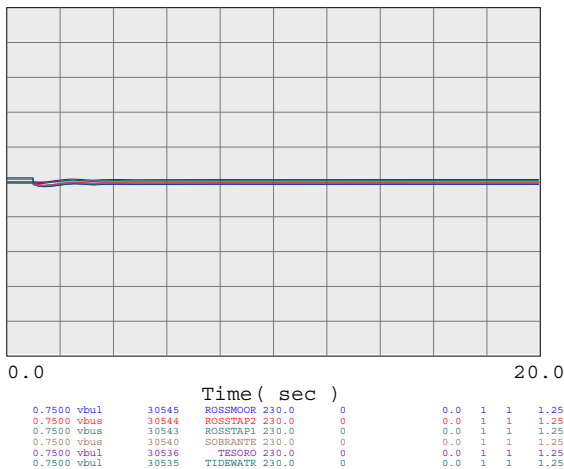
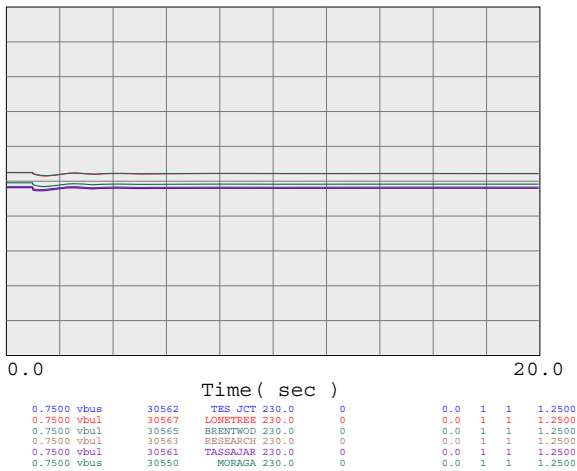
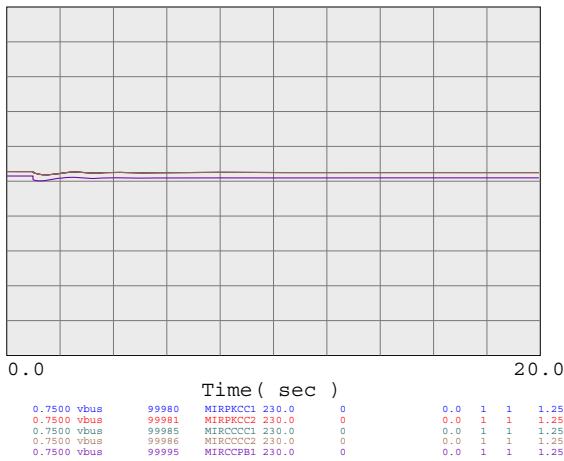
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



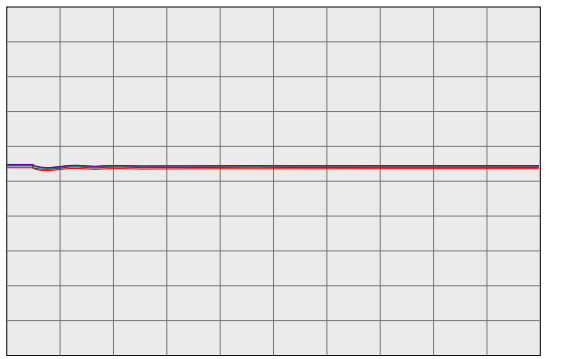
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

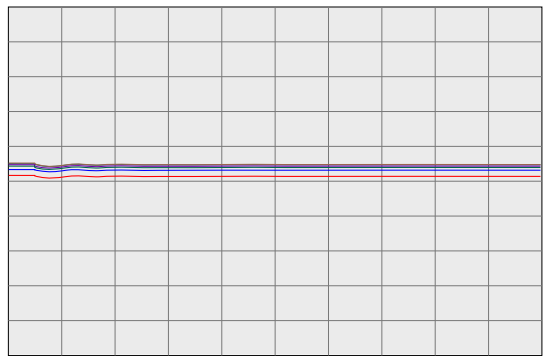
230-KV SYSTEM VOLTAGES



0.0 20.0

Time(sec)

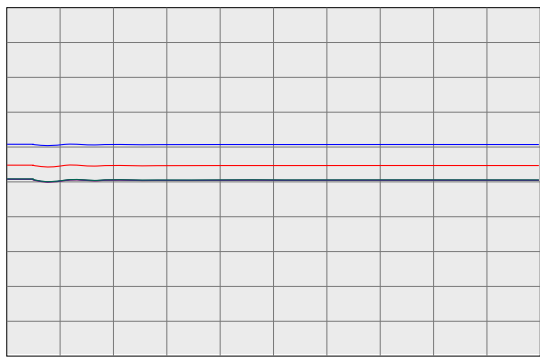
0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

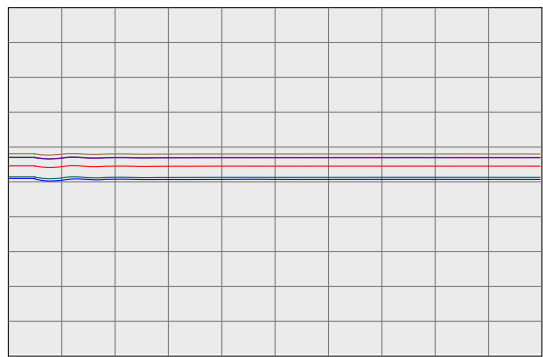
0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

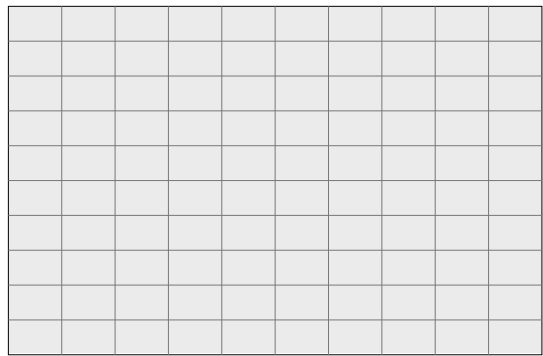
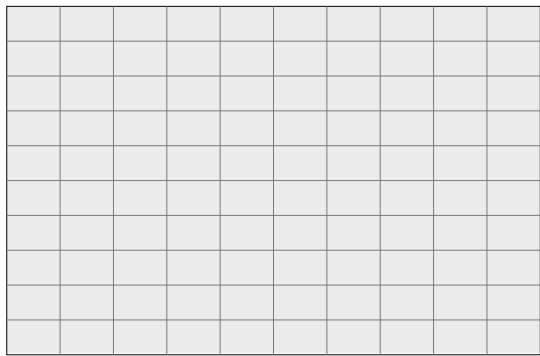
0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

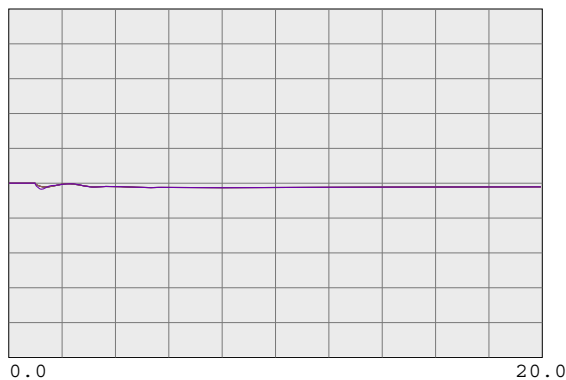
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

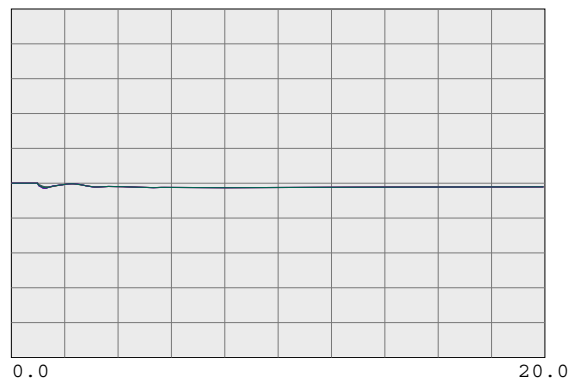
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



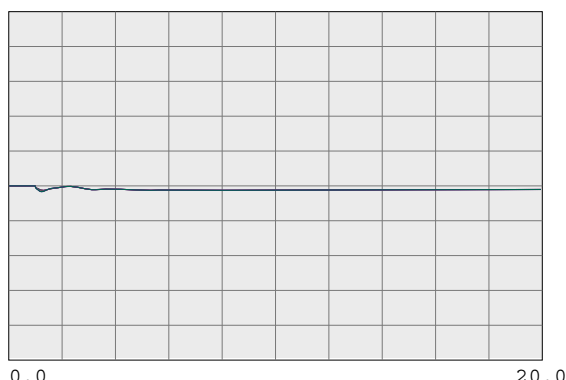
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



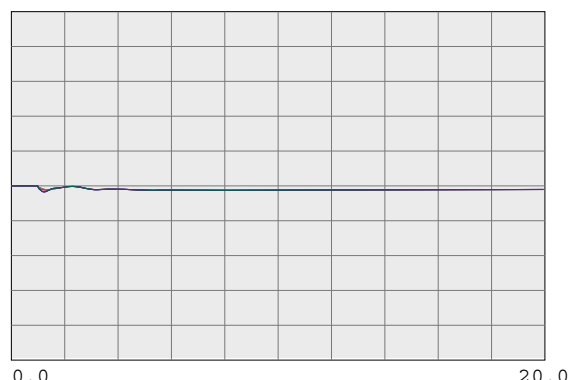
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



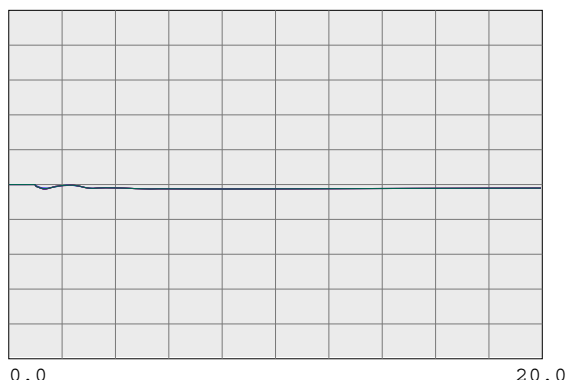
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



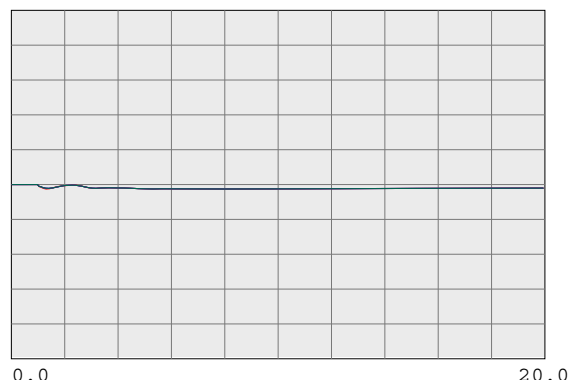
Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

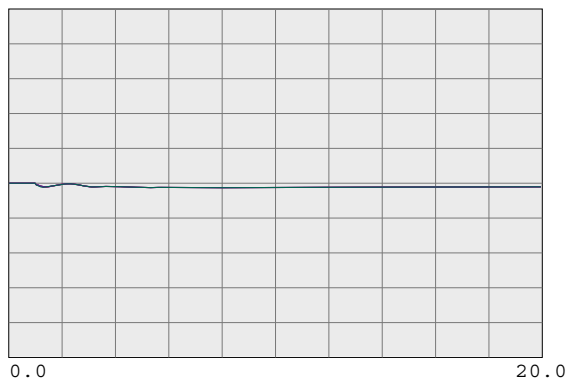
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

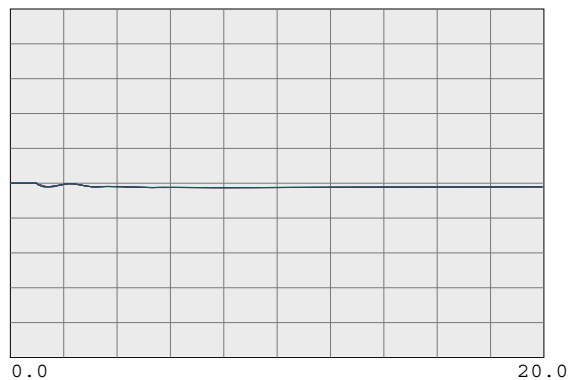
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

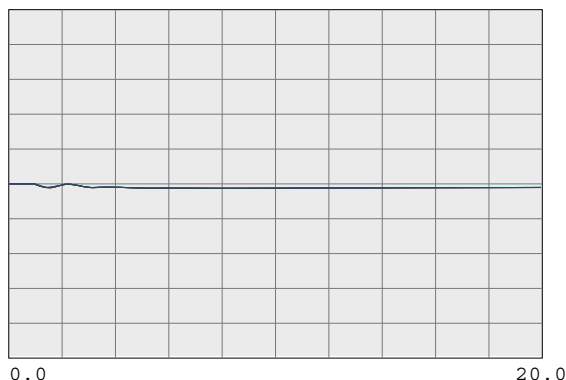
230-KV SYSTEM FREQUENCIES



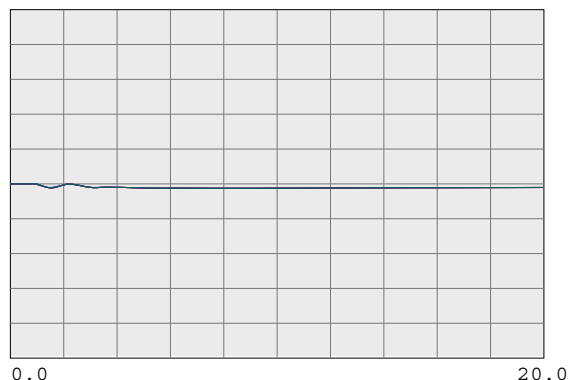
Time (sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



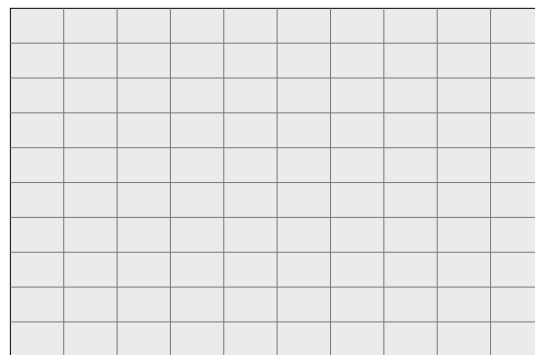
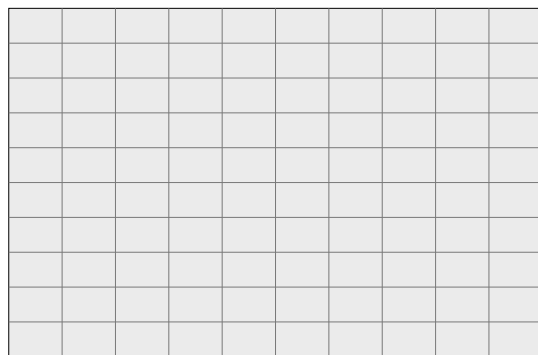
Time (sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

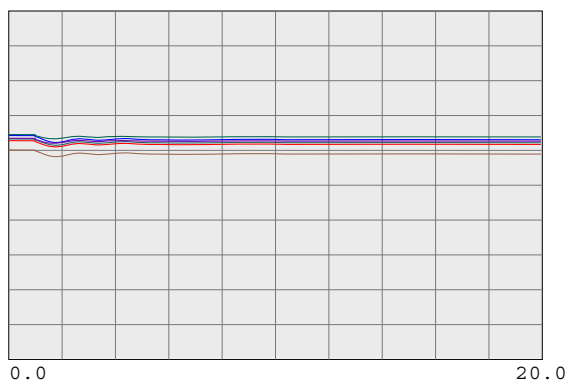
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

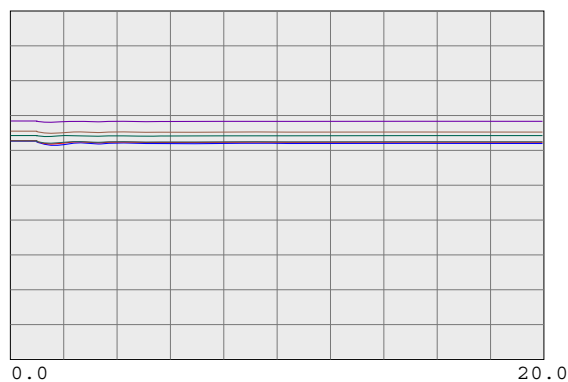
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



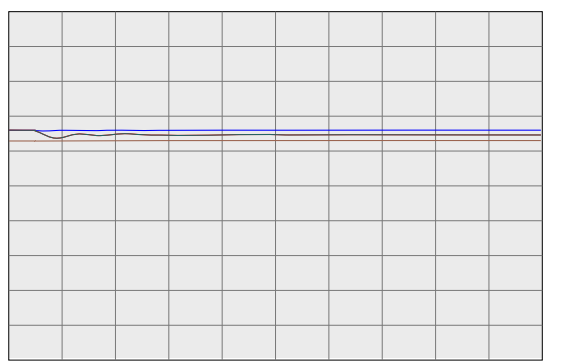
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



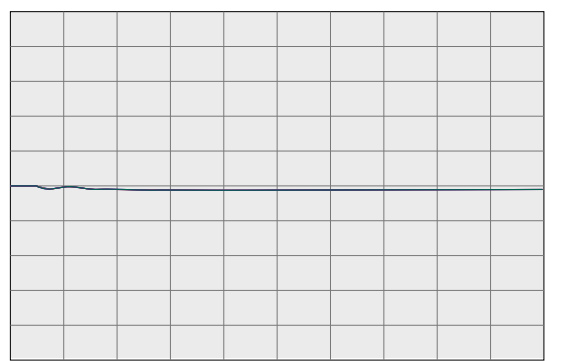
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



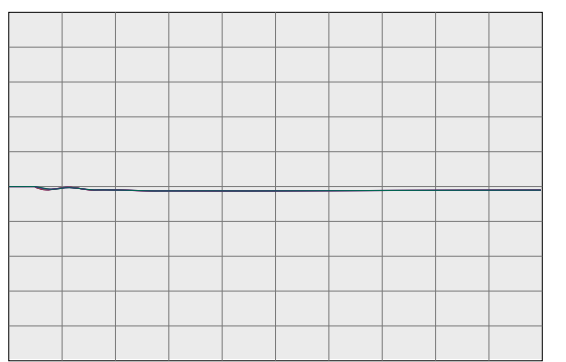
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



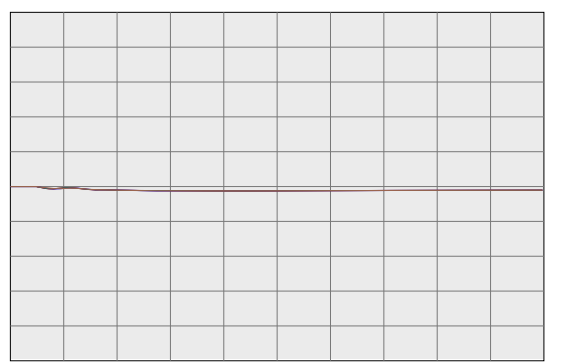
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

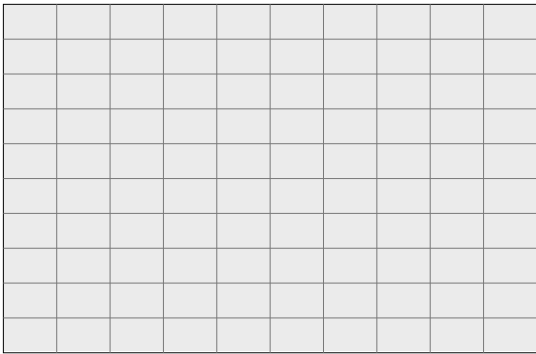
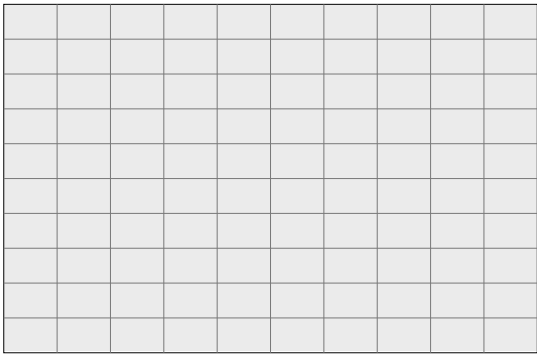
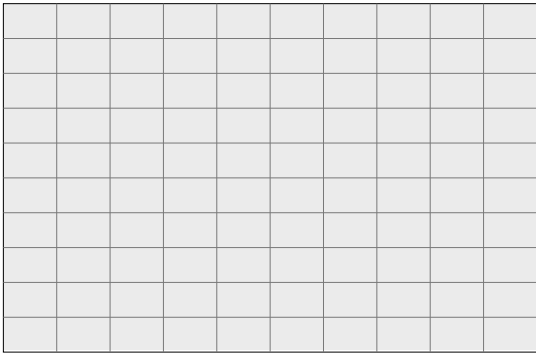
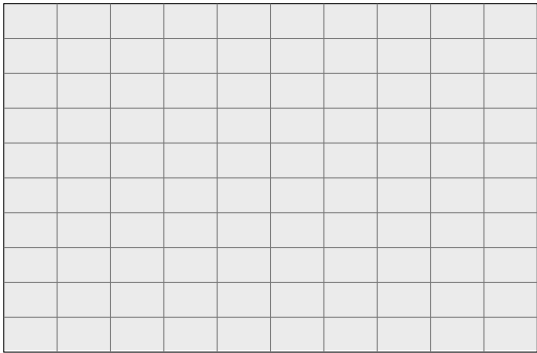
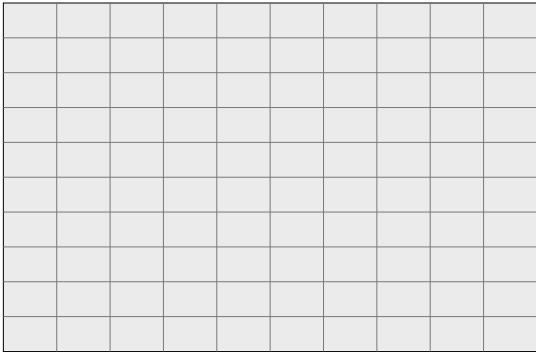
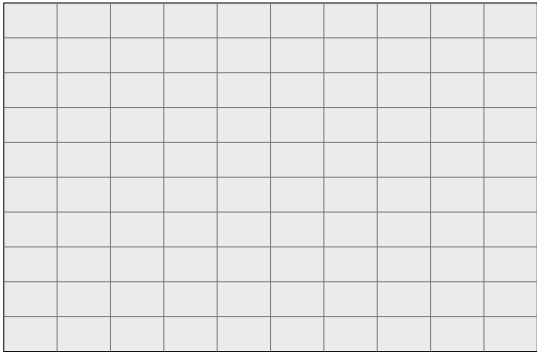
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

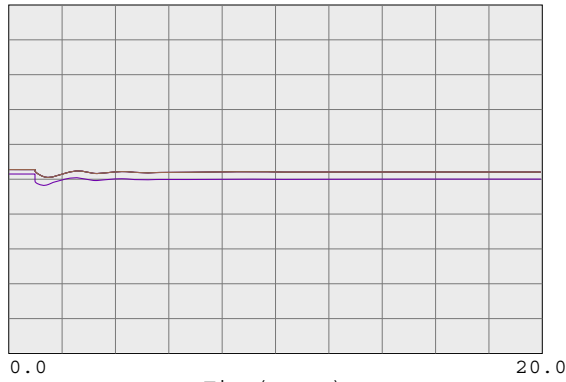
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



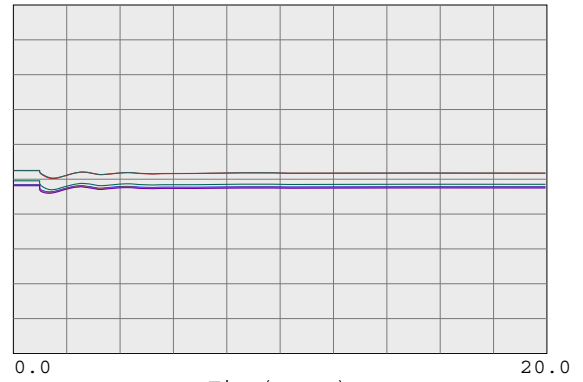
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



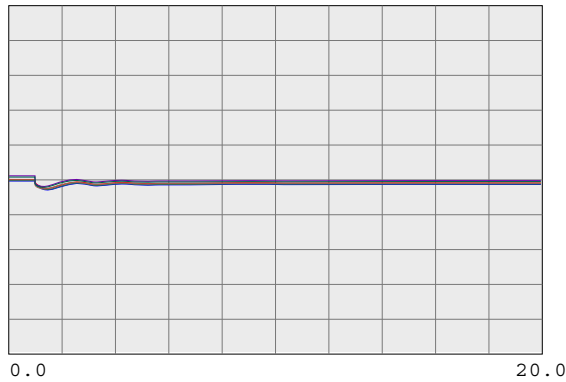
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



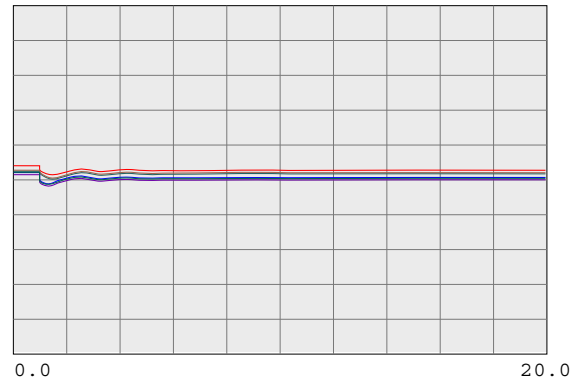
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



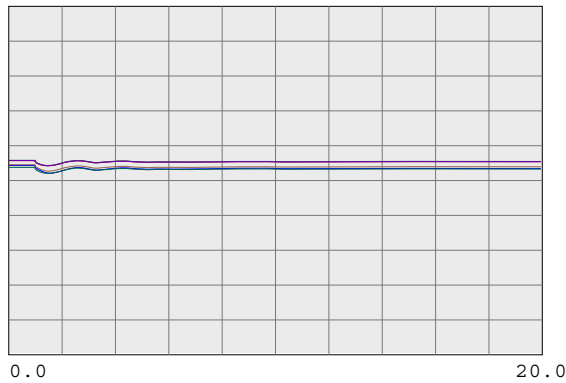
Time (sec)

0.7500 vb1	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



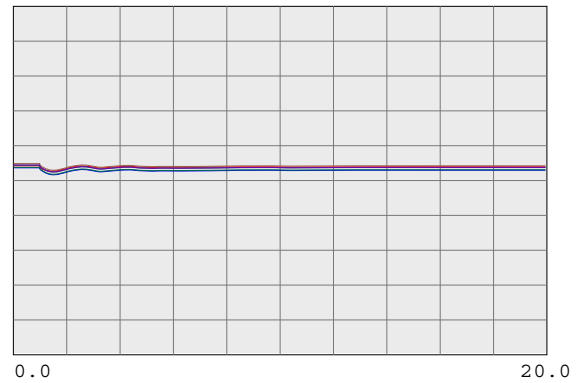
Time (sec)

0.7500 vb1	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vb1	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

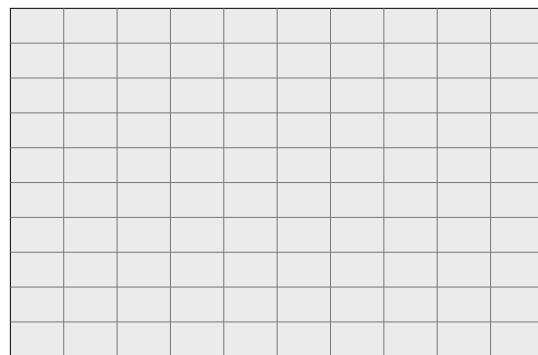
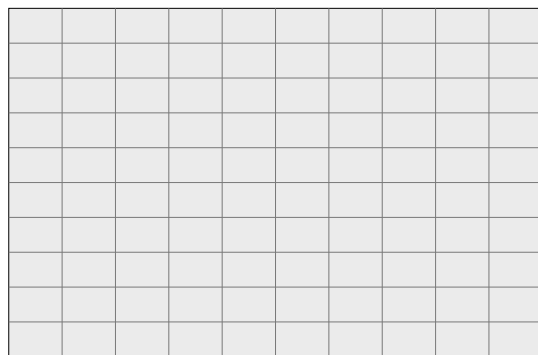
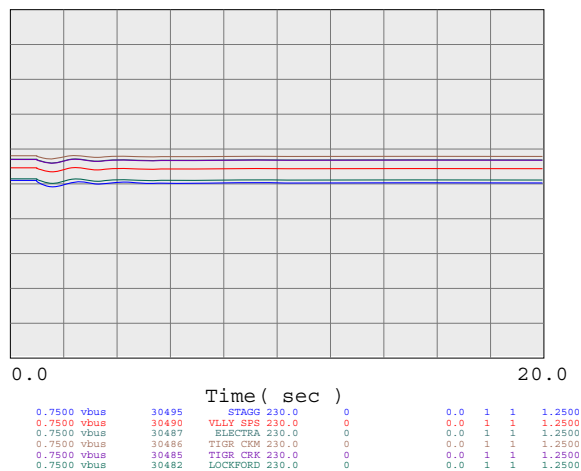
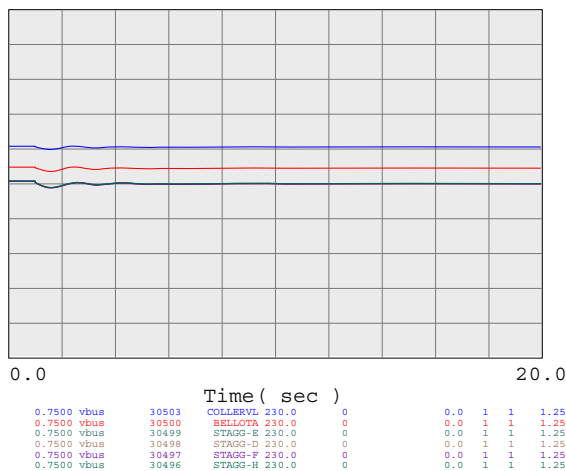
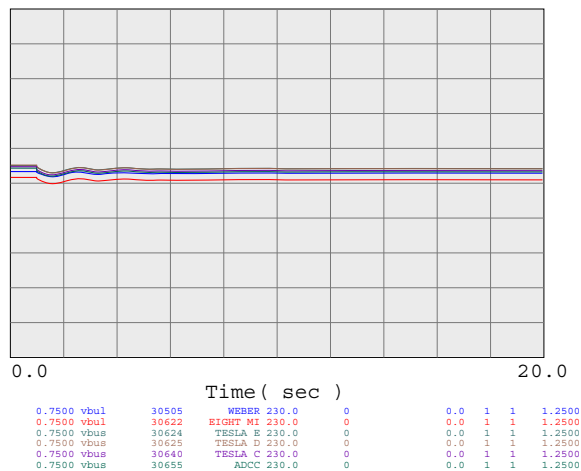
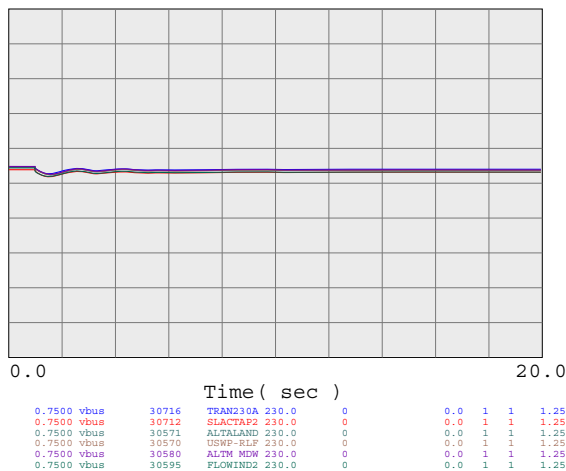
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

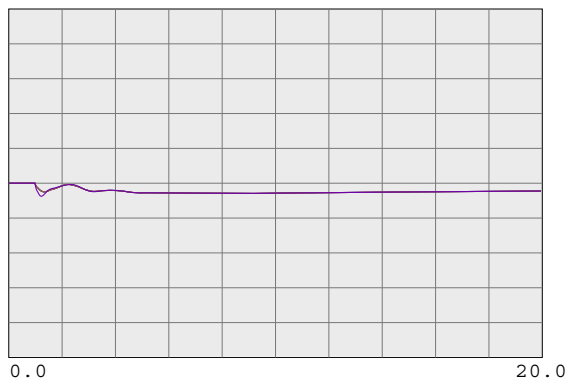
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



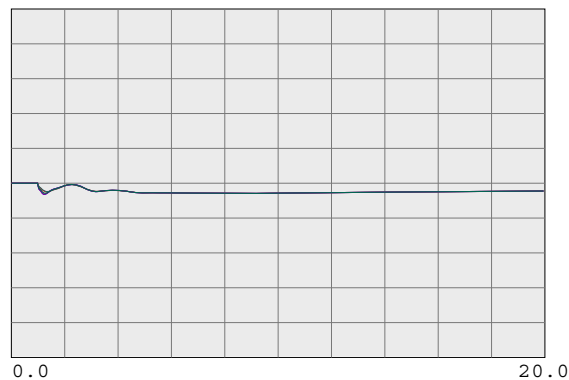
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



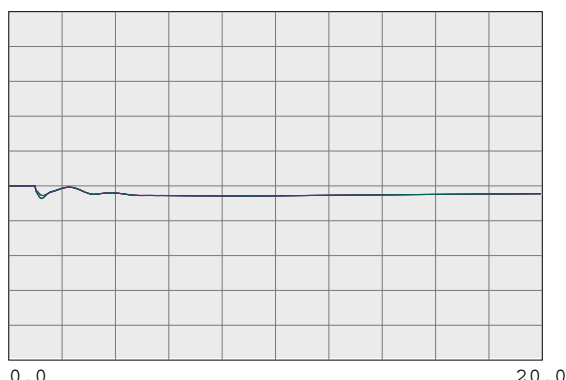
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



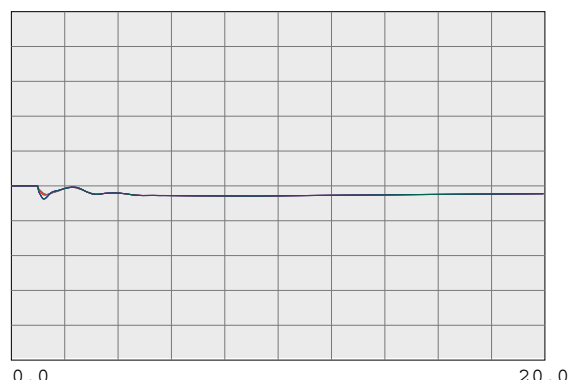
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



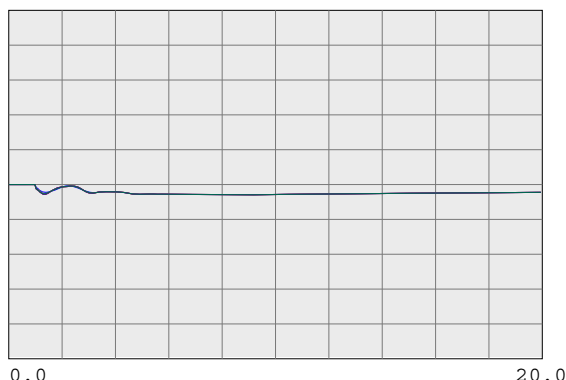
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



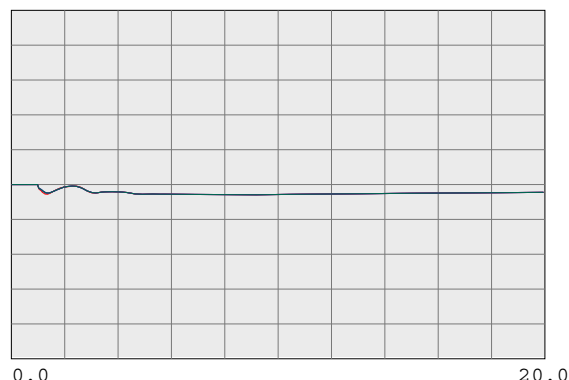
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

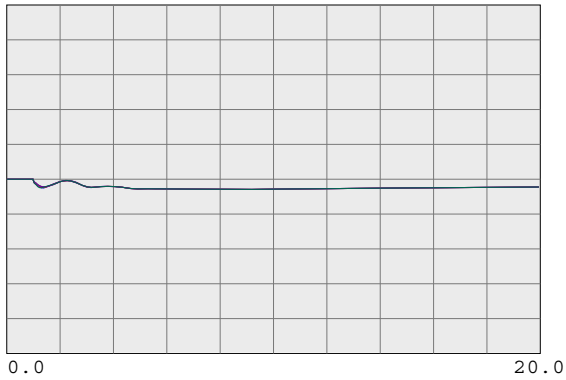
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

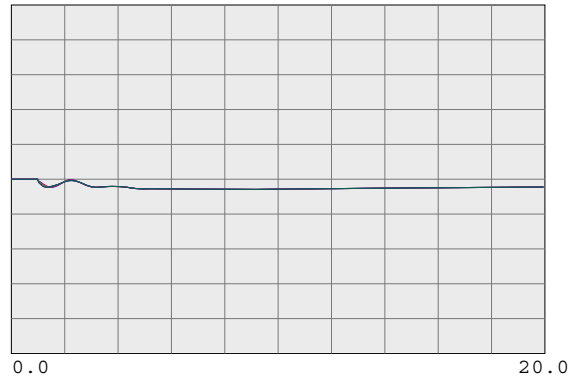
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

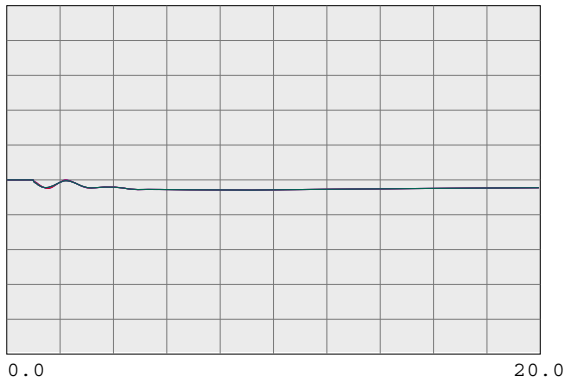
230-KV SYSTEM FREQUENCIES



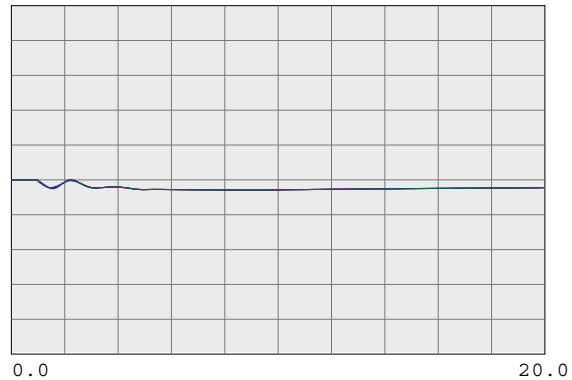
Time(sec)				
59.4000 Fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



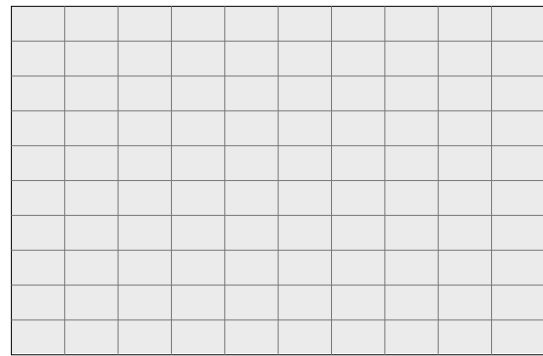
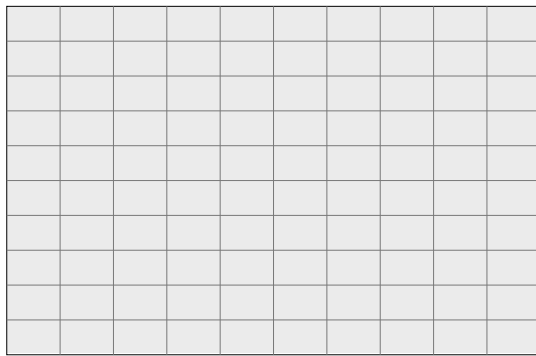
Time(sec)				
59.4000 Fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 Fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000

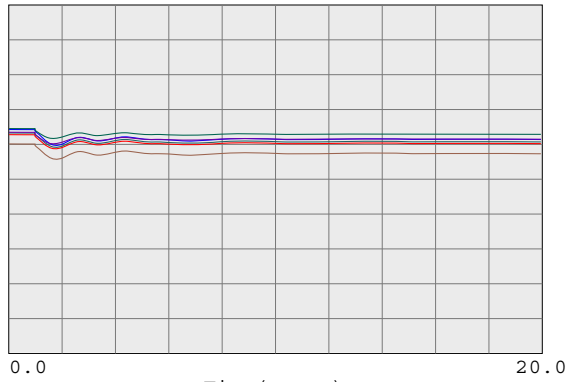


Time(sec)				
59.4000 Fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 Fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000

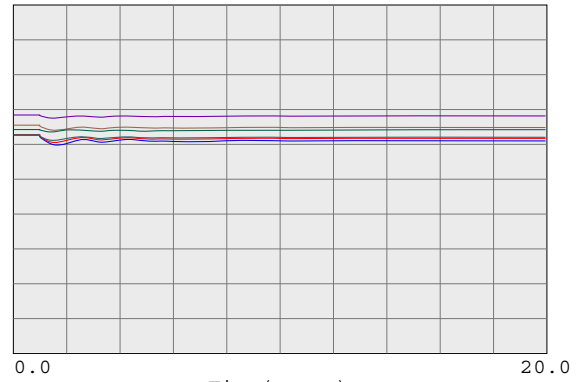


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

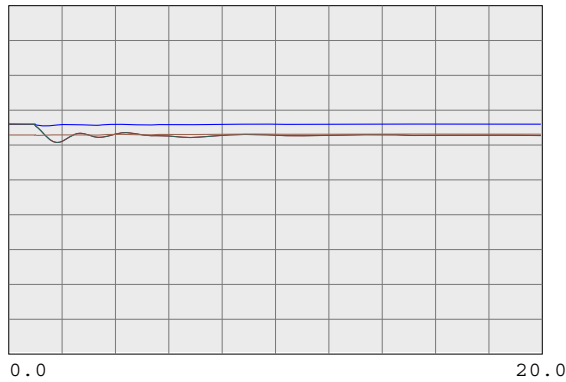
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



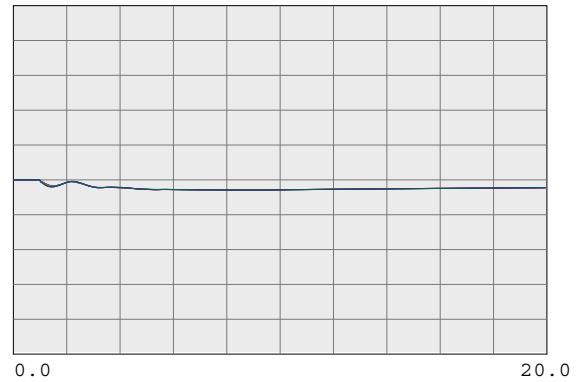
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



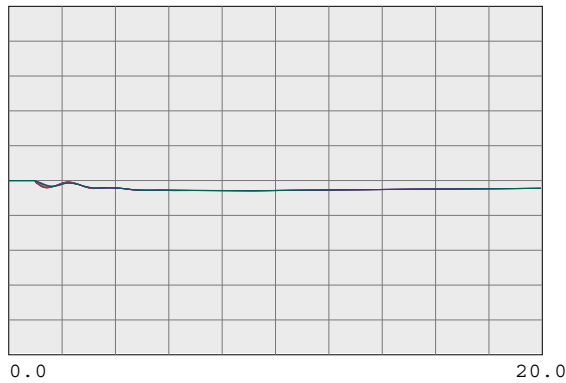
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



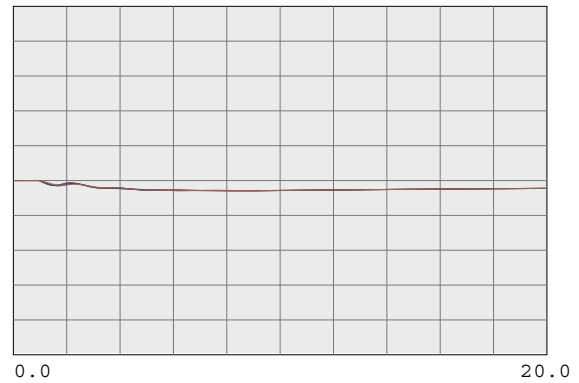
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

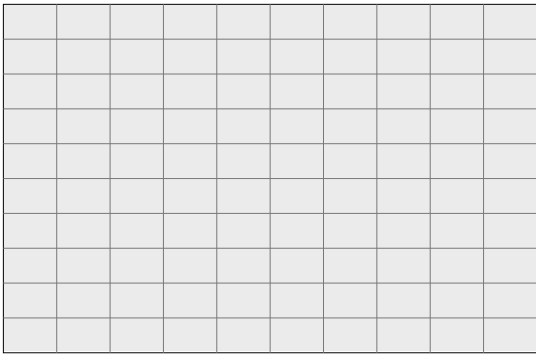
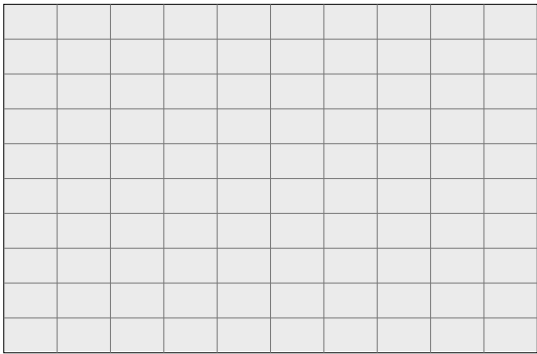
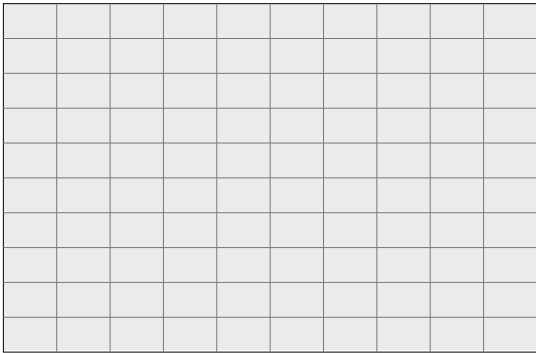
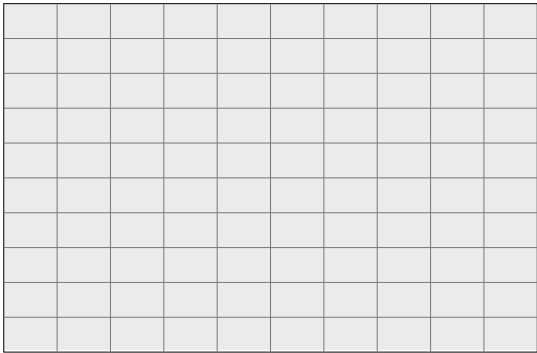
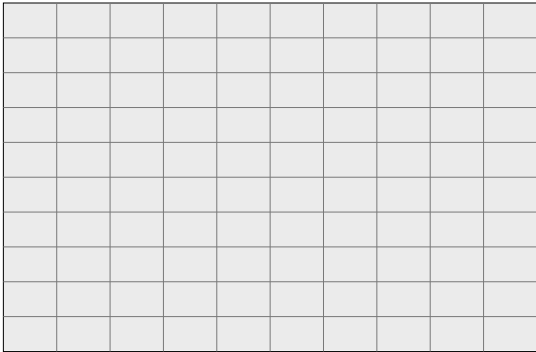
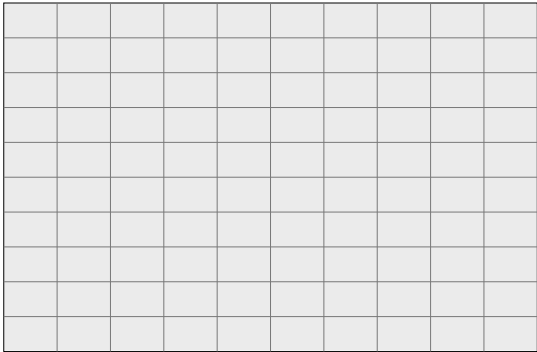
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

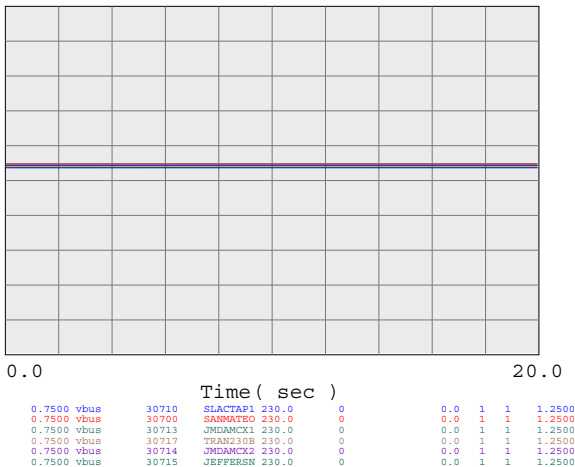
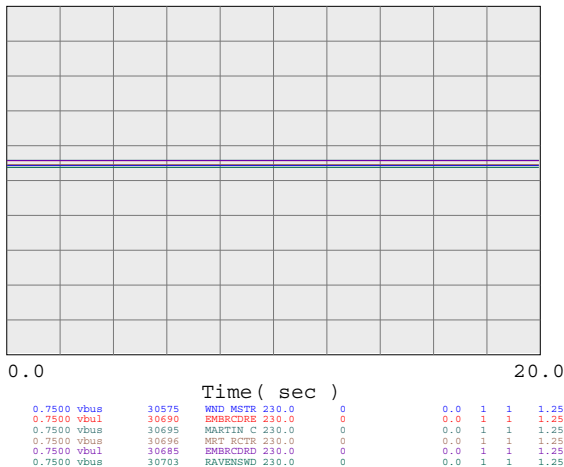
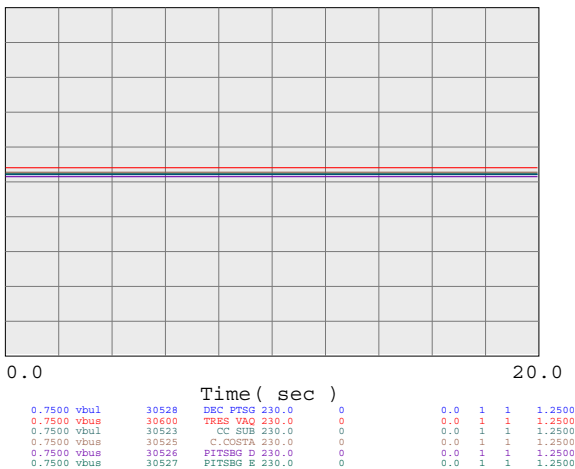
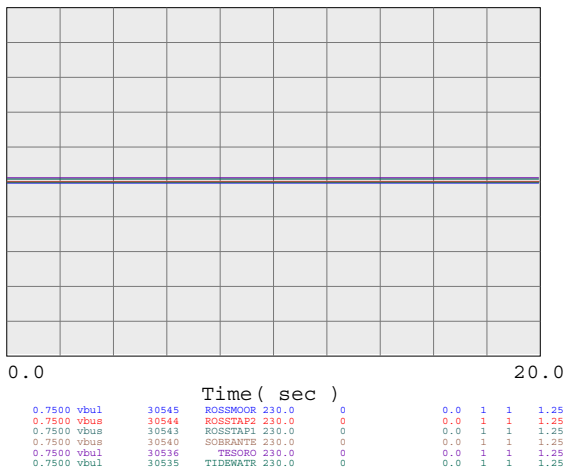
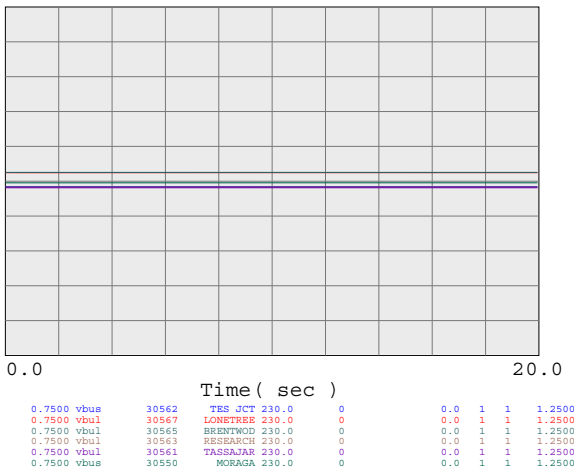
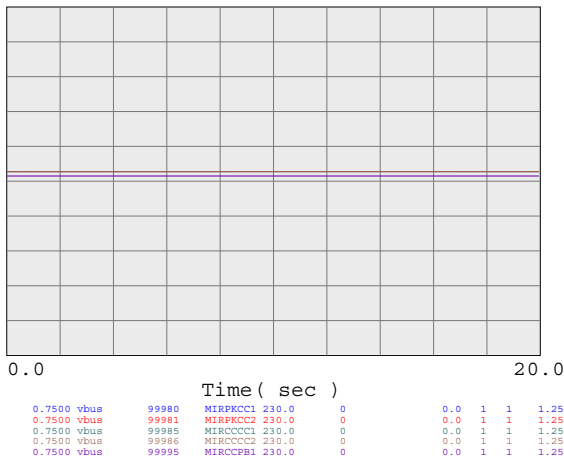
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

WILLOW PASS GENERATION PLANT



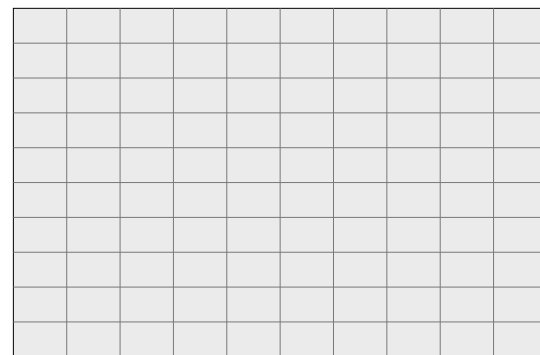
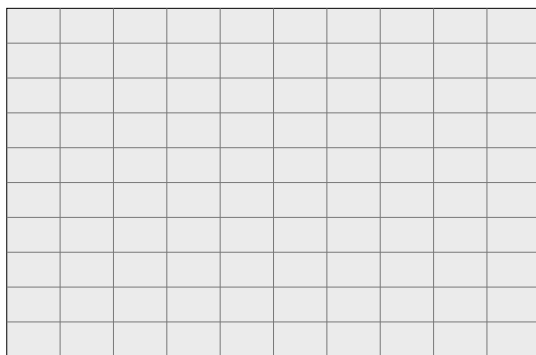
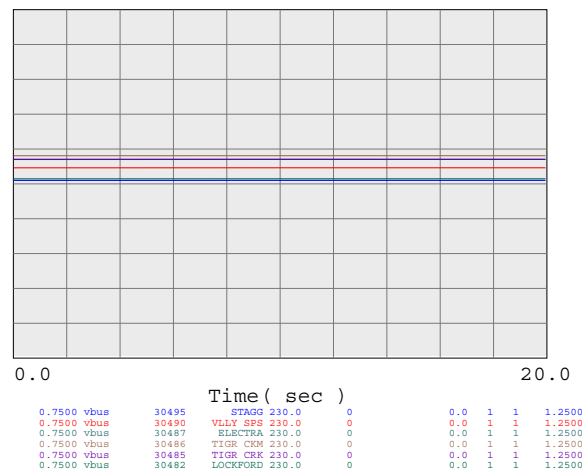
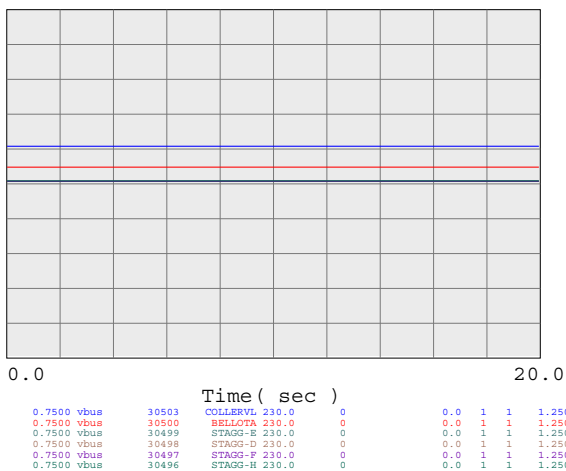
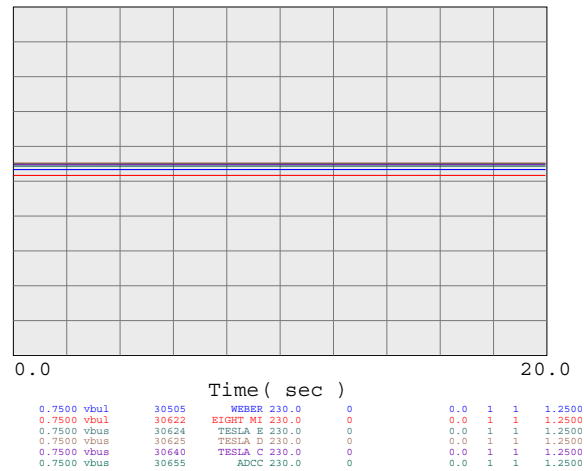
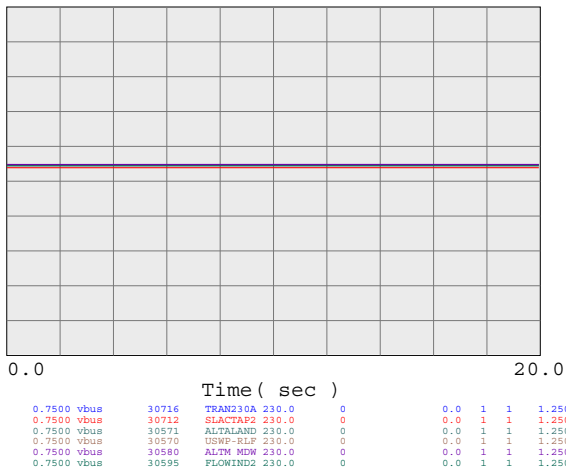
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



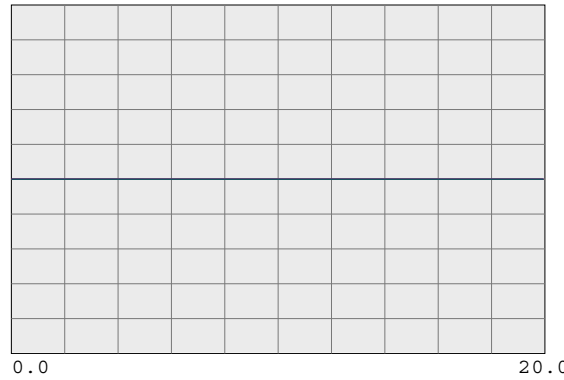
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



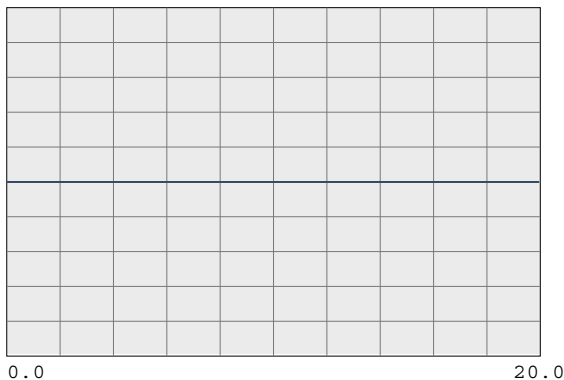
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



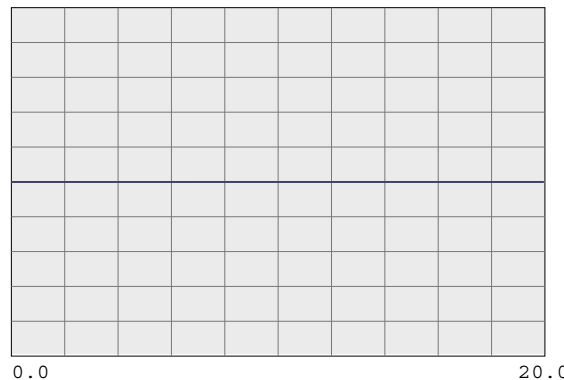
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



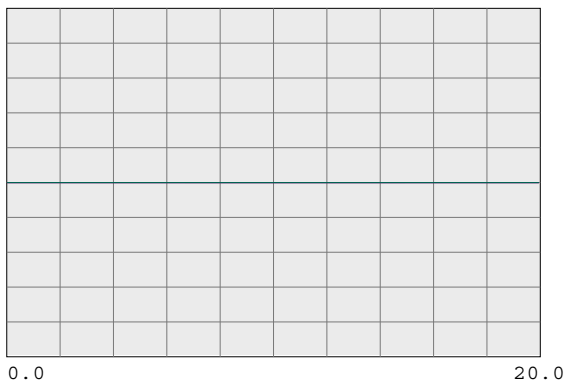
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



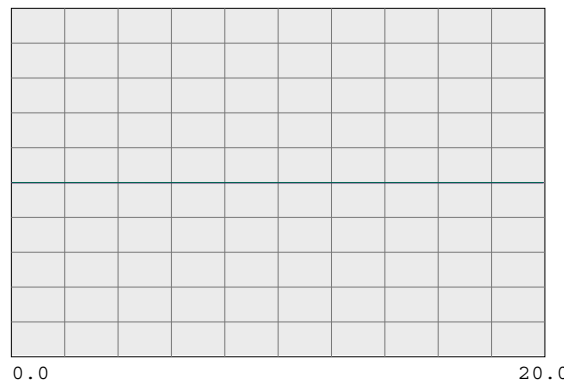
Time(sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

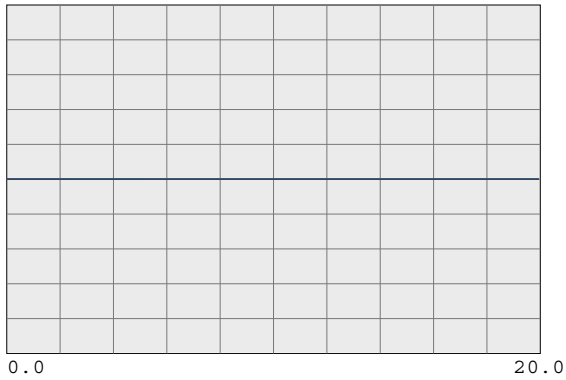
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

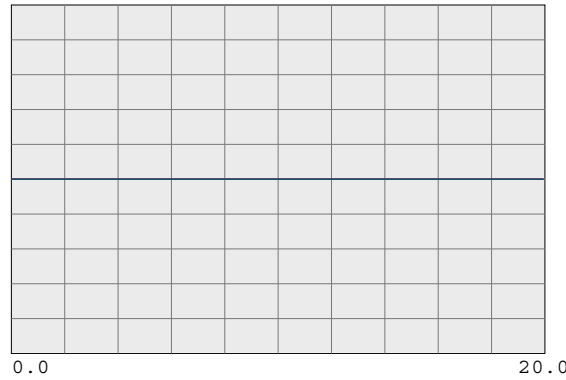
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



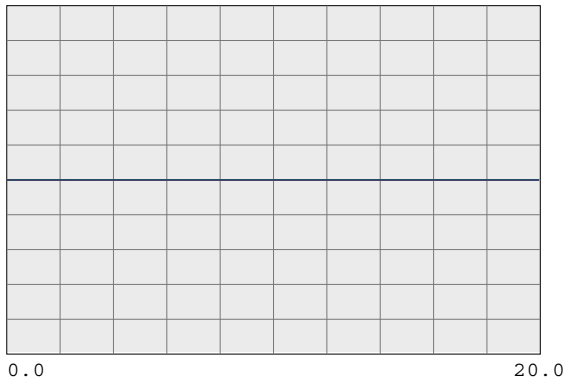
0.0 20.0

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



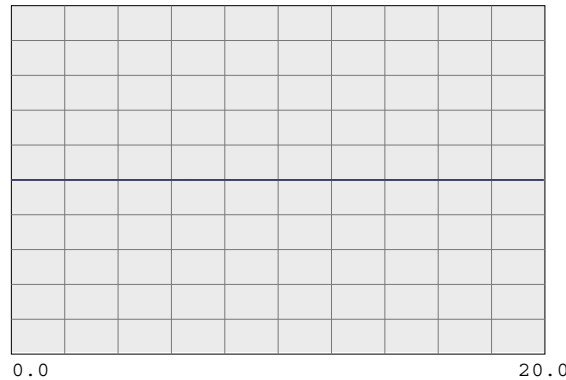
0.0 20.0

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



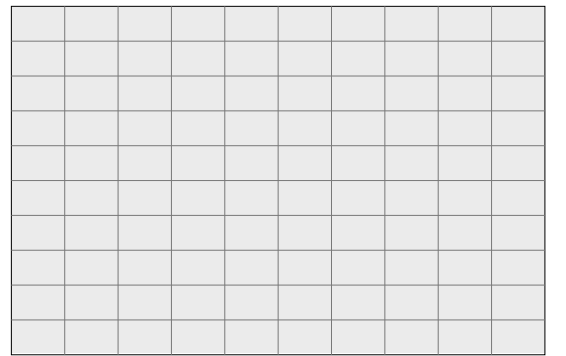
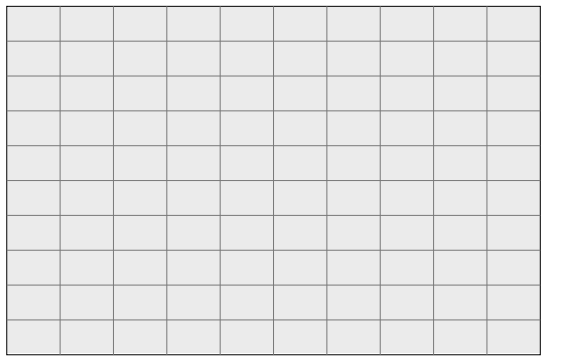
0.0 20.0

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

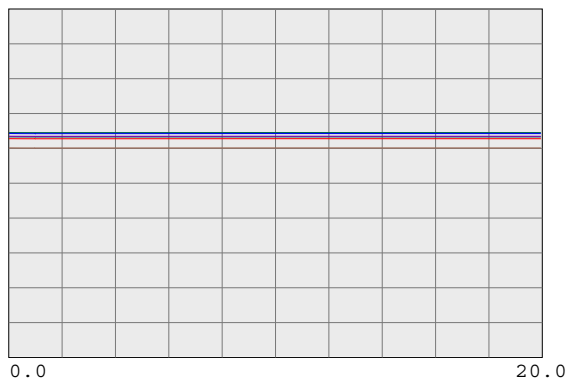
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

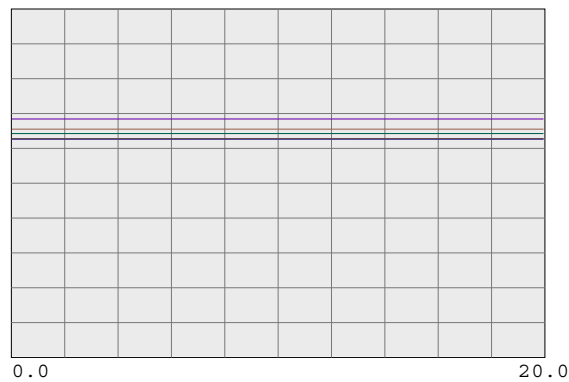
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



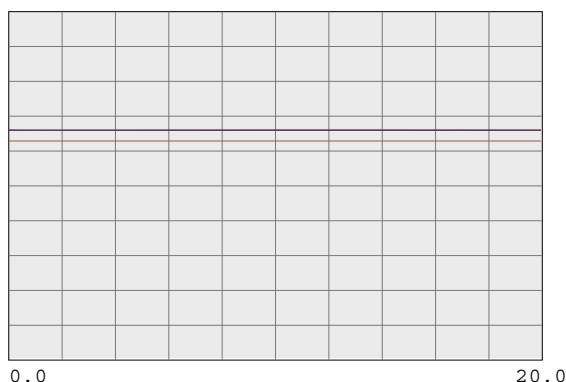
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



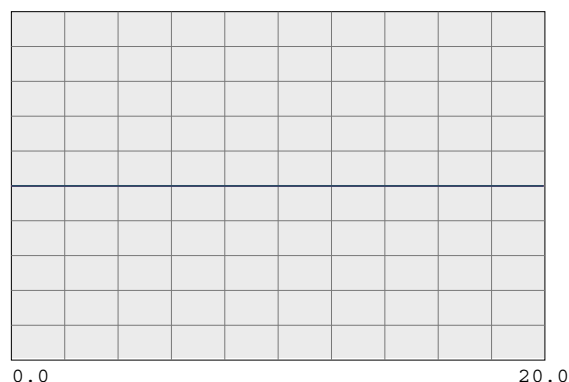
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



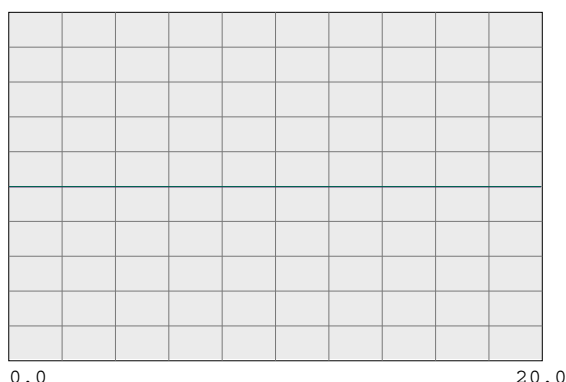
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



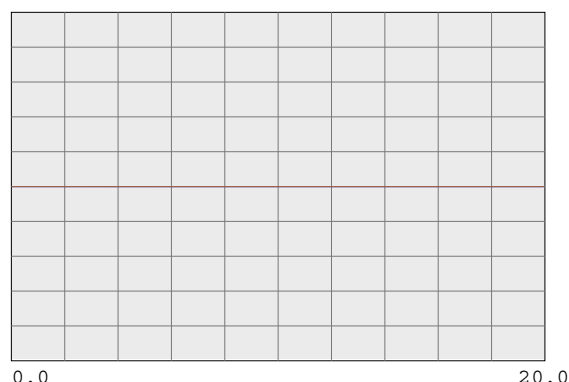
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

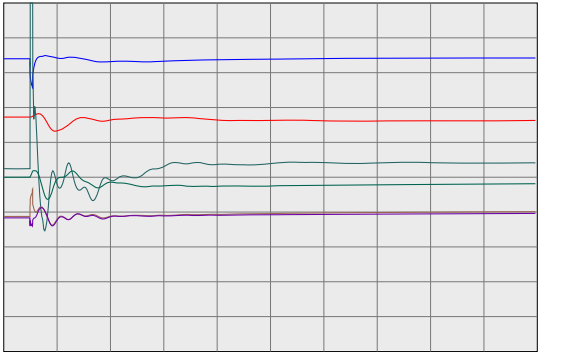
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

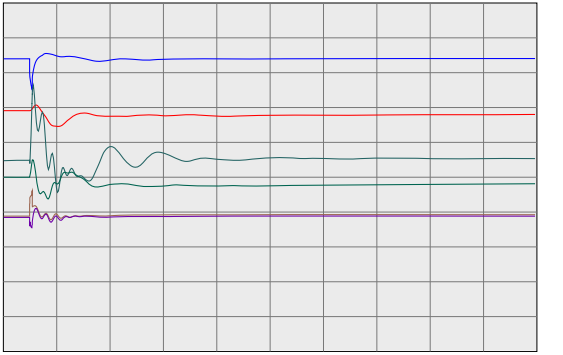
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

ATTACHMENT D3 – Category C Transient Stability Plots

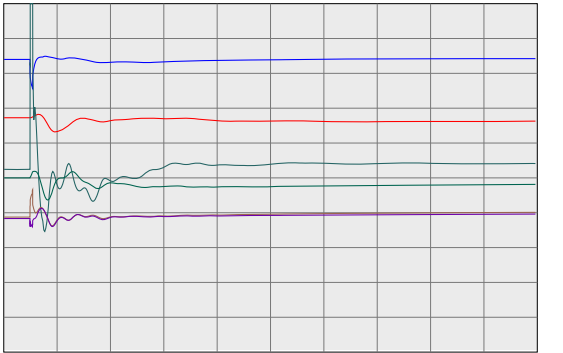
WILLOW PASS GENERATION PLANT



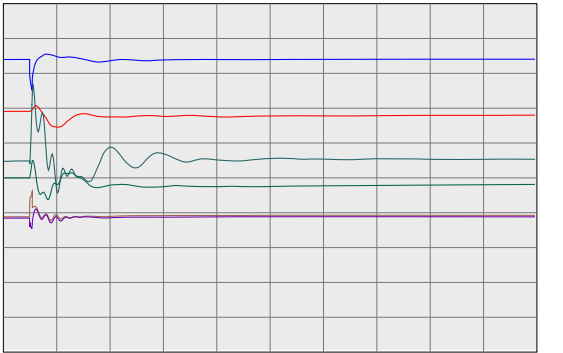
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



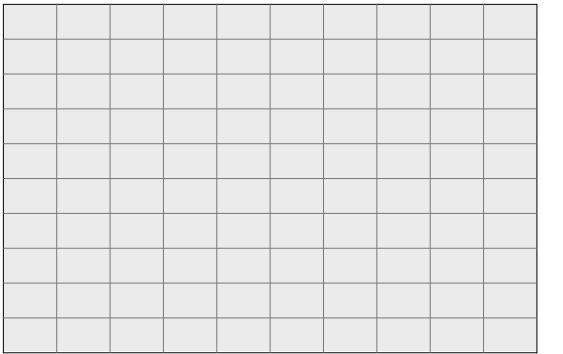
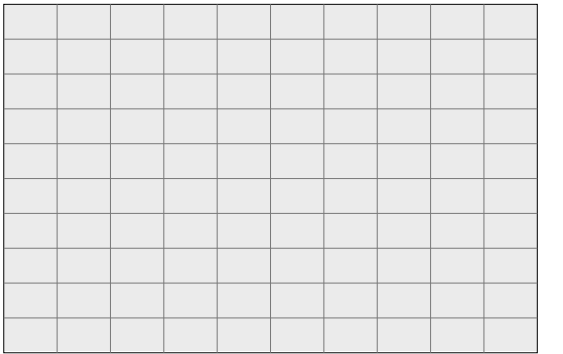
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



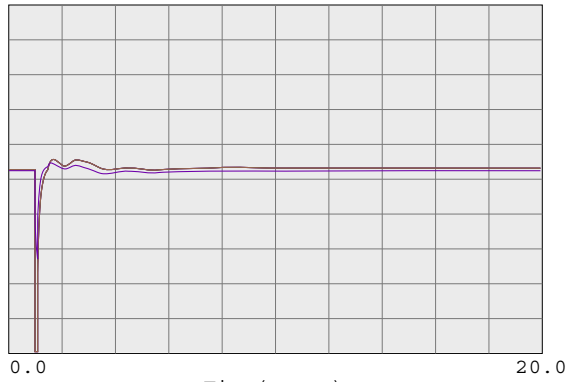
Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	



Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	

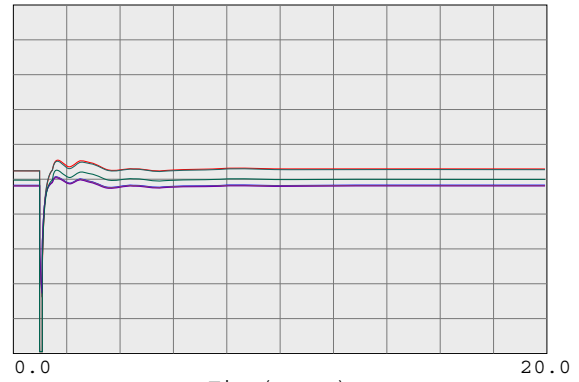


230-KV SYSTEM VOLTAGES



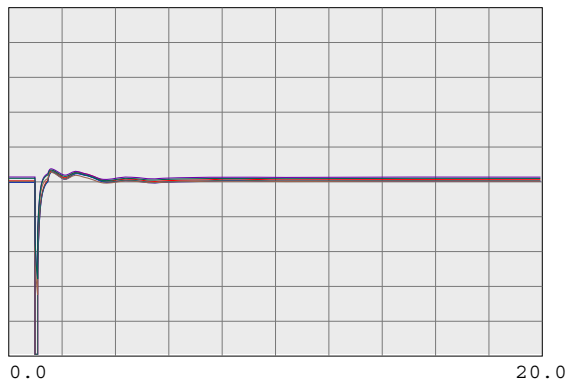
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



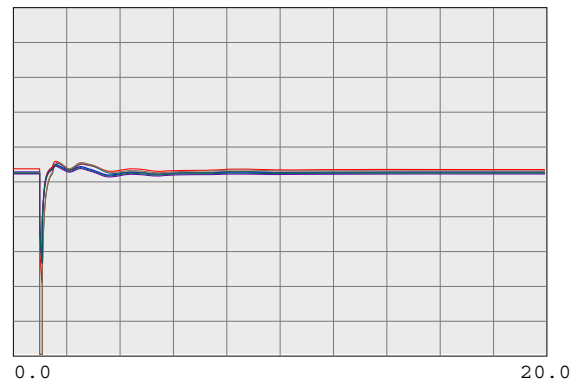
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



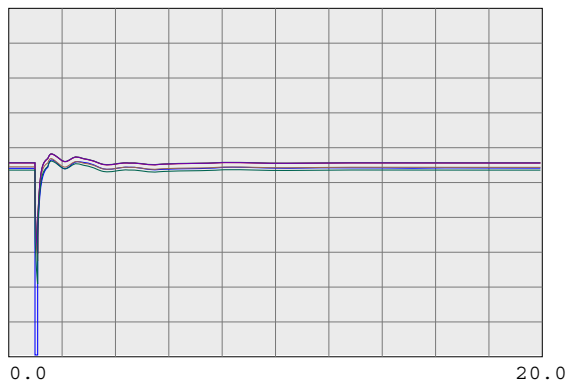
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



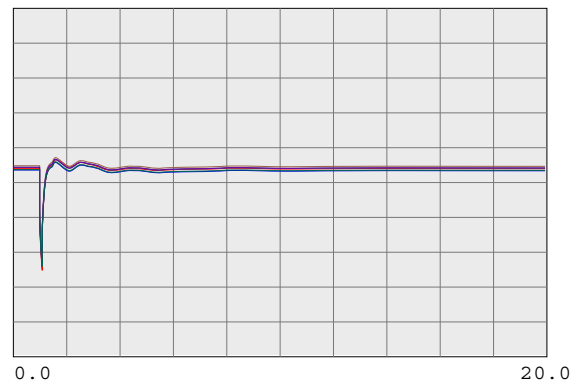
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

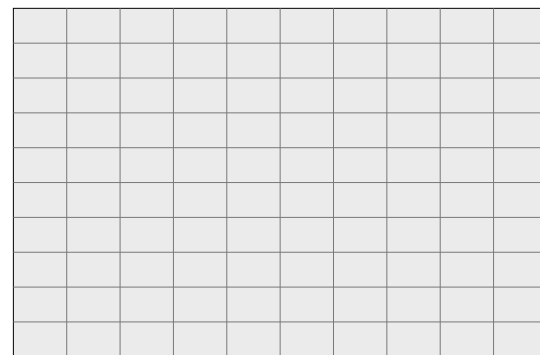
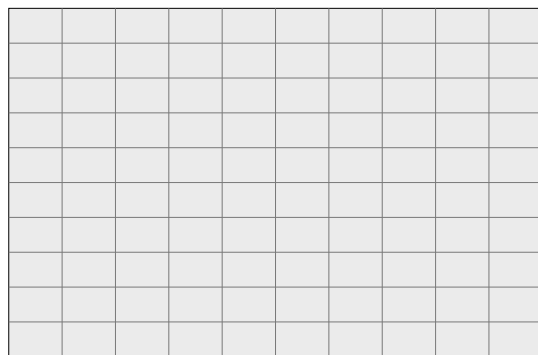
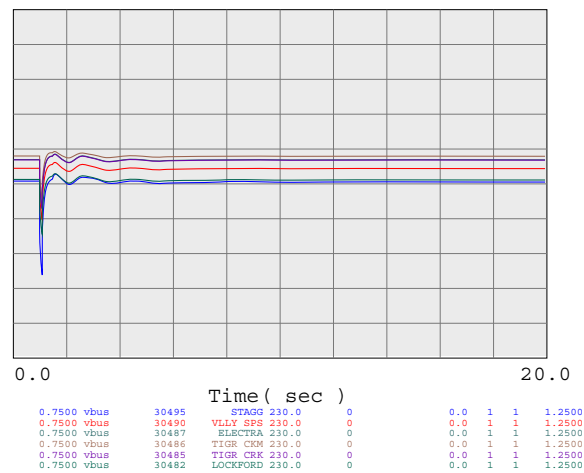
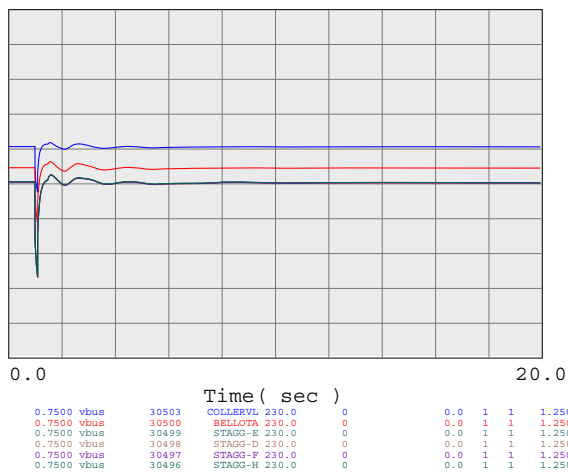
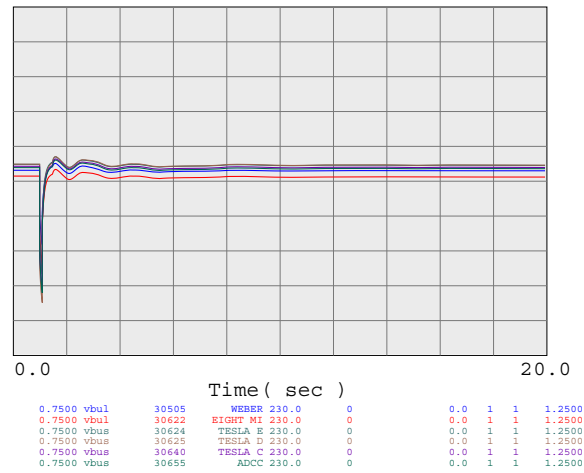
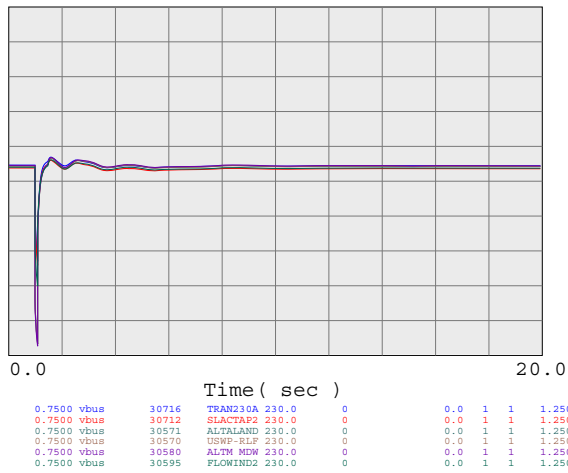
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

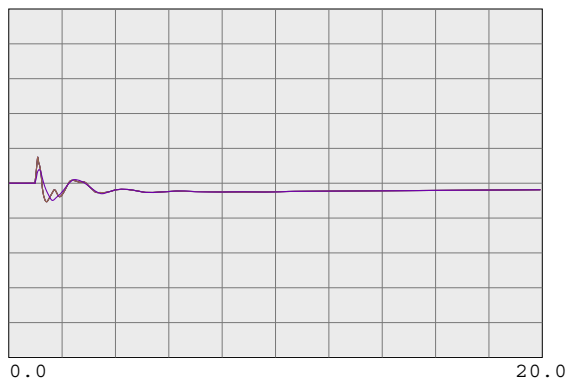
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



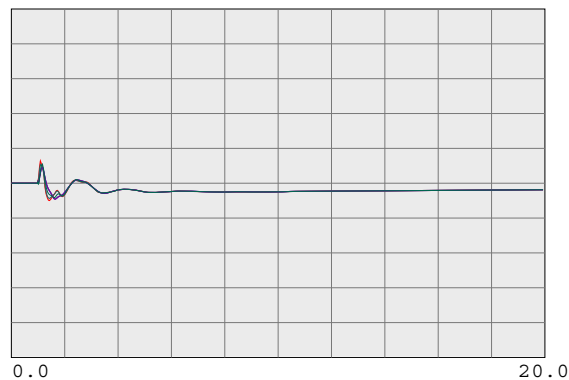
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

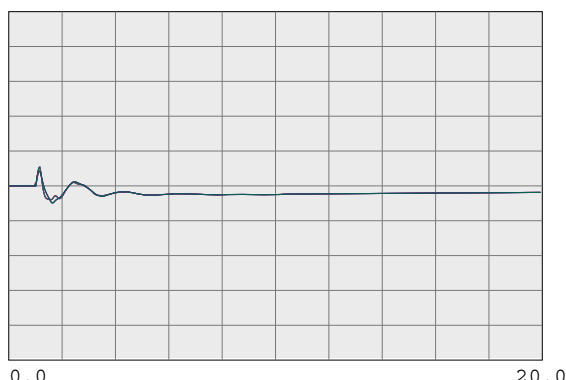
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

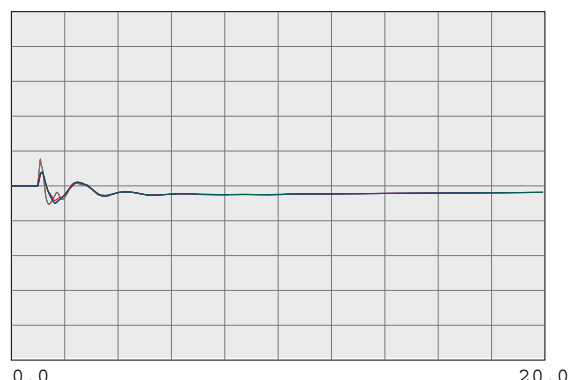
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

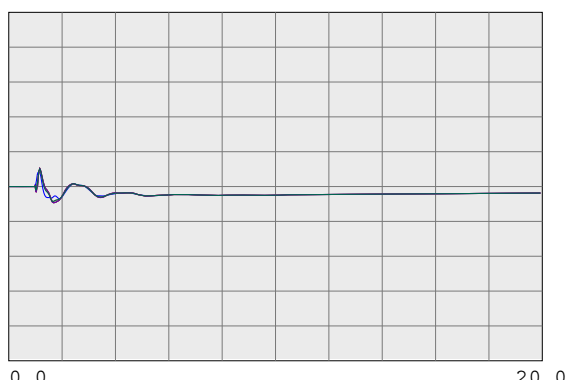
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

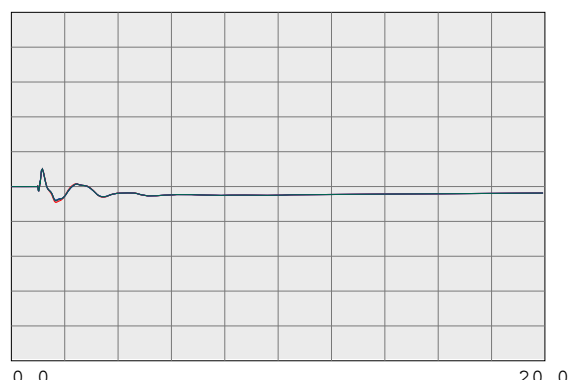
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

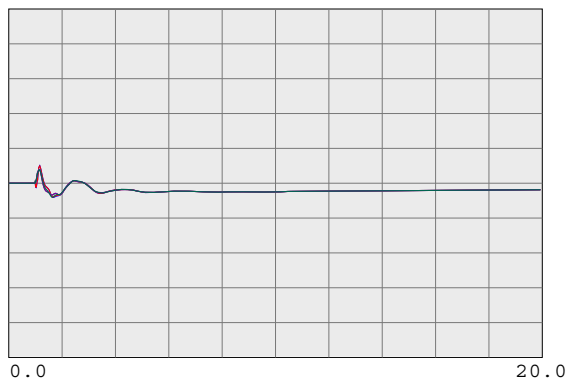
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

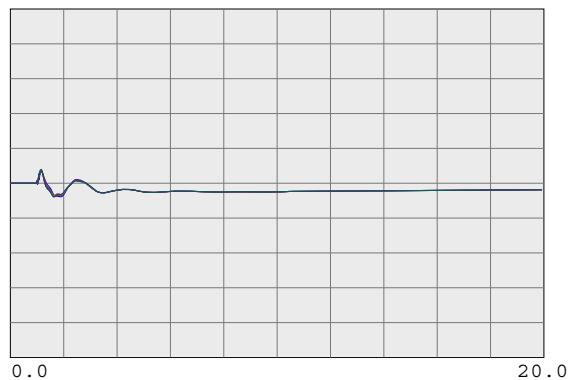
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

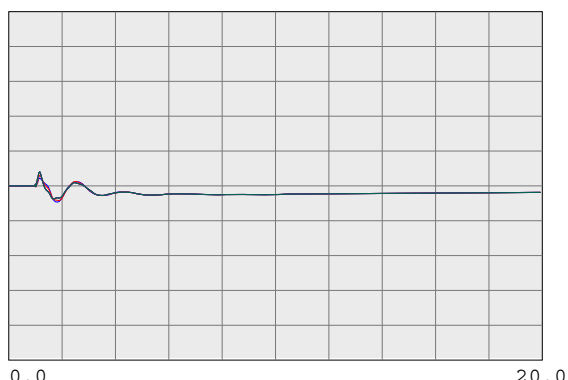
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

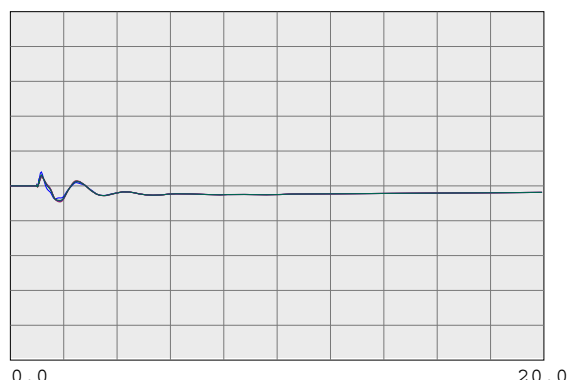
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

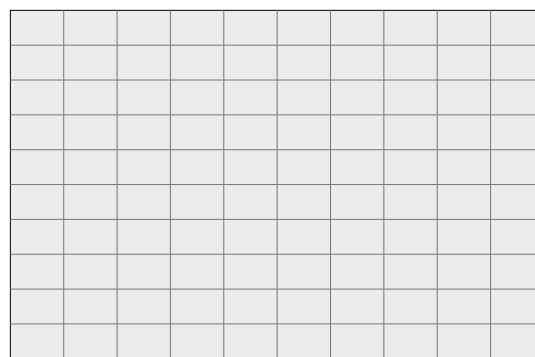
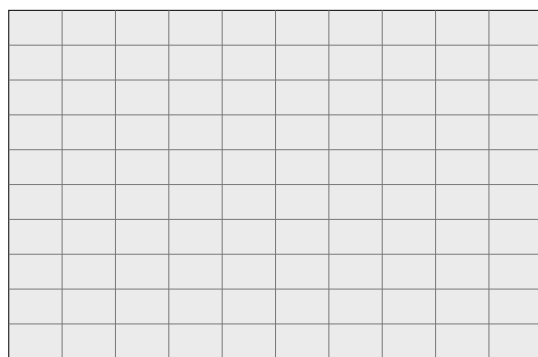
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

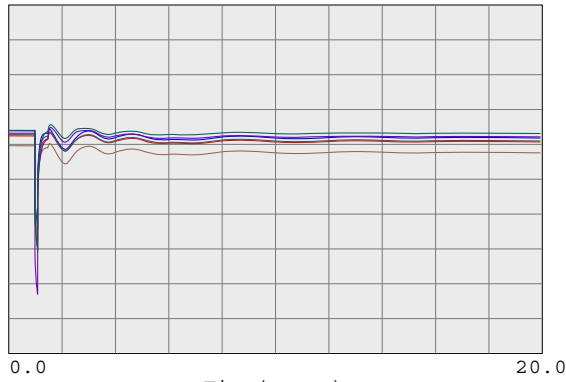
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

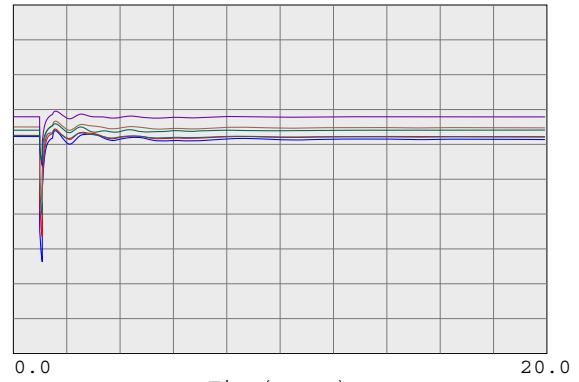
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



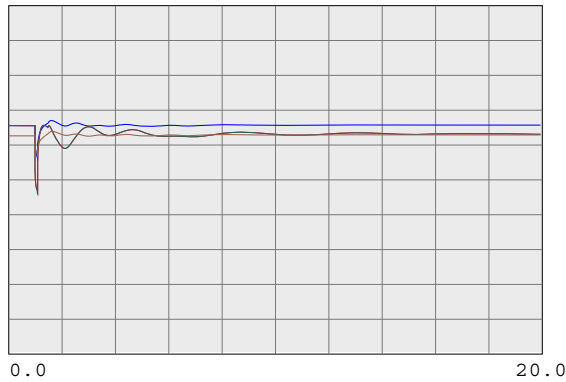
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



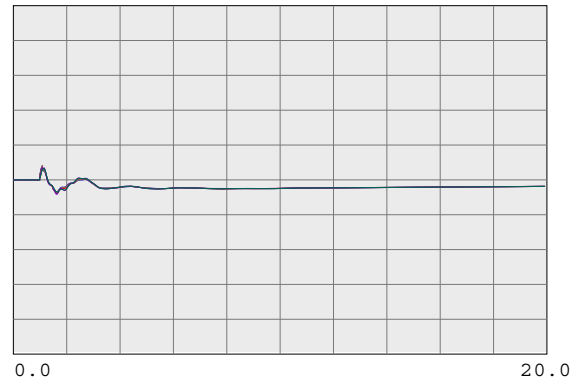
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



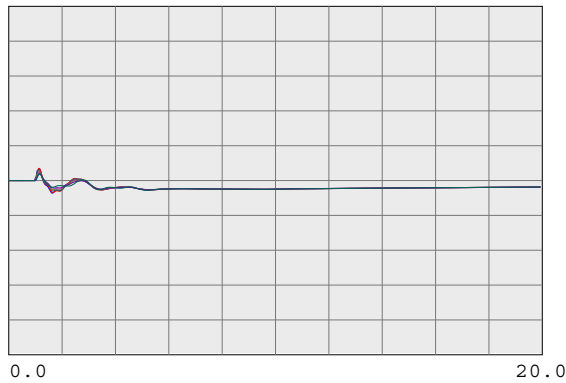
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



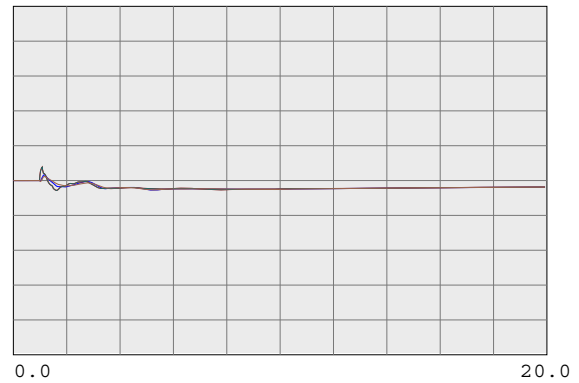
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

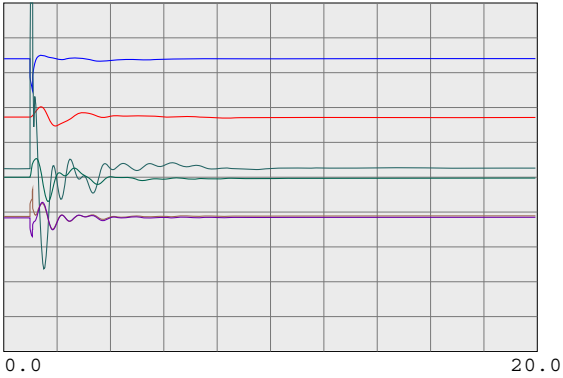
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

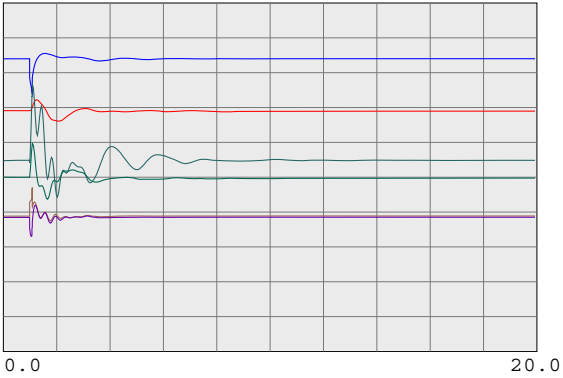
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

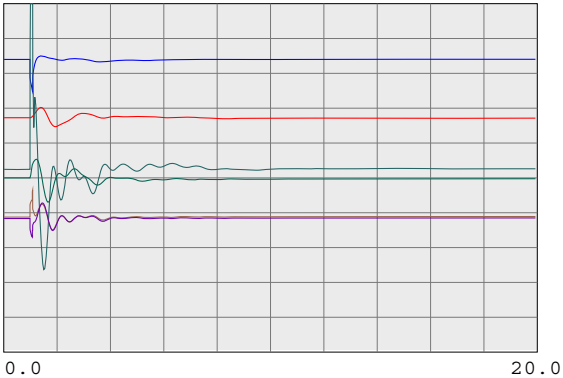
WILLOW PASS GENERATION PLANT



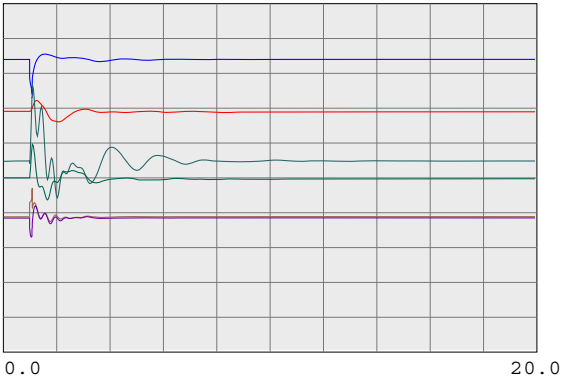
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



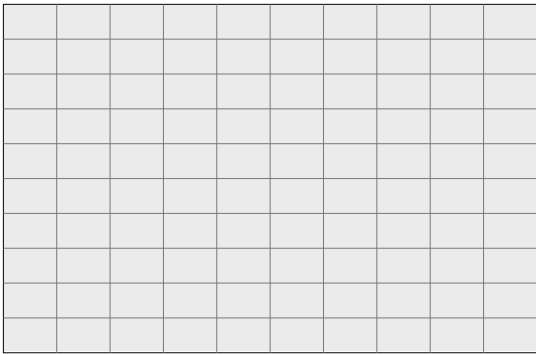
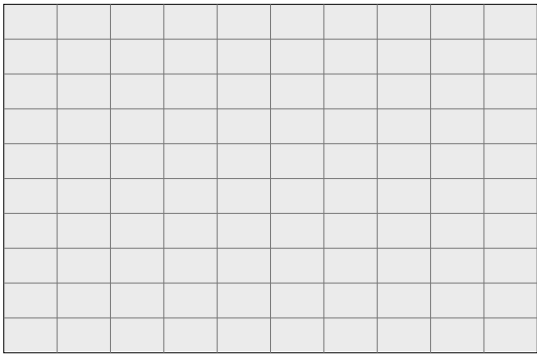
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

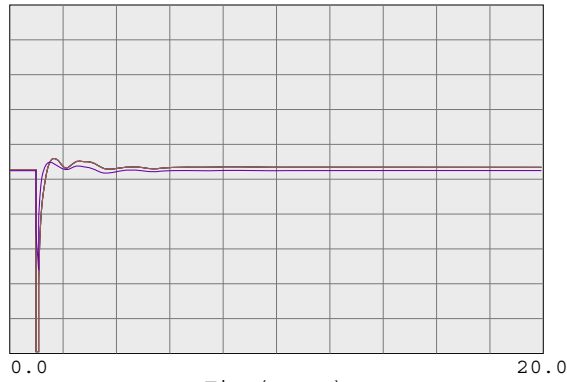


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



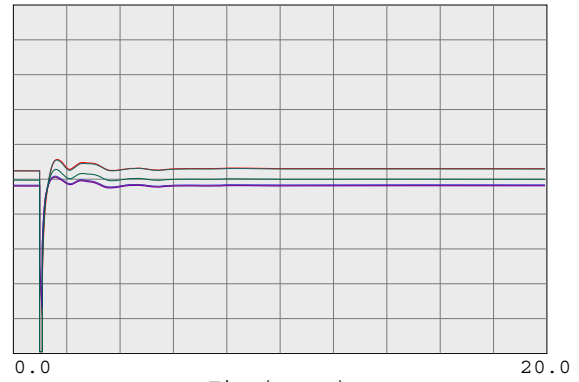
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



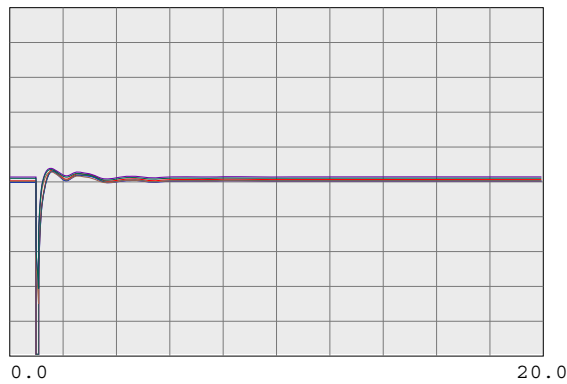
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



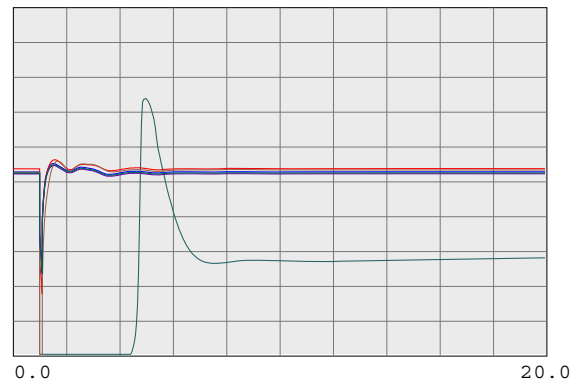
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



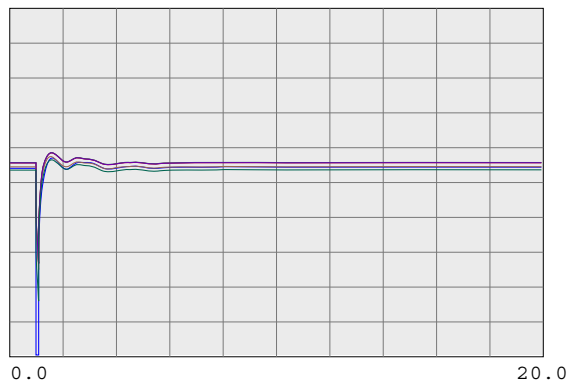
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



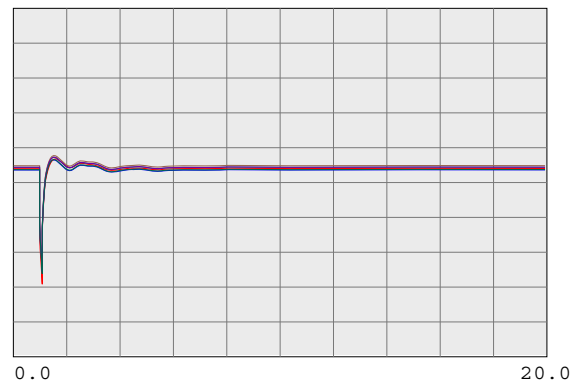
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

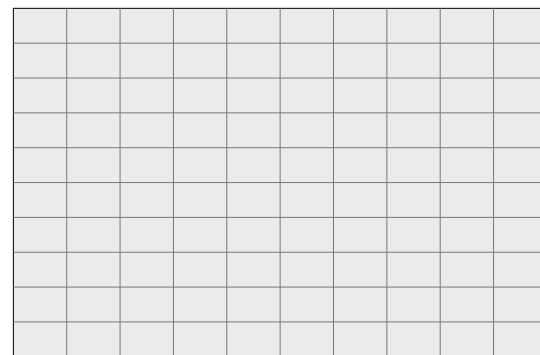
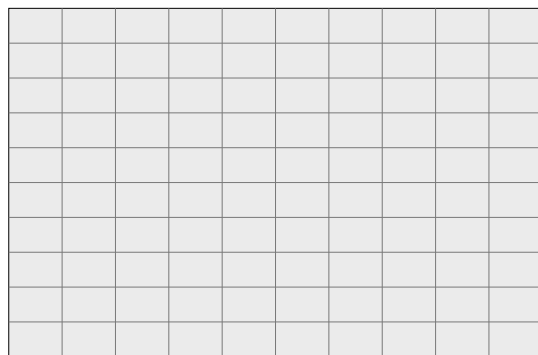
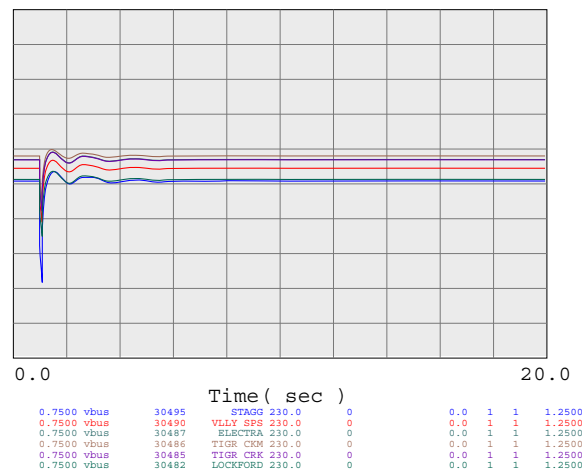
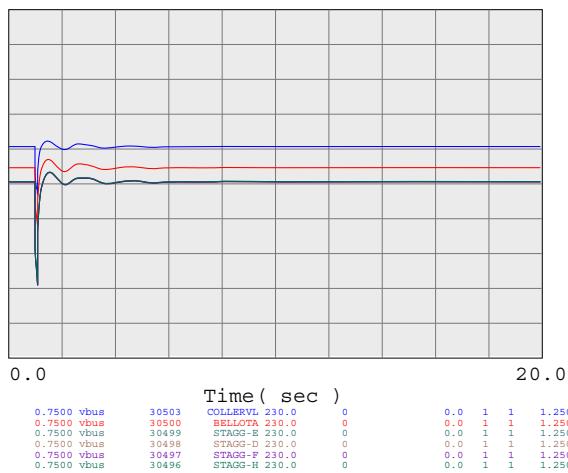
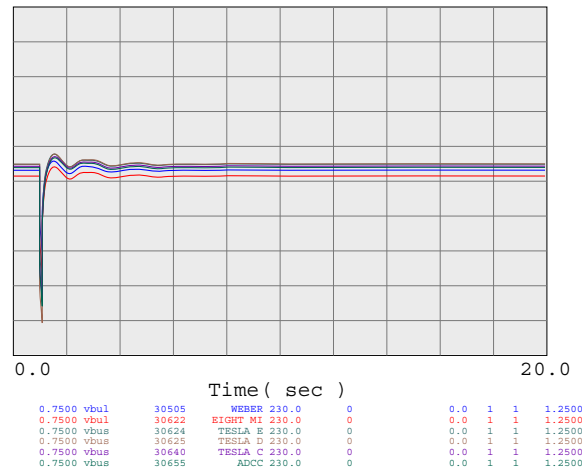
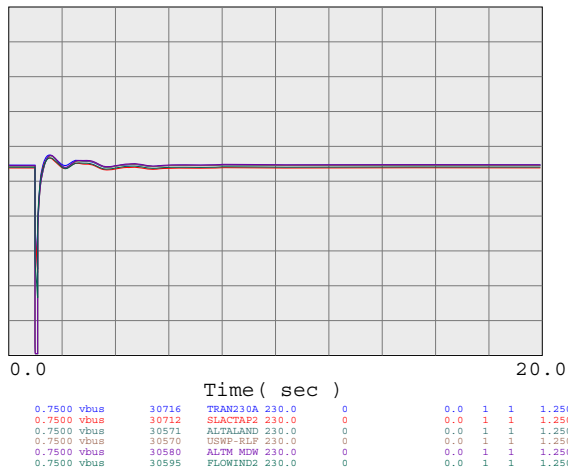
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

