DOCKETED

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California Gas System Overview
REVISED

AB 1257 Staff Workshop on California's Natural Gas Infrastructure, Storage, and Supply

November 18, 2014

Revised Version – December 16, 2014

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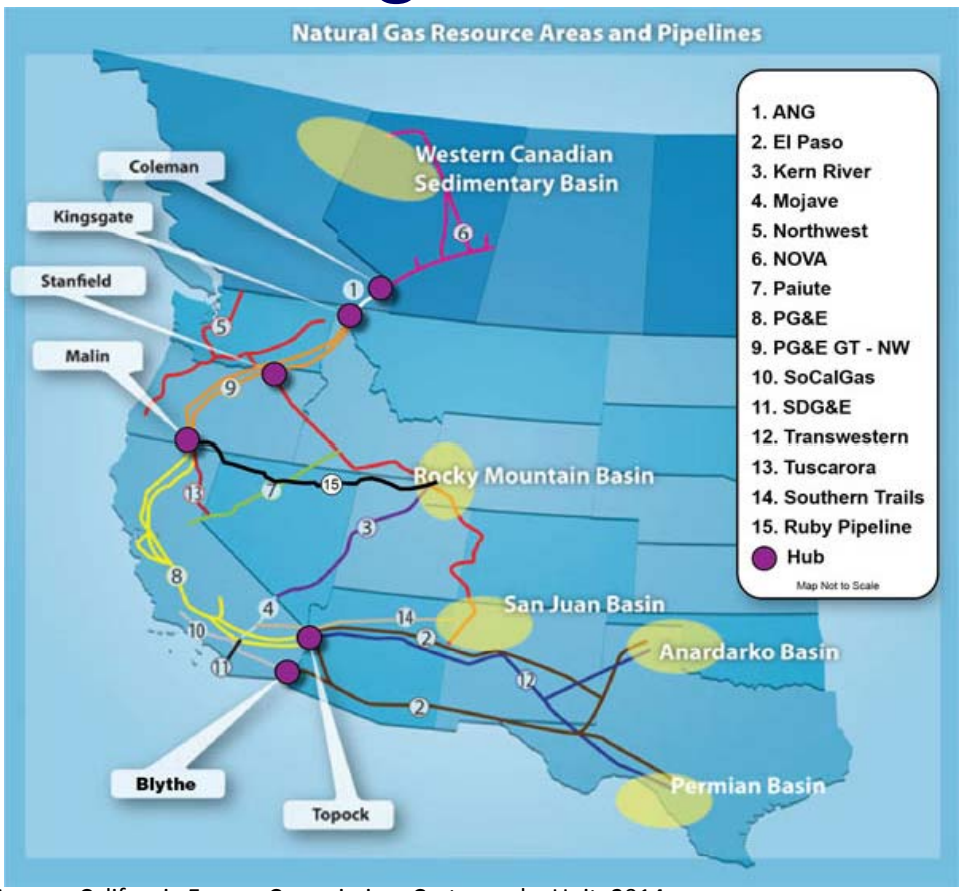
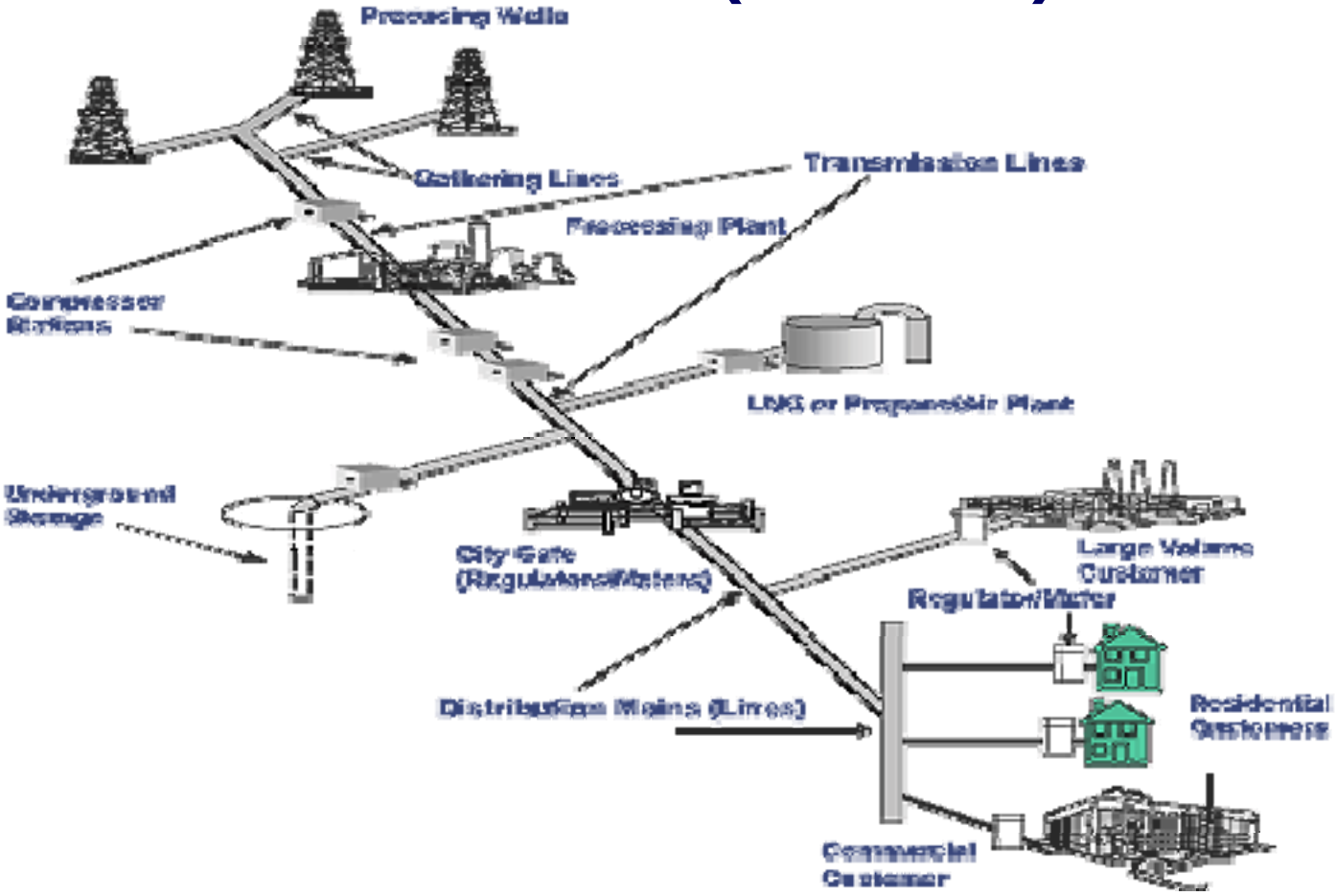
Major Production Basins and Pipelines Feeding California