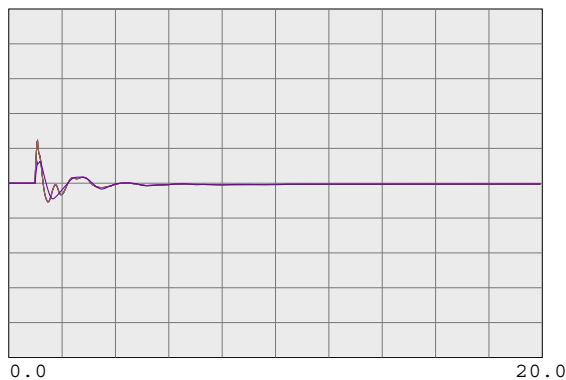
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



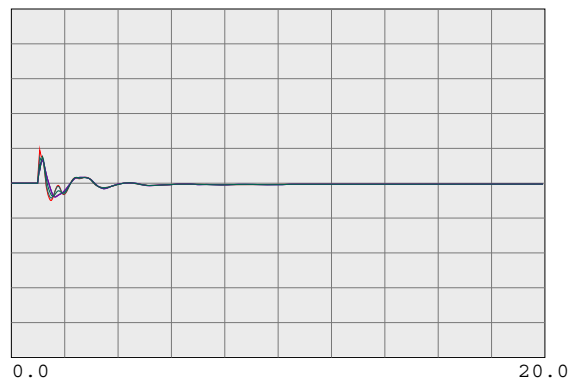
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

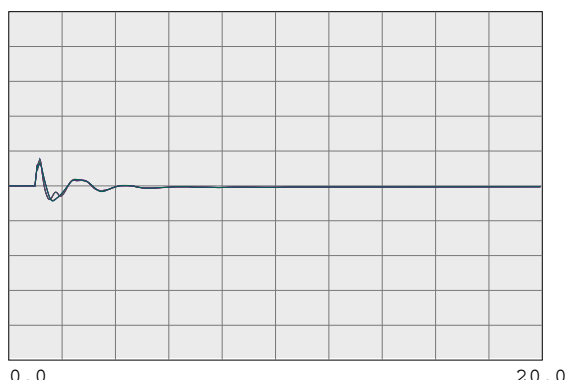
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

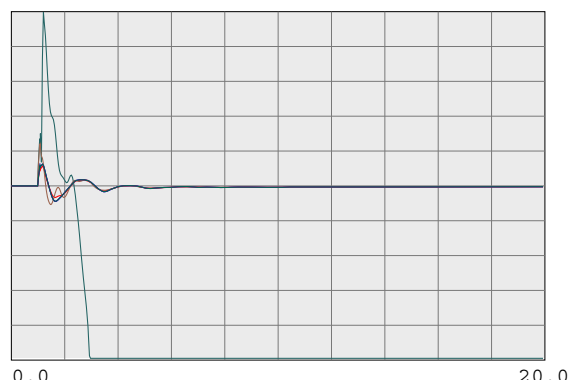
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

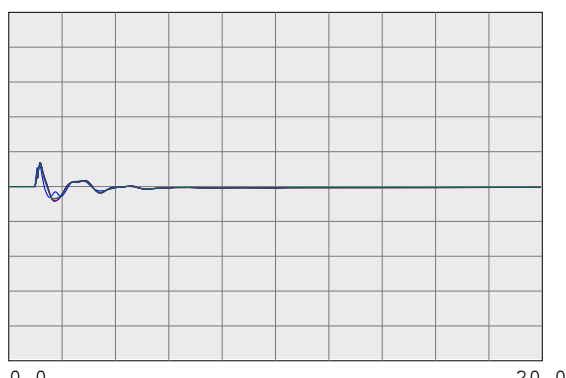
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

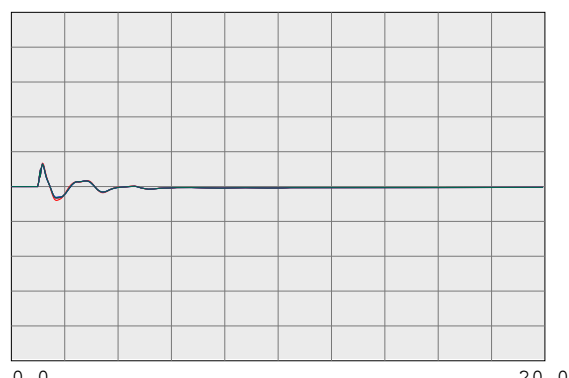
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

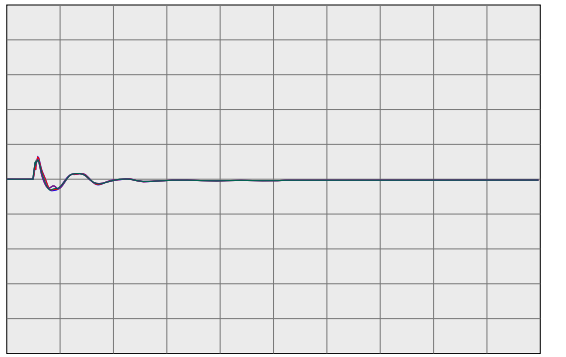
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

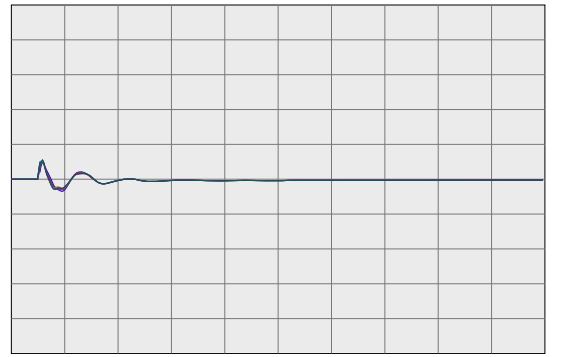
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

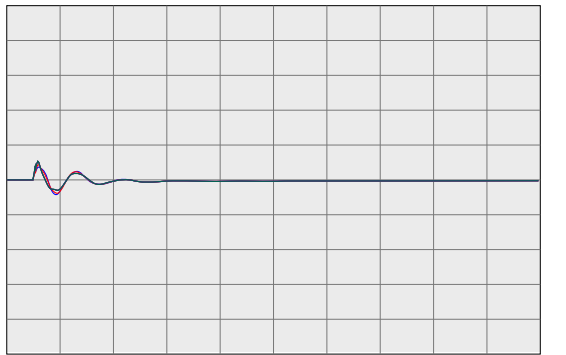
230-KV SYSTEM FREQUENCIES



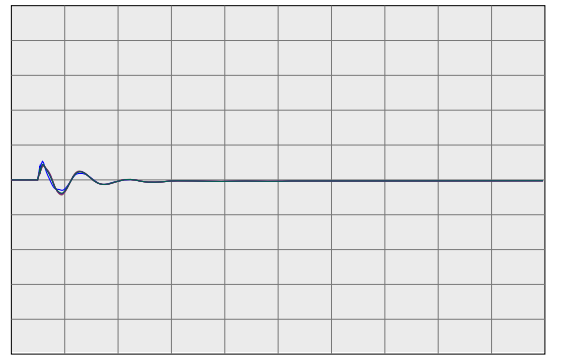
Time (sec)							
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



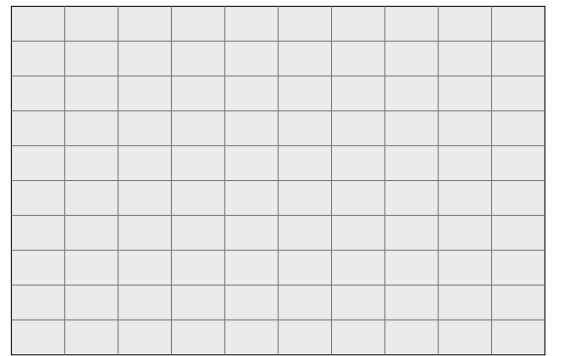
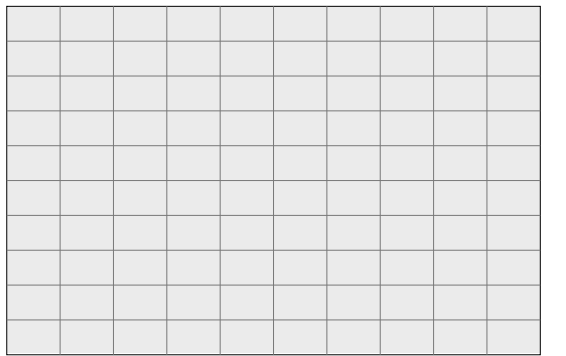
Time (sec)							
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



Time (sec)							
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000

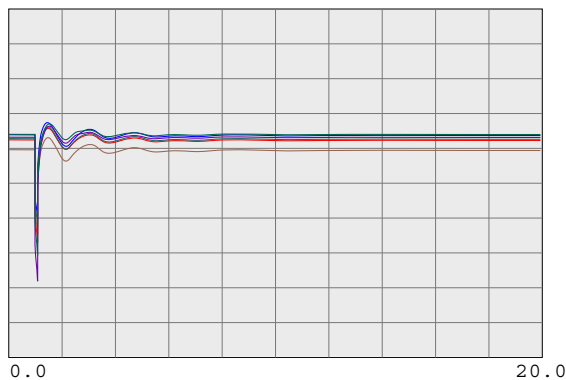


Time (sec)							
59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



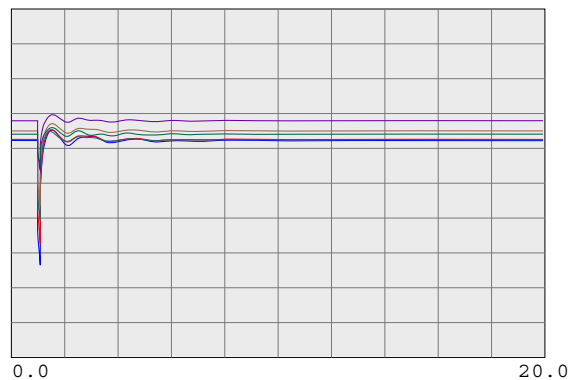
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



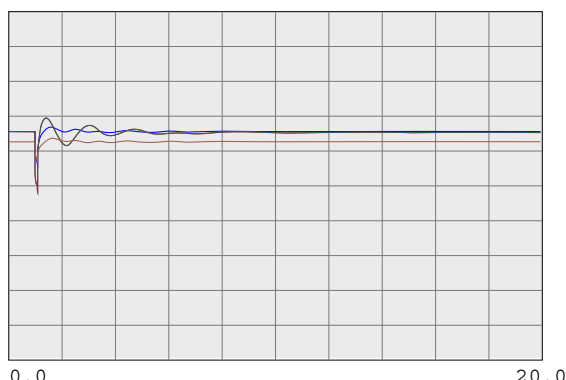
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



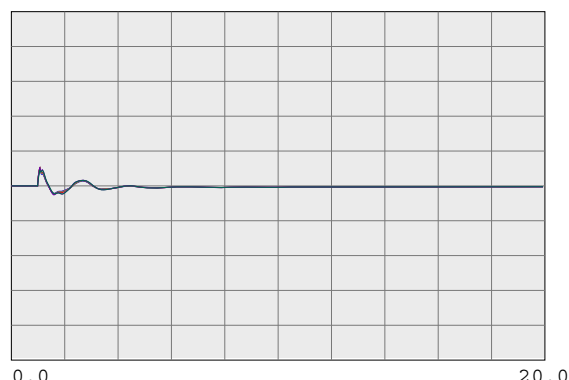
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



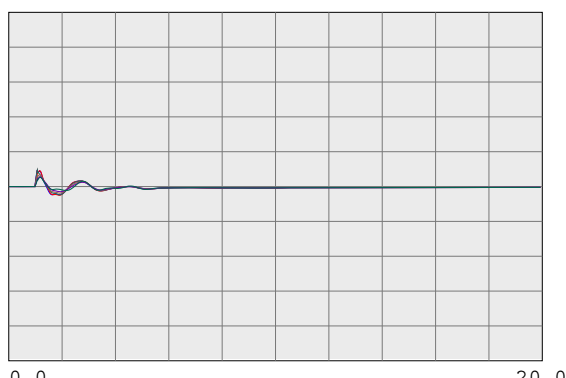
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



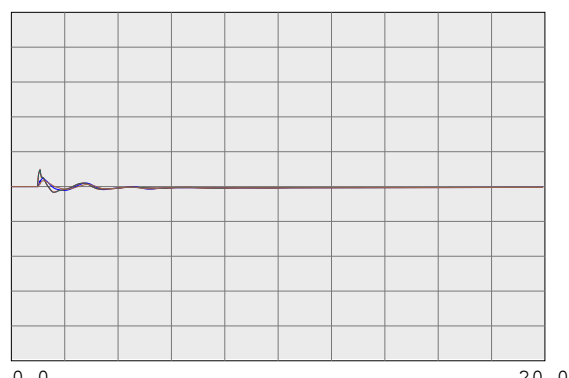
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

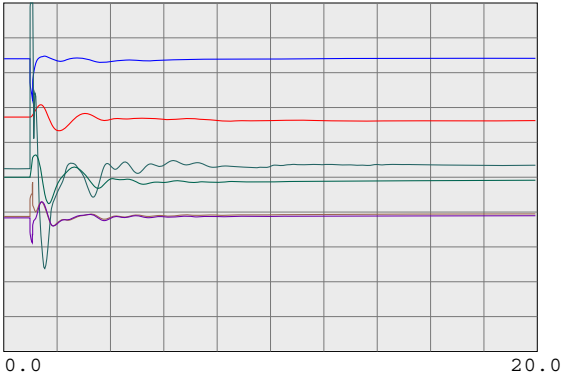
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

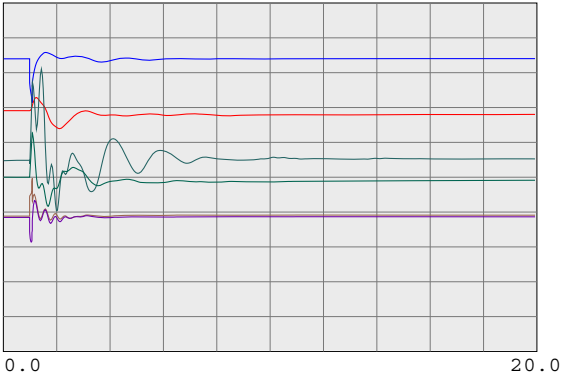
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

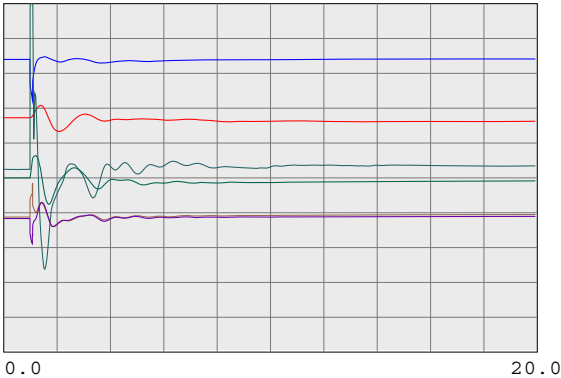
WILLOW PASS GENERATION PLANT



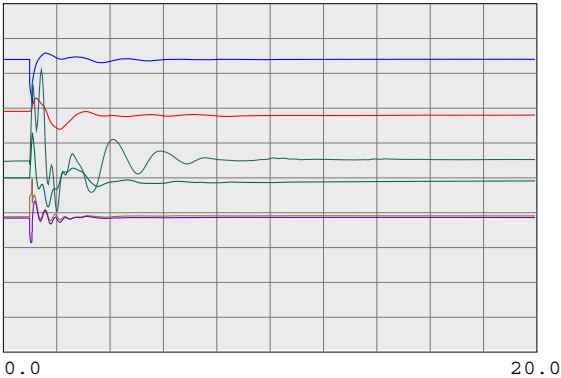
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



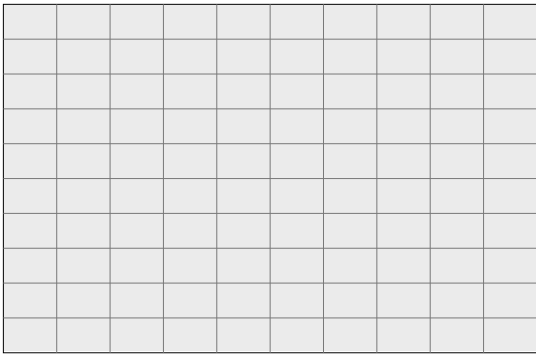
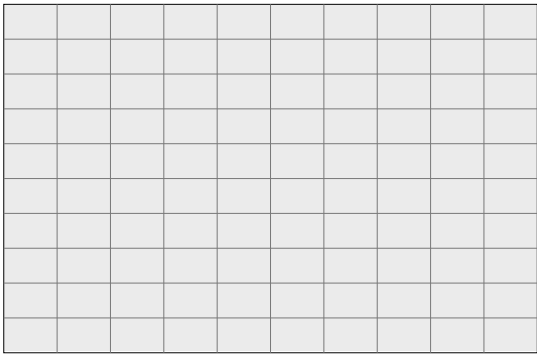
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

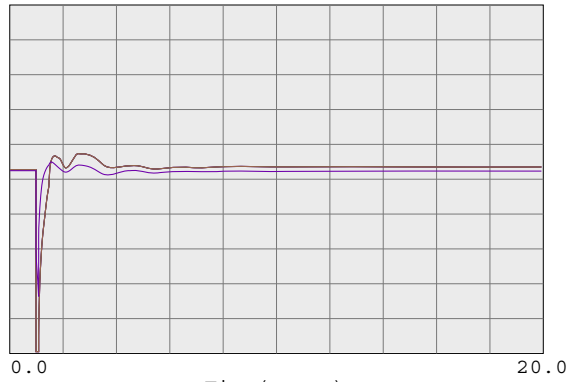


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



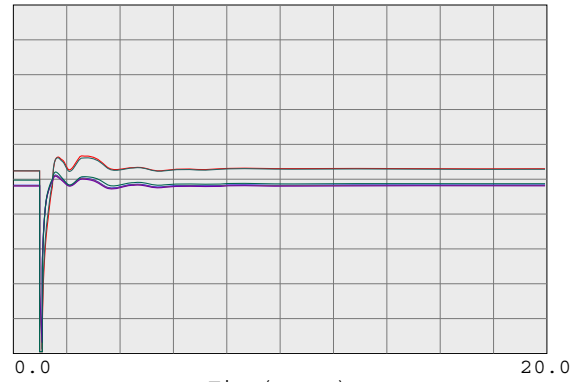
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



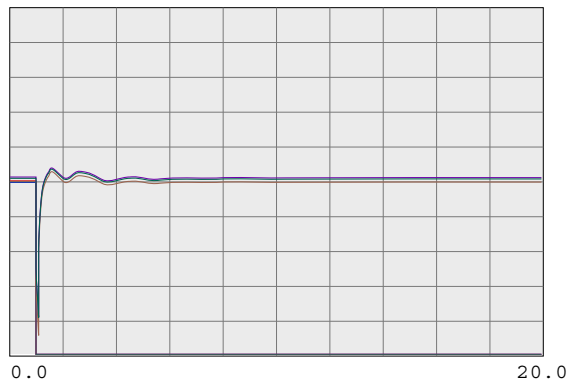
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



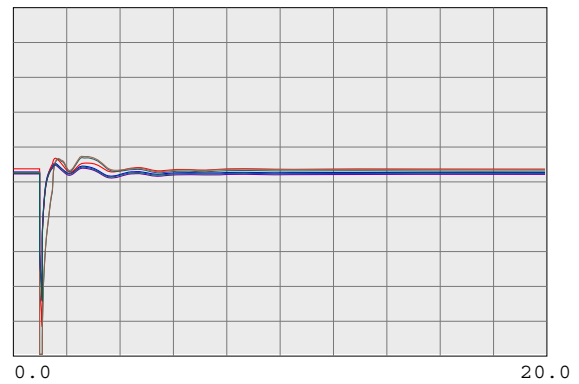
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



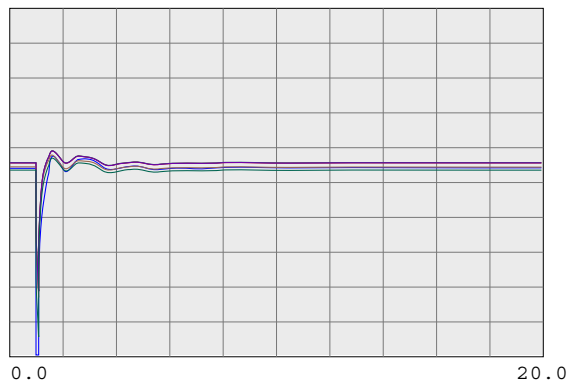
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



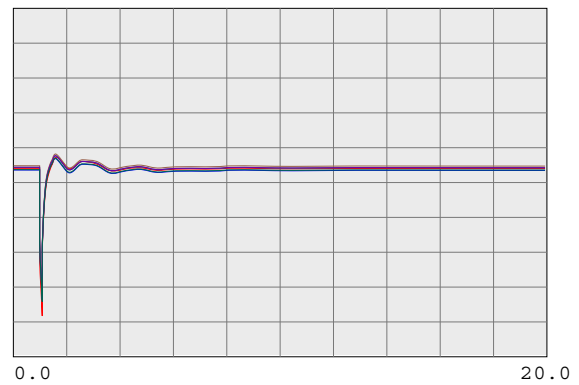
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

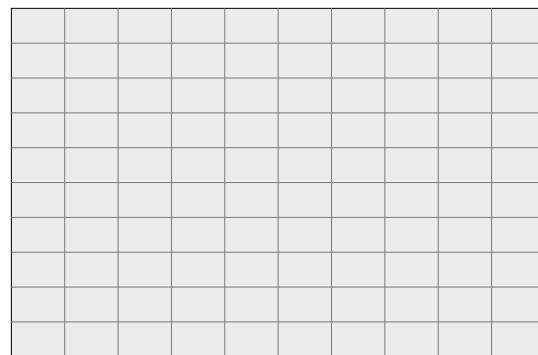
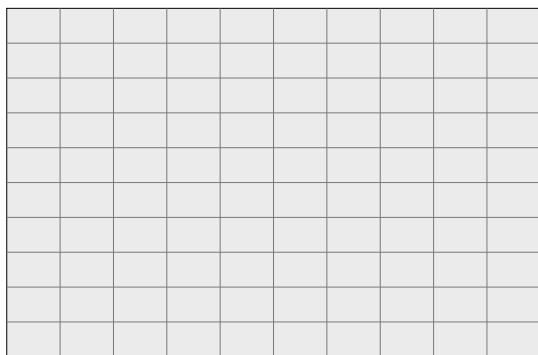
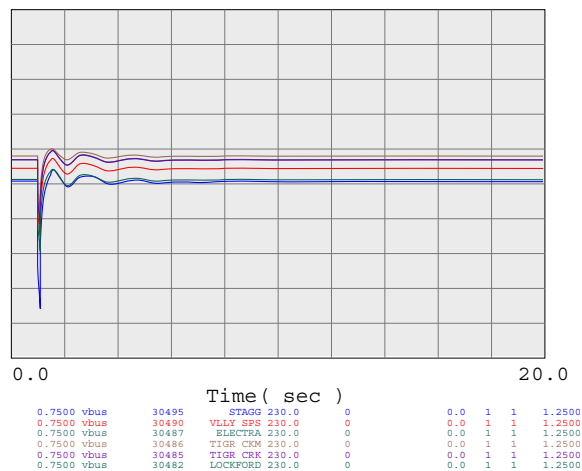
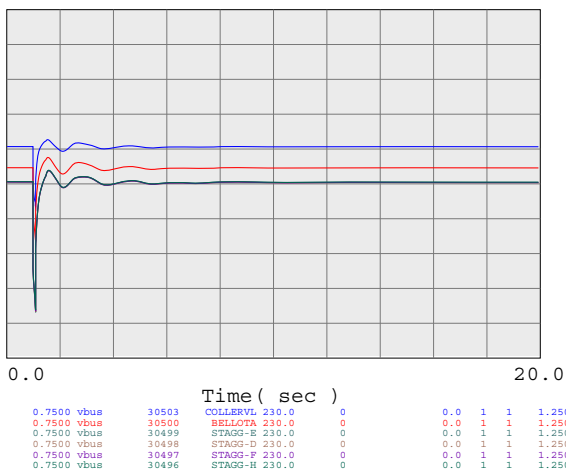
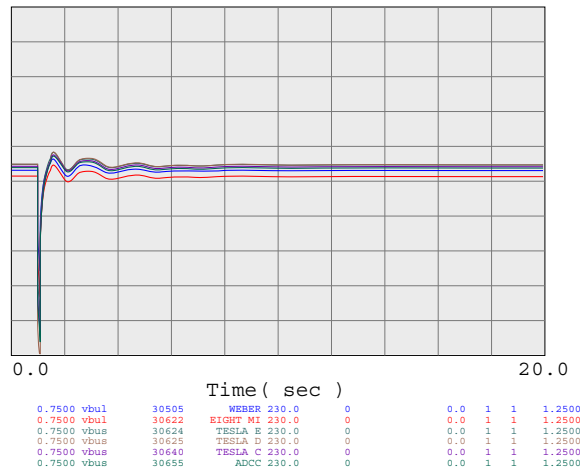
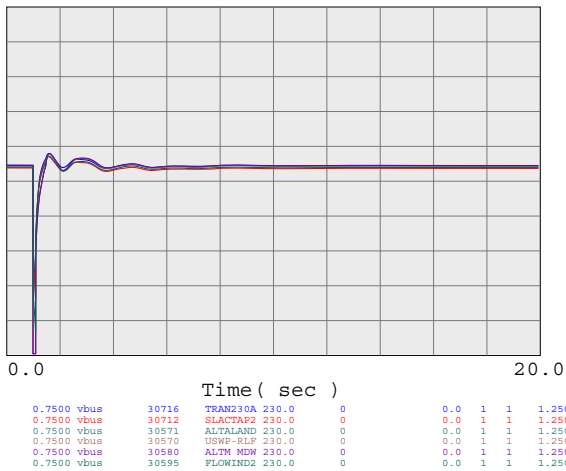
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

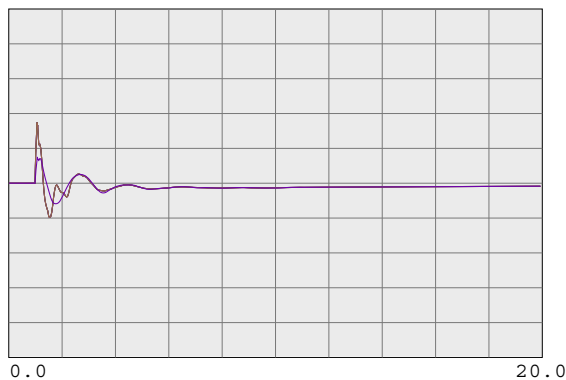
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



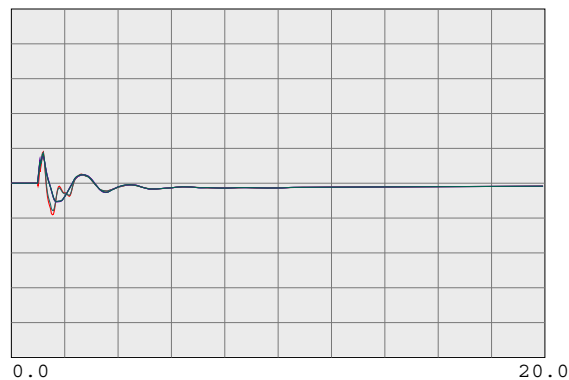
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

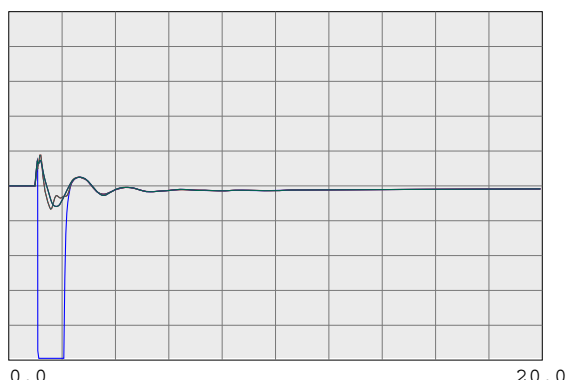
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

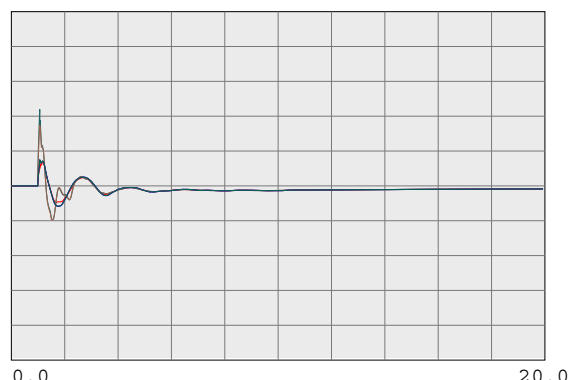
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

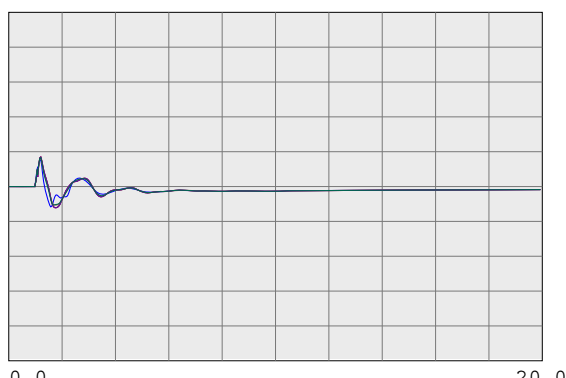
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

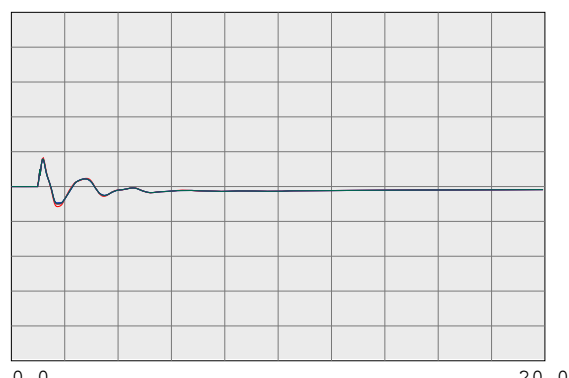
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

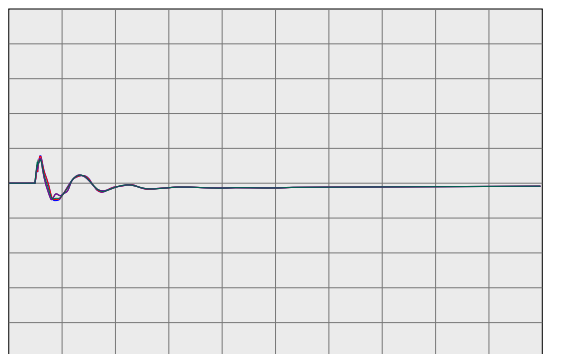
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

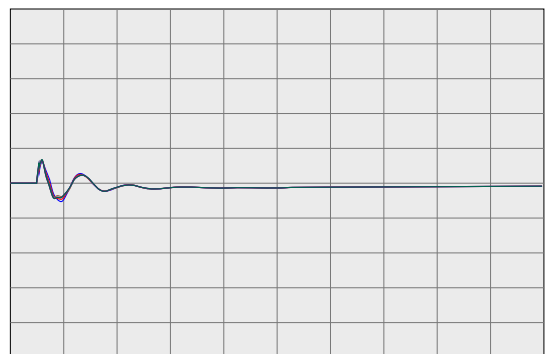
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

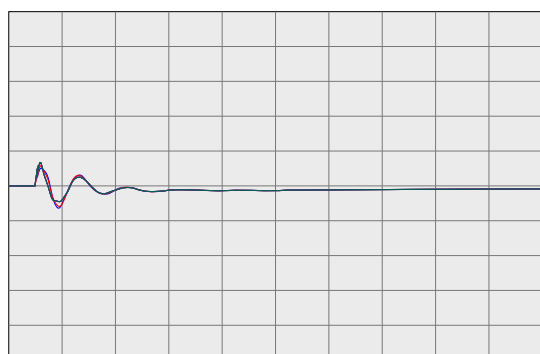
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

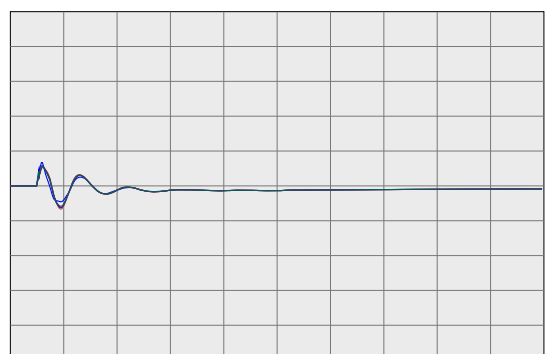
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

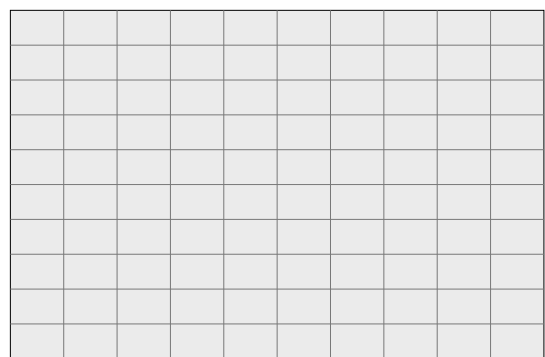
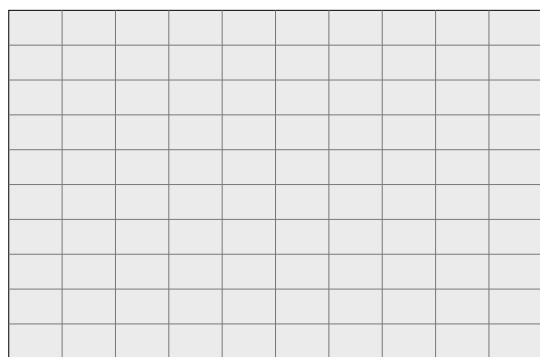
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

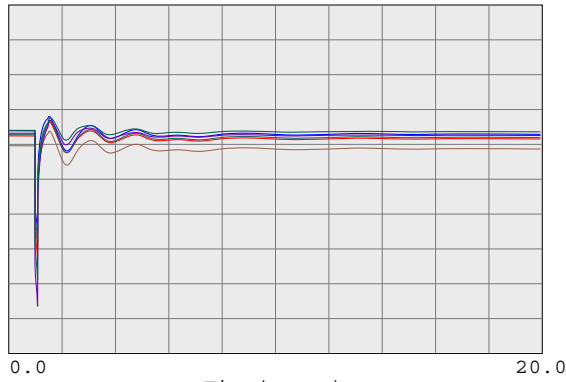
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

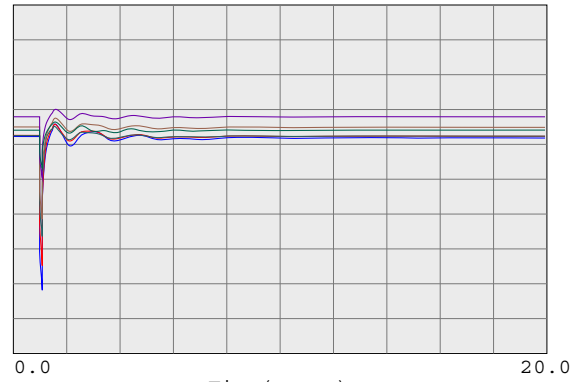
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



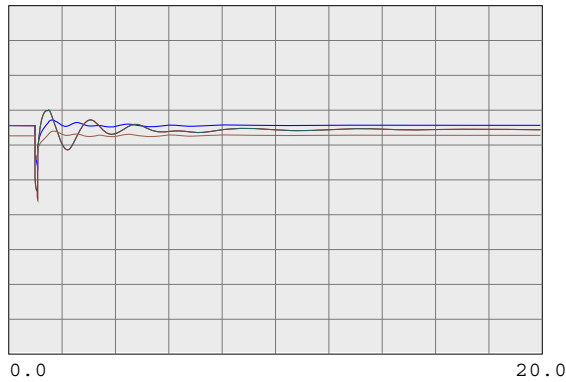
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



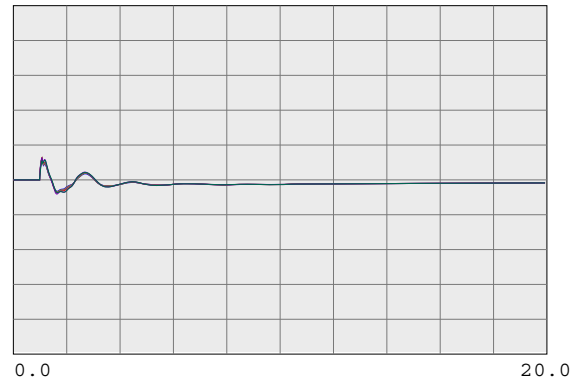
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



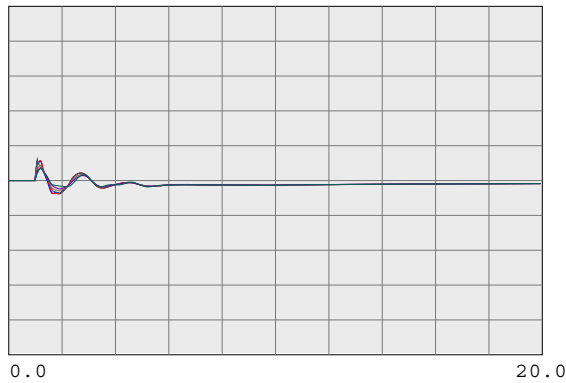
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



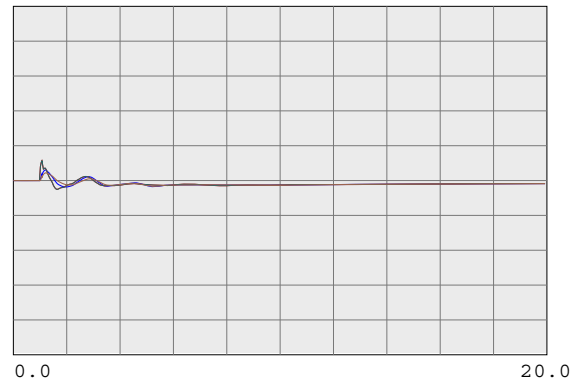
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

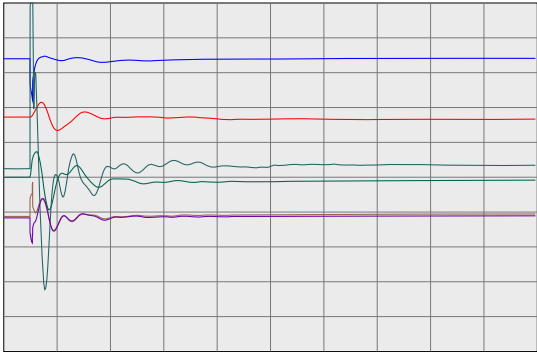
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

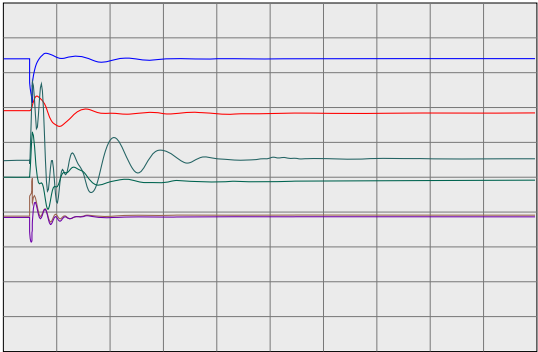
WILLOW PASS GENERATION PLANT



0.0 20.0

Time (sec)

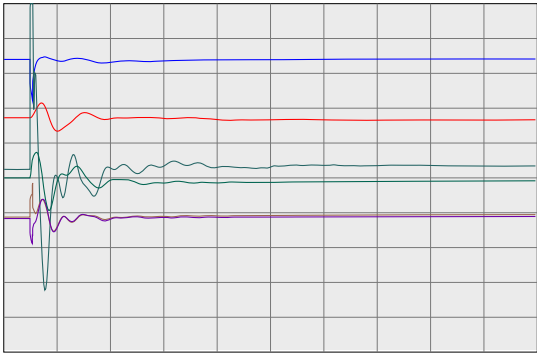
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100



0.0 20.0

Time (sec)

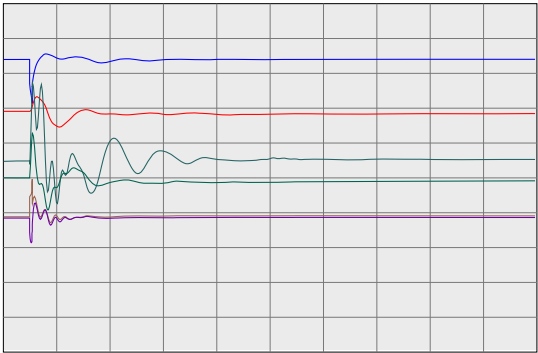
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100



0.0 20.0

Time (sec)

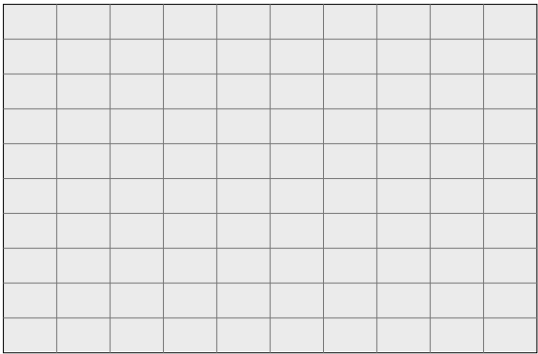
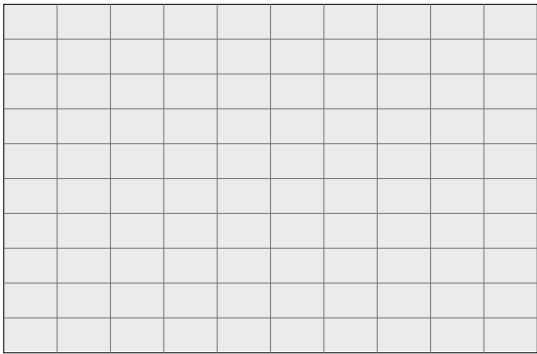
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100



0.0 20.0

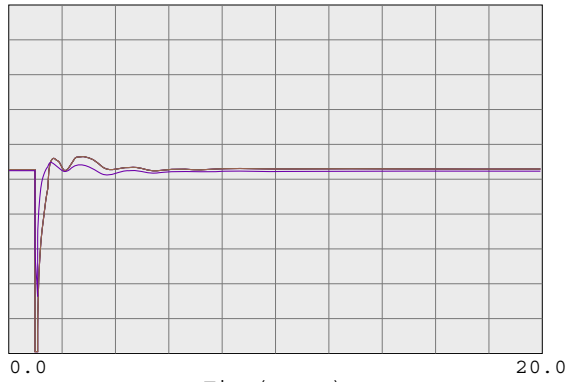
Time (sec)

0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100



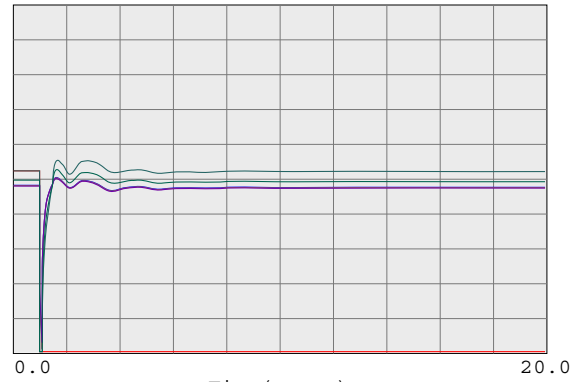
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



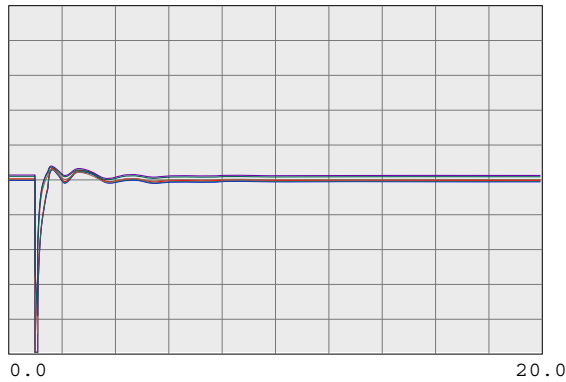
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



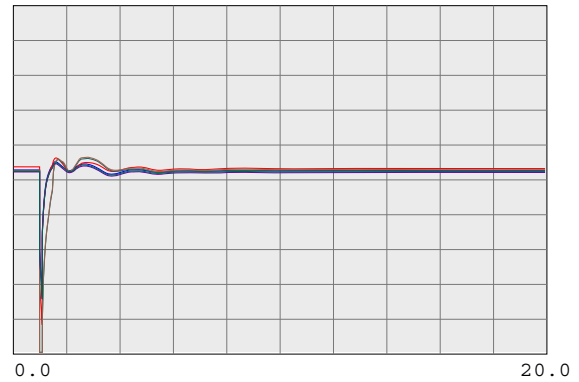
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



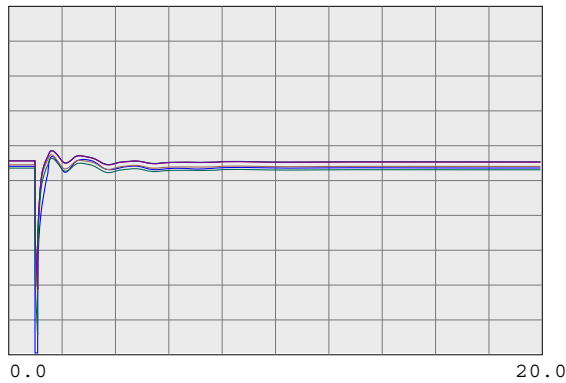
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



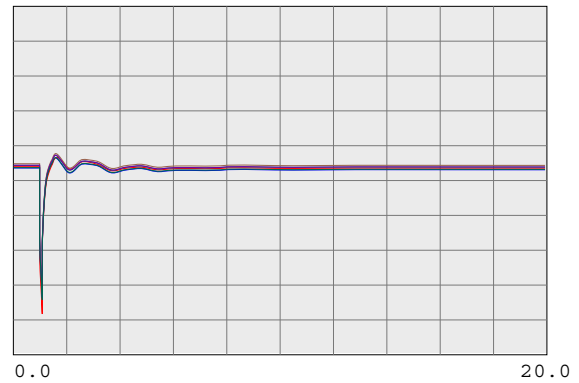
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

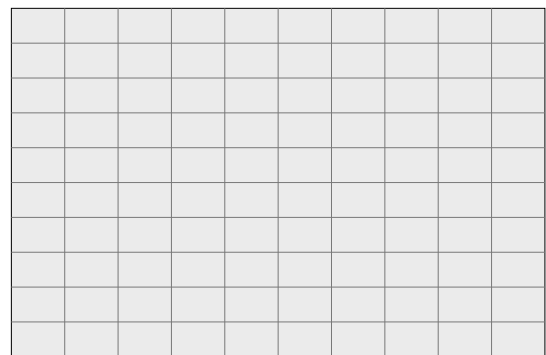
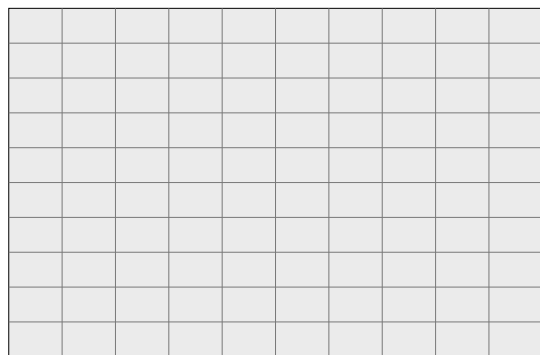
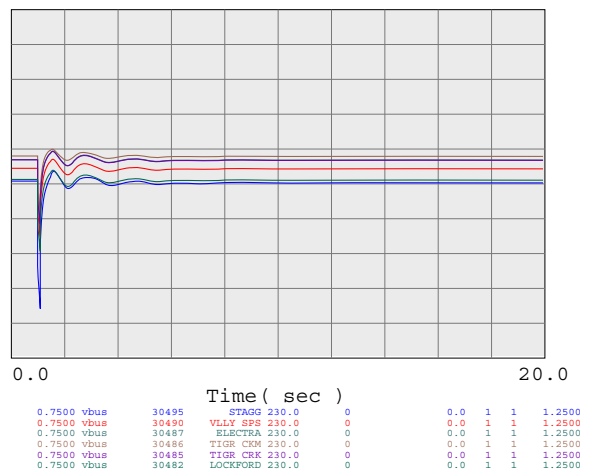
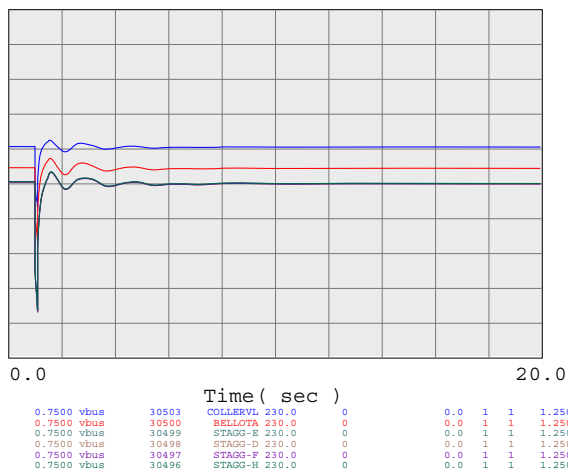
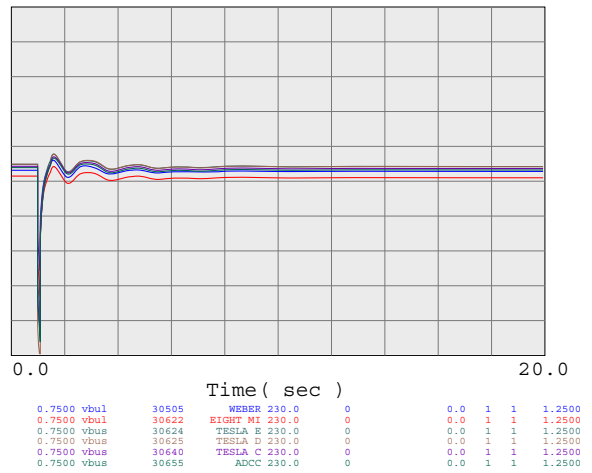
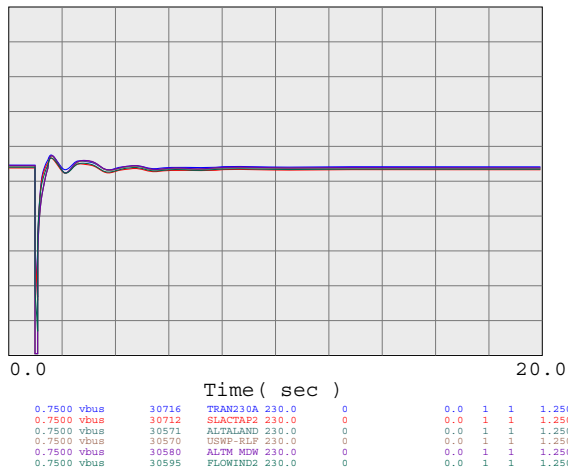
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

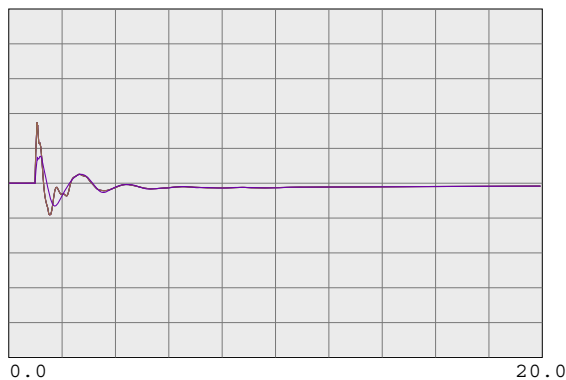
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



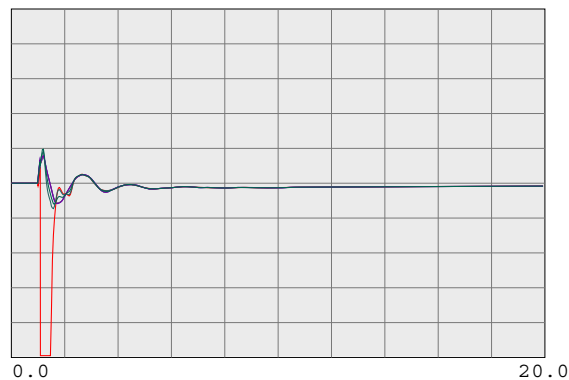
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

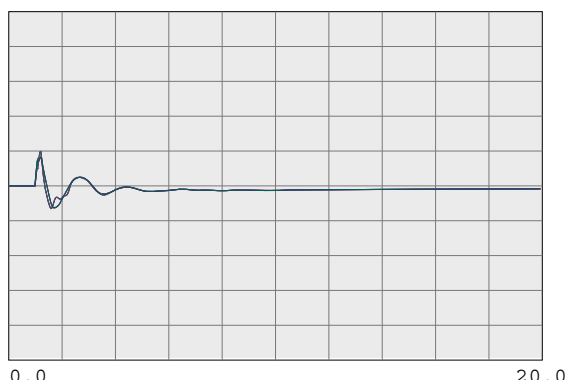
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

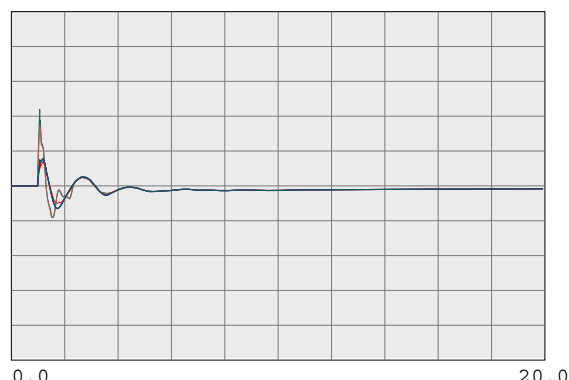
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

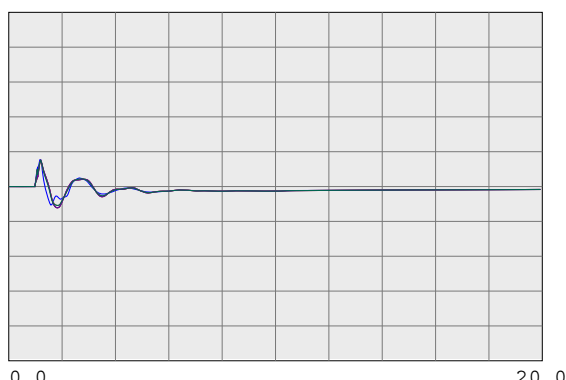
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

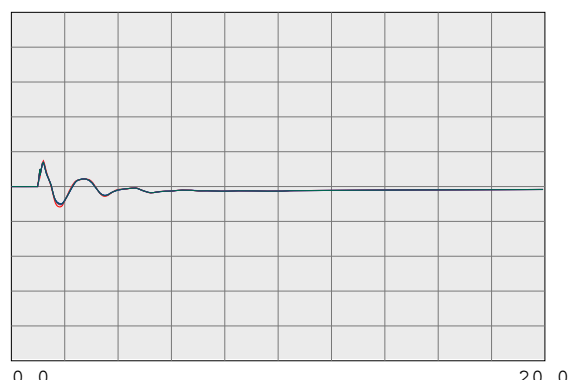
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

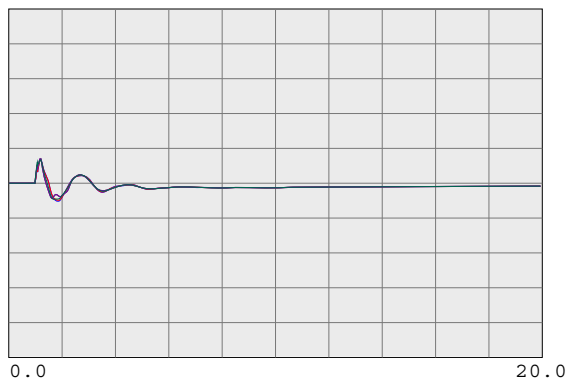
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

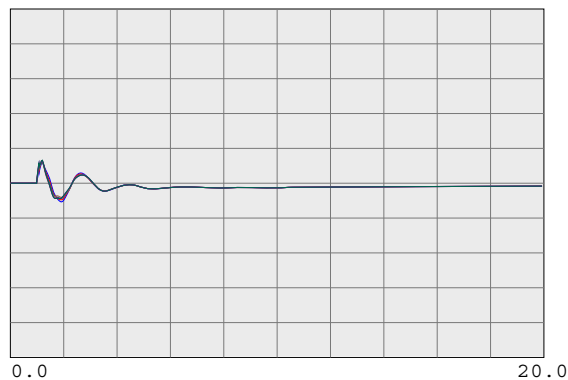
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

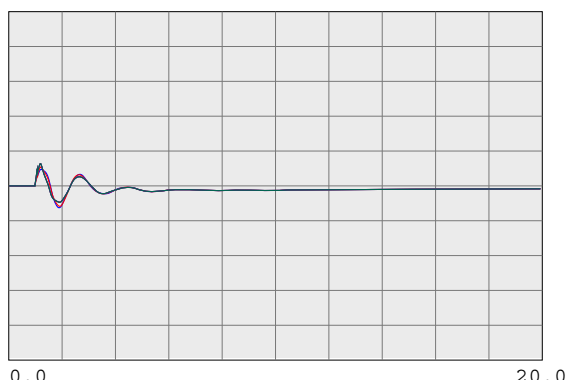
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

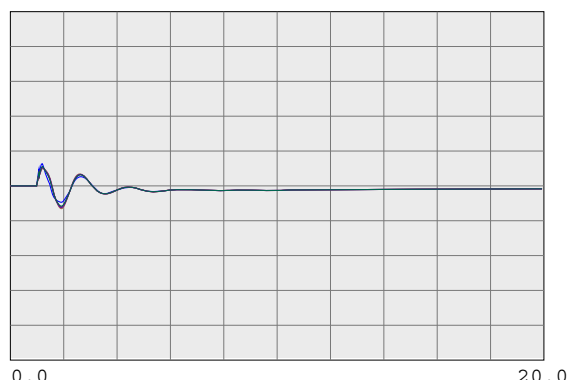
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

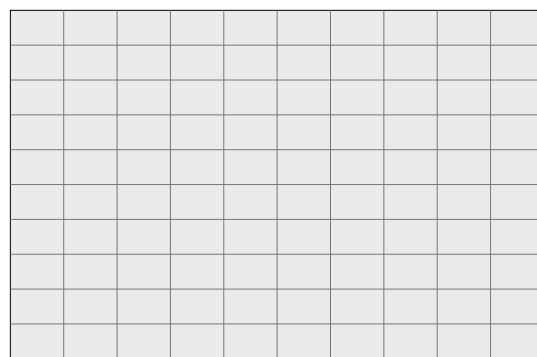
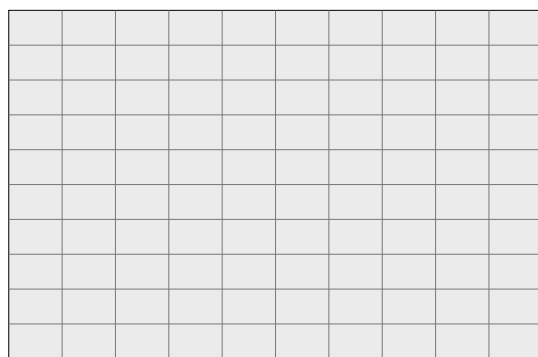
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

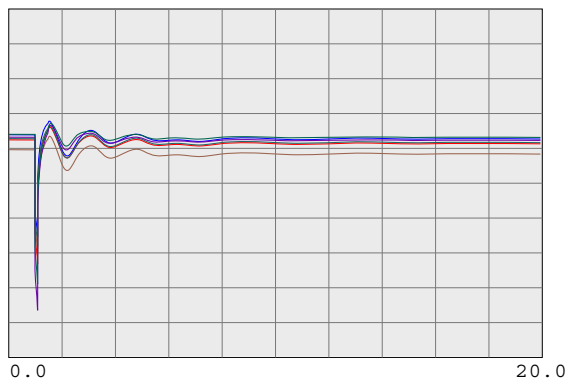
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

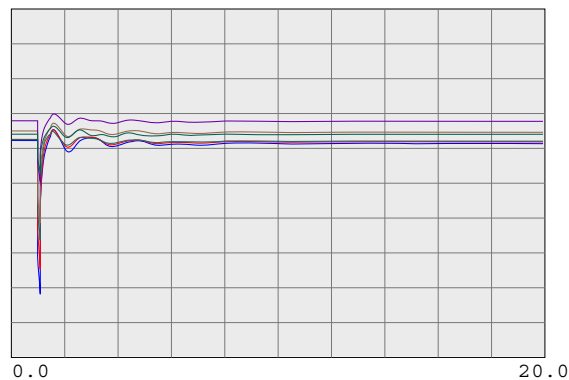
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



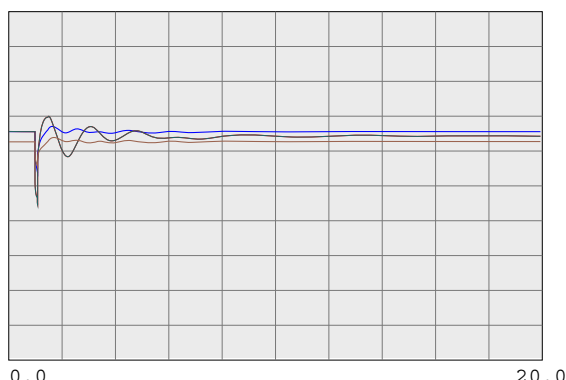
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



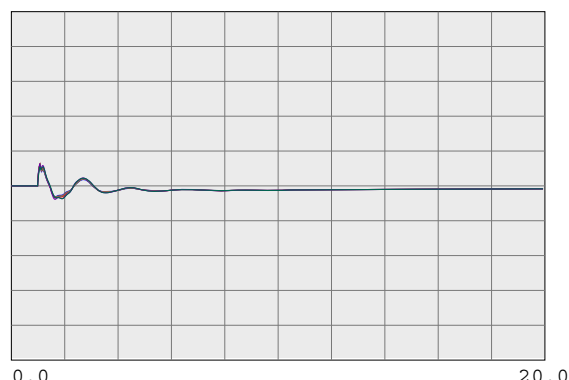
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



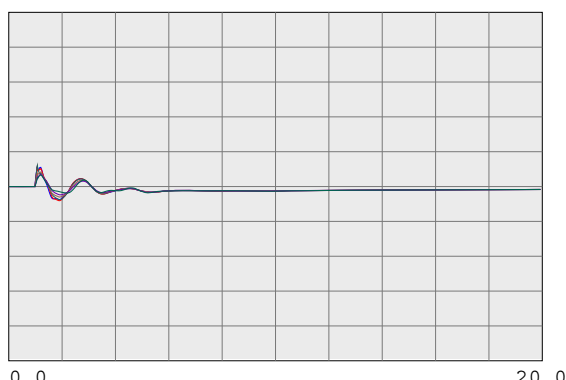
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



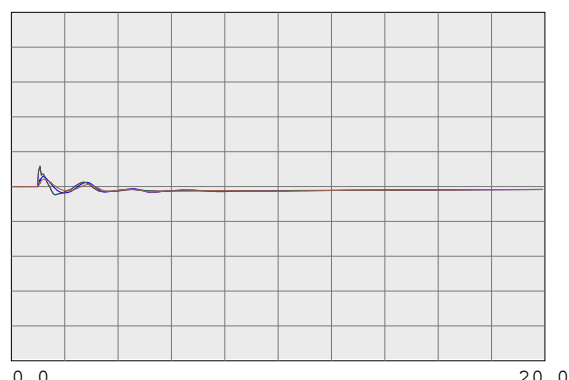
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

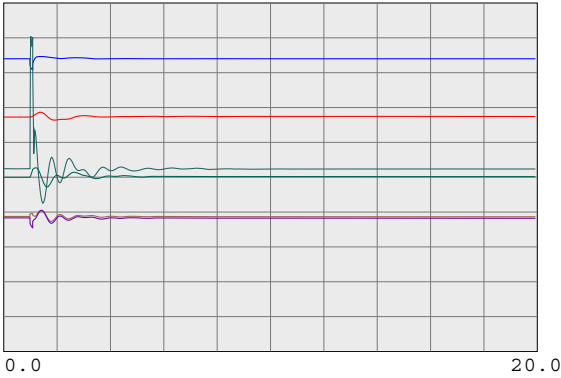
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

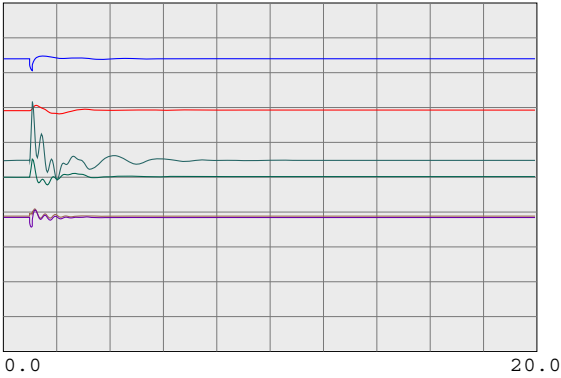
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

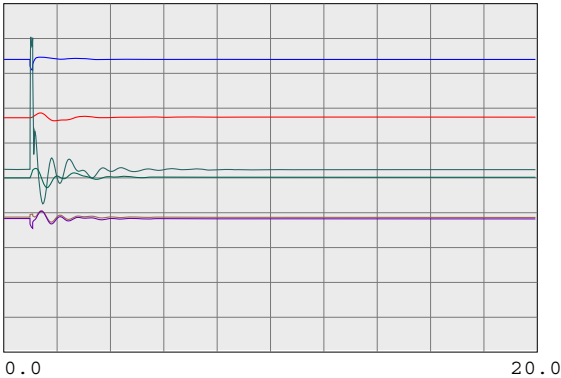
WILLOW PASS GENERATION PLANT



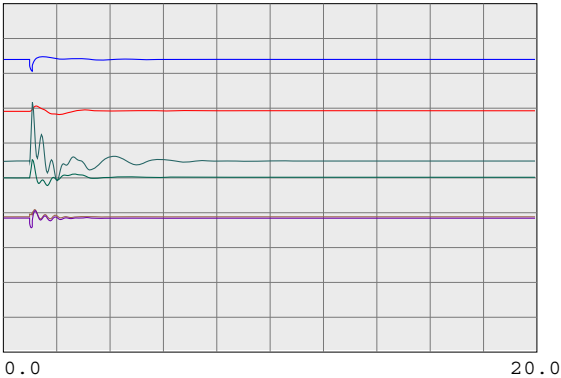
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



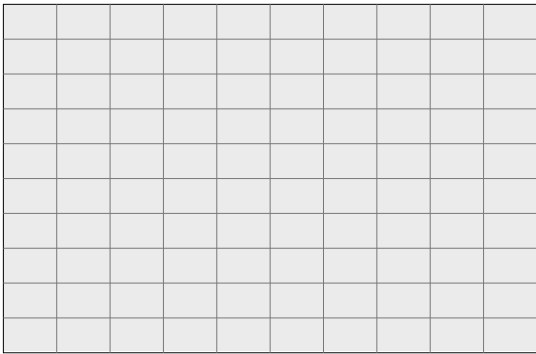
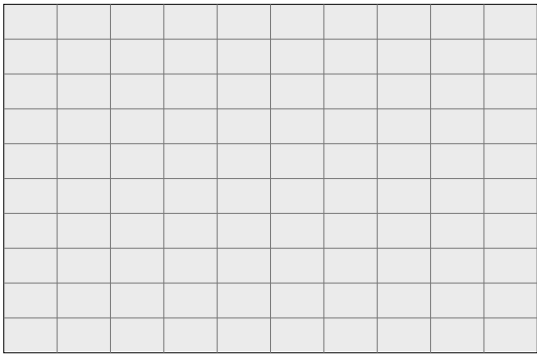
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

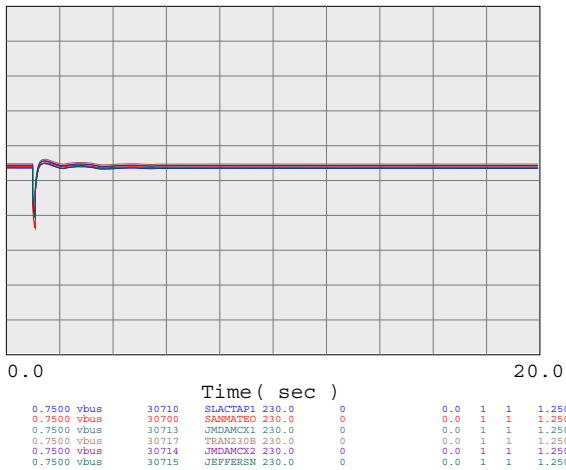
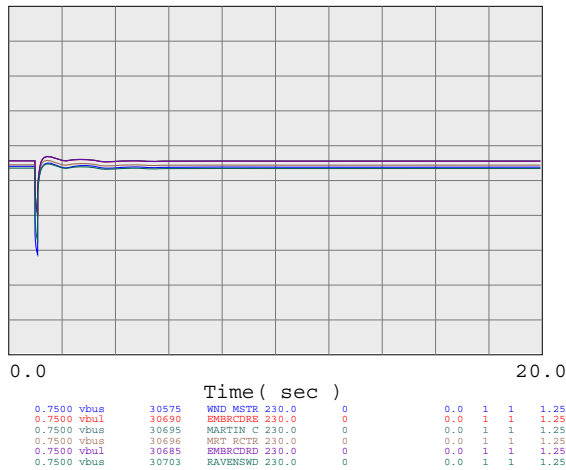
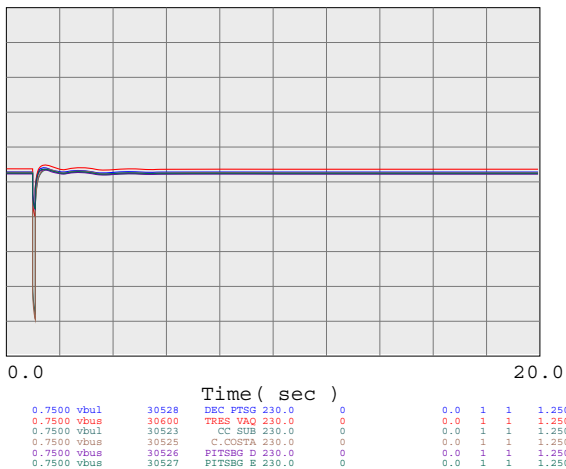
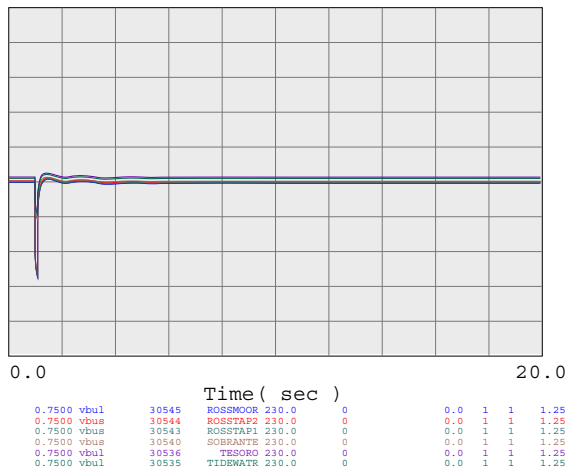
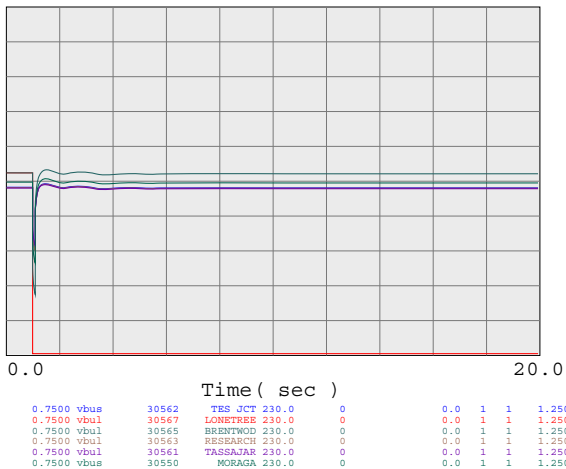
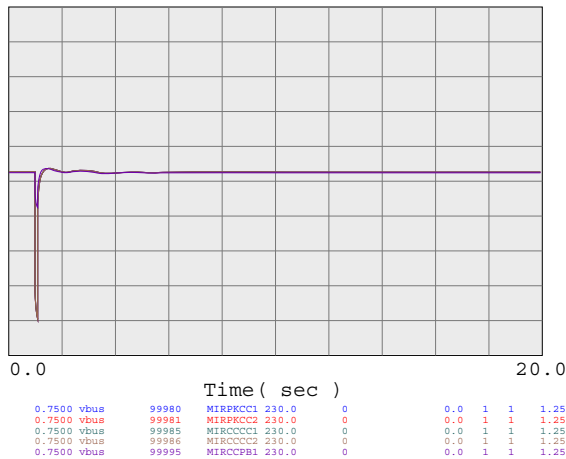


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



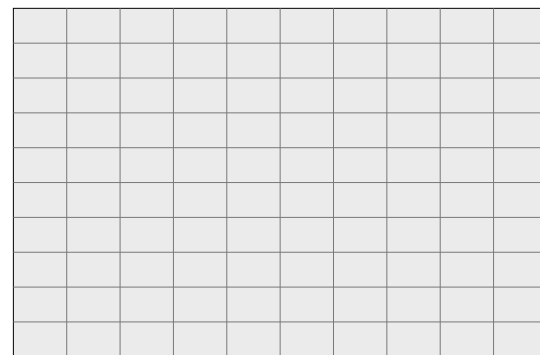
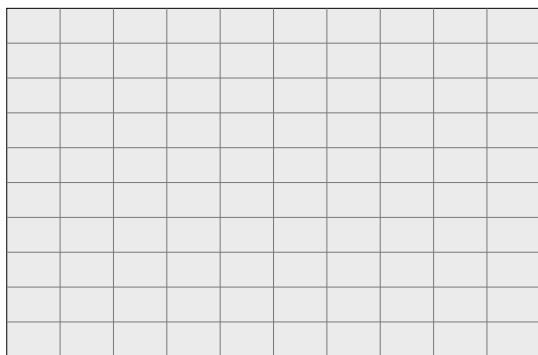
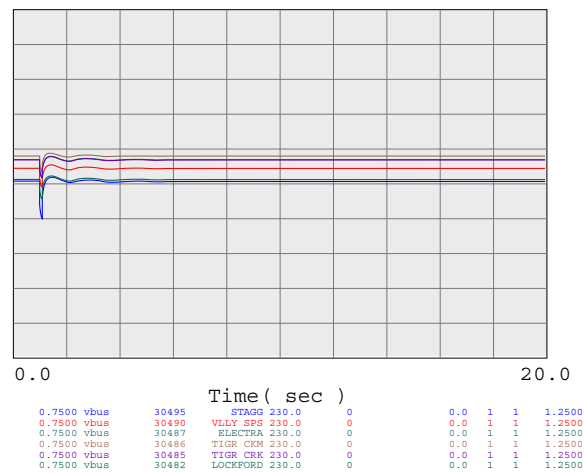
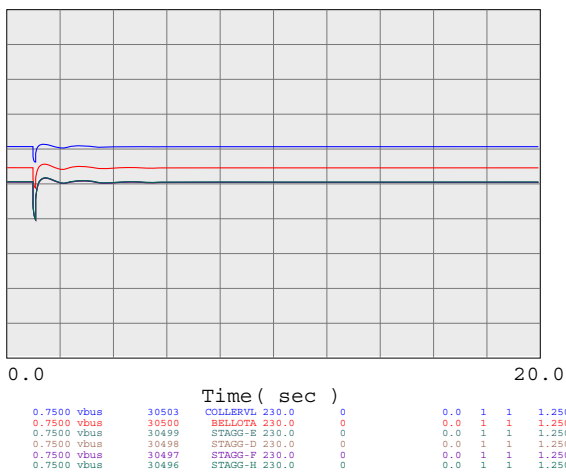
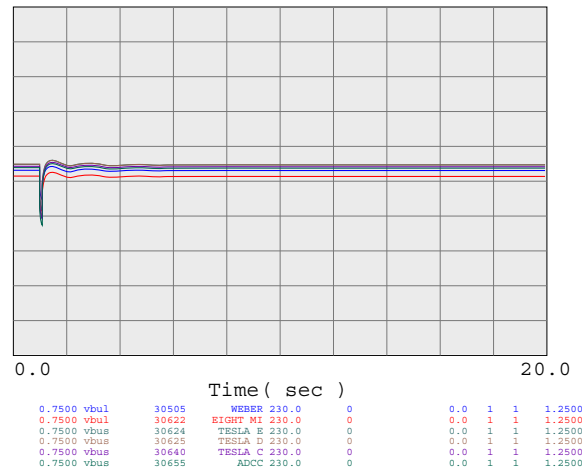
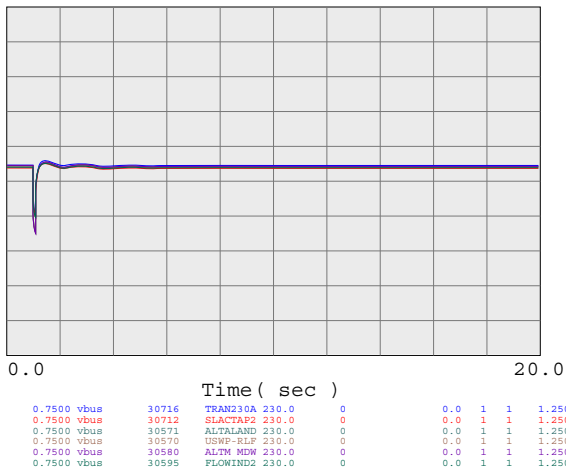
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

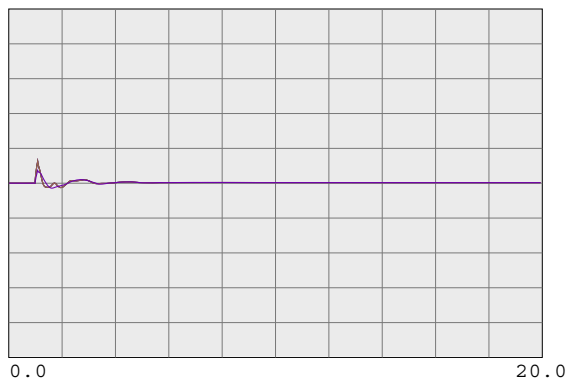


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

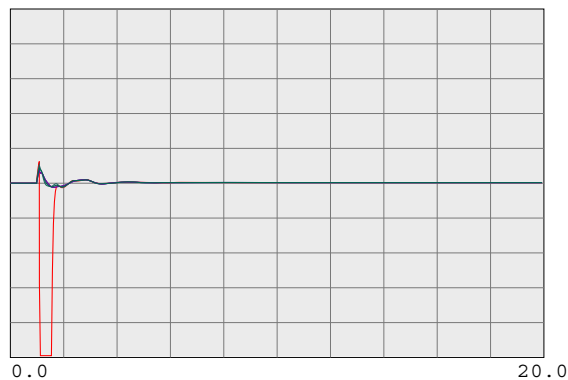
230-KV SYSTEM VOLTAGES



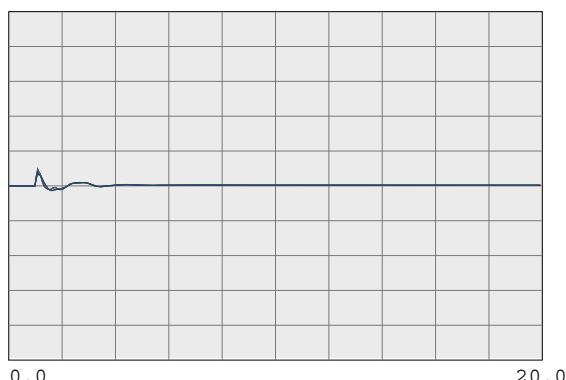
230-KV SYSTEM FREQUENCIES



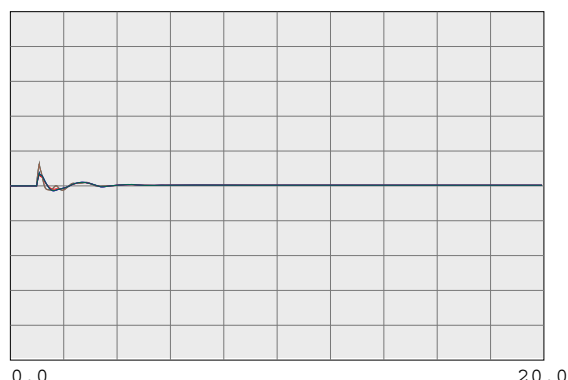
0.0 20.0
Time (sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



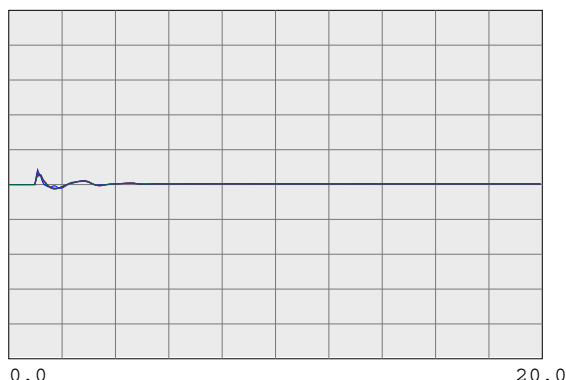
0.0 20.0
Time (sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



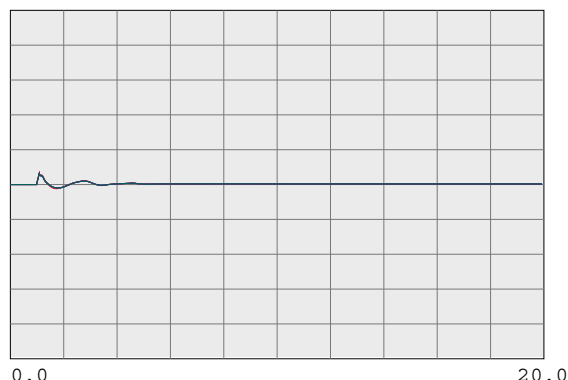
0.0 20.0
Time (sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSSTAP2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSSTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRIANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBRO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDED 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time (sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

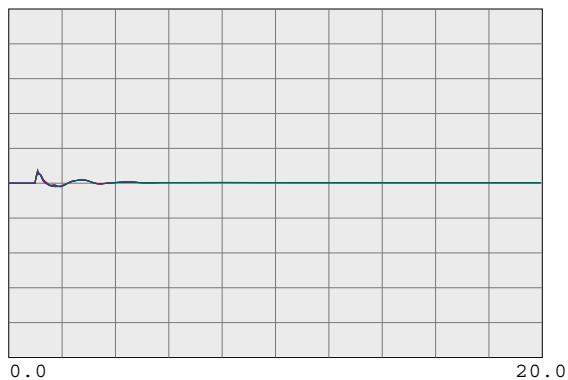
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

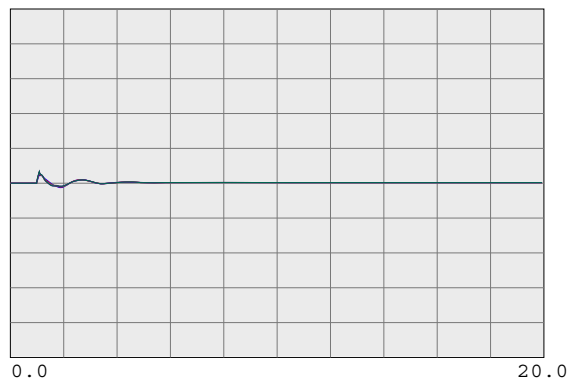
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



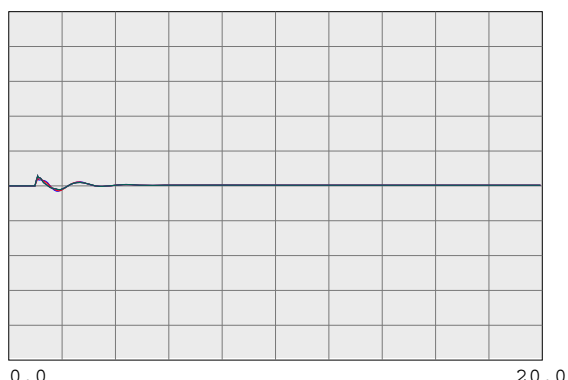
Time (sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



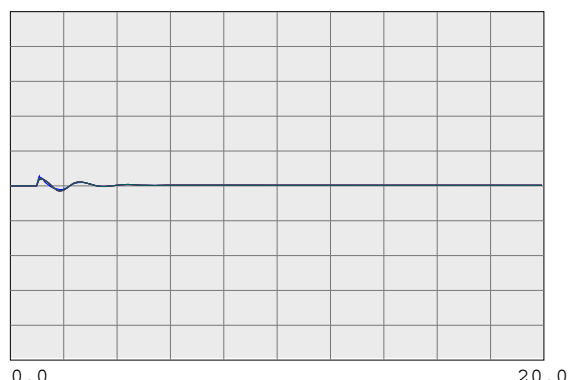
Time (sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



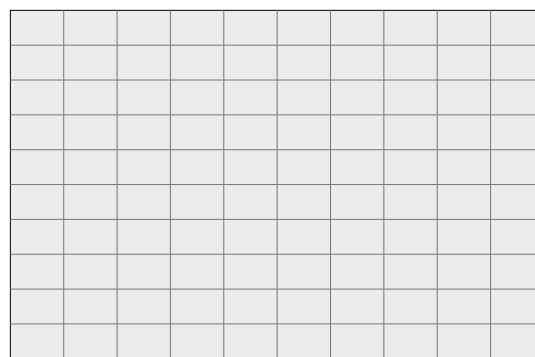
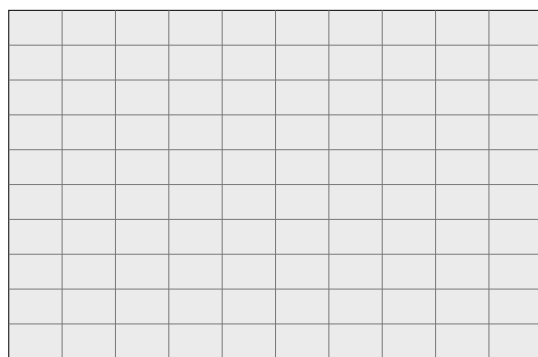
Time (sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

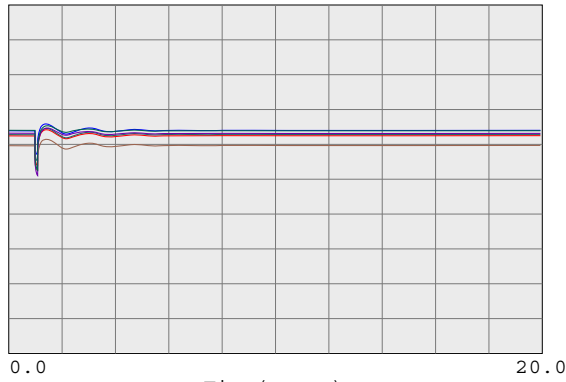
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

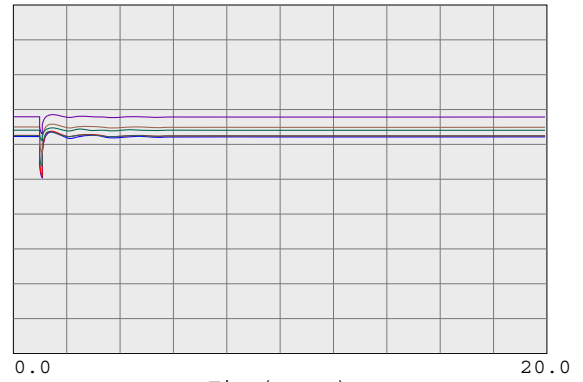
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

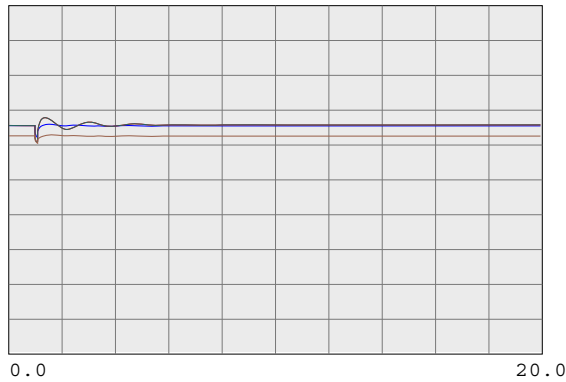
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



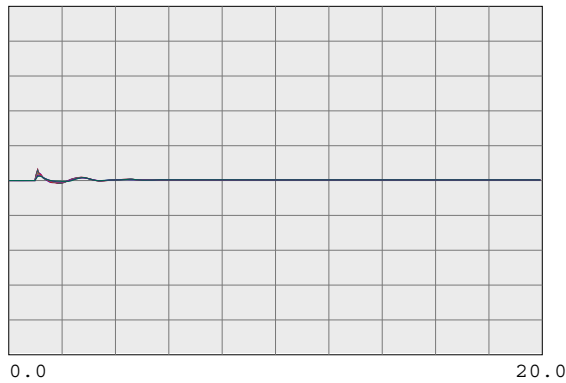
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



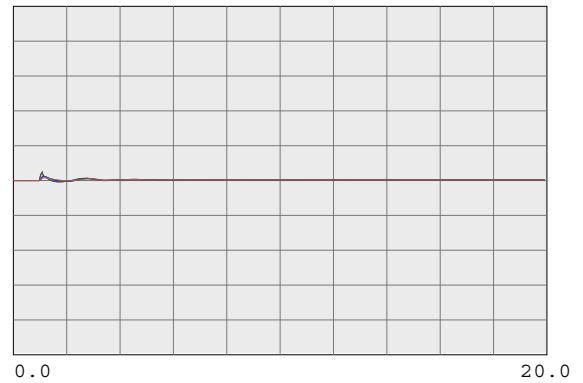
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

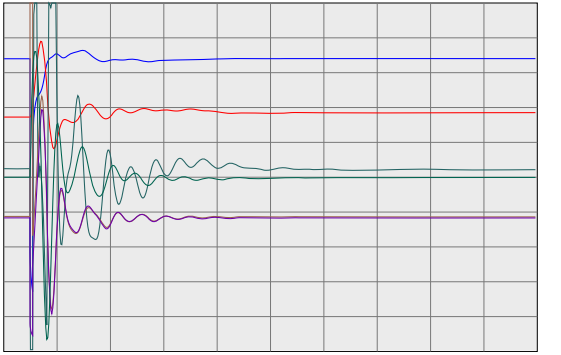
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

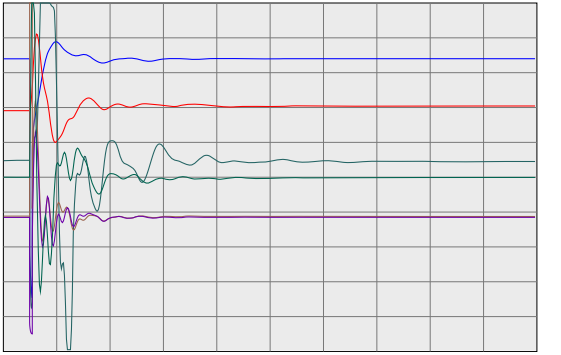
WILLOW PASS GENERATION PLANT



0.0 20.0

Time(sec)

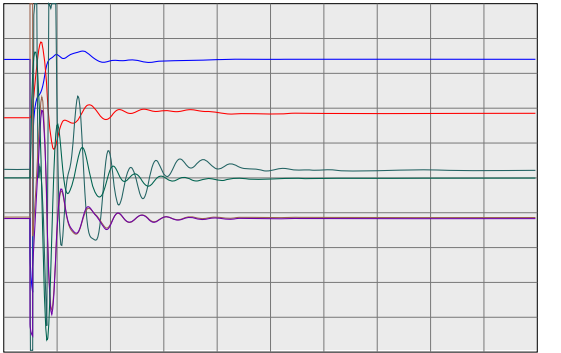
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100



0.0 20.0

Time(sec)

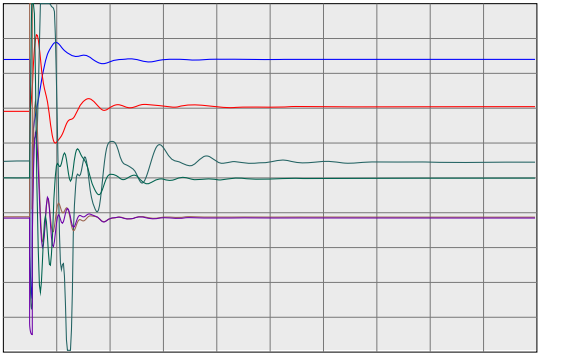
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100



0.0 20.0

Time(sec)

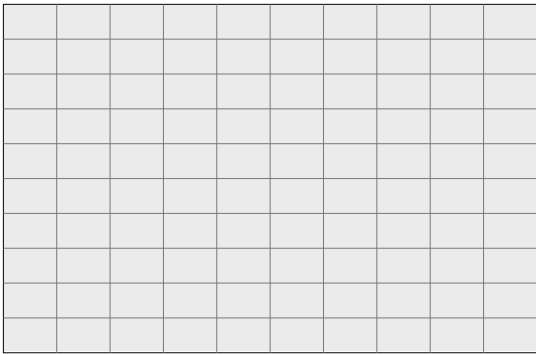
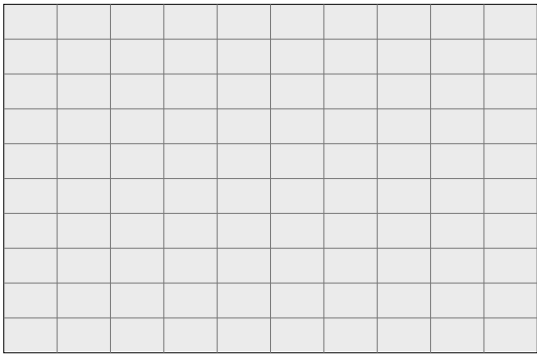
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100



0.0 20.0

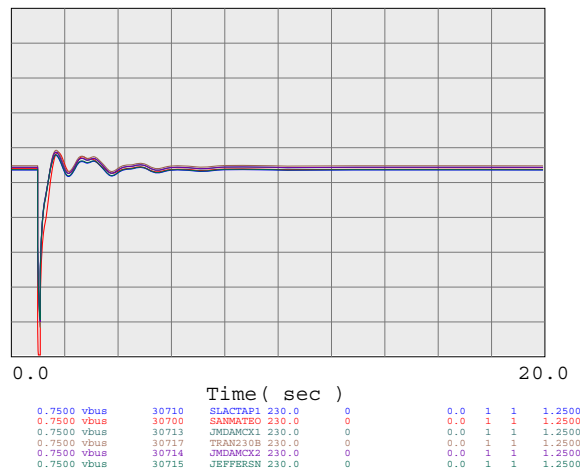
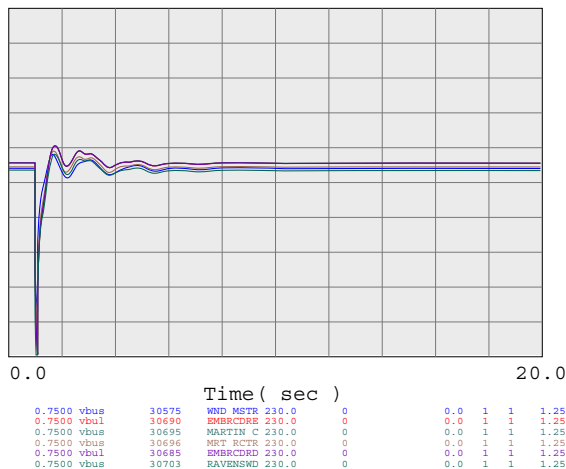
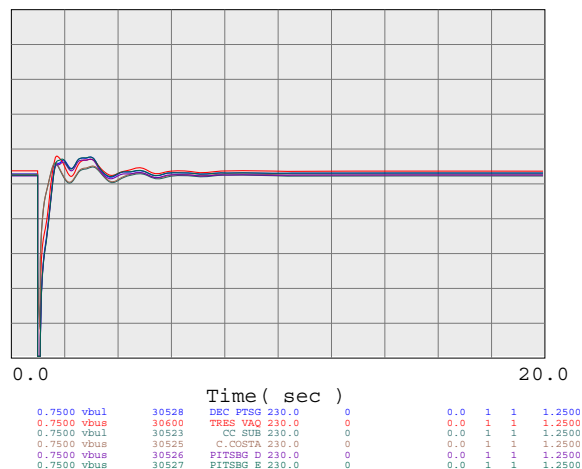
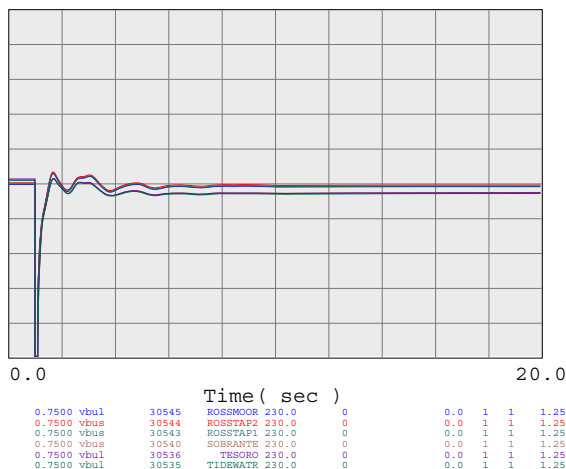
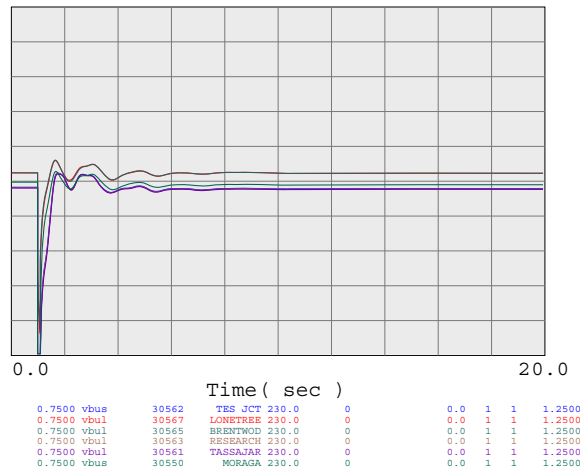
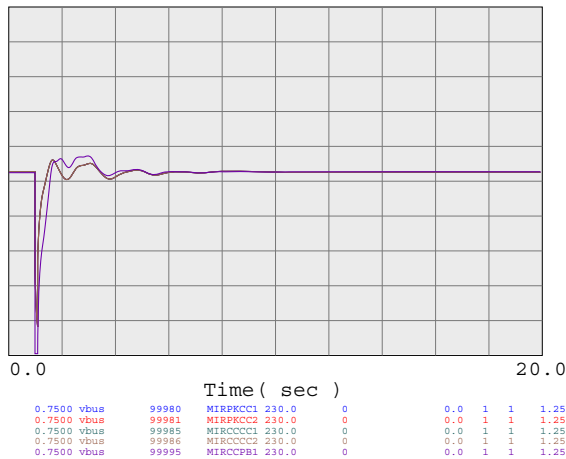
Time(sec)

0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100



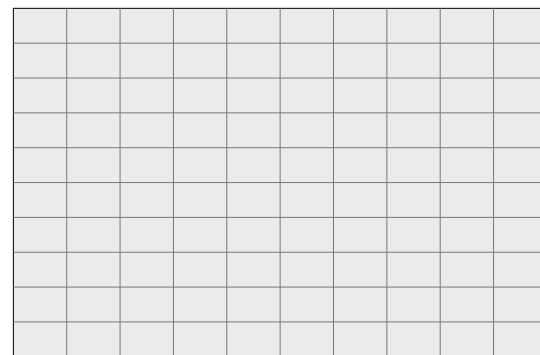
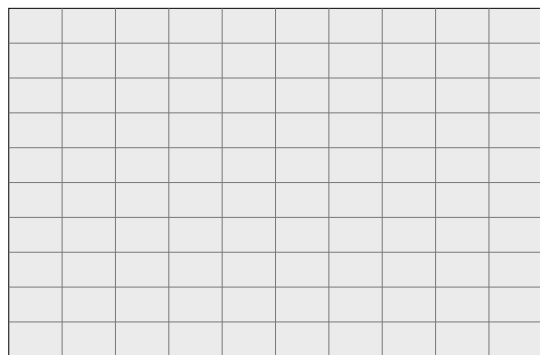
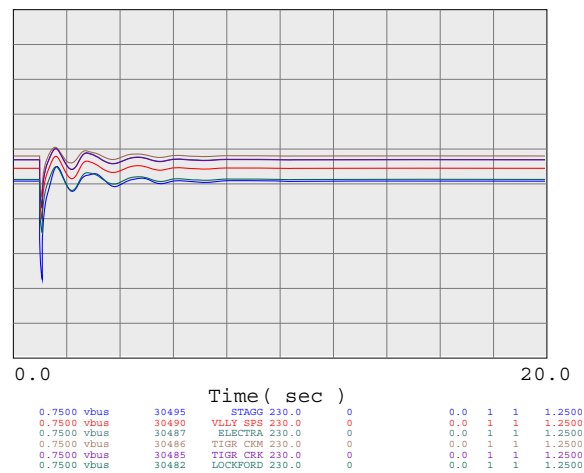
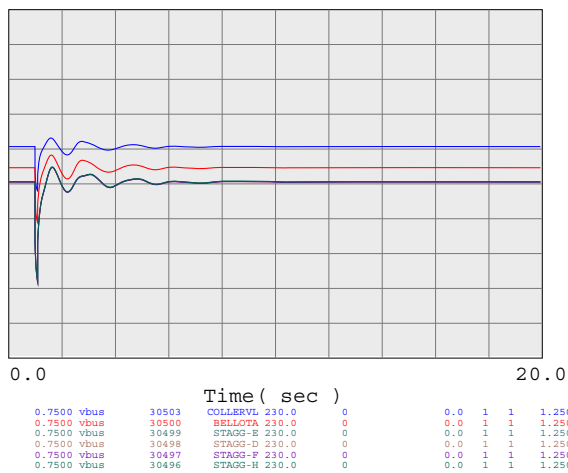
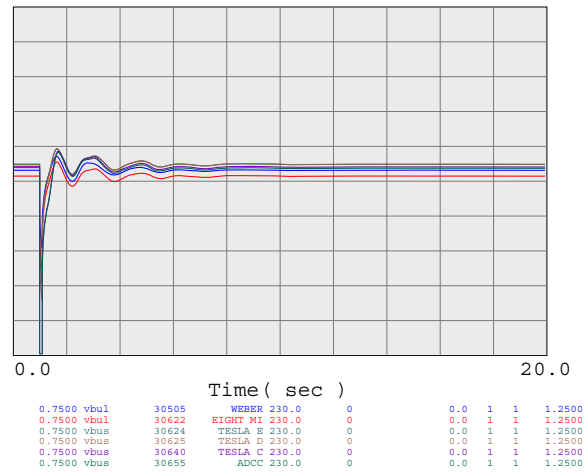
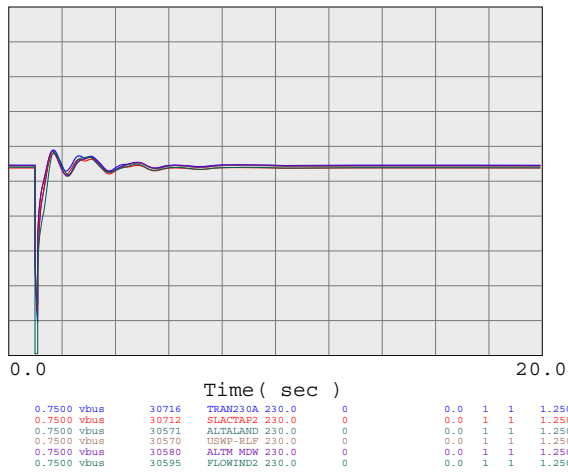
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

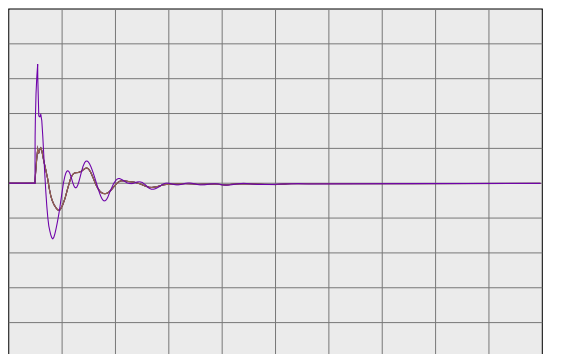


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



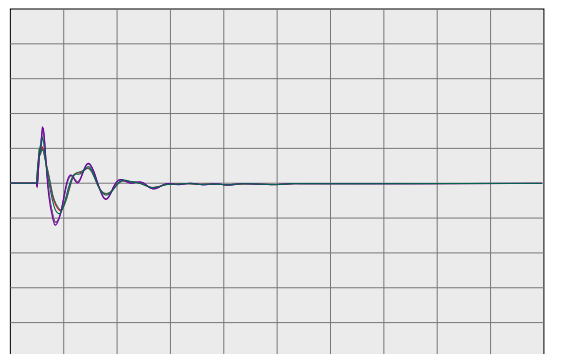
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

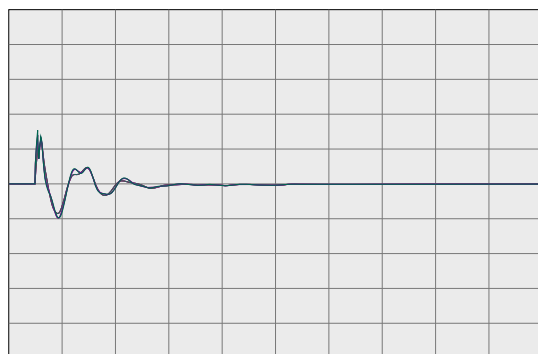
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

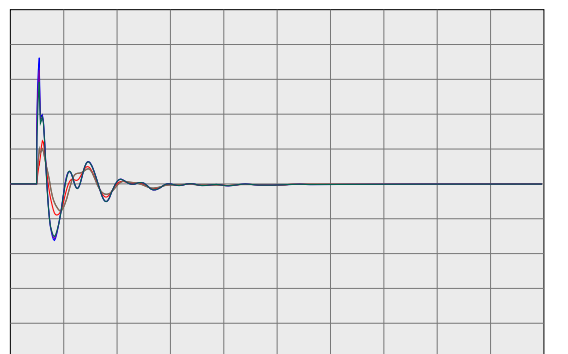
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

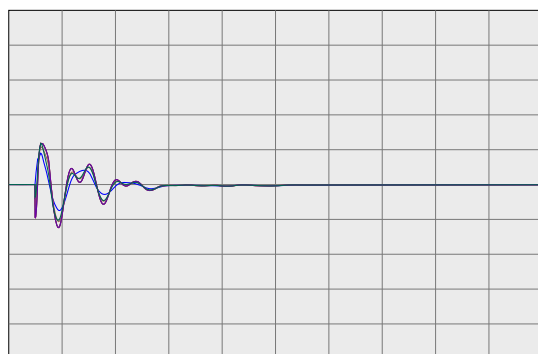
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDEWATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

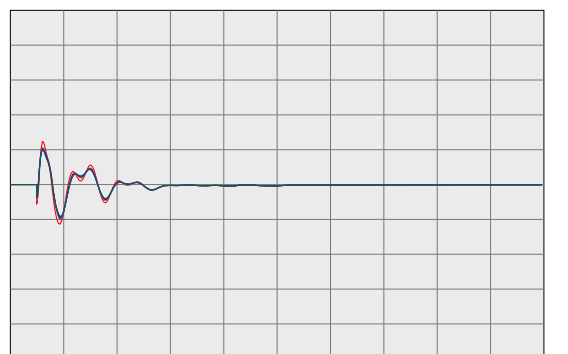
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WID MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

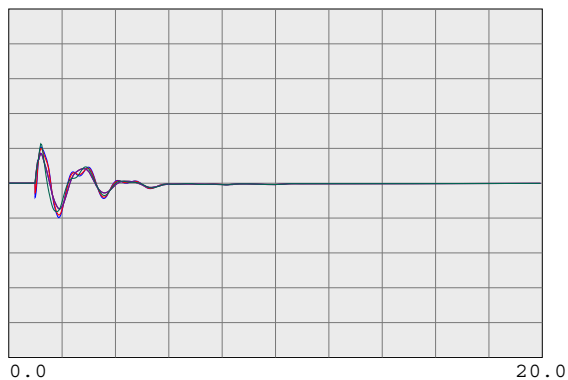
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

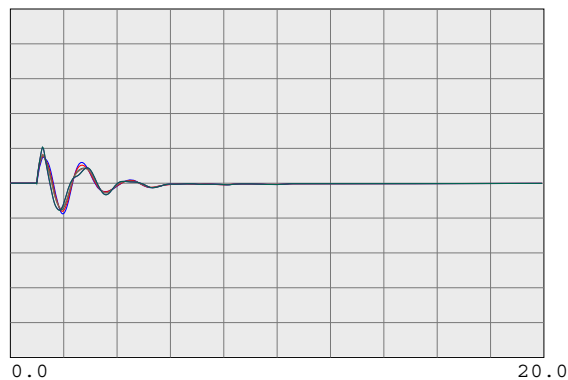
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

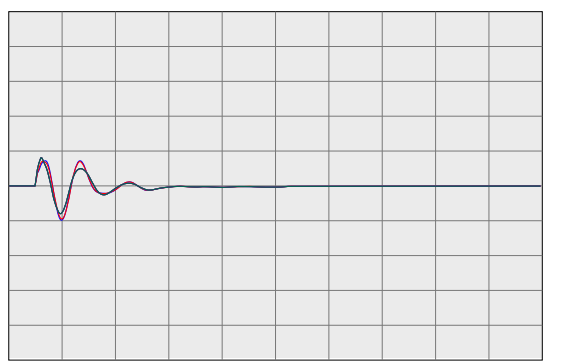
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

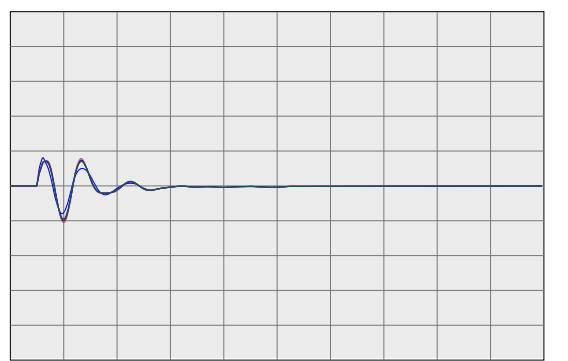
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

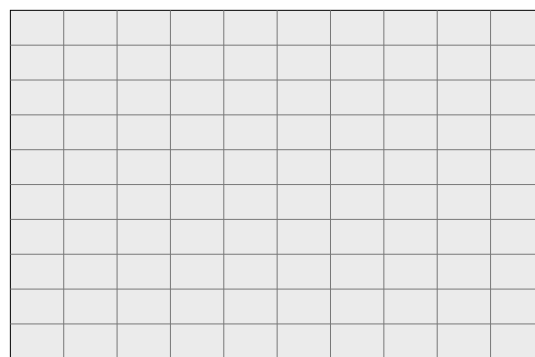
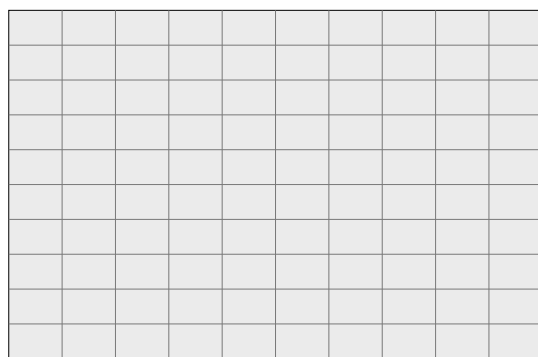
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

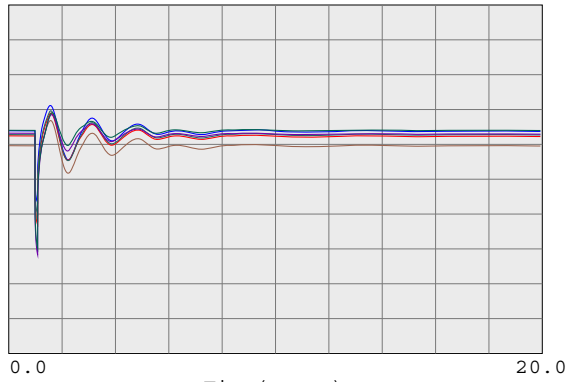
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

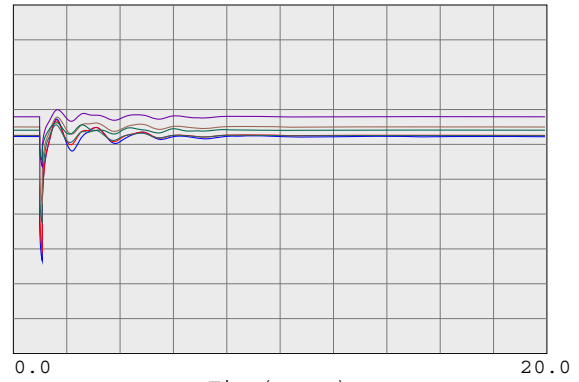
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



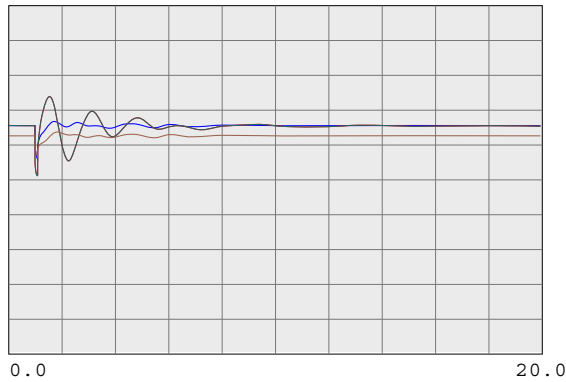
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



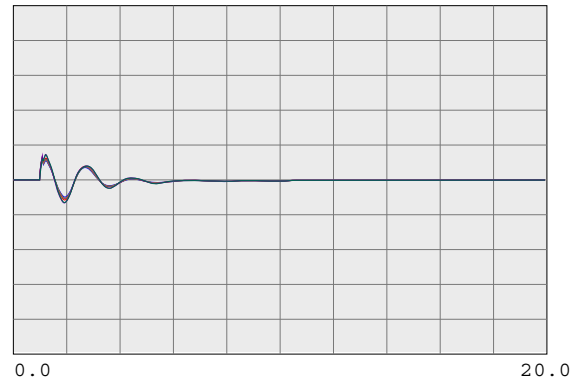
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



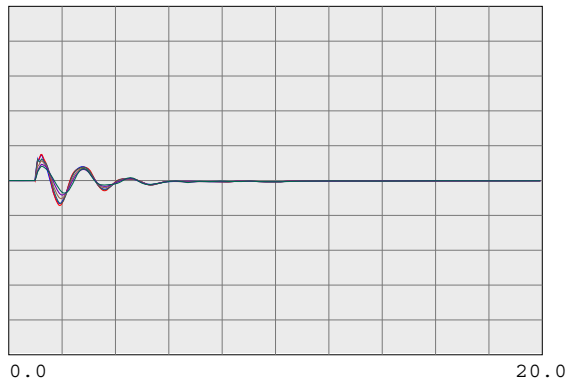
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



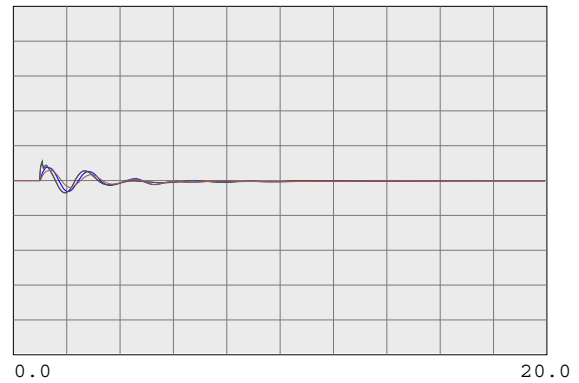
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

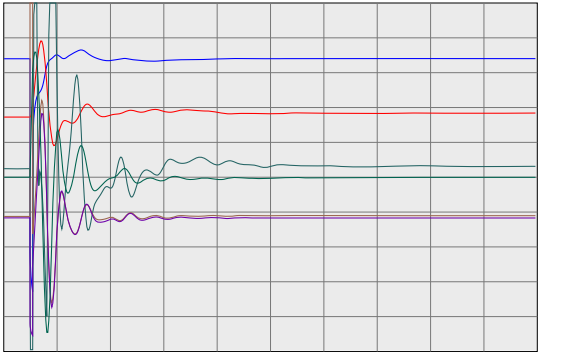
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

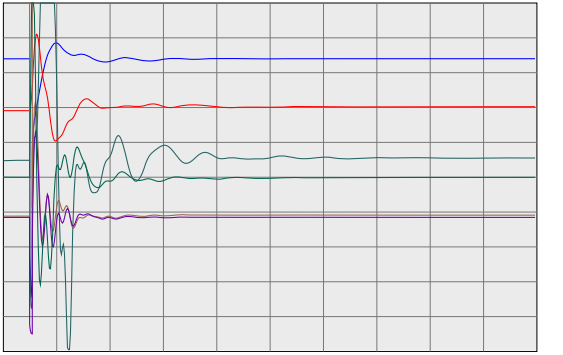
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

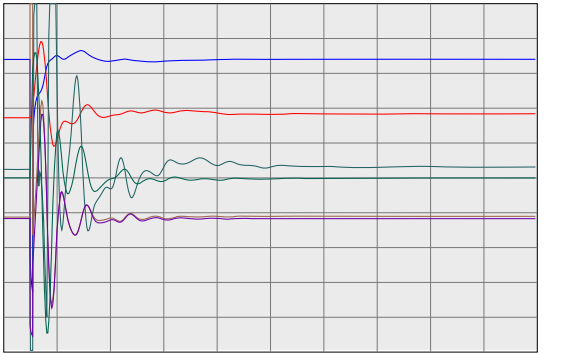
WILLOW PASS GENERATION PLANT



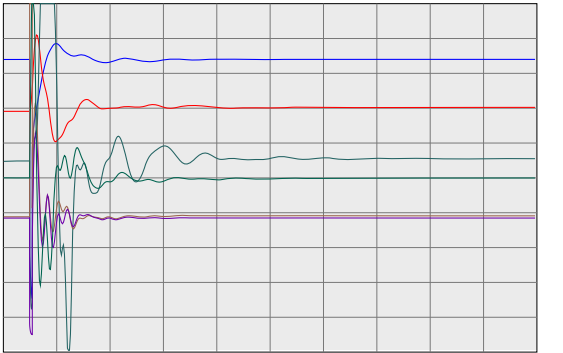
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



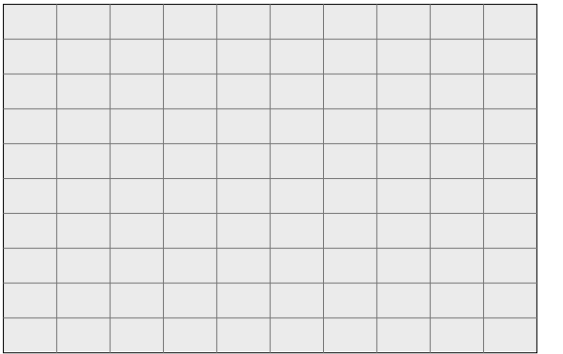
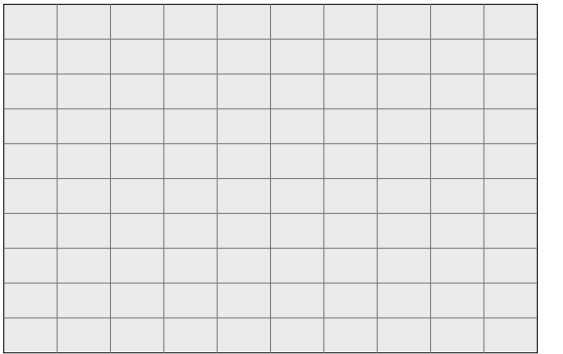
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



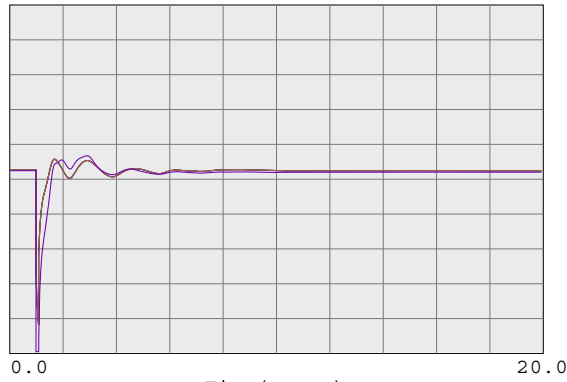
Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	



Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	

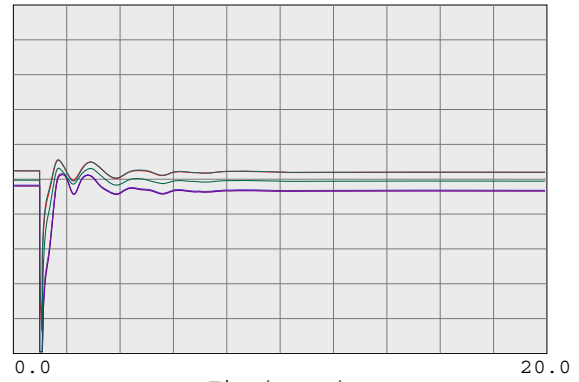


230-KV SYSTEM VOLTAGES



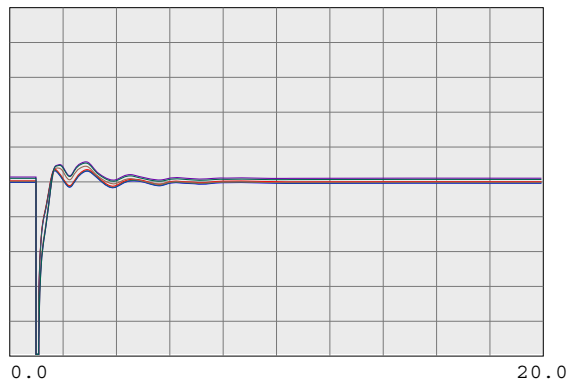
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



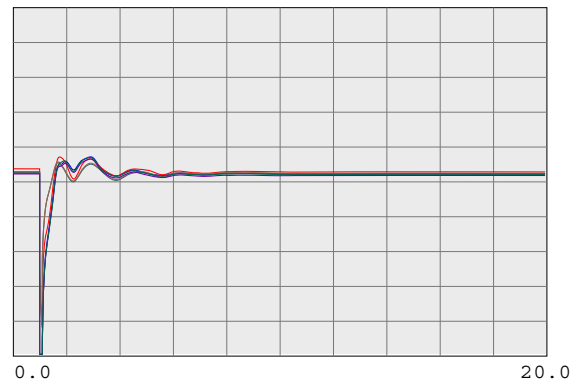
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



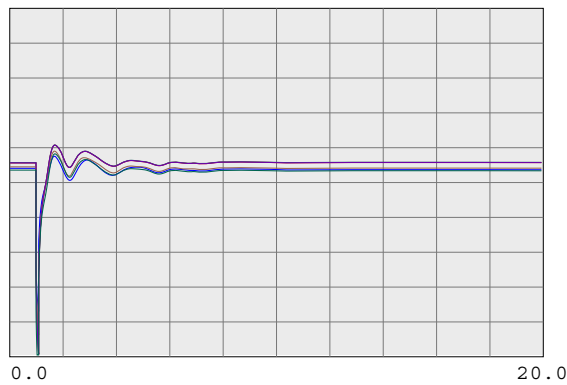
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



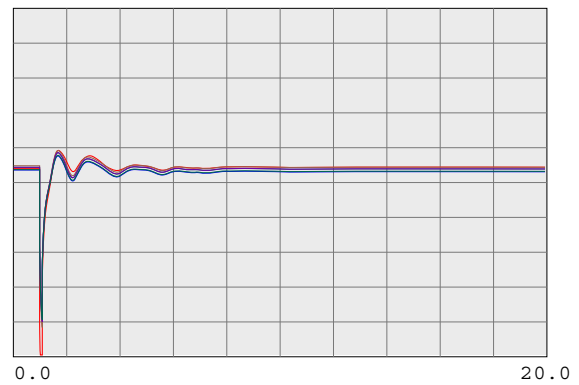
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

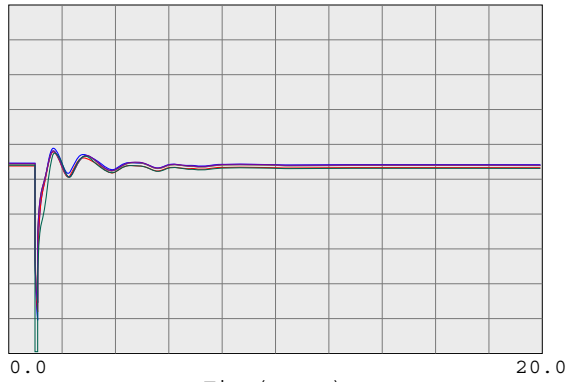
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

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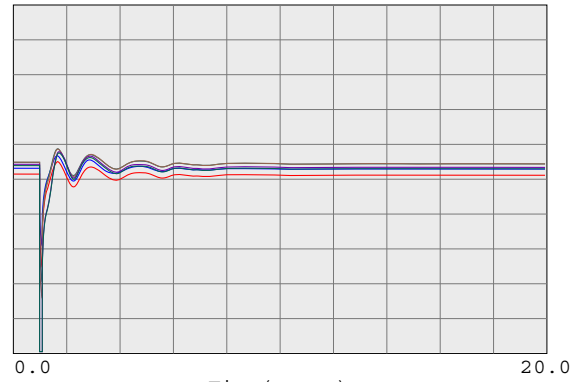
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



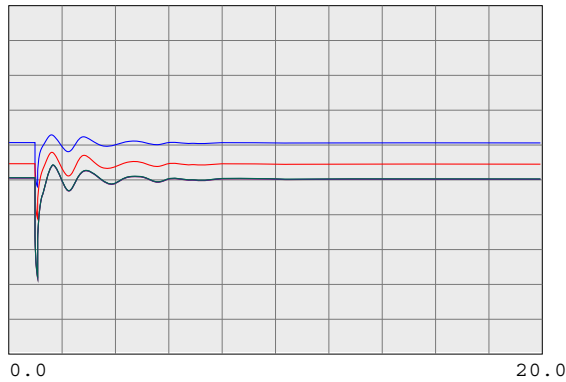
Time (sec)

0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



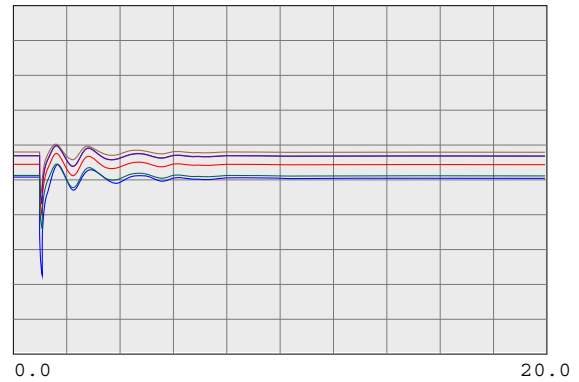
Time (sec)

0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



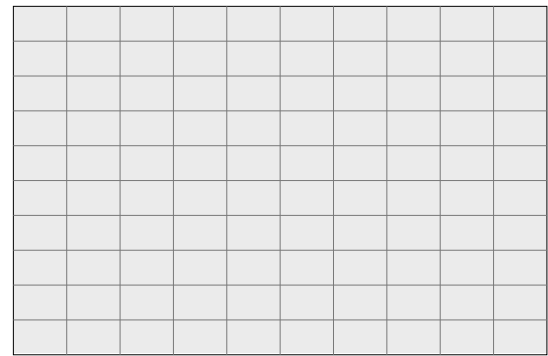
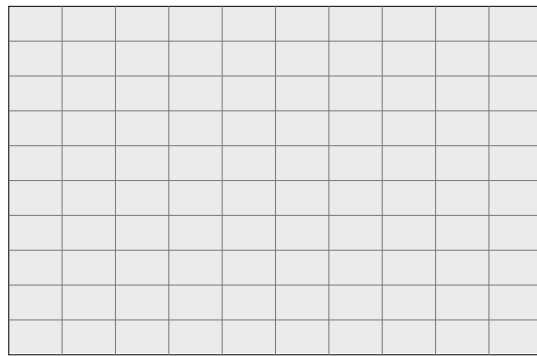
Time (sec)

0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

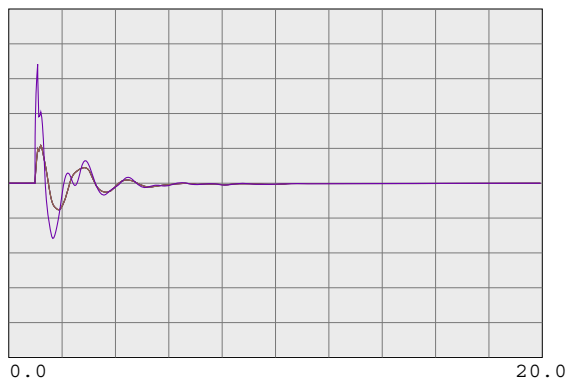
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

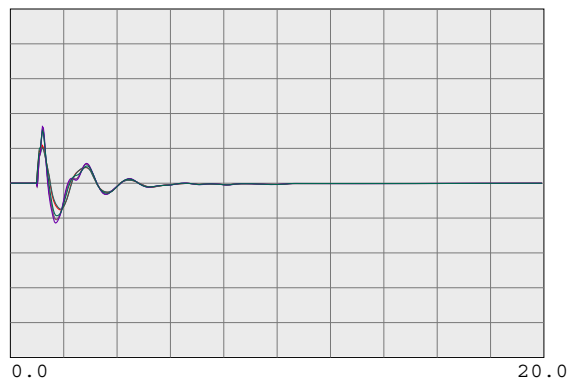
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

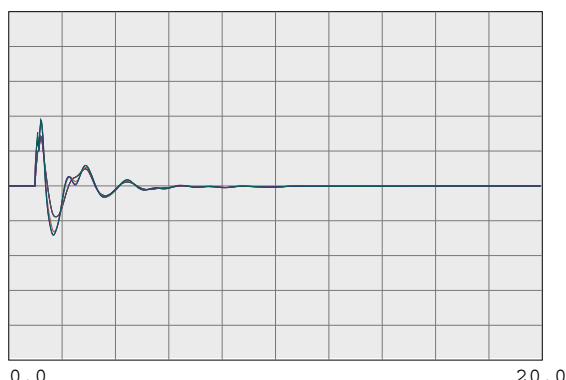
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

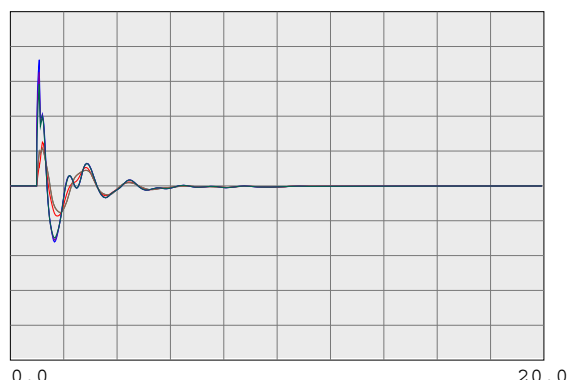
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

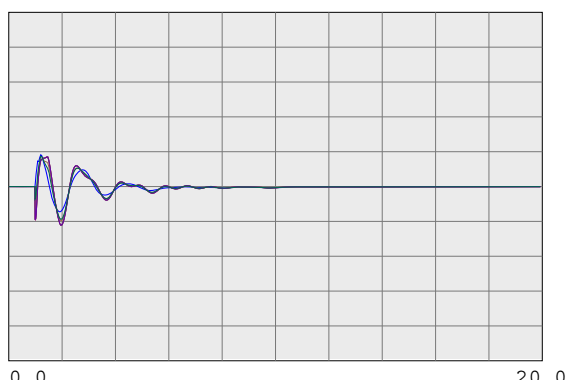
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

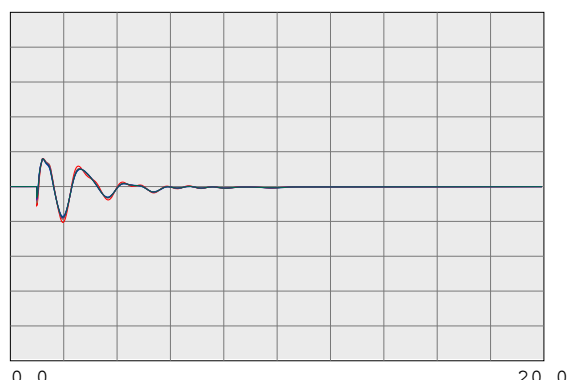
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

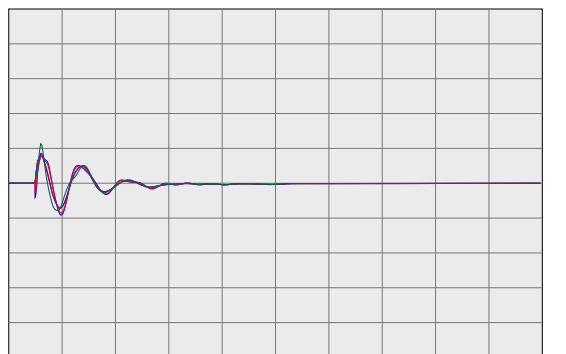
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

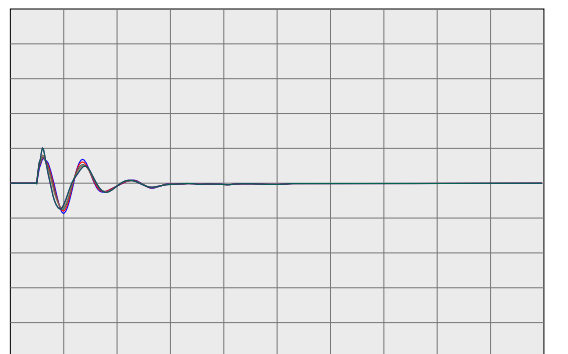
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

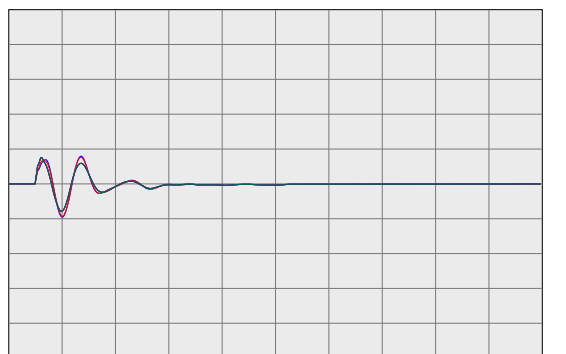
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

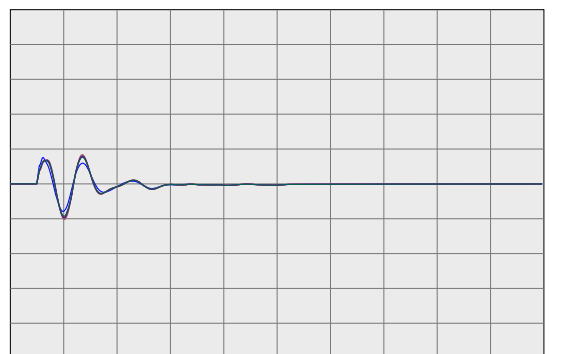
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

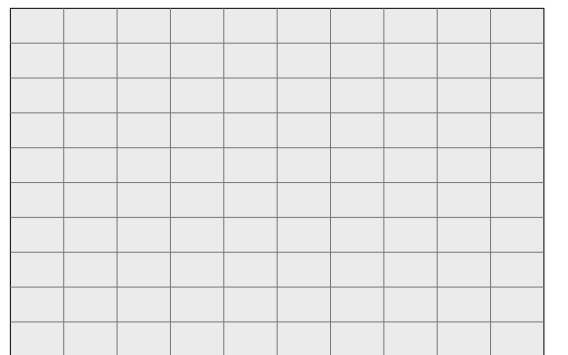
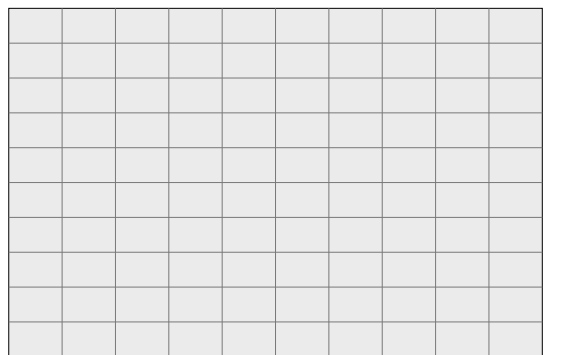
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKM 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CKK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

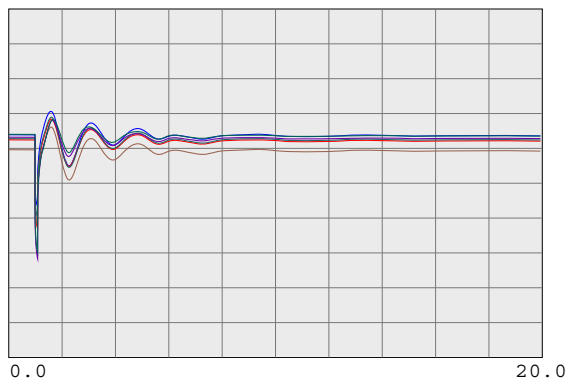
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

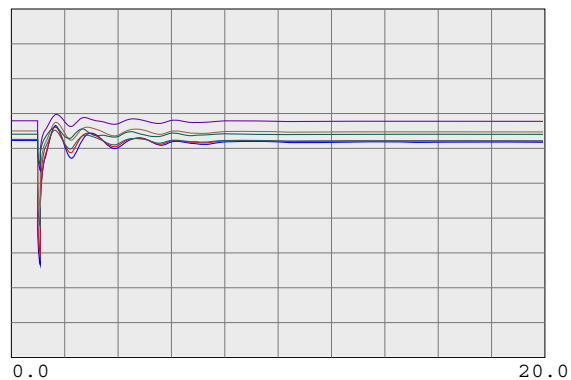
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

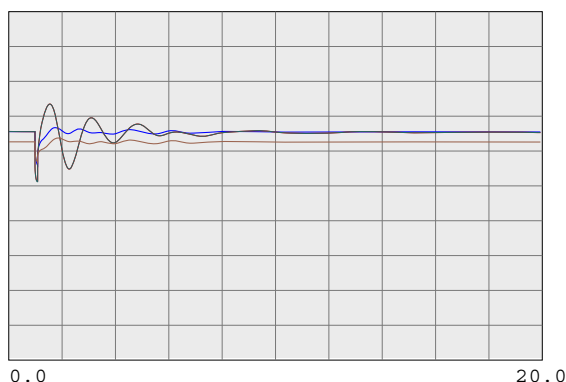
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



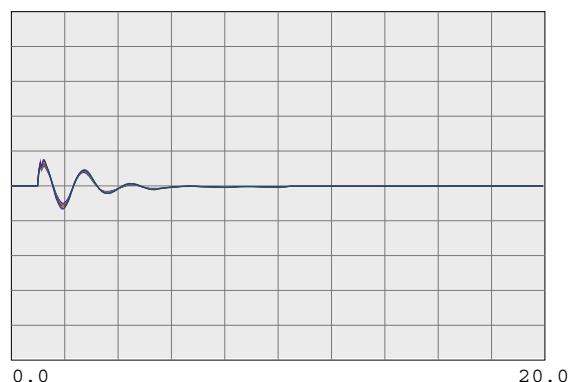
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



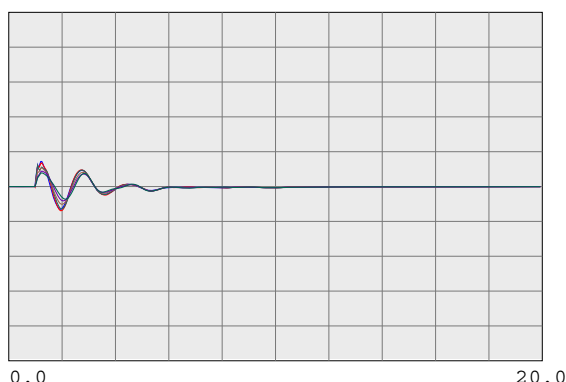
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



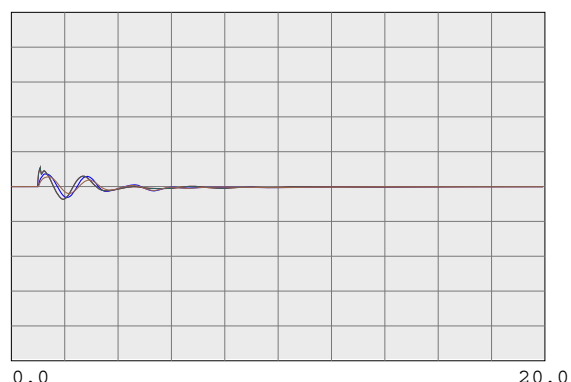
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOSBANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

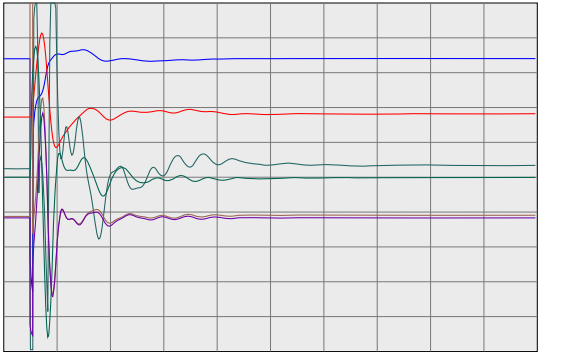
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

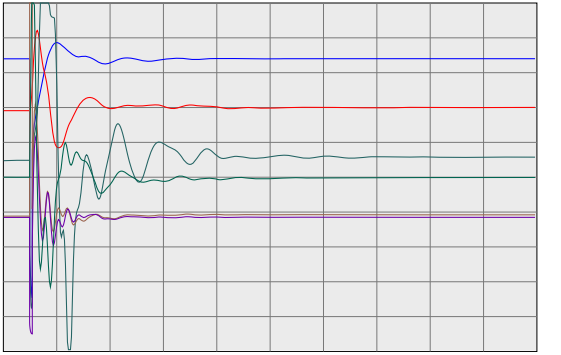
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

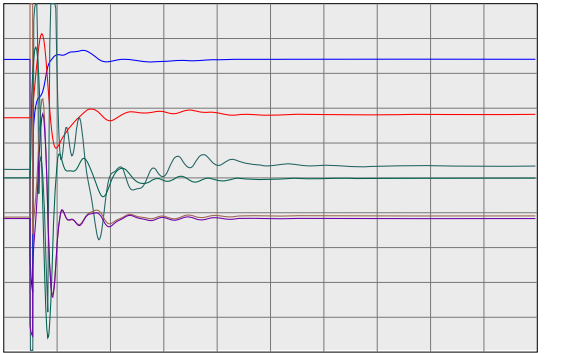
WILLOW PASS GENERATION PLANT



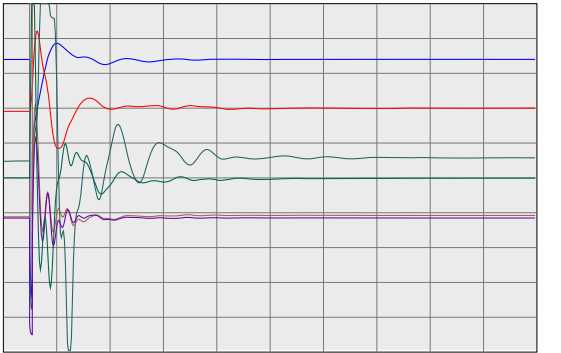
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



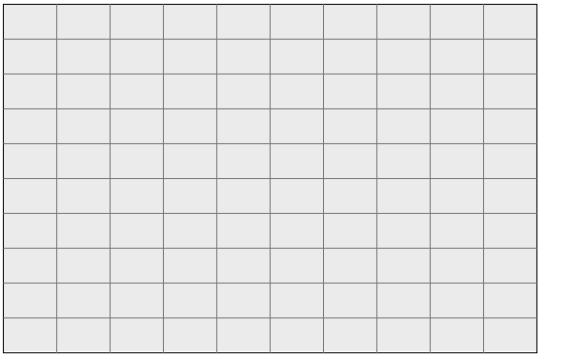
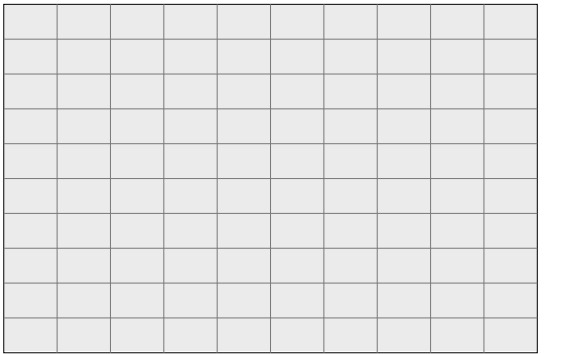
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

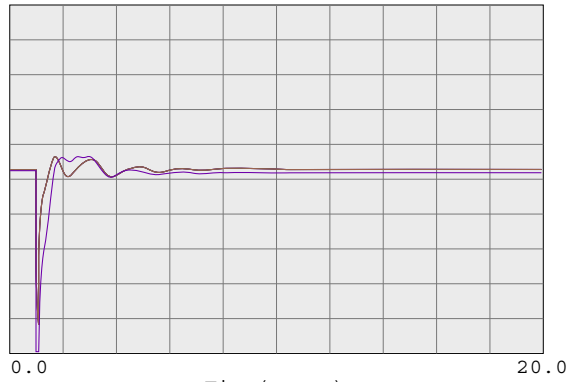


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



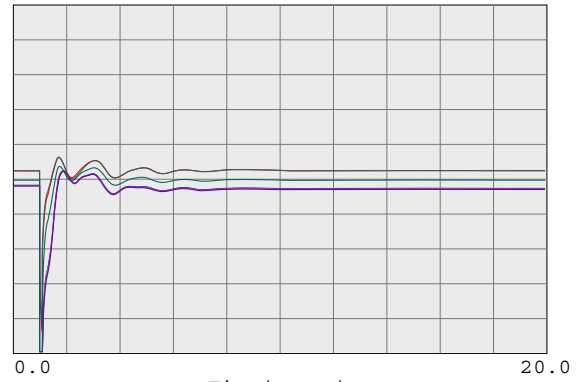
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



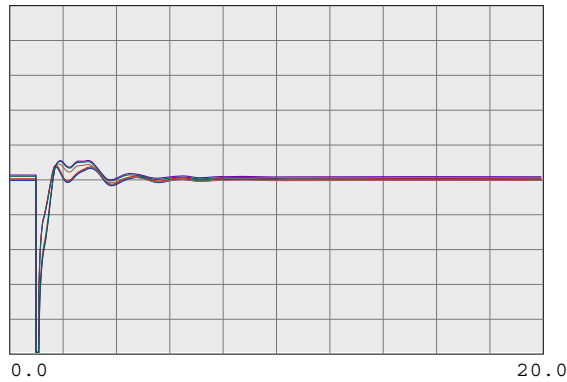
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



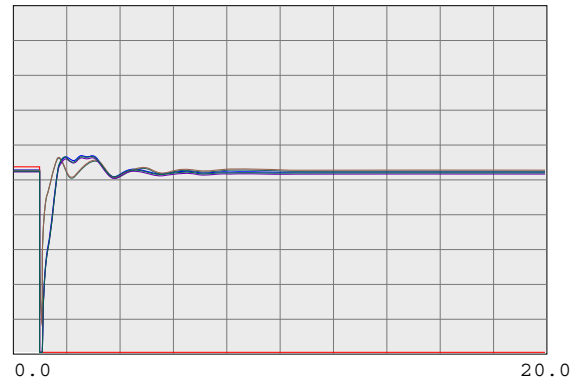
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



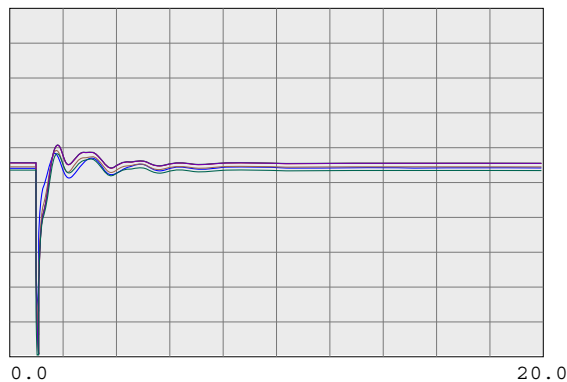
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



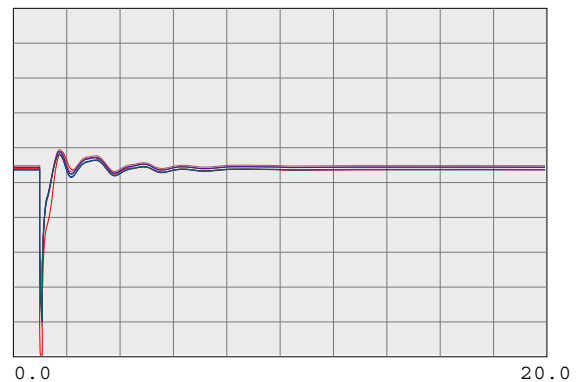
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

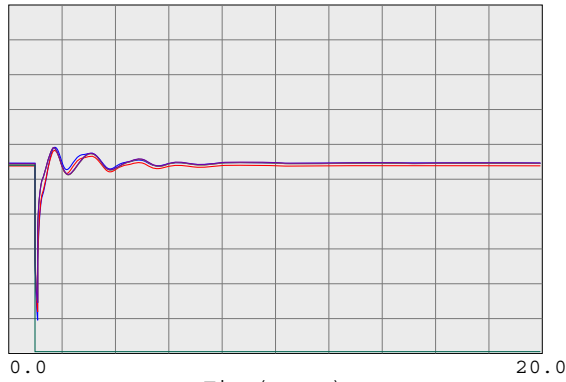
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

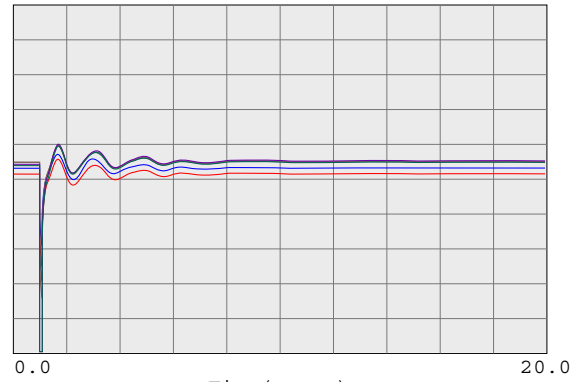
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



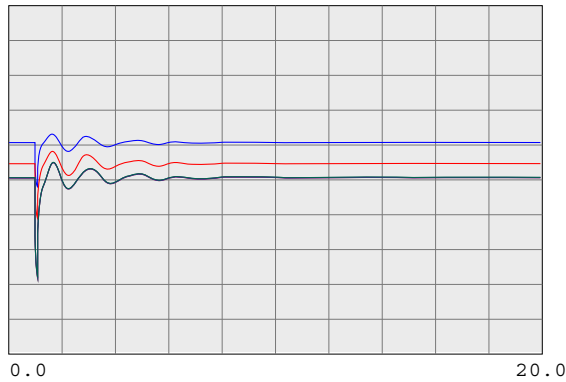
Time (sec)

0.7500 vbus	30716	TRAN230A 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0	1	1	1.2500



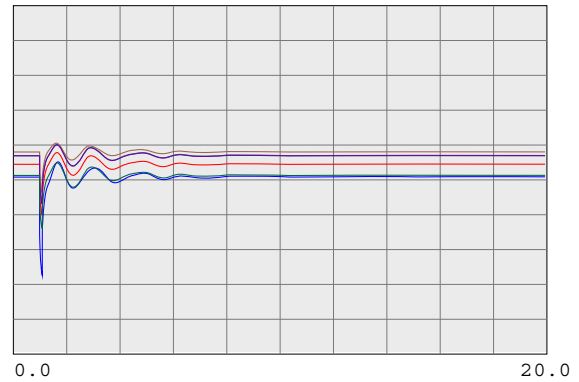
Time (sec)

0.7500 vbus	30505	WEBER 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0	1	1	1.2500



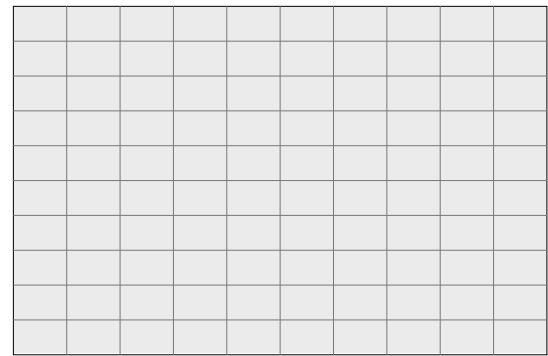
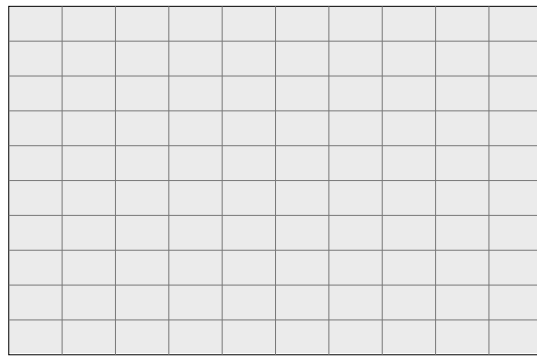
Time (sec)

0.7500 vbus	30503	COLLIERV 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30495	STAGS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0	1	1	1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

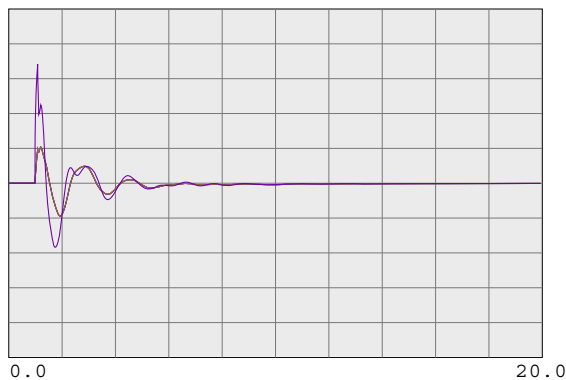
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

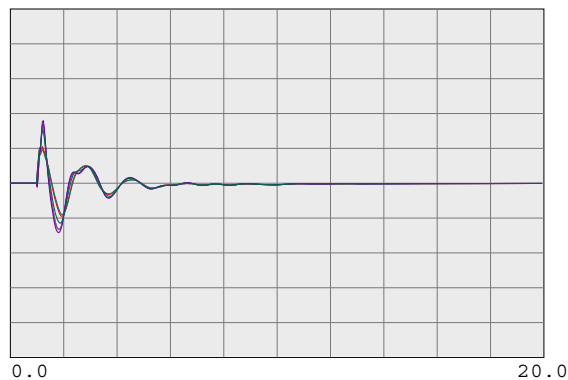
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

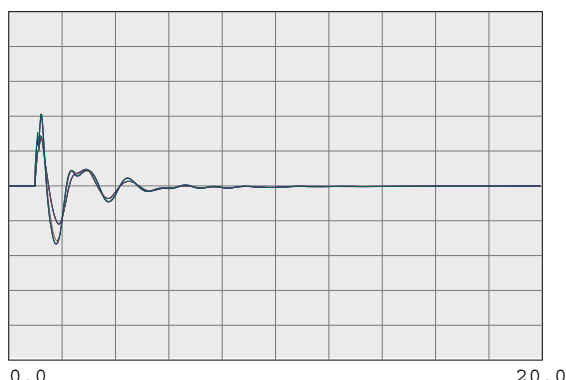
230-KV SYSTEM FREQUENCIES



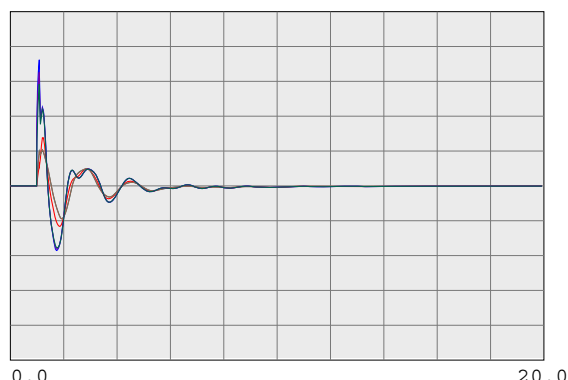
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



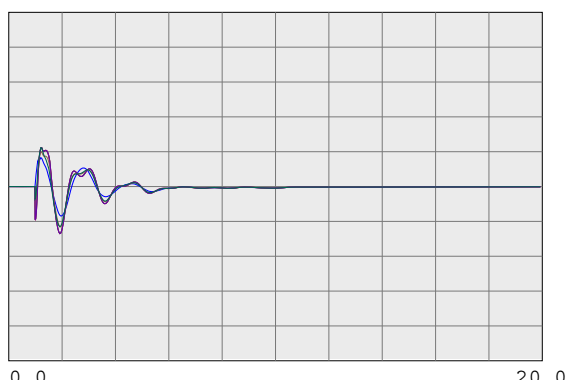
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



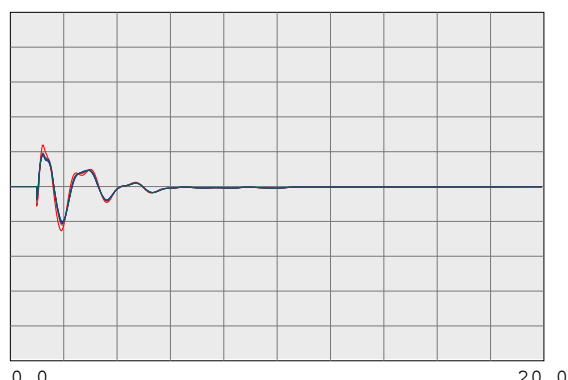
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRIANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBRO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTSG 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WID MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCRD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANZJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

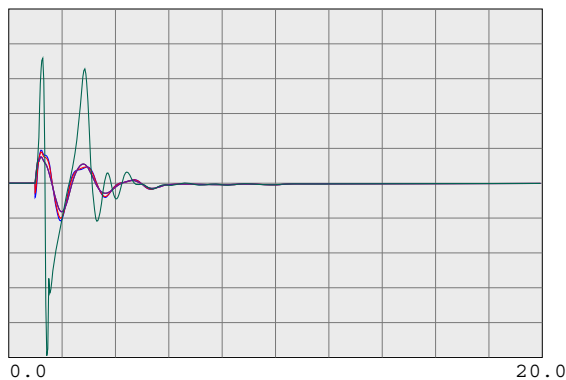
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

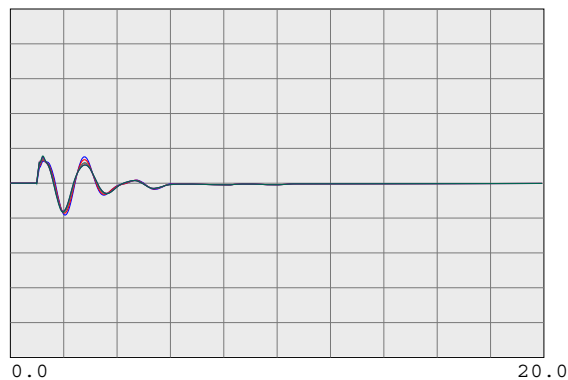
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



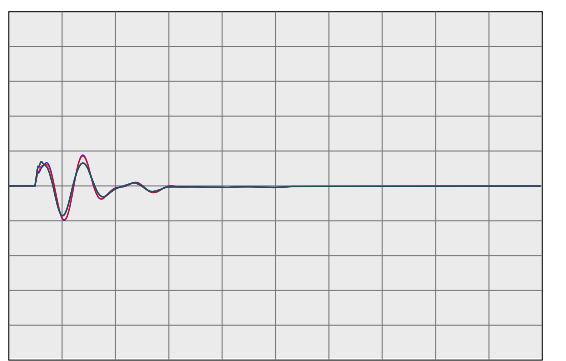
Time (sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



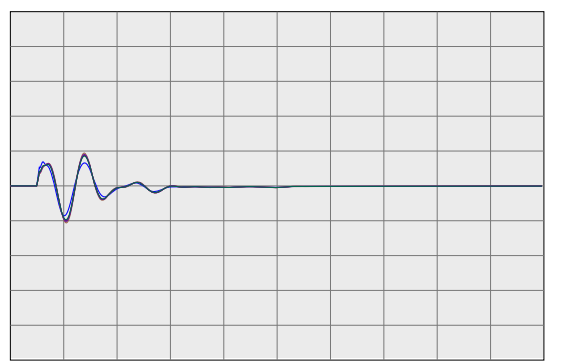
Time (sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



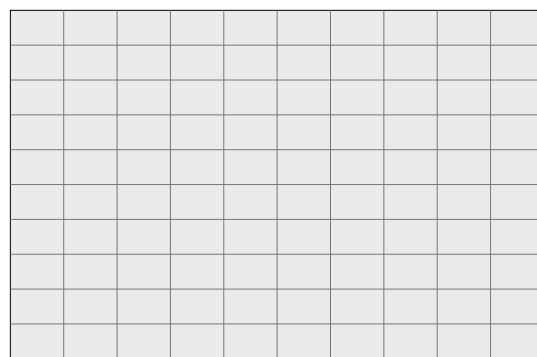
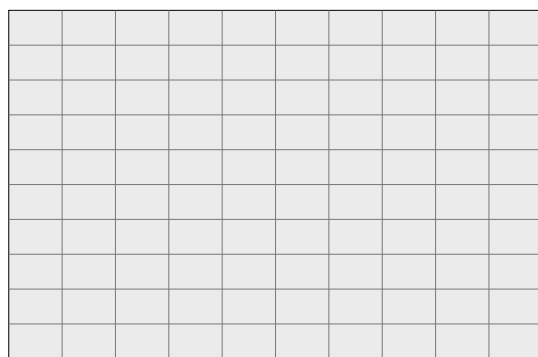
Time (sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

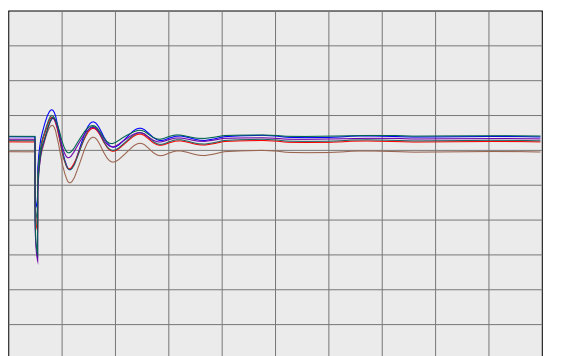
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

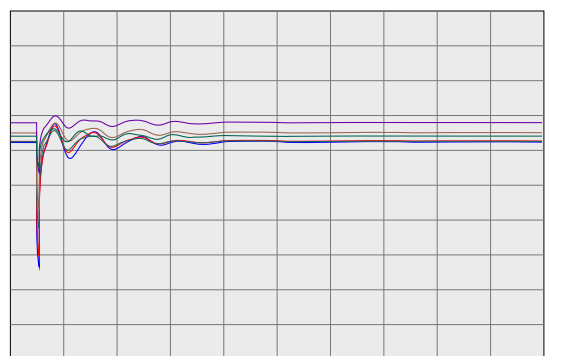
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time (sec)

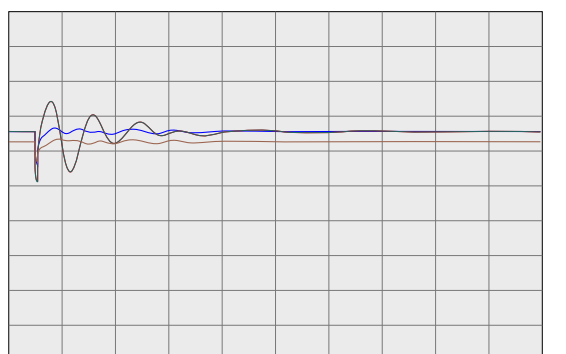
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

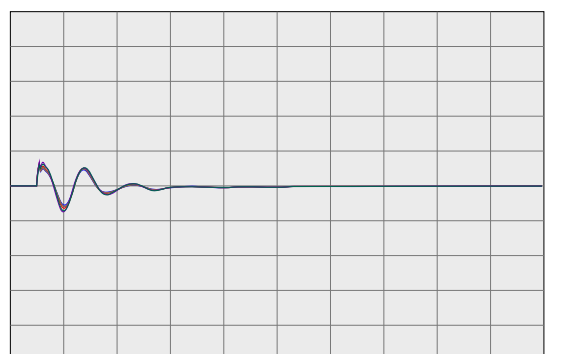
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

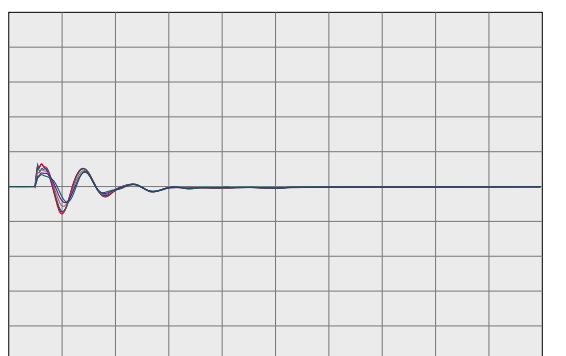
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time (sec)

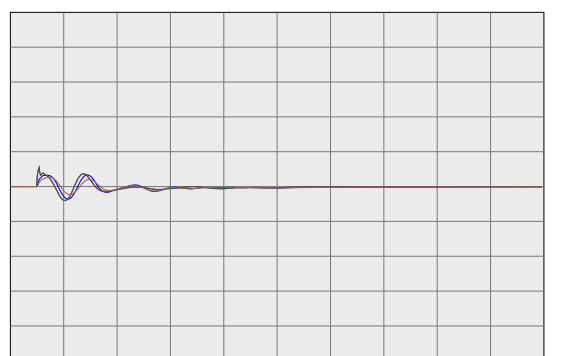
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

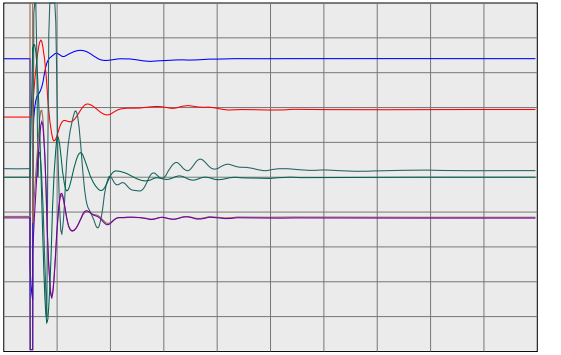
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

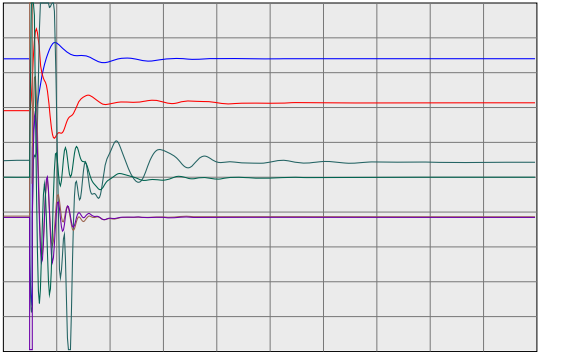
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

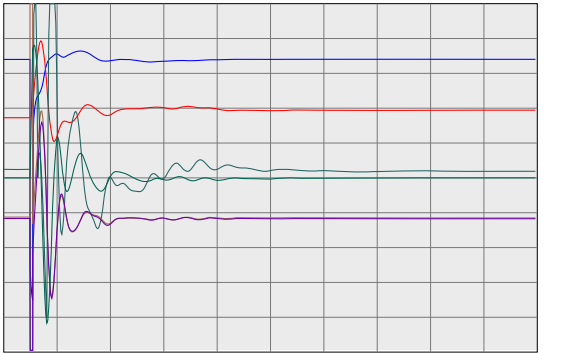
WILLOW PASS GENERATION PLANT



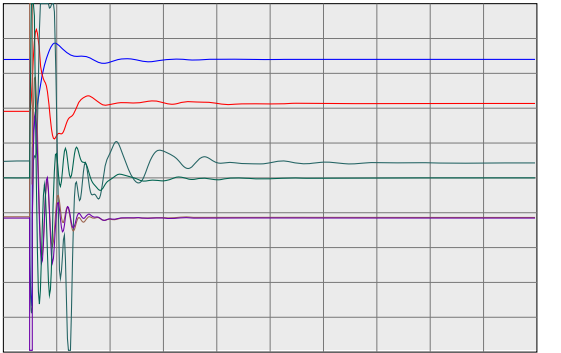
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



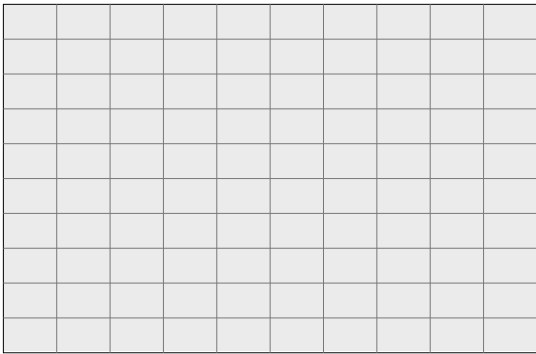
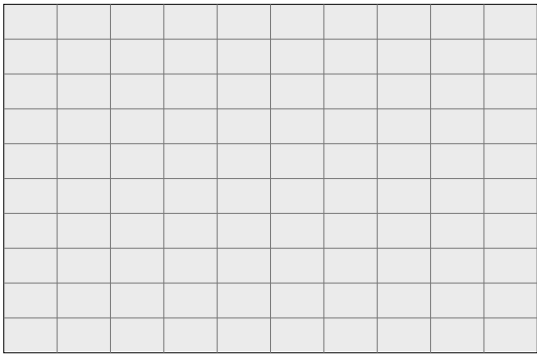
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

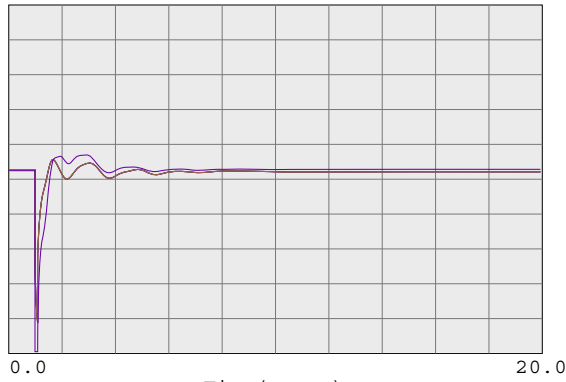


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



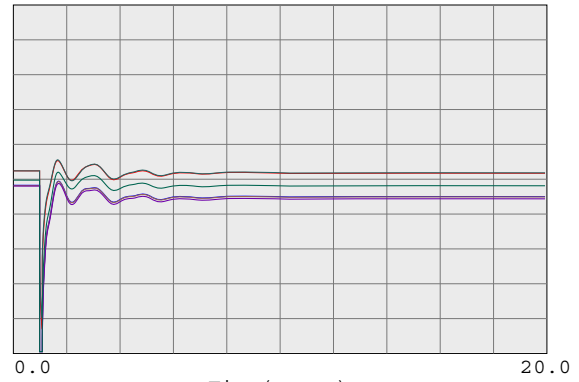
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



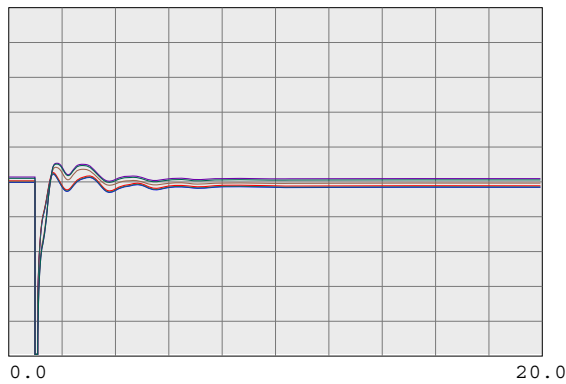
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



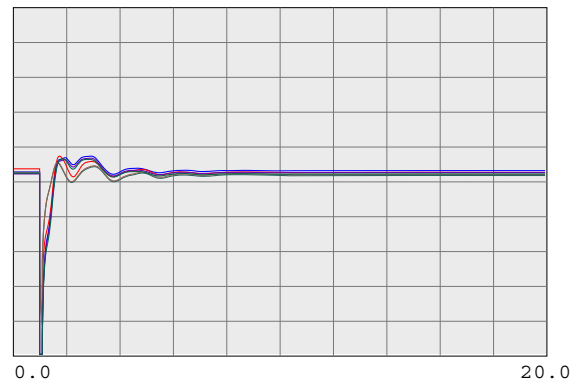
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



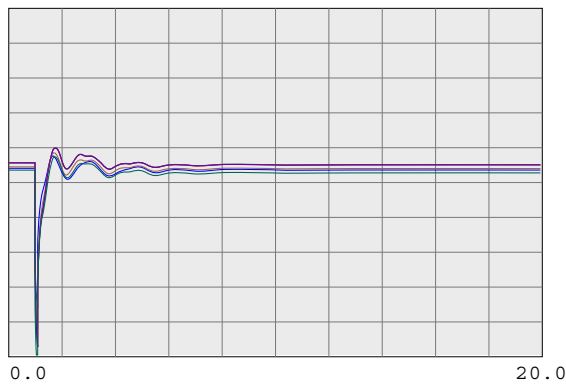
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



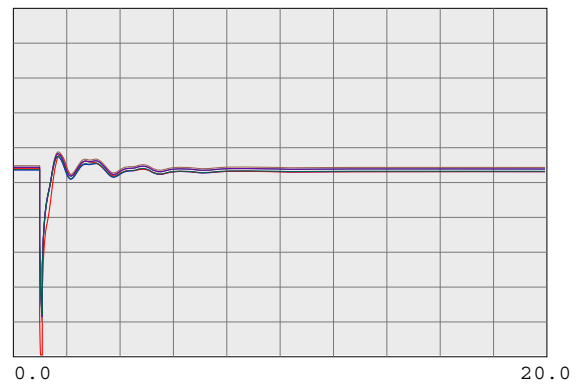
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

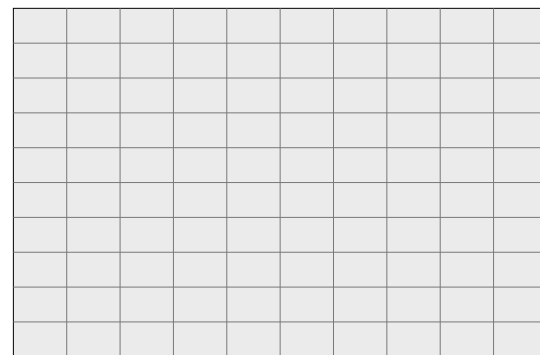
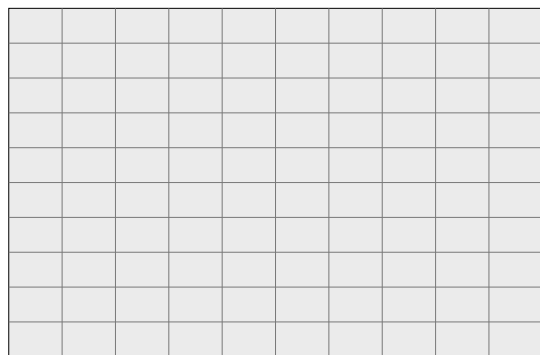
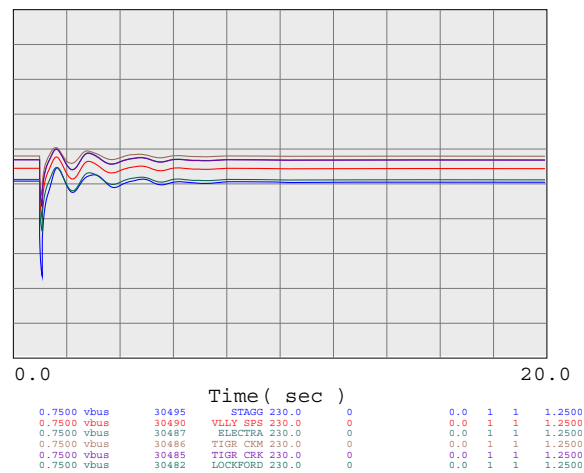
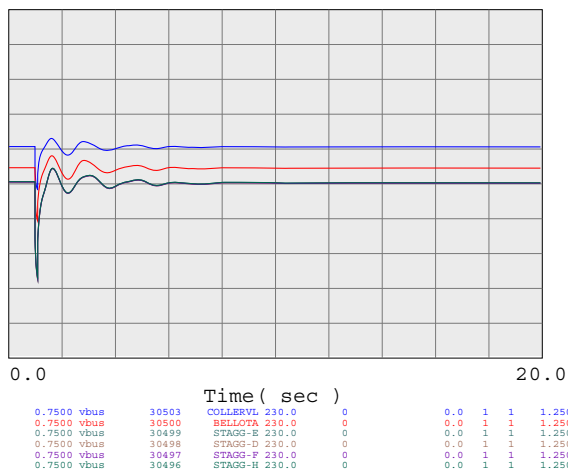
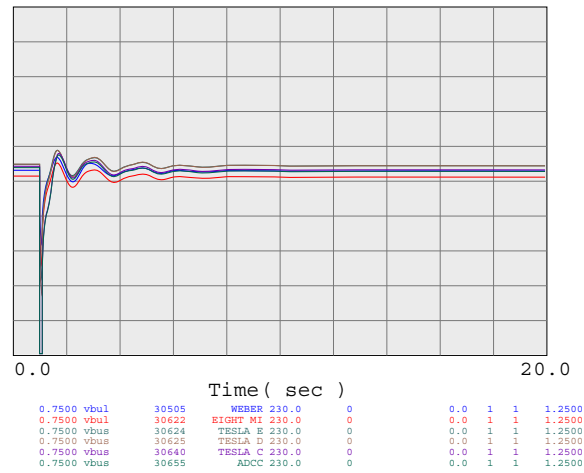
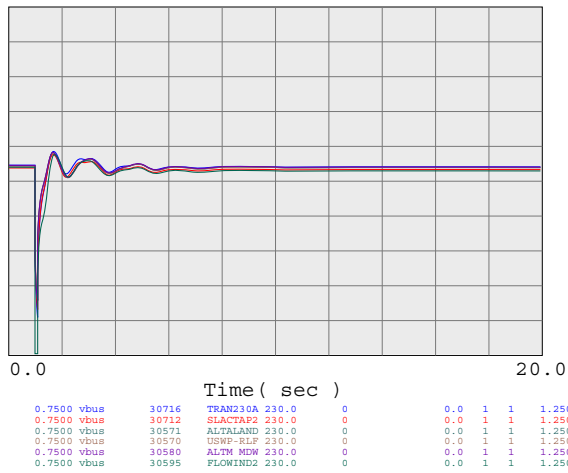
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

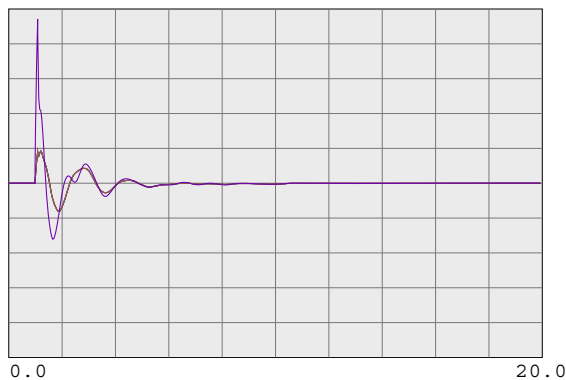
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



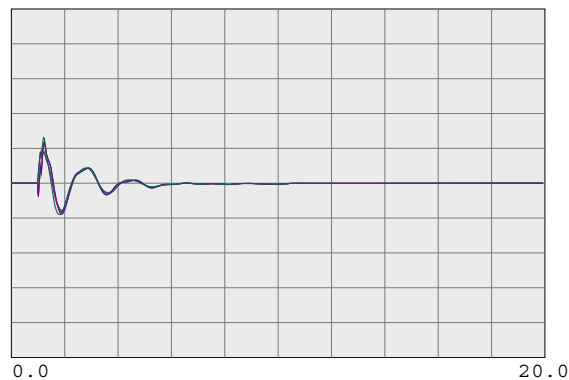
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

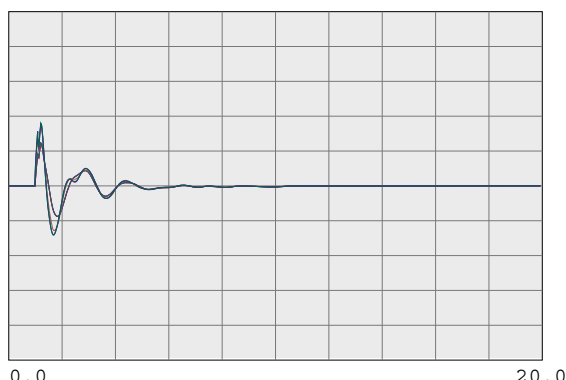
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

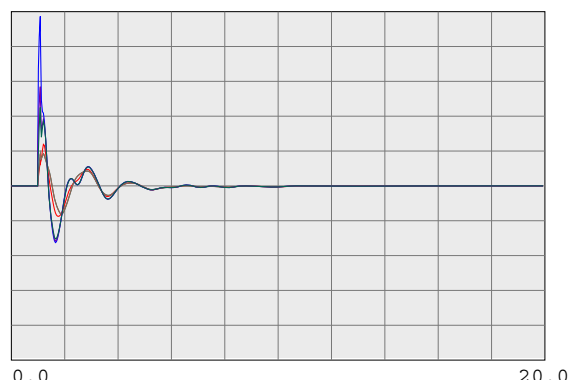
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

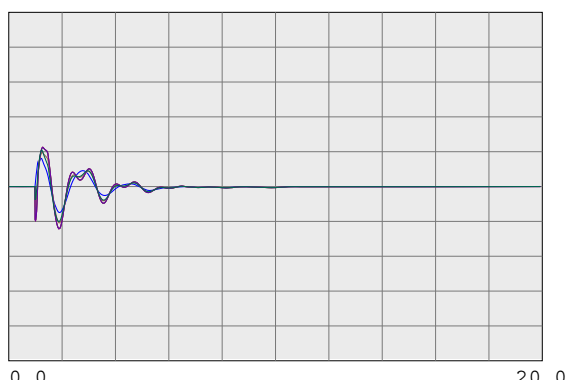
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

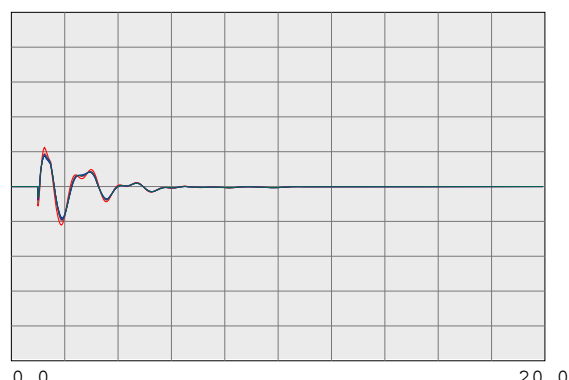
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

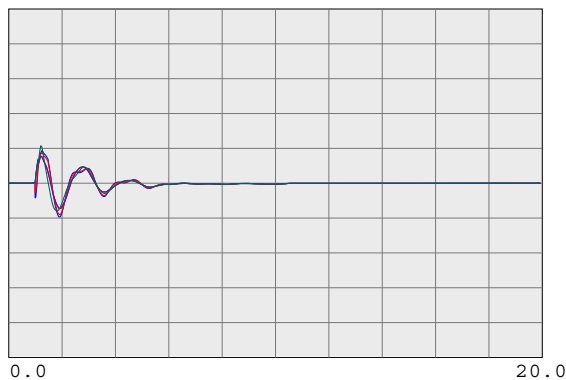
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

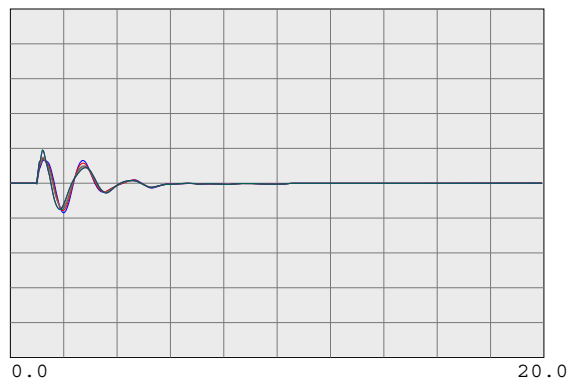
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

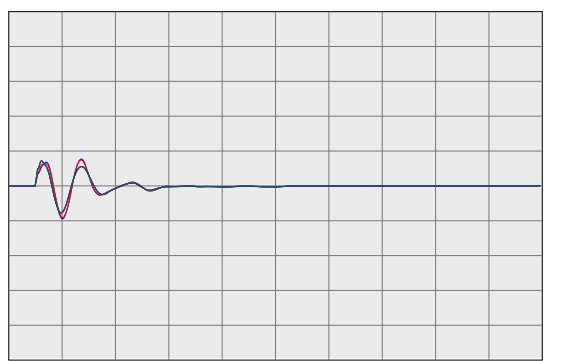
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

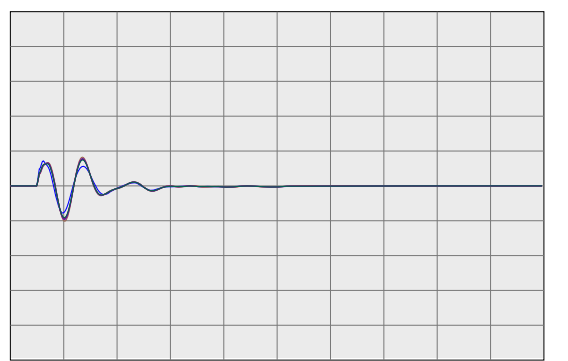
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

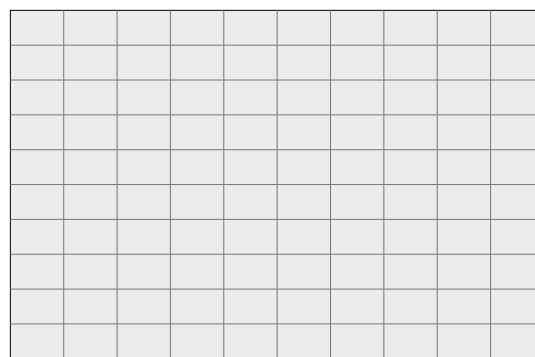
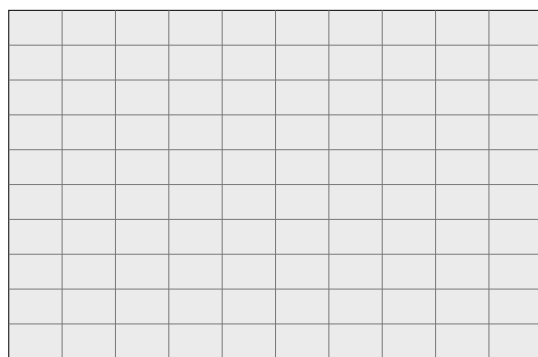
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

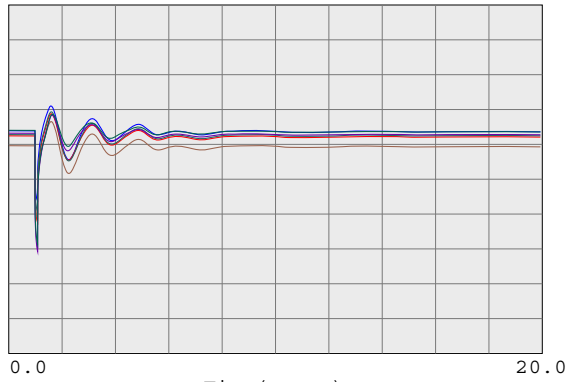
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

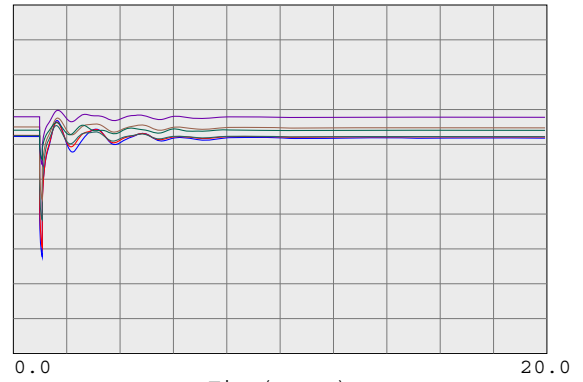
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

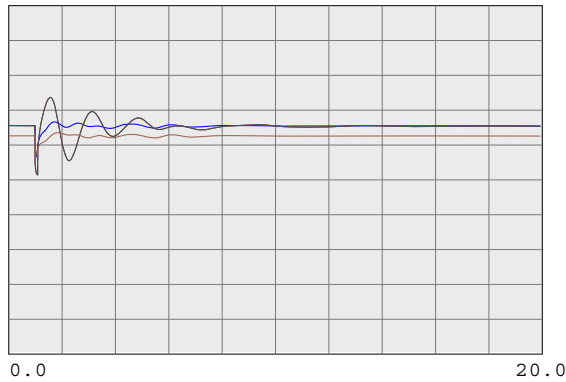
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



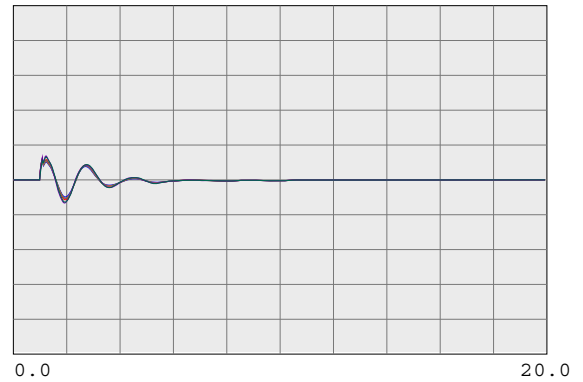
Time (sec)	0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500	



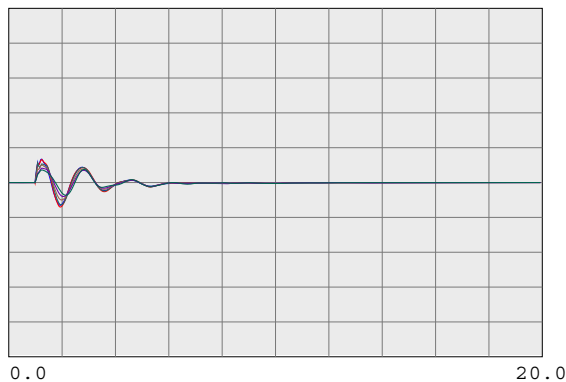
Time (sec)	0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500	



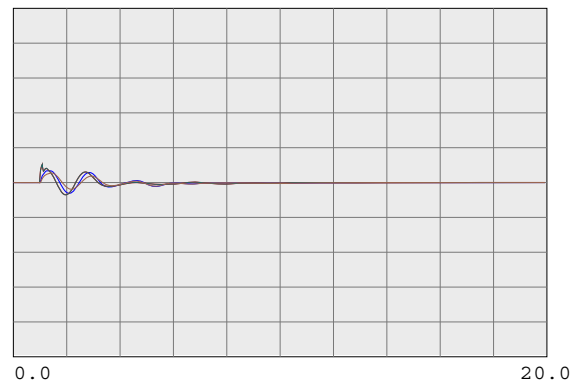
Time (sec)	0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500	
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500	



Time (sec)	59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000	



Time (sec)	59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000	



Time (sec)	59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000	
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000	

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

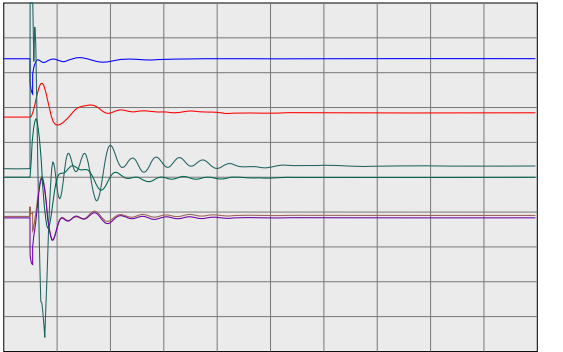
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

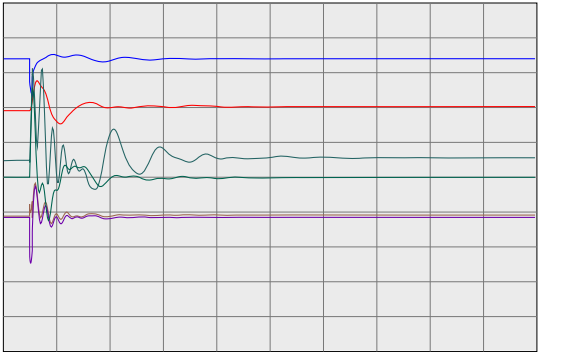
WILLOW PASS GENERATION PLANT



0.0 20.0

Time(sec)

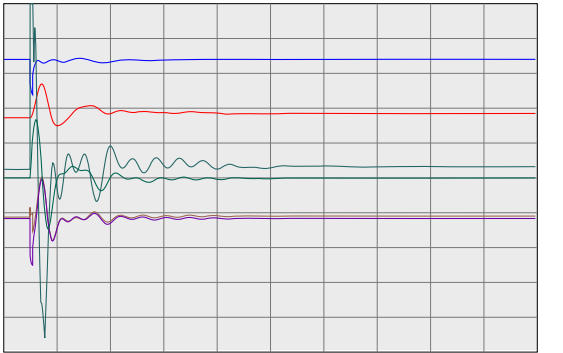
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



0.0 20.0

Time(sec)

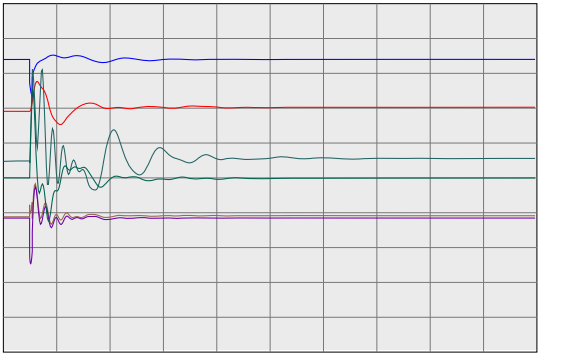
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



0.0 20.0

Time(sec)

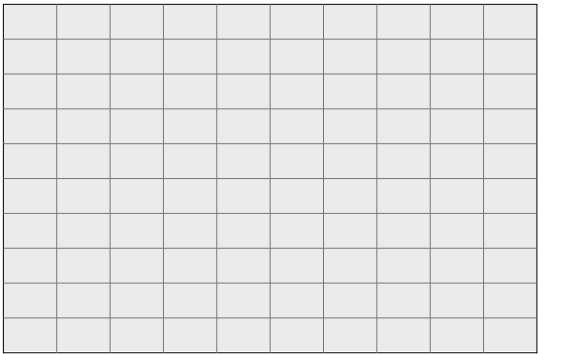
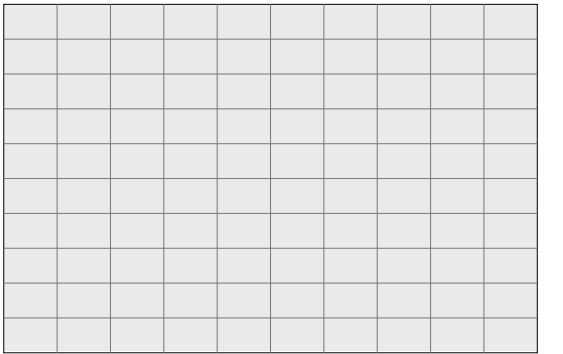
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100



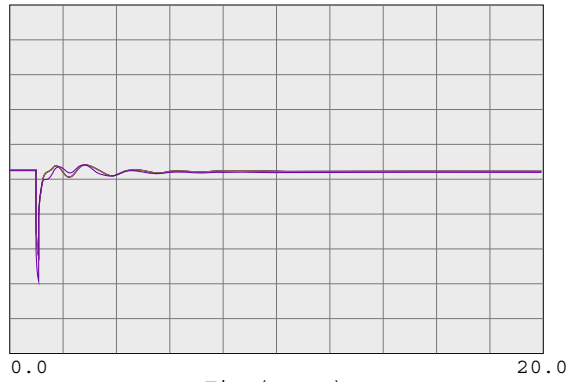
0.0 20.0

Time(sec)

0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100

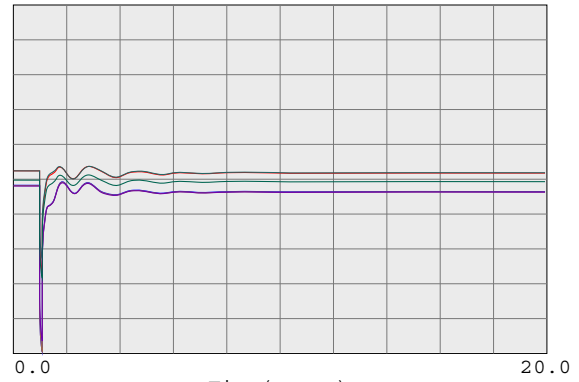


230-KV SYSTEM VOLTAGES



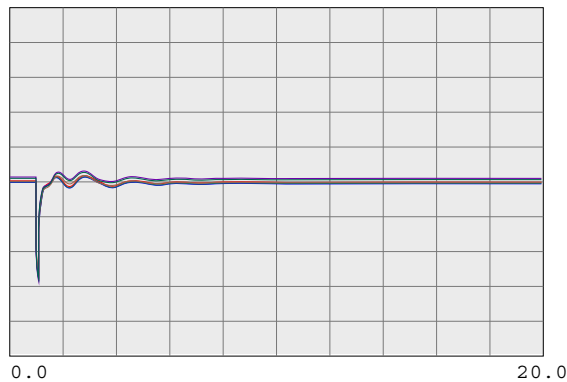
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



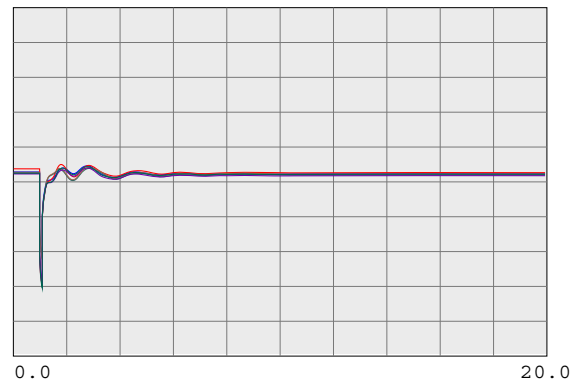
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



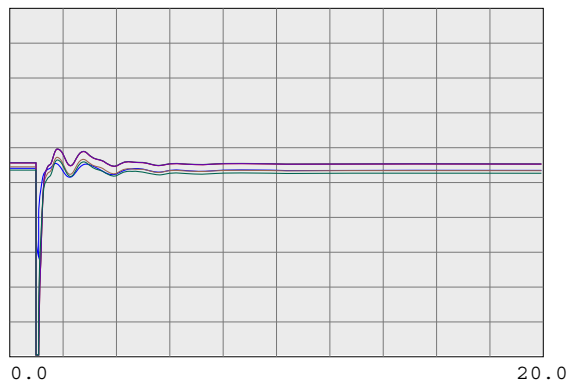
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



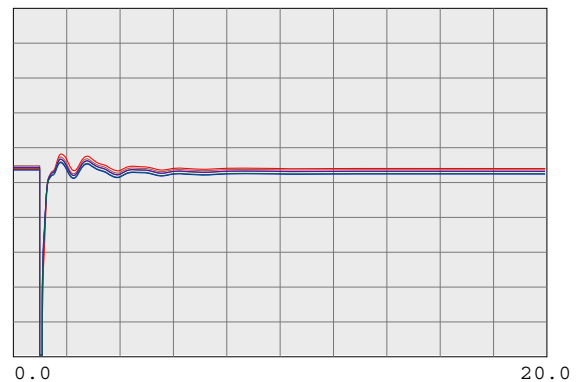
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

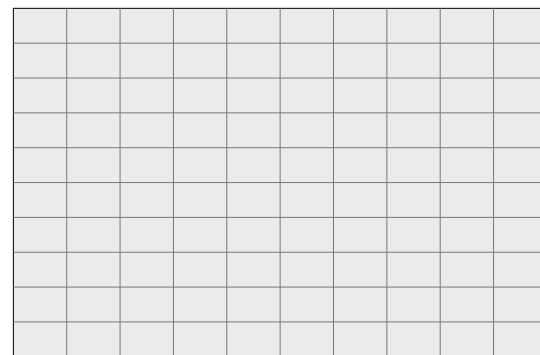
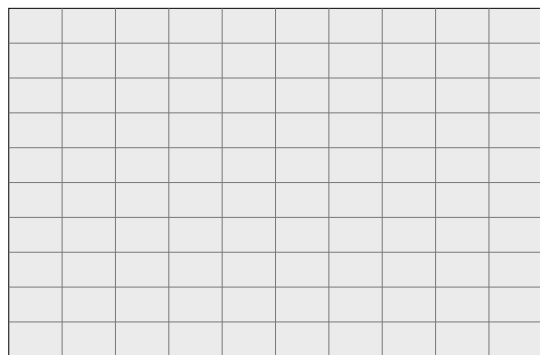
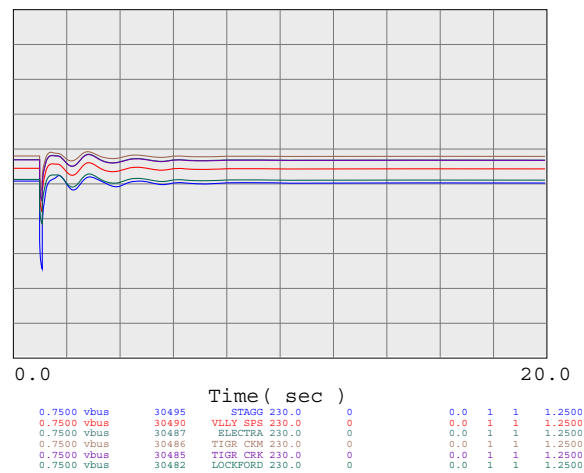
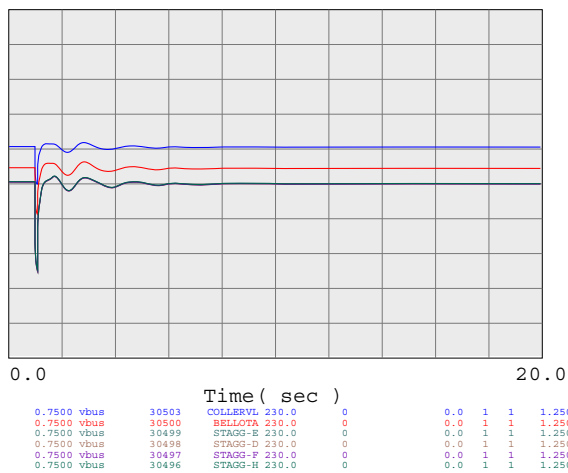
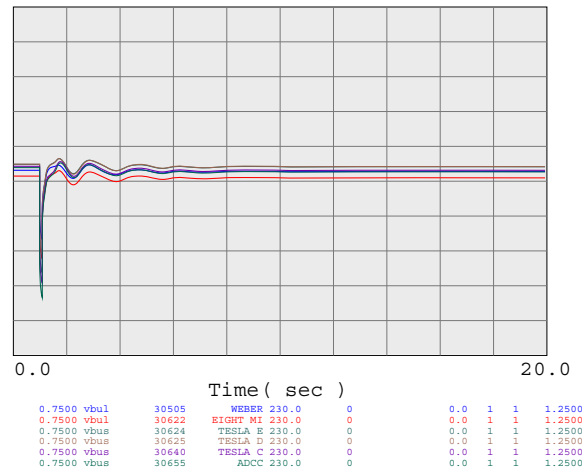
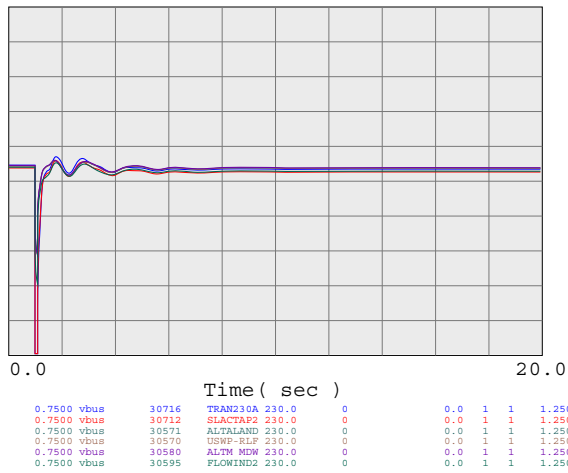
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

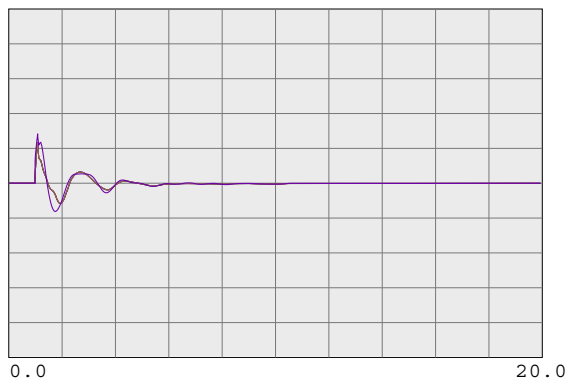
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

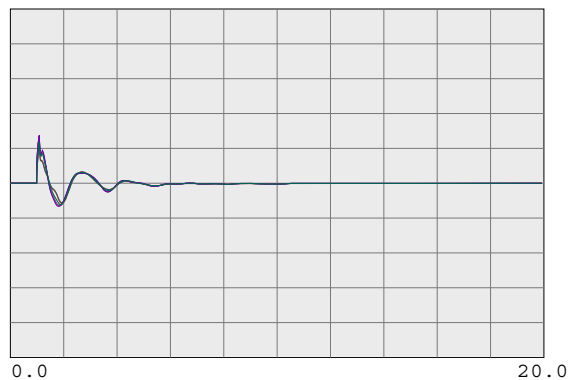
230-KV SYSTEM VOLTAGES



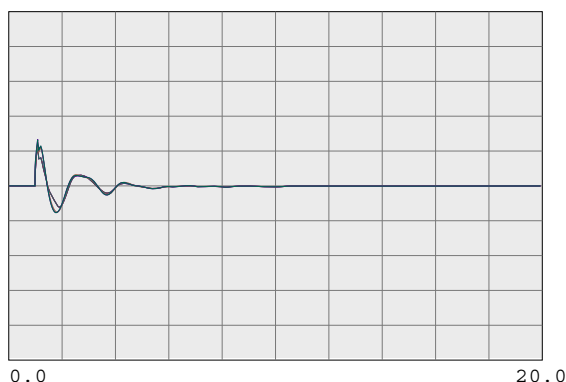
230-KV SYSTEM FREQUENCIES



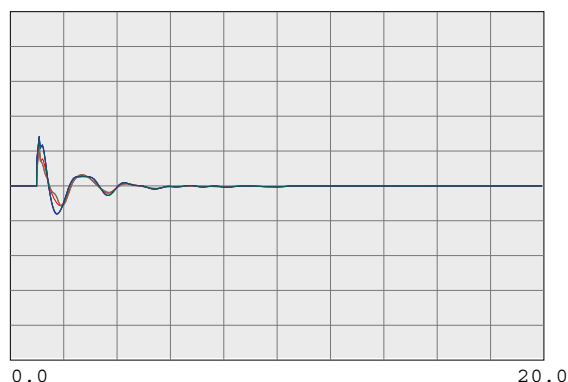
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRCCPB1 230.0	0	0.0	1	1	60.6000



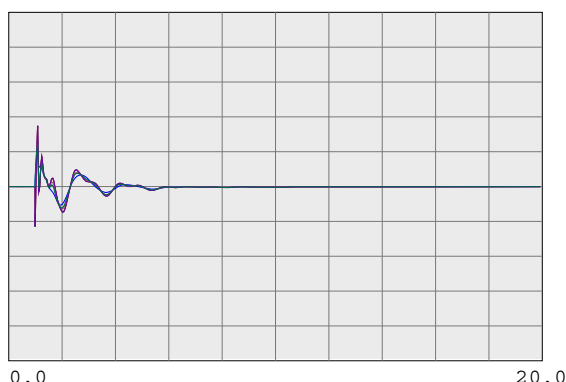
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



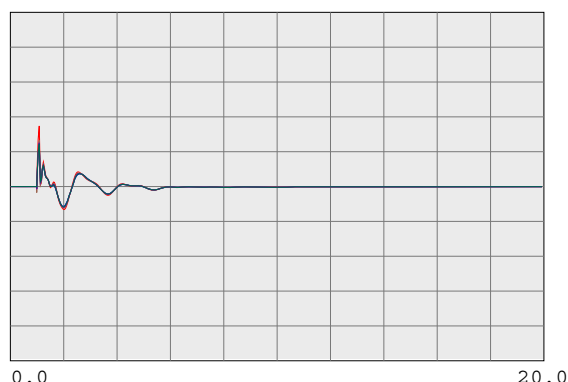
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

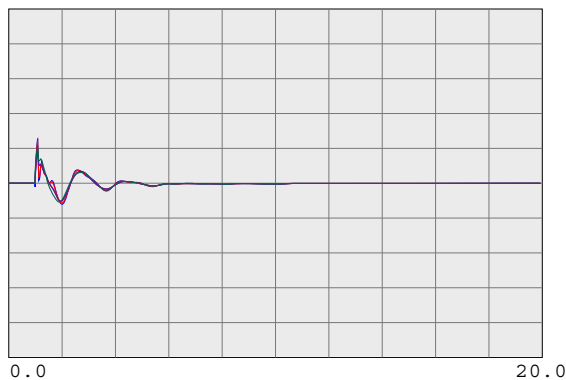
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

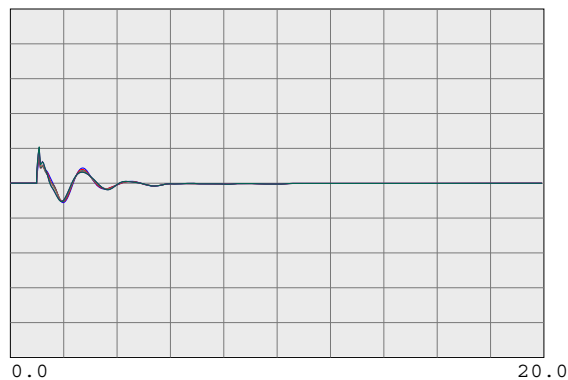
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

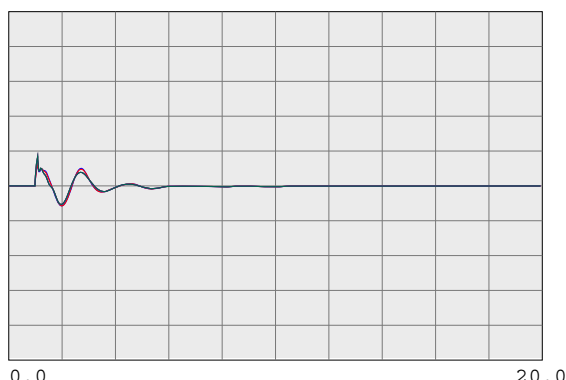
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

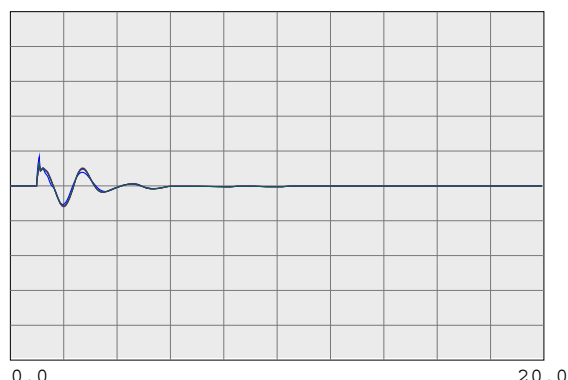
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

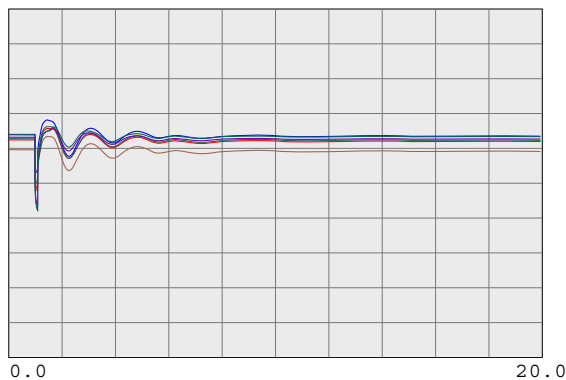
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

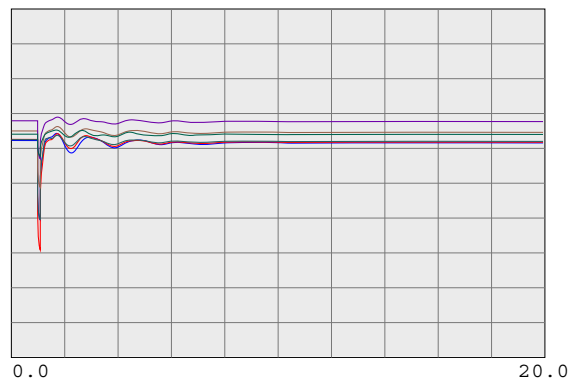
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



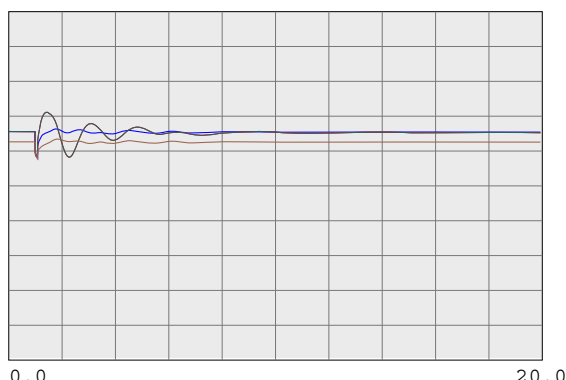
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



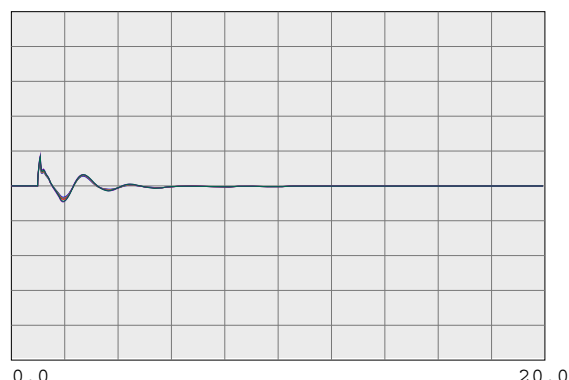
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



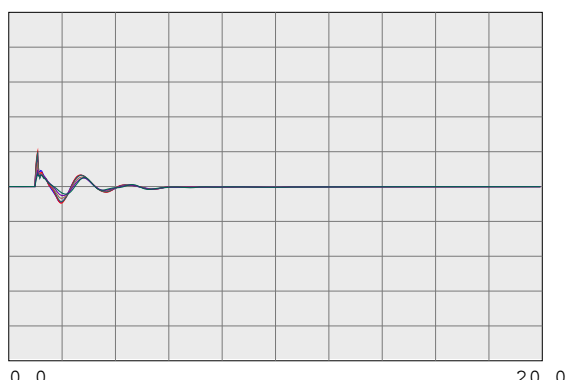
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



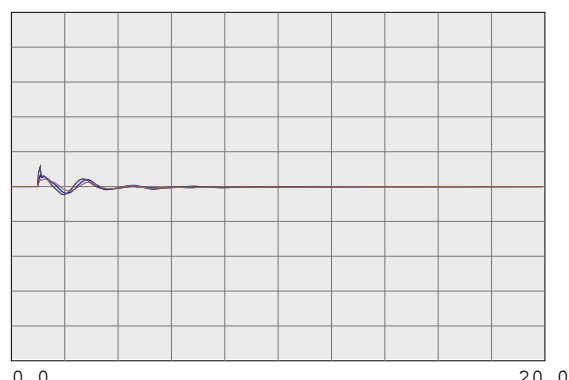
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

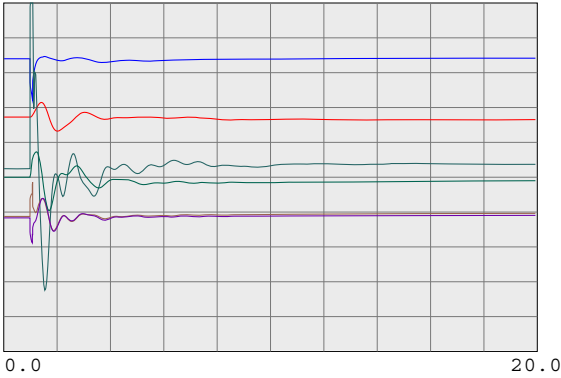
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

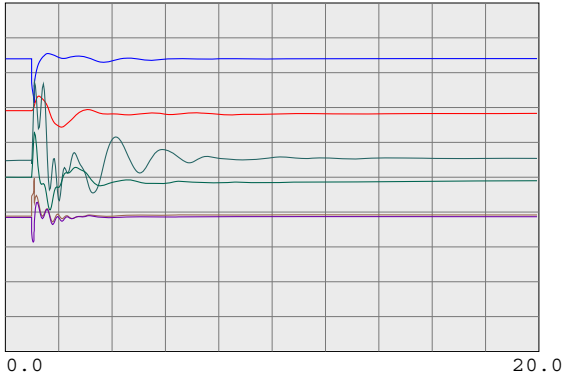
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

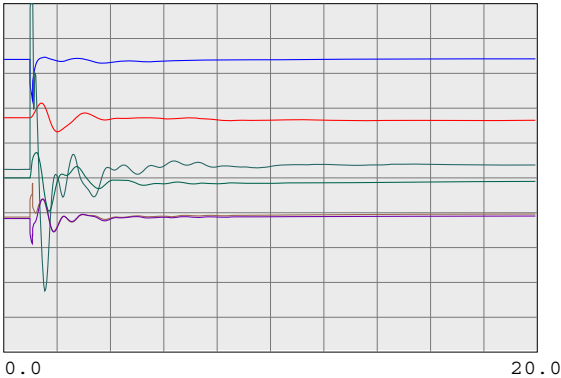
WILLOW PASS GENERATION PLANT



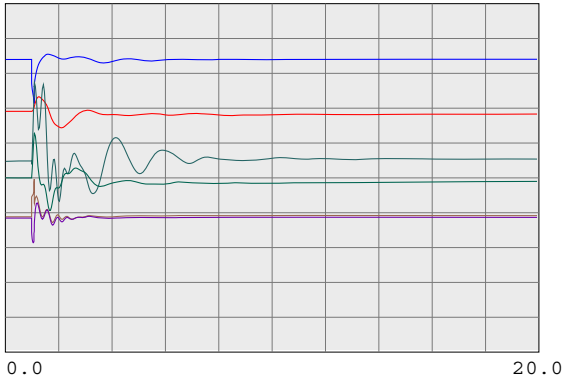
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100



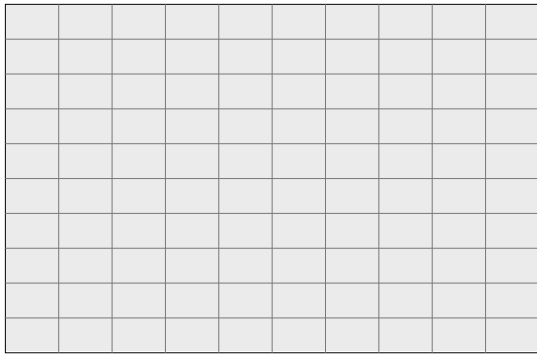
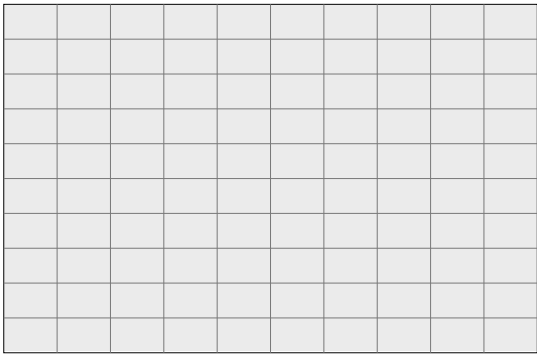
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100



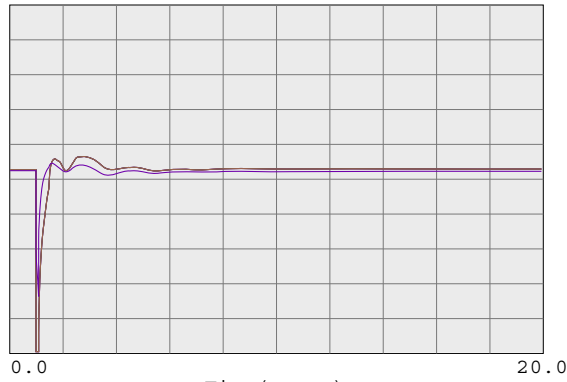
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100



0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100

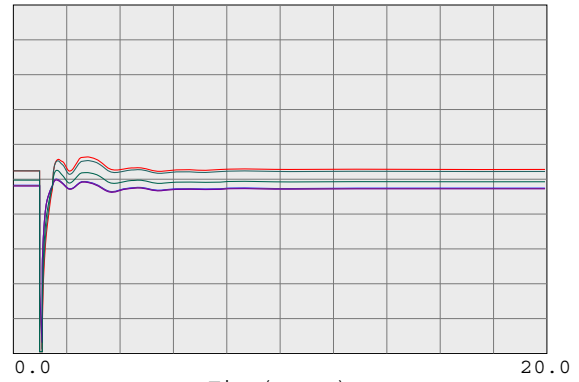


230-KV SYSTEM VOLTAGES



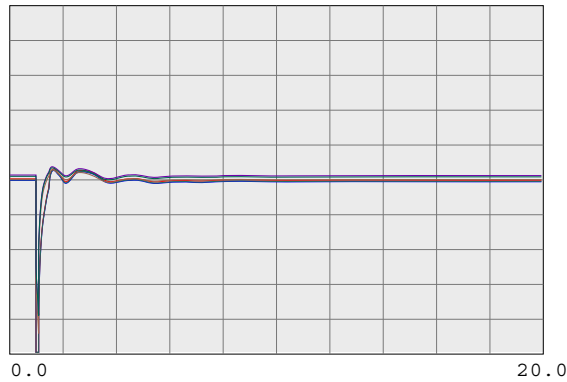
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



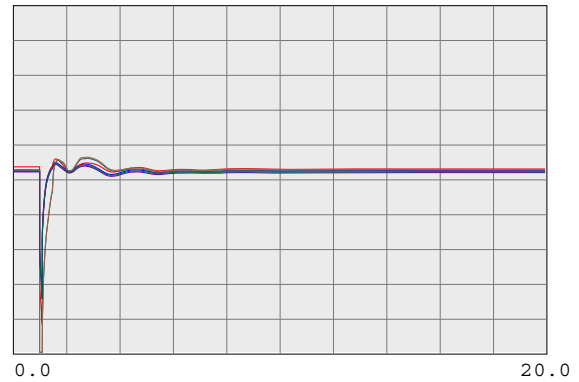
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



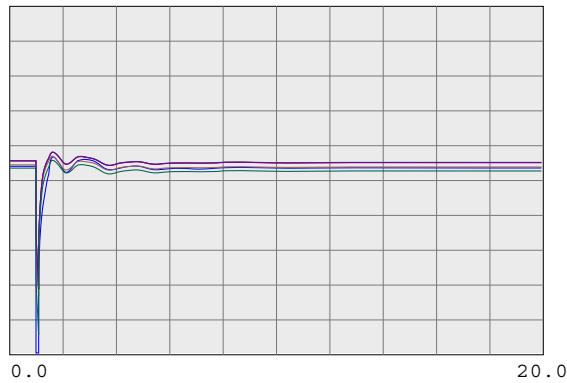
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



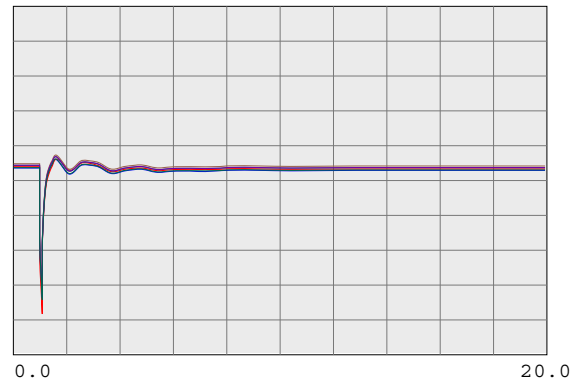
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

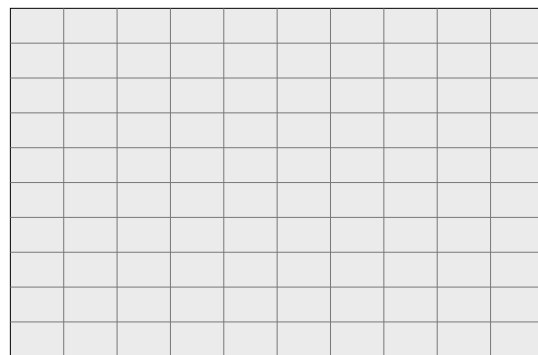
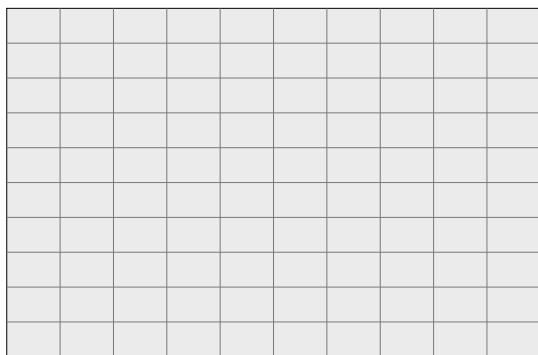
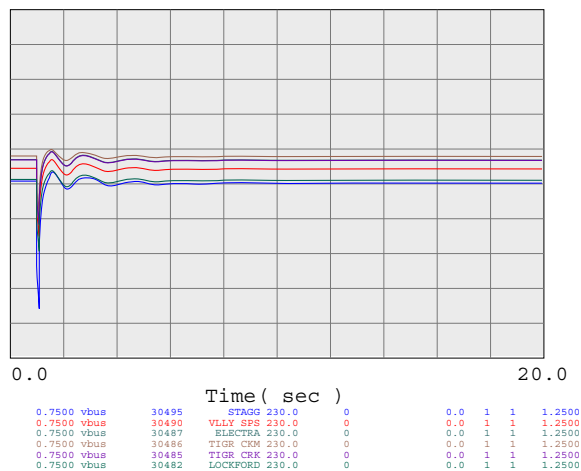
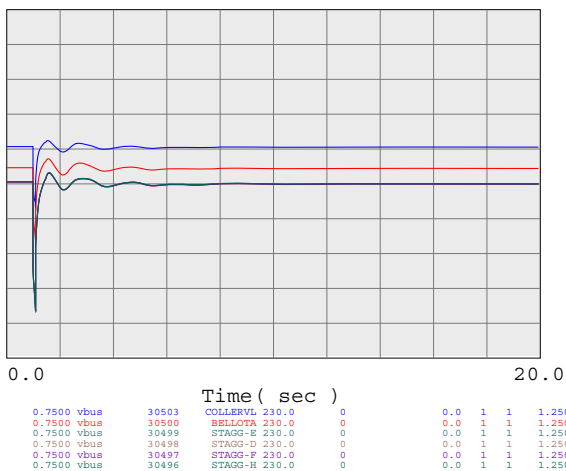
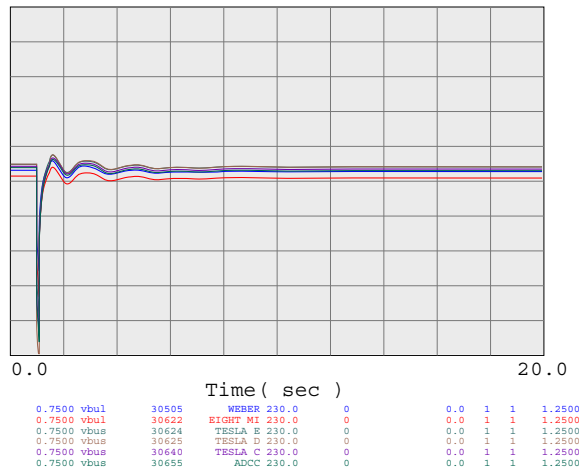
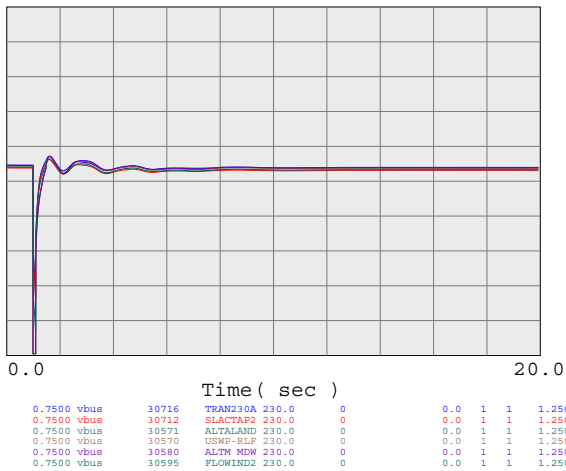
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

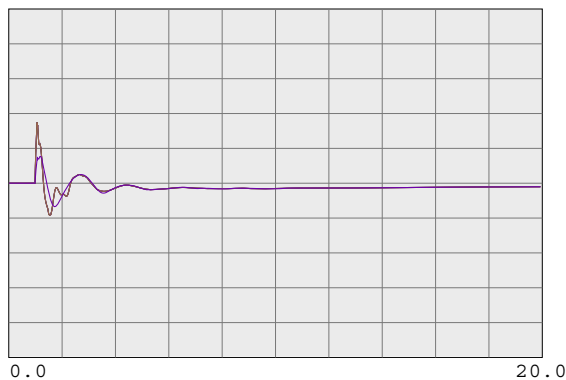
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

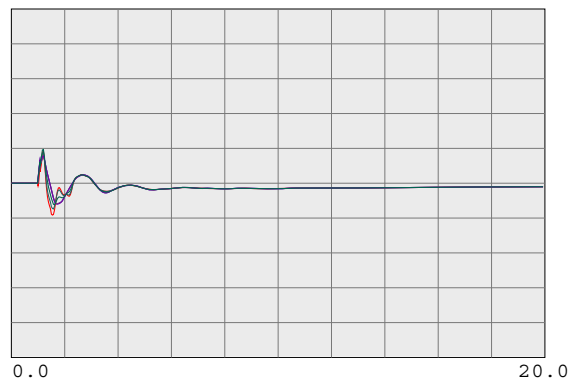
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

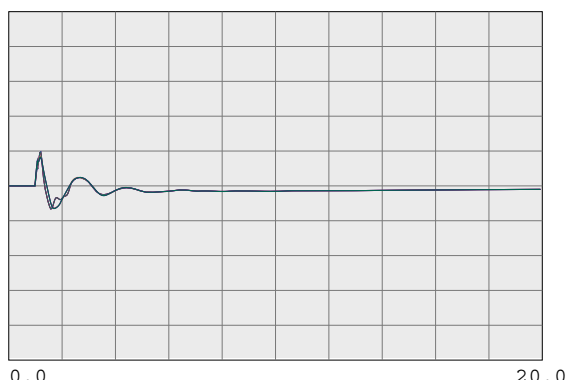
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

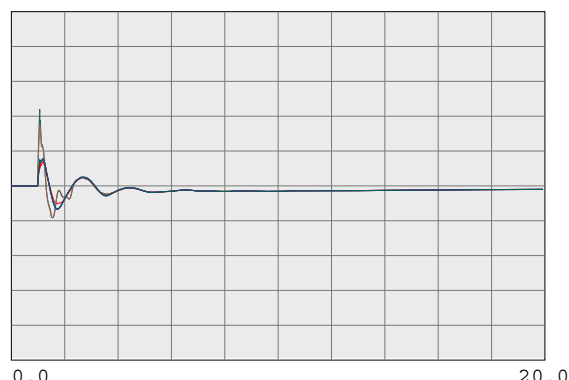
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

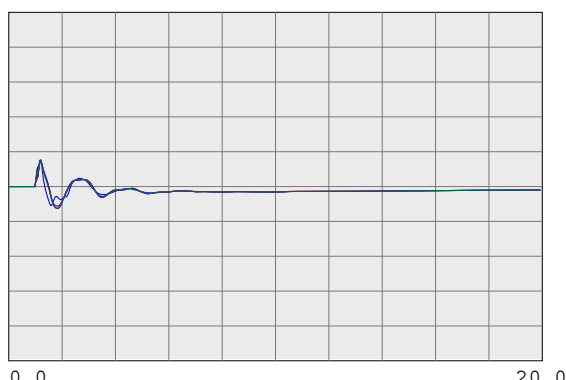
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

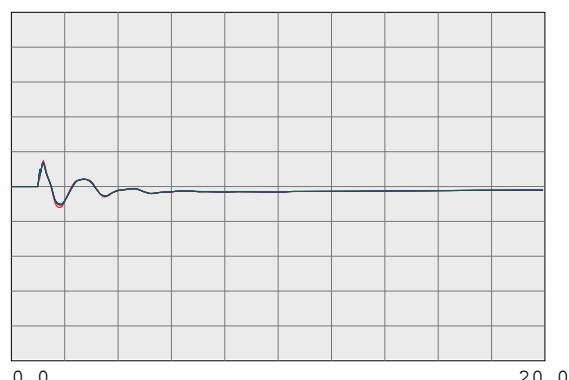
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

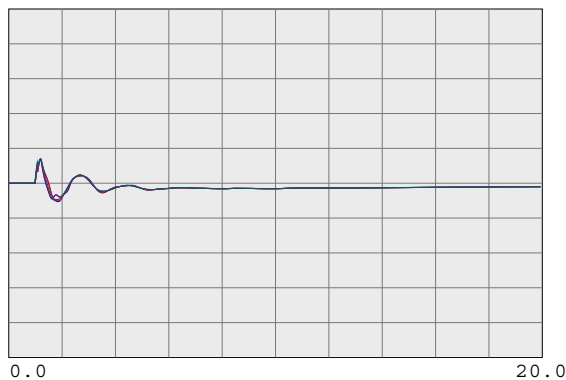
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

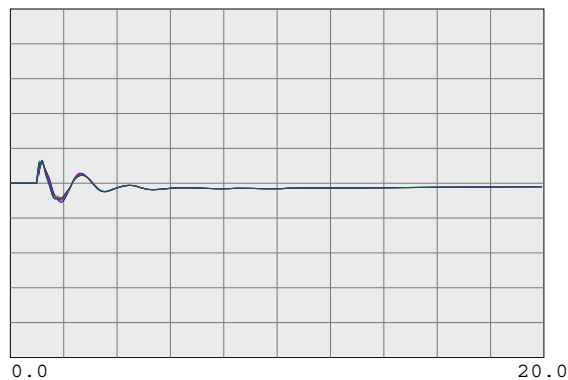
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

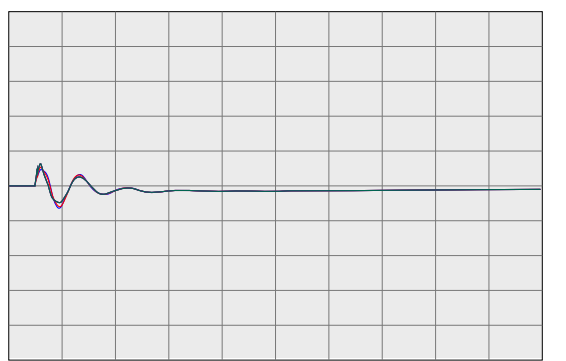
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

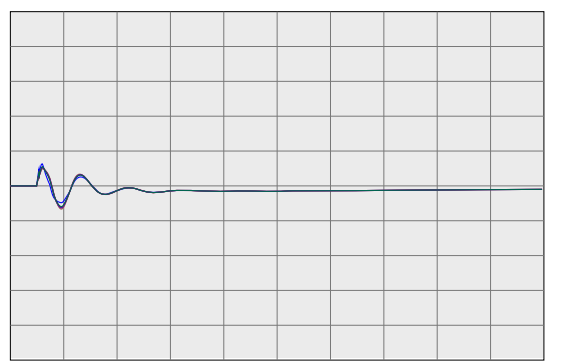
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

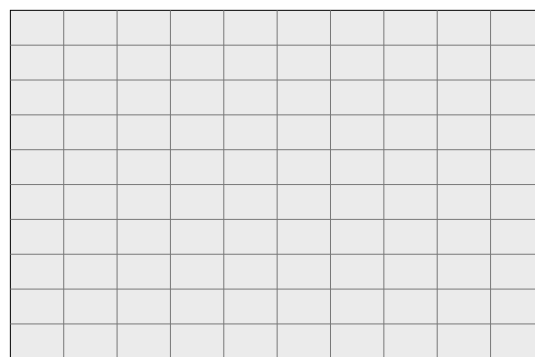
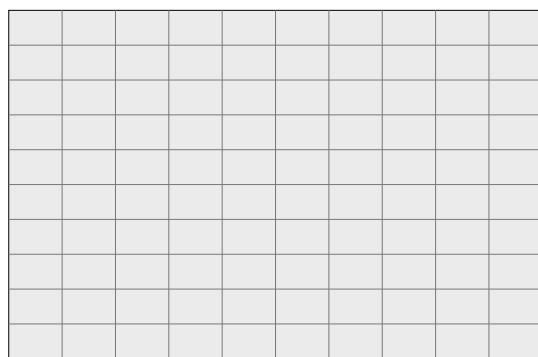
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

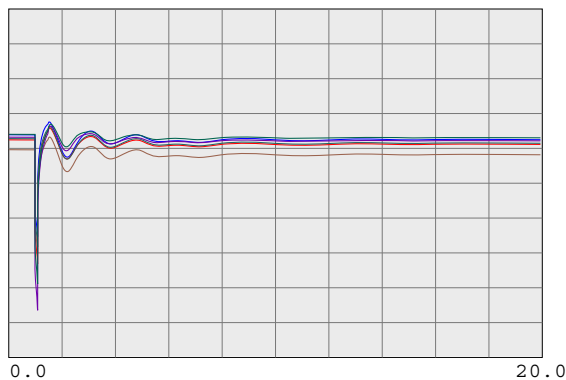
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

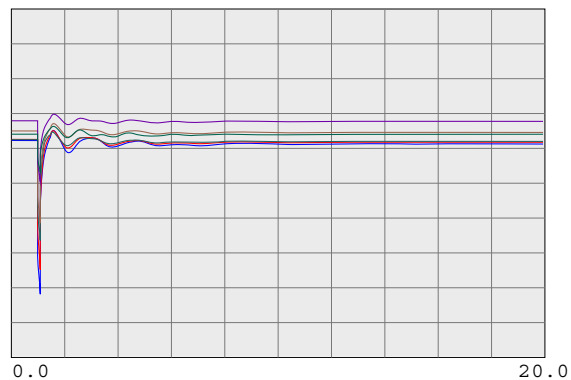
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

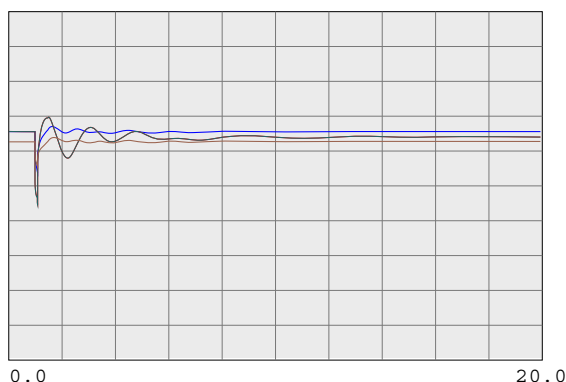
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



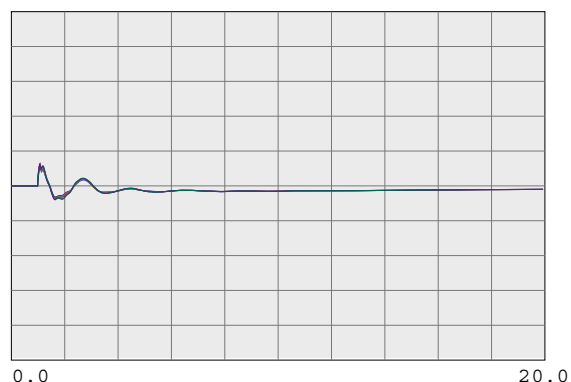
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



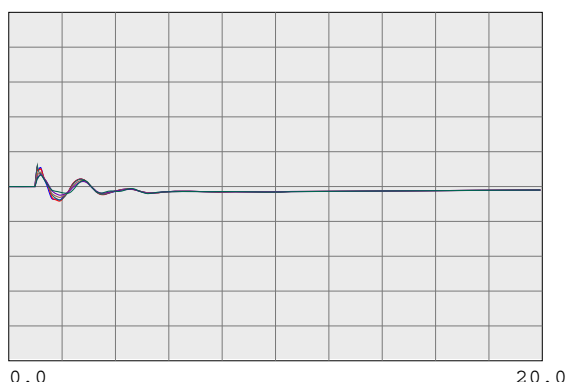
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



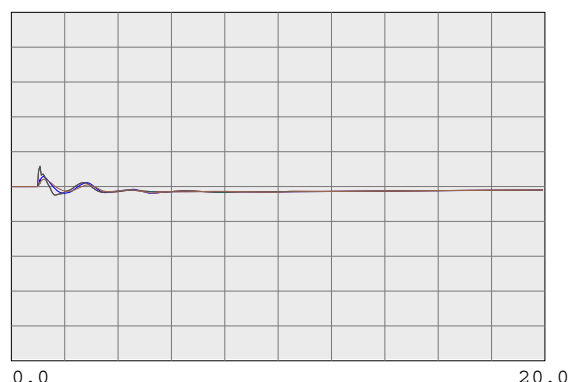
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

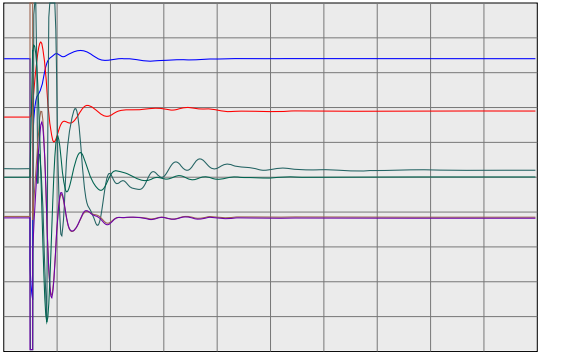
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

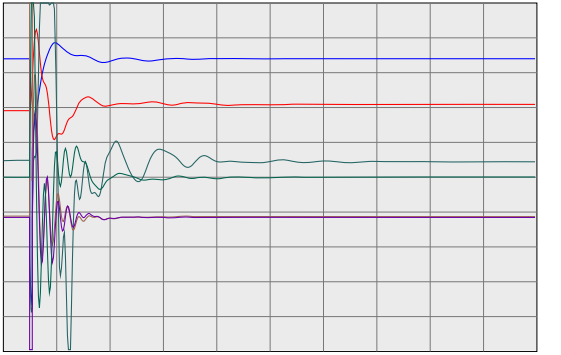
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

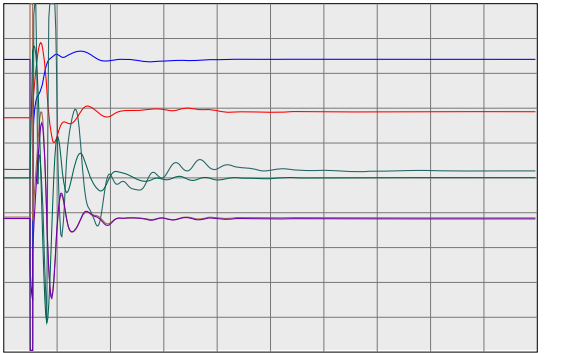
WILLOW PASS GENERATION PLANT



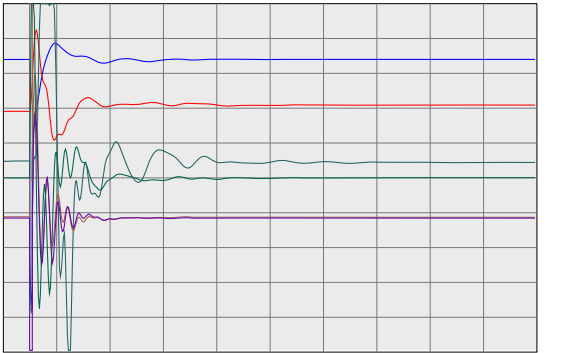
Time(sec)					
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1 1 1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1 1 100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1 1 5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1 1 2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1 1 570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1 1 1.0100



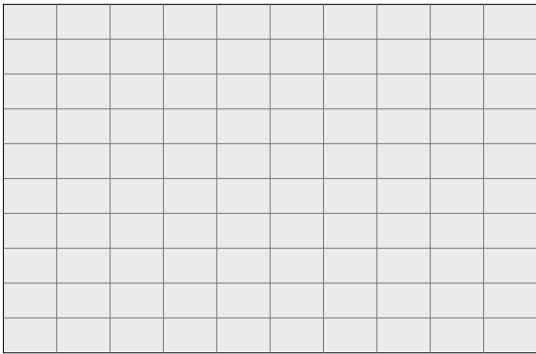
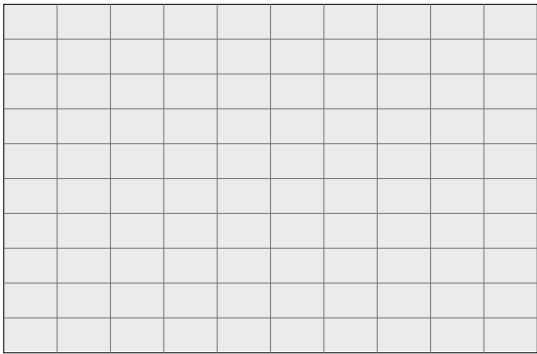
Time(sec)					
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2 1 1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2 1 100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2 1 5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2 1 2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2 1 166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2 1 1.0100



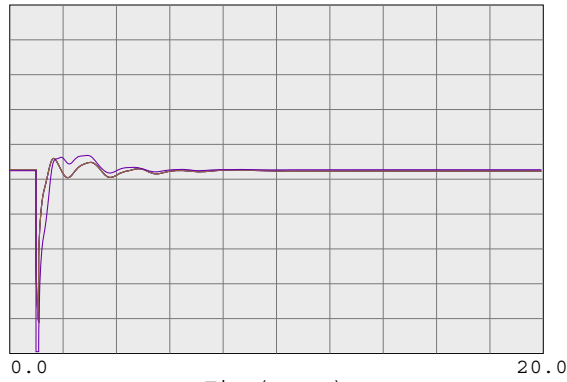
Time(sec)					
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3 1 1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3 1 100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3 1 5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3 1 2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3 1 570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3 1 1.0100



Time(sec)					
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4 1 1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4 1 100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4 1 5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4 1 2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4 1 166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4 1 1.0100

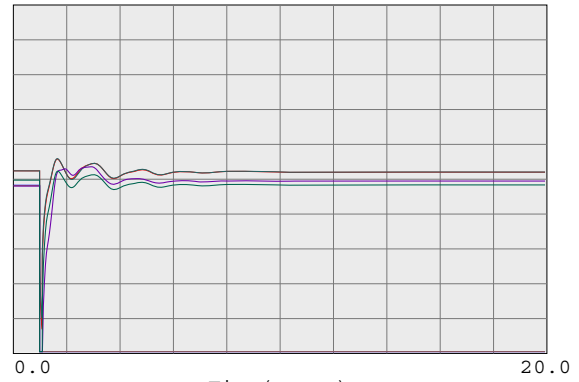


230-KV SYSTEM VOLTAGES



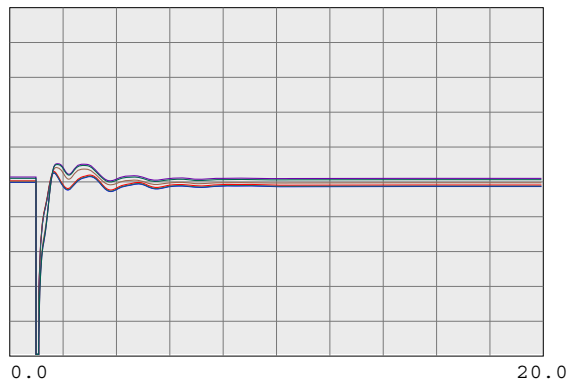
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



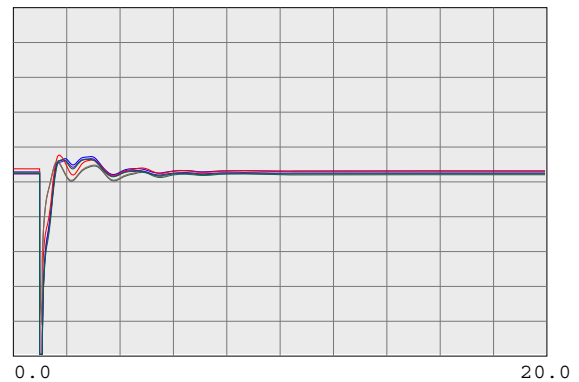
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



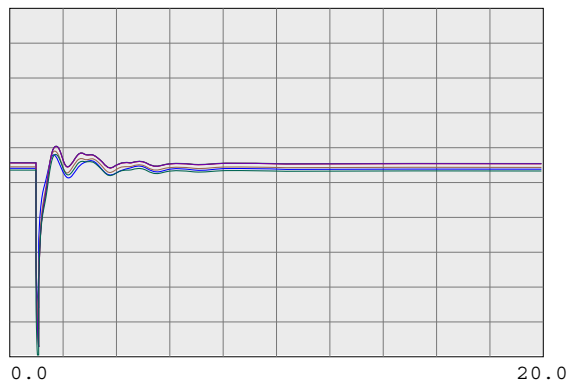
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



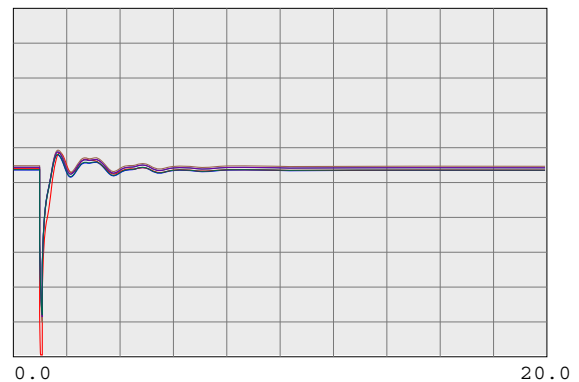
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

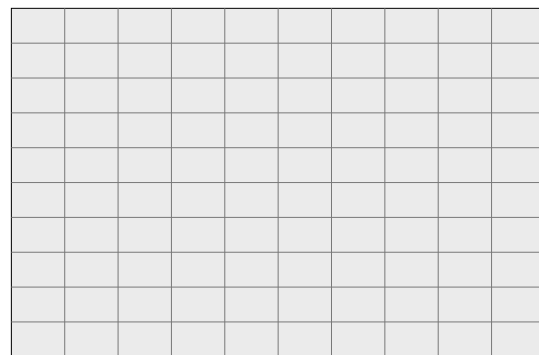
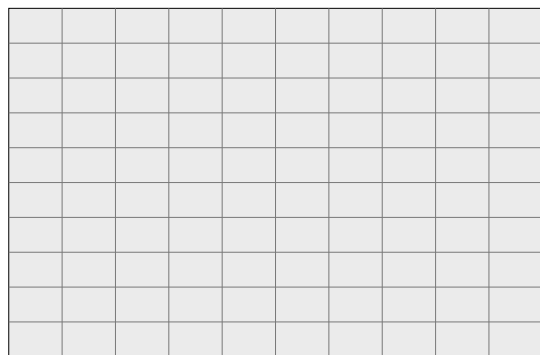
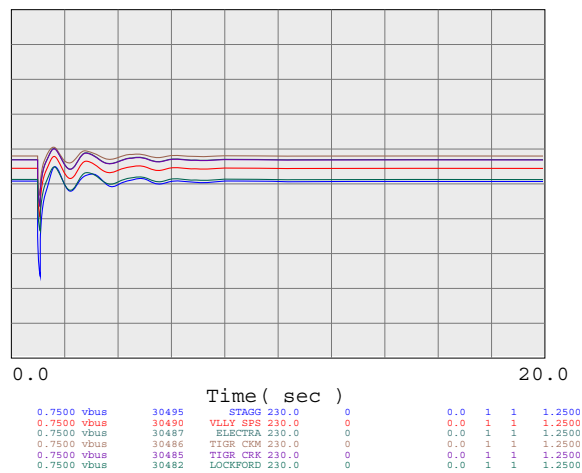
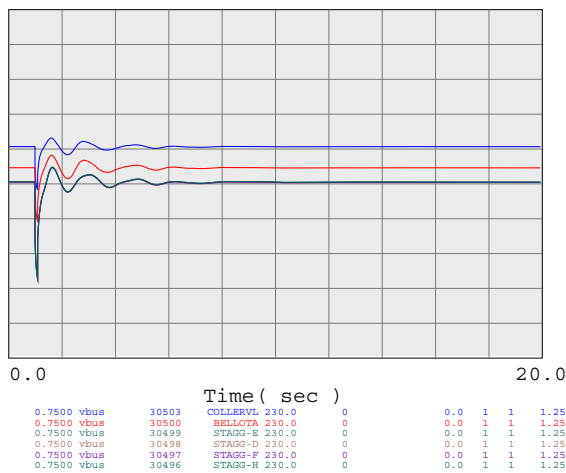
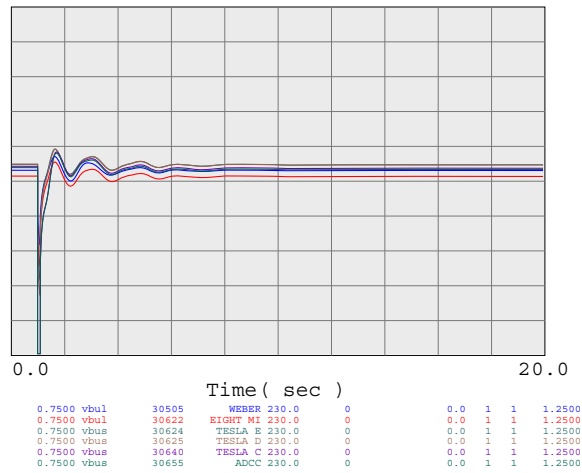
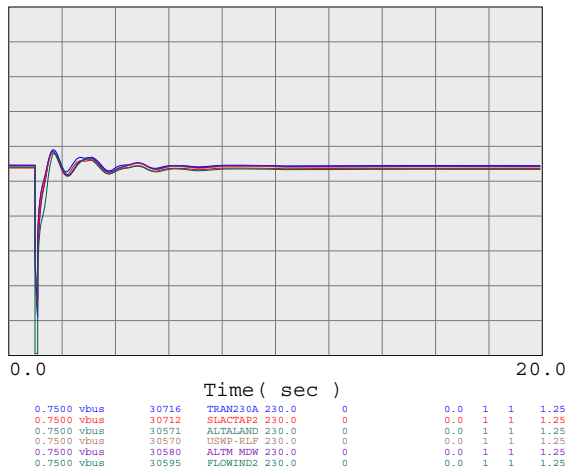
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

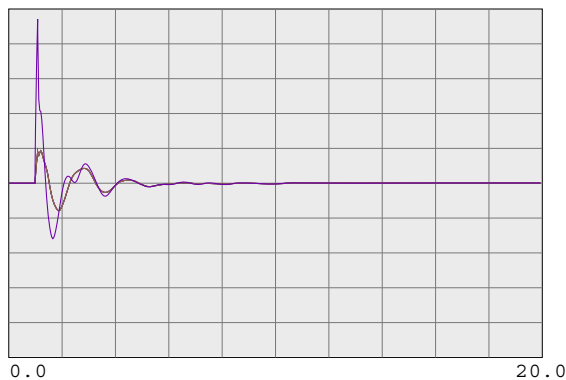
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



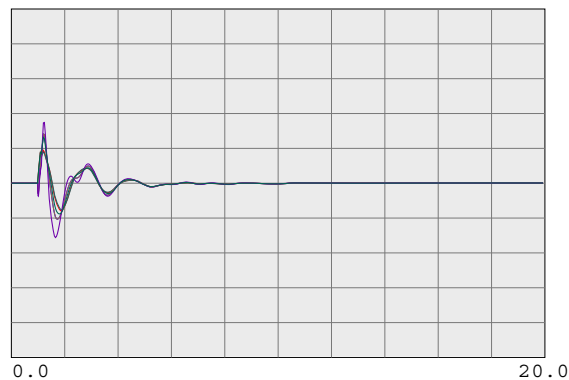
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

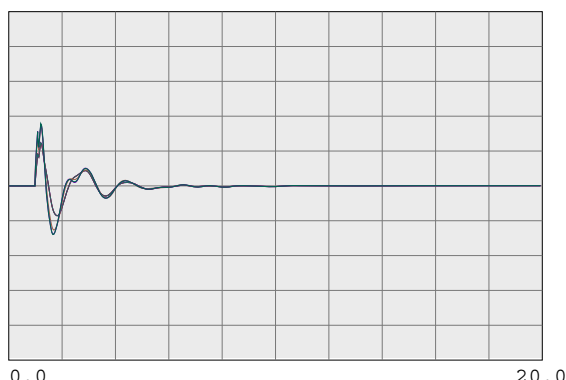
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

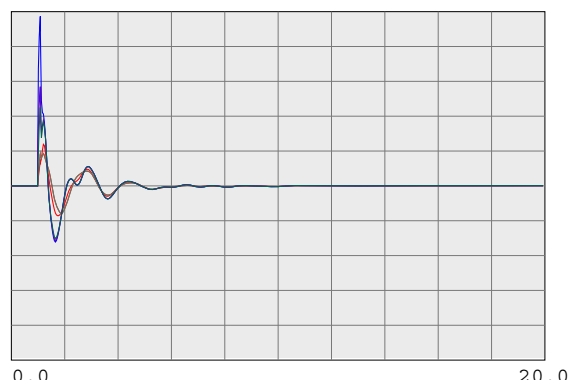
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

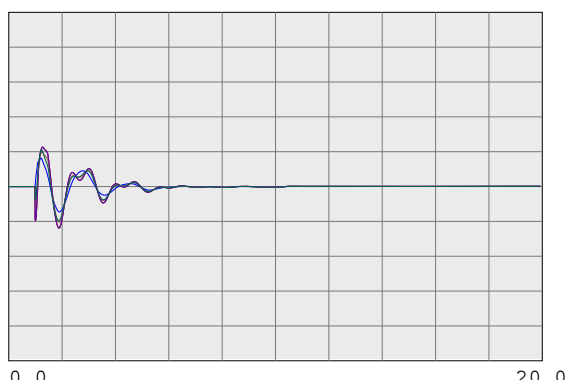
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

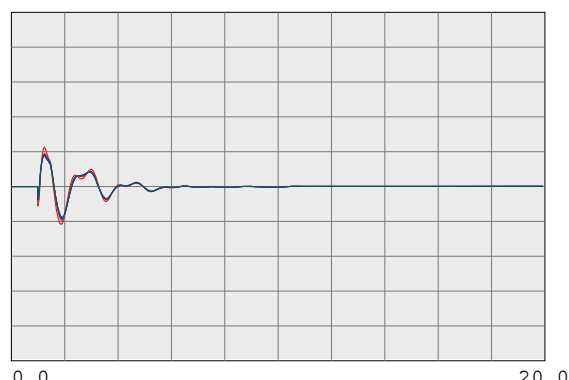
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

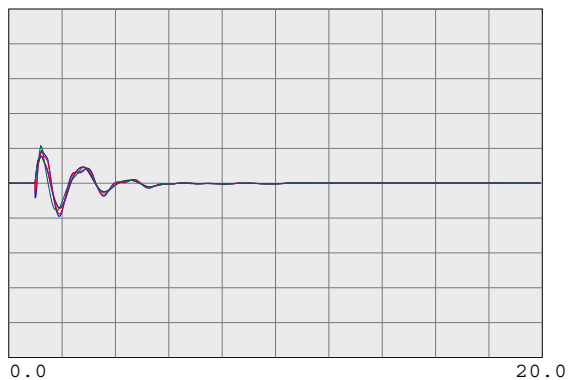
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

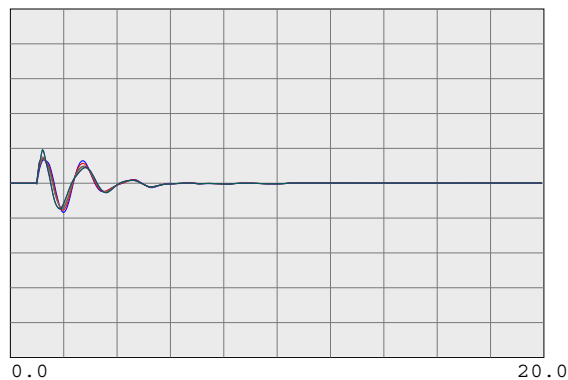
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

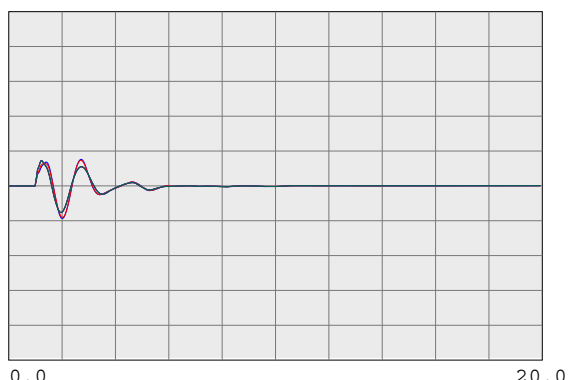
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

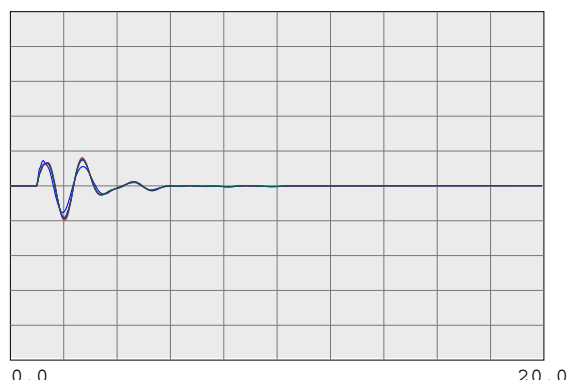
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

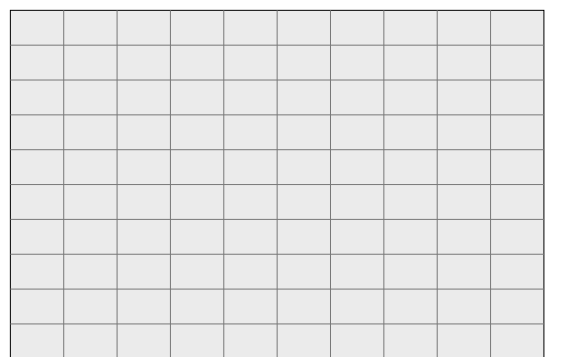
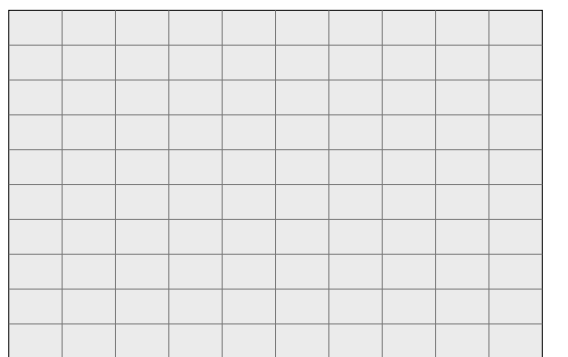
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

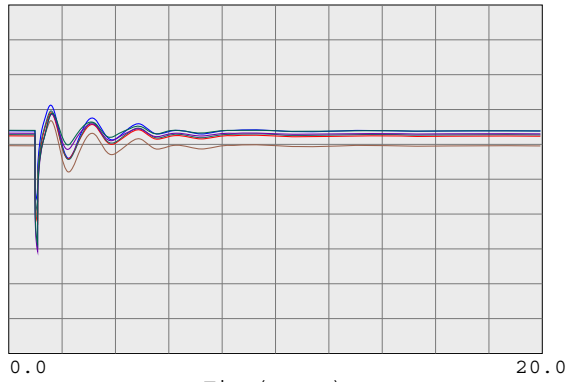
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

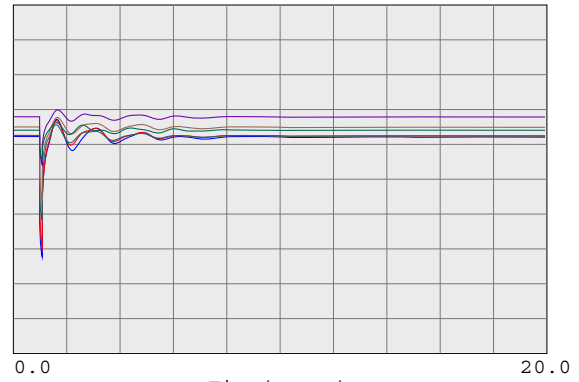
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



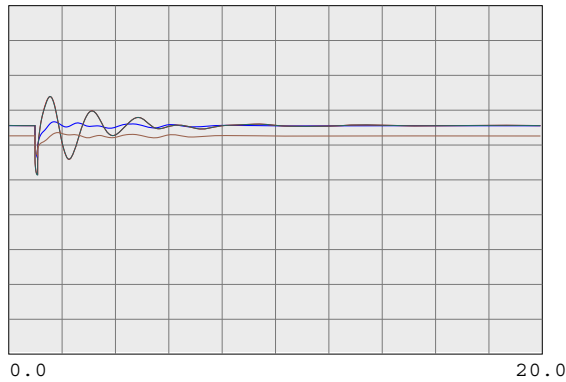
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



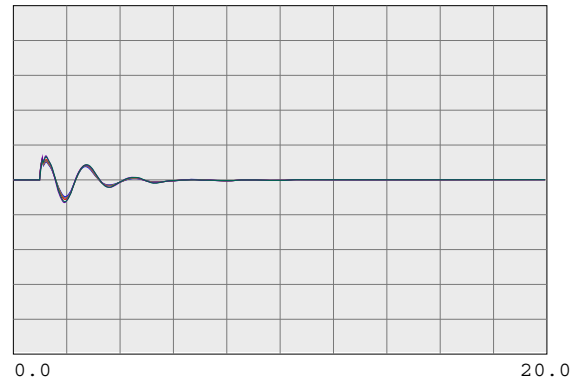
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



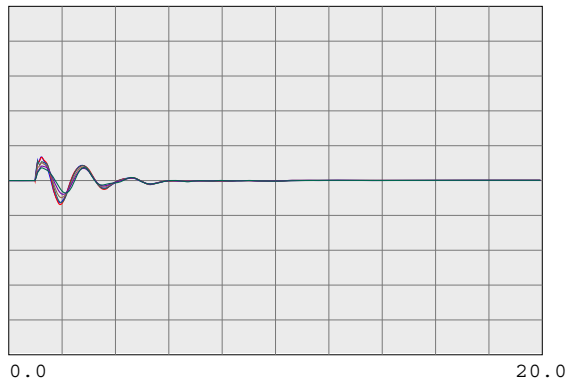
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



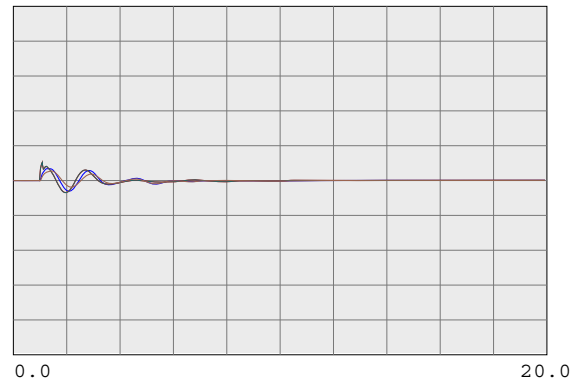
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

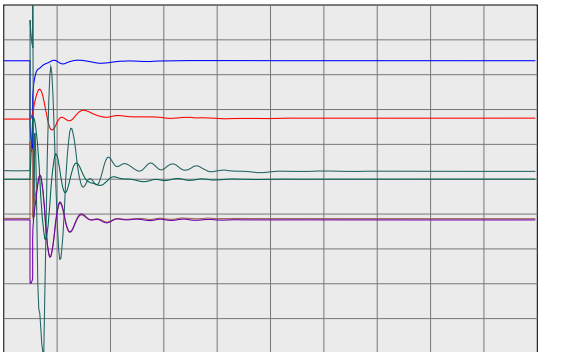
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

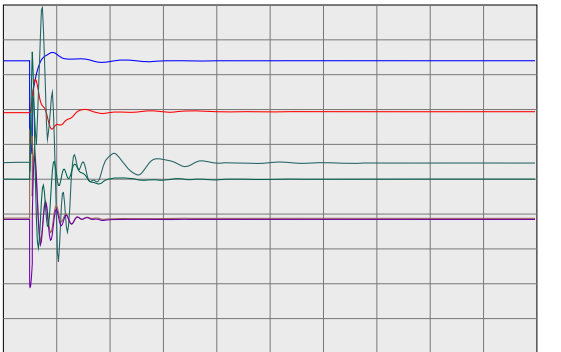
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

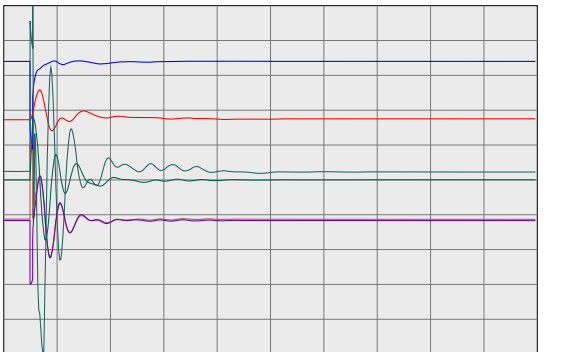
WILLOW PASS GENERATION PLANT



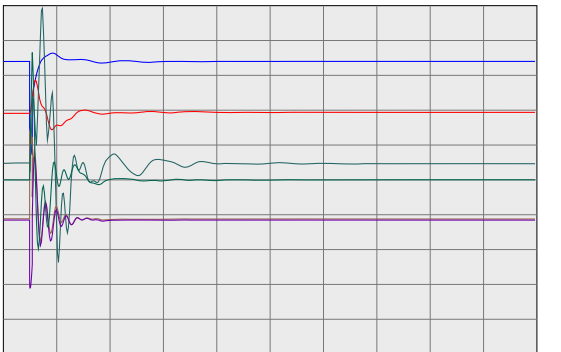
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



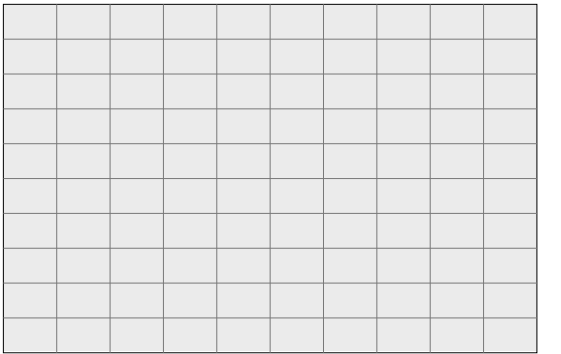
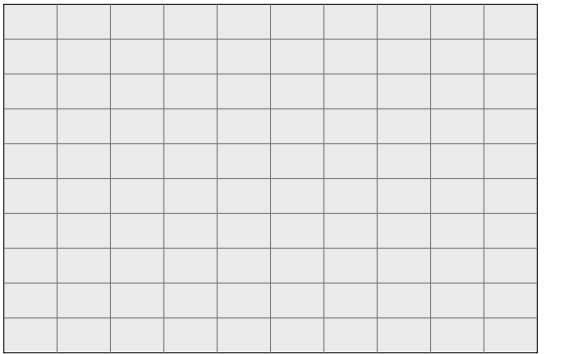
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



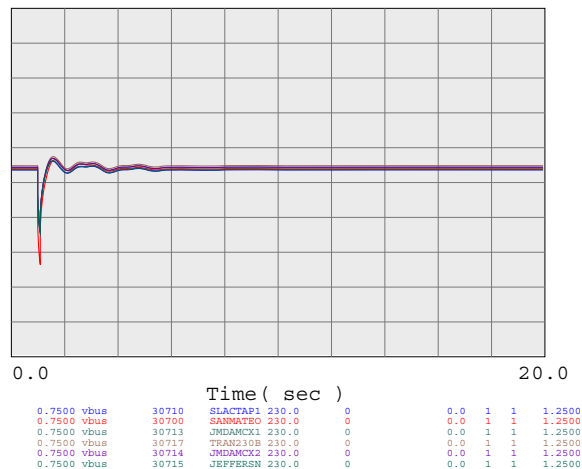
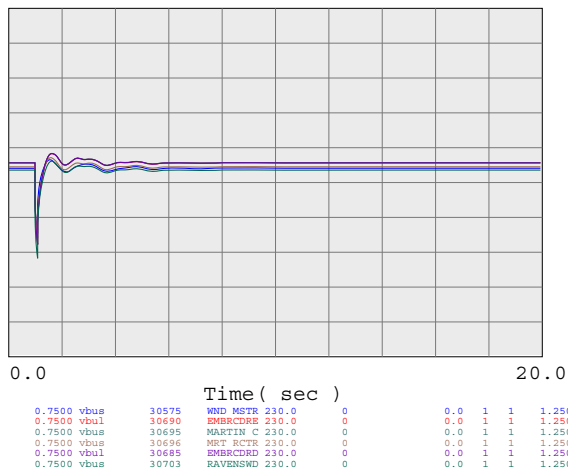
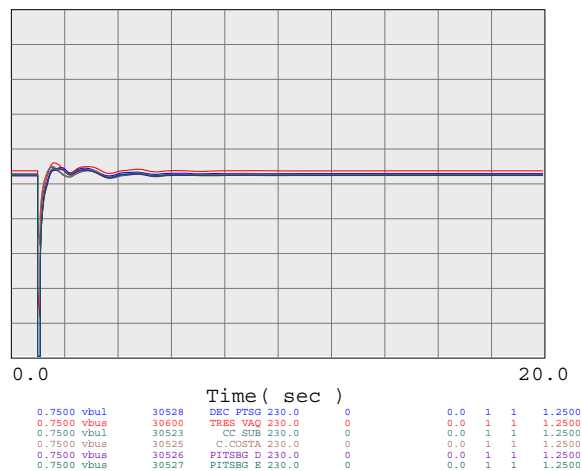
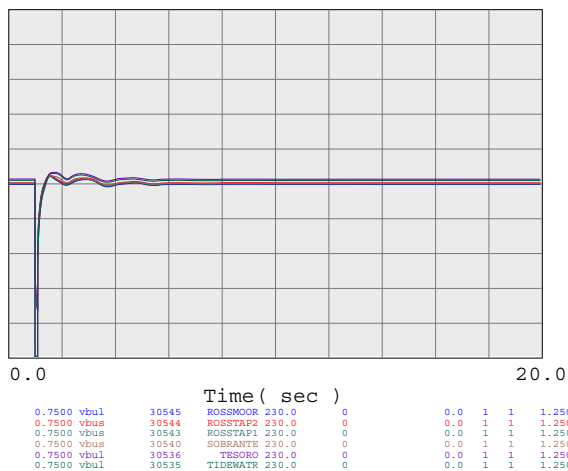
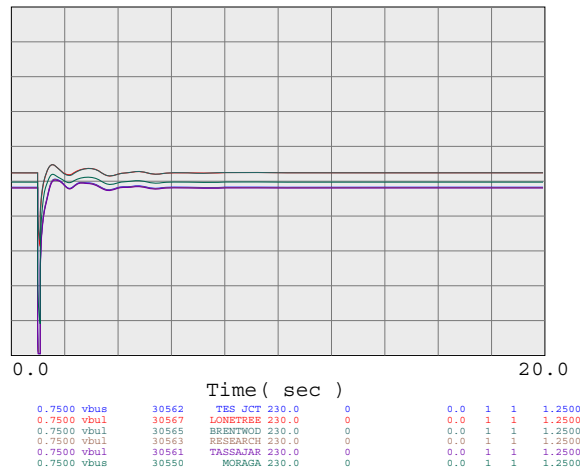
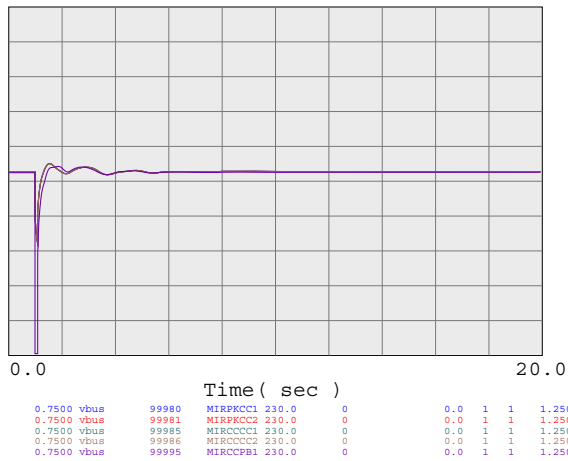
Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	



Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

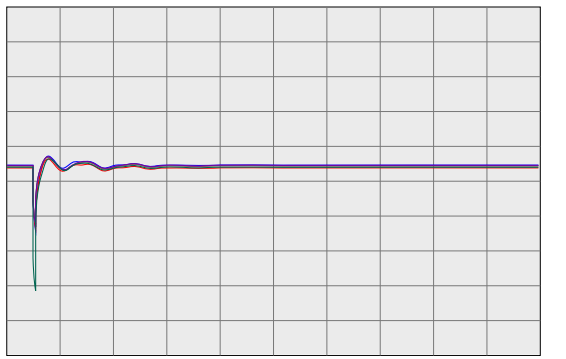
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

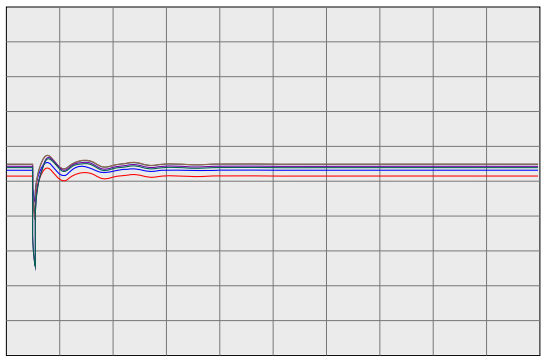
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



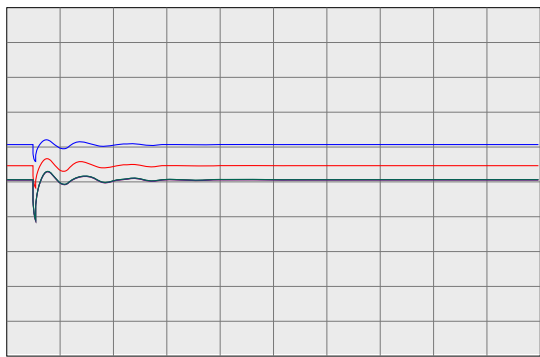
0.0 20.0

Time(sec)				
0.7500 vbus	30716	TRAN230A 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0 1 1 1.2500



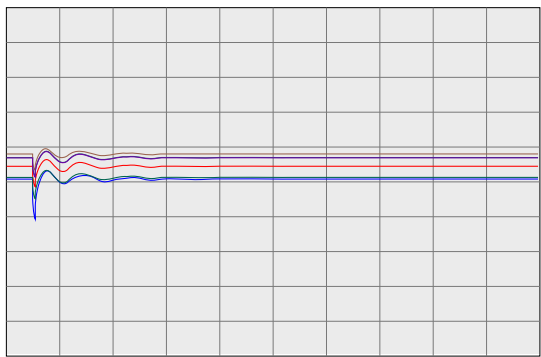
0.0 20.0

Time(sec)				
0.7500 vbus	30505	WEBER 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0 1 1 1.2500



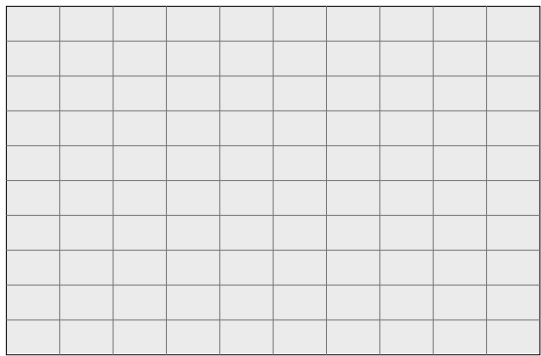
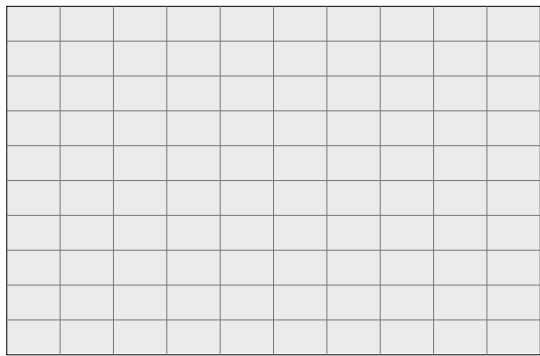
0.0 20.0

Time(sec)				
0.7500 vbus	30503	COLLIERV 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0 1 1 1.2500



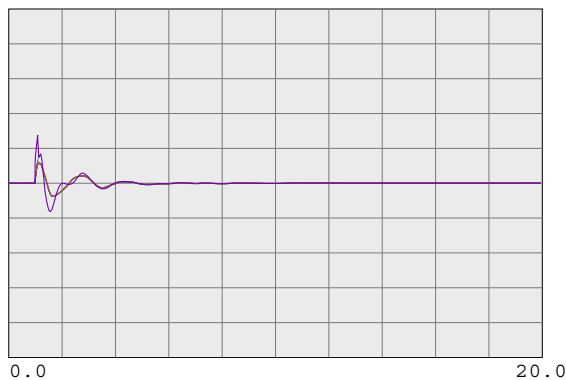
0.0 20.0

Time(sec)				
0.7500 vbus	30495	STAGS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0 1 1 1.2500

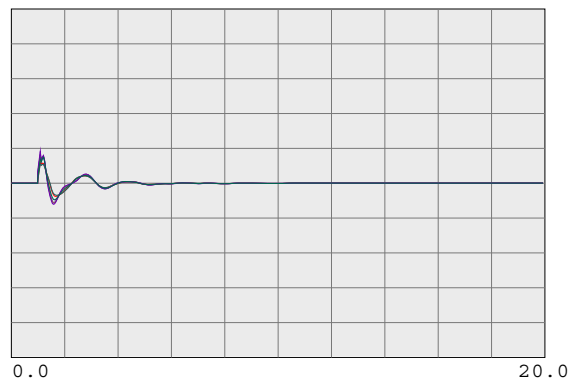


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

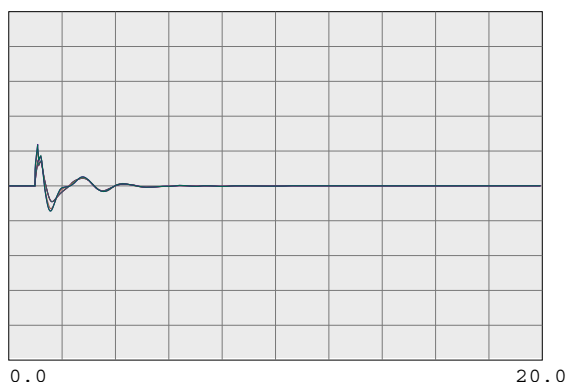
230-KV SYSTEM FREQUENCIES



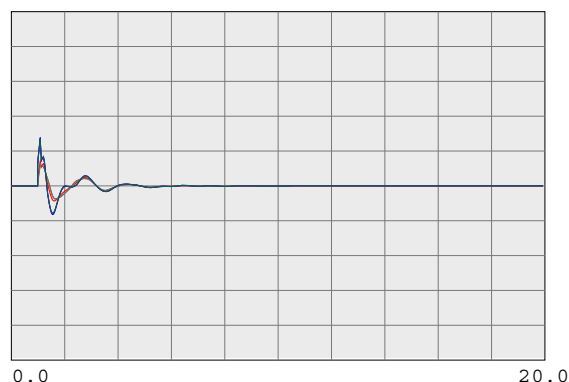
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



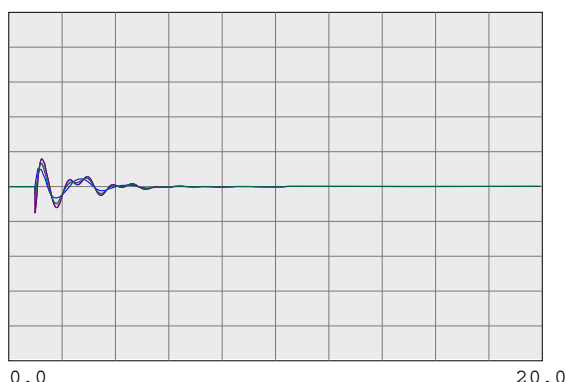
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



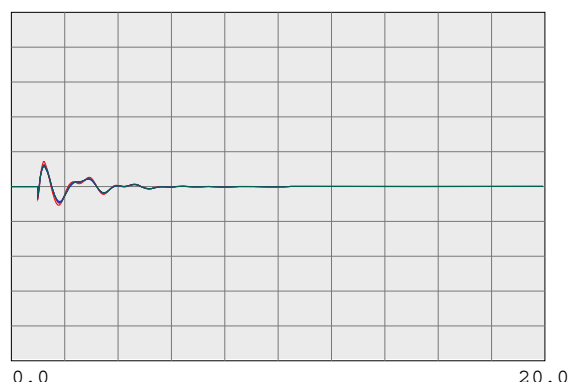
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANZJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

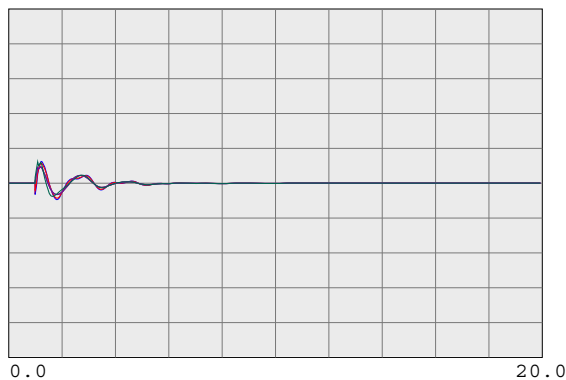
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

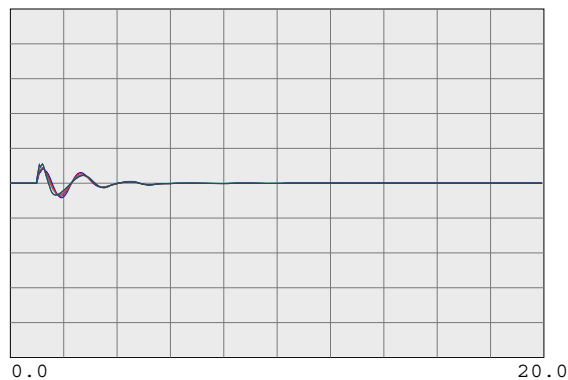
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

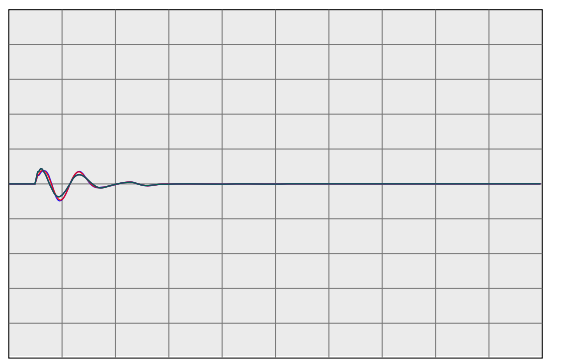
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

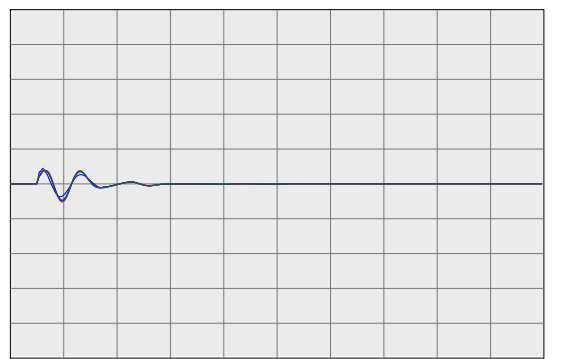
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

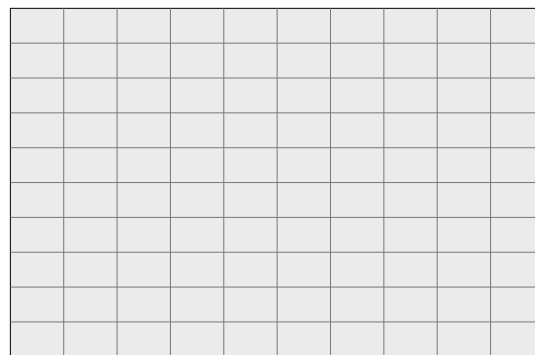
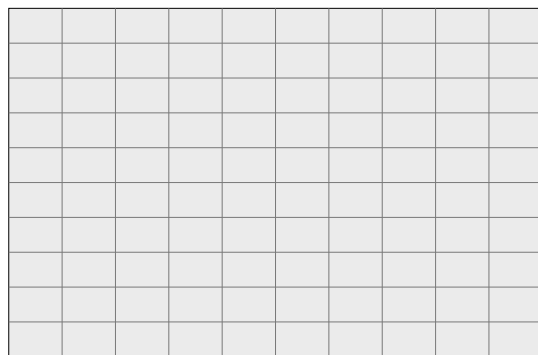
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

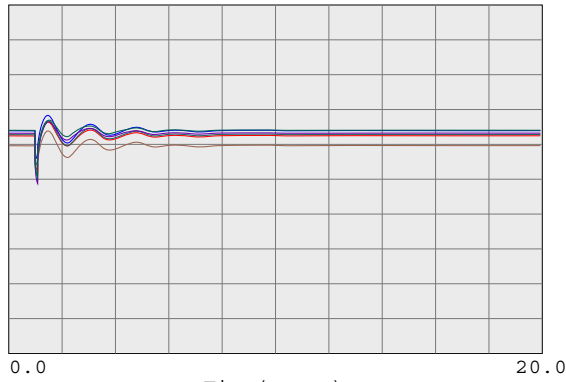
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

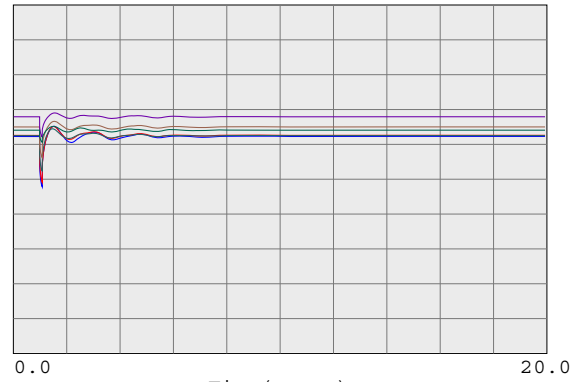
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

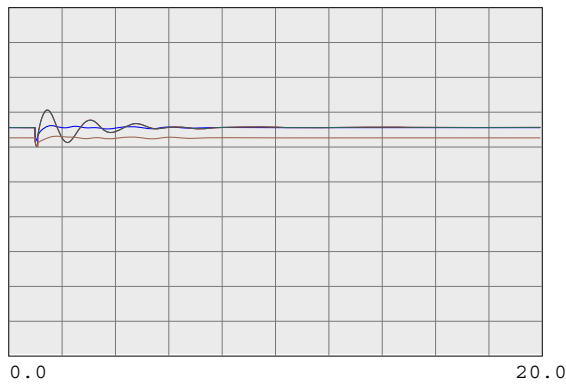
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



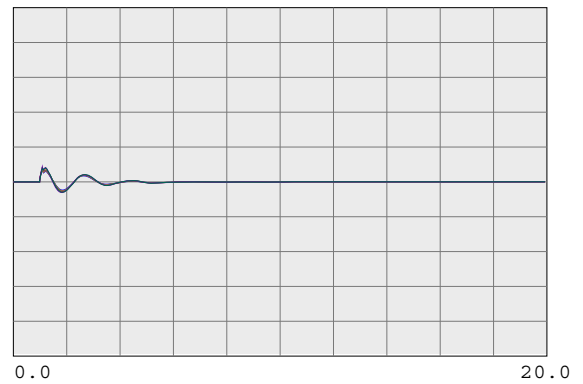
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



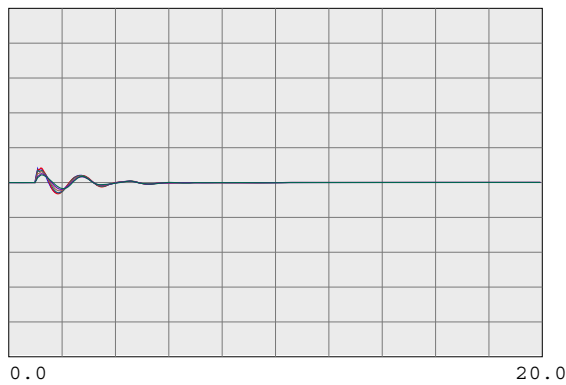
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	30057	DIABLO 500.0	0	0.0	1	1	1.2500



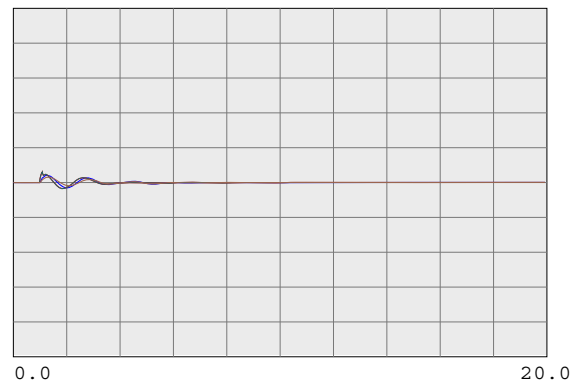
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>1.2500</td>	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0</td> <td>1</td> <td>1</td> <td>60.6000</td>	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

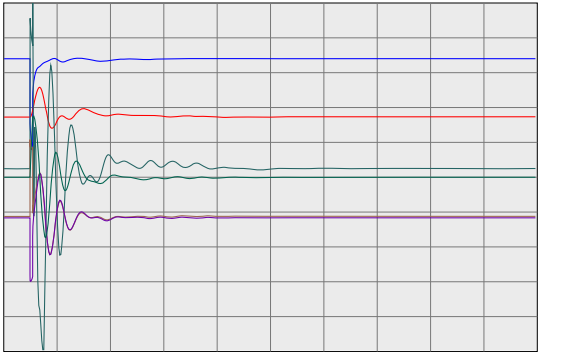
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

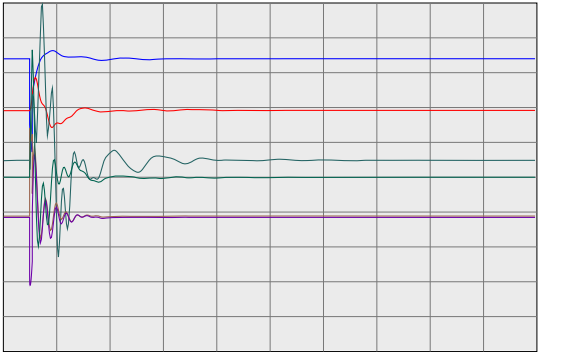
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

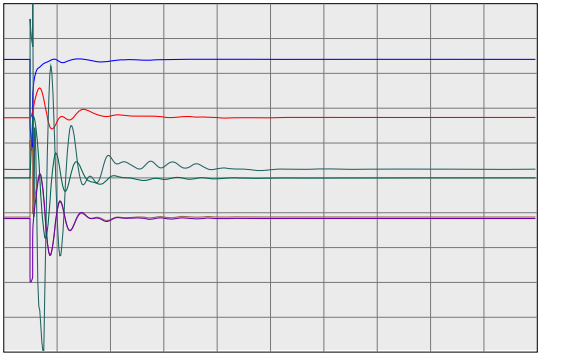
WILLOW PASS GENERATION PLANT



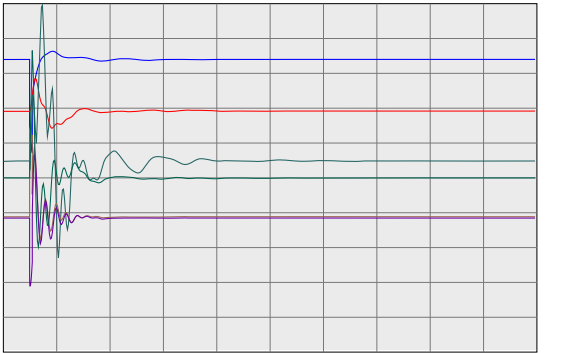
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



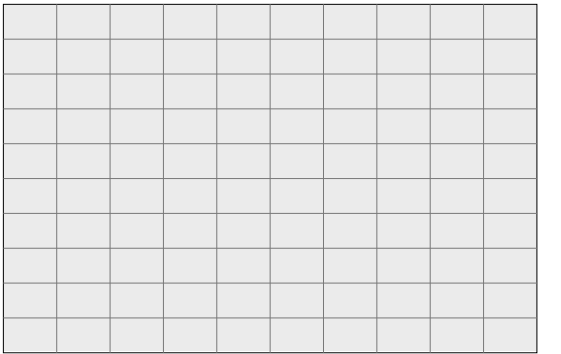
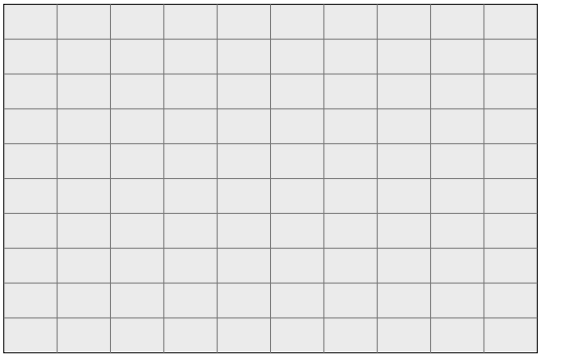
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

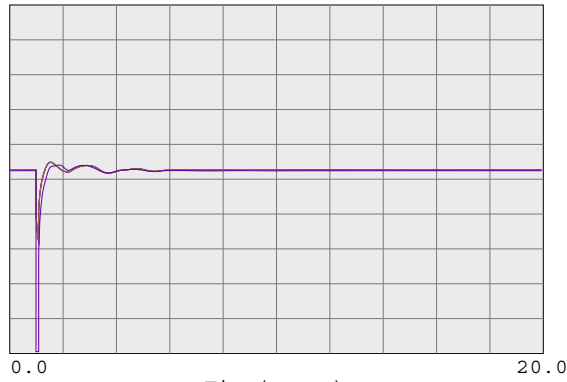


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



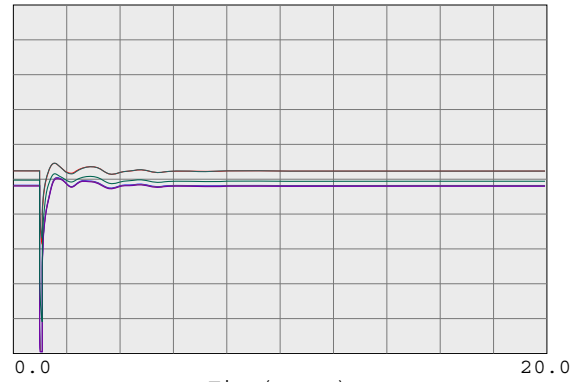
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



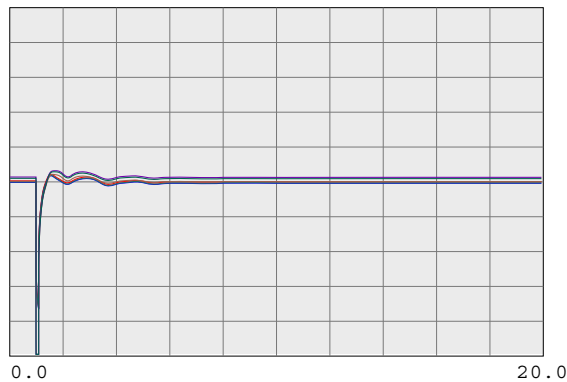
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



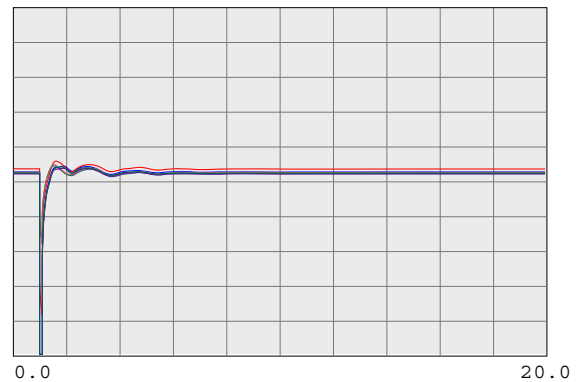
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



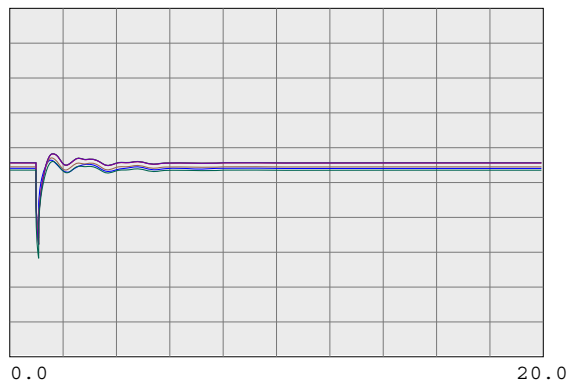
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



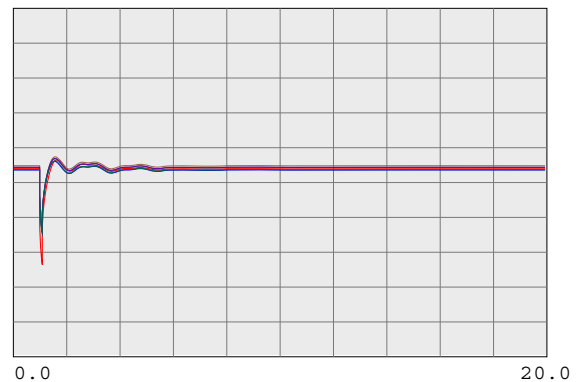
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

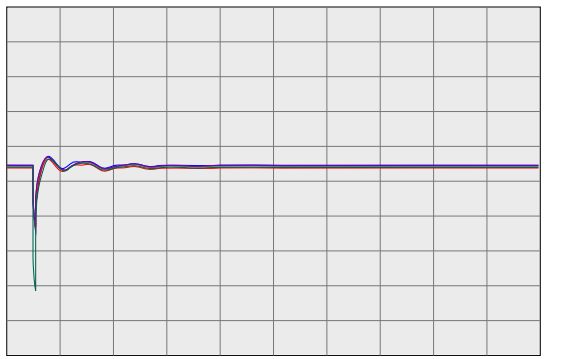
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

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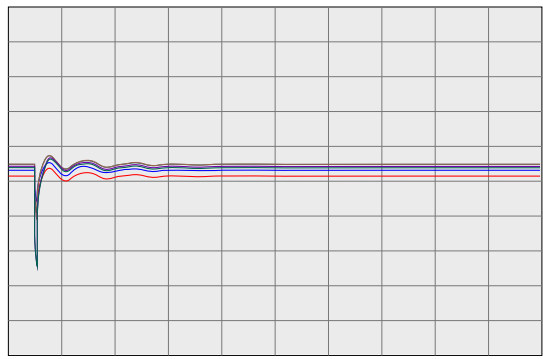
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



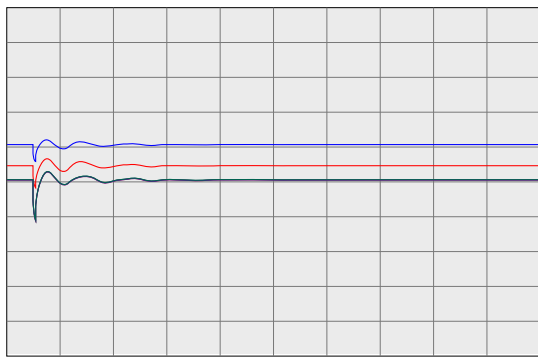
0.0 20.0

Time(sec)				
0.7500 vbus	30716	TRAN230A 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0 1 1 1.2500



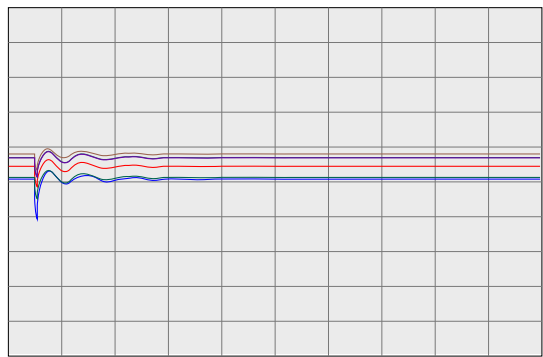
0.0 20.0

Time(sec)				
0.7500 vbus	30505	WEBER 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0 1 1 1.2500



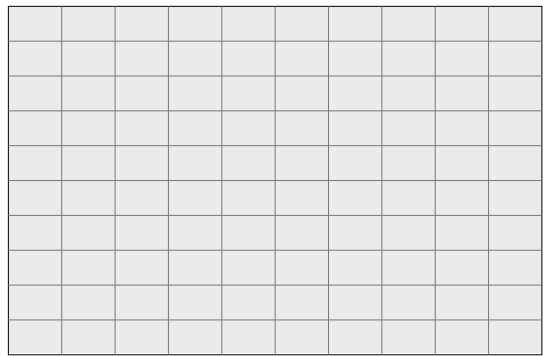
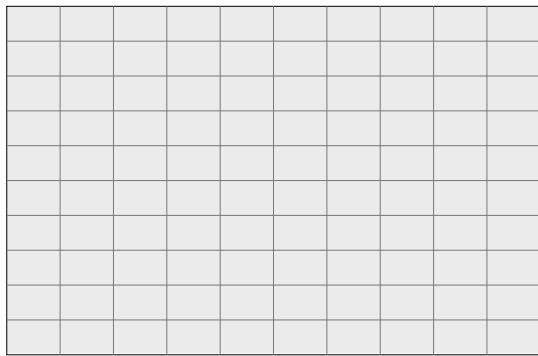
0.0 20.0

Time(sec)				
0.7500 vbus	30503	COLLIERV 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0 1 1 1.2500



0.0 20.0

Time(sec)				
0.7500 vbus	30495	STAGS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0 1 1 1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

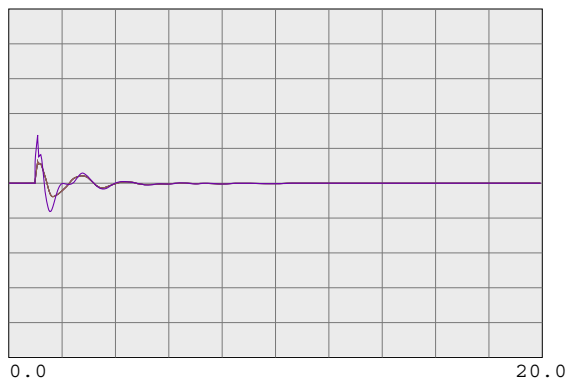
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

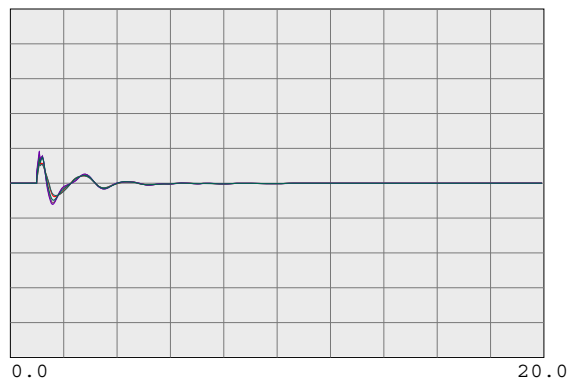
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

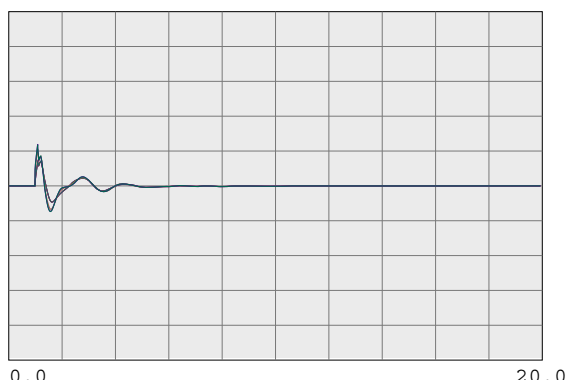
230-KV SYSTEM FREQUENCIES



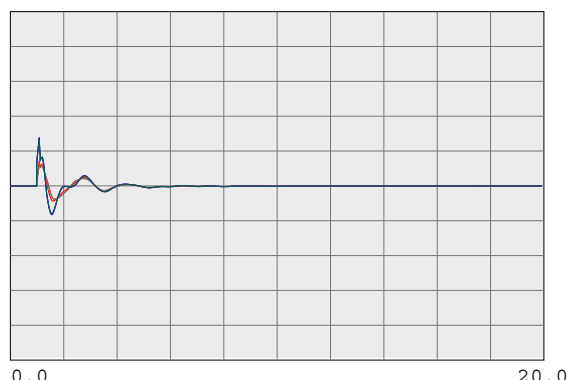
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



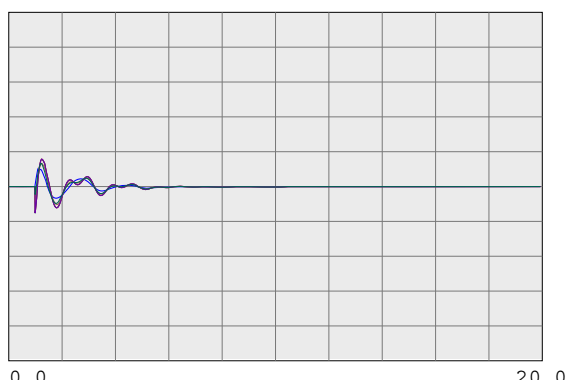
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



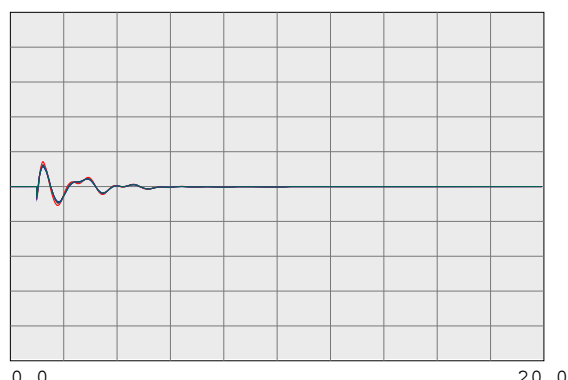
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSAPR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTS 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WID MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCRD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRAN230B 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

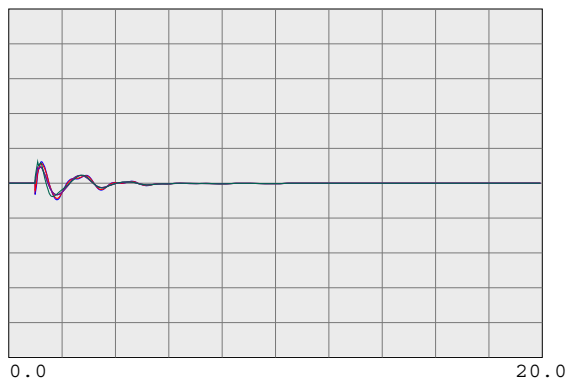
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

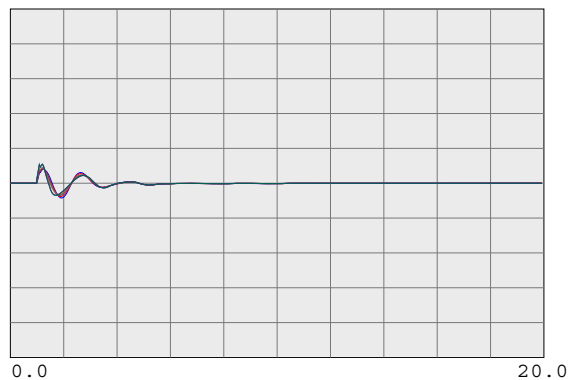
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

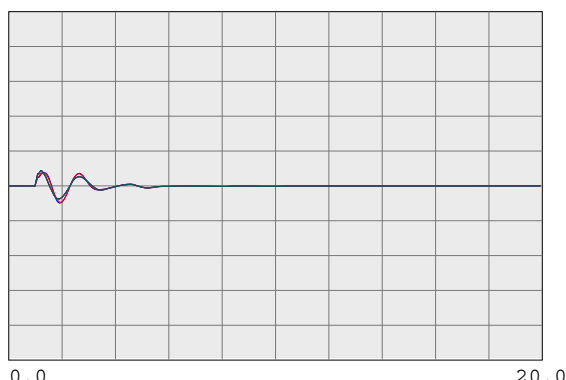
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

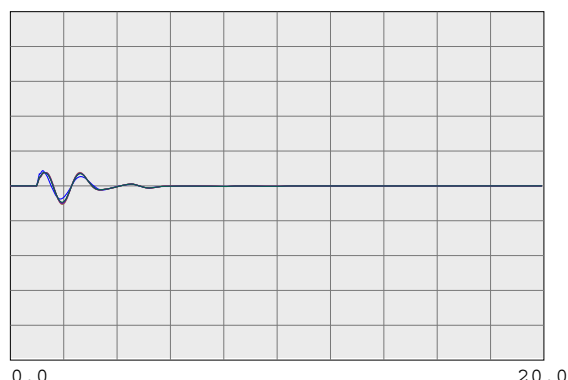
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

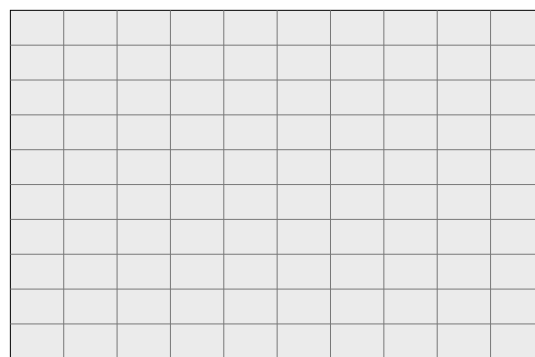
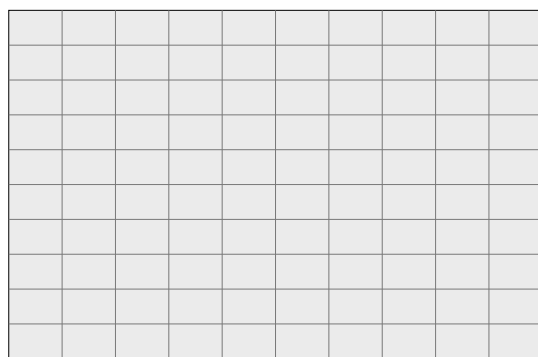
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

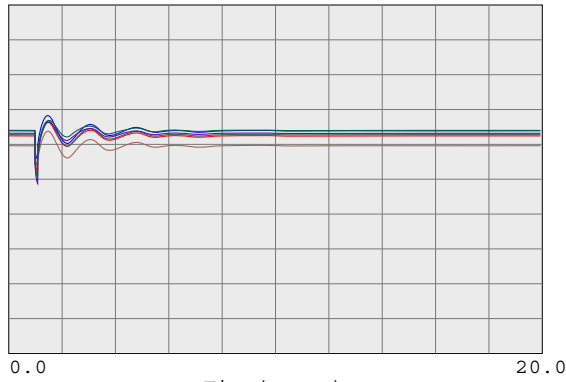
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

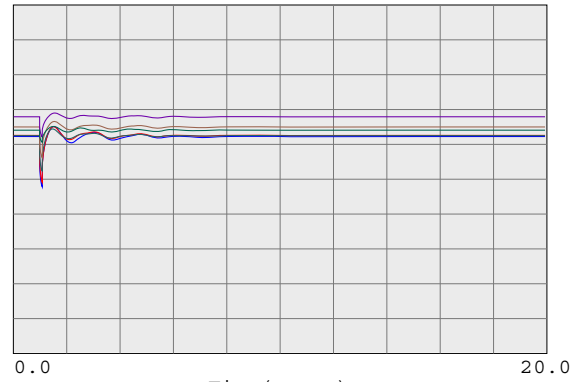
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

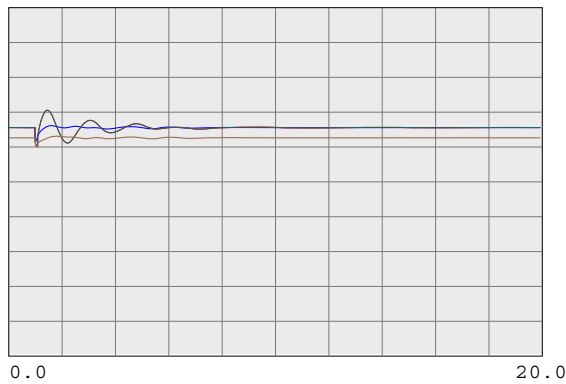
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



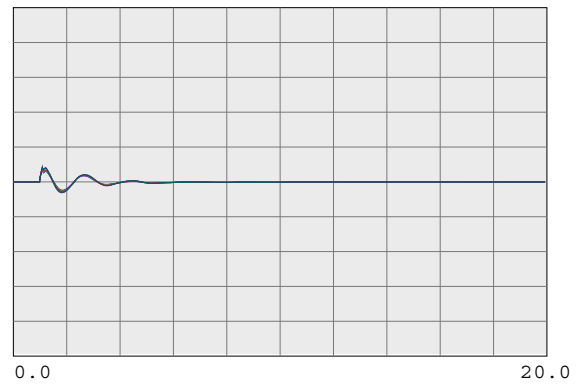
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



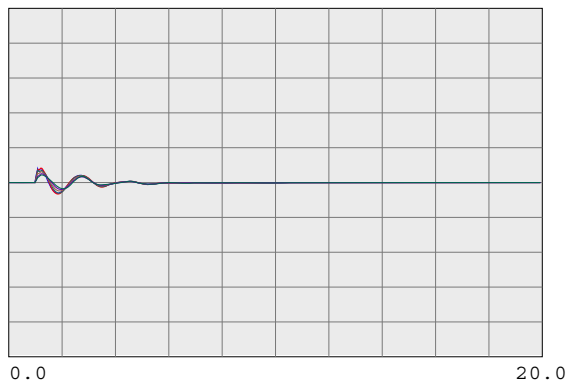
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



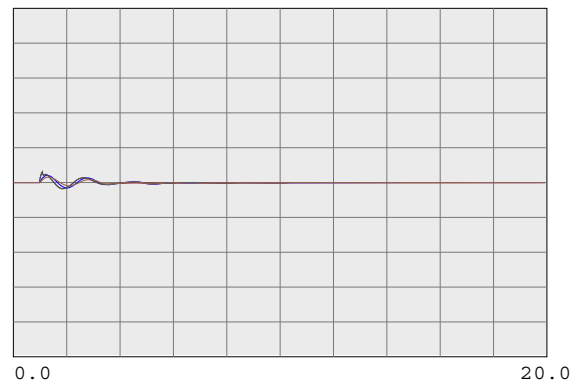
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500
0.7500 vbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500
0.7500 vbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>1.2500</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>1.2500</td>	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30015</td> <td>TABLE MT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30015	TABLE MT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30020</td> <td>GLINDA 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30020	GLINDA 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30025</td> <td>MAXWELL 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30025	MAXWELL 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30030</td> <td>VACA-DIX 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30030	VACA-DIX 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30035</td> <td>TRACY 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30035	TRACY 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>30042</td> <td>METCALF 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30042	METCALF 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30045</td> <td>MOSSLAND 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30045	MOSSLAND 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30050</td> <td>LOSBANOS 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30050	LOSBANOS 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30055</td> <td>GATES 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30055	GATES 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>30057</td> <td>DIABLO 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	30057	DIABLO 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus <td>45035</td> <td>CAPTJACK 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	45035	CAPTJACK 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>40687</td> <td>MALIN 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	40687	MALIN 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000
59.4000 fbus <td>24156</td> <td>VINCENT 500.0</td> <td>0</td> <td>0.0 <td>1</td> <td>1</td> <td>60.6000</td> </td>	24156	VINCENT 500.0	0	0.0 <td>1</td> <td>1</td> <td>60.6000</td>	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

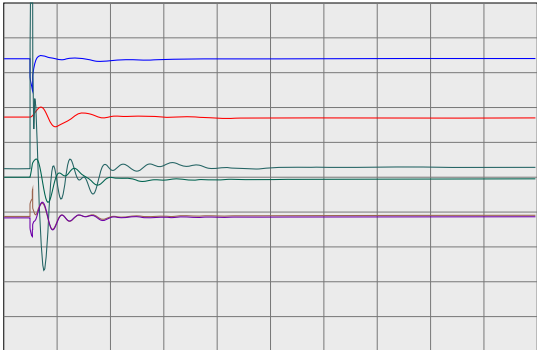
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

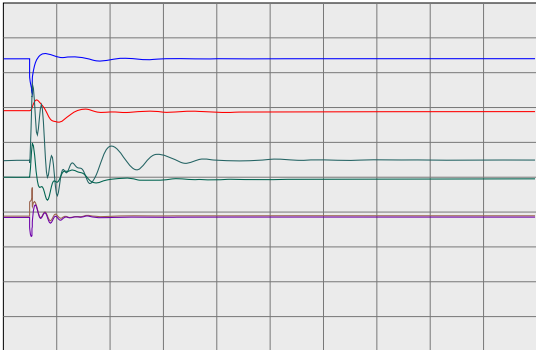
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

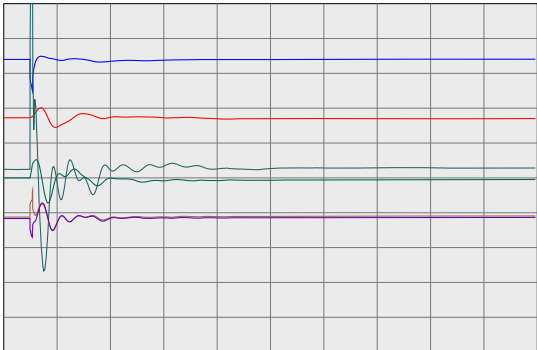
WILLOW PASS GENERATION PLANT



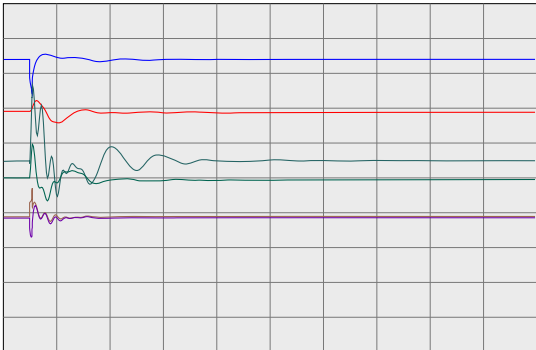
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



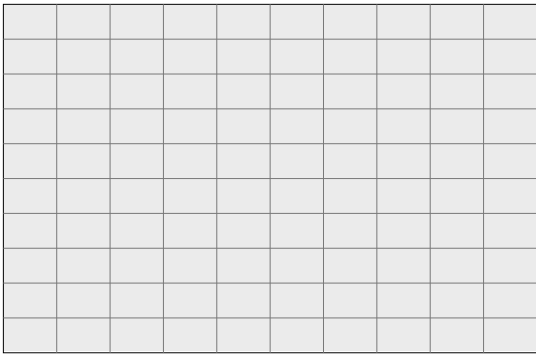
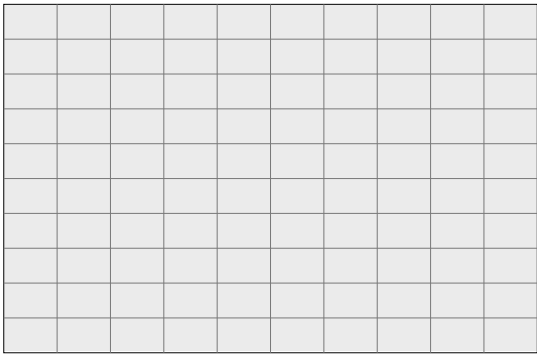
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

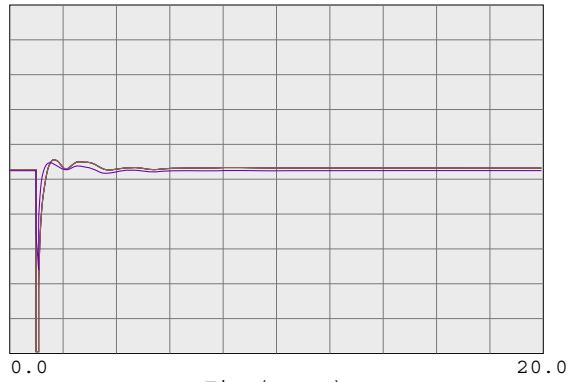


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	

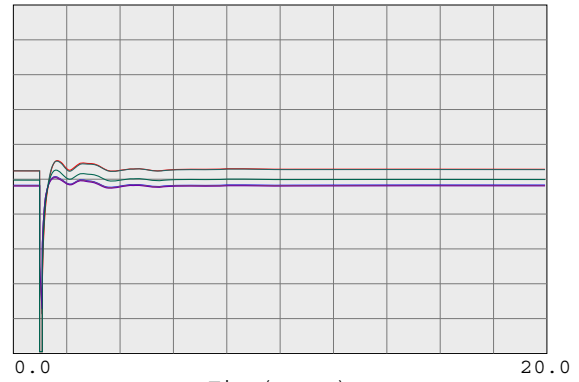


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

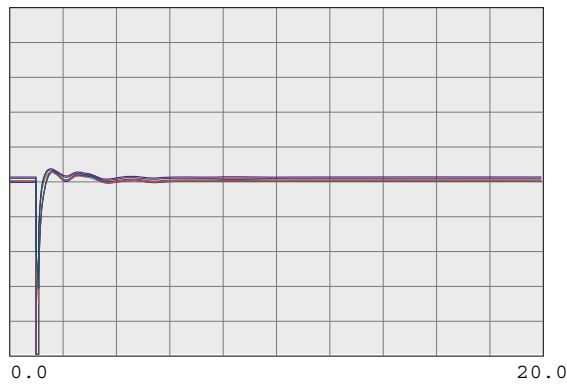
230-KV SYSTEM VOLTAGES



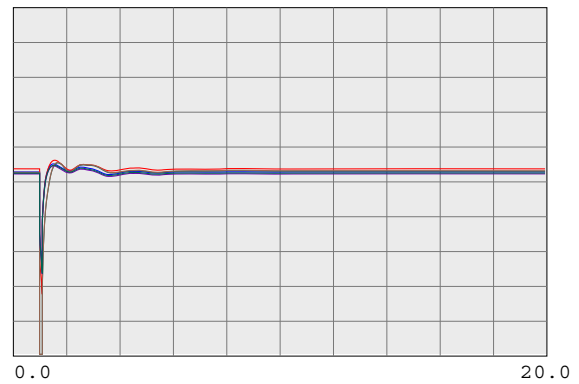
Time (sec)							
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



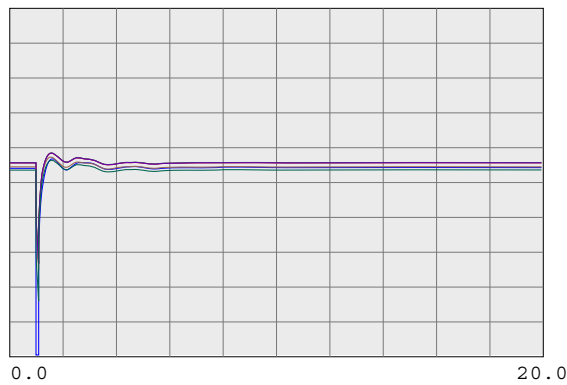
Time (sec)							
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



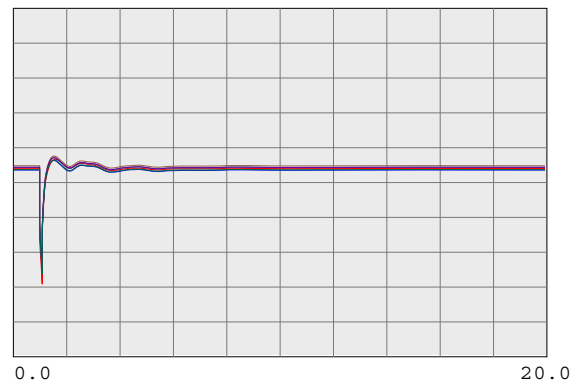
Time (sec)							
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



Time (sec)							
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)							
0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)							
0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

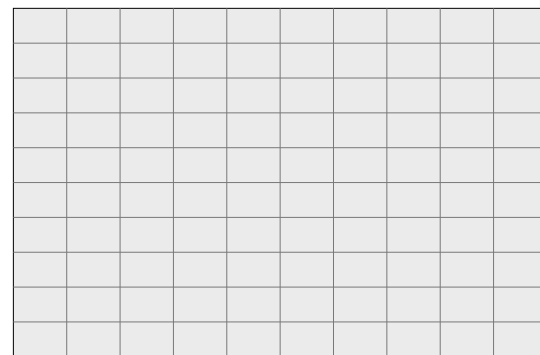
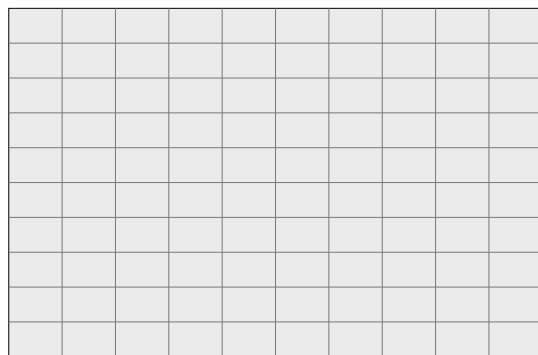
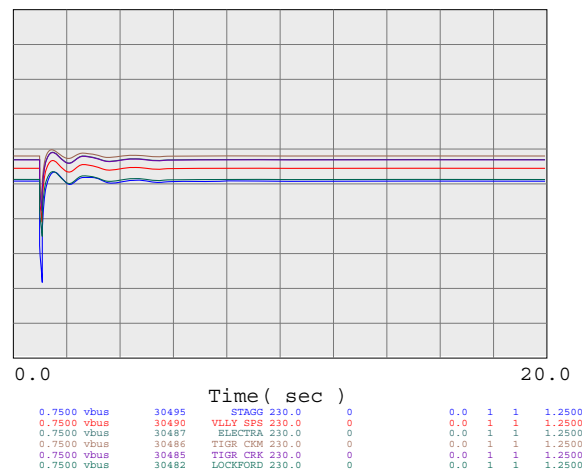
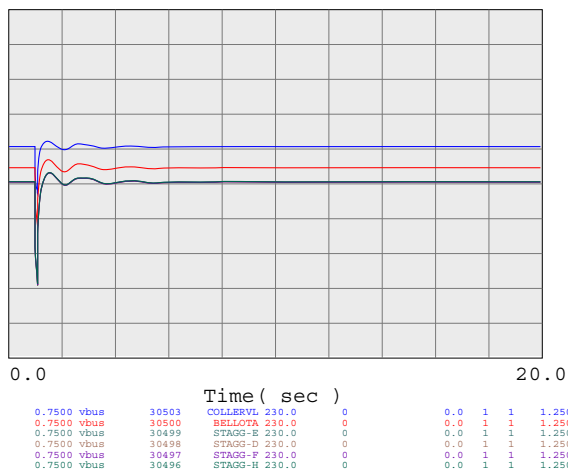
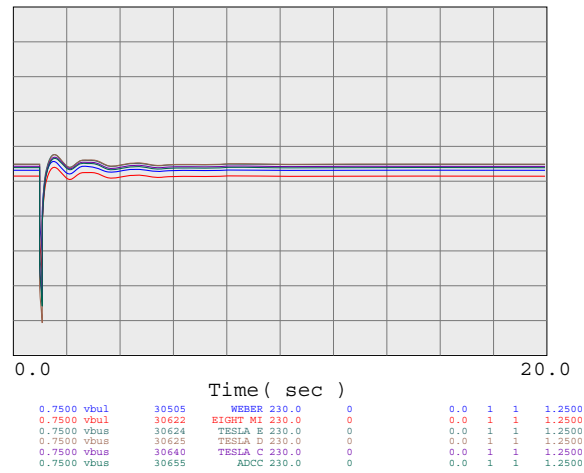
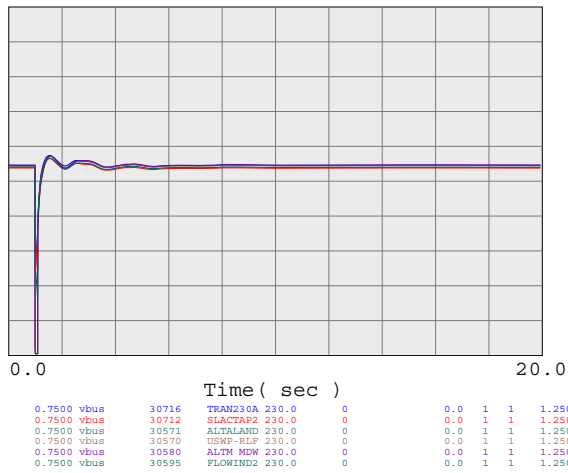
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

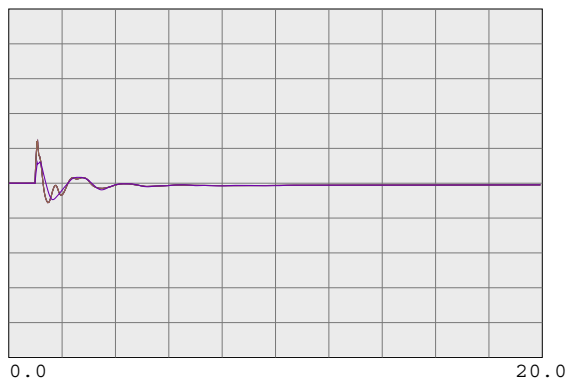
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



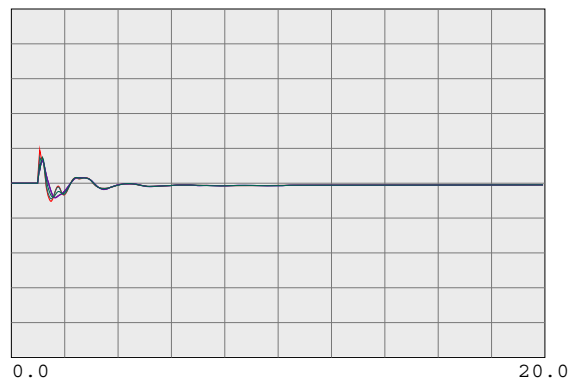
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

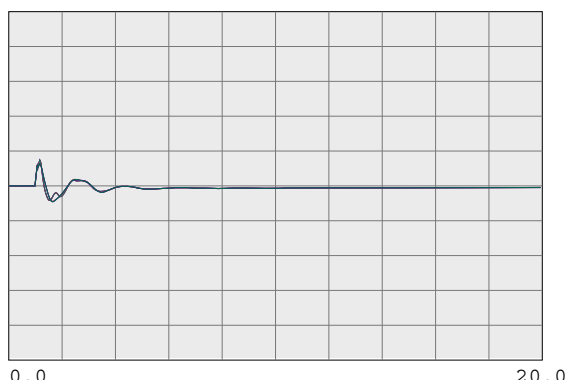
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

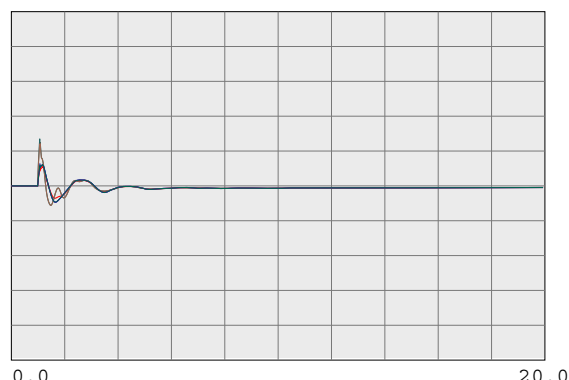
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

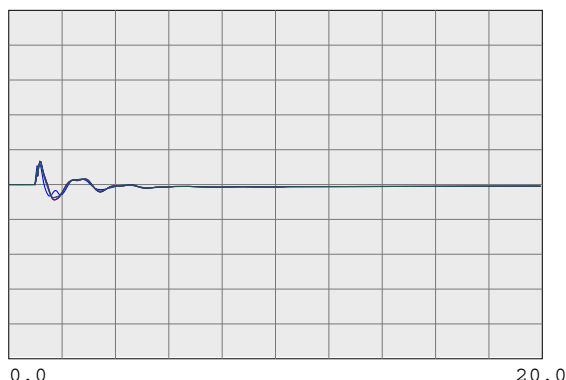
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPF1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPF2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

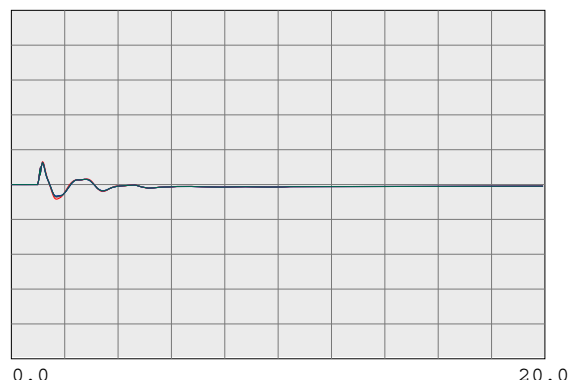
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

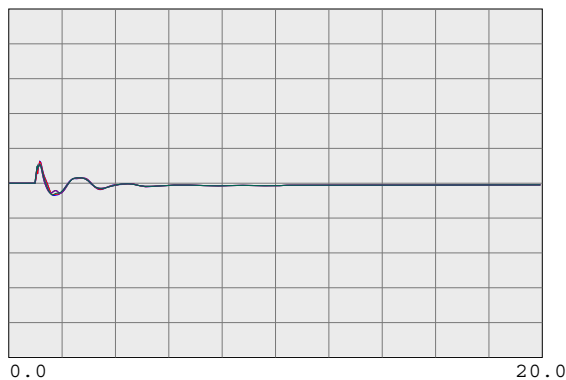
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

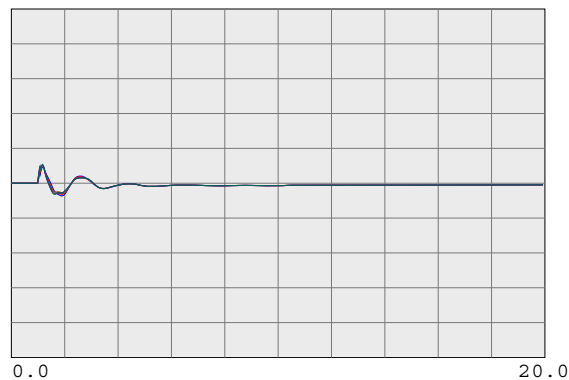
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

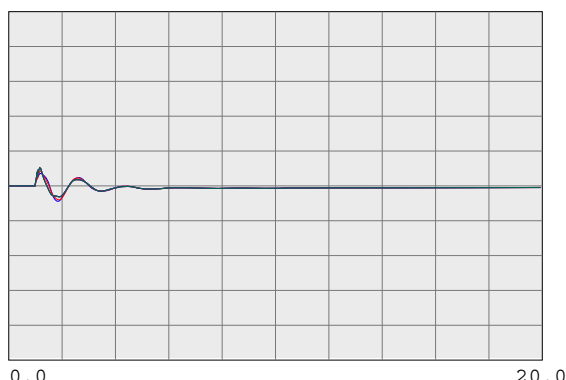
230-KV SYSTEM FREQUENCIES



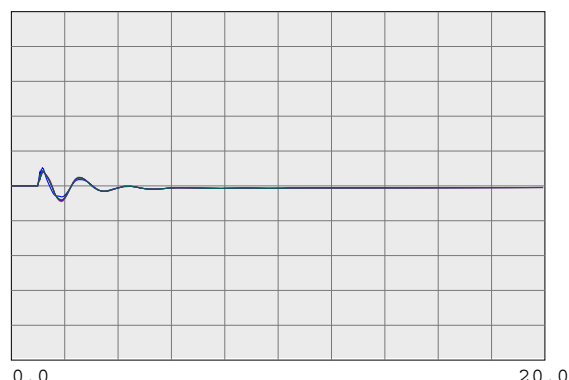
Time(sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



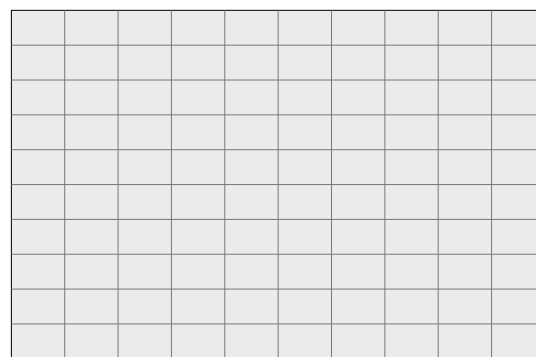
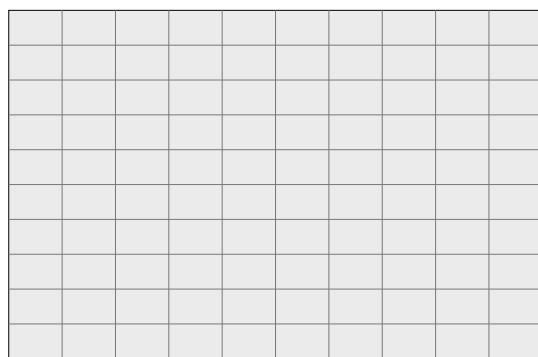
Time(sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time(sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

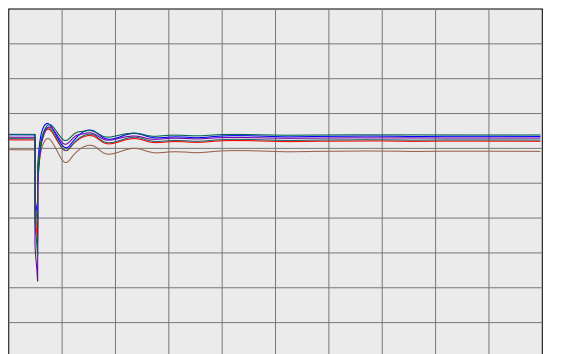
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

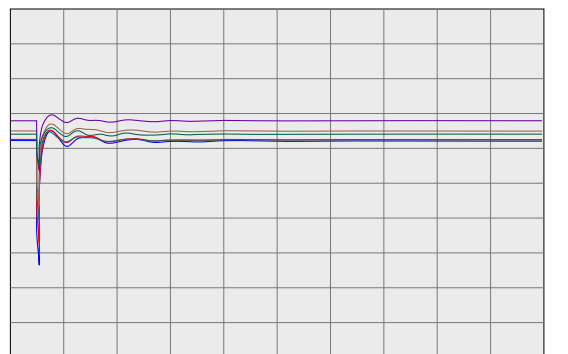
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



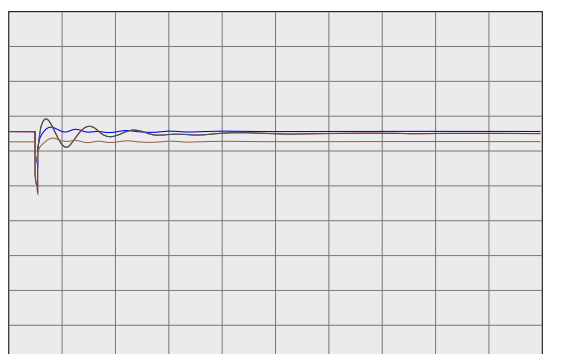
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



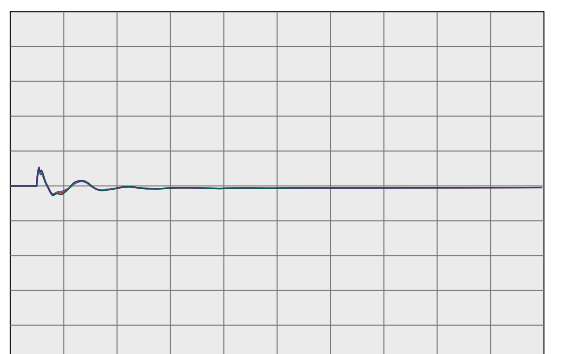
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



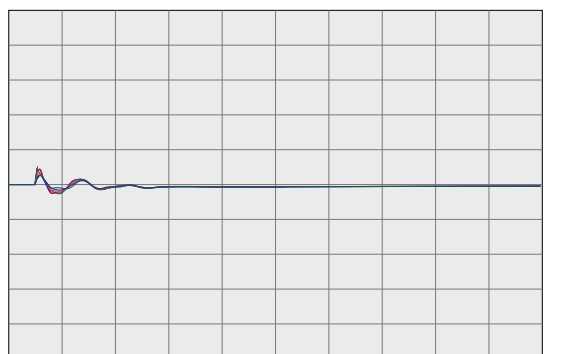
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



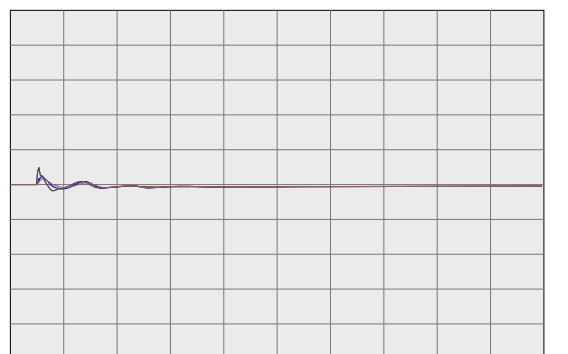
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

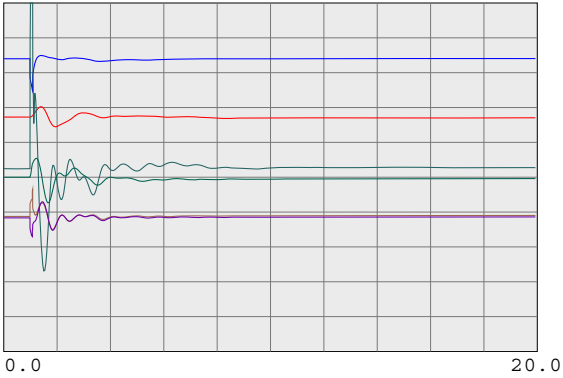
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

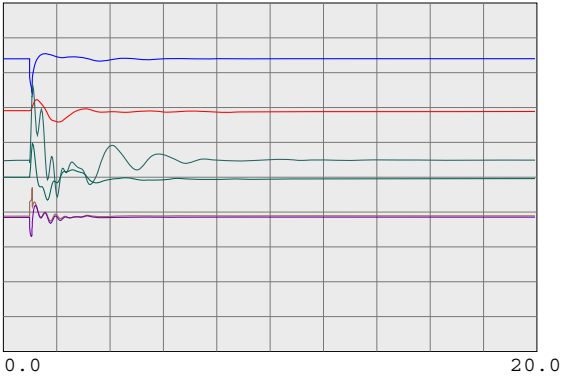
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

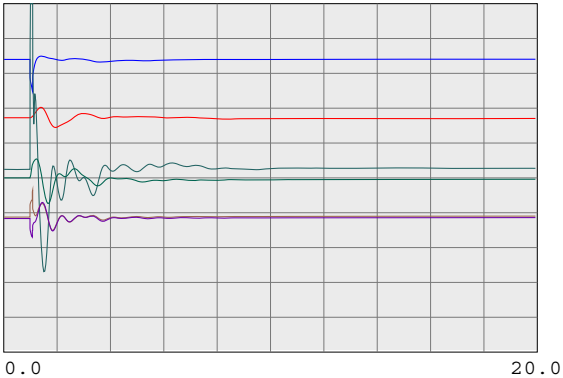
WILLOW PASS GENERATION PLANT



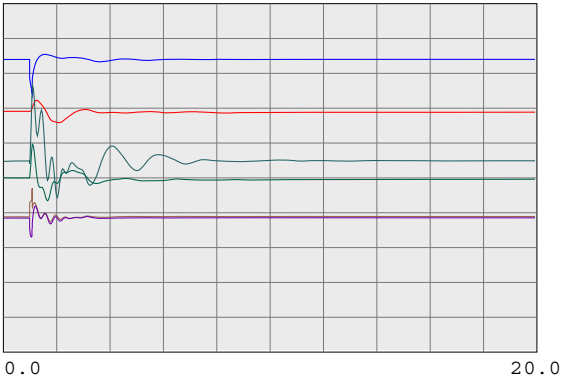
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



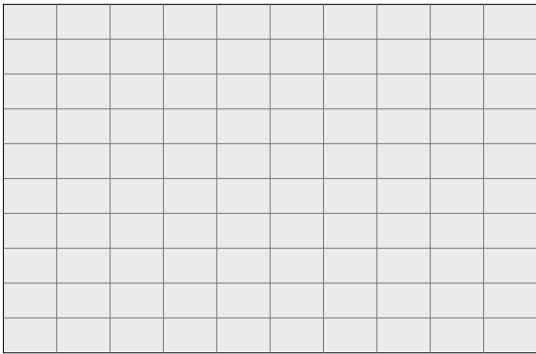
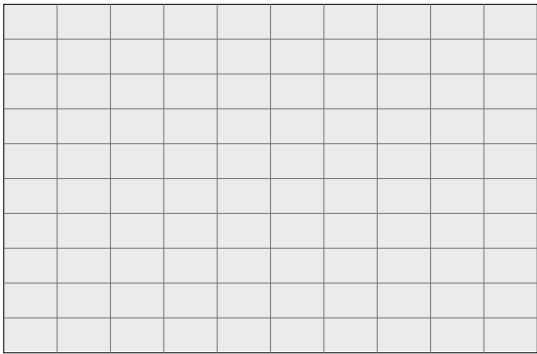
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

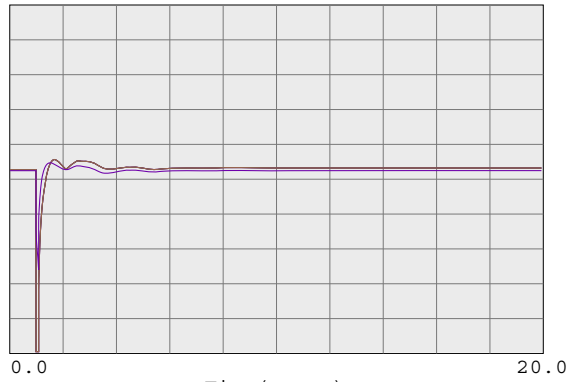


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	

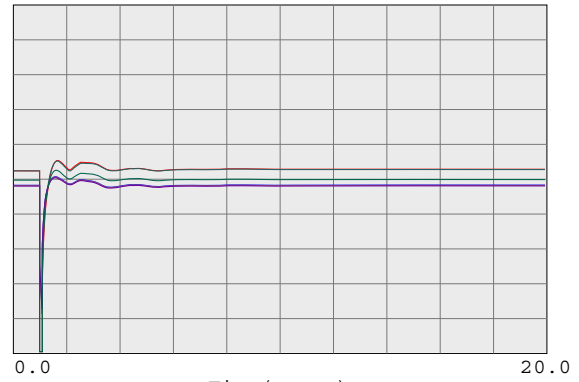


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

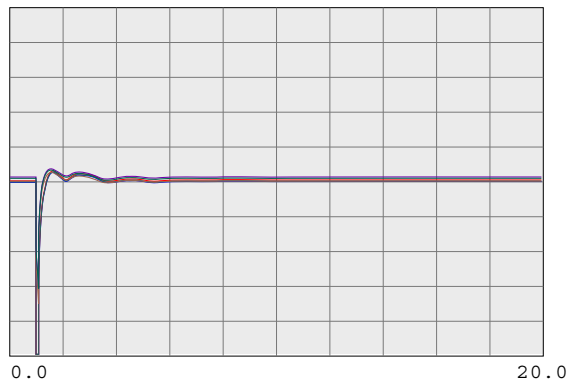
230-KV SYSTEM VOLTAGES



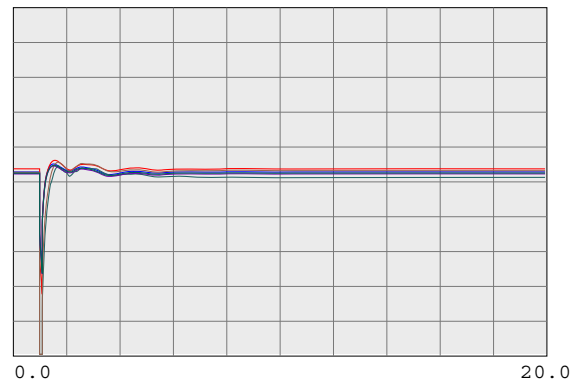
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



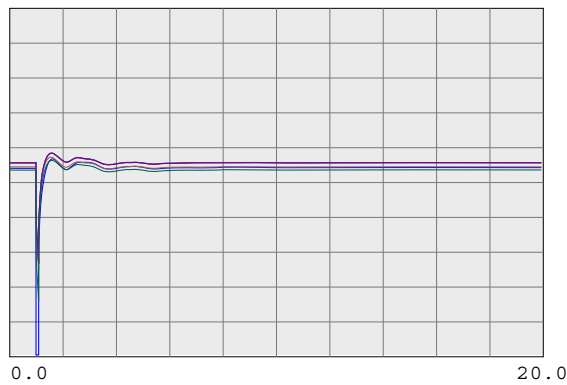
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONETREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



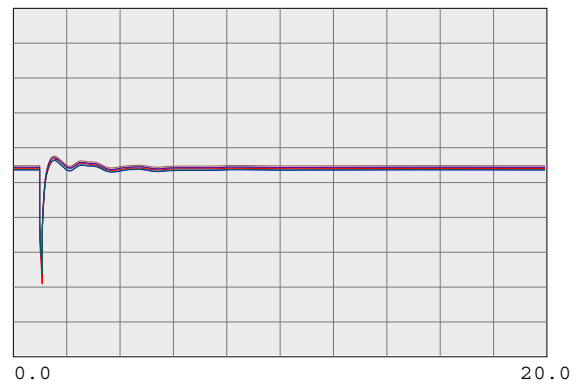
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

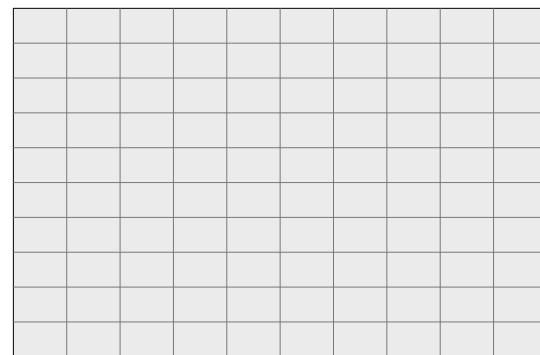
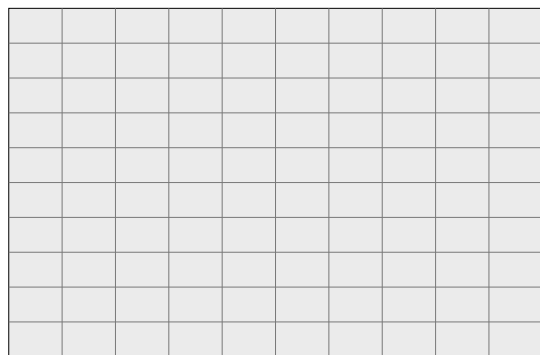
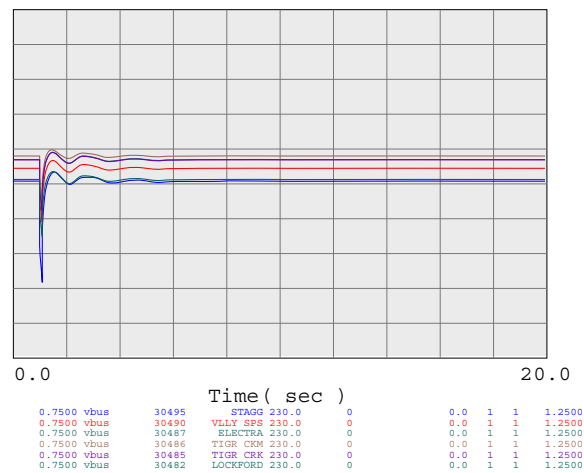
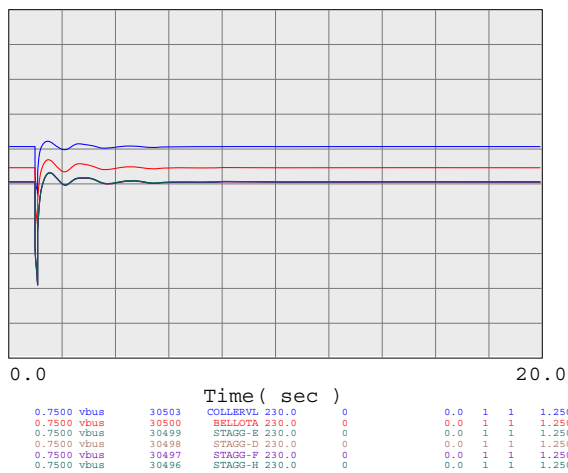
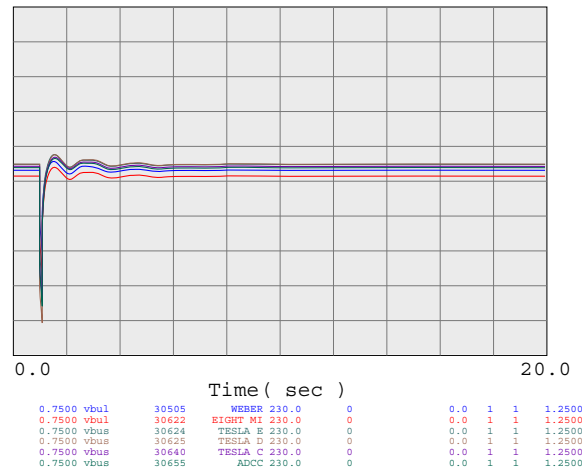
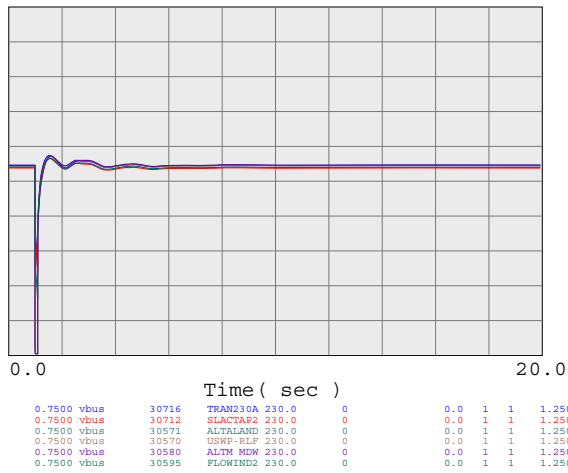
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

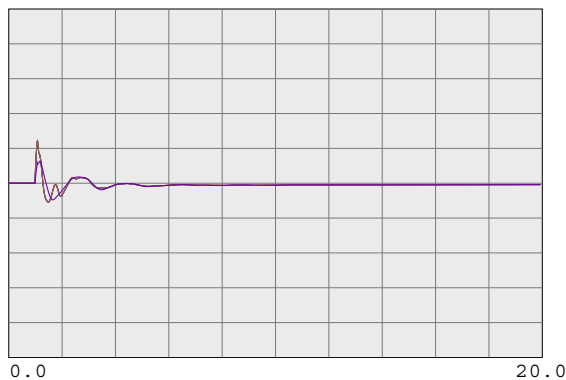
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

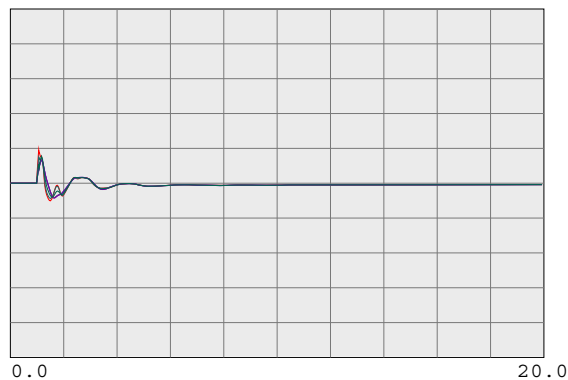


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

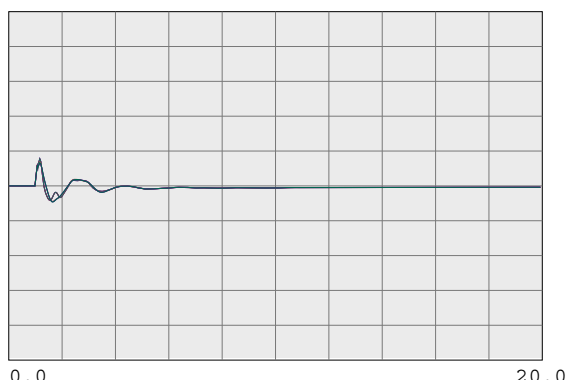
230-KV SYSTEM FREQUENCIES



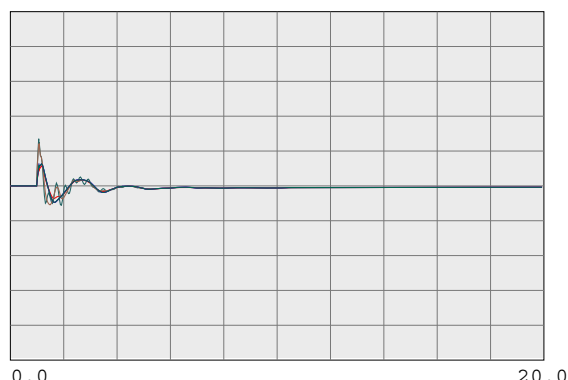
0.0 20.0
Time(sec)
59.4000 fbus 99980 MIRPKCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99981 MIRPKCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99985 MIRKCCC1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99986 MIRKCCC2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 99995 MIRKCCP1 230.0 0 0.0 1 1 60.6000



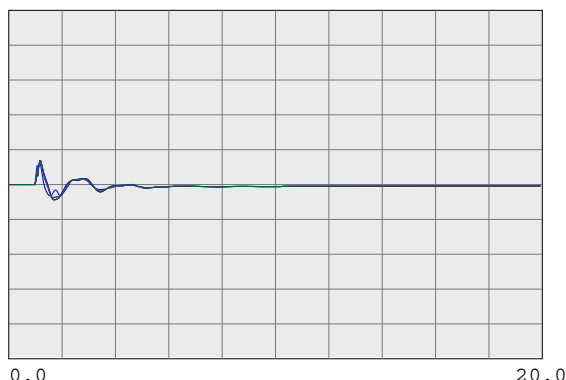
0.0 20.0
Time(sec)
59.4000 fbus 30562 TES JCT 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30567 LONETREE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30565 BRENTWOOD 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30563 RESEARCH 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30561 TASSAJAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30550 MORAGA 230.0 0 0.0 1 1 60.6000



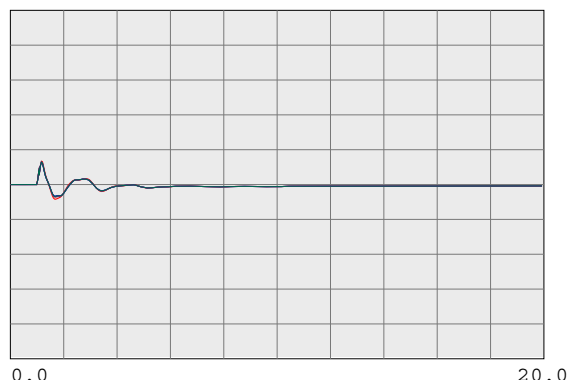
0.0 20.0
Time(sec)
59.4000 fbus 30545 ROSSMOOR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30544 ROSSSTAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30543 ROSSSTAR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30540 SOBRANTE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30536 TROBO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30535 TIDENATR 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30528 DEC PTS 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30600 TRES VAO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30523 CC SUB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30525 C. COSTA 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30526 PITSBG D 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30527 PITSBG E 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30575 WND MSTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30690 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30695 MARTIN C 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30696 MET ACTR 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30685 EMBRCDE 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30703 RAVENSWD 230.0 0 0.0 1 1 60.6000



0.0 20.0
Time(sec)
59.4000 fbus 30710 SLACTAP1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30700 SANMATEO 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30713 JMDAMCX1 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30717 TRANSJOB 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30714 JMDAMCX2 230.0 0 0.0 1 1 60.6000
59.4000 fbus 30715 JEFFERSN 230.0 0 0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

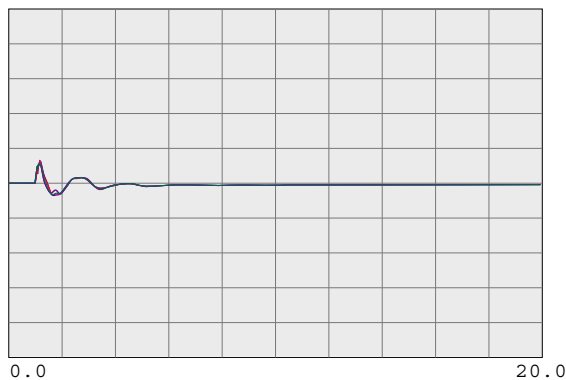
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

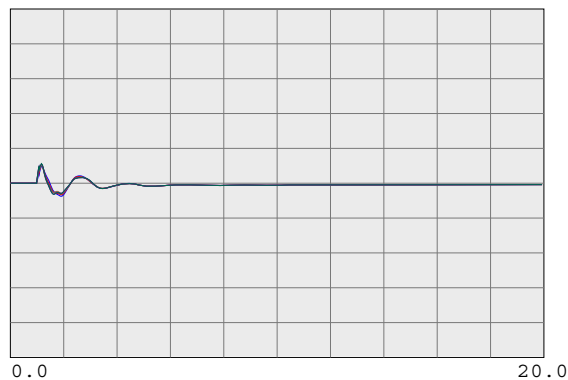
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

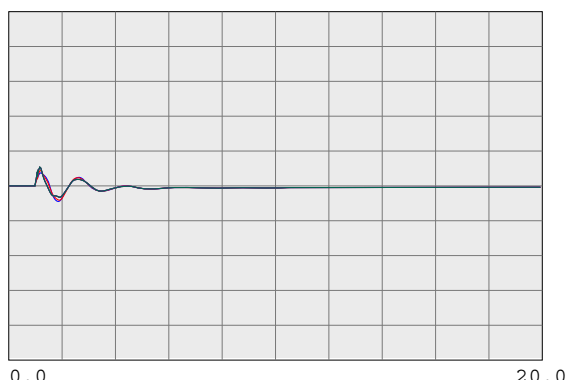
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

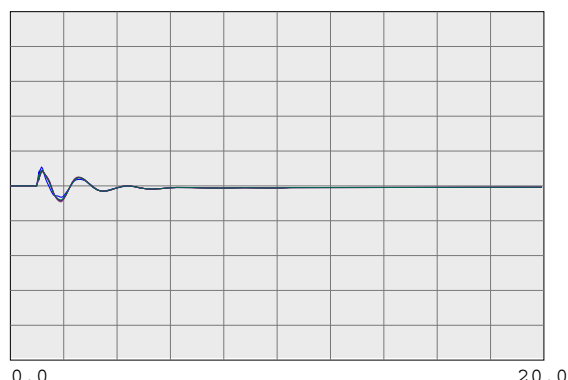
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

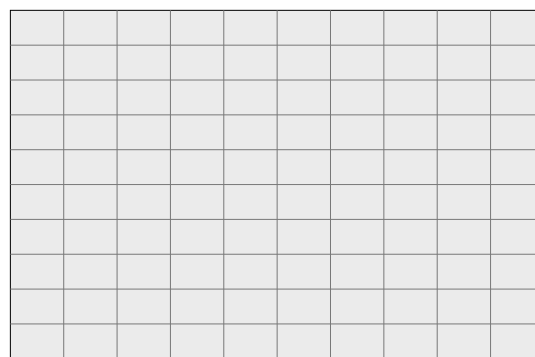
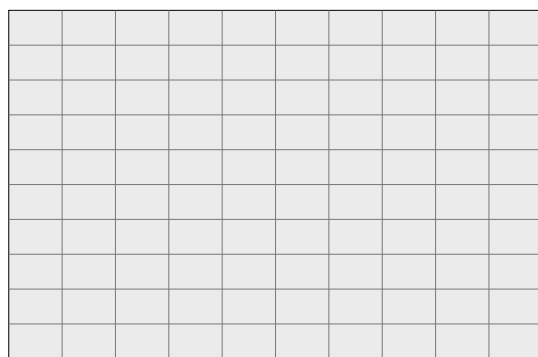
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

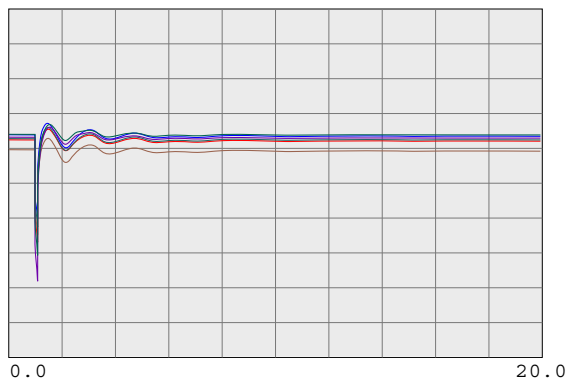
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

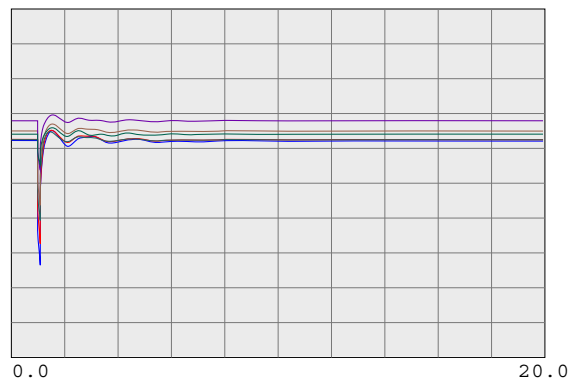
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



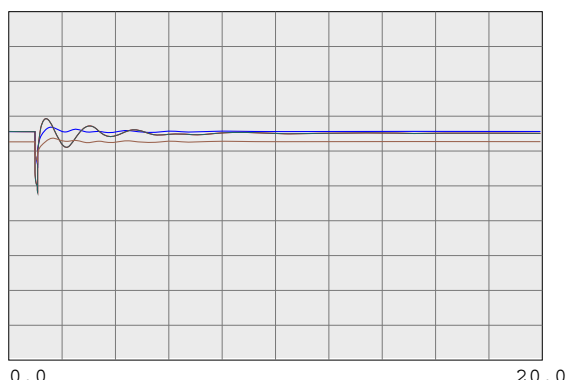
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



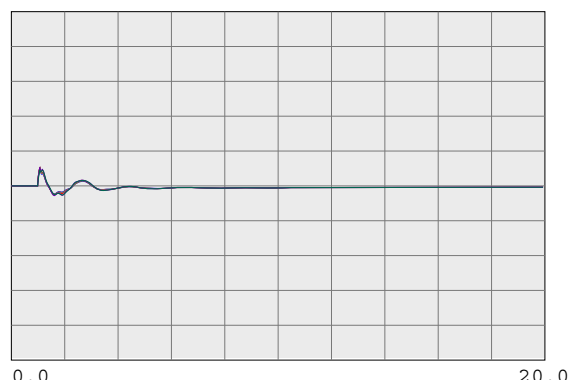
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



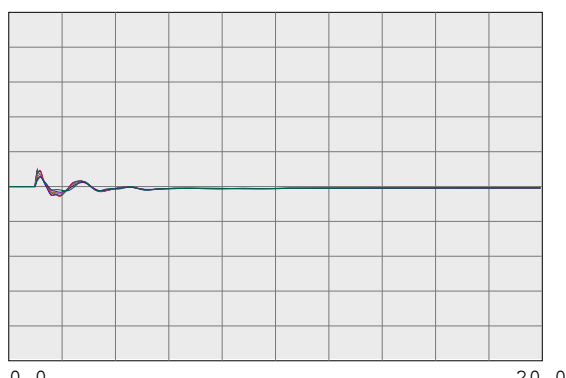
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



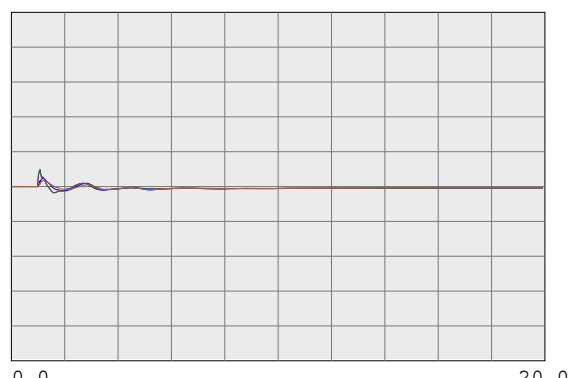
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

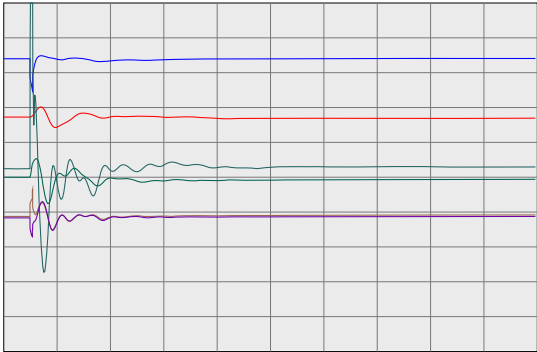
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

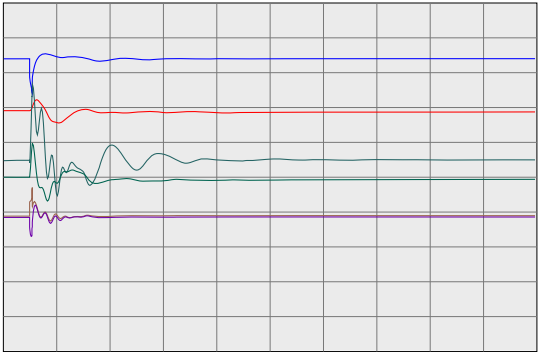
WILLOW PASS GENERATION PLANT



0.0 20.0

Time(sec)

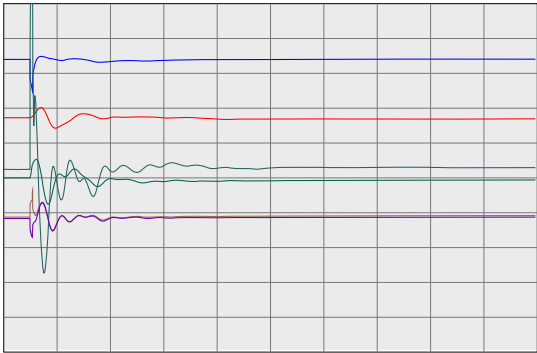
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900 apd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



0.0 20.0

Time(sec)

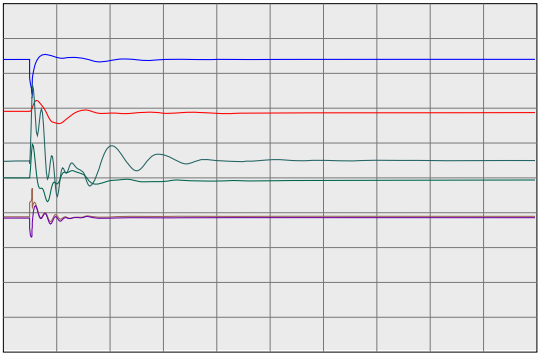
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900 apd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



0.0 20.0

Time(sec)

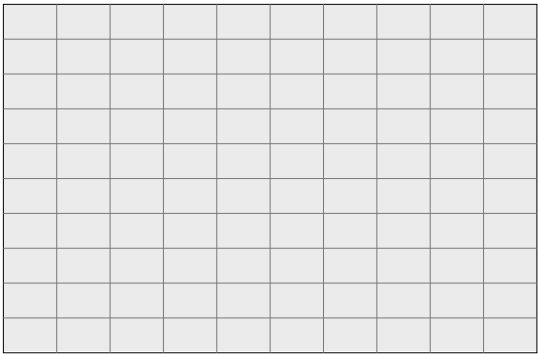
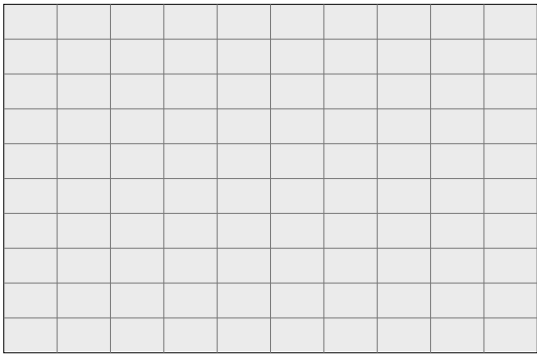
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900 apd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100



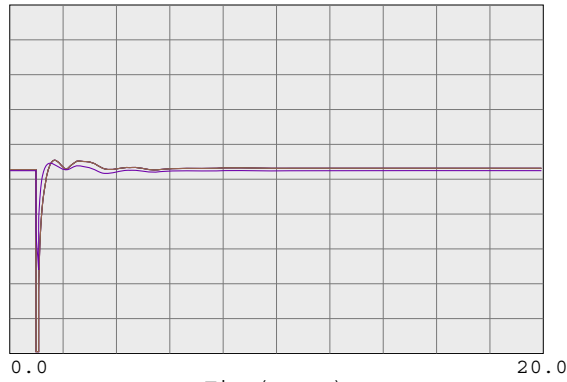
0.0 20.0

Time(sec)

0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900 apd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100

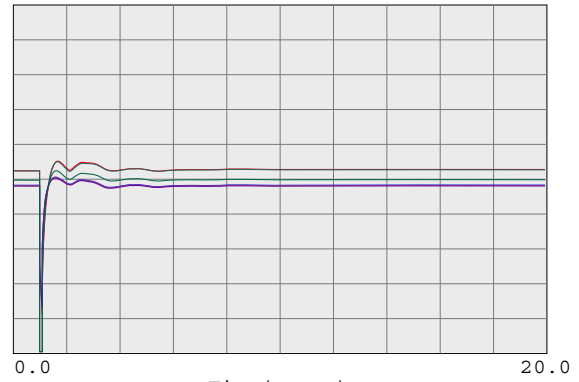


230-KV SYSTEM VOLTAGES



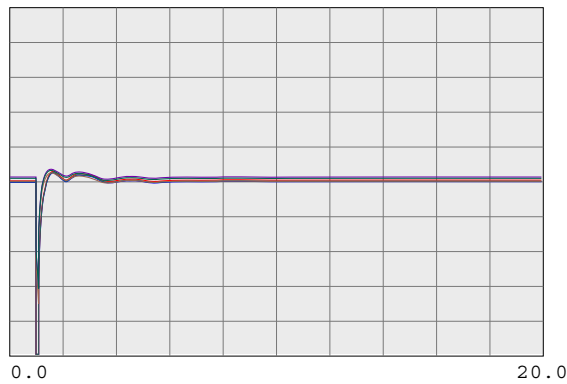
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



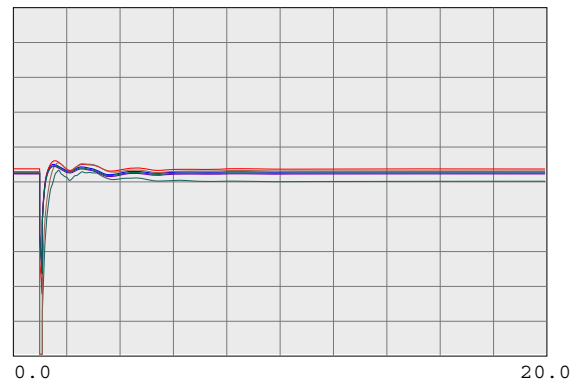
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



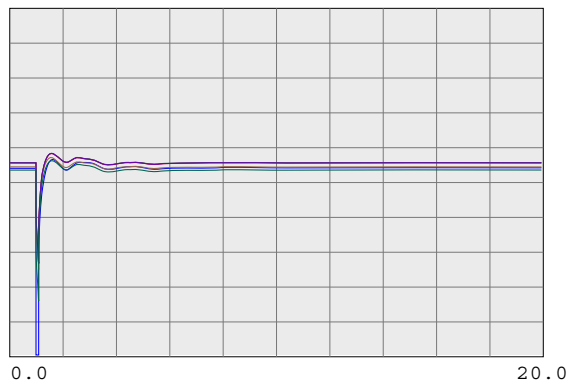
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



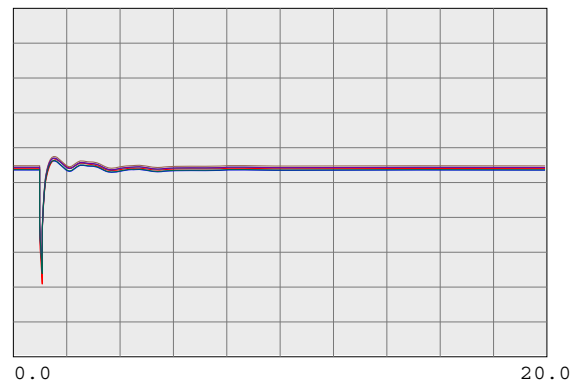
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

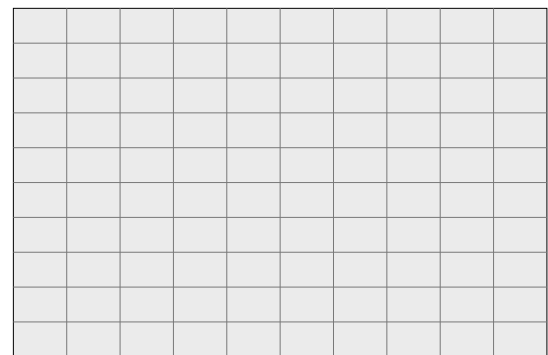
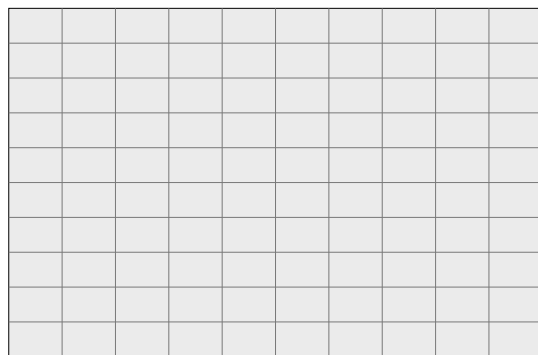
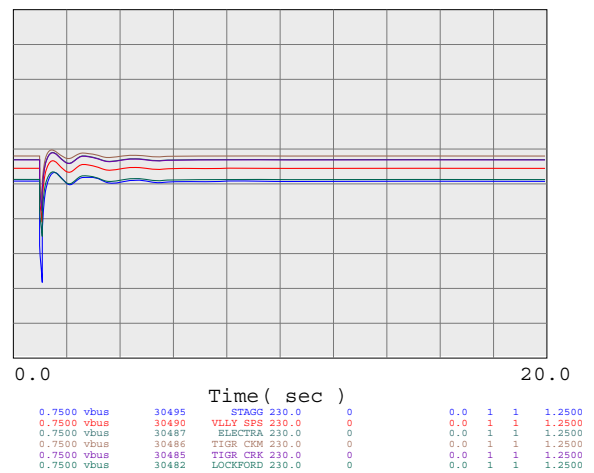
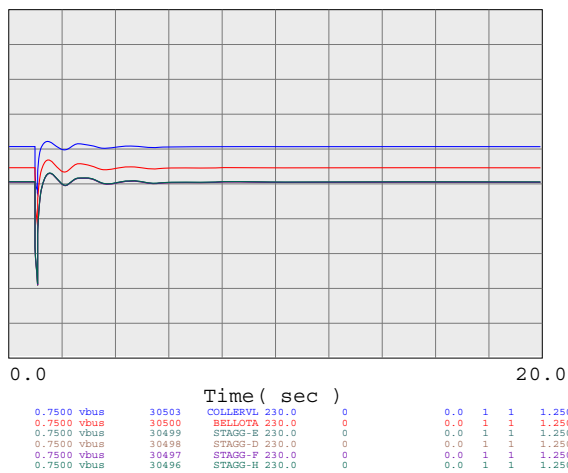
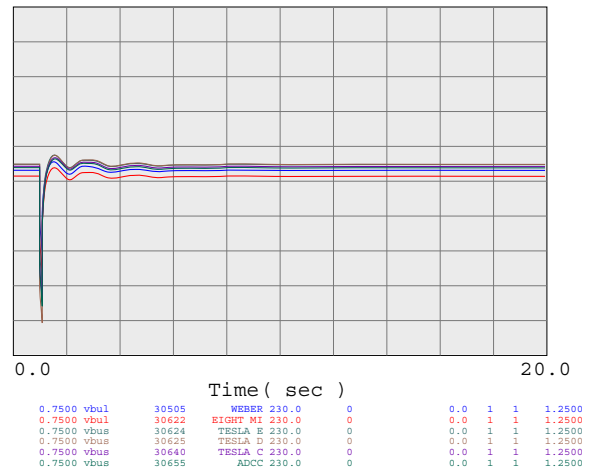
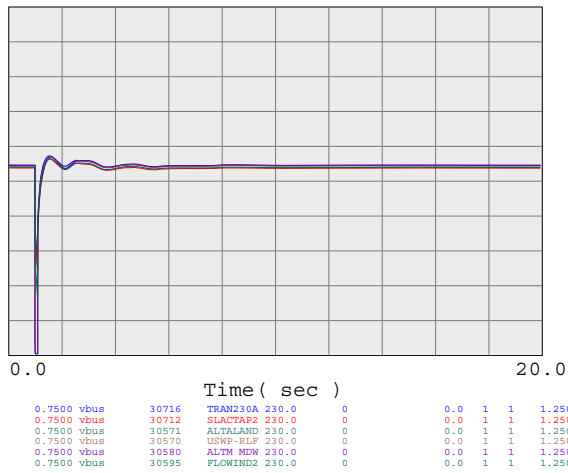
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

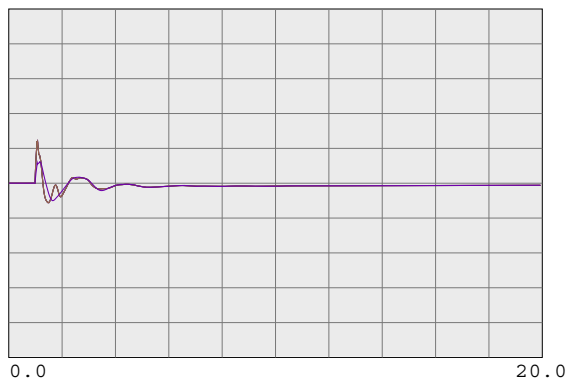
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



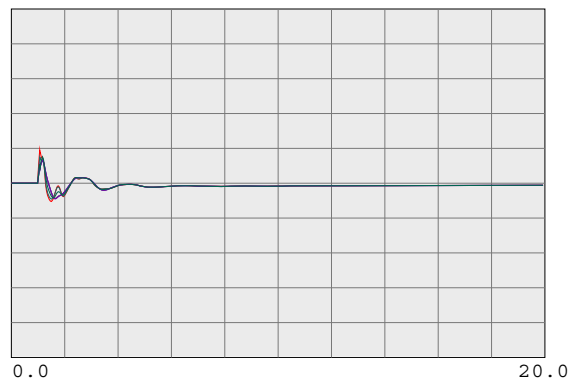
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



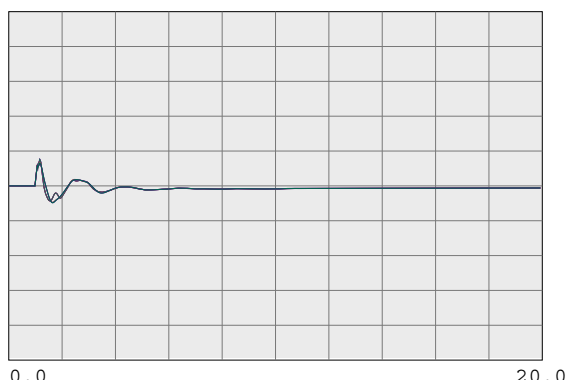
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



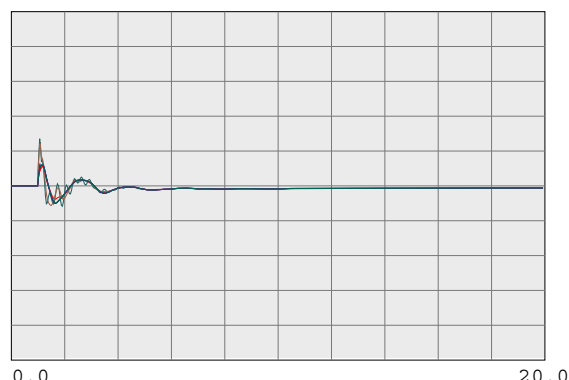
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



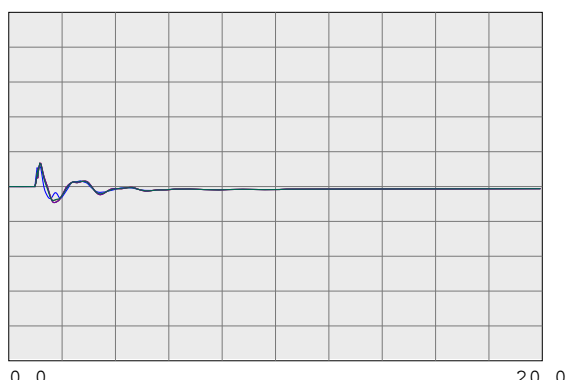
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



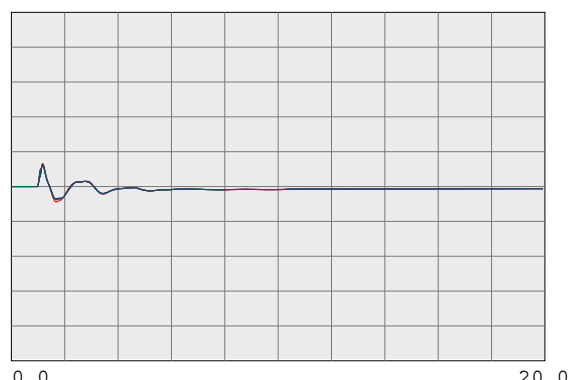
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

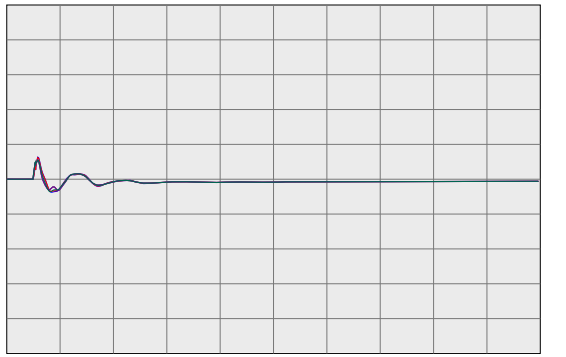
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

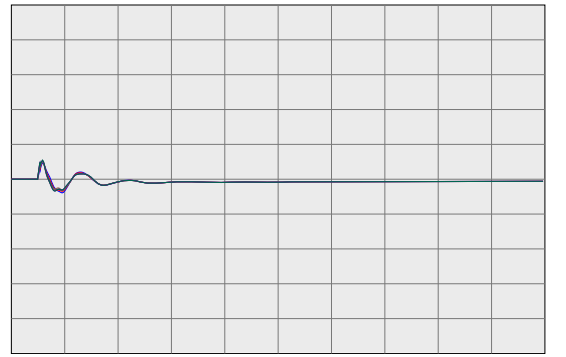
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

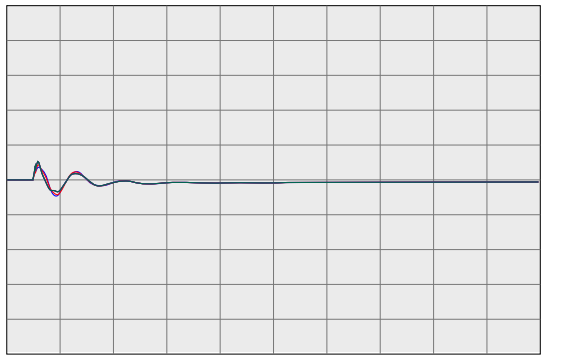
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

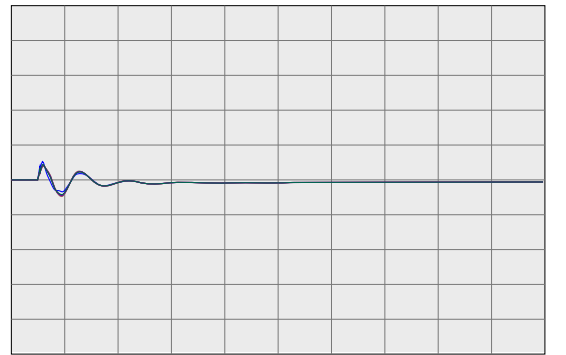
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

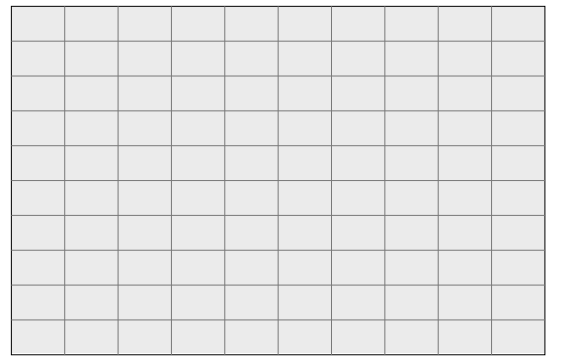
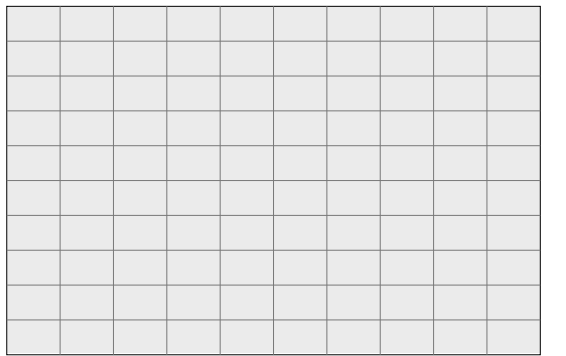
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

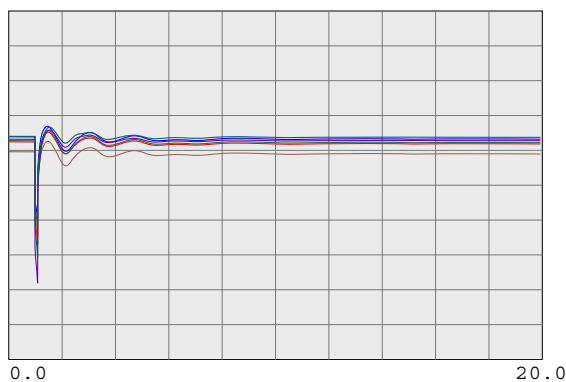
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



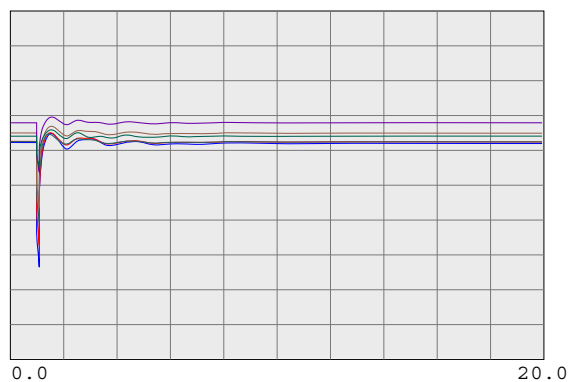
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



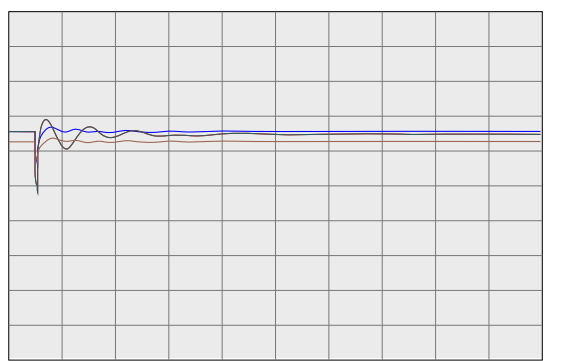
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



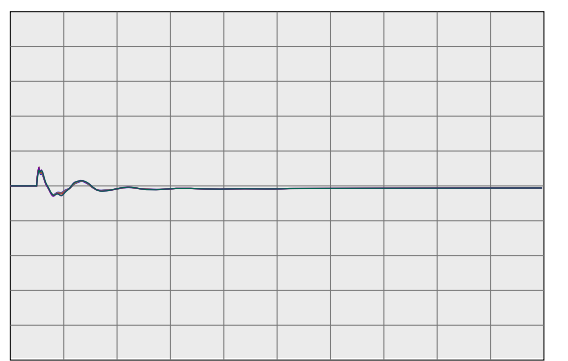
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



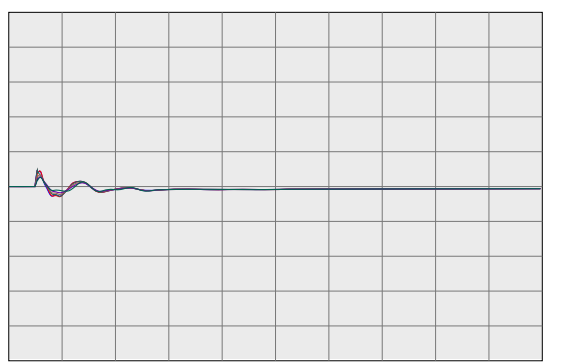
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



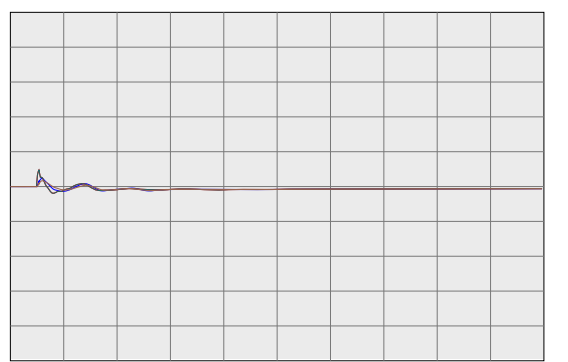
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

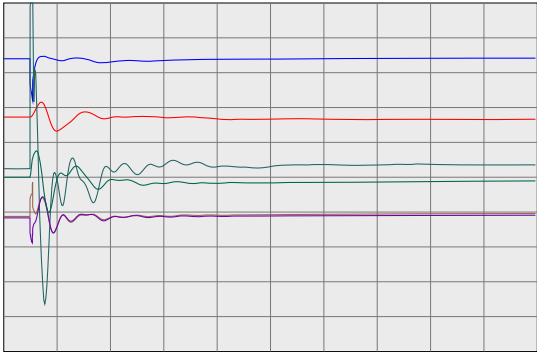
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

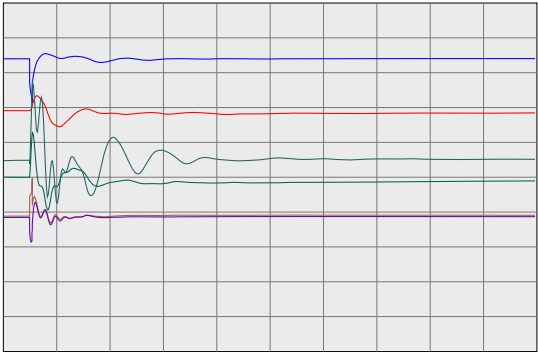
WILLOW PASS GENERATION PLANT



0.0 20.0

Time (sec)

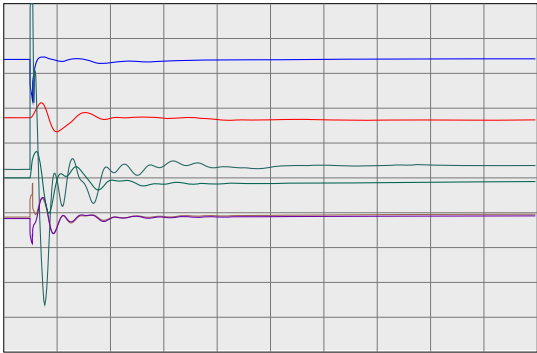
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100



0.0 20.0

Time (sec)

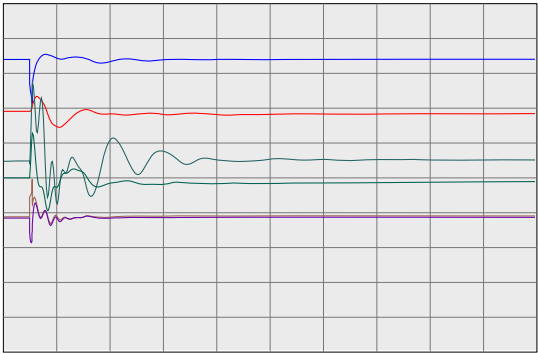
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100



0.0 20.0

Time (sec)

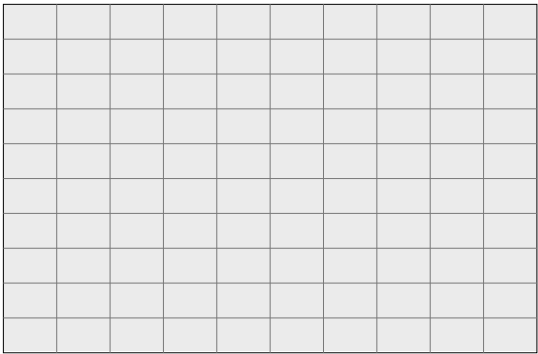
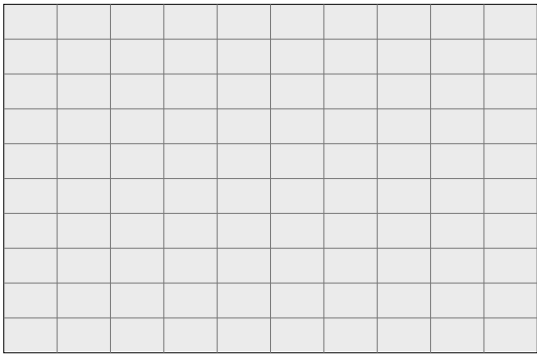
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100



0.0 20.0

Time (sec)

0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

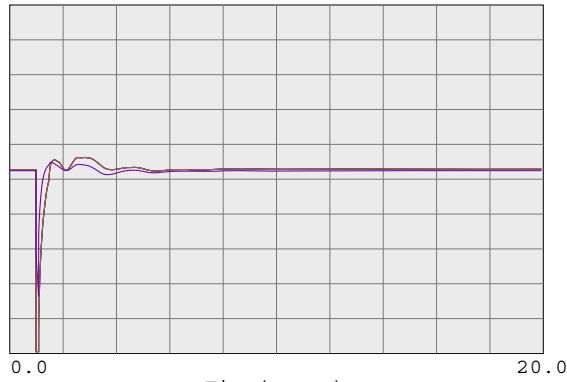
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

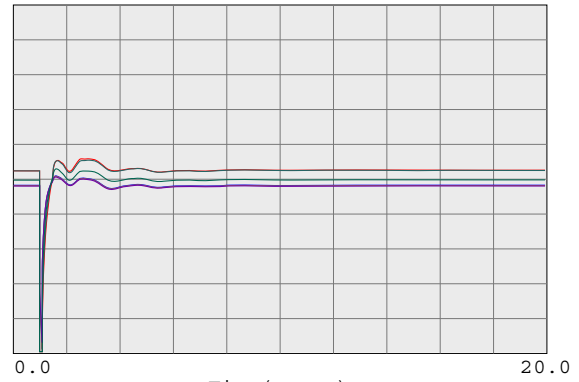
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



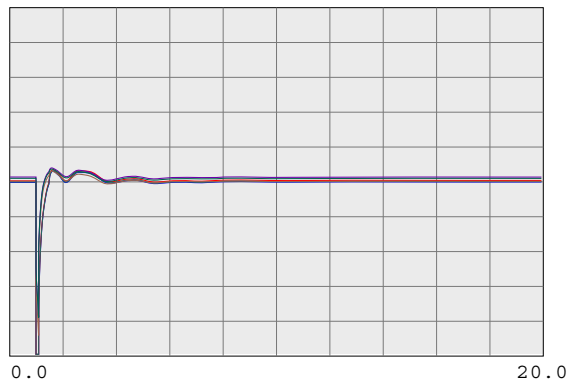
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



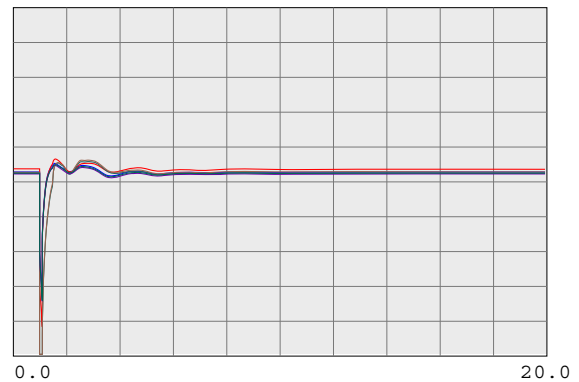
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



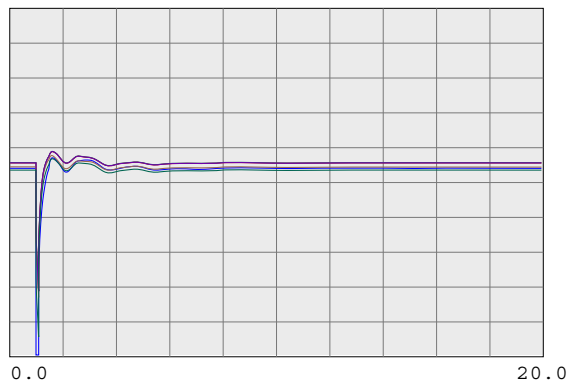
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



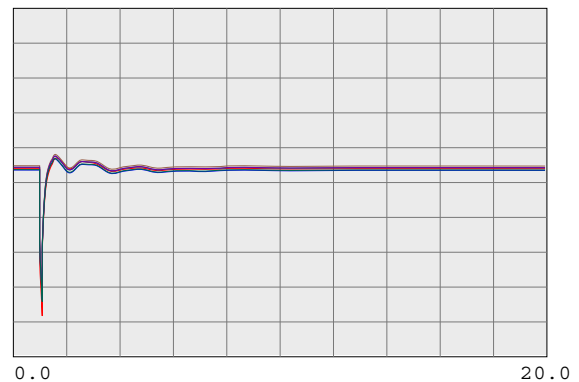
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

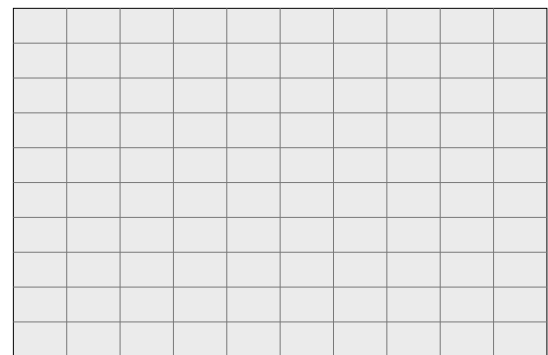
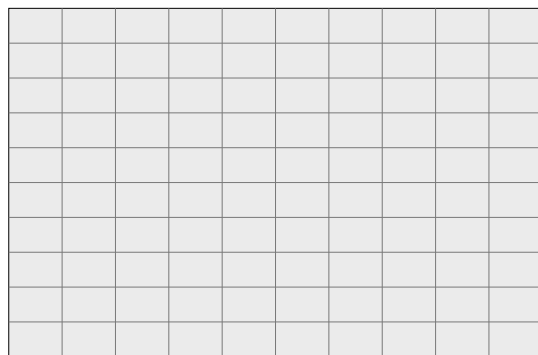
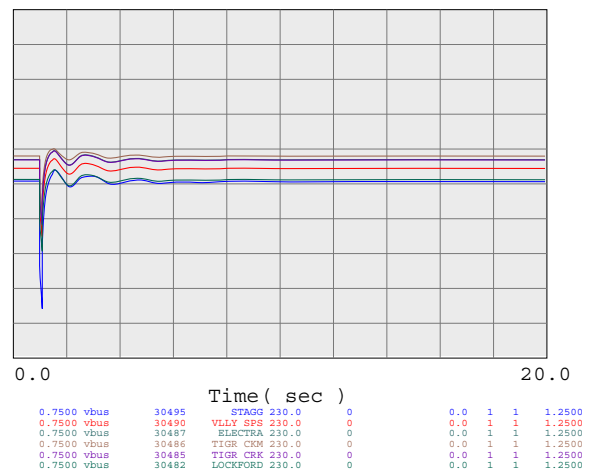
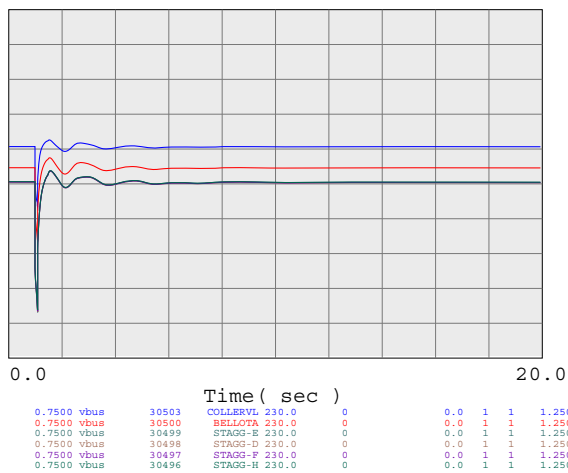
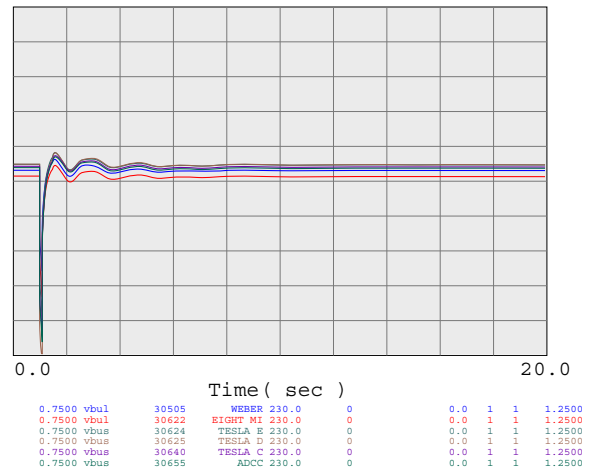
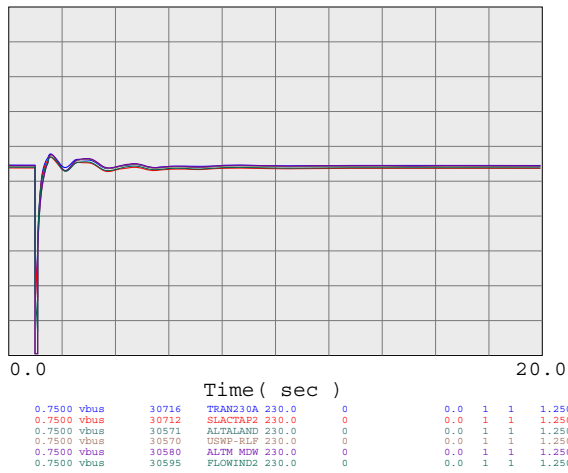
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

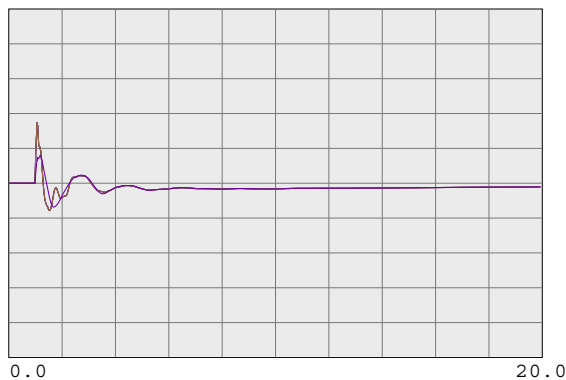
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



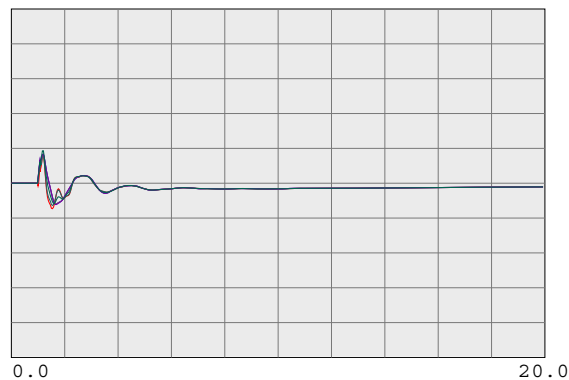
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

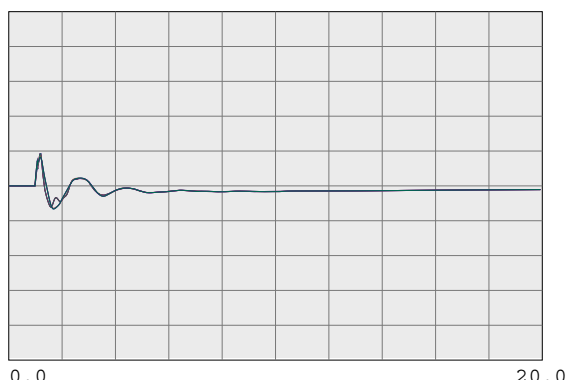
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

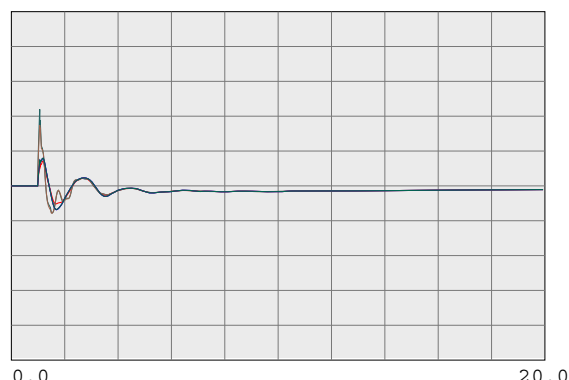
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

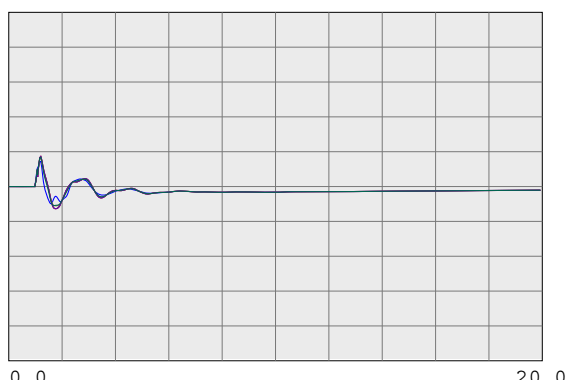
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

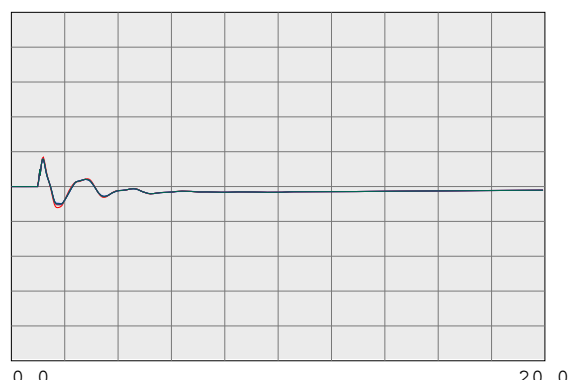
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

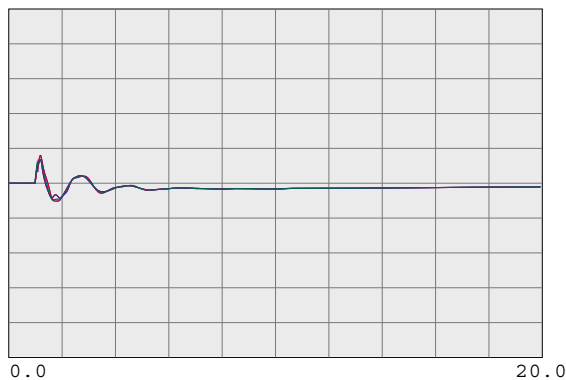
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

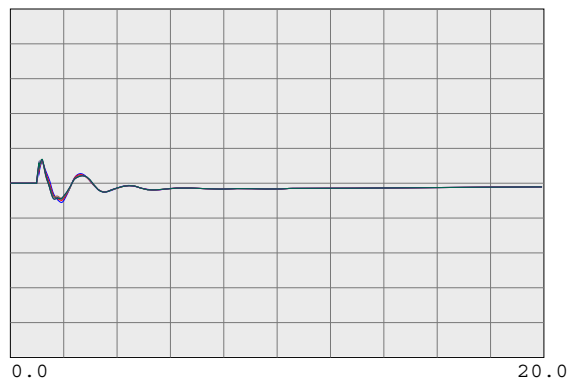
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

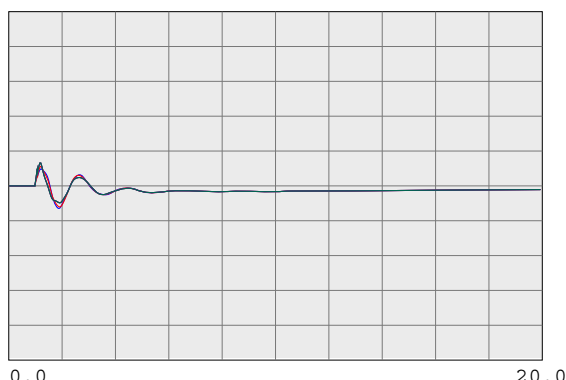
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

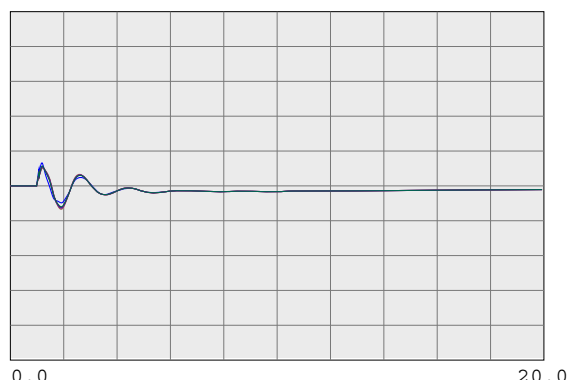
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

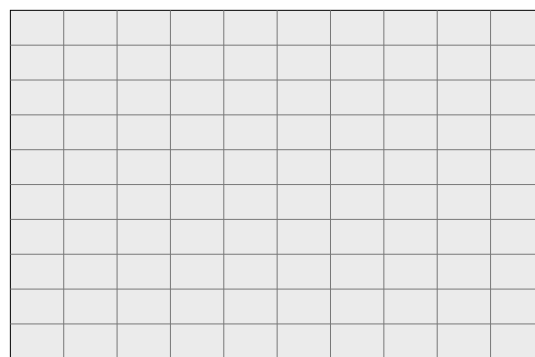
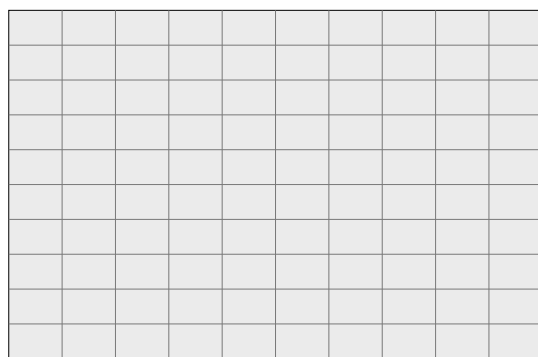
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

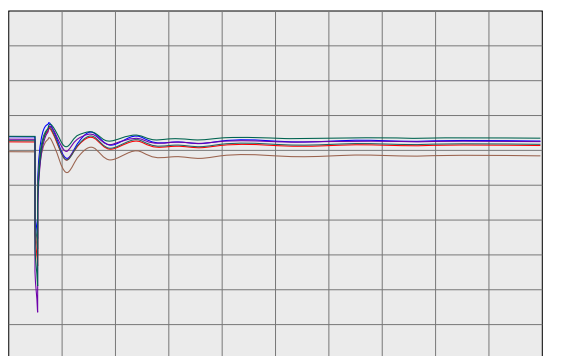
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

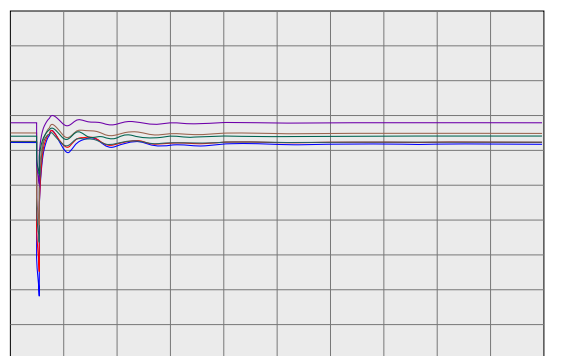
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



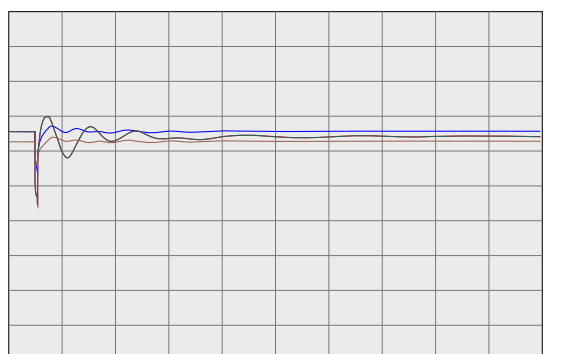
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



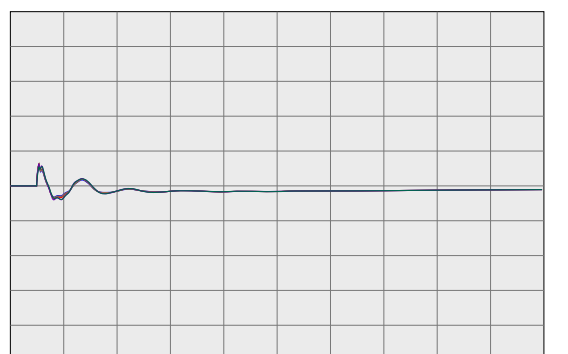
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



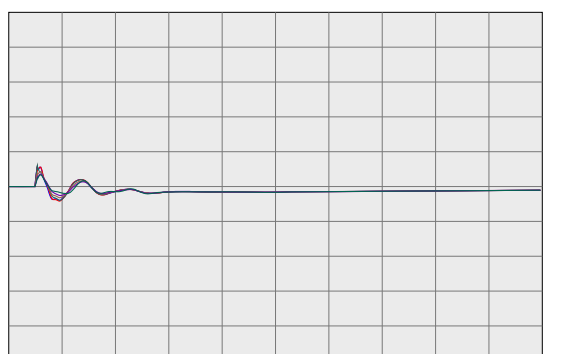
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



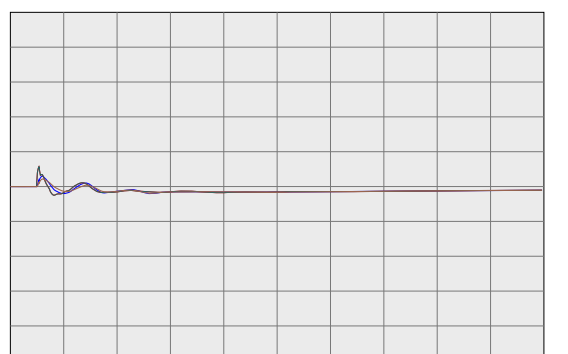
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

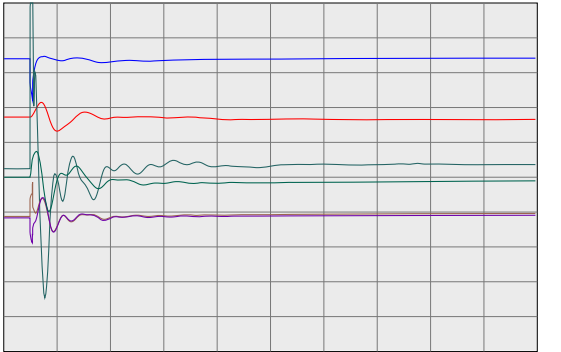
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

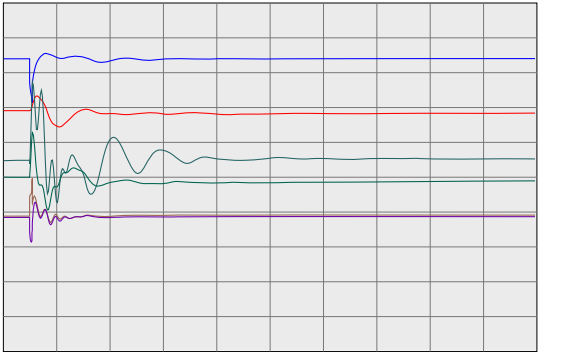
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

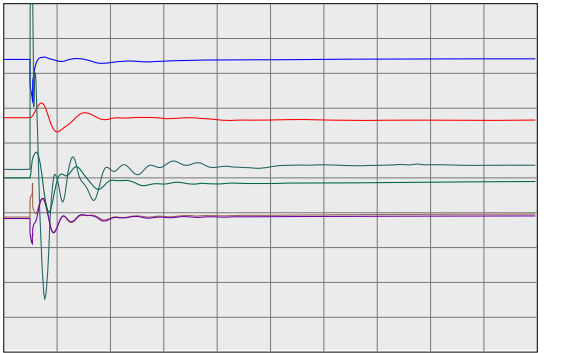
WILLOW PASS GENERATION PLANT



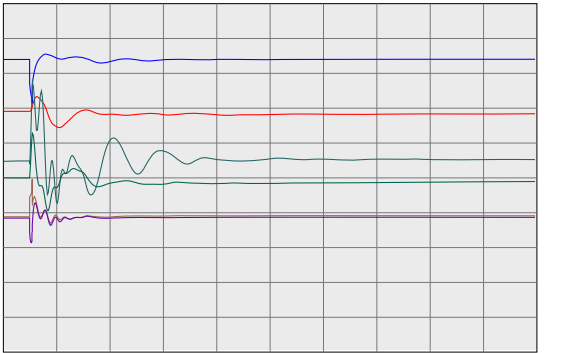
Time(sec)									
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000		
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000		
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000		
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000		
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000		
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100		



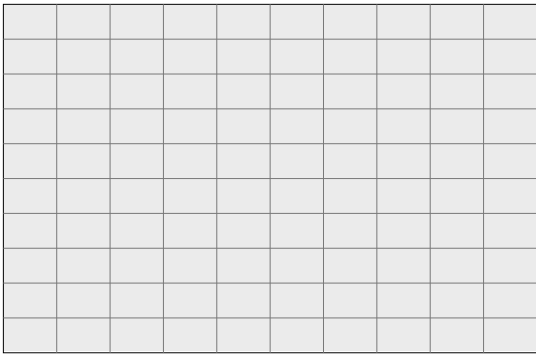
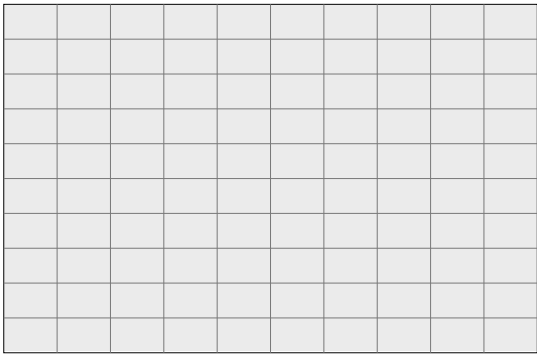
Time(sec)									
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000		
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000		
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000		
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000		
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000		
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100		



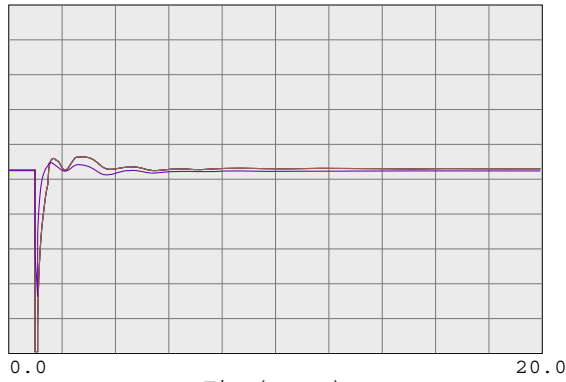
Time(sec)									
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000		
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000		
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000		
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000		
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000		
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100		



Time(sec)									
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000		
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000		
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000		
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000		
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000		
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100		

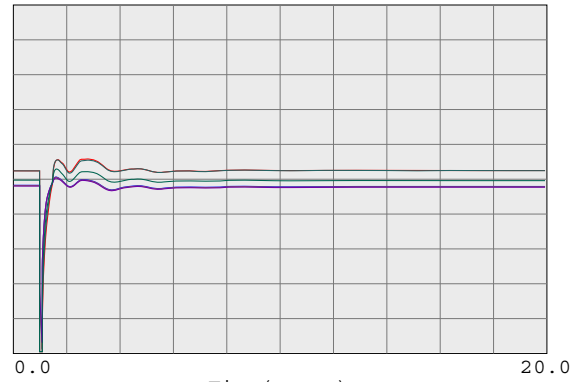


230-KV SYSTEM VOLTAGES



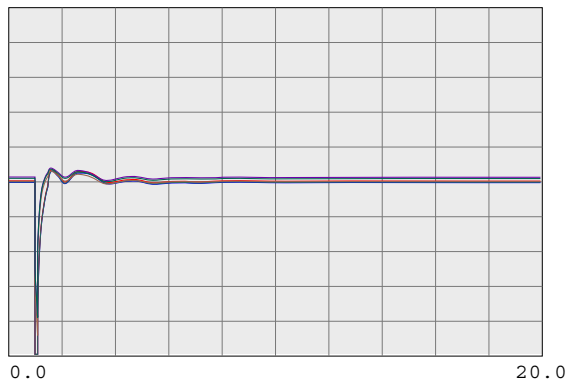
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



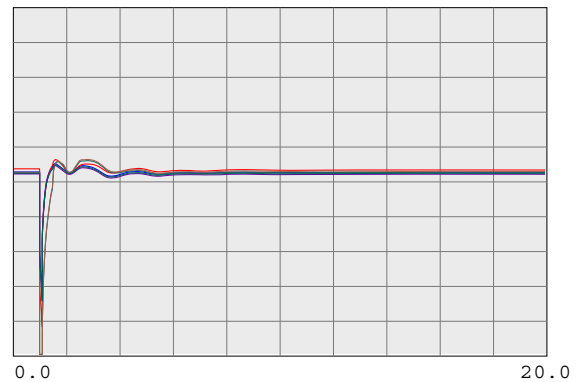
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



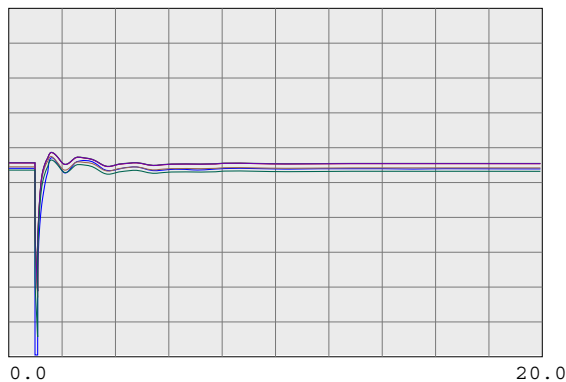
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



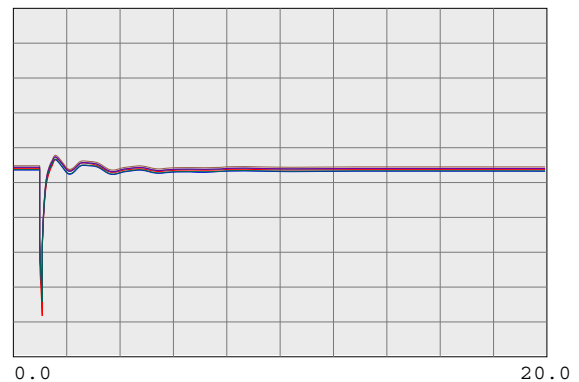
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

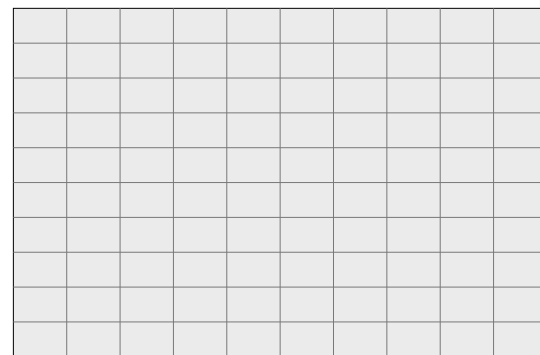
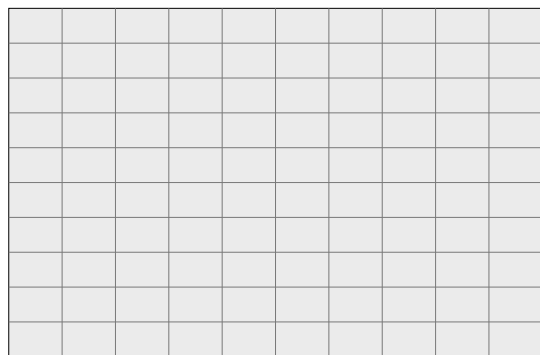
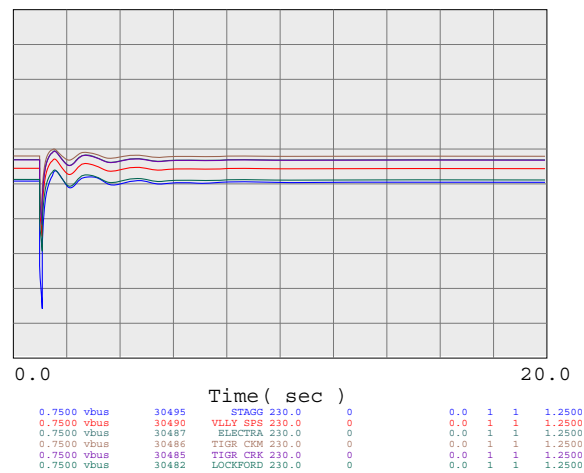
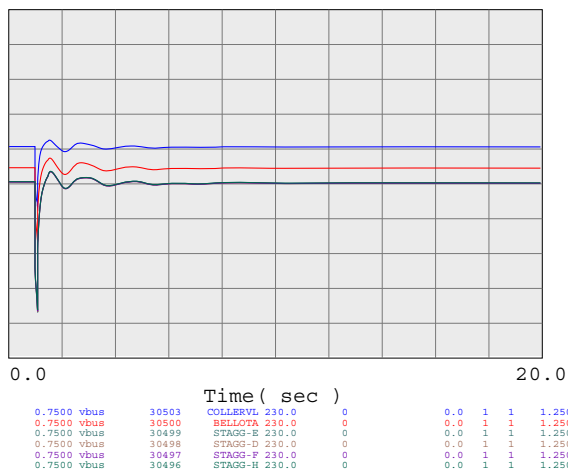
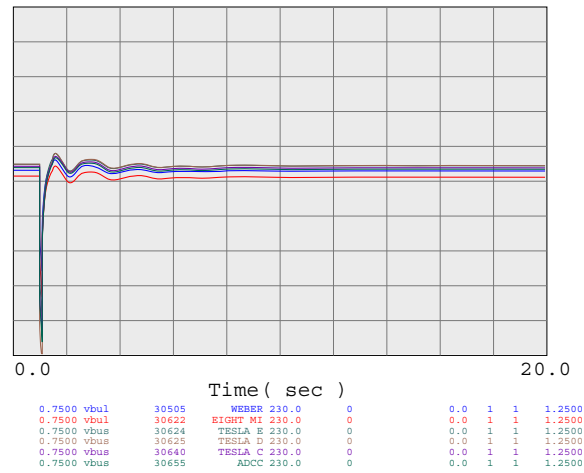
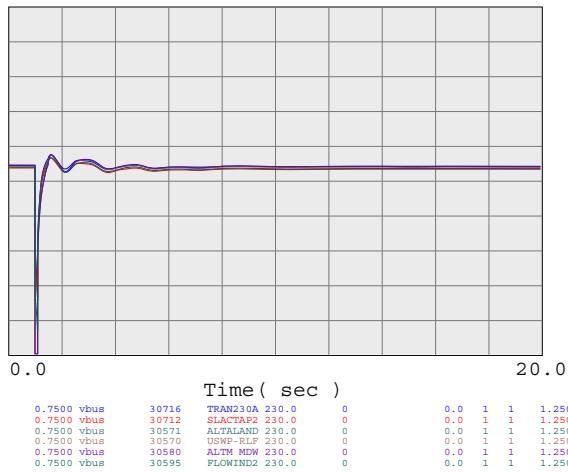
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

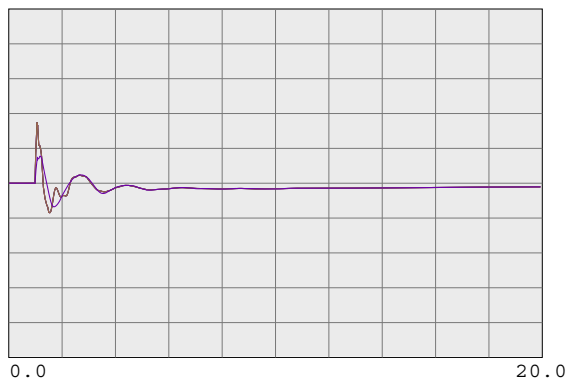
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

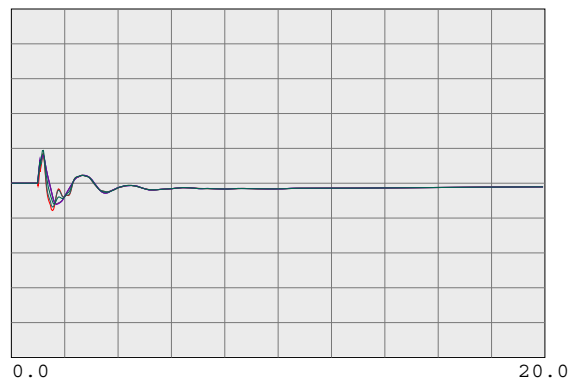
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

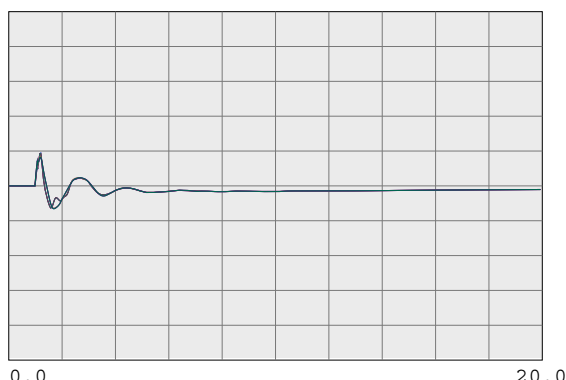
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

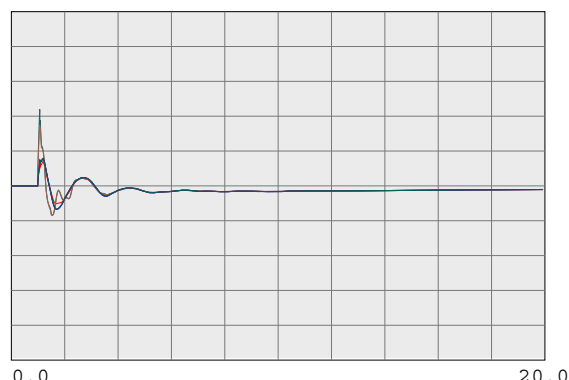
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

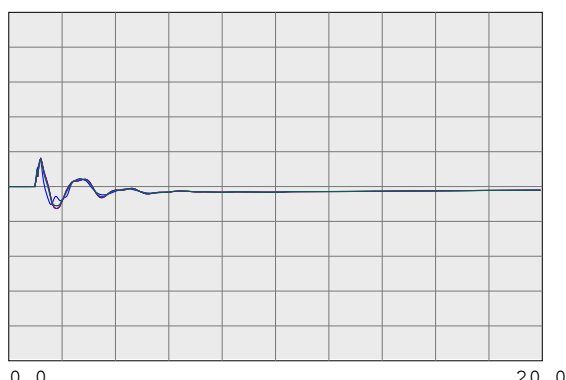
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSSTAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

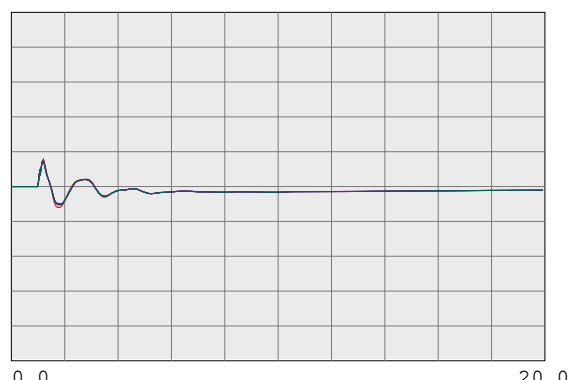
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

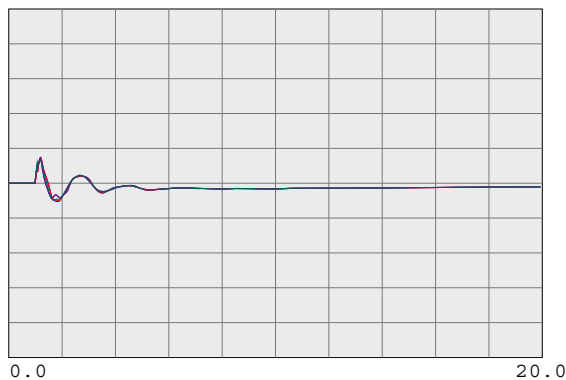
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

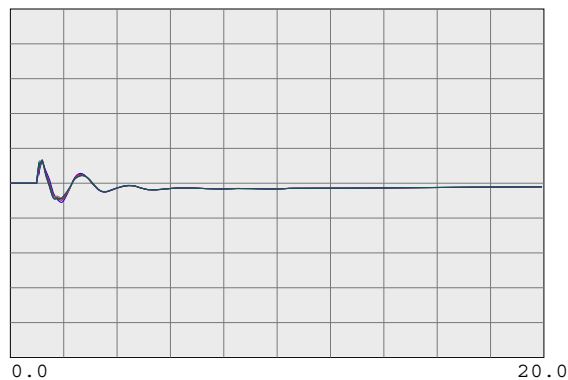
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

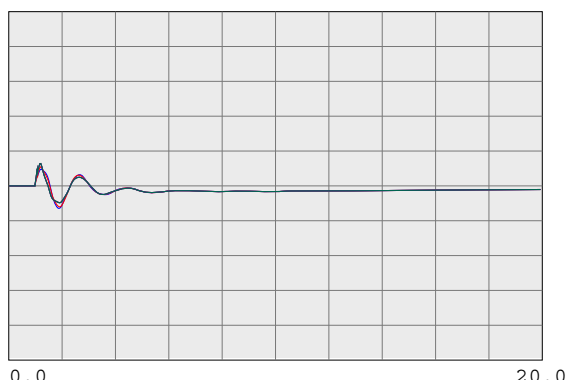
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

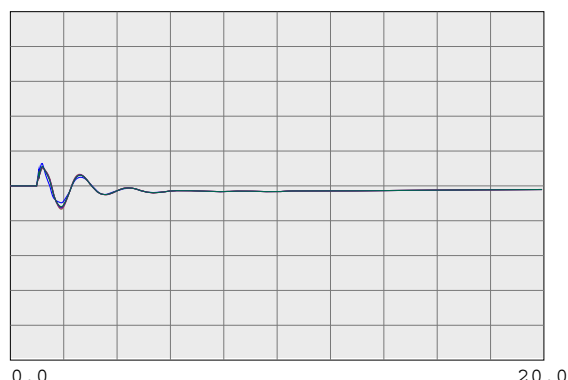
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

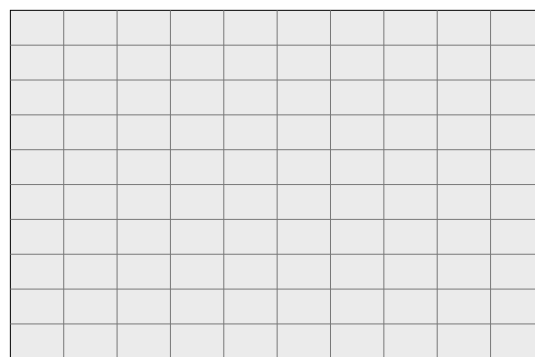
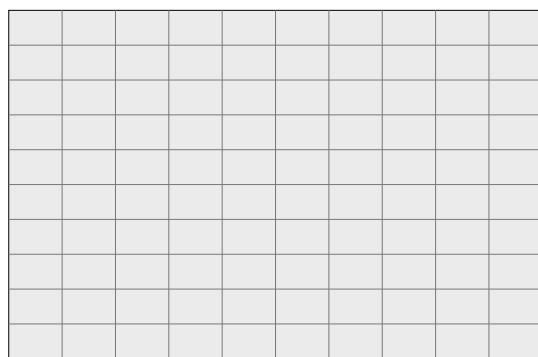
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

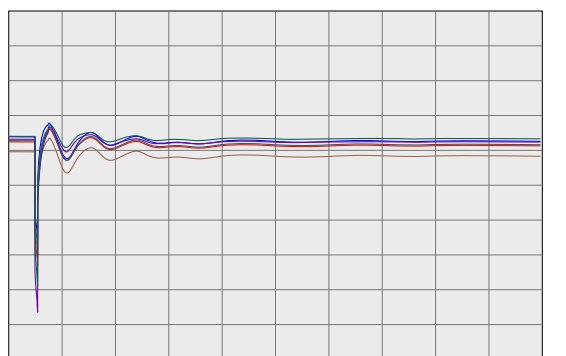
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

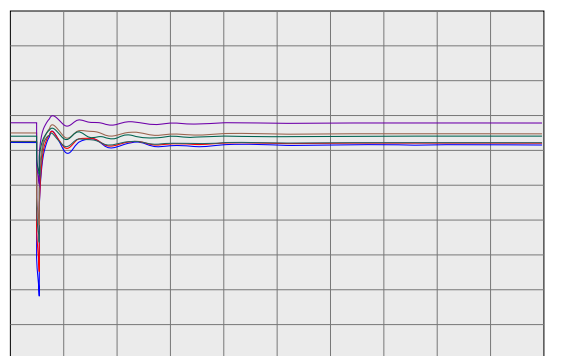
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time(sec)

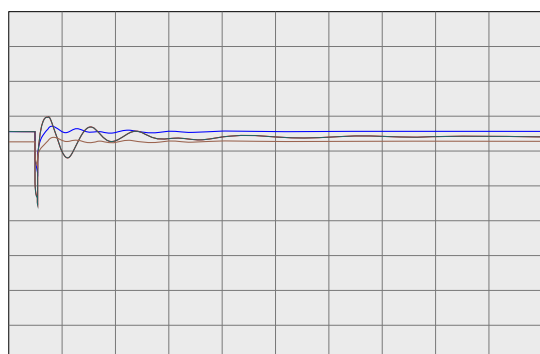
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

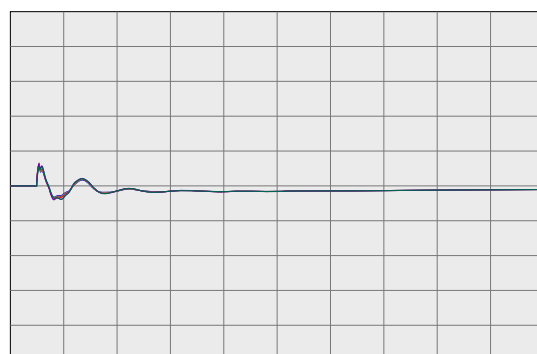
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

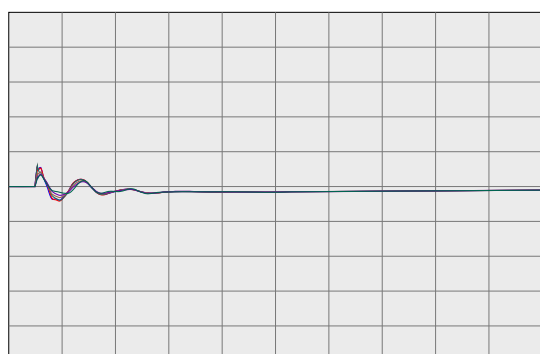
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

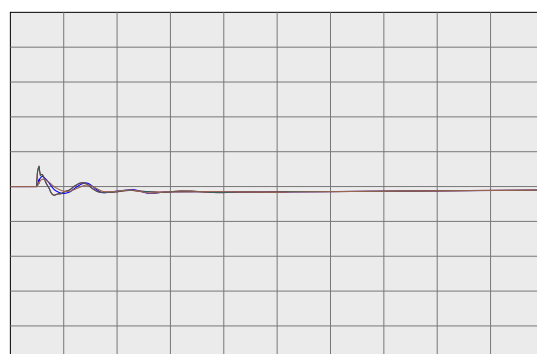
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

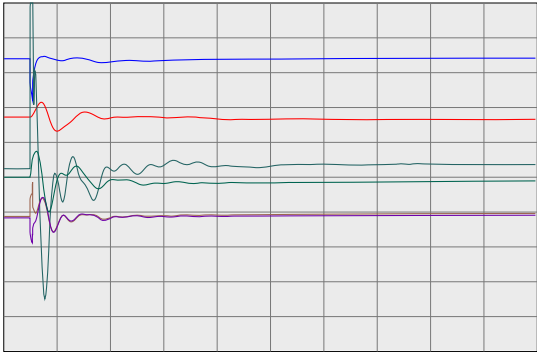
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

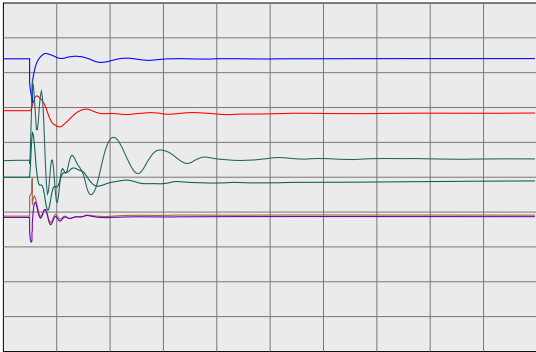
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

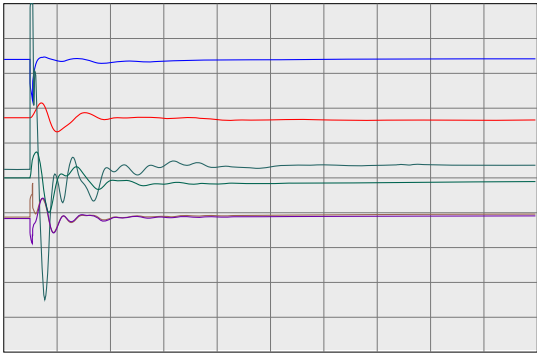
WILLOW PASS GENERATION PLANT



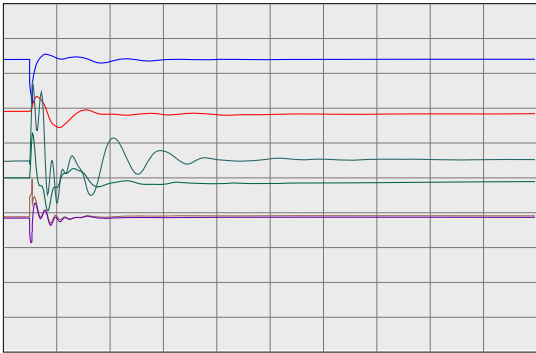
Time(sec)									
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000		
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000		
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000		
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000		
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000		
0.9900 apd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100		



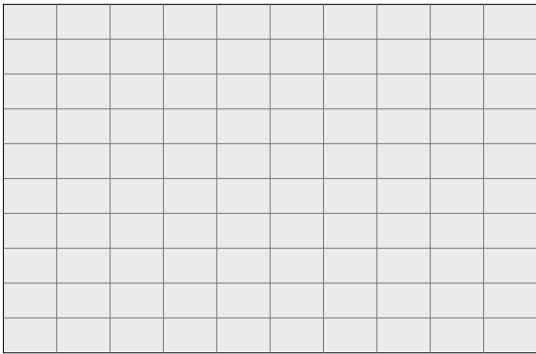
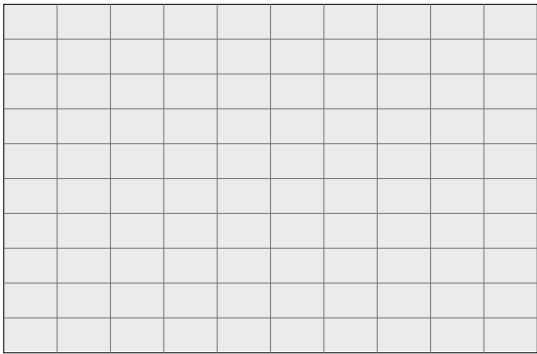
Time(sec)									
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000		
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000		
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000		
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000		
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000		
0.9900 apd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100		



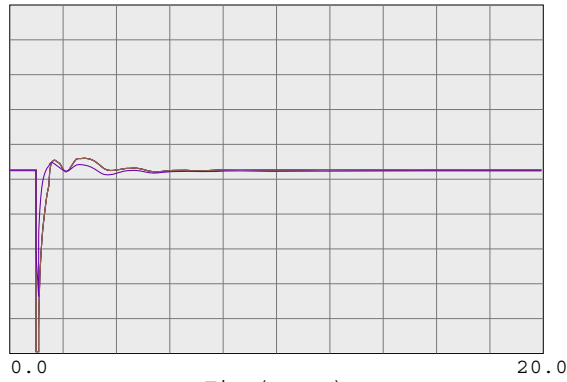
Time(sec)									
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000		
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000		
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000		
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000		
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000		
0.9900 apd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100		



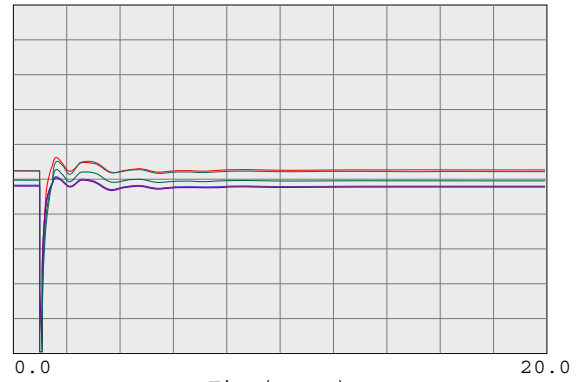
Time(sec)									
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000		
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000		
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000		
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000		
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000		
0.9900 apd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100		



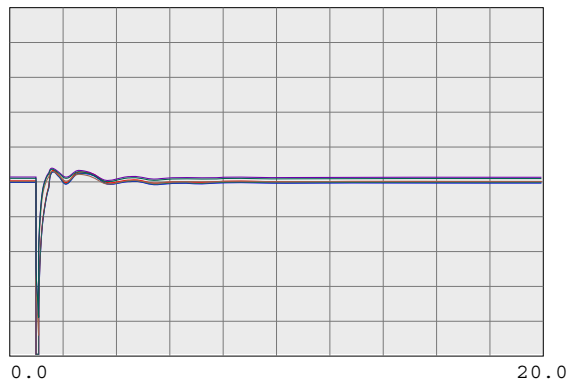
230-KV SYSTEM VOLTAGES



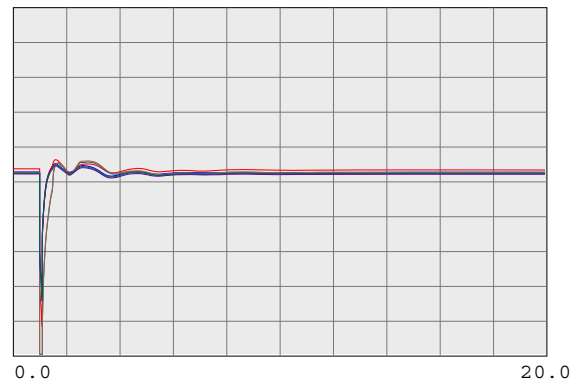
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0



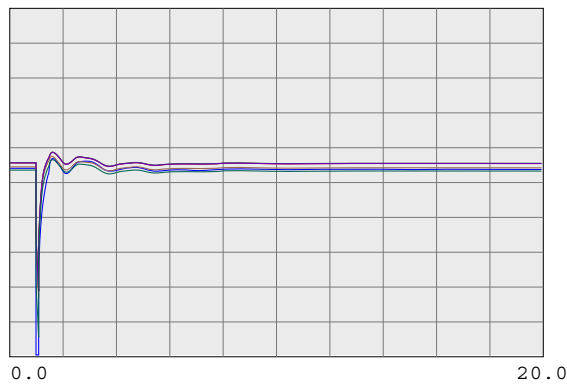
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30562	TES JCT 230.0	0	0.0
0.7500 vbus	30567	LONSTREE 230.0	0	0.0
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0
0.7500 vbus	30563	RESEARCH 230.0	0	0.0
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0
0.7500 vbus	30550	MORAGA 230.0	0	0.0



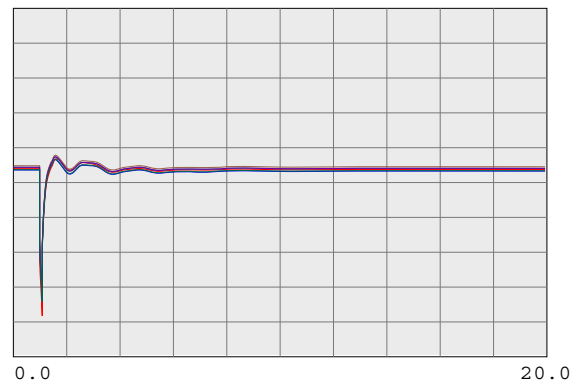
Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0
0.7500 vbus	30544	ROSSFAP1 230.0	0	0.0
0.7500 vbus	30543	ROSSFAP2 230.0	0	0.0
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0
0.7500 vbus	30536	TRISBORO 230.0	0	0.0
0.7500 vbus	30535	TIDENATR 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30528	DEC PTSG 230.0	0	0.0
0.7500 vbus	30600	TRIS VAO 230.0	0	0.0
0.7500 vbus	30523	CC SUB 230.0	0	0.0
0.7500 vbus	30525	C. COSTA 230.0	0	0.0
0.7500 vbus	30526	PITSBG D 230.0	0	0.0
0.7500 vbus	30527	PITSBG E 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30575	WIND MSTR 230.0	0	0.0
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0
0.7500 vbus	30695	MARTIN C 230.0	0	0.0
0.7500 vbus	30696	MET ACTR 230.0	0	0.0
0.7500 vbus	30685	EMBRCDRE 230.0	0	0.0
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0



Time (sec)	0.0	1	1	1.2500
0.7500 vbus	30710	SLACTAP1 230.0	0	0.0
0.7500 vbus	30700	SANMATEO 230.0	0	0.0
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

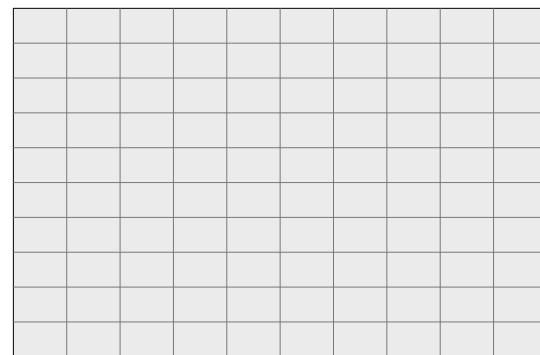
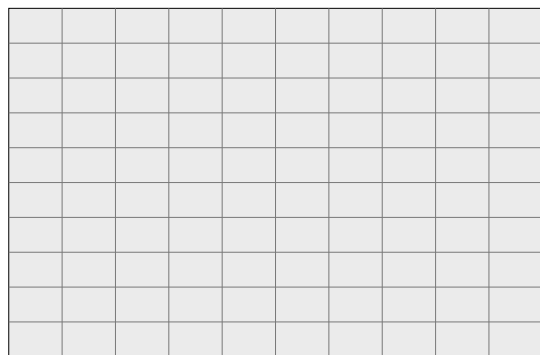
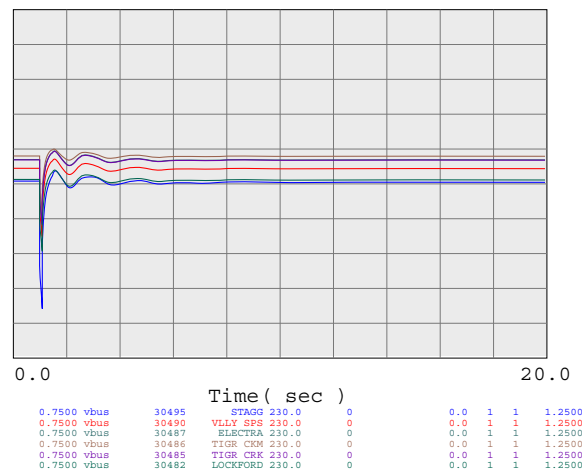
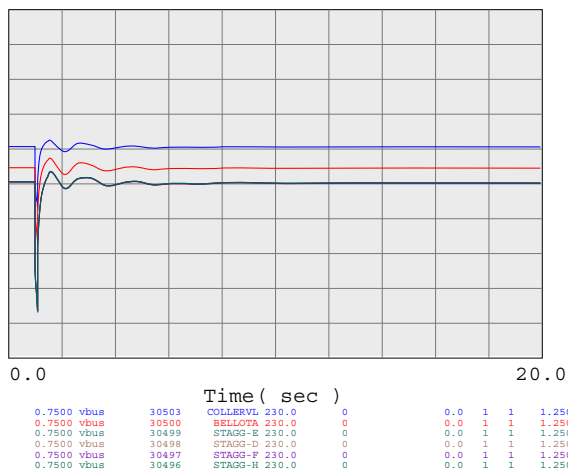
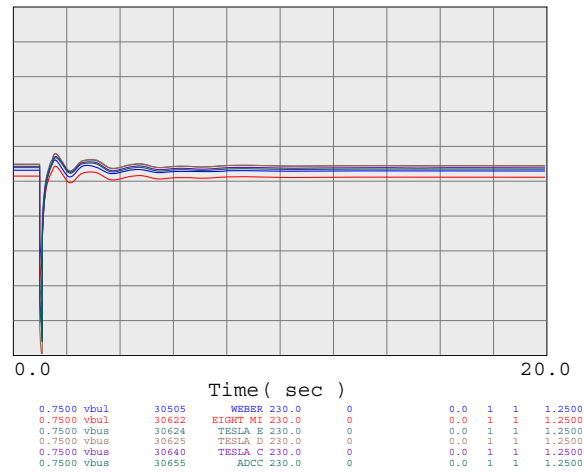
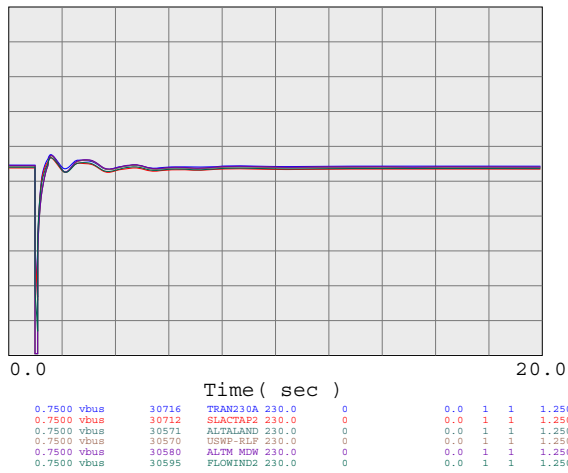
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

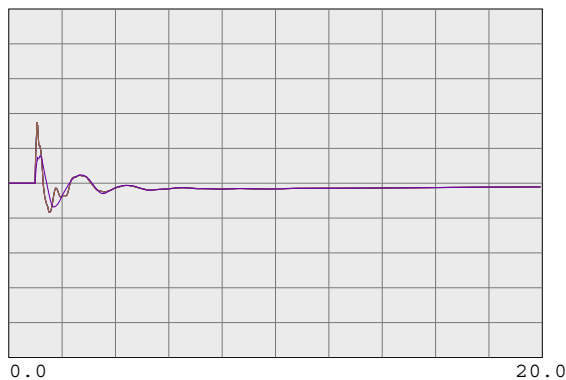
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

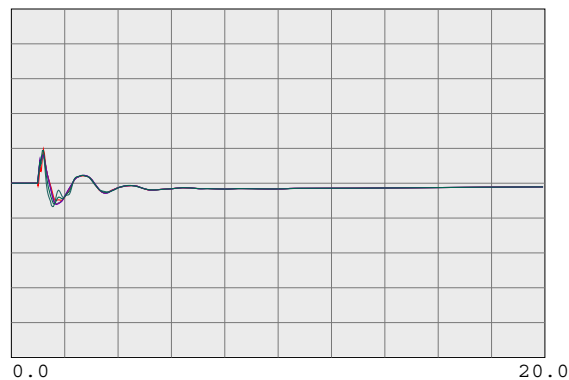
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

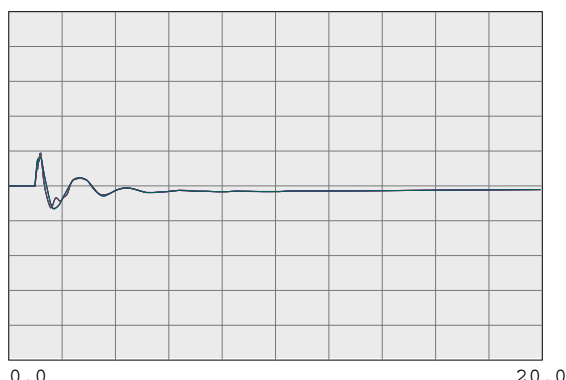
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

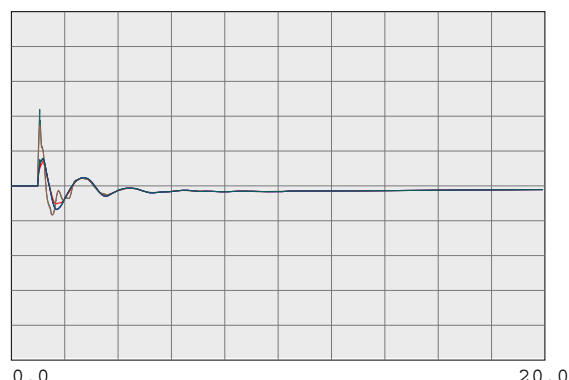
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

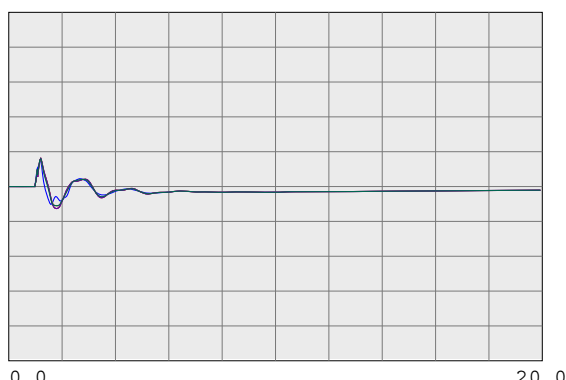
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

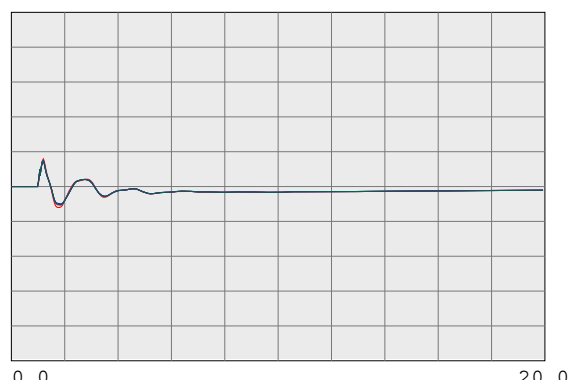
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

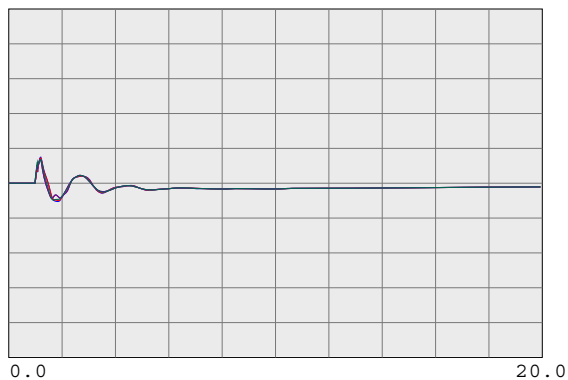
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

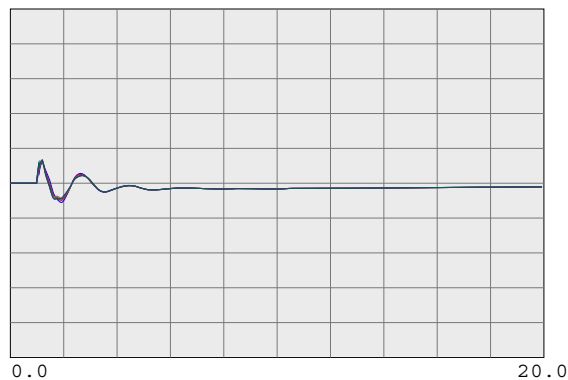
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

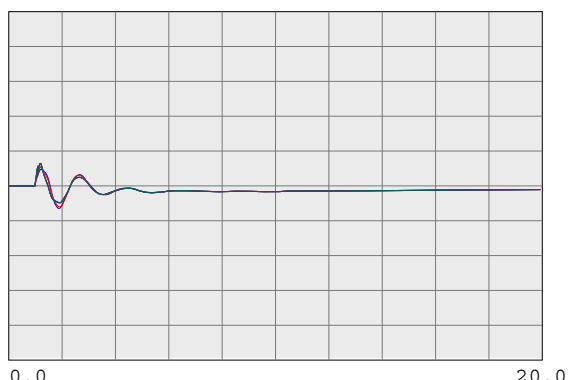
230-KV SYSTEM FREQUENCIES



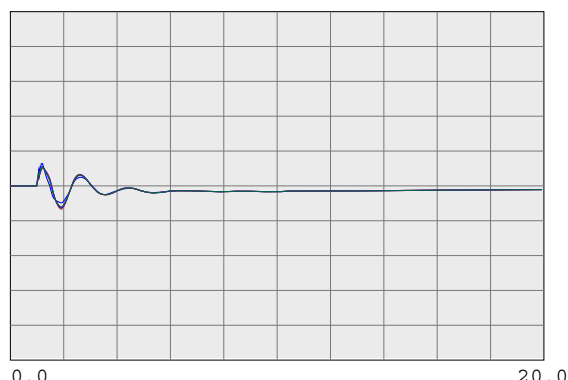
Time (sec)				
59.4000 fbus	30716	TRAN230A 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0 1 1 60.6000



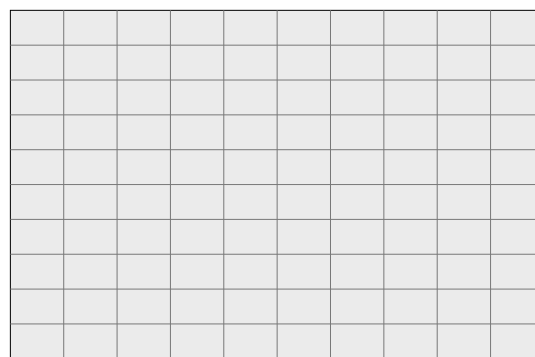
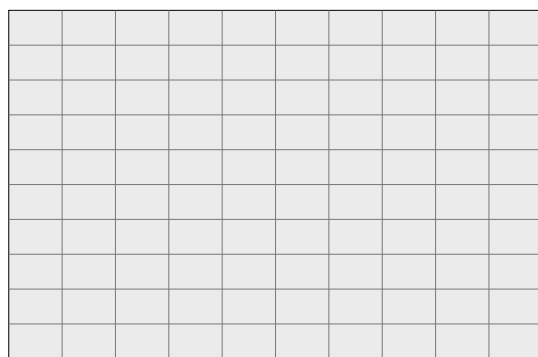
Time (sec)				
59.4000 fbus	30505	WEBER 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30503	COLLIERV 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30495	STAGS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0 1 1 60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

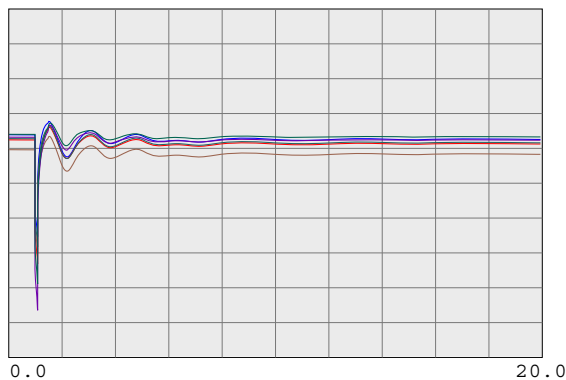
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

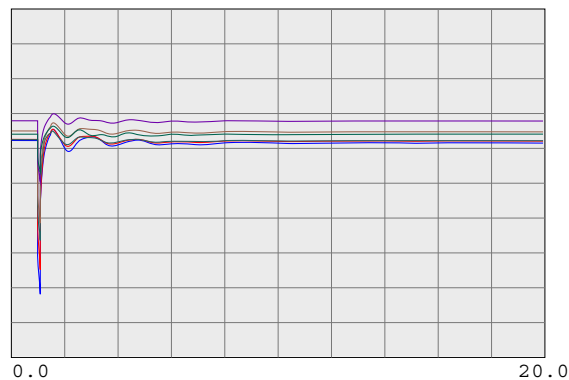
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



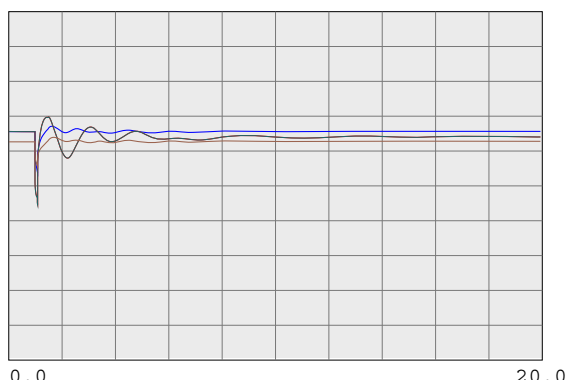
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



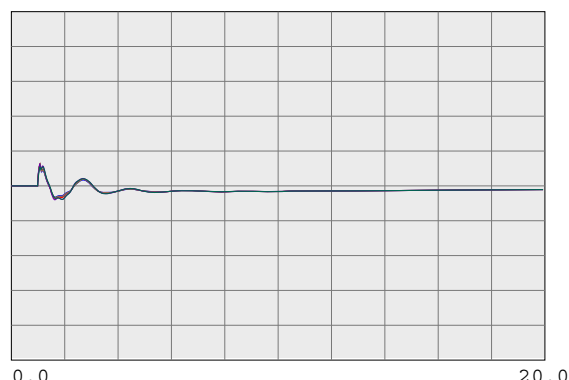
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOSBANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



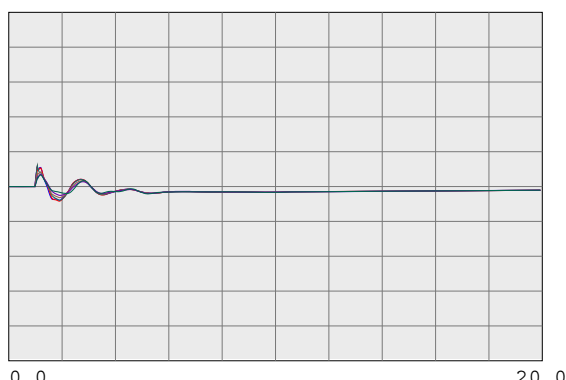
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



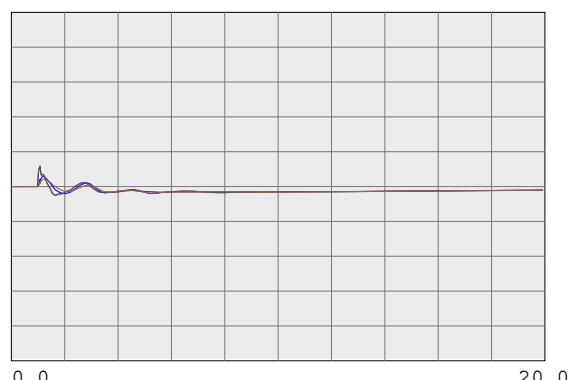
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOSBANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

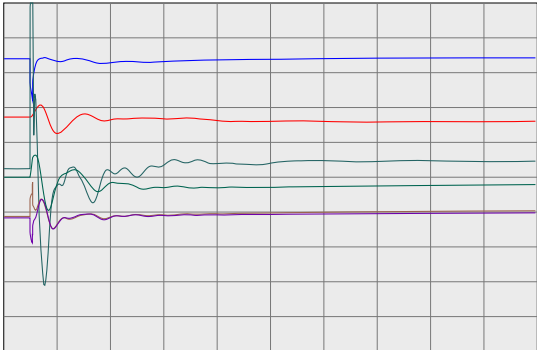
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

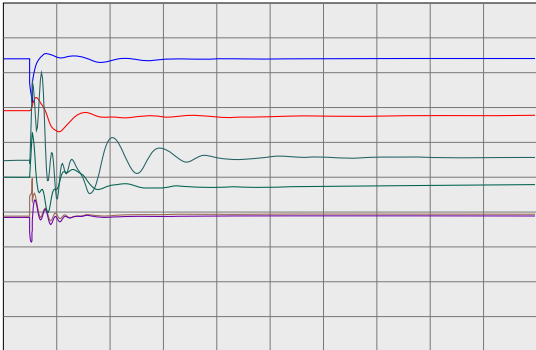
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

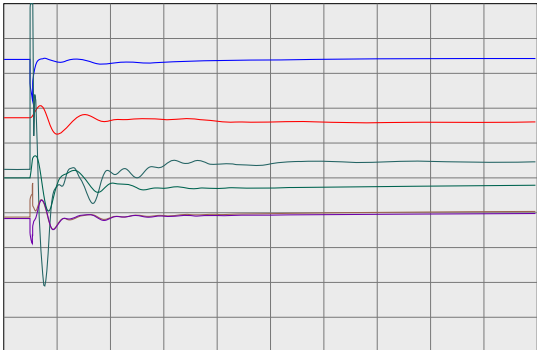
WILLOW PASS GENERATION PLANT



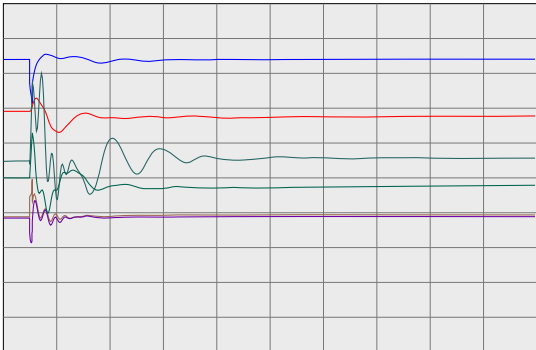
0.0		Time(sec)		20.0	
0.2000 vt	99991	MIR_CT1	16.5	0	0.0 1 1 1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0 1 1 100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0 1 1 5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0 1 1 2.0000
0.0000 pg	99991	MIR_CT1	16.5	0	0.0 1 1 570.0000
0.9900 spd	99991	MIR_CT1	16.5	0	0.0 1 1 1.0100



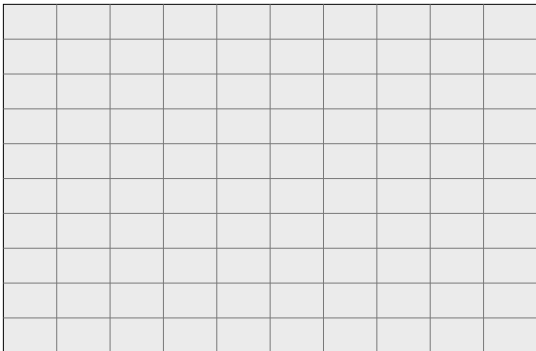
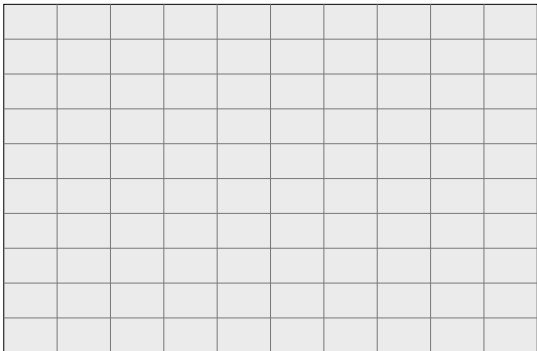
0.0		Time(sec)		20.0	
0.2000 vt	99992	MIR_ST1	13.8	0	0.0 2 1 1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0 2 1 100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0 2 1 5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0 2 1 2.0000
0.0000 pg	99992	MIR_ST1	13.8	0	0.0 2 1 166.4000
0.9900 spd	99992	MIR_ST1	13.8	0	0.0 2 1 1.0100



0.0		Time(sec)		20.0	
0.2000 vt	99993	MIR_CT2	16.5	0	0.0 3 1 1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0 3 1 100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0 3 1 5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0 3 1 2.0000
0.0000 pg	99993	MIR_CT2	16.5	0	0.0 3 1 570.0000
0.9900 spd	99993	MIR_CT2	16.5	0	0.0 3 1 1.0100

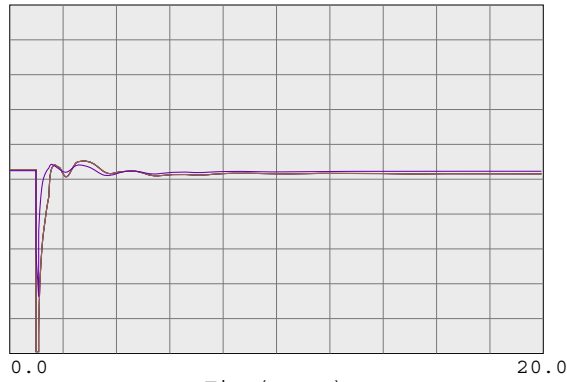


0.0		Time(sec)		20.0	
0.2000 vt	99994	MIR_ST2	13.8	0	0.0 4 1 1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0 4 1 100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0 4 1 5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0 4 1 2.0000
0.0000 pg	99994	MIR_ST2	13.8	0	0.0 4 1 166.4000
0.9900 spd	99994	MIR_ST2	13.8	0	0.0 4 1 1.0100



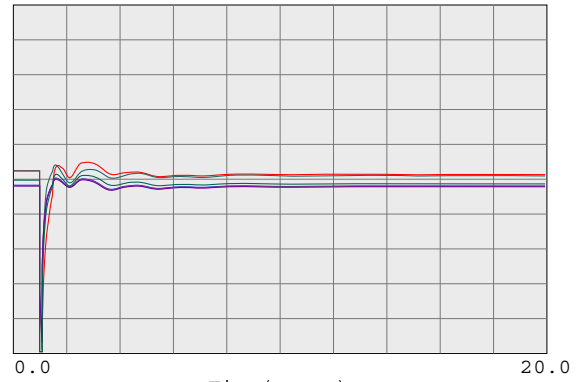
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



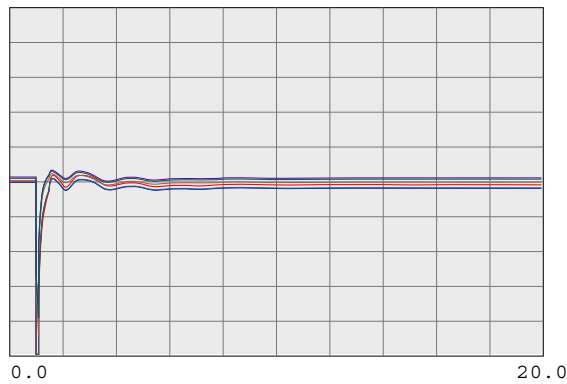
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



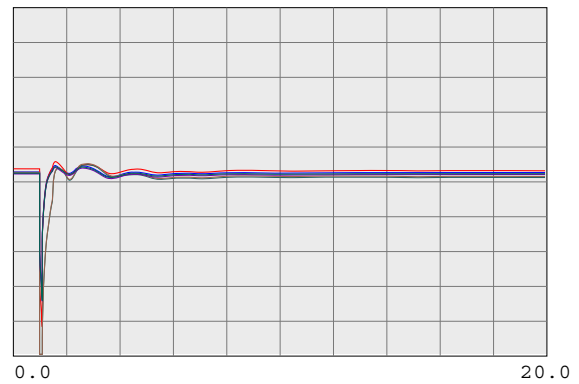
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



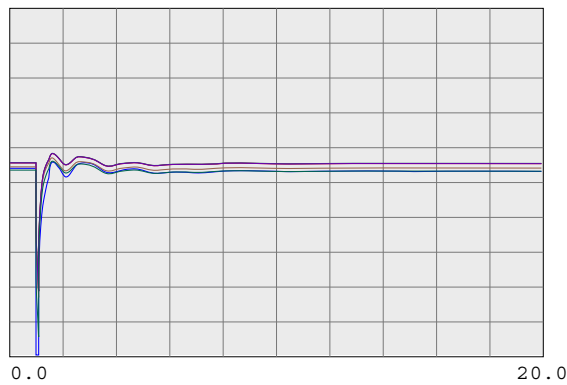
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSAPF1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSAPF2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



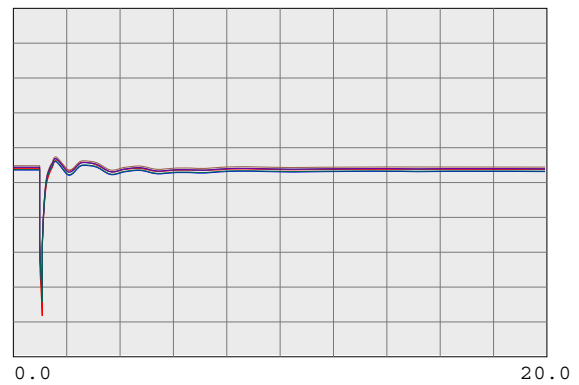
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

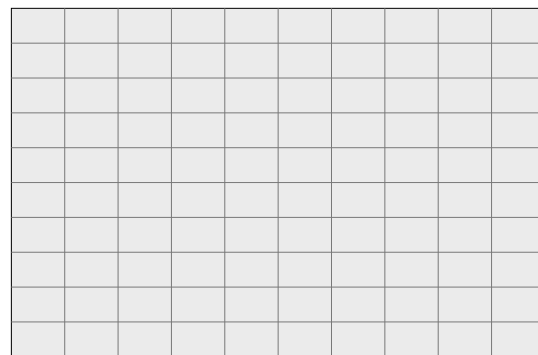
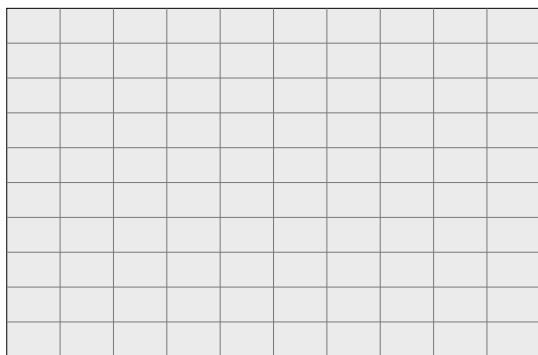
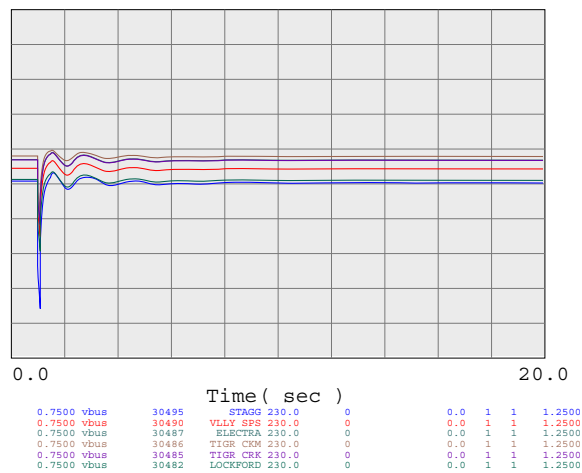
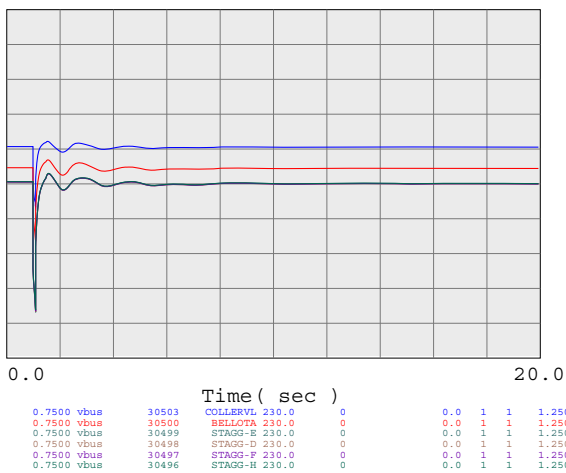
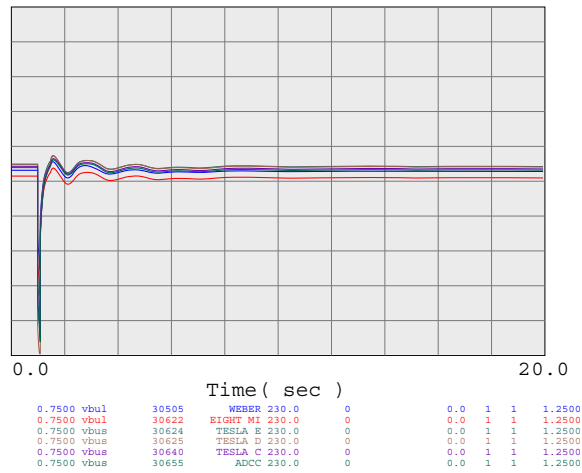
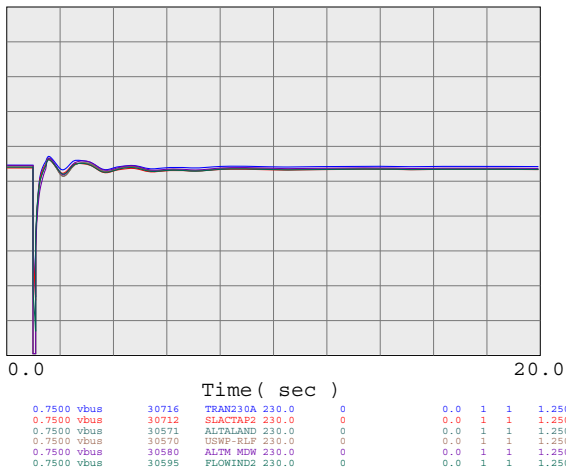
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

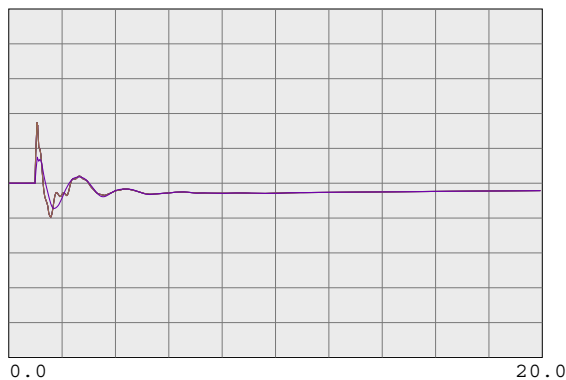
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



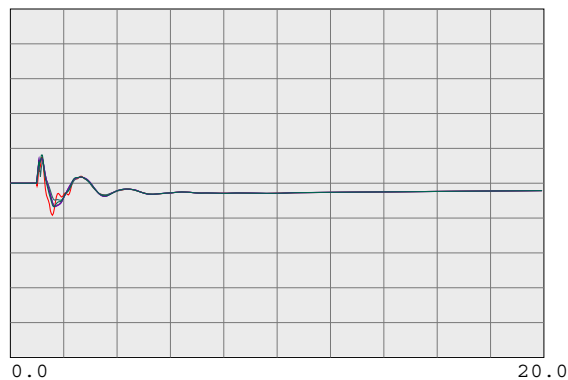
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

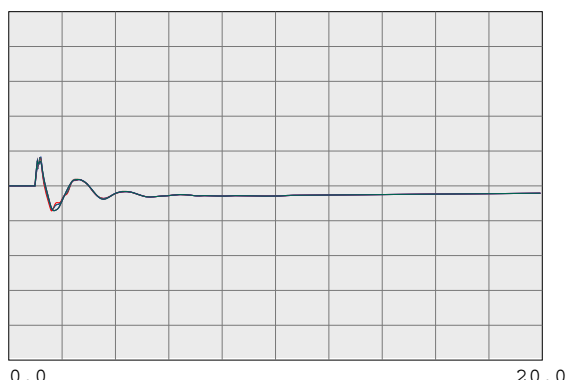
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

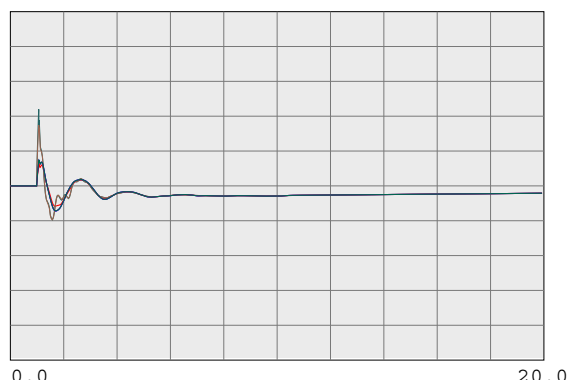
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

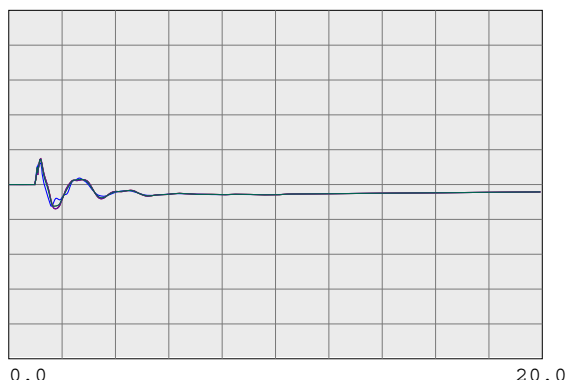
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

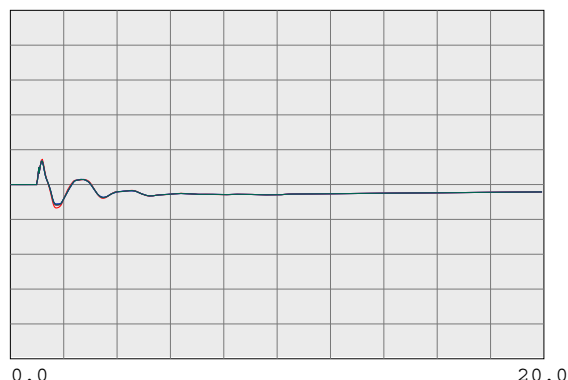
59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

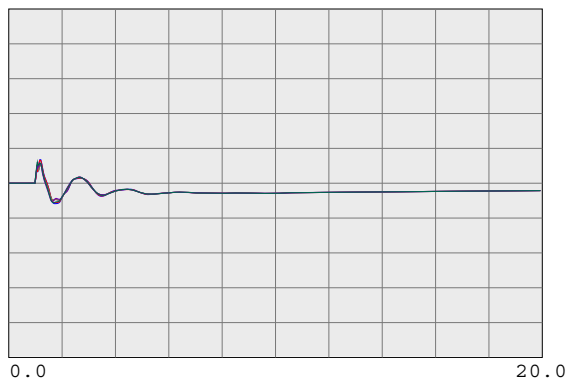
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

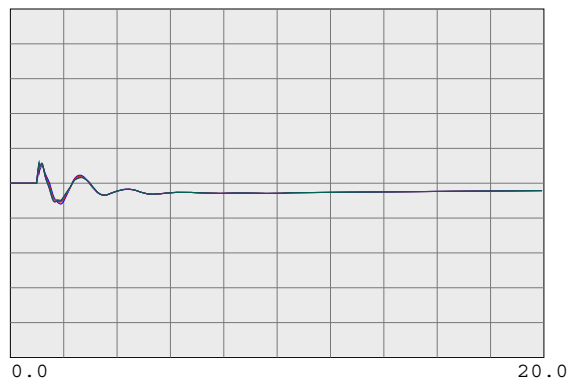
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

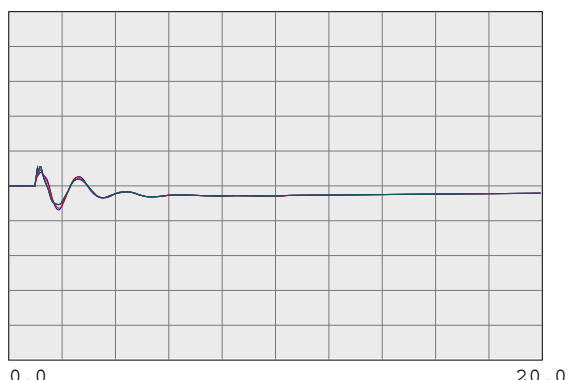
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

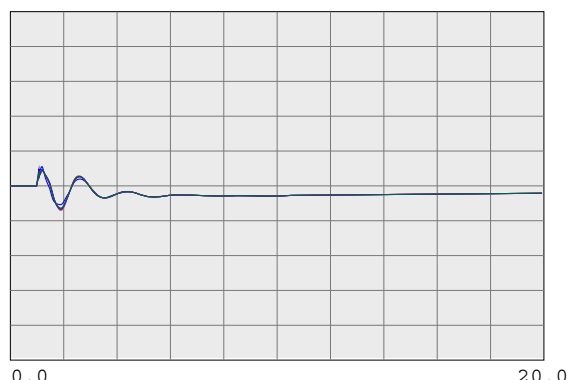
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

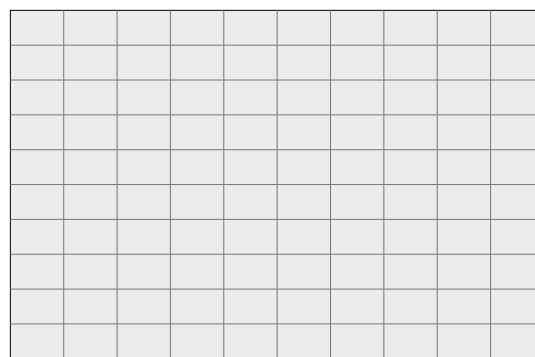
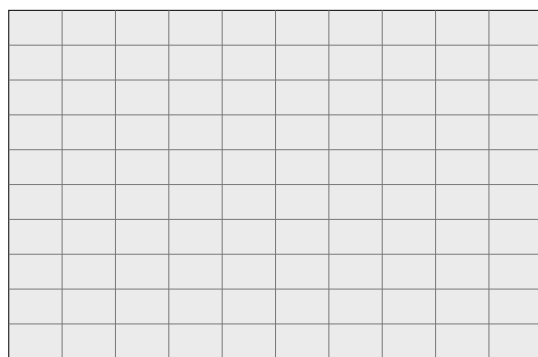
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

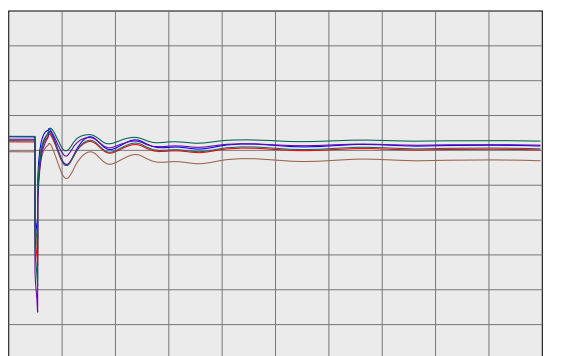
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

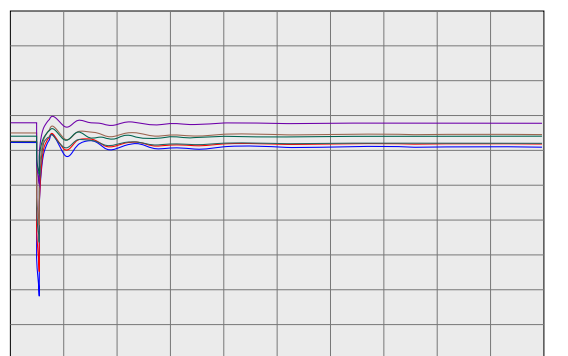
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



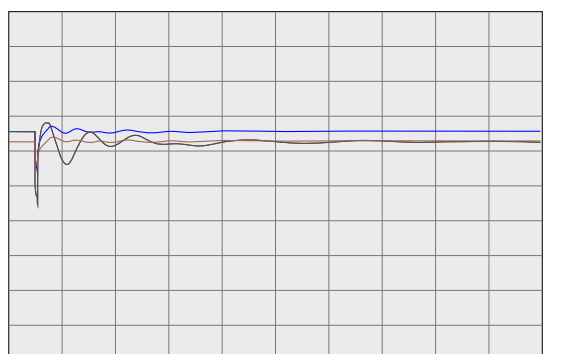
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



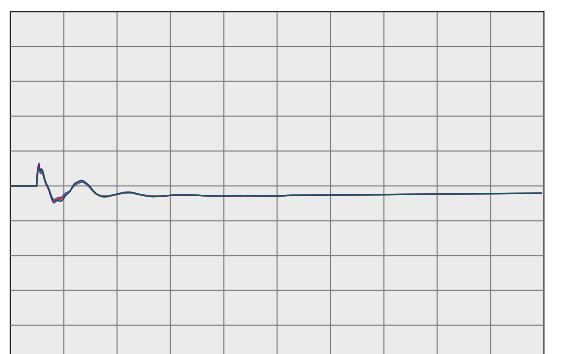
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



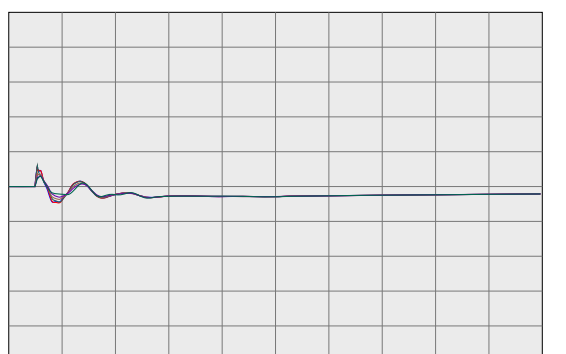
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



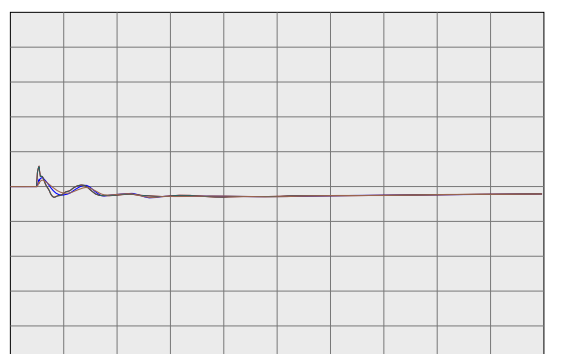
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

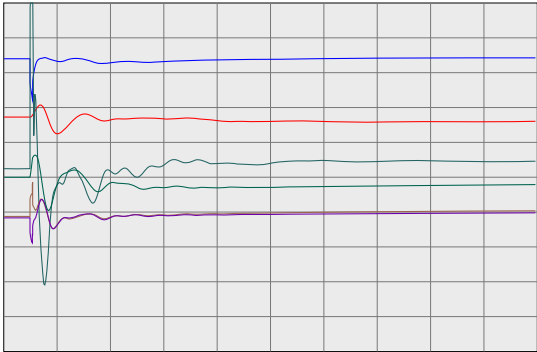
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

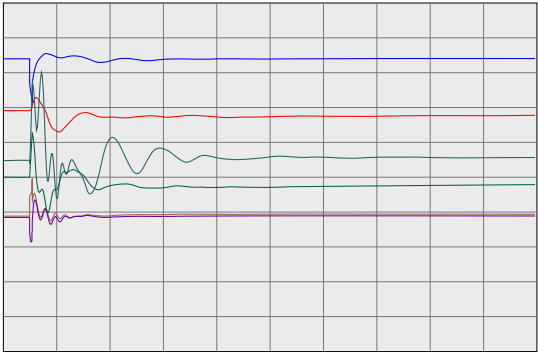
WILLOW PASS GENERATION PLANT



0.0 20.0

Time(sec)

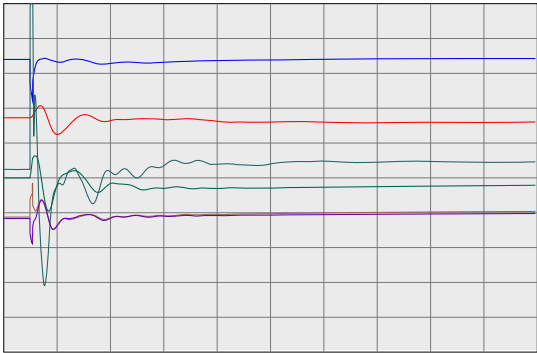
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



0.0 20.0

Time(sec)

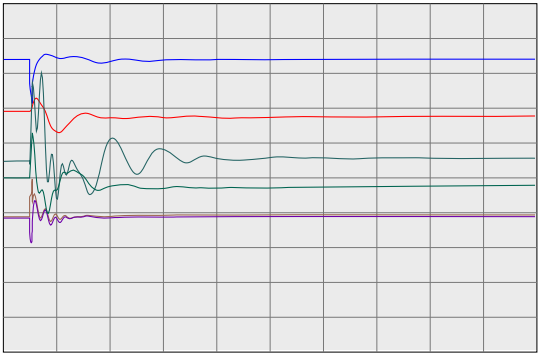
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



0.0 20.0

Time(sec)

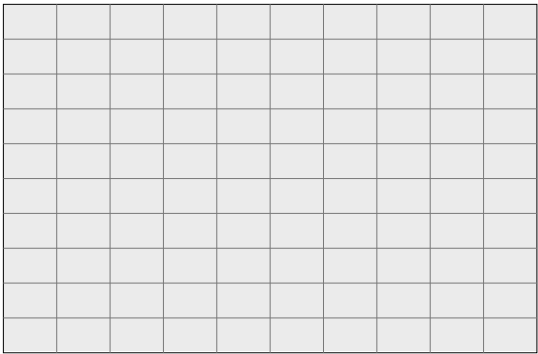
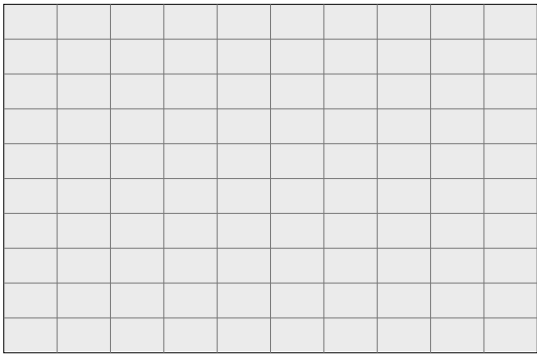
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100



0.0 20.0

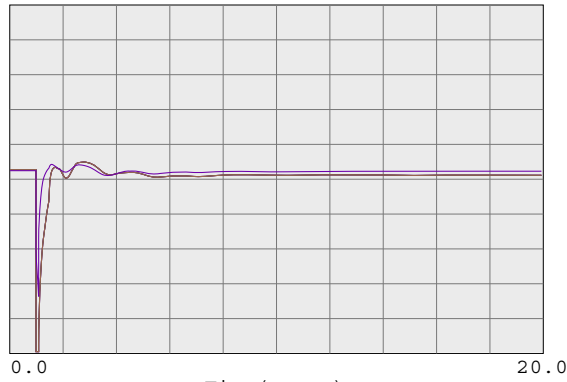
Time(sec)

0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100



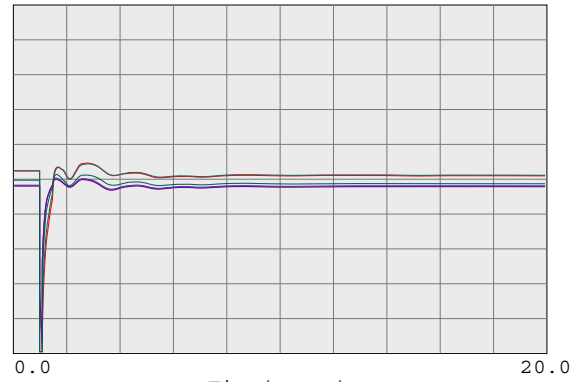
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



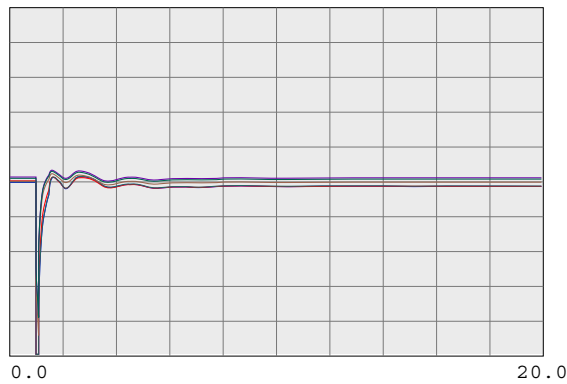
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



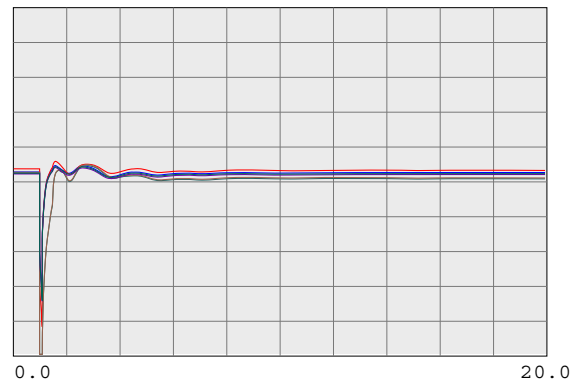
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



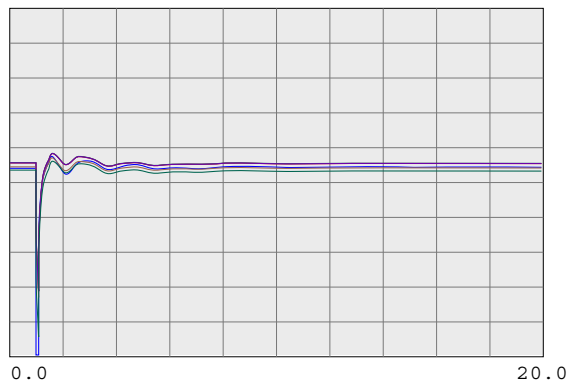
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



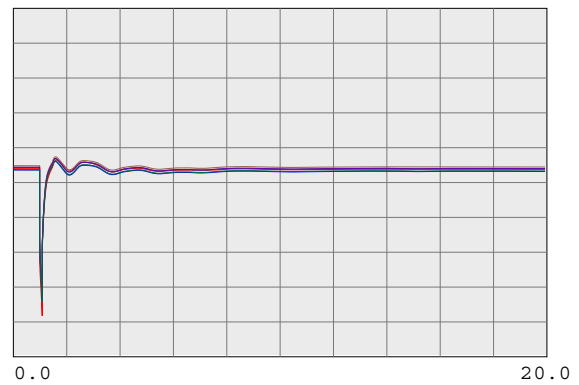
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

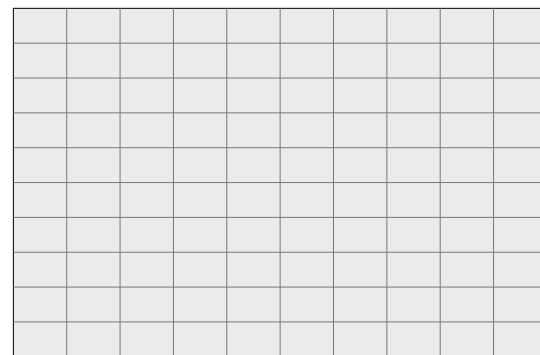
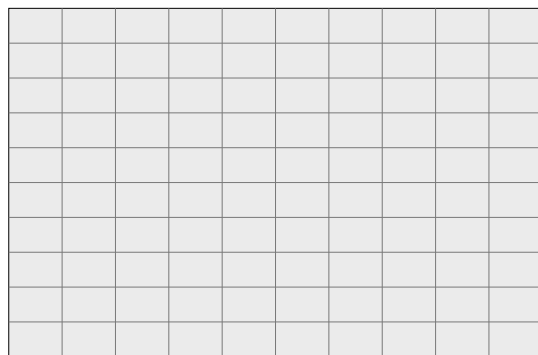
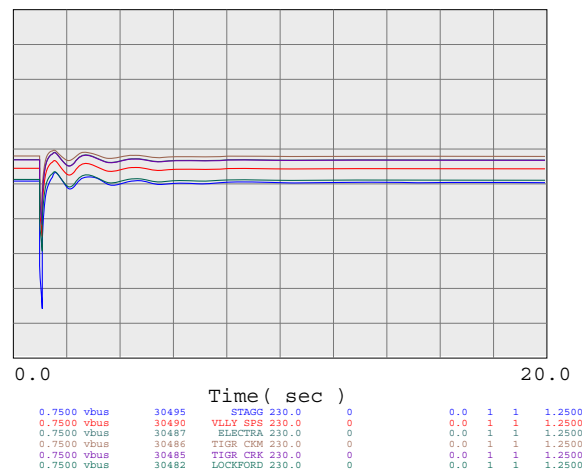
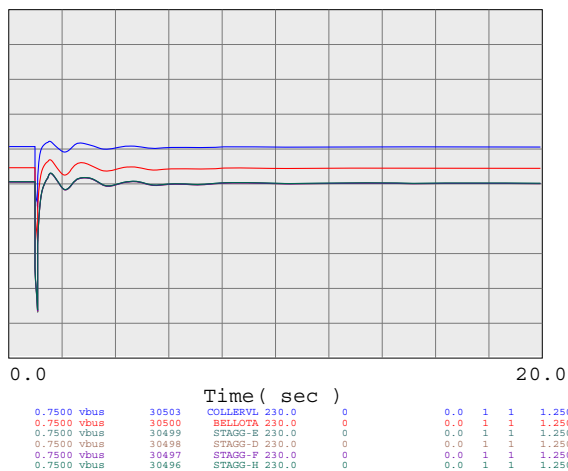
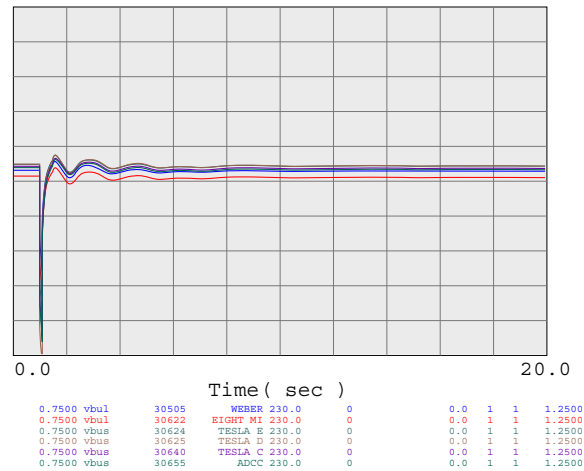
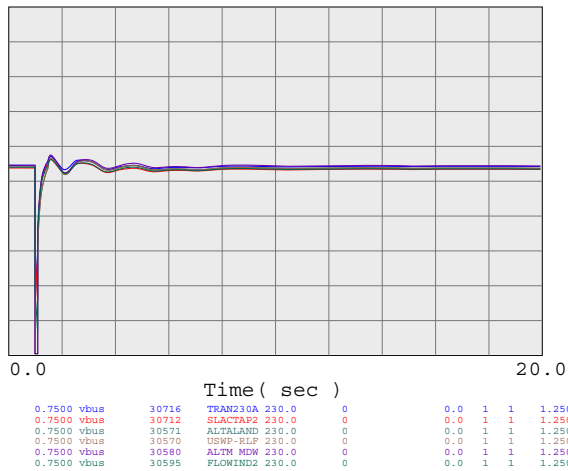
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

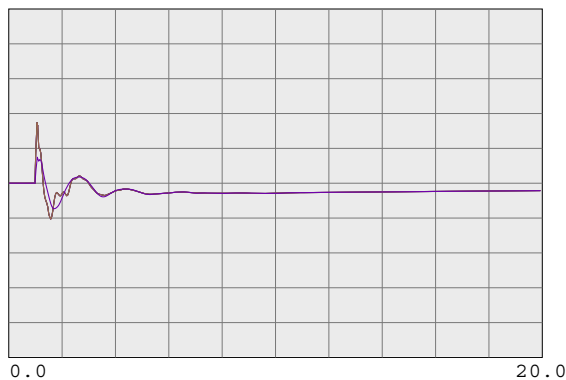
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

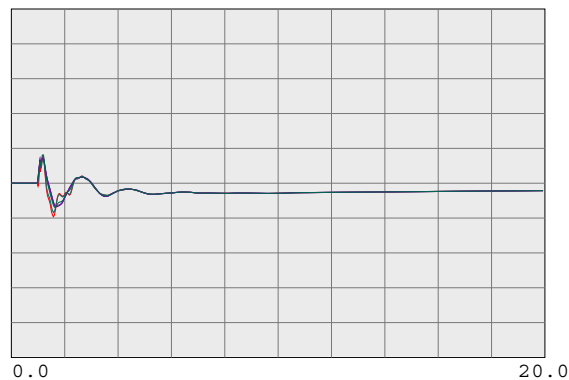


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

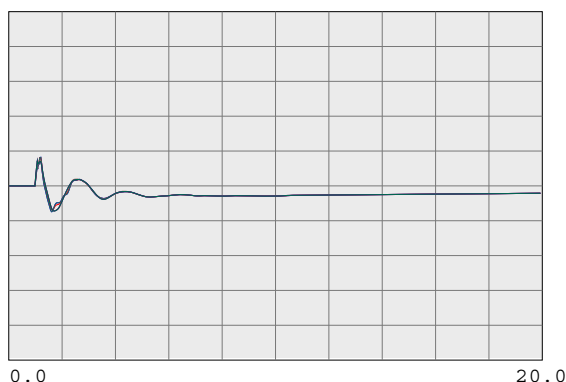
230-KV SYSTEM FREQUENCIES



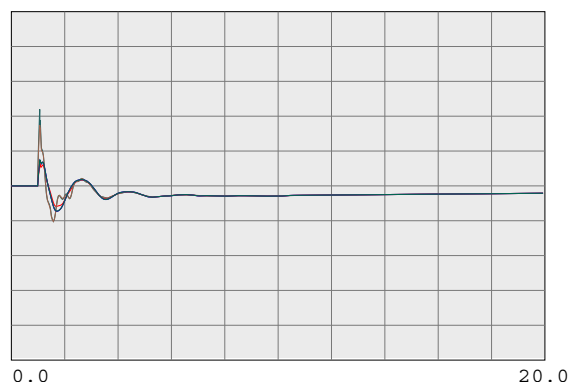
Time (sec)				
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0 1 1 60.6000



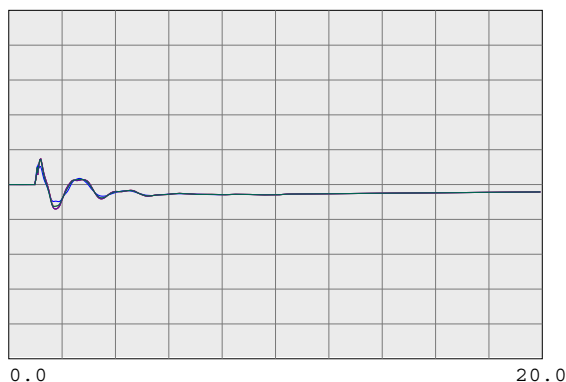
Time (sec)				
59.4000 fbus	30562	TES JCT 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0 1 1 60.6000



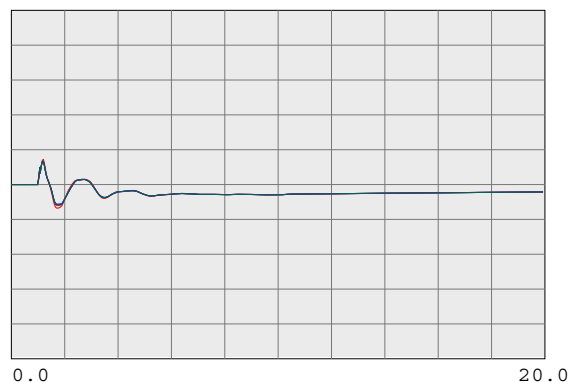
Time (sec)				
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30575	WIND MSTR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0 1 1 60.6000



Time (sec)				
59.4000 fbus	30710	SLACTAP1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0 1 1 60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0 1 1 60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

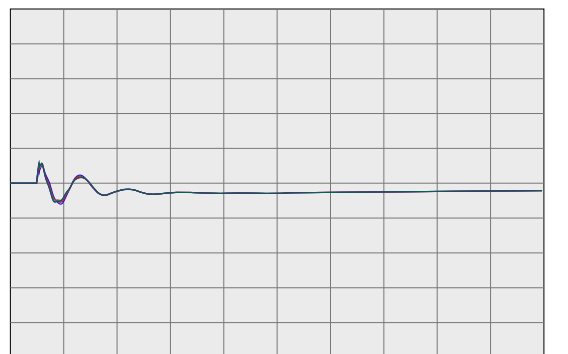
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

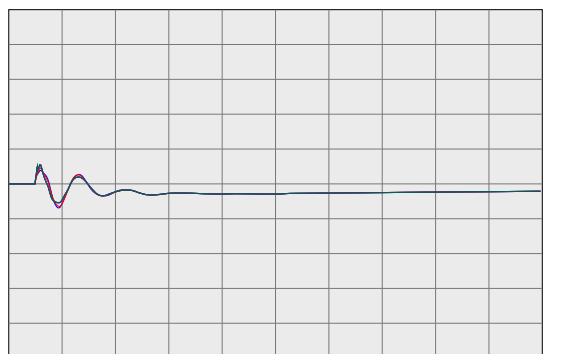
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

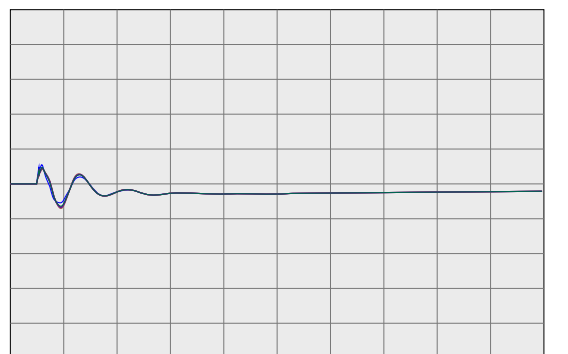
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

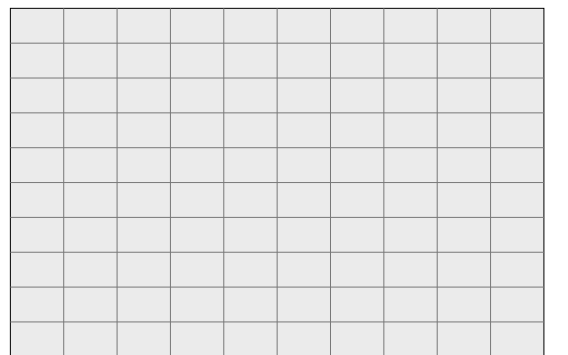
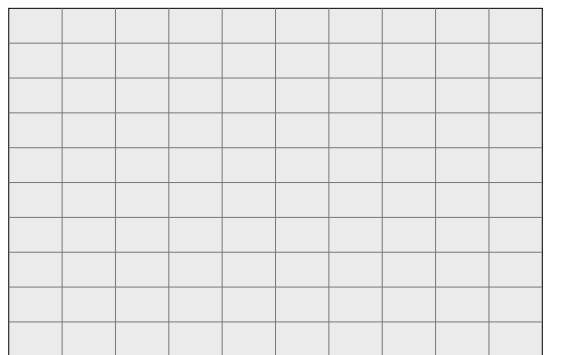
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

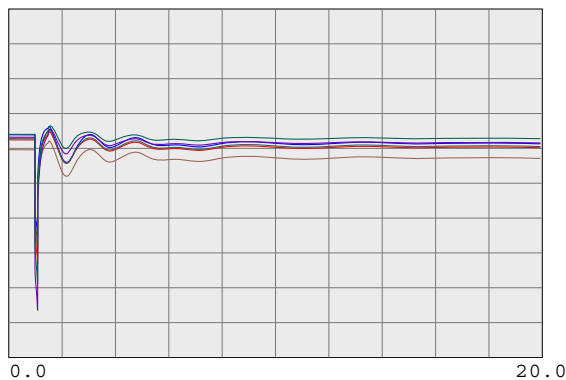
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

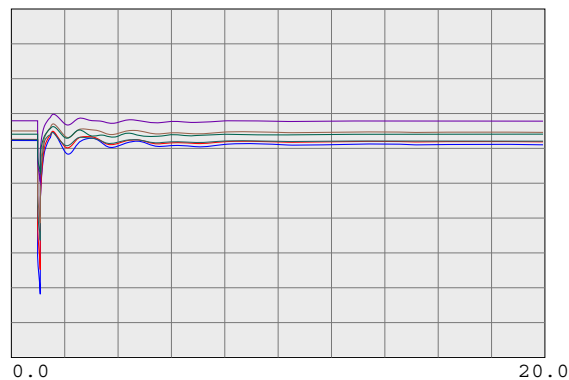
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



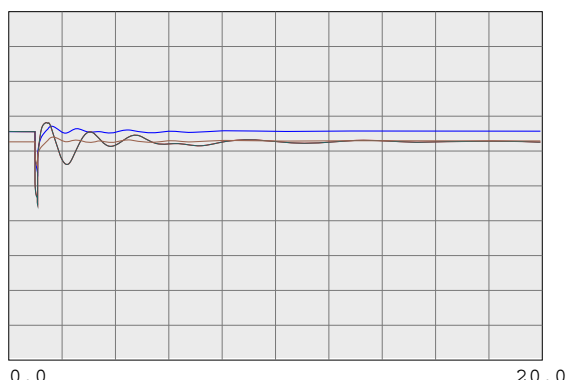
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



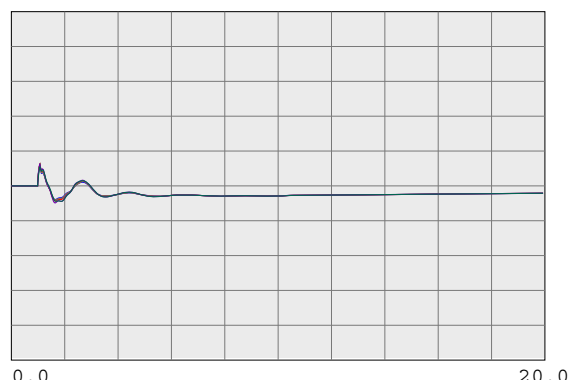
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



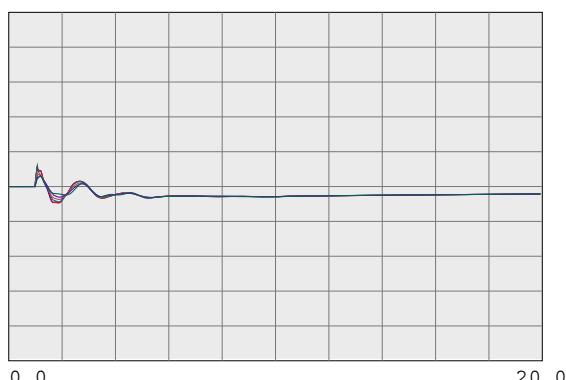
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



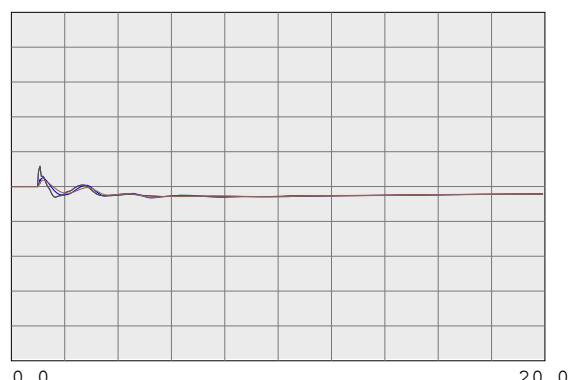
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

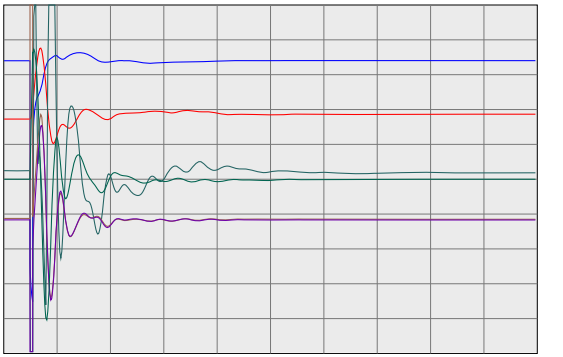
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

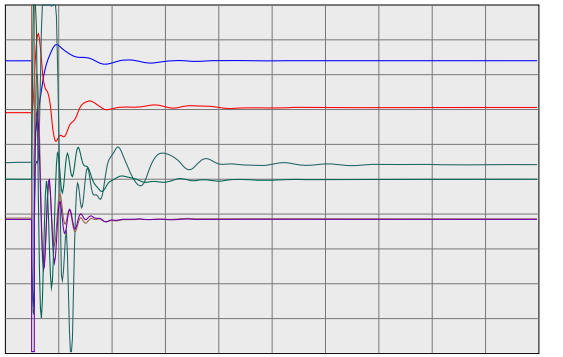
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

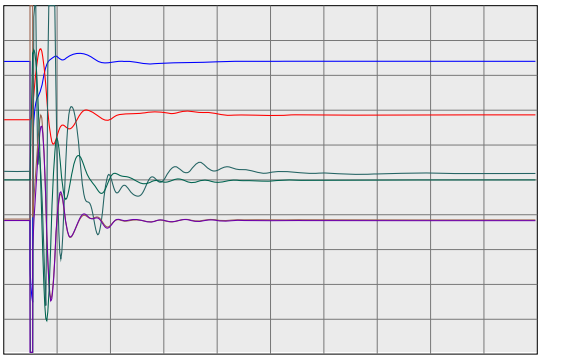
WILLOW PASS GENERATION PLANT



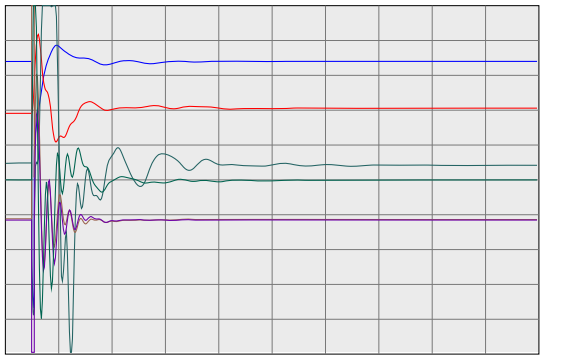
Time(sec)									
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000		
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000		
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000		
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000		
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000		
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100		



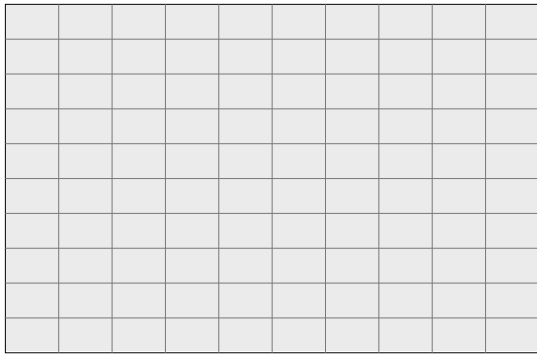
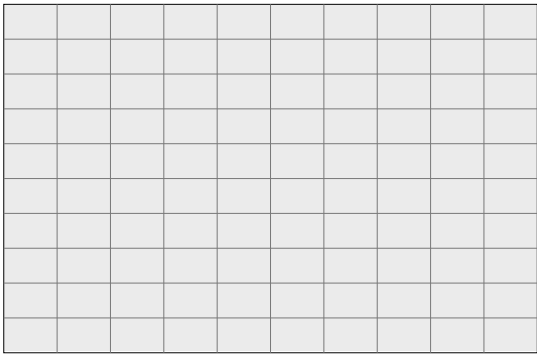
Time(sec)									
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000		
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000		
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000		
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000		
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000		
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100		



Time(sec)									
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000		
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000		
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000		
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000		
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000		
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100		

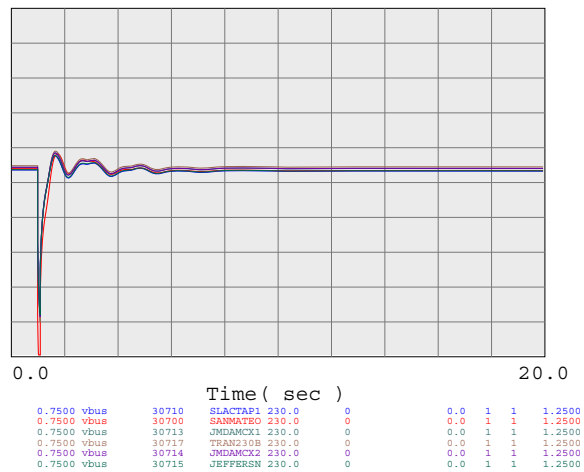
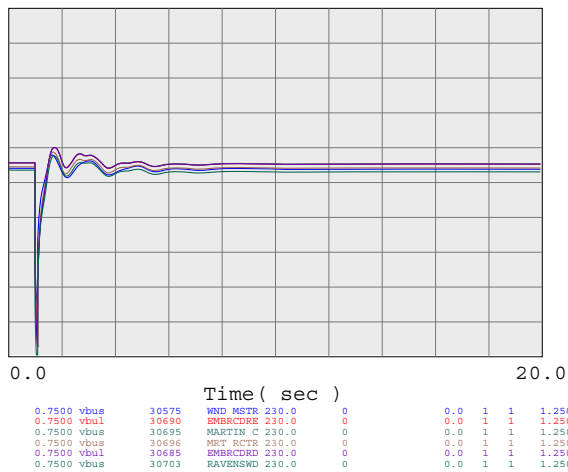
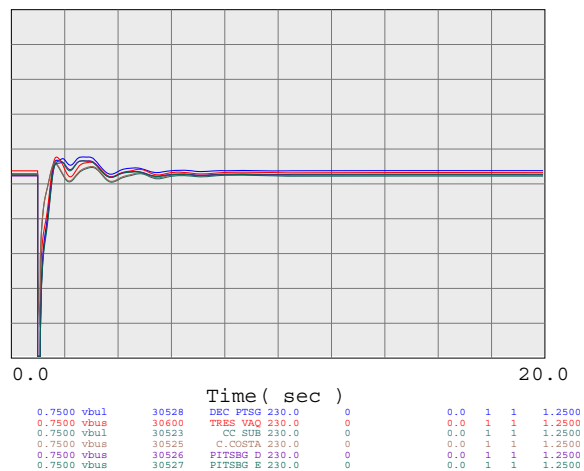
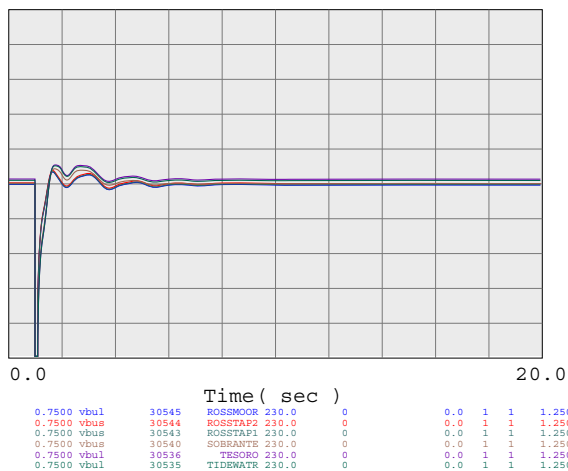
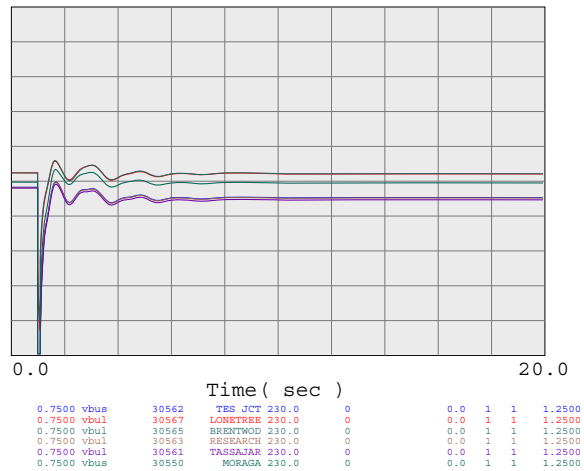
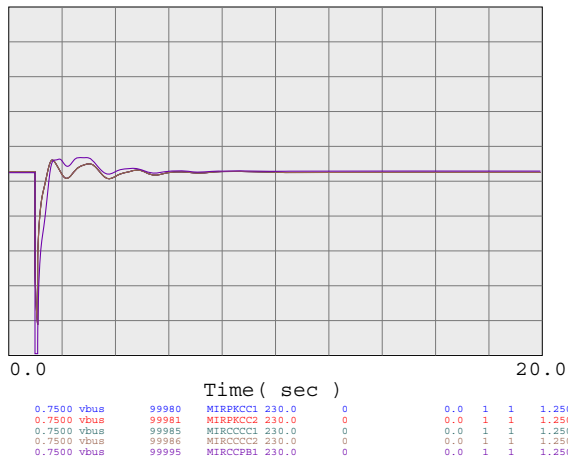


Time(sec)									
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000		
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000		
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000		
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000		
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000		
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100		



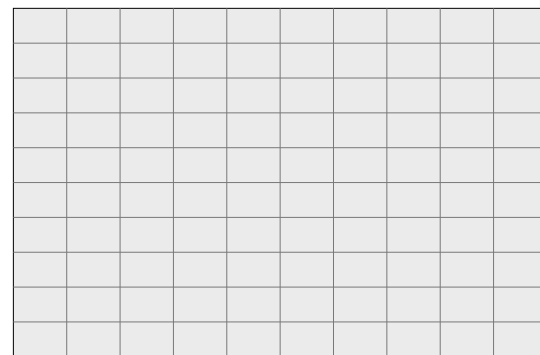
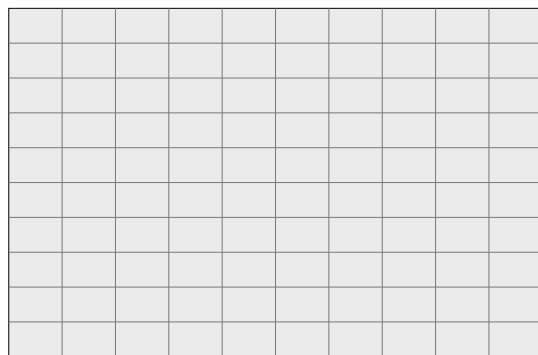
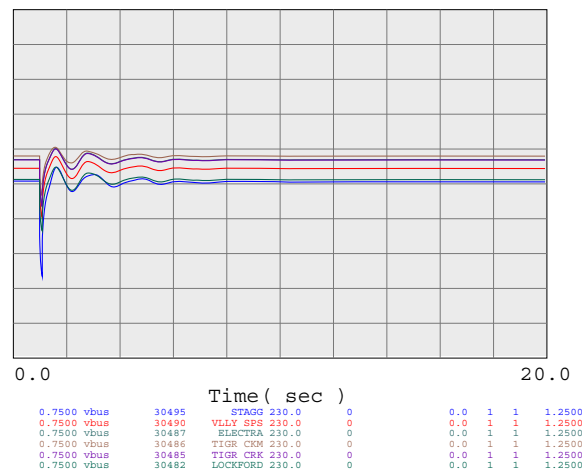
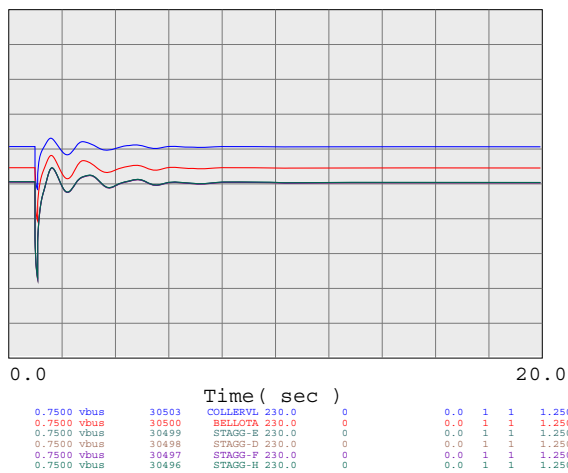
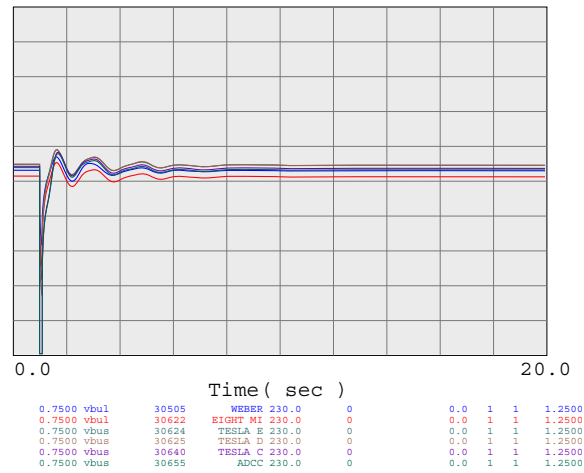
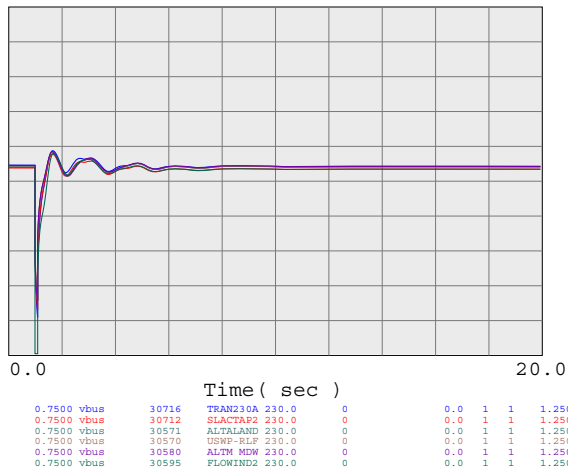
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

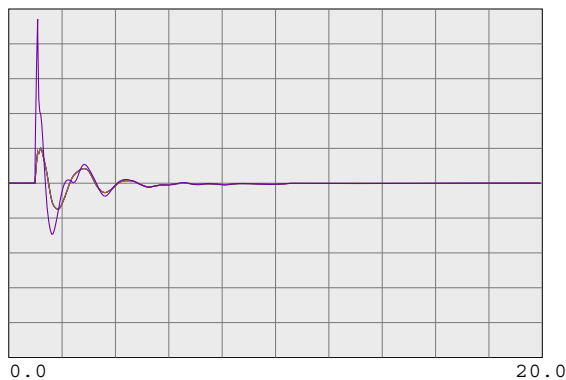


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

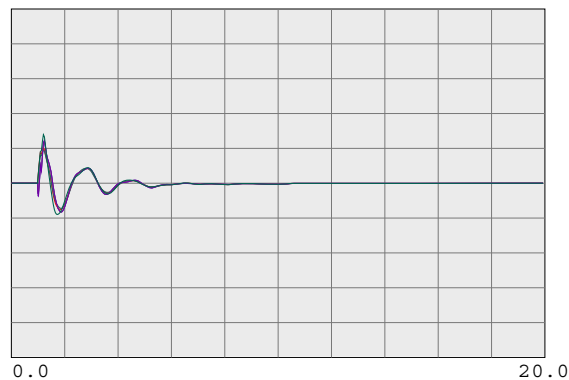


230-KV SYSTEM FREQUENCIES



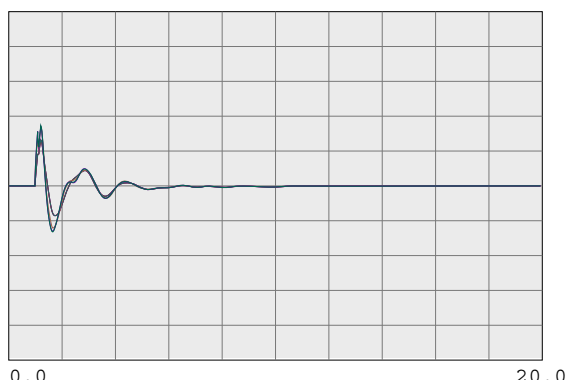
0.0 20.0
Time(sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



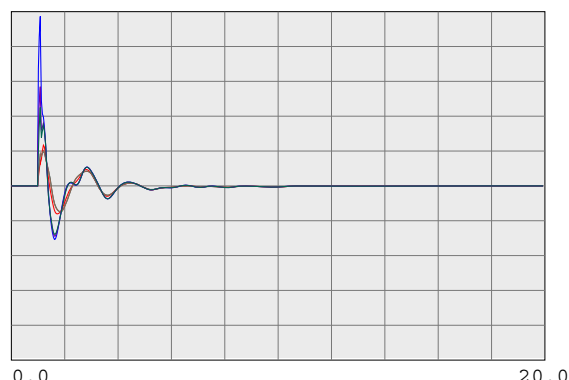
0.0 20.0
Time(sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



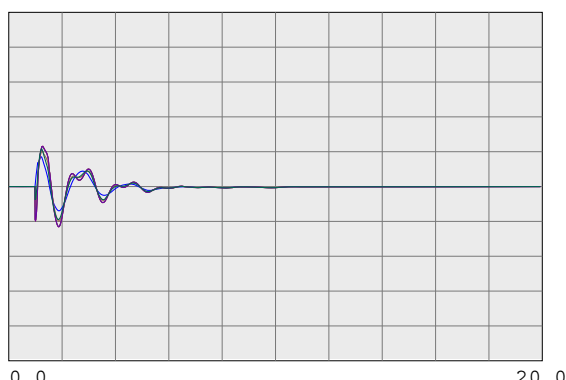
0.0 20.0
Time(sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



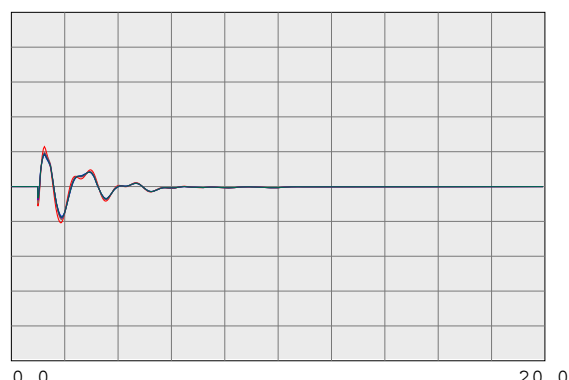
0.0 20.0
Time(sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

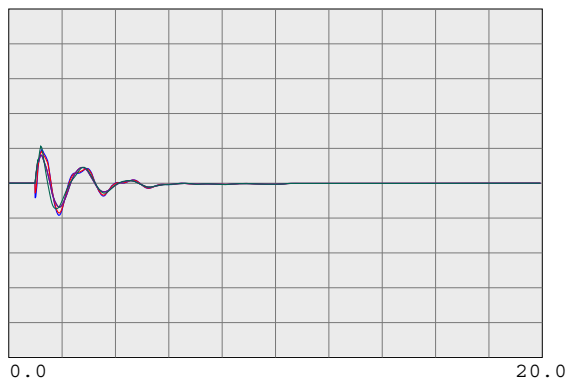
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

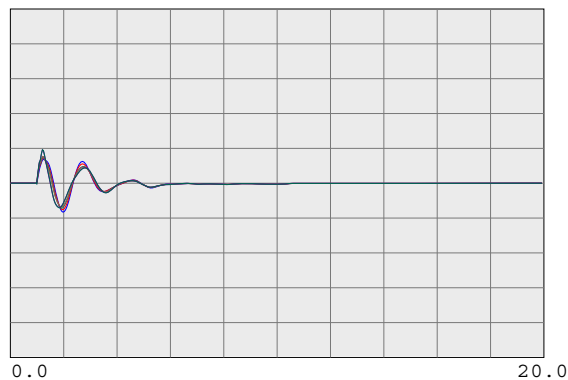
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

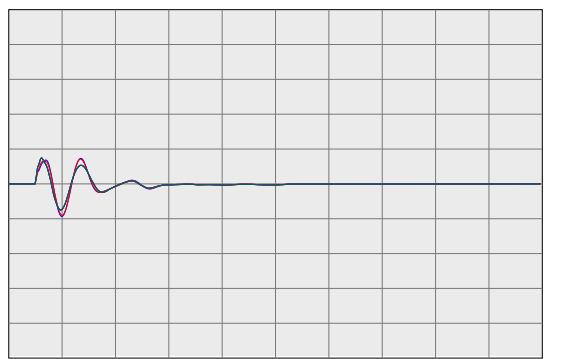
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

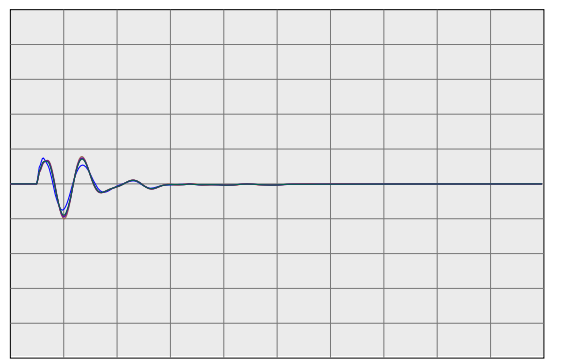
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

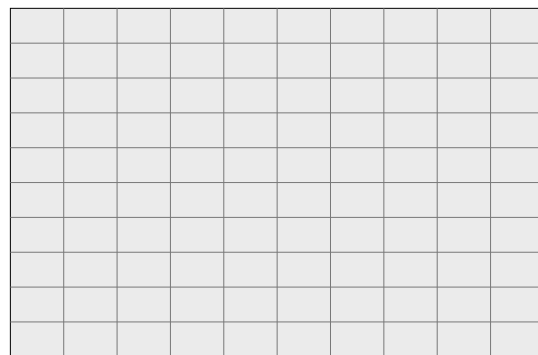
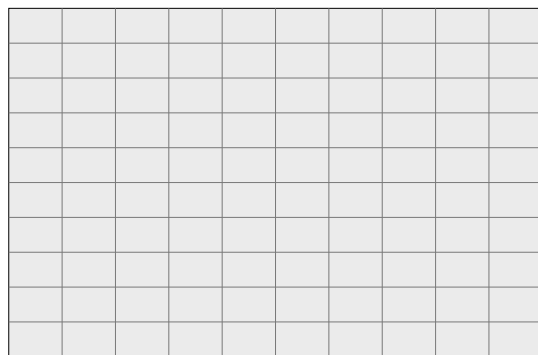
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

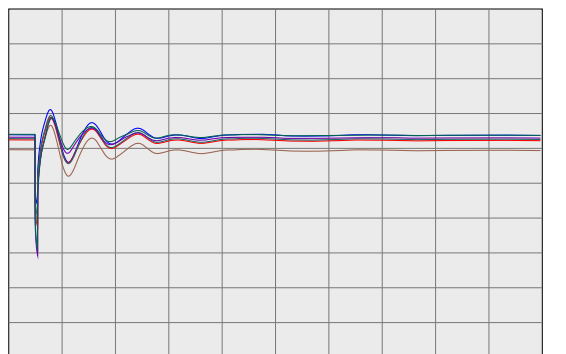
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

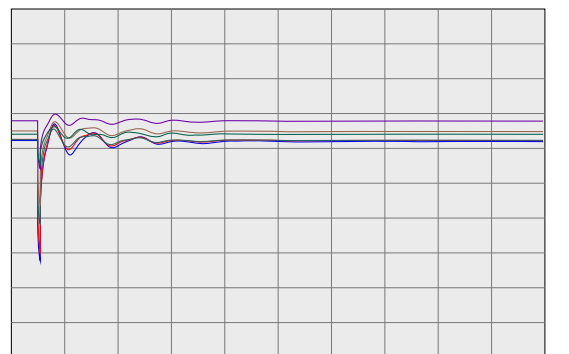
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



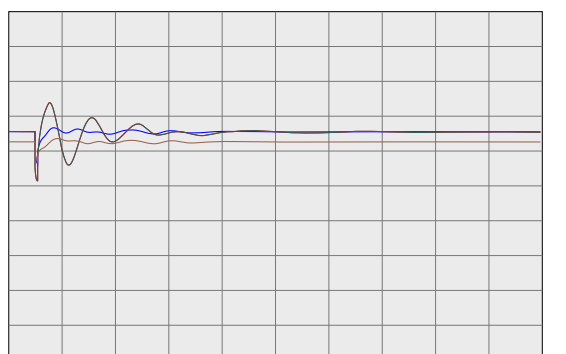
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



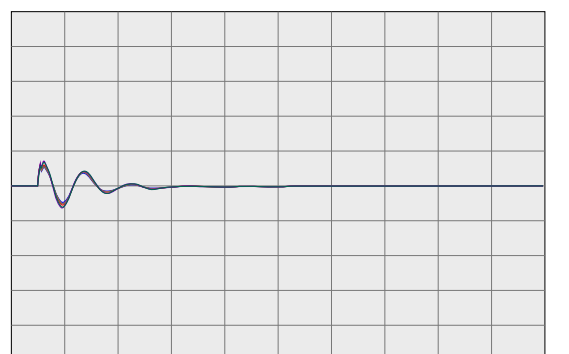
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



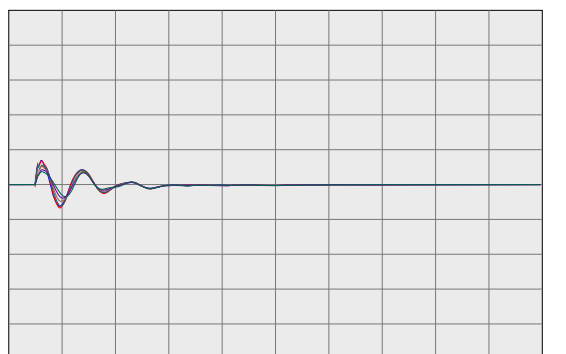
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



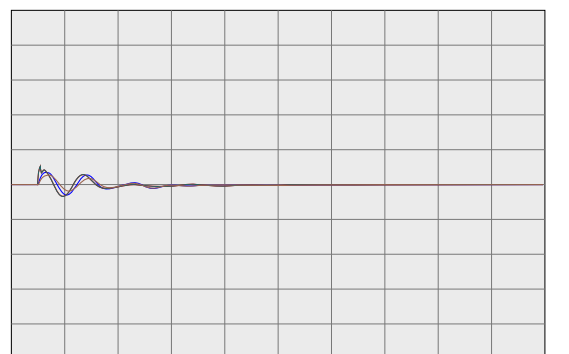
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

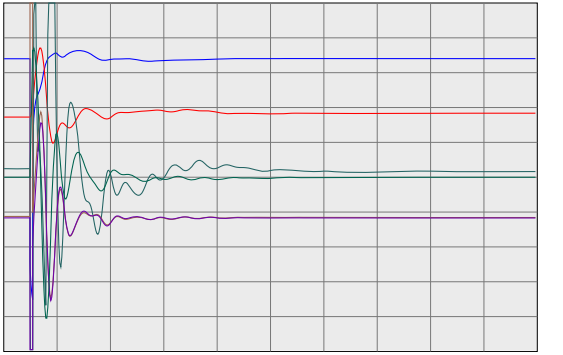
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

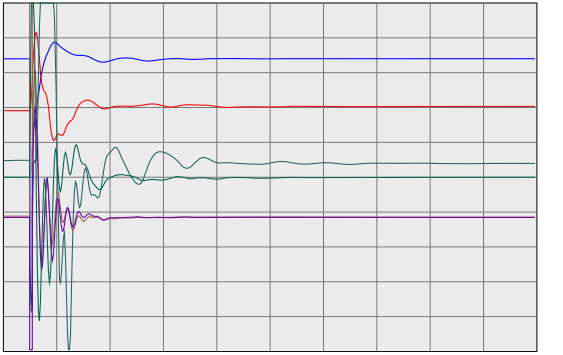
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

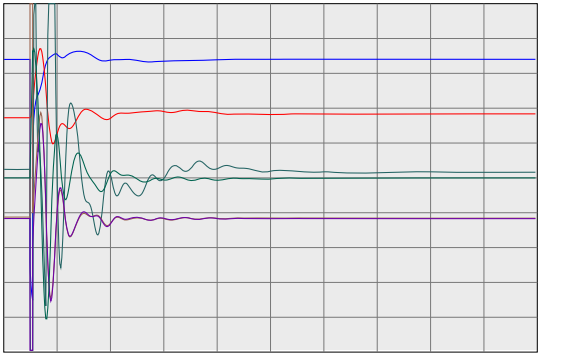
WILLOW PASS GENERATION PLANT



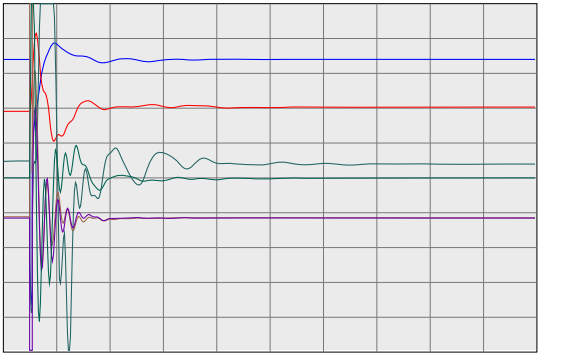
Time(sec)									
0.2000	vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000	ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000	efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000	it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000	pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900	spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



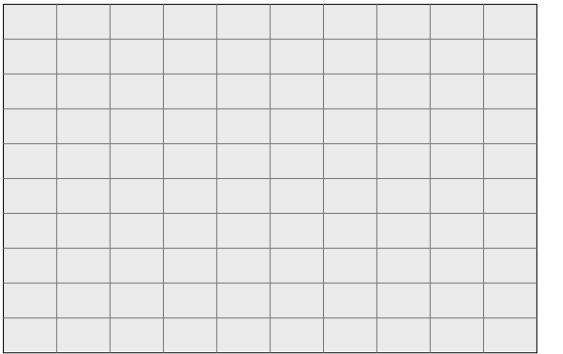
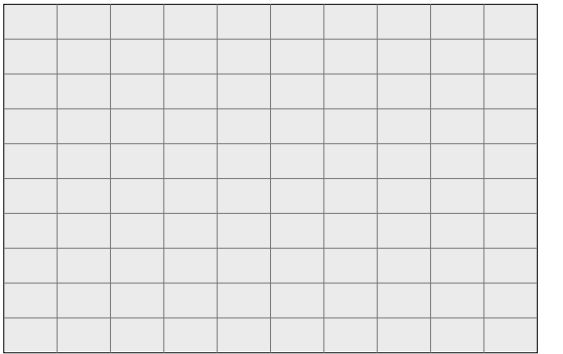
Time(sec)									
0.2000	vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000	ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000	efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000	it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000	pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900	spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



Time(sec)									
0.2000	vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000	ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000	efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000	it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000	pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900	spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100

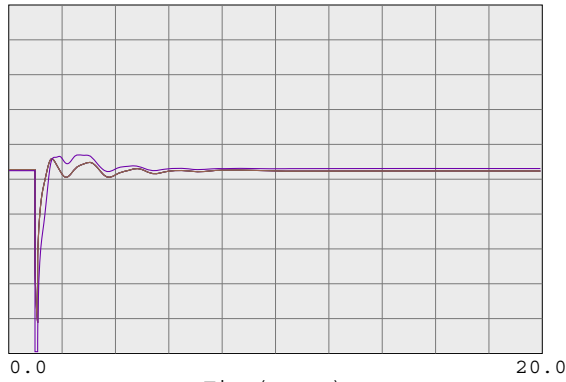


Time(sec)									
0.2000	vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000	ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000	efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000	it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000	pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900	spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100

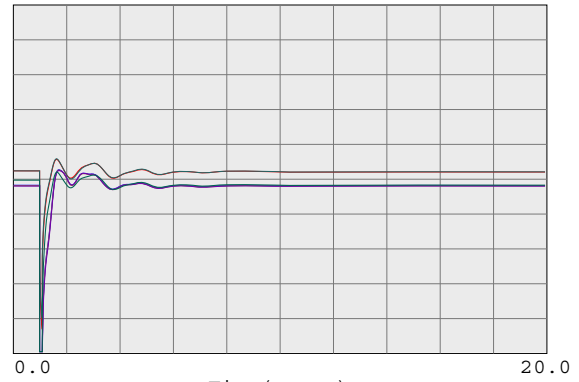


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

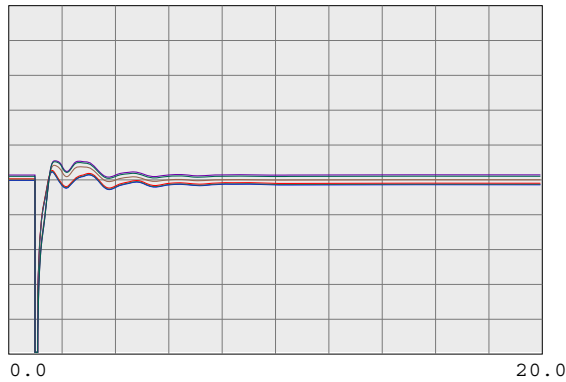
230-KV SYSTEM VOLTAGES



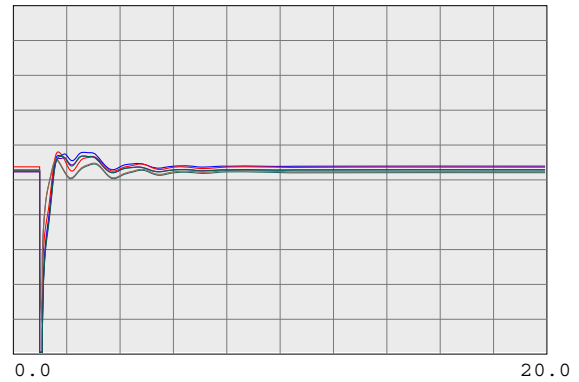
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRCCPB1 230.0	0	0.0	1	1	1.2500



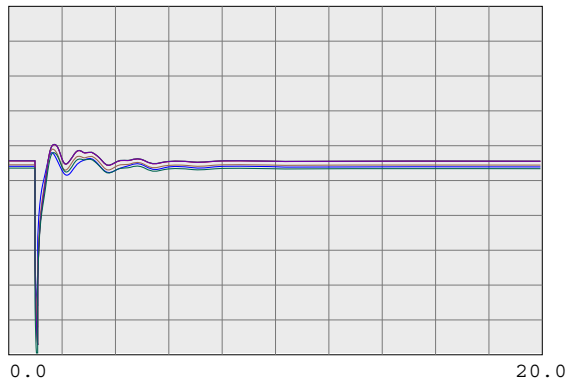
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONETREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



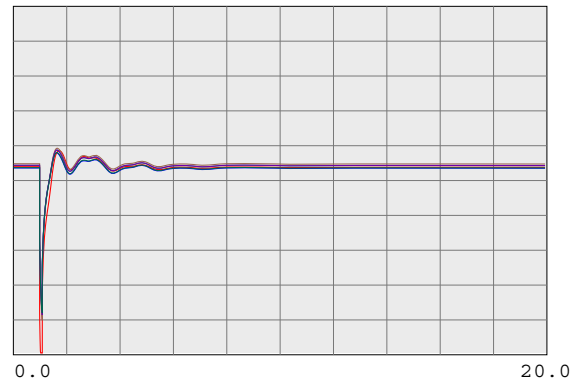
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSFAP2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSFAP1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

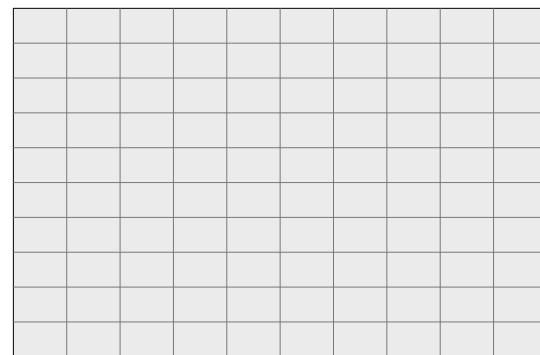
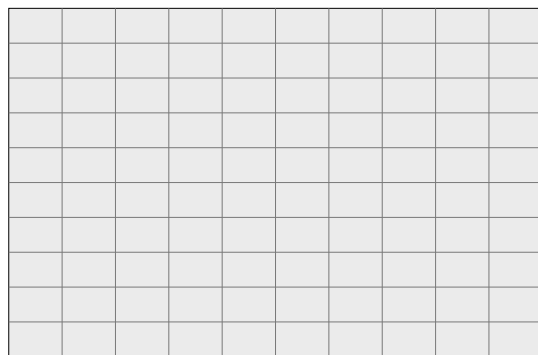
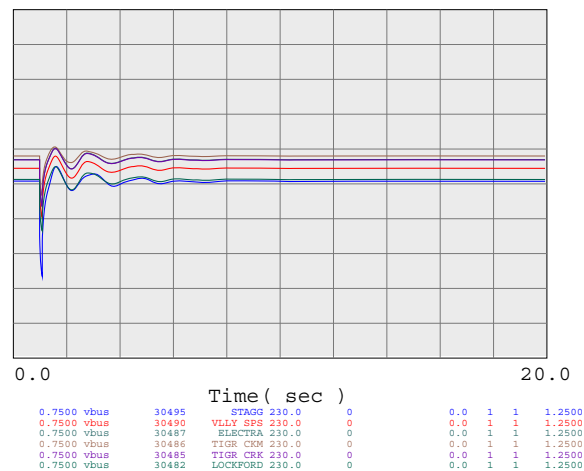
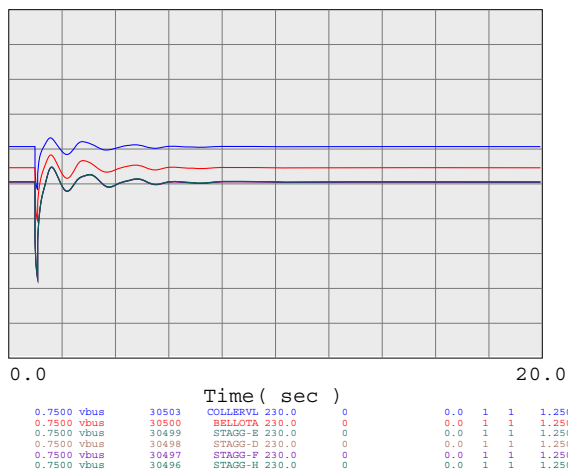
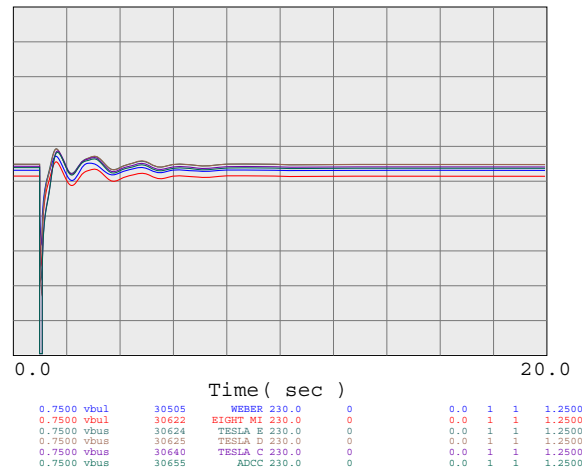
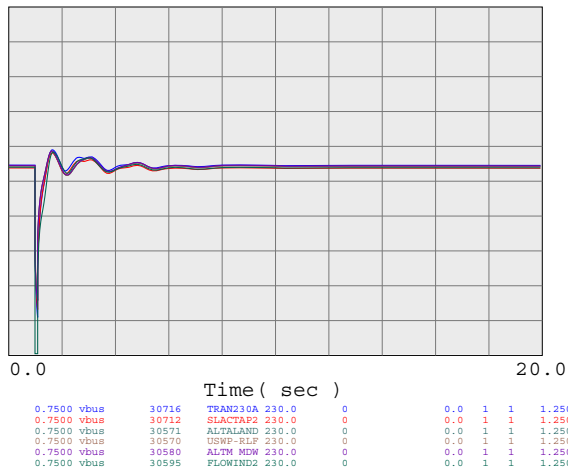
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

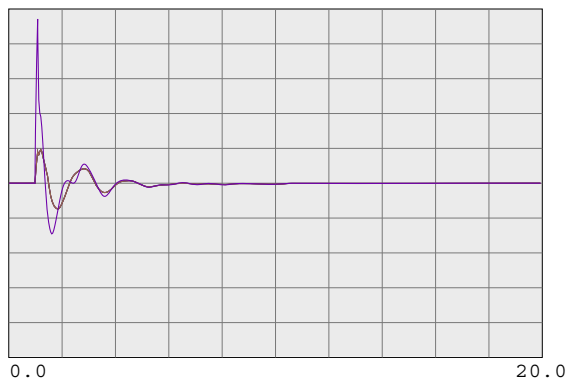
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

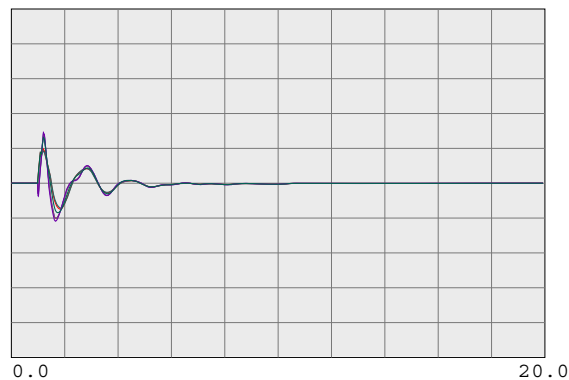


230-KV SYSTEM FREQUENCIES



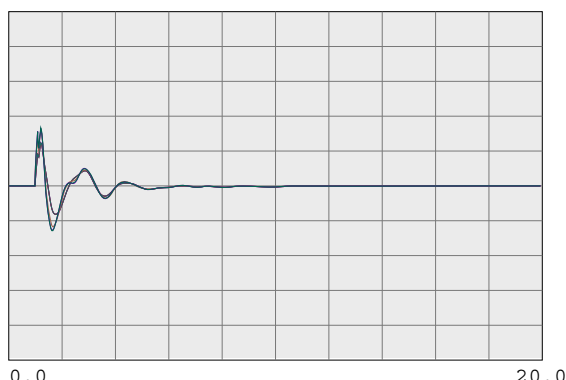
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



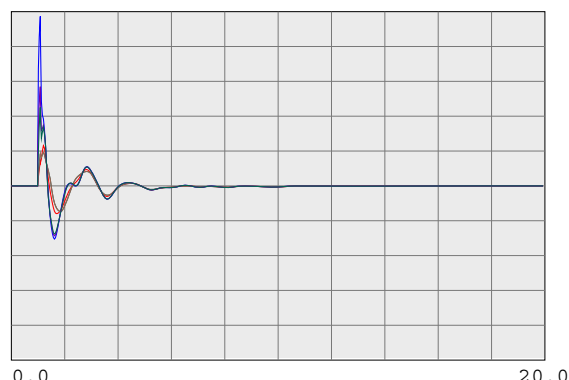
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



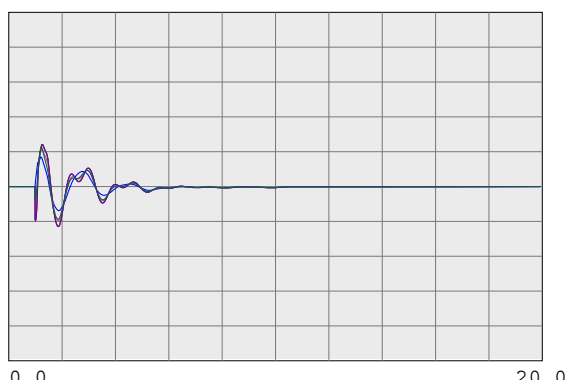
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSAPR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



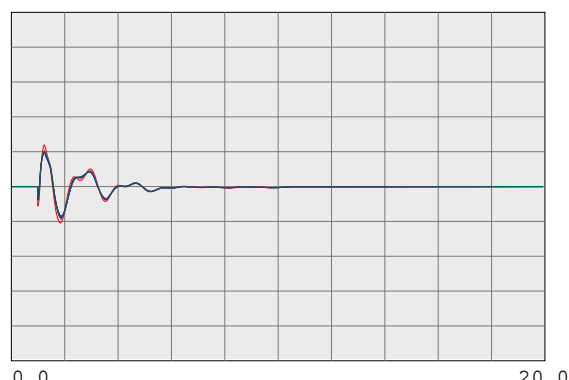
Time (sec)

59.4000 fbus	30528	DEC PTS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

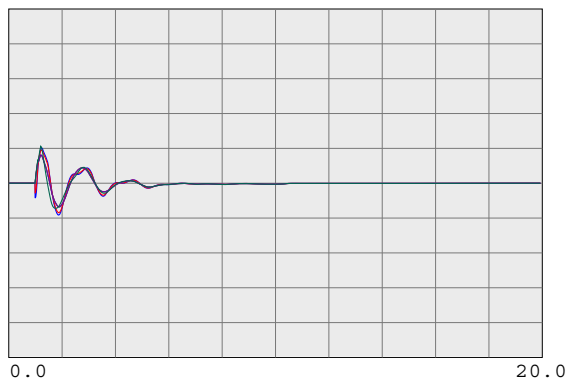
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

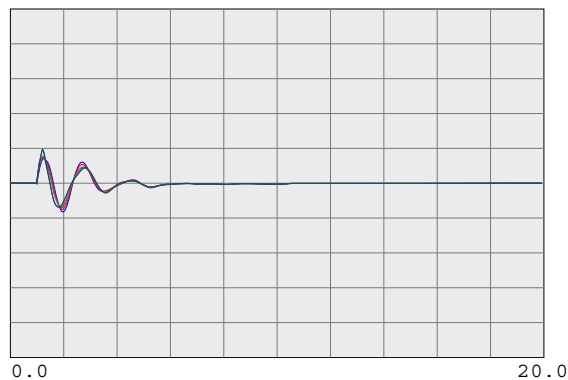
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

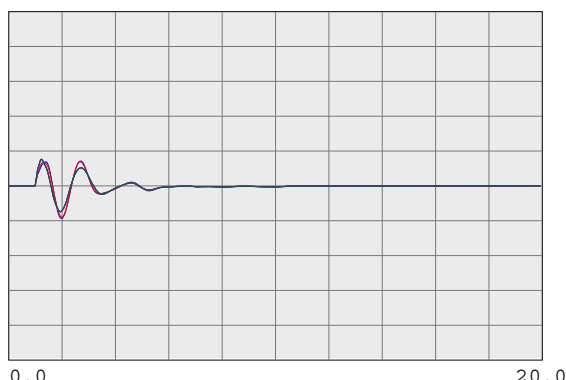
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

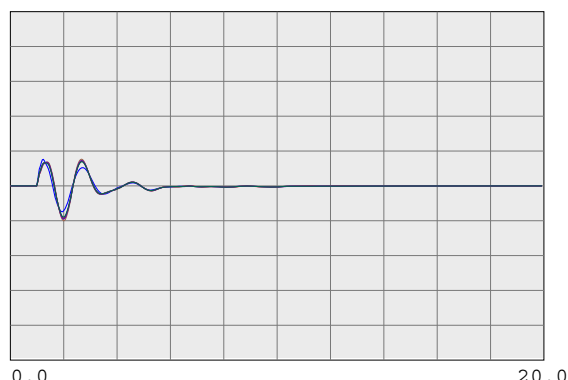
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

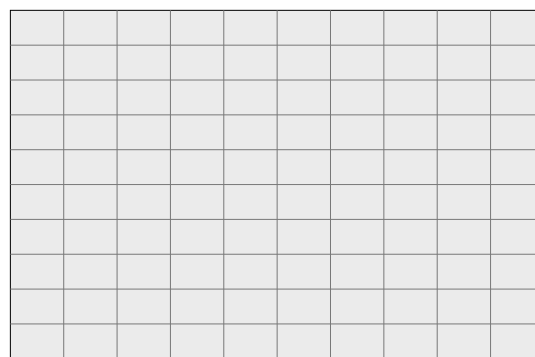
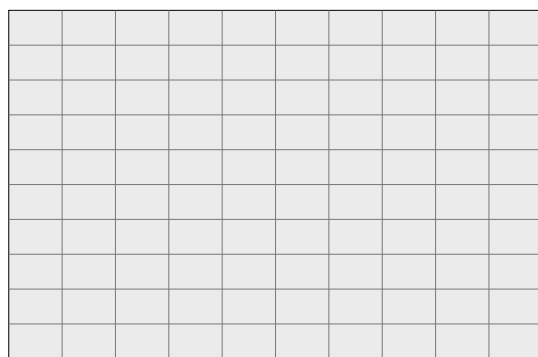
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

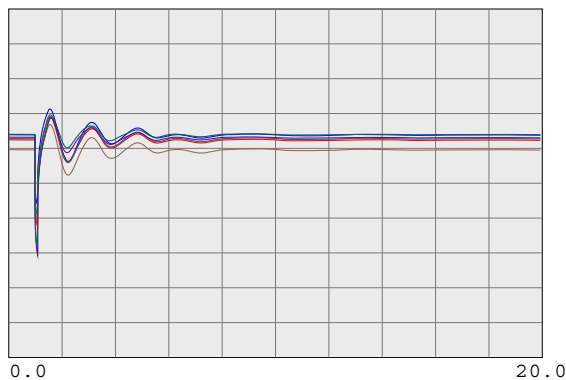
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

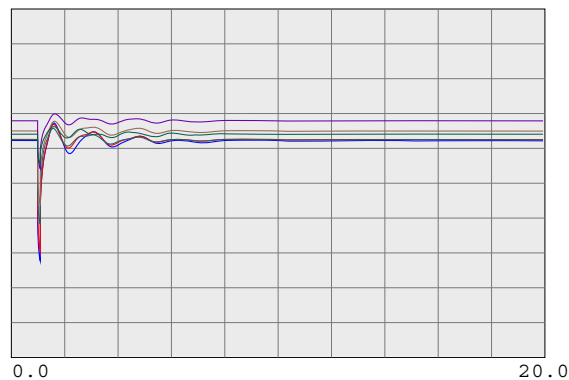
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

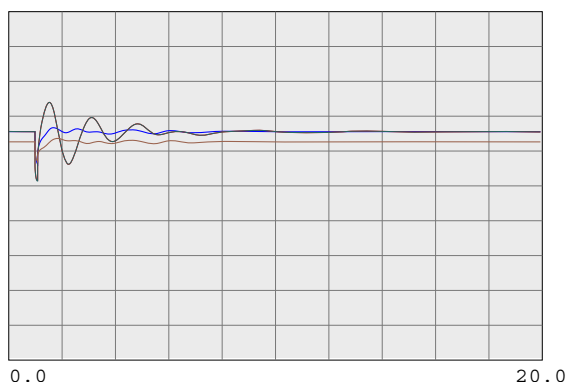
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



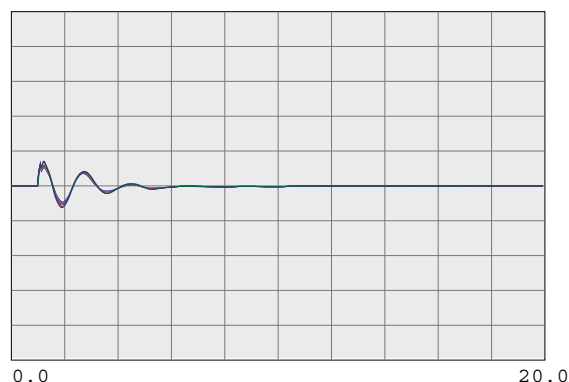
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



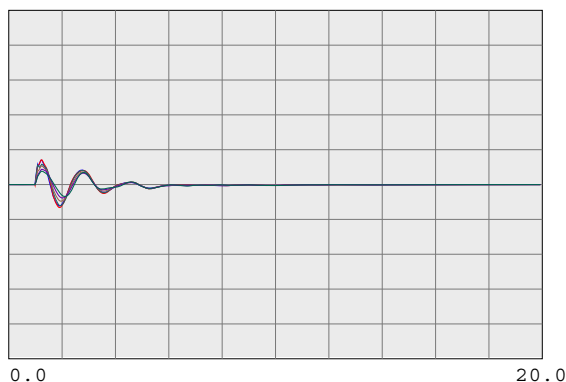
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



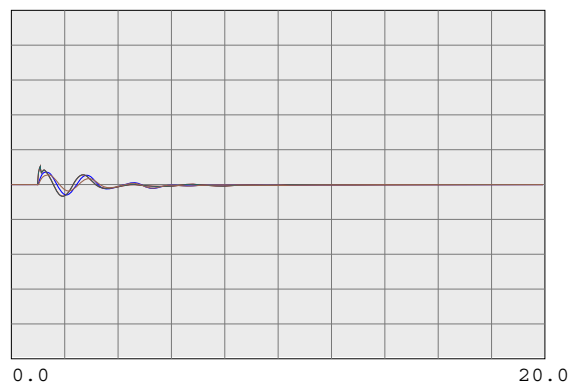
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

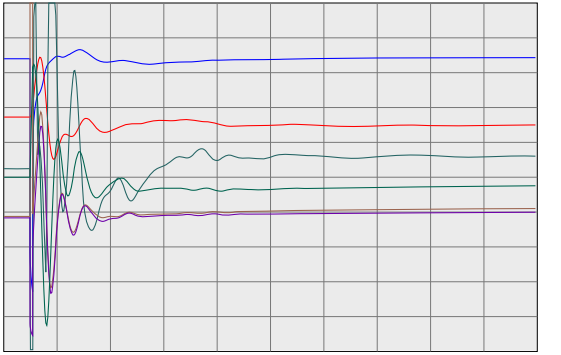
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

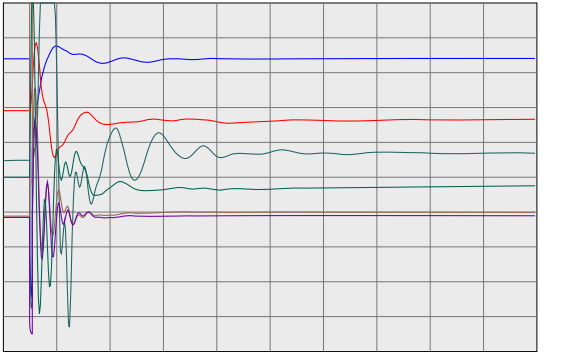
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

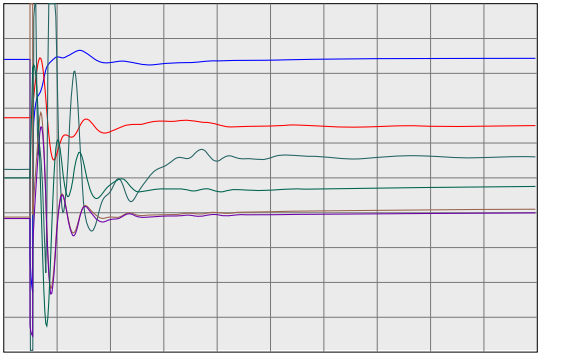
WILLOW PASS GENERATION PLANT



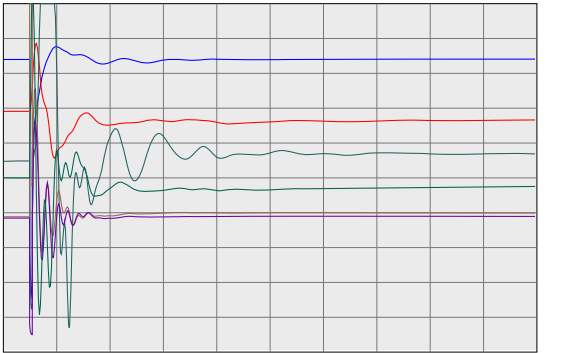
Time(sec)									
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1	1	1.2000		
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1	1	100.0000		
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1	1	5.0000		
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1	1	2.0000		
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1	1	570.0000		
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1	1	1.0100		



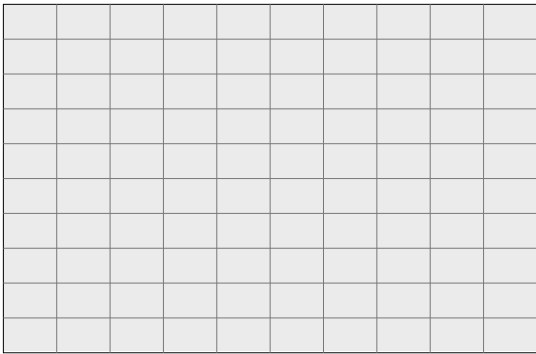
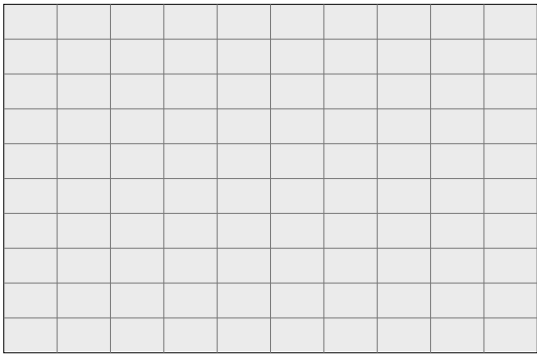
Time(sec)									
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2	1	1.2000		
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2	1	100.0000		
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2	1	5.0000		
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2	1	2.0000		
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2	1	166.4000		
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2	1	1.0100		



Time(sec)									
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3	1	1.2000		
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3	1	100.0000		
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3	1	5.0000		
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3	1	2.0000		
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3	1	570.0000		
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3	1	1.0100		

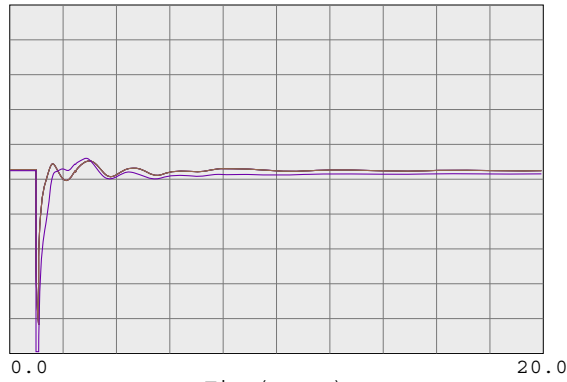


Time(sec)									
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4	1	1.2000		
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4	1	100.0000		
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4	1	5.0000		
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4	1	2.0000		
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4	1	166.4000		
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4	1	1.0100		

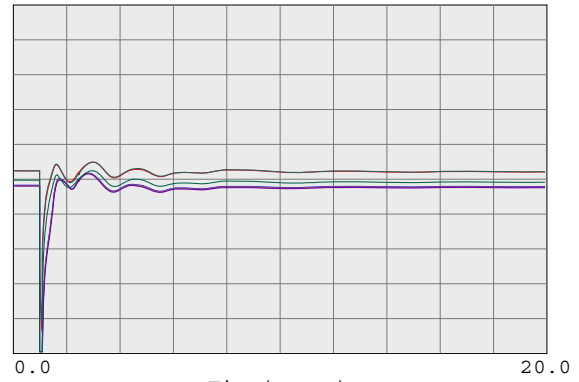


PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

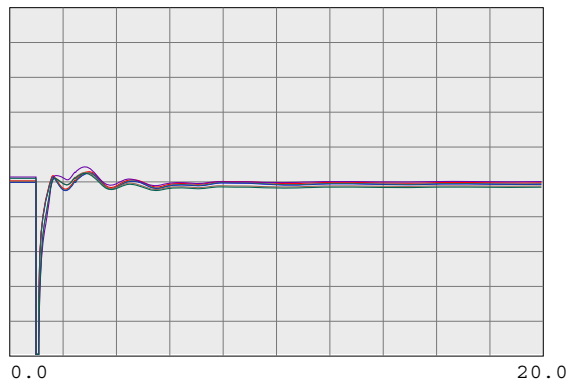
230-KV SYSTEM VOLTAGES



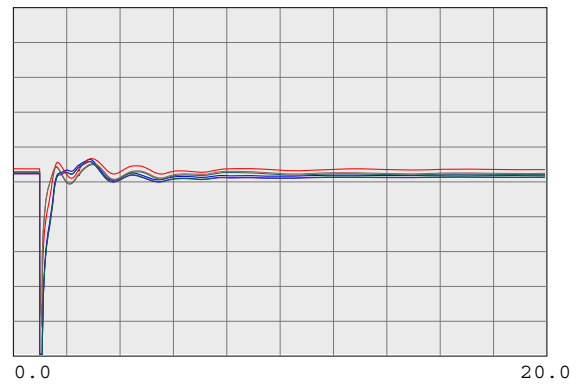
0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



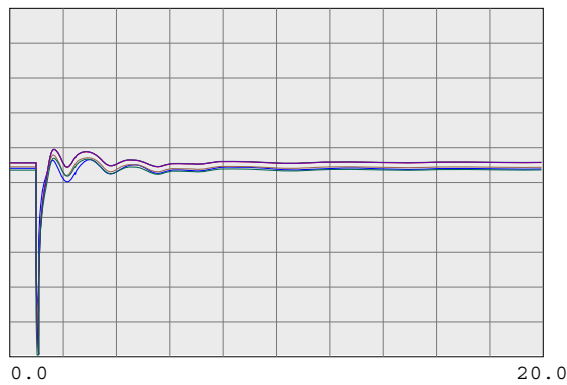
0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30567</th> <th>LONETREE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30565</th> <th>BRENTWOOD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30563</th> <th>RESEARCH 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30561</th> <th>TASSAJAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30550</th> <th>MORAGA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30550	MORAGA 230.0	0	0.0	1	1	1.2500



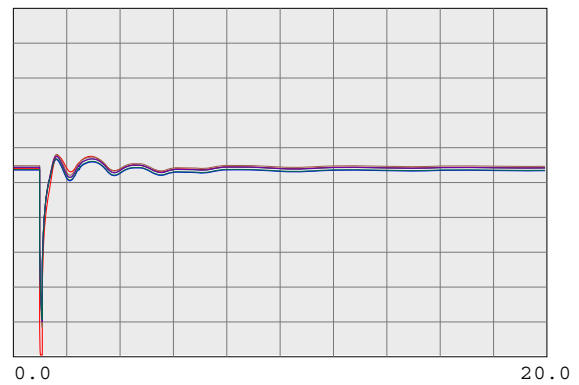
0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30544</th> <th>ROSSSTAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30544	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30543</th> <th>ROSSSTAR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30543	ROSSSTAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30540</th> <th>SOBRANTE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30536</th> <th>TESORO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30535</th> <th>TIDENATR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30600</th> <th>TRES VAO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30523</th> <th>CC SUB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30525</th> <th>C. COSTA 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30526</th> <th>PITSBG D 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30527</th> <th>PITSBG E 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30690</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30695</th> <th>MARTIN C 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30696</th> <th>MET ACTR 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30685</th> <th>EMBRCDRE 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30685	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30703</th> <th>RAVENSWD 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30700</th> <th>SANMATEO 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30713</th> <th>JMDAMCX1 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30717</th> <th>TRANSJOB 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30714</th> <th>JMDAMCX2 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus <th>30715</th> <th>JEFFERSN 230.0</th> <th>0</th> <th>0.0</th> <th>1</th> <th>1</th> <th>1.2500</th>	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

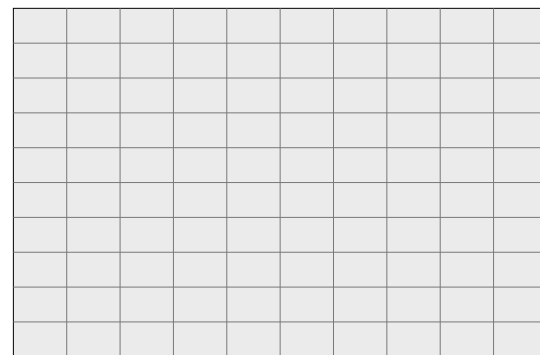
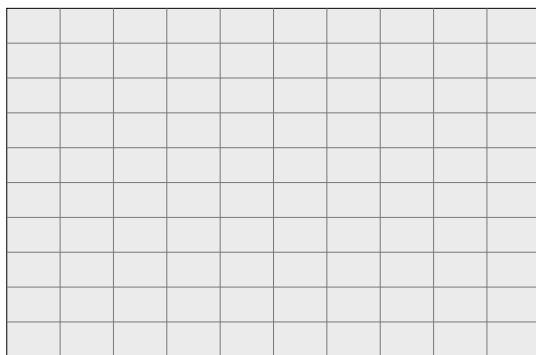
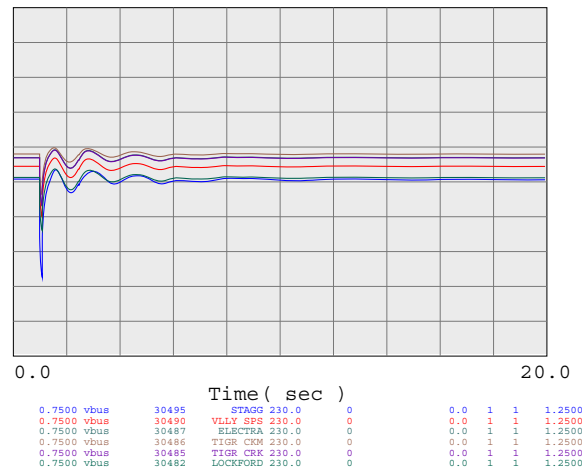
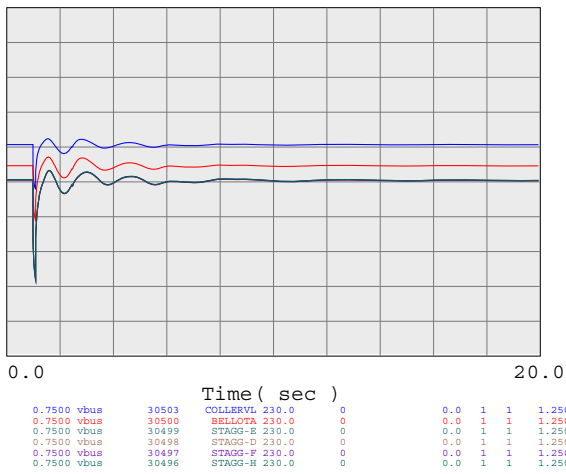
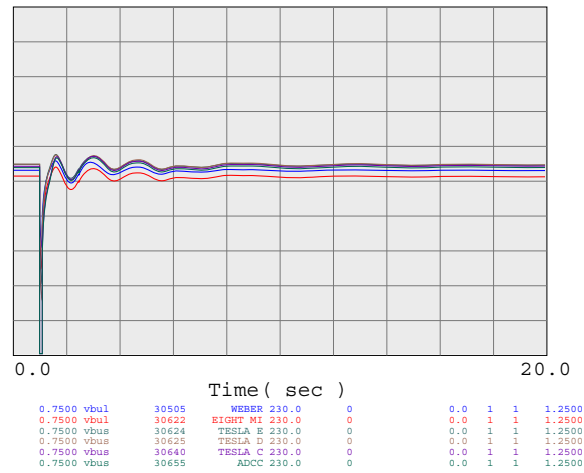
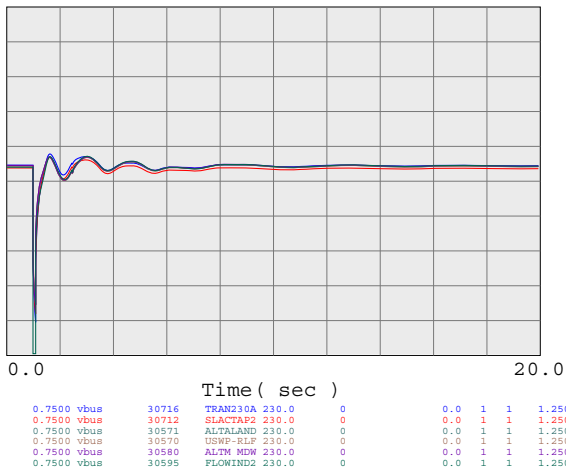
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

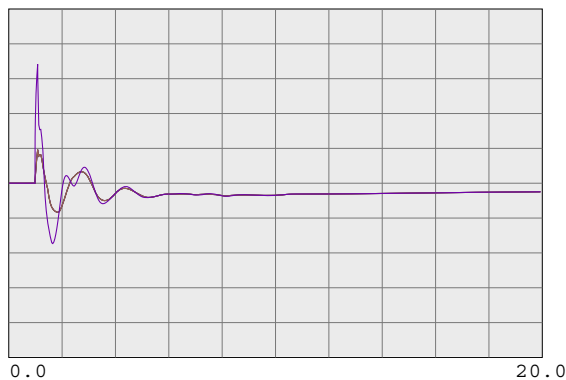
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



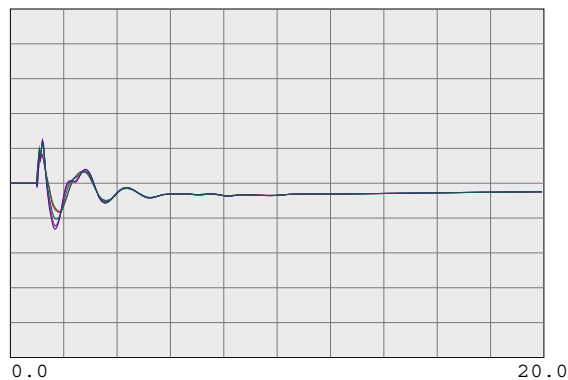
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

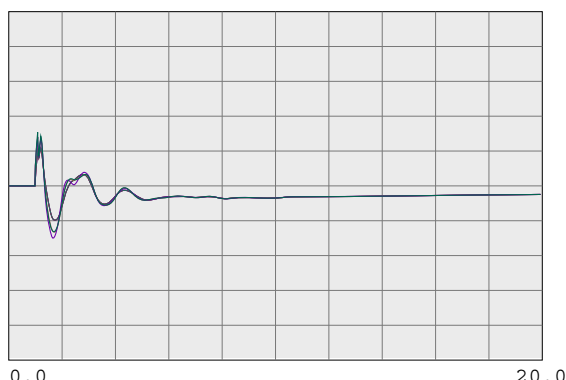
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

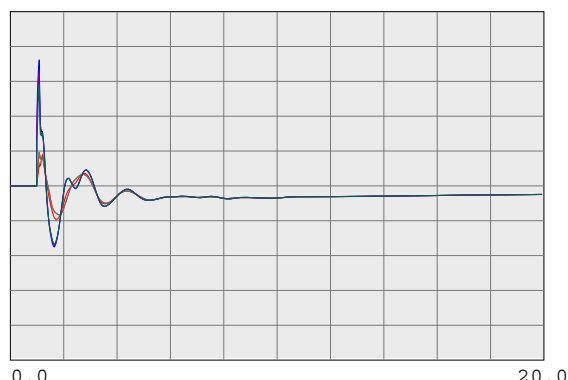
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

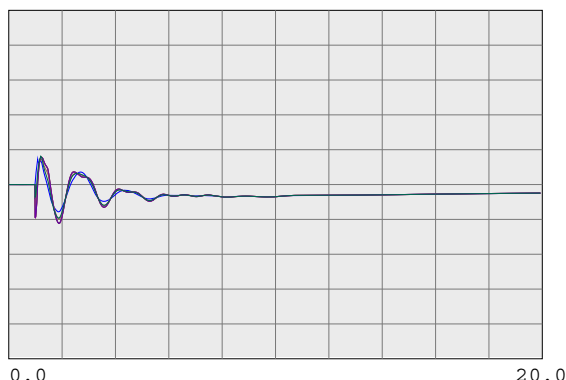
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

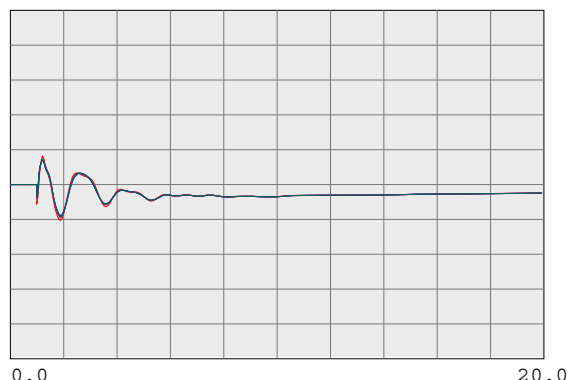
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

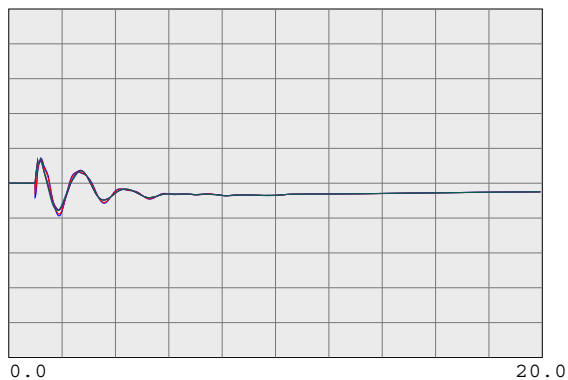
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

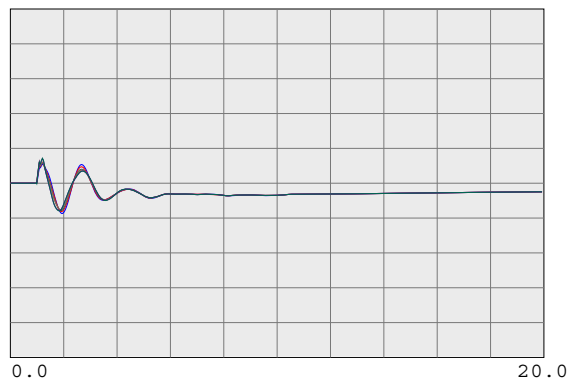
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



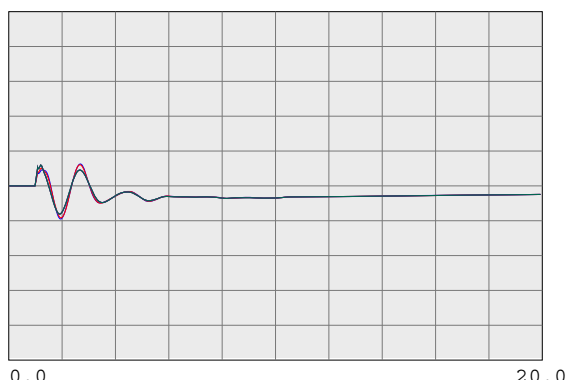
0.0 20.0
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



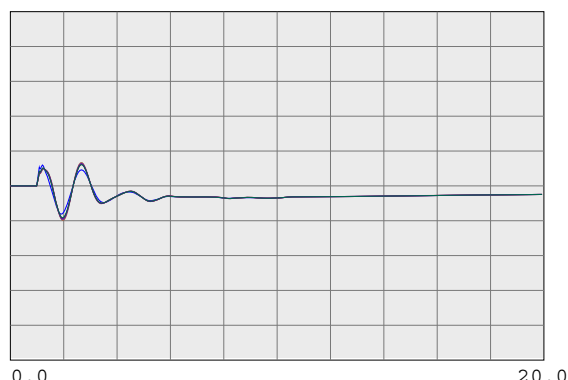
0.0 20.0
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



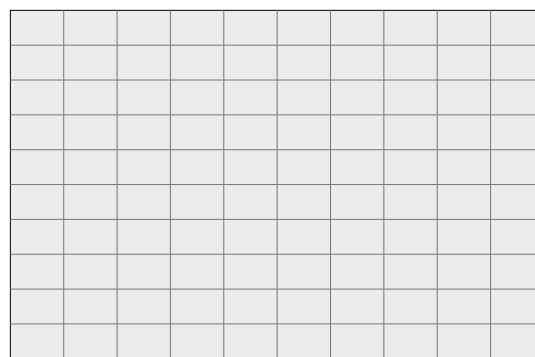
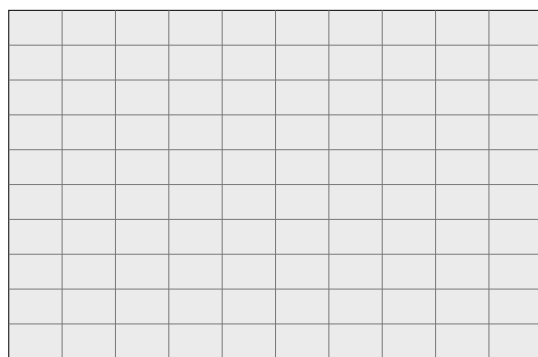
0.0 20.0
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

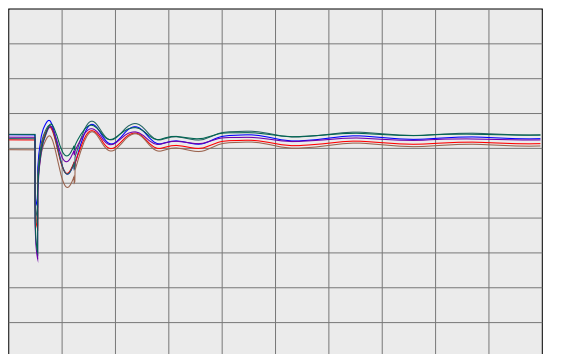
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

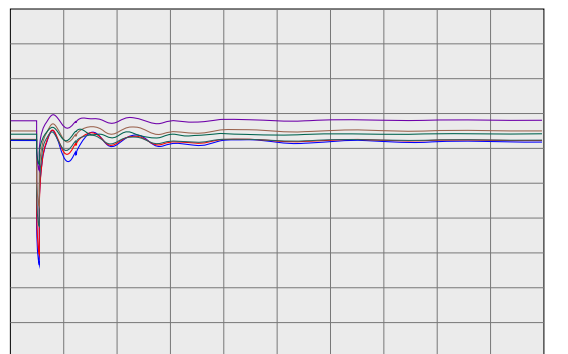
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time(sec)

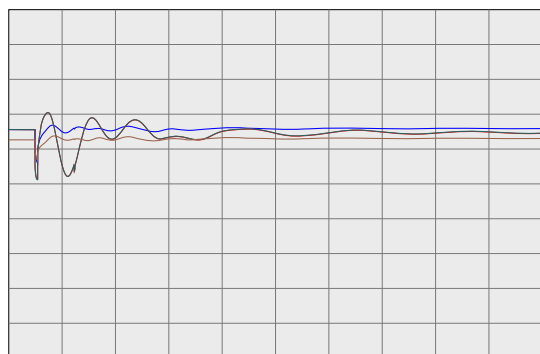
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

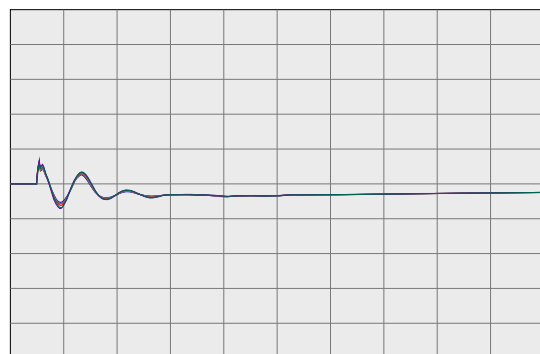
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

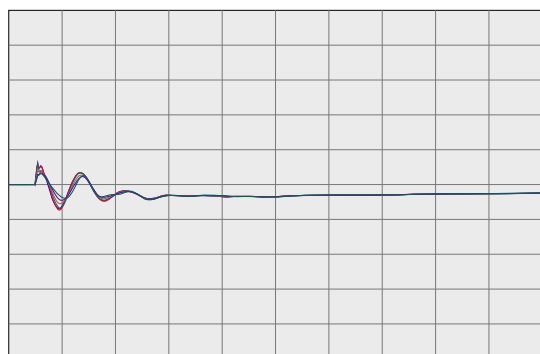
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

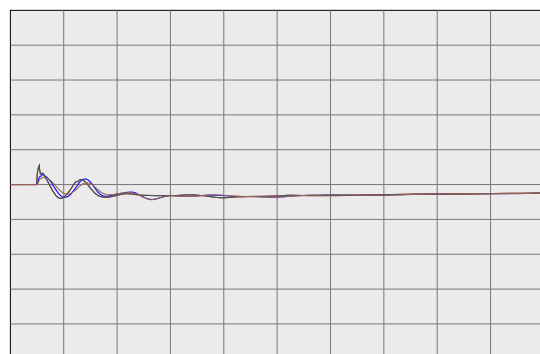
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

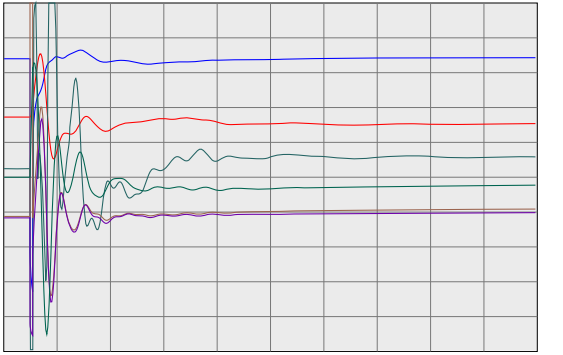
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

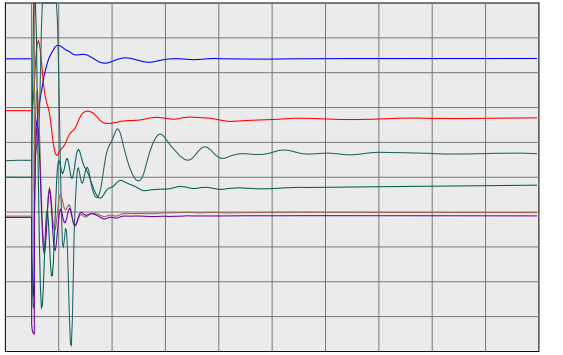
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

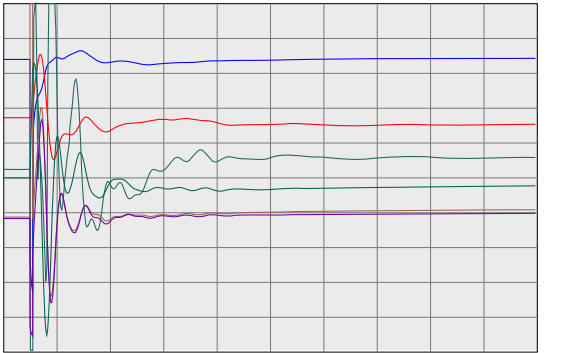
WILLOW PASS GENERATION PLANT



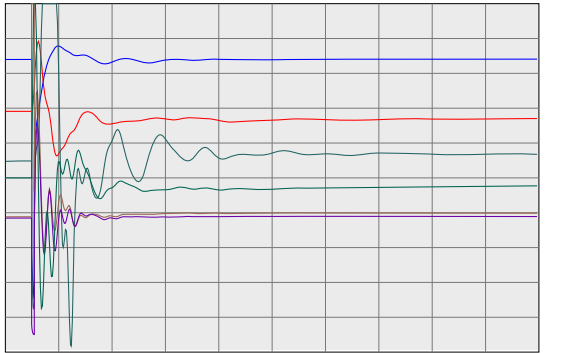
Time(sec)					
0.2000 vt	99991	MIR_CT1 16.5	0	0.0	1 1 1.2000
-100.0000 ang	99991	MIR_CT1 16.5	0	0.0	1 1 100.0000
0.0000 efd	99991	MIR_CT1 16.5	0	0.0	1 1 5.0000
0.0000 it	99991	MIR_CT1 16.5	0	0.0	1 1 2.0000
0.0000 pg	99991	MIR_CT1 16.5	0	0.0	1 1 570.0000
0.9900 spd	99991	MIR_CT1 16.5	0	0.0	1 1 1.0100



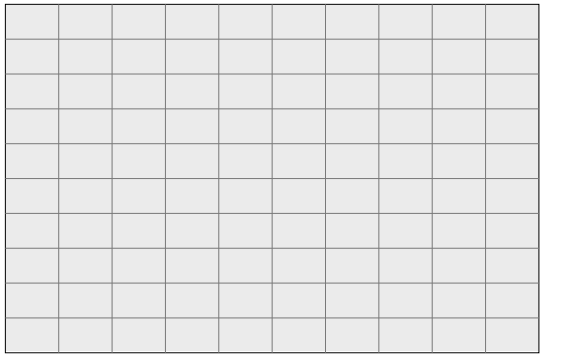
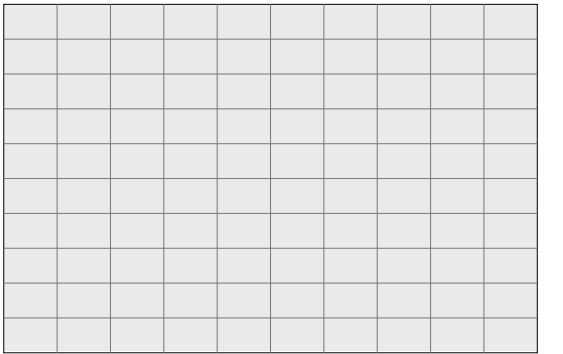
Time(sec)					
0.2000 vt	99992	MIR_ST1 13.8	0	0.0	2 1 1.2000
-100.0000 ang	99992	MIR_ST1 13.8	0	0.0	2 1 100.0000
0.0000 efd	99992	MIR_ST1 13.8	0	0.0	2 1 5.0000
0.0000 it	99992	MIR_ST1 13.8	0	0.0	2 1 2.0000
0.0000 pg	99992	MIR_ST1 13.8	0	0.0	2 1 166.4000
0.9900 spd	99992	MIR_ST1 13.8	0	0.0	2 1 1.0100



Time(sec)					
0.2000 vt	99993	MIR_CT2 16.5	0	0.0	3 1 1.2000
-100.0000 ang	99993	MIR_CT2 16.5	0	0.0	3 1 100.0000
0.0000 efd	99993	MIR_CT2 16.5	0	0.0	3 1 5.0000
0.0000 it	99993	MIR_CT2 16.5	0	0.0	3 1 2.0000
0.0000 pg	99993	MIR_CT2 16.5	0	0.0	3 1 570.0000
0.9900 spd	99993	MIR_CT2 16.5	0	0.0	3 1 1.0100

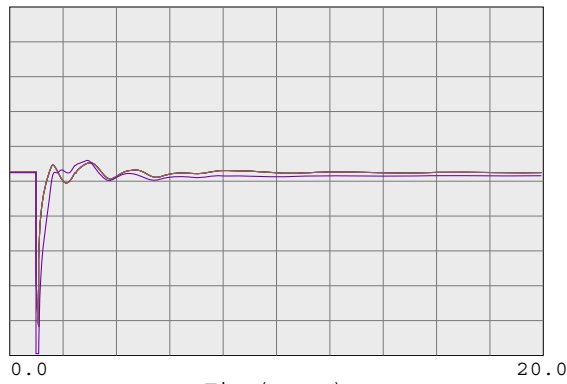


Time(sec)					
0.2000 vt	99994	MIR_ST2 13.8	0	0.0	4 1 1.2000
-100.0000 ang	99994	MIR_ST2 13.8	0	0.0	4 1 100.0000
0.0000 efd	99994	MIR_ST2 13.8	0	0.0	4 1 5.0000
0.0000 it	99994	MIR_ST2 13.8	0	0.0	4 1 2.0000
0.0000 pg	99994	MIR_ST2 13.8	0	0.0	4 1 166.4000
0.9900 spd	99994	MIR_ST2 13.8	0	0.0	4 1 1.0100



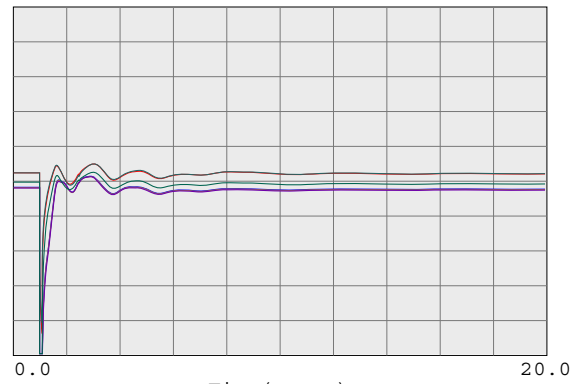
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



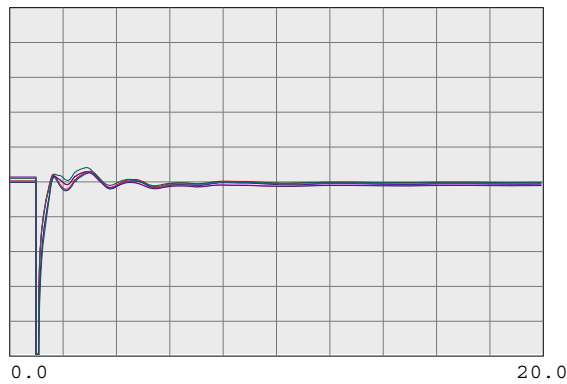
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



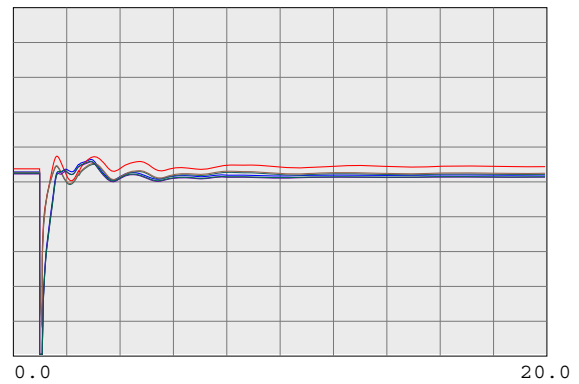
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



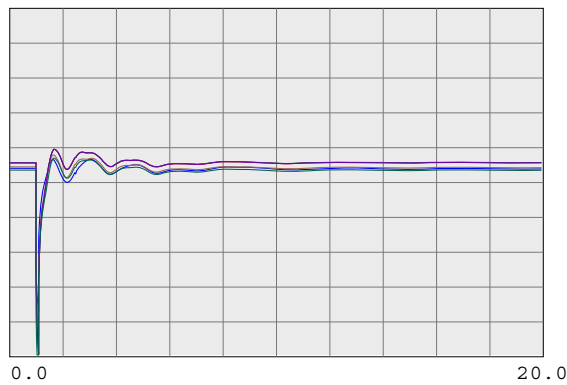
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSAPR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



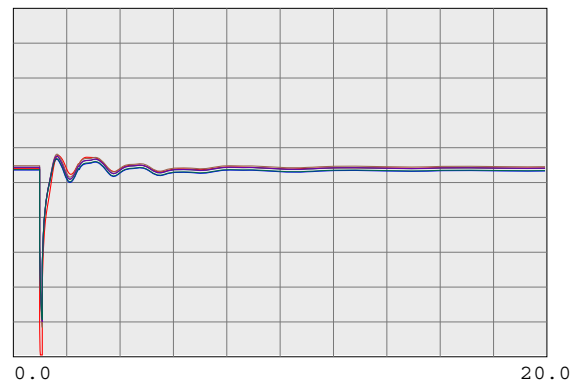
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

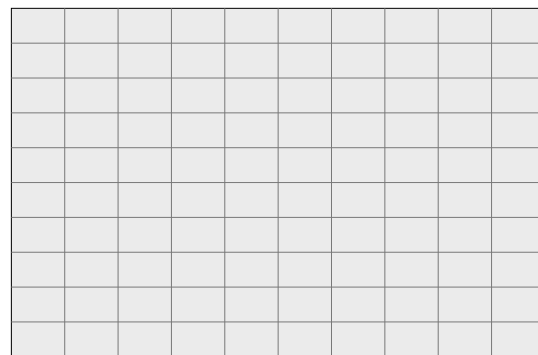
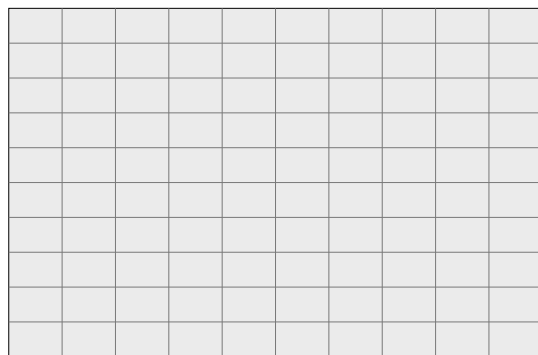
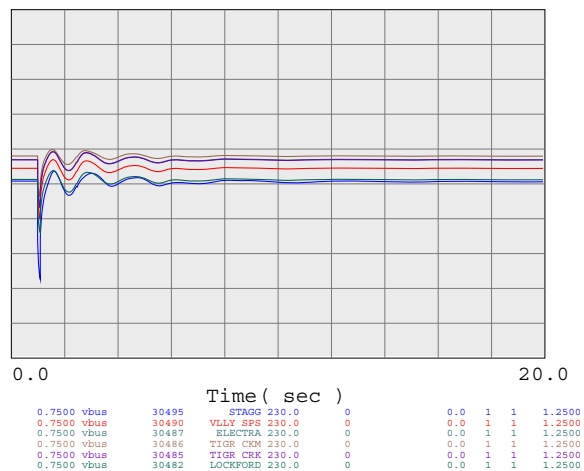
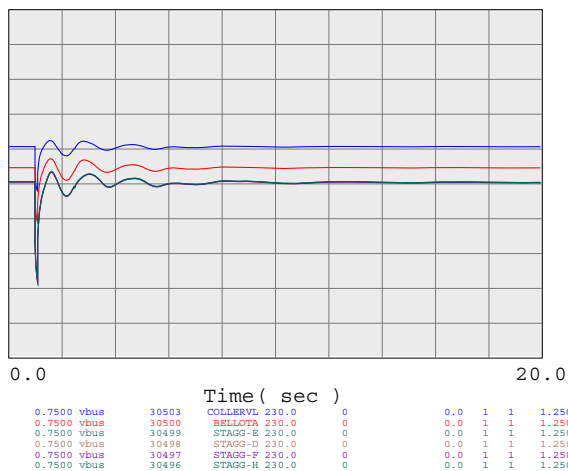
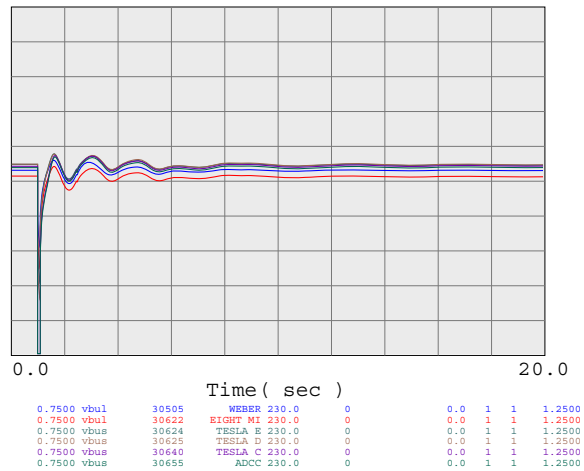
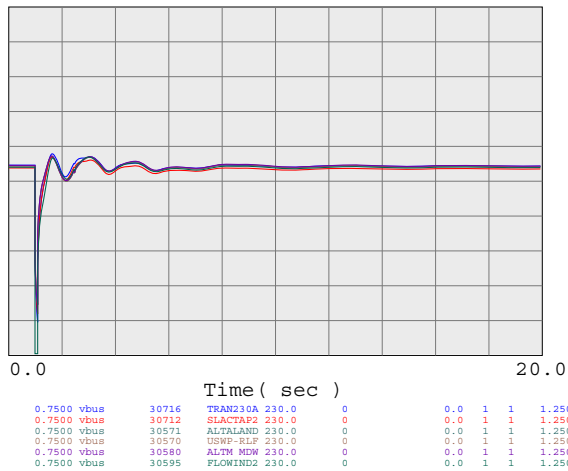
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

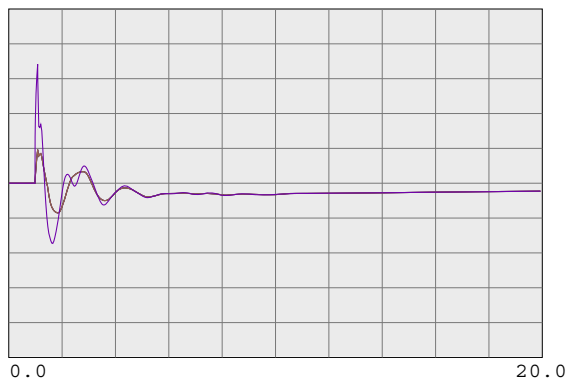
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES

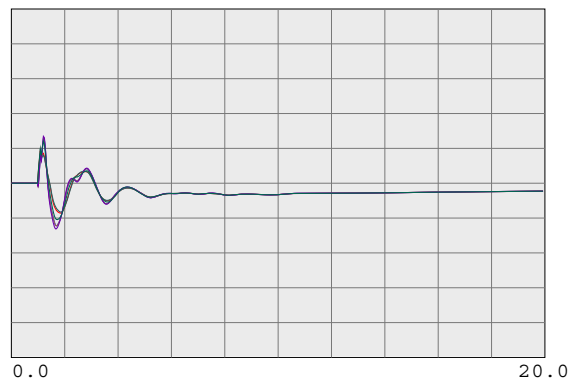


230-KV SYSTEM FREQUENCIES



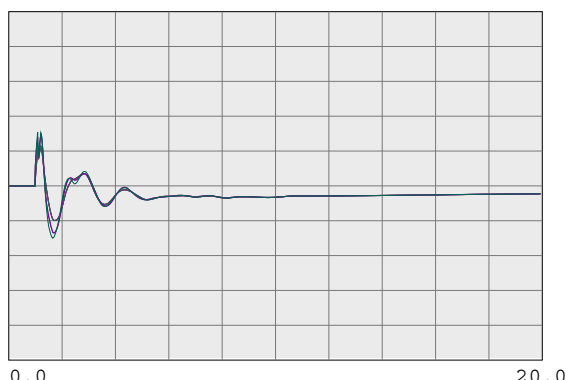
Time (sec)

59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



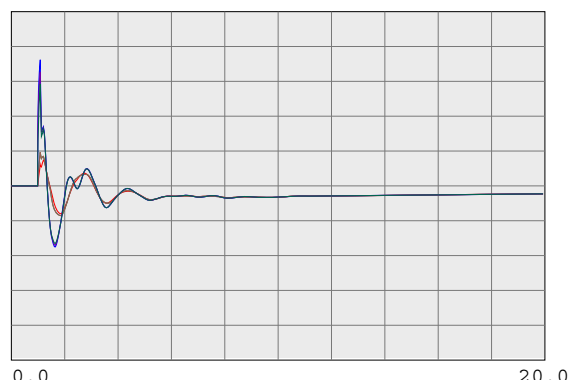
Time (sec)

59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



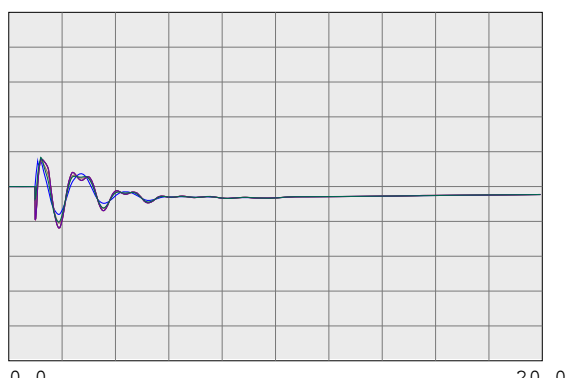
Time (sec)

59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



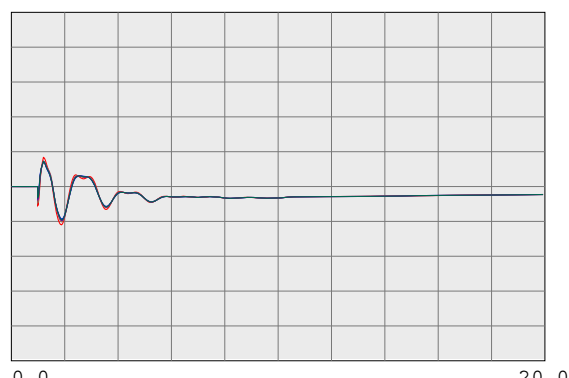
Time (sec)

59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

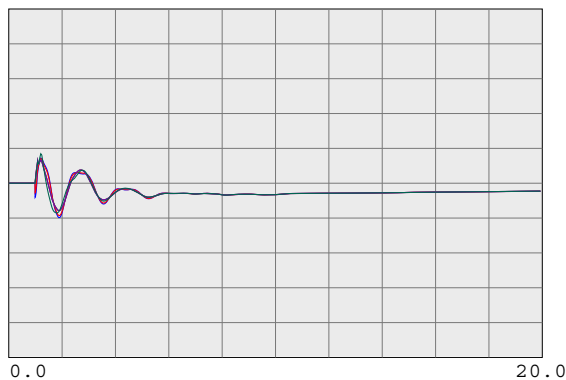
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

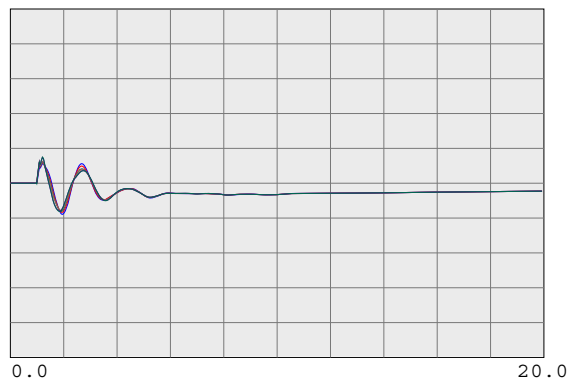
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

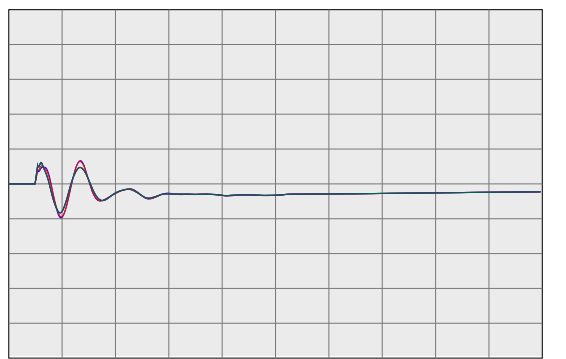
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

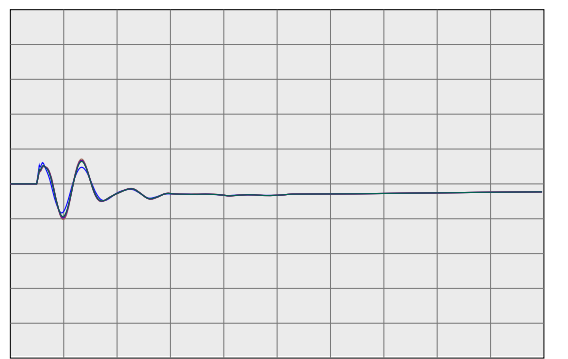
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

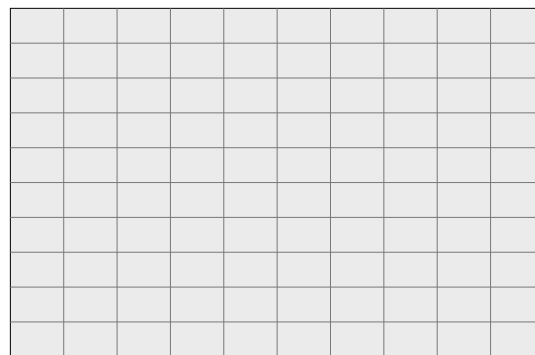
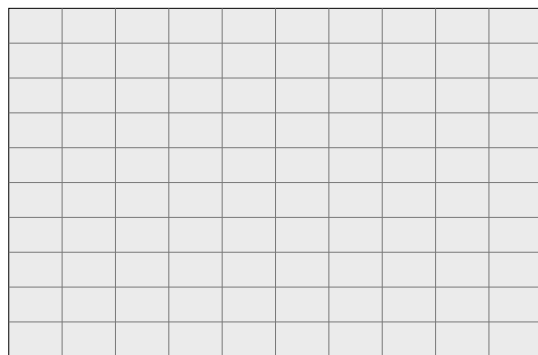
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

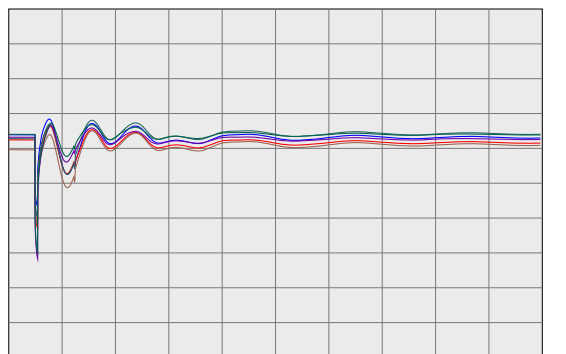
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

6/13/08

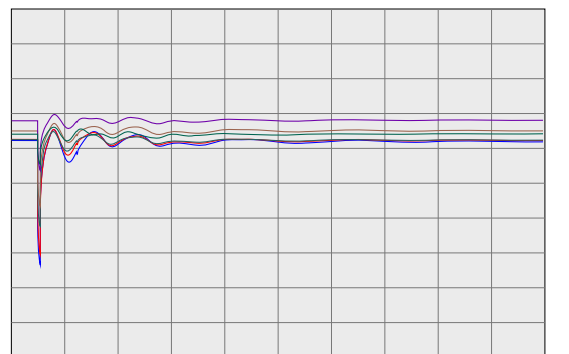
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



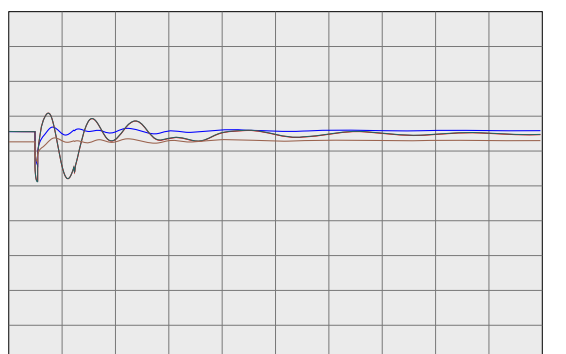
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



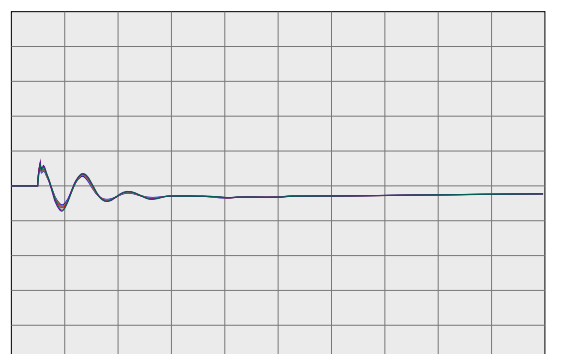
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



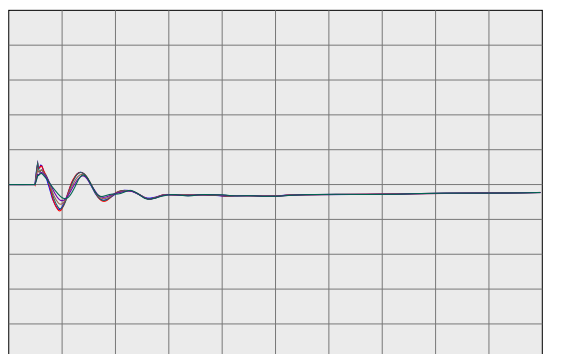
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



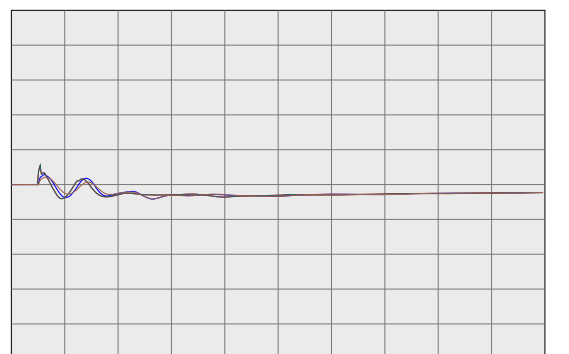
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

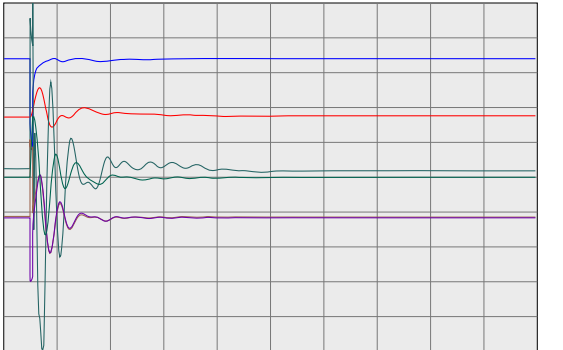
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

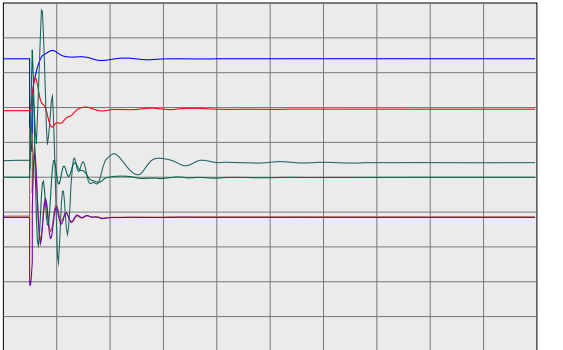
WILLOW PASS GENERATION PLANT



0.0 20.0

Time(sec)

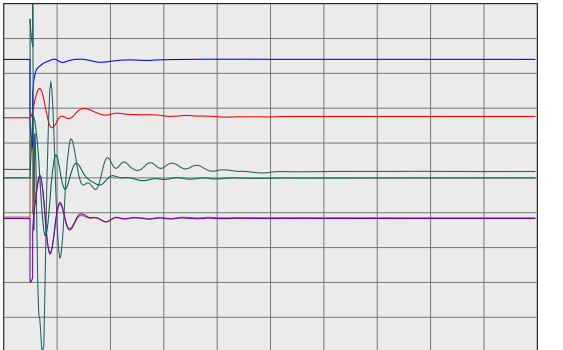
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



0.0 20.0

Time(sec)

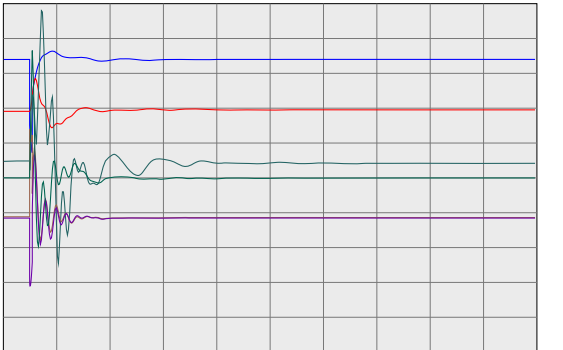
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



0.0 20.0

Time(sec)

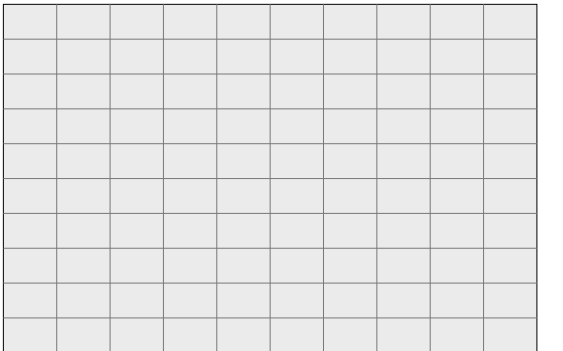
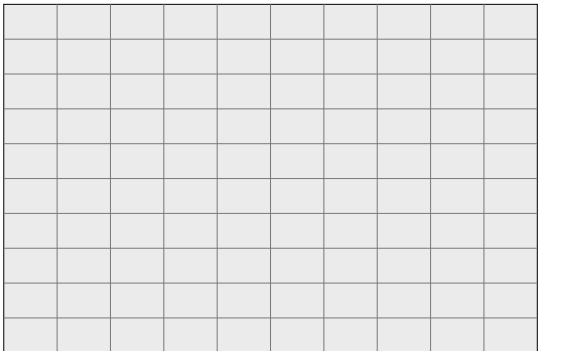
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100



0.0 20.0

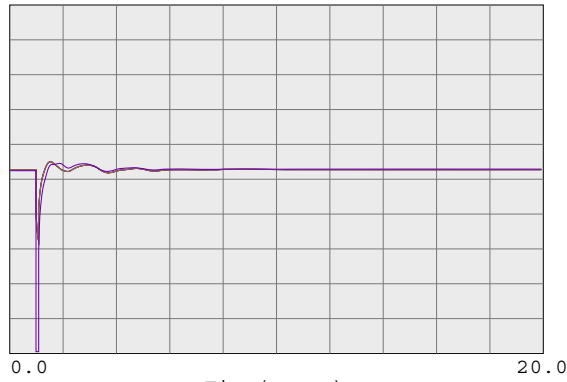
Time(sec)

0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100



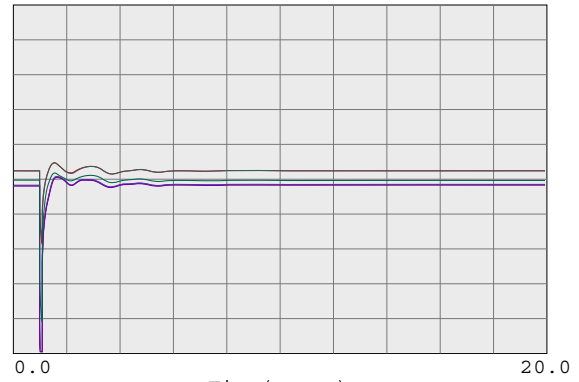
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



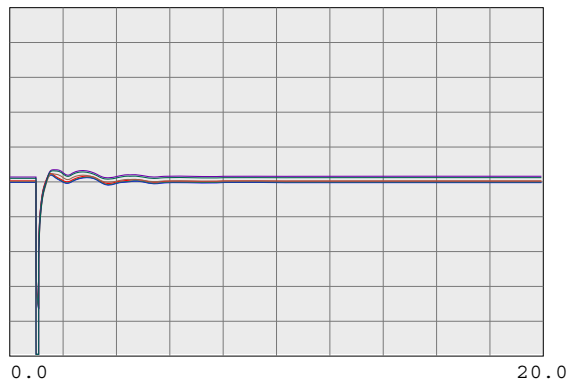
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCPB1 230.0	0	0.0	1	1	1.2500



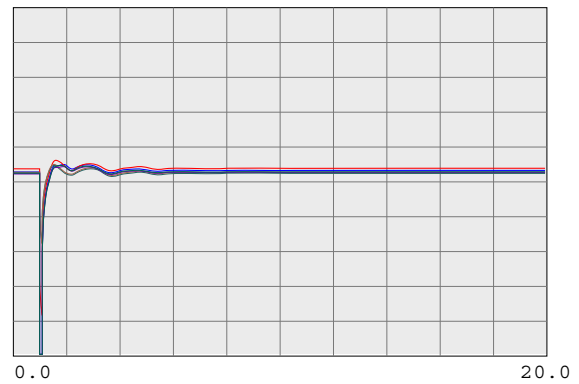
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



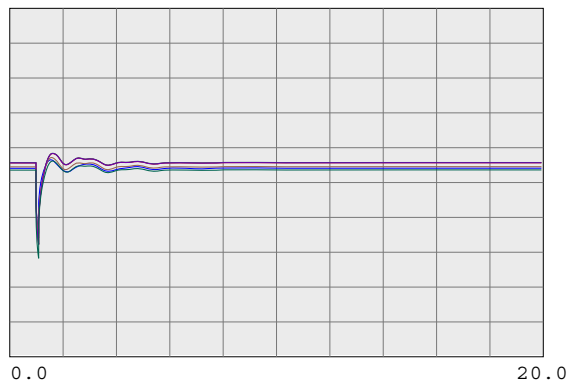
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TRISNO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



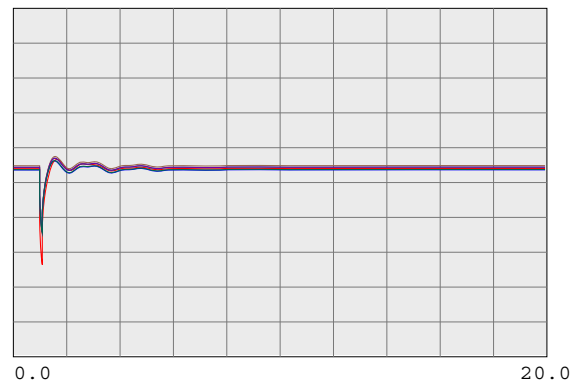
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

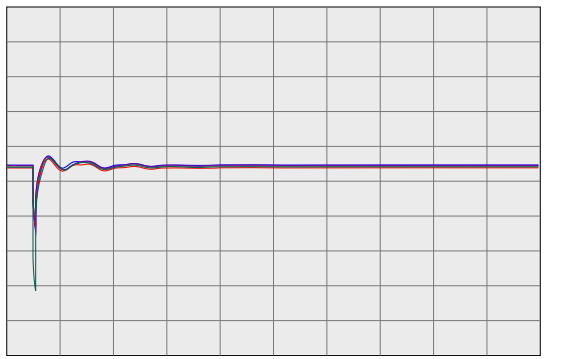
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

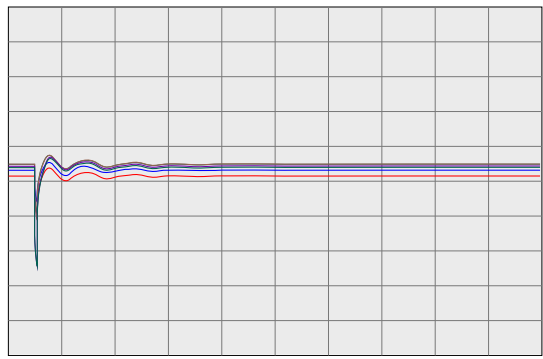
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



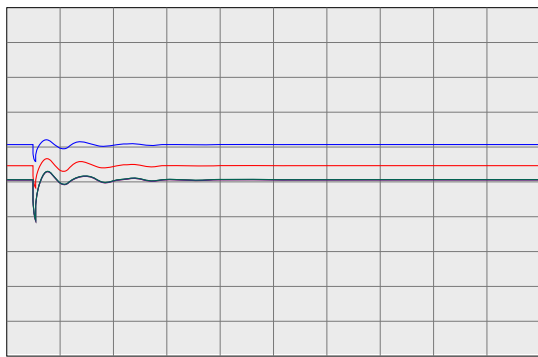
0.0 20.0

Time(sec)				
0.7500 vbus	30716	TRAN230A 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30712	SLACTAP2 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30571	ALTALAND 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30570	USWP-RLF 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30580	ALTM MDW 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30595	FLOWIND2 230.0	0	0.0 1 1 1.2500



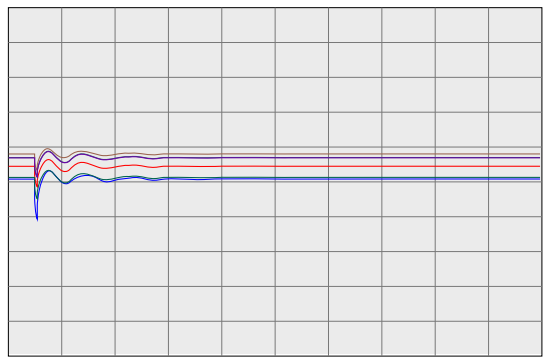
0.0 20.0

Time(sec)				
0.7500 vbus	30505	WEBER 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30622	RIGHT MI 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30624	TESLA E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30625	TESLA D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30640	TESLA C 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30655	ADCC 230.0	0	0.0 1 1 1.2500



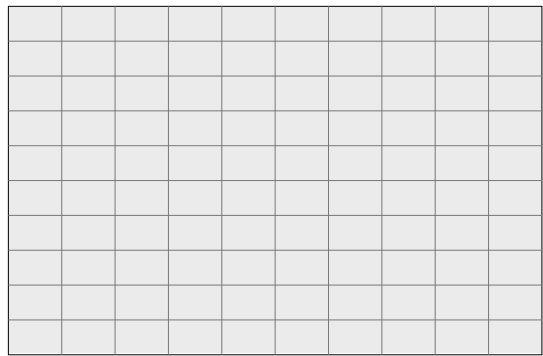
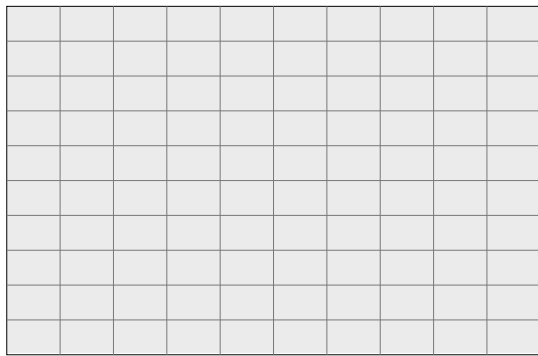
0.0 20.0

Time(sec)				
0.7500 vbus	30503	COLLIERV 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30500	BELLOTA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30499	STAGG-E 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30498	STAGG-D 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30497	STAGG-F 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30496	STAGG-H 230.0	0	0.0 1 1 1.2500



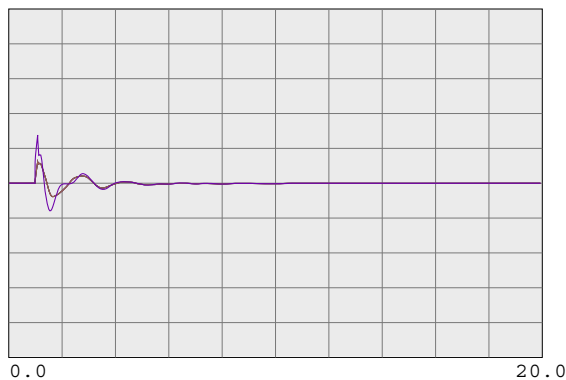
0.0 20.0

Time(sec)				
0.7500 vbus	30495	STAGS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30490	VLLY BPS 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30487	ELECTRA 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30486	TIGR CKN 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30485	TIGR CRK 230.0	0	0.0 1 1 1.2500
0.7500 vbus	30482	LOCKFORD 230.0	0	0.0 1 1 1.2500



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

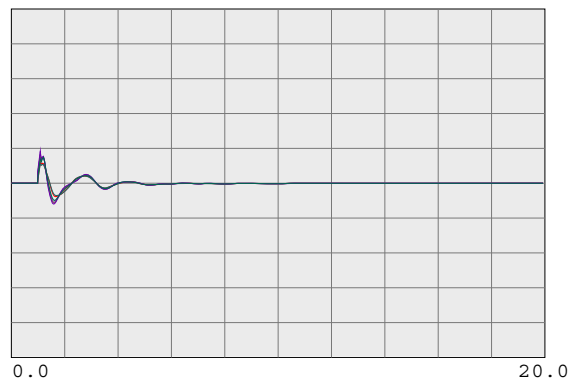
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

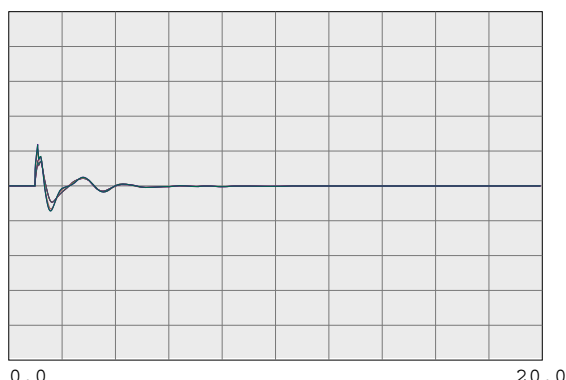
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

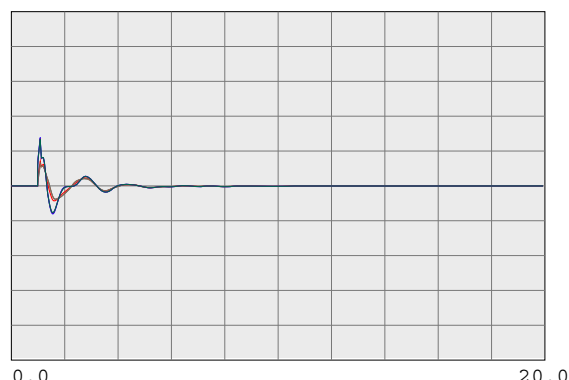
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

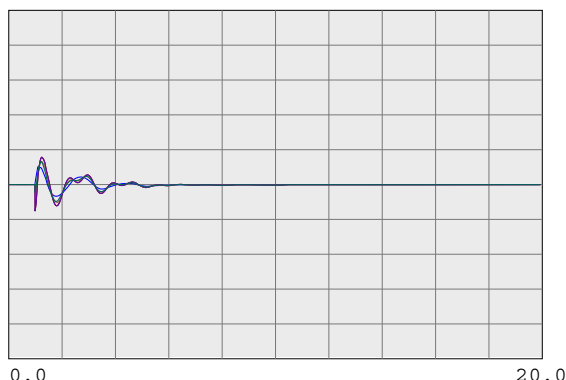
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TRISBO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

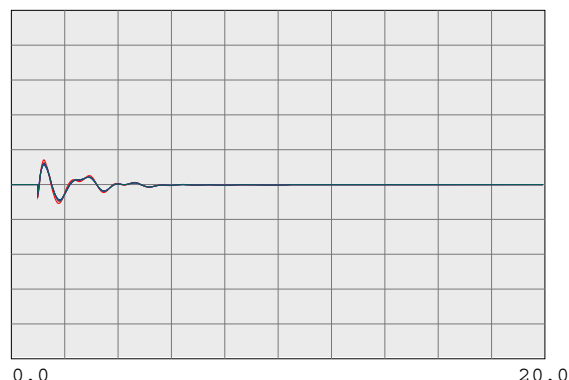
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WID MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

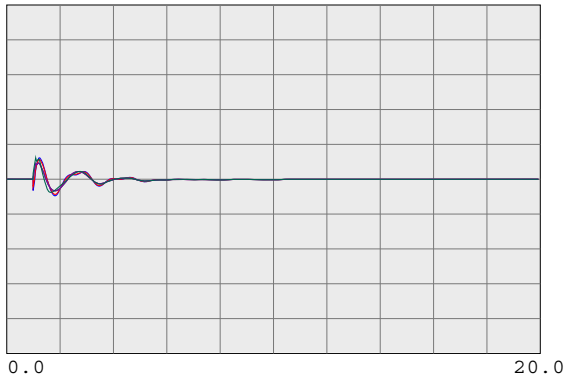
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

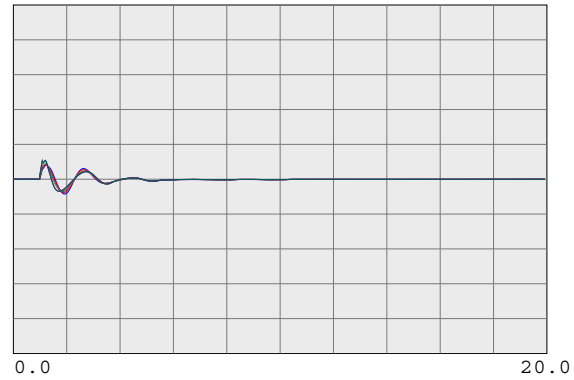
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

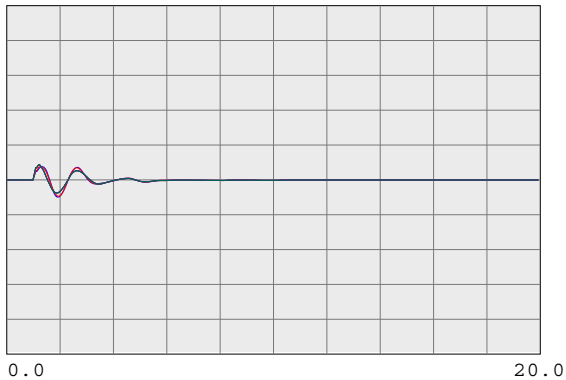
230-KV SYSTEM FREQUENCIES



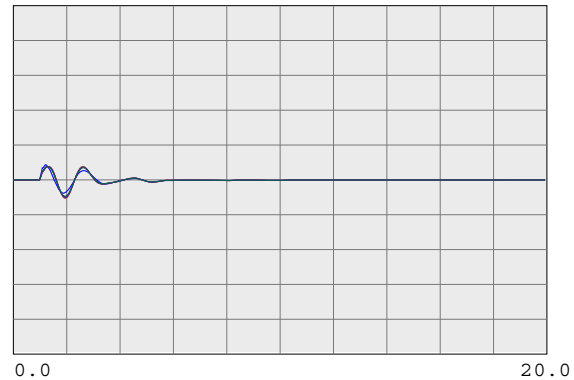
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



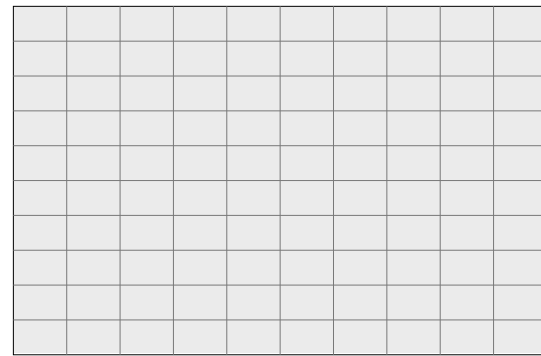
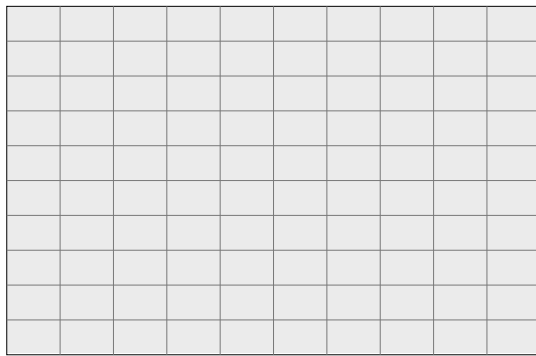
59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000

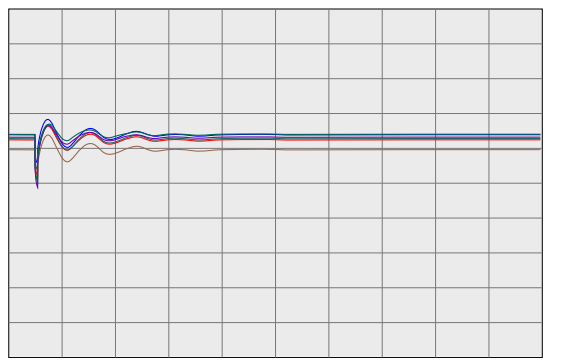


59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

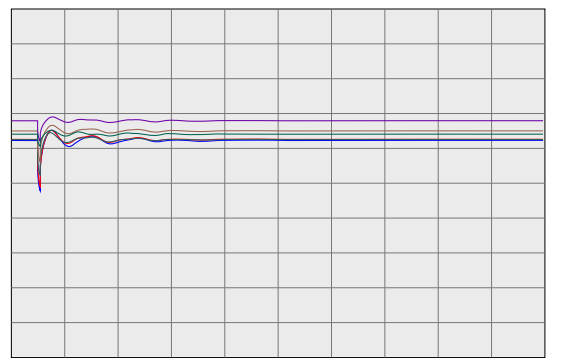
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



0.0 20.0

Time(sec)

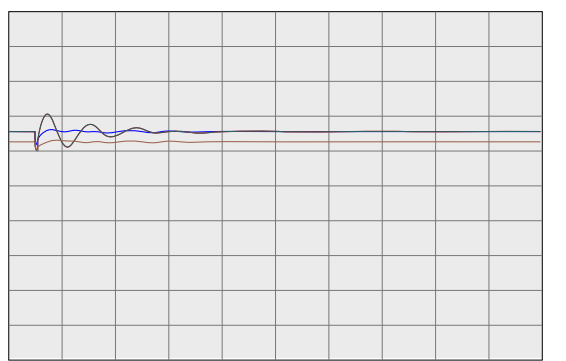
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

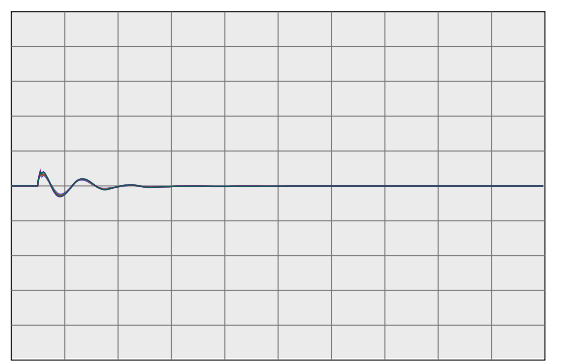
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

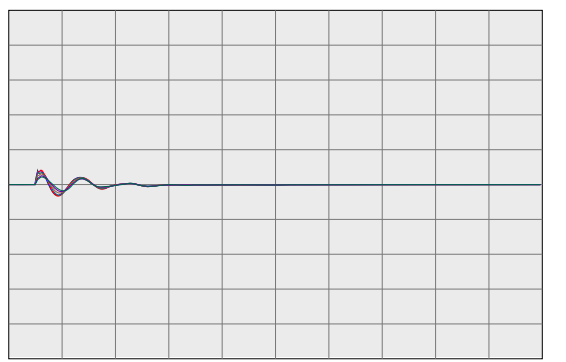
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



0.0 20.0

Time(sec)

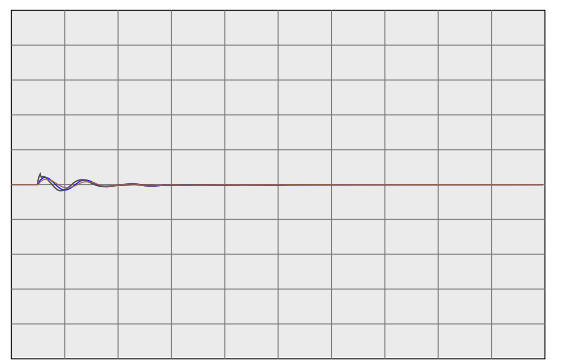
59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

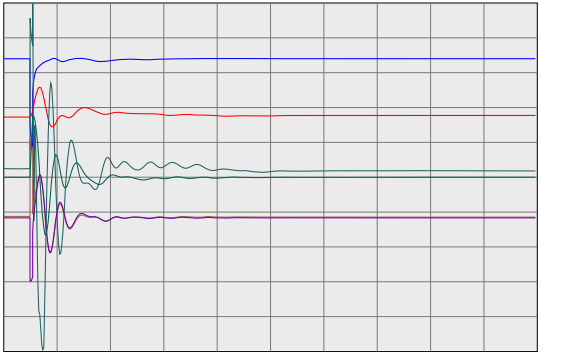
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

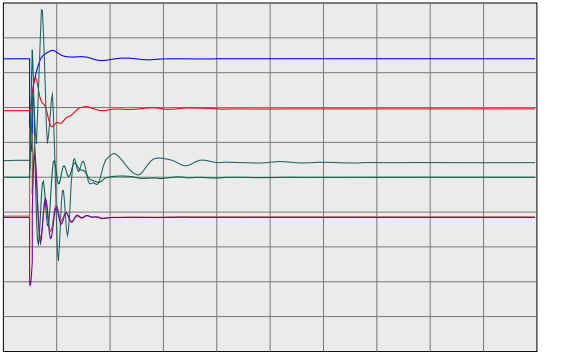
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

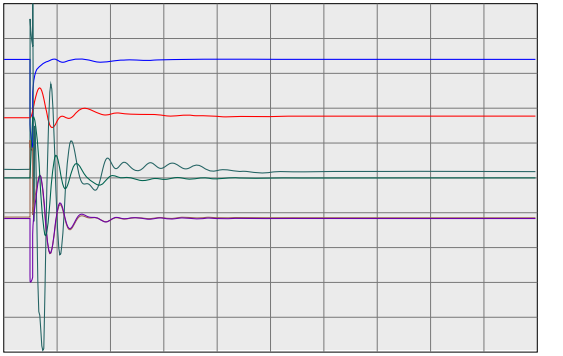
WILLOW PASS GENERATION PLANT



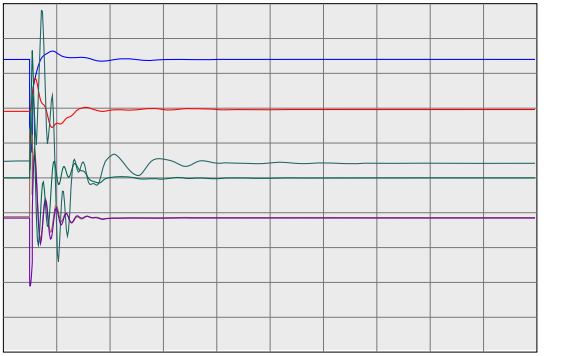
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



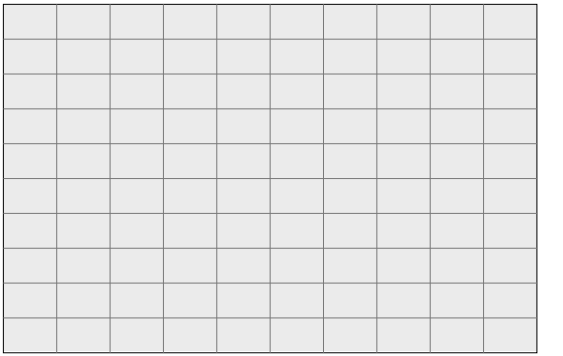
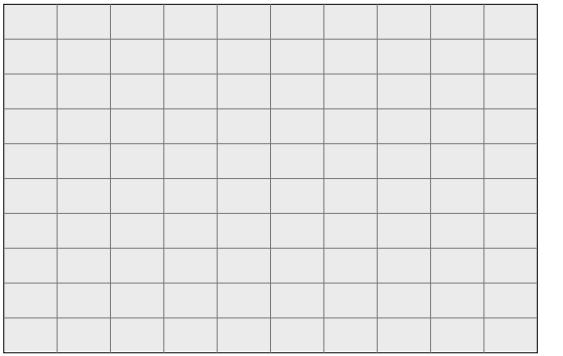
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

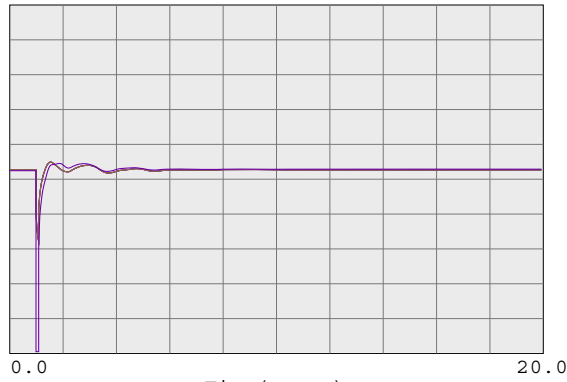


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



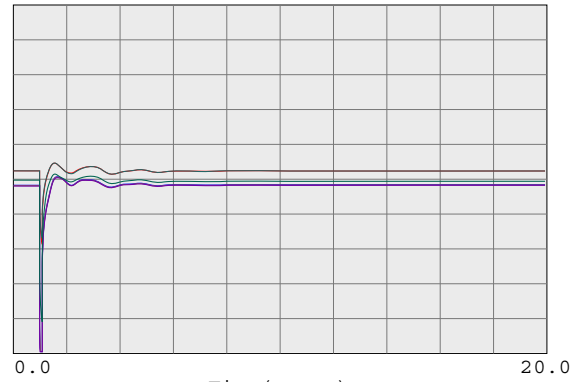
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



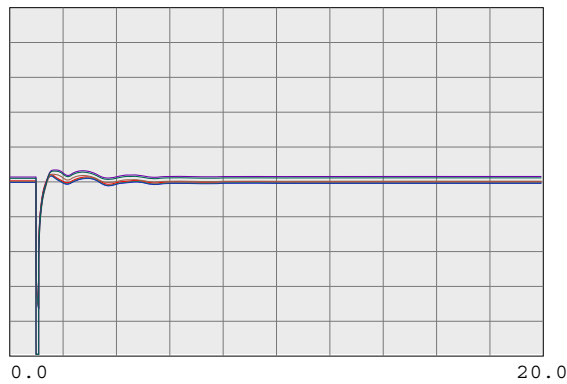
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



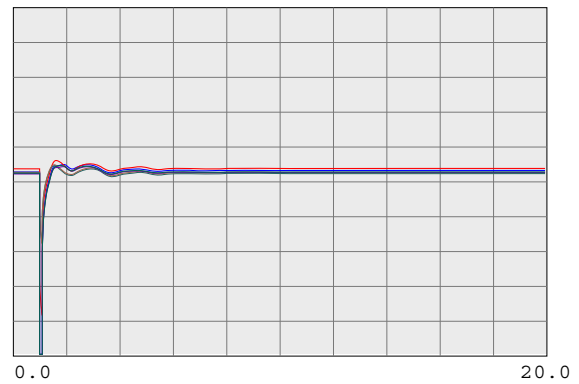
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



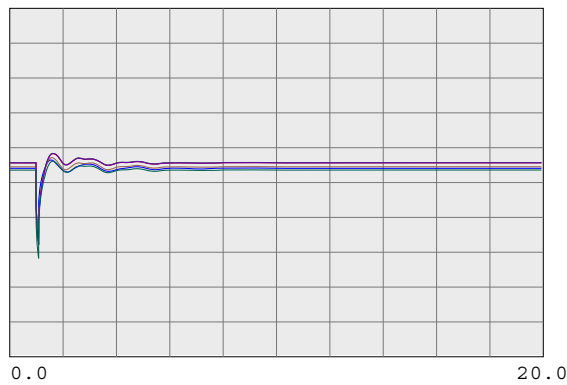
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



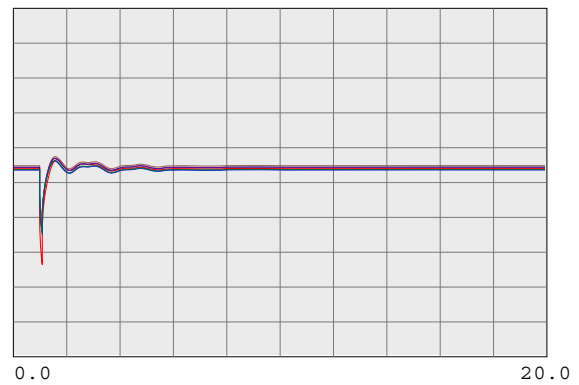
Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

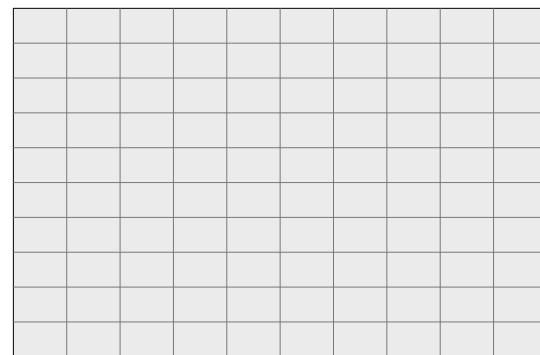
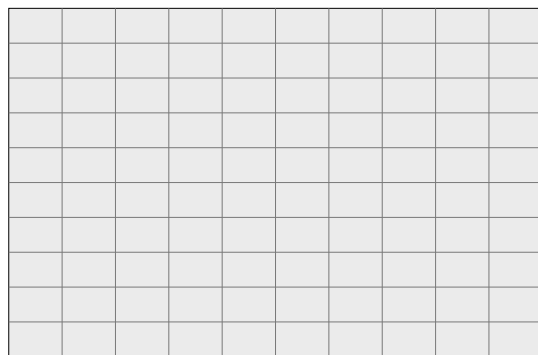
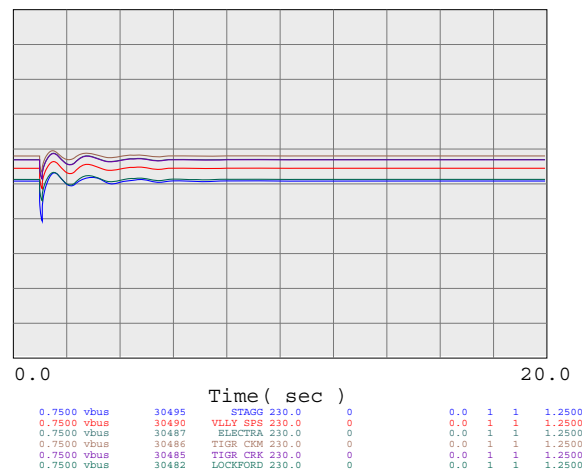
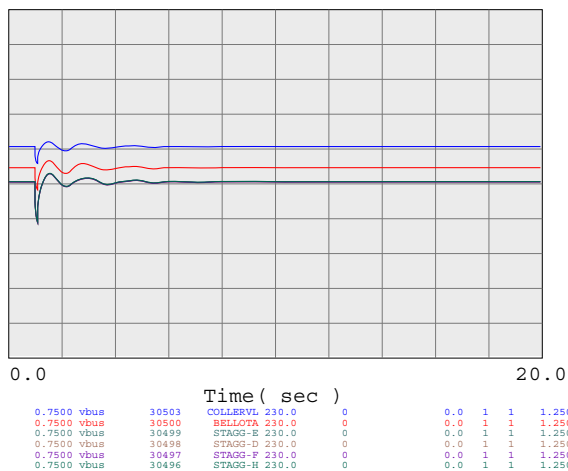
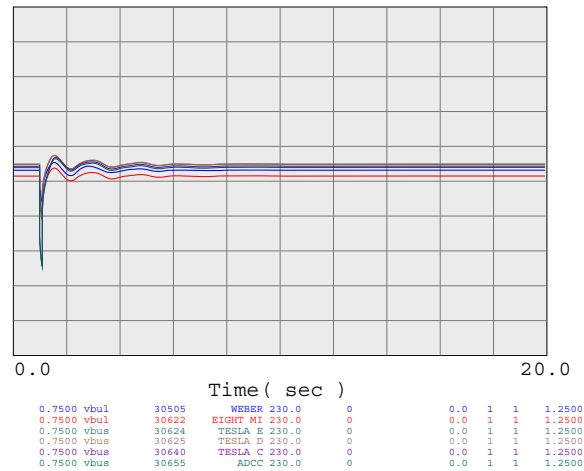
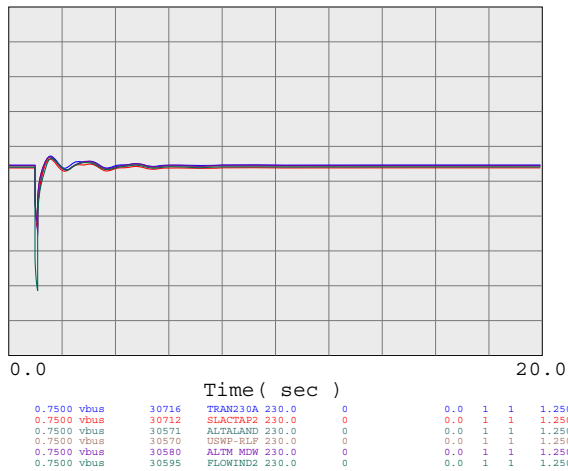
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

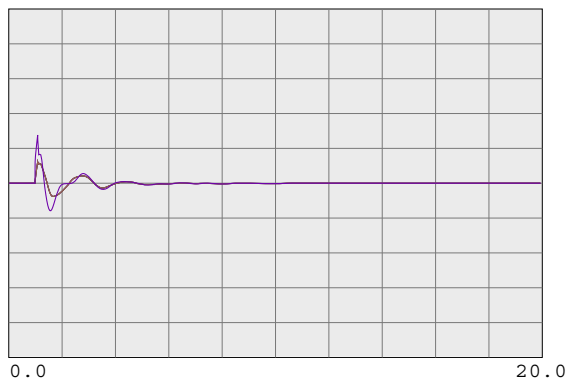
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

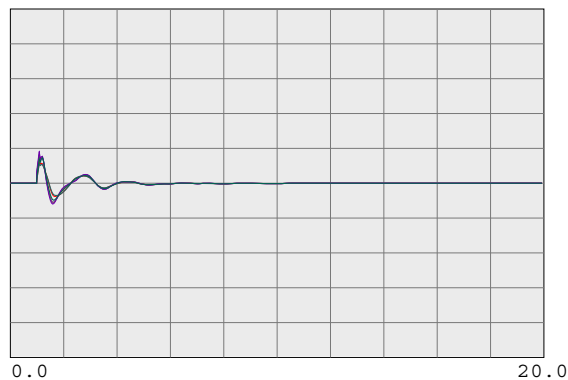
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

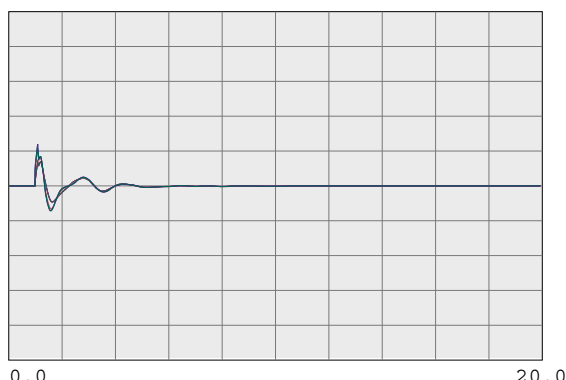
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

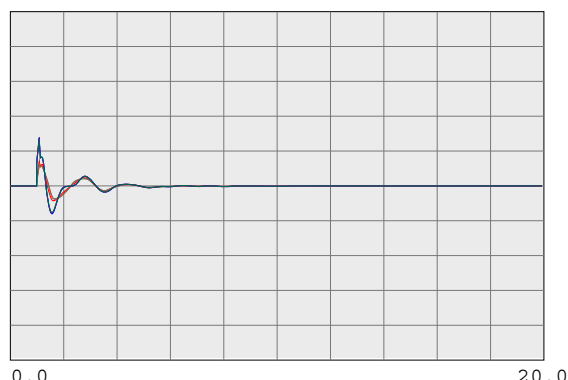
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

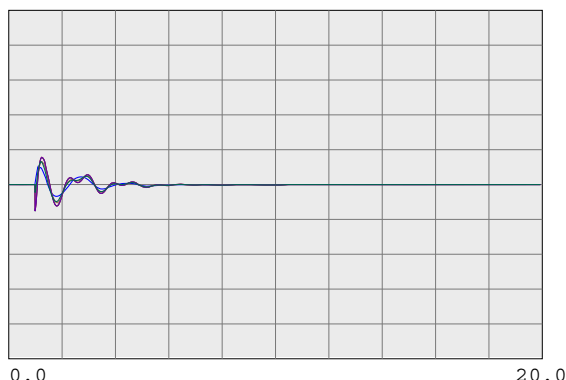
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

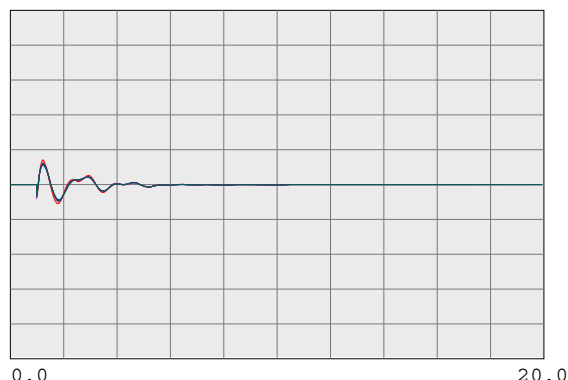
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

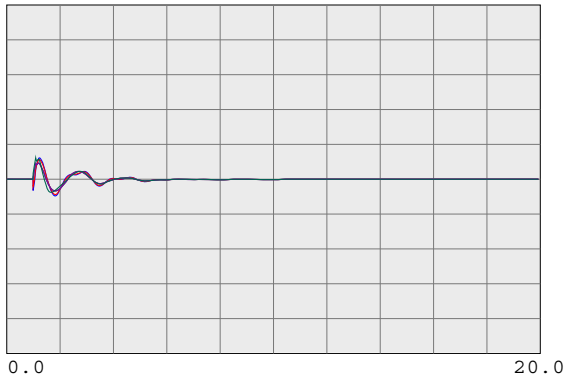
2013 SUMP: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

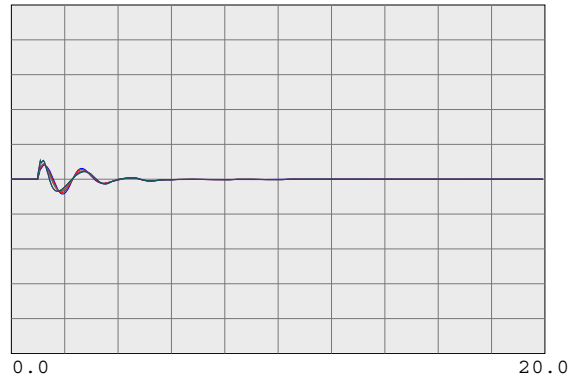
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM FREQUENCIES



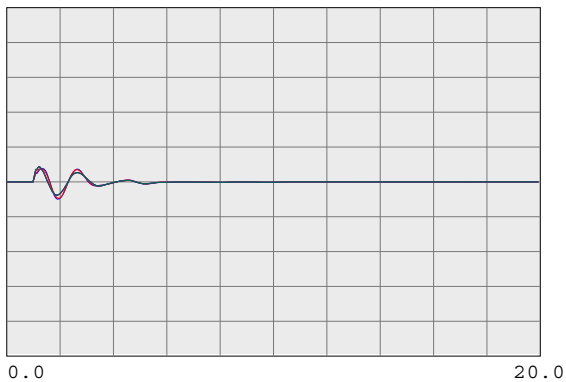
Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



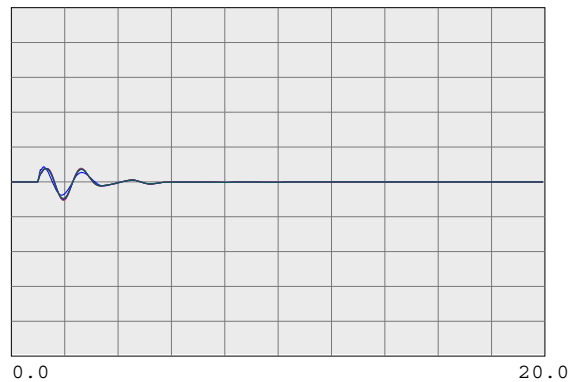
Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



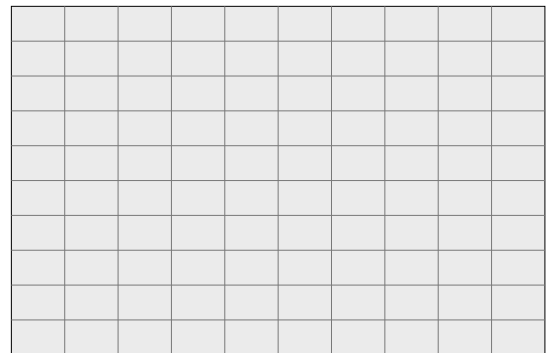
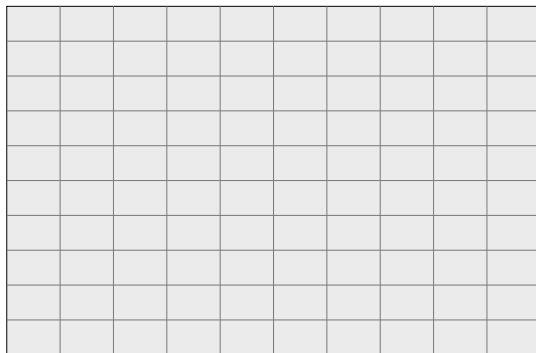
Time(sec)

59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



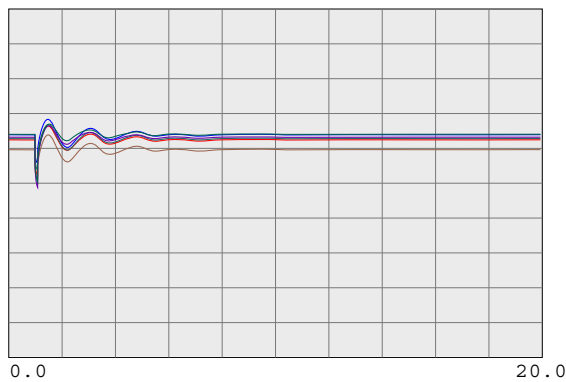
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY BPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



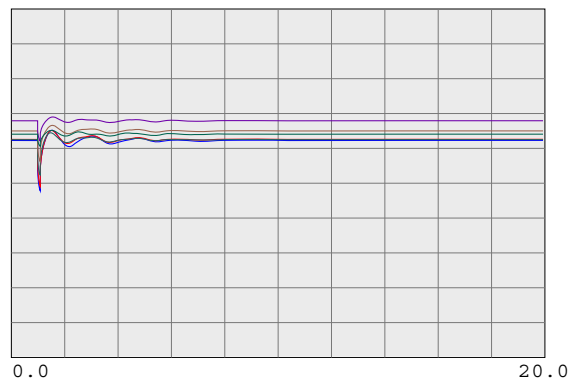
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



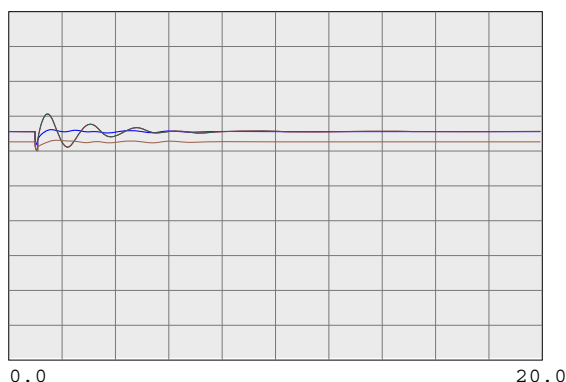
Time(sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	GLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



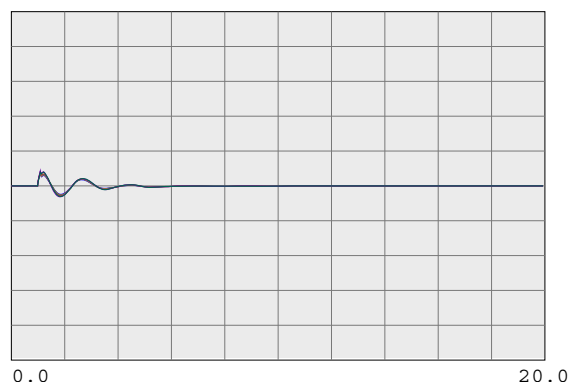
Time(sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



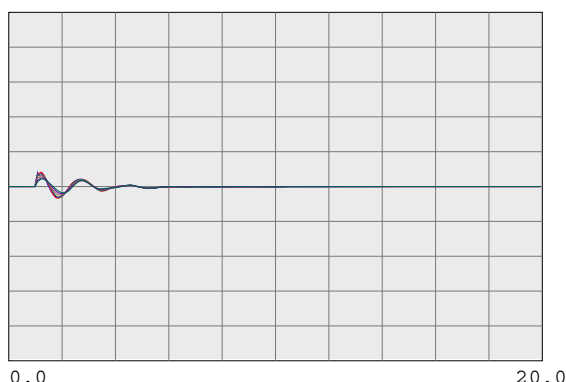
Time(sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



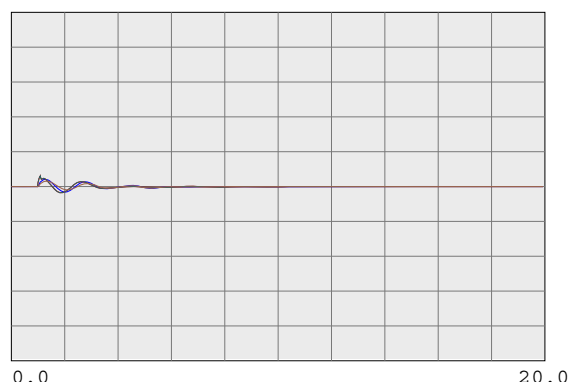
Time(sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	GLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time(sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

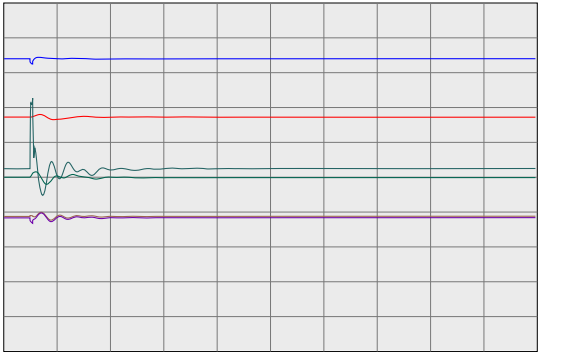
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

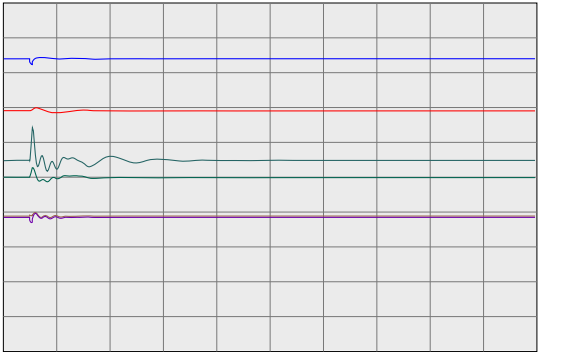
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

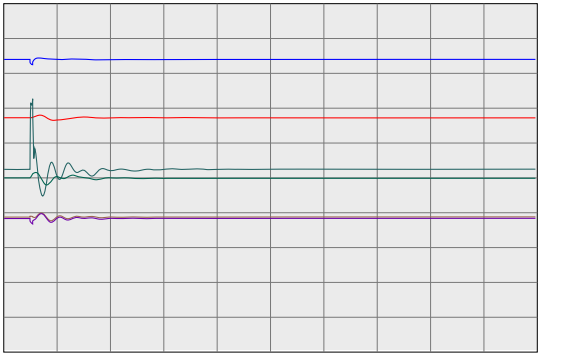
WILLOW PASS GENERATION PLANT



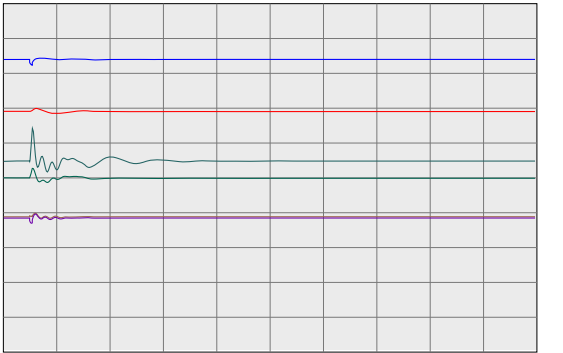
Time(sec)									
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000	
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000	
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000	
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000	
0.0000 pg	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000	
0.9900 spd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100	



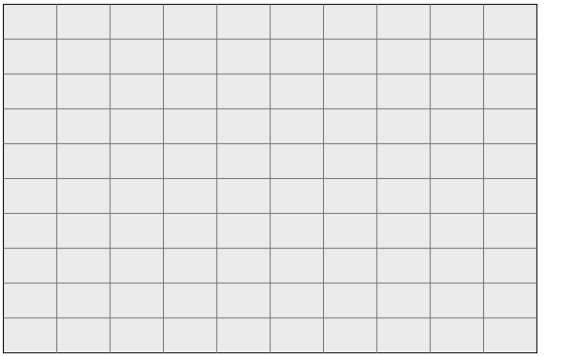
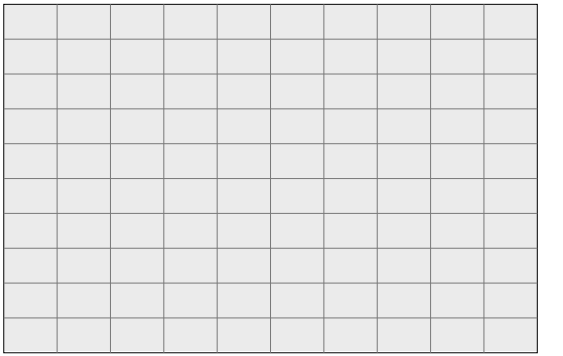
Time(sec)									
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000	
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000	
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000	
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000	
0.0000 pg	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000	
0.9900 spd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100	



Time(sec)									
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000	
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000	
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000	
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000	
0.0000 pg	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000	
0.9900 spd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100	

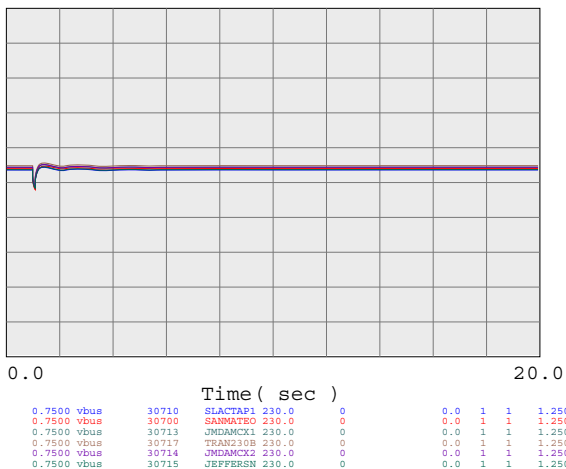
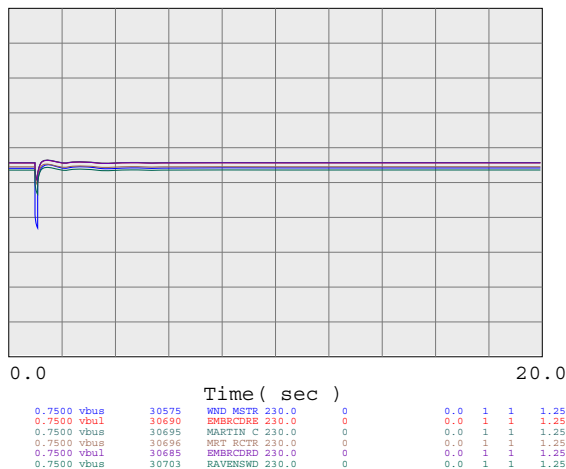
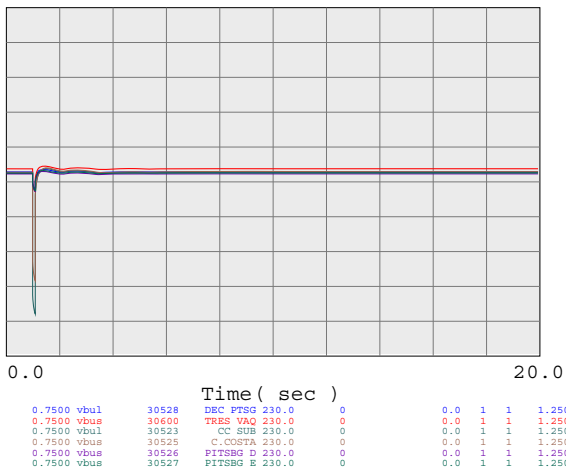
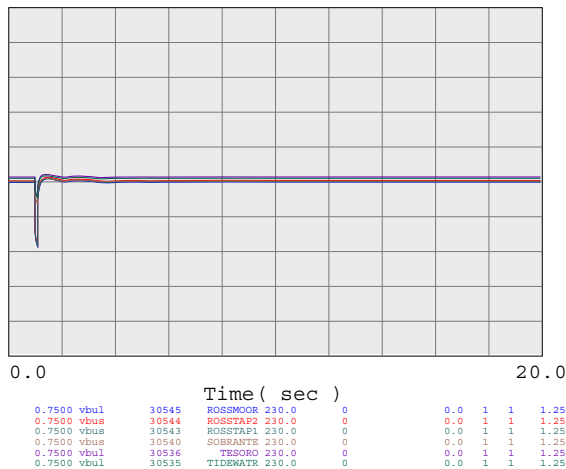
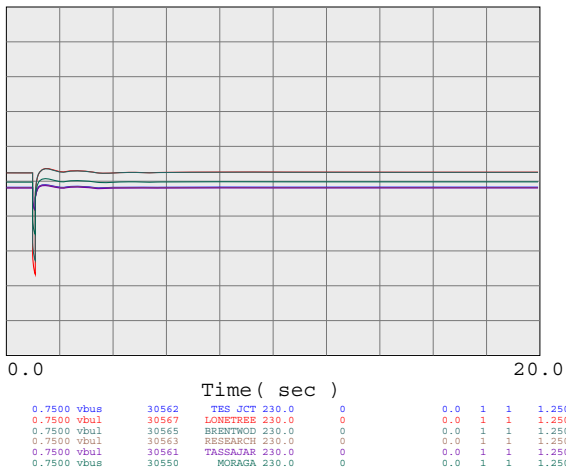
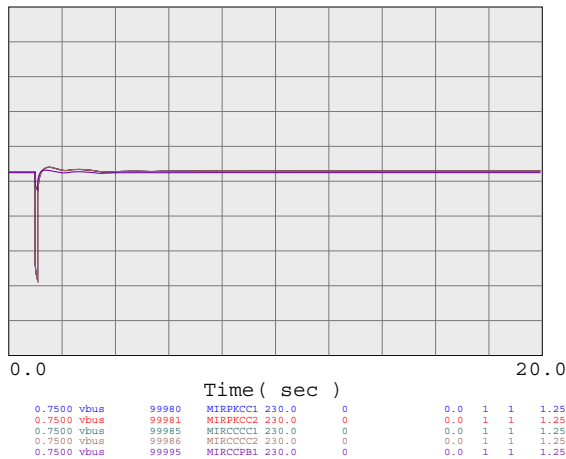


Time(sec)									
0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000	
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000	
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000	
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000	
0.0000 pg	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000	
0.9900 spd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100	



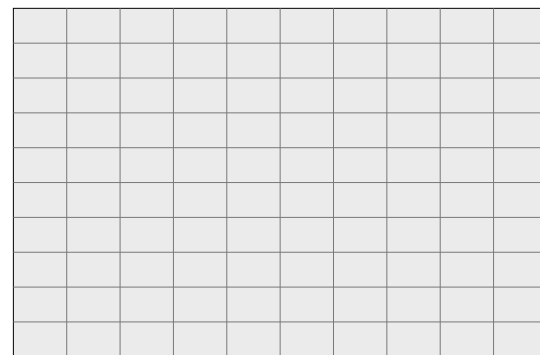
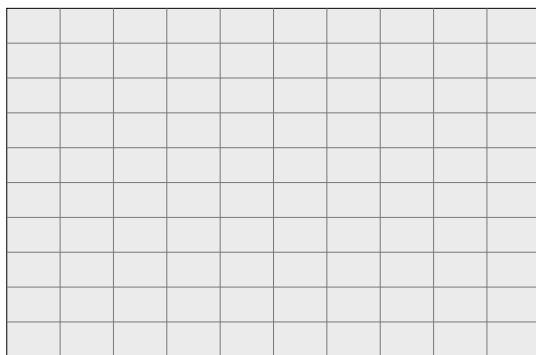
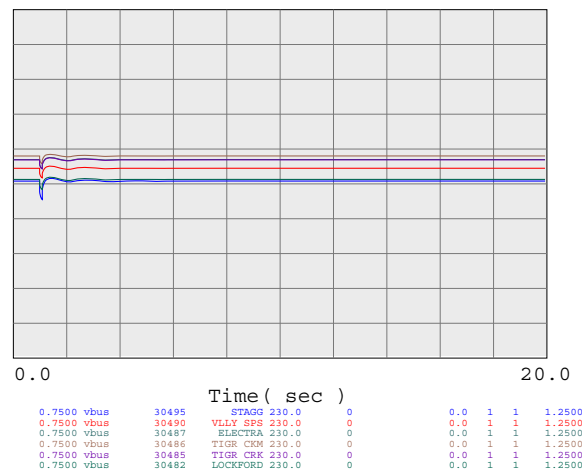
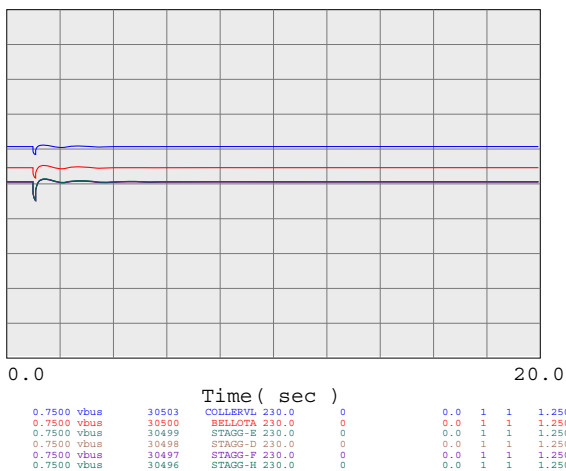
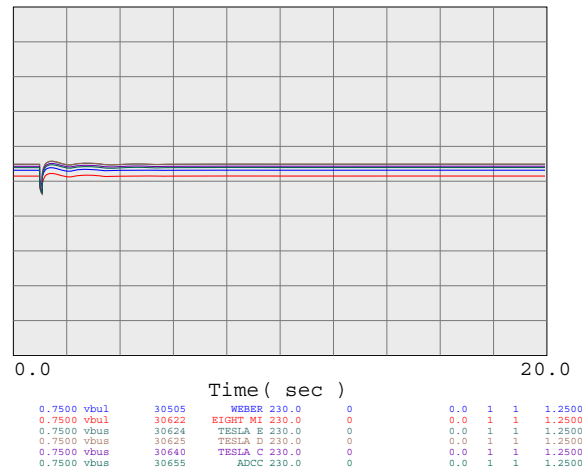
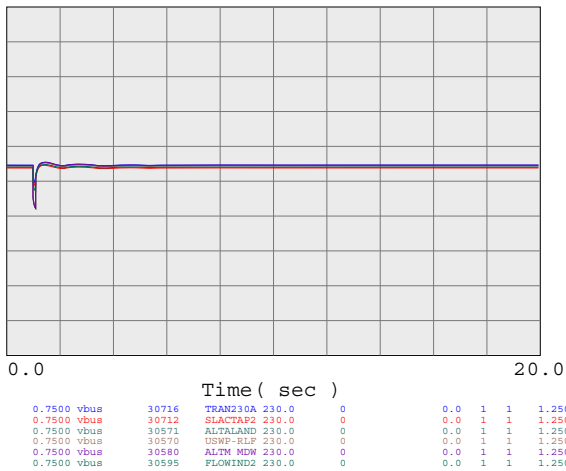
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



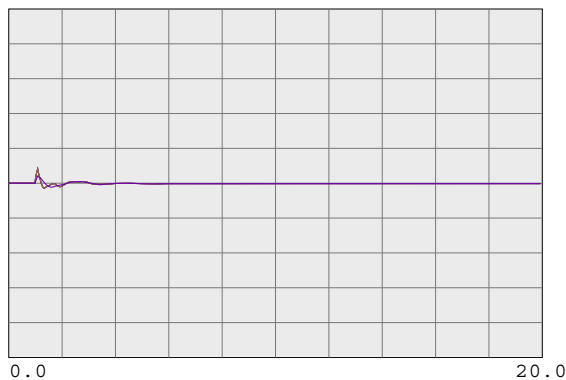
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

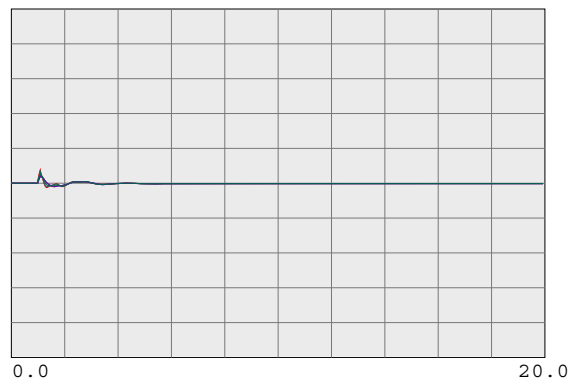
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time (sec)

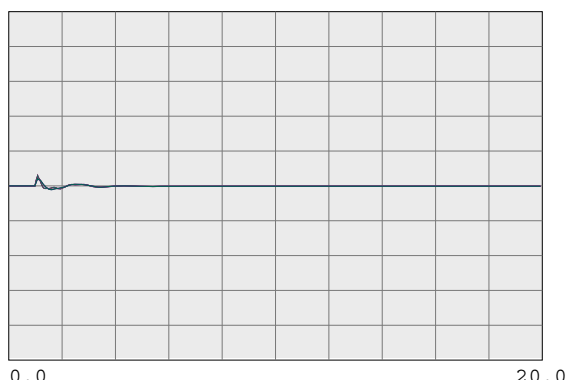
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCPB1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

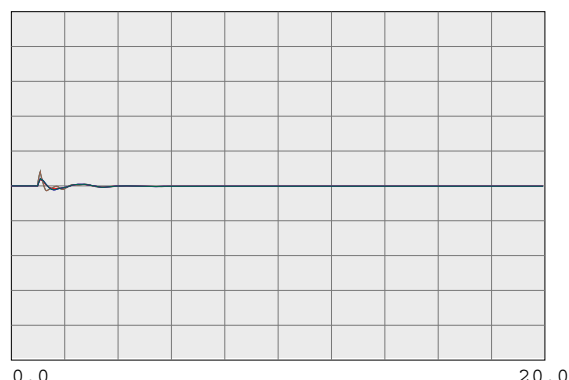
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

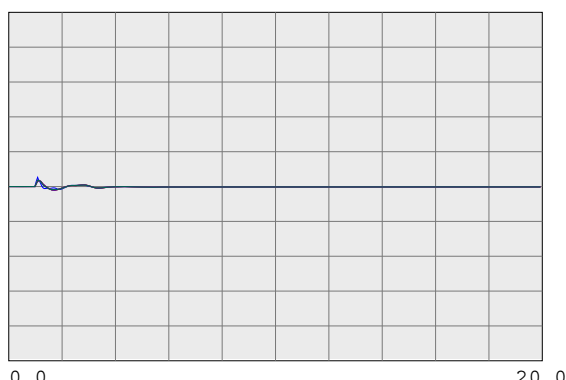
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

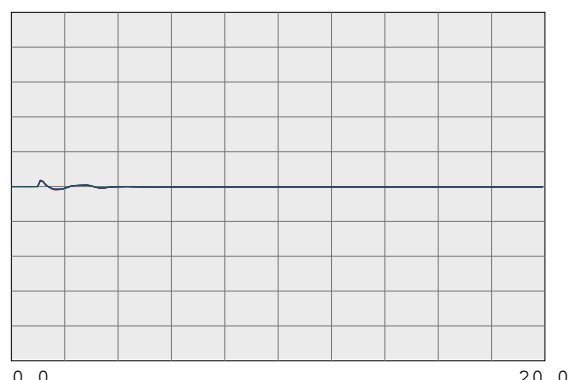
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time (sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

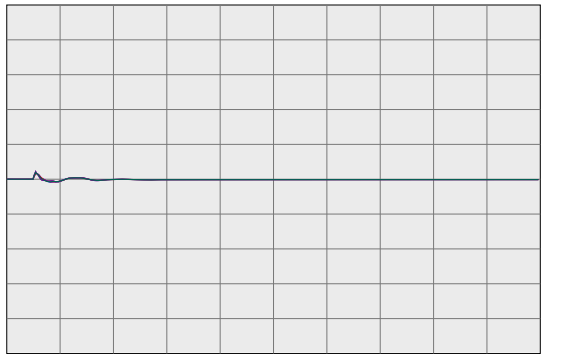
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

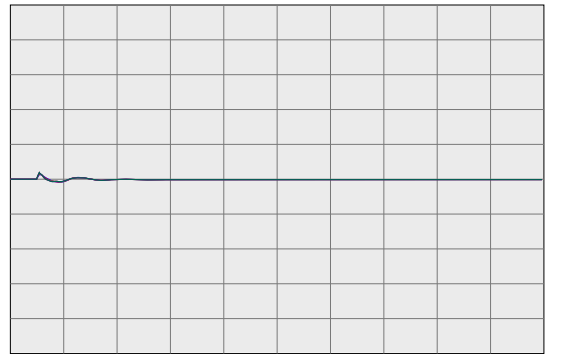
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

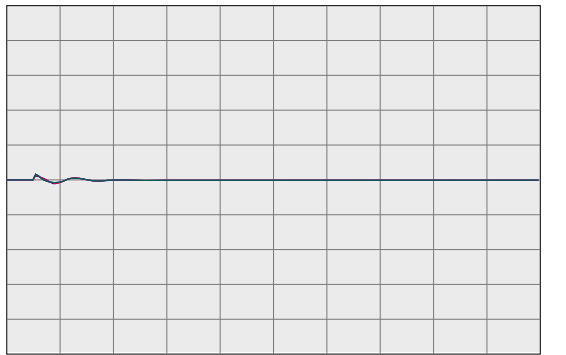
59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

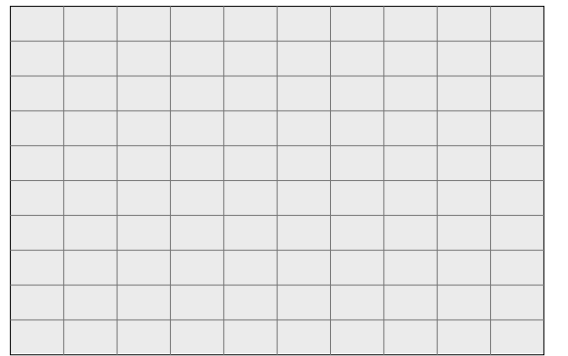
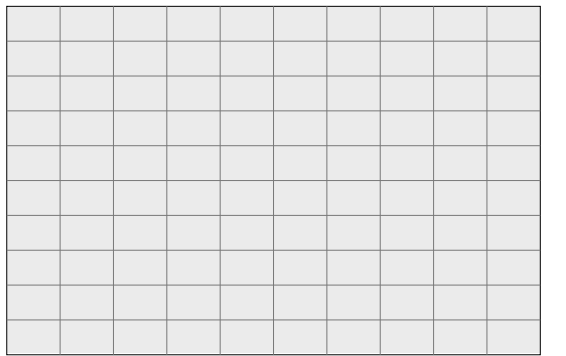
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

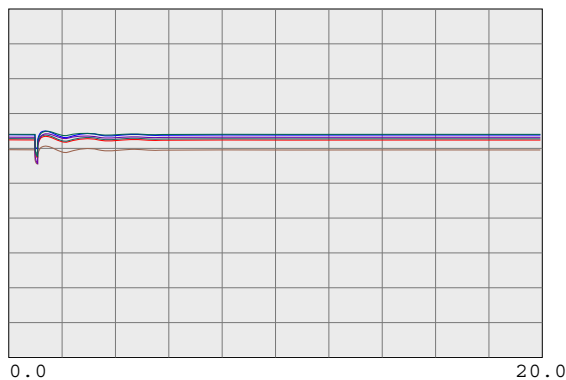
Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



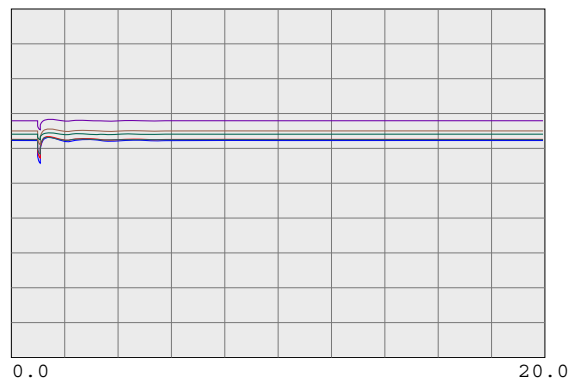
PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



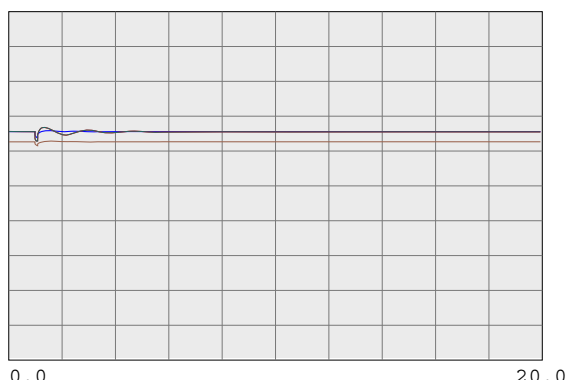
Time (sec)

0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



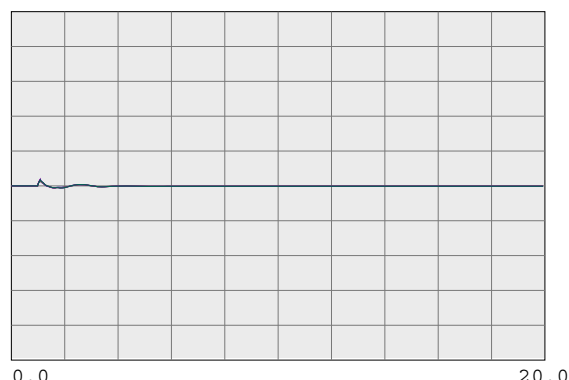
Time (sec)

0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



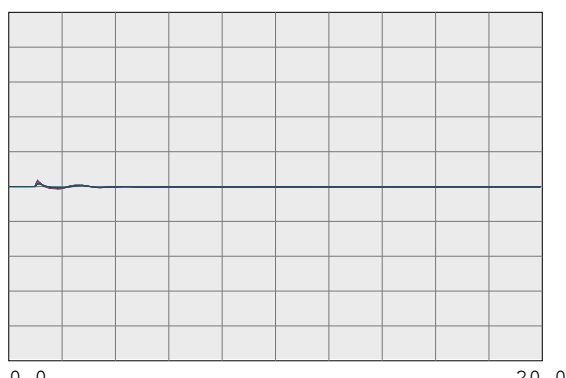
Time (sec)

0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



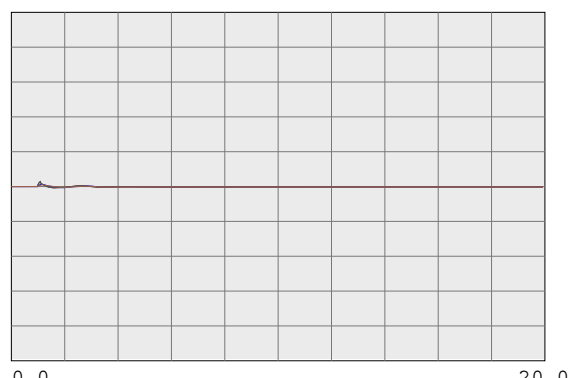
Time (sec)

59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



Time (sec)

59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

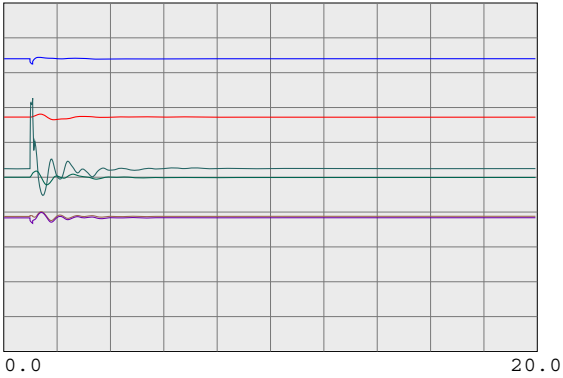
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

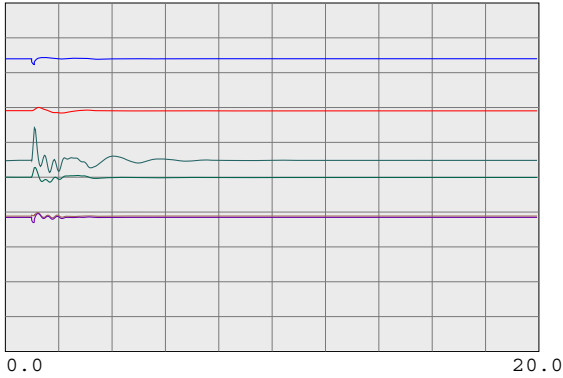
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

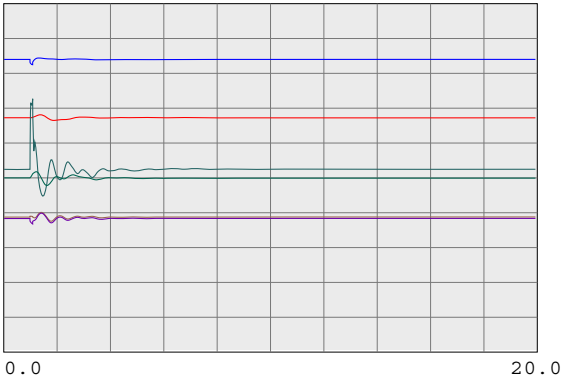
WILLOW PASS GENERATION PLANT



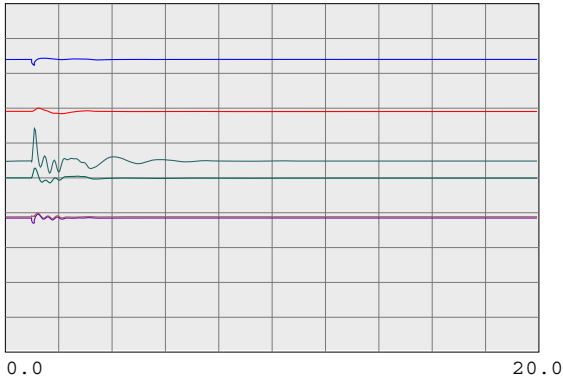
0.2000 vt	99991	MIR_CT1	16.5	0	0.0	1	1	1.2000
-100.0000 ang	99991	MIR_CT1	16.5	0	0.0	1	1	100.0000
0.0000 efd	99991	MIR_CT1	16.5	0	0.0	1	1	5.0000
0.0000 it	99991	MIR_CT1	16.5	0	0.0	1	1	2.0000
0.0000 pgd	99991	MIR_CT1	16.5	0	0.0	1	1	570.0000
0.9900 apd	99991	MIR_CT1	16.5	0	0.0	1	1	1.0100



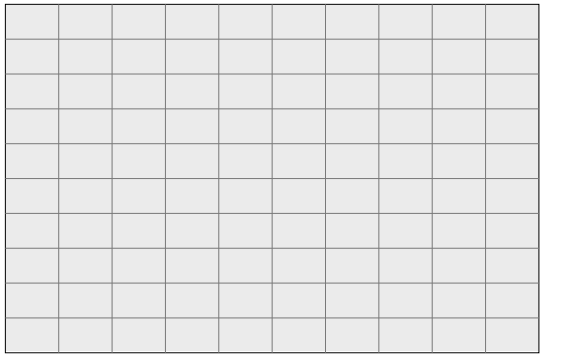
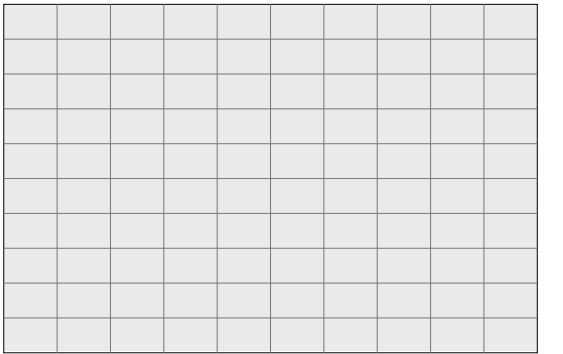
0.2000 vt	99992	MIR_ST1	13.8	0	0.0	2	1	1.2000
-100.0000 ang	99992	MIR_ST1	13.8	0	0.0	2	1	100.0000
0.0000 efd	99992	MIR_ST1	13.8	0	0.0	2	1	5.0000
0.0000 it	99992	MIR_ST1	13.8	0	0.0	2	1	2.0000
0.0000 pgd	99992	MIR_ST1	13.8	0	0.0	2	1	166.4000
0.9900 apd	99992	MIR_ST1	13.8	0	0.0	2	1	1.0100



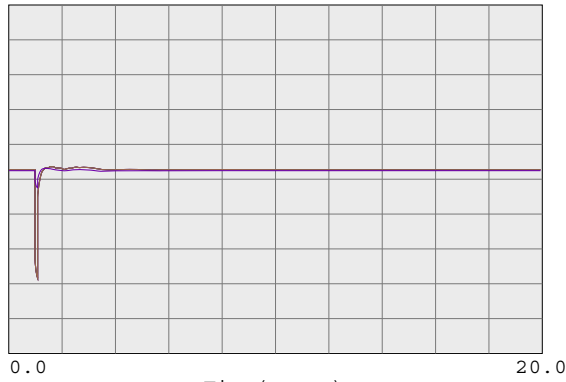
0.2000 vt	99993	MIR_CT2	16.5	0	0.0	3	1	1.2000
-100.0000 ang	99993	MIR_CT2	16.5	0	0.0	3	1	100.0000
0.0000 efd	99993	MIR_CT2	16.5	0	0.0	3	1	5.0000
0.0000 it	99993	MIR_CT2	16.5	0	0.0	3	1	2.0000
0.0000 pgd	99993	MIR_CT2	16.5	0	0.0	3	1	570.0000
0.9900 apd	99993	MIR_CT2	16.5	0	0.0	3	1	1.0100



0.2000 vt	99994	MIR_ST2	13.8	0	0.0	4	1	1.2000
-100.0000 ang	99994	MIR_ST2	13.8	0	0.0	4	1	100.0000
0.0000 efd	99994	MIR_ST2	13.8	0	0.0	4	1	5.0000
0.0000 it	99994	MIR_ST2	13.8	0	0.0	4	1	2.0000
0.0000 pgd	99994	MIR_ST2	13.8	0	0.0	4	1	166.4000
0.9900 apd	99994	MIR_ST2	13.8	0	0.0	4	1	1.0100

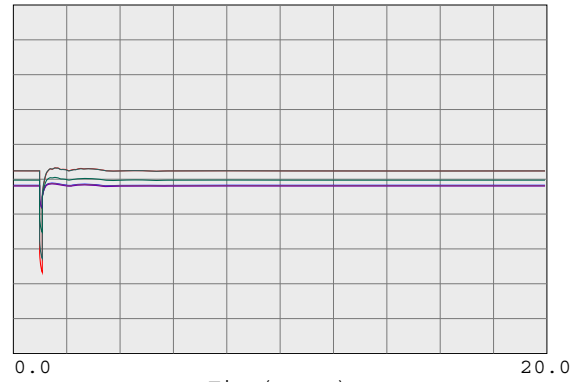


230-KV SYSTEM VOLTAGES



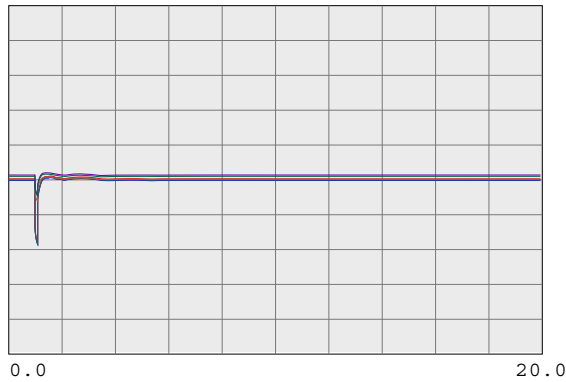
Time (sec)

0.7500 vbus	99980	MIRPKCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99981	MIRPKCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99985	MIRKCCC1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99986	MIRKCCC2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	99995	MIRKCCP1 230.0	0	0.0	1	1	1.2500



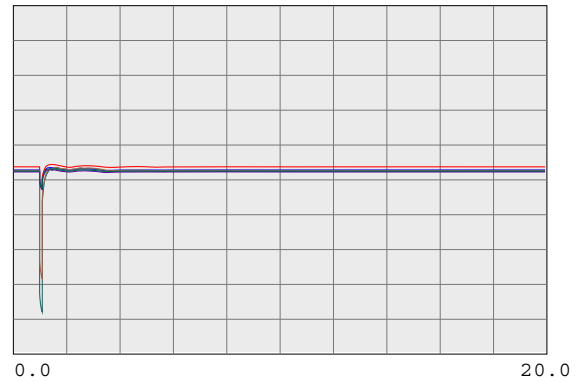
Time (sec)

0.7500 vbus	30562	TES JCT 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30567	LONETREE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30565	BRENTWOOD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30563	RESEARCH 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30561	TASSAJAR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30550	MORAGA 230.0	0	0.0	1	1	1.2500



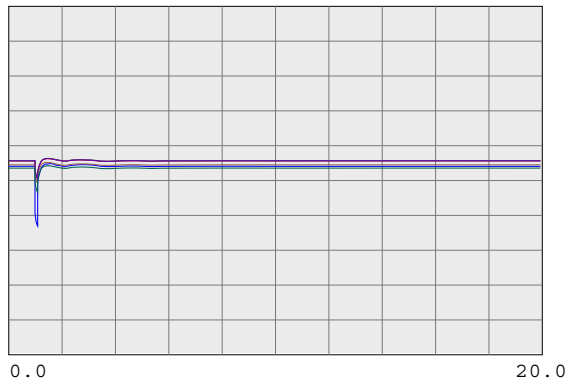
Time (sec)

0.7500 vbus	30545	ROSSMOOR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30544	ROSSFAP2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30543	ROSSFAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30540	SOBRANTE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30536	TESORO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30535	TIDENATR 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30528	DEC PTSG 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30600	TRES VAO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30523	CC SUB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30525	C. COSTA 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30526	PITSBG D 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30527	PITSBG E 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30575	WIND MSTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30690	EMBRCDRE 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30695	MARTIN C 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30696	MET ACTR 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30685	EMBRCDRD 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30703	RAVENSWD 230.0	0	0.0	1	1	1.2500



Time (sec)

0.7500 vbus	30710	SLACTAP1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30700	SANMATEO 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30713	JMDAMCX1 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30717	TRANSJOB 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30714	JMDAMCX2 230.0	0	0.0	1	1	1.2500
0.7500 vbus	30715	JEFFERSN 230.0	0	0.0	1	1	1.2500

PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

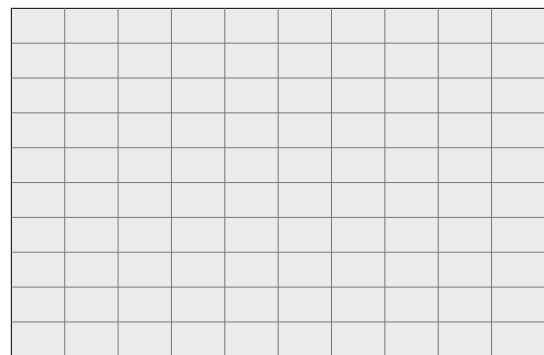
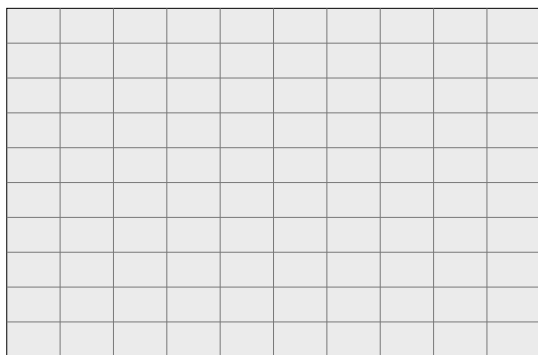
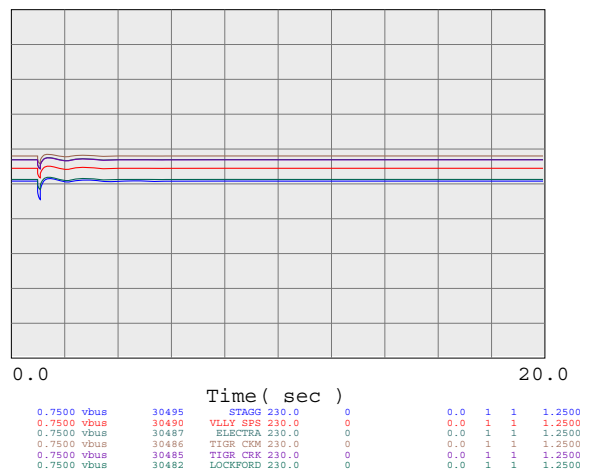
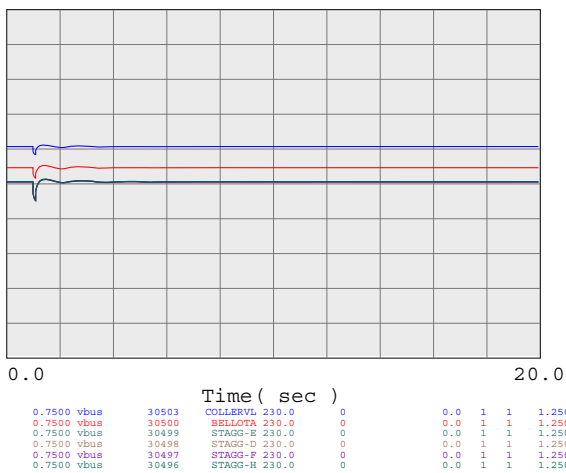
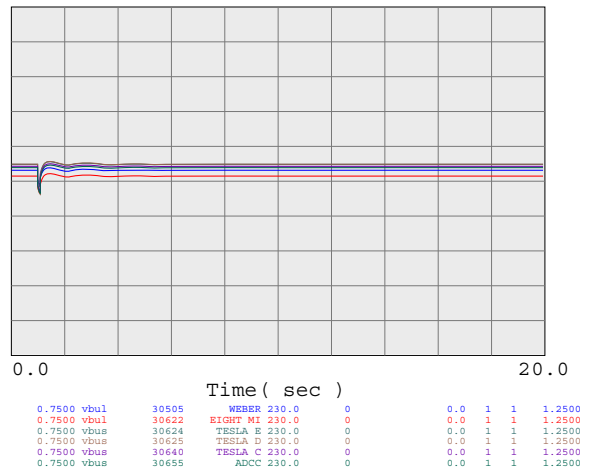
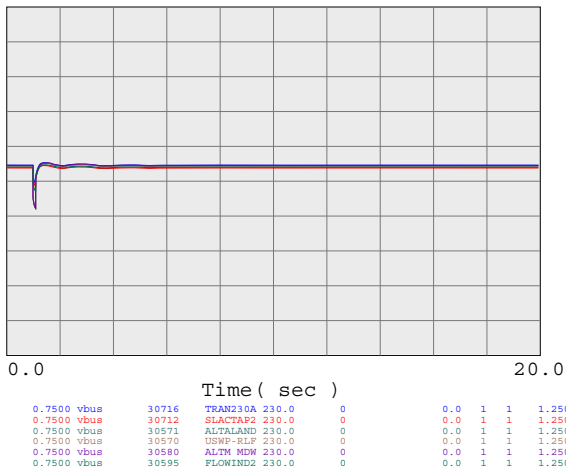
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

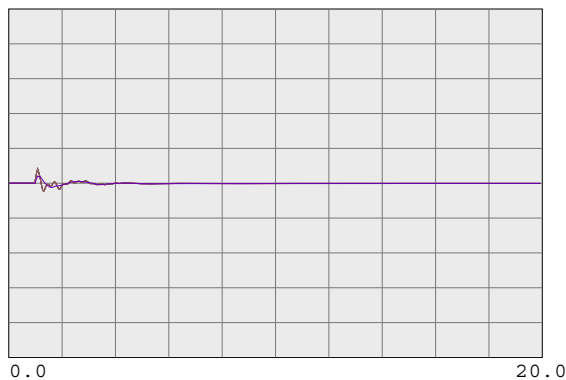
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

230-KV SYSTEM VOLTAGES



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)
COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)
6/13/08
Case developed based on WECC 2012 HS2A Case, dated 11/14/07

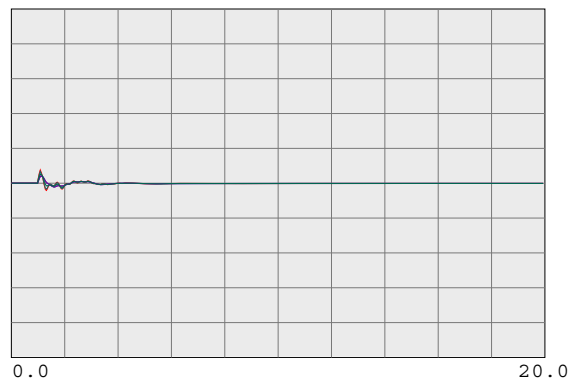
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

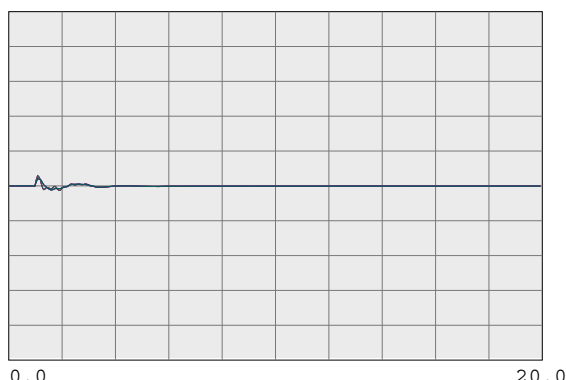
59.4000 fbus	99980	MIRPKCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99981	MIRPKCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99985	MIRKCCC1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99986	MIRKCCC2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	99995	MIRKCCP1 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

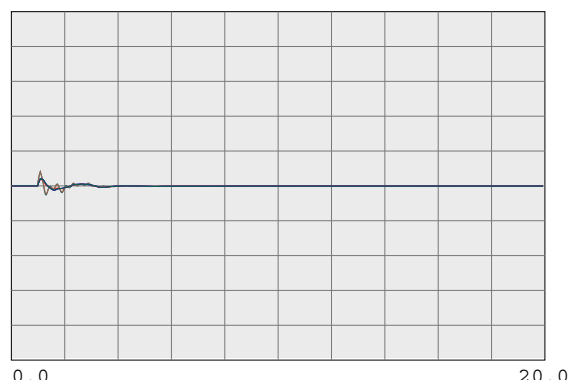
59.4000 fbus	30562	TES JCT 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30567	LONETREE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30565	BRENTWOOD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30563	RESEARCH 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30561	TASSAJAR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30550	MORAGA 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

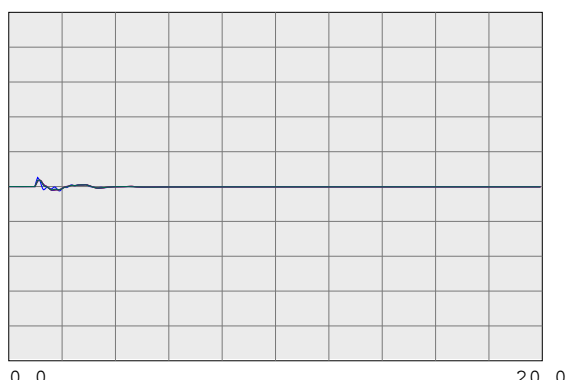
59.4000 fbus	30545	ROSSMOOR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30544	ROSSFAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30543	ROSSFAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30540	SOBRANTE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30536	TESORO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30535	TIDENATR 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

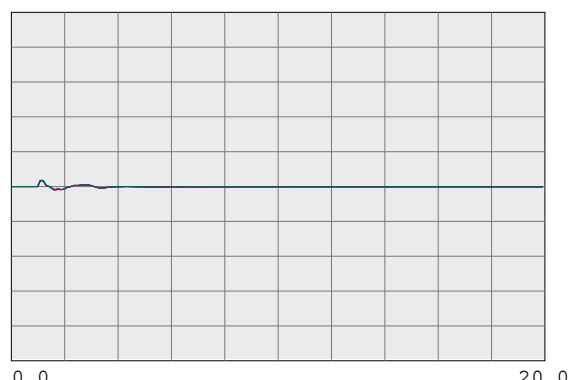
59.4000 fbus	30528	DEC PTSG 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30600	TRES VAO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30523	CC SUB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30525	C. COSTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30526	PITSBG D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30527	PITSBG E 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30575	WIND MSTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30690	EMBRCDRE 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30695	MARTIN C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30696	MET ACTR 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30685	EMBRCDRD 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30703	RAVENSWD 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30710	SLACTAP1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30700	SANMATEO 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30713	JMDAMCX1 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30717	TRANSJOB 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30714	JMDAMCX2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30715	JEFFERSN 230.0	0	0.0	1	1	60.6000

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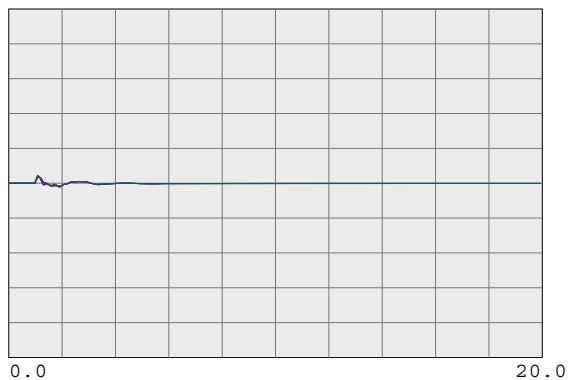
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

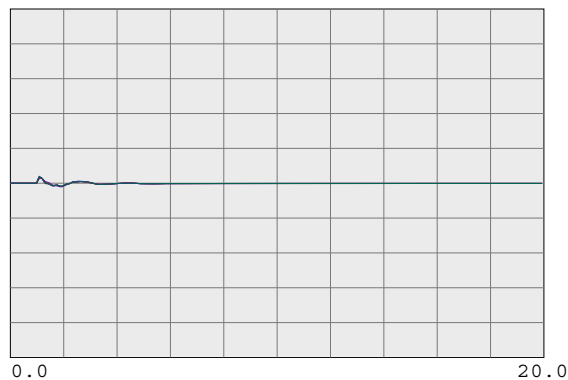
230-KV SYSTEM FREQUENCIES



0.0 20.0

Time(sec)

59.4000 fbus	30716	TRAN230A 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30712	SLACTAP2 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30571	ALTALAND 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30570	USWP-RLF 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30580	ALTM MDW 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30595	FLOWIND2 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30505	WEBER 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30622	RIGHT MI 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30624	TESLA E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30625	TESLA D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30640	TESLA C 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30655	ADCC 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

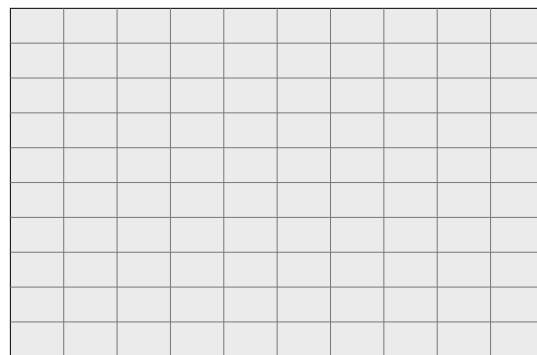
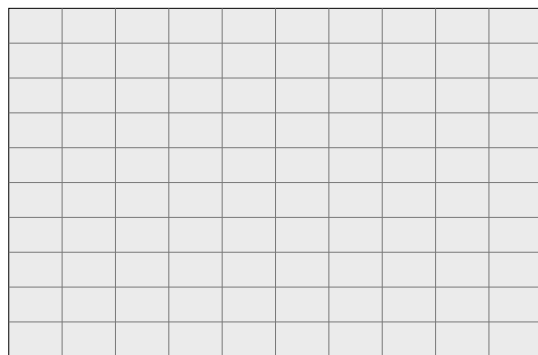
59.4000 fbus	30503	COLLIERV 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30500	BELLOTA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30499	STAGG-E 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30498	STAGG-D 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30497	STAGG-F 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30496	STAGG-H 230.0	0	0.0	1	1	60.6000



0.0 20.0

Time(sec)

59.4000 fbus	30495	STAGS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30490	VLLY SPS 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30487	ELECTRA 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30486	TIGR CKN 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30485	TIGR CRK 230.0	0	0.0	1	1	60.6000
59.4000 fbus	30482	LOCKFORD 230.0	0	0.0	1	1	60.6000



PG&E 2008 TRANSMISSION EXPANSION PLAN ASSESSMENT

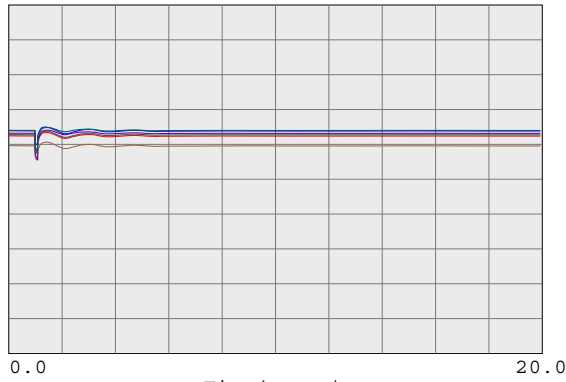
2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800(n2s); P26=4000(n2s); PDCI=3100(n2s)

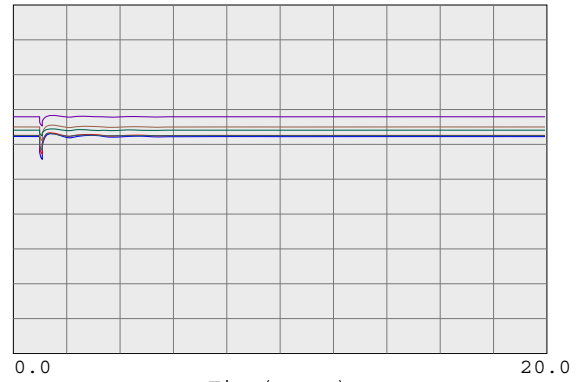
6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07

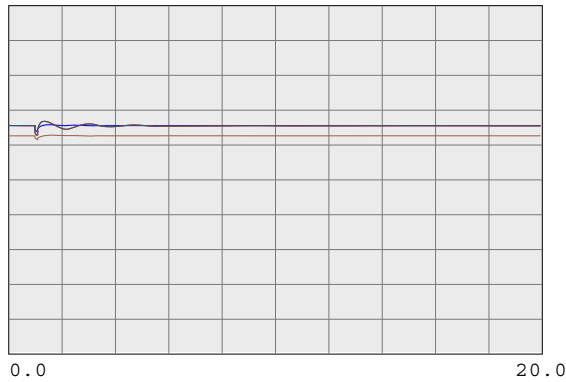
500-KV BULK SYSTEM VOLTAGES & FREQUENCIES



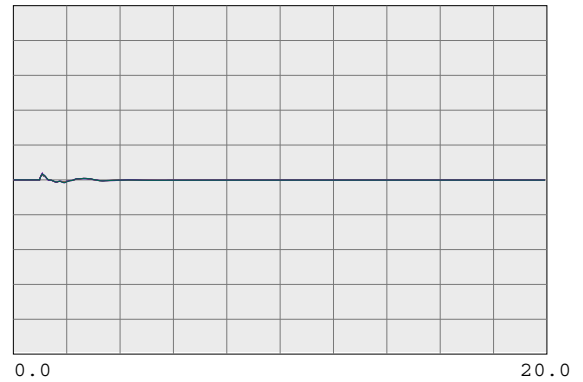
0.7500 vbus	30005	ROUND MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30015	TABLE MT 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30020	CLINDA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30025	MAXWELL 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30030	VACA-DIX 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30035	TRACY 500.0	0	0.0	1	1	1.2500



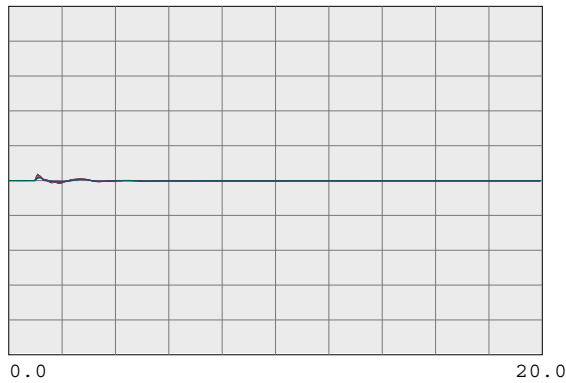
0.7500 vbus	30040	TESLA 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30042	METCALF 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30045	MOSSLAND 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30050	LOS BANOS 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30055	GATES 500.0	0	0.0	1	1	1.2500
0.7500 vbus	30057	DIABLO 500.0	0	0.0	1	1	1.2500



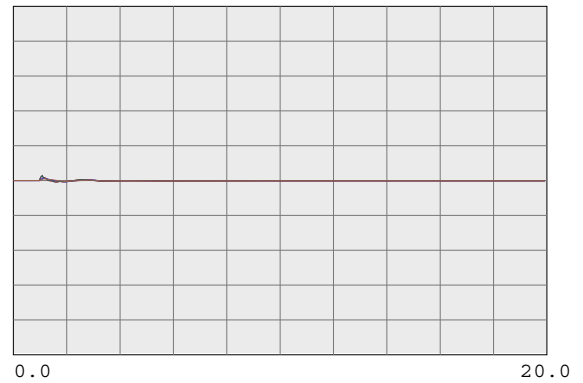
0.7500 vbus	30060	MIDWAY 500.0	0	0.0	1	1	1.2500
0.7500 vbus	45035	CAPTJACK 500.0	0	0.0	1	1	1.2500
0.7500 vbus	40687	MALIN 500.0	0	0.0	1	1	1.2500
0.7500 vbus	24156	VINCENT 500.0	0	0.0	1	1	1.2500



59.4000 fbus	30005	ROUND MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30015	TABLE MT 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30020	CLINDA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30025	MAXWELL 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30030	VACA-DIX 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30035	TRACY 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30040	TESLA 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30042	METCALF 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30045	MOSSLAND 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30050	LOS BANOS 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30055	GATES 500.0	0	0.0	1	1	60.6000
59.4000 fbus	30057	DIABLO 500.0	0	0.0	1	1	60.6000



59.4000 fbus	30060	MIDWAY 500.0	0	0.0	1	1	60.6000
59.4000 fbus	45035	CAPTJACK 500.0	0	0.0	1	1	60.6000
59.4000 fbus	40687	MALIN 500.0	0	0.0	1	1	60.6000
59.4000 fbus	24156	VINCENT 500.0	0	0.0	1	1	60.6000

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2013 SUMPK: SYSTEM CASE (1-IN-10 LOAD)

COI=4800 (n2s); P26=4000 (n2s); PDCI=3100 (n2s)

6/13/08

Case developed based on WECC 2012 HS2A Case, dated 11/14/07