Source: California Energy Commission, Cartography Unit, 2014.

Upstream (Production) to Downstream (End-Use)

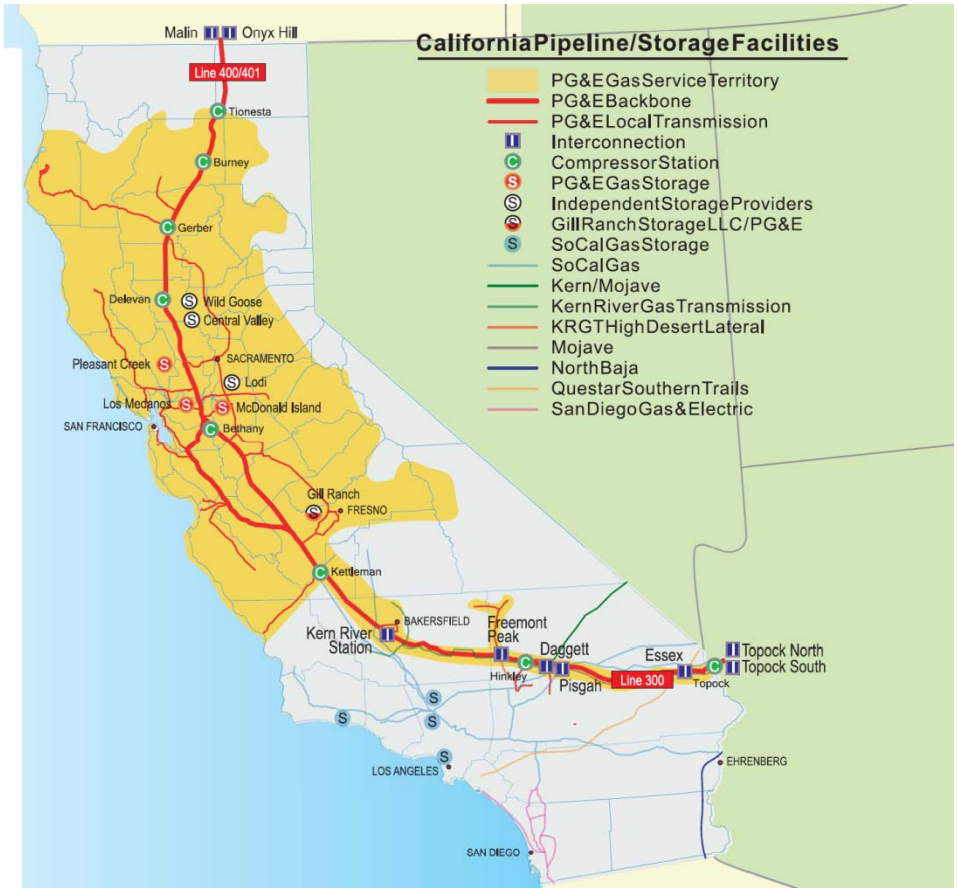


PG&E Gas Transmission System

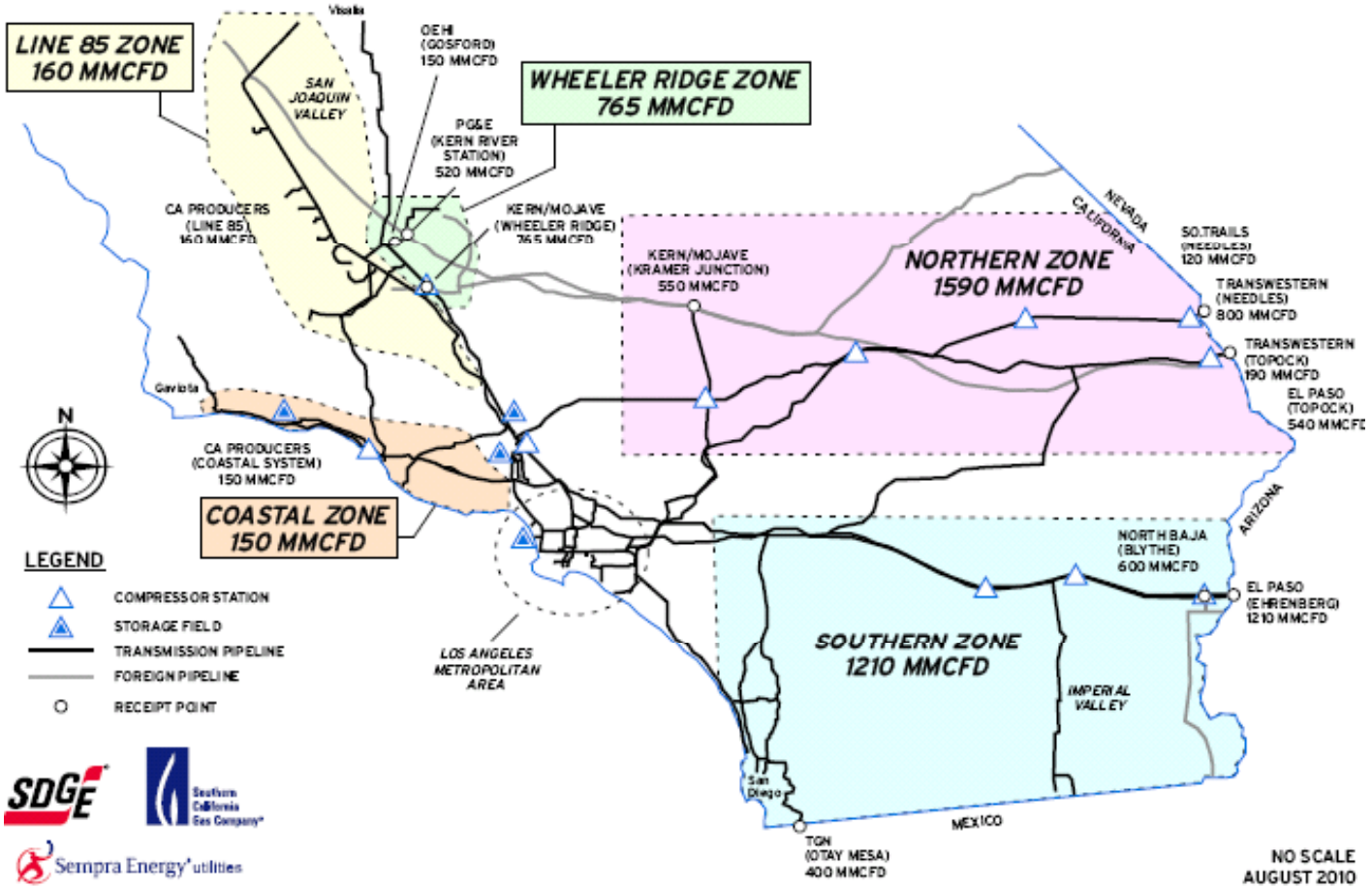
Backbone Transmission =
Line 400/401 + Line 300A/B
+ part of Bay Area Loop

Local Transmission = all other numbered high pressure lines

Between supply delivered via pipelines and gas withdrawn from storage, PG&E can deliver >5 Bcf/day



Sempra System



Utility Core vs. Noncore Customers

- Core – residential, small commercial & industrial (<250,000 therms/yr), and NGV customers
- Noncore – large commercial & industrial (>250,000 therms/yr), electric generation customers

California Uses ~6.4 Bcf/day

STATEWIDE TOTAL SUPPLY SOURCES-TAKEN
Average Temperature and Normal Hydro Year
MMcf/Day

Utility	2014	2015	2016	2017	2018
Northern California					
California Sources [1]	82	82	82	82	82
Out-of-State	2,468	2,409	2,389	2,446	2,473
Northern California Total	2,550	2,491	2,471	2,528	2,555
Southern California					
California Sources [2]	310	310	310	310	310
Out-of-State	2,492	2,404	2,401	2,387	2,380
Southern California Total	2,802	2,714	2,711	2,697	2,690
Utility Total	5,352	5,205	5,182	5,225	5,245
Non-Utility Served Load [3]	1,090	1,068	1,050	1,030	1,018
Statewide Supply Sources Total	**6,442**	**6,273**	**6,232**	**6,255**	**6,263**

Source: 2014 California Gas Report

Deliveries to California's Borders Exceed Take-Away Capacity

Interstate Pipeline	To Border (MMcf/d)		LDC	Take-Away (MMcf/d)*
EPNG - North	1,680		**PG&E**	
EPNG - South	1,250		Line 300 A/B	1,140
TransWestern	750		Line 400/401	2,120
Kern River GT	1,800			
GTN (PGT)	2,180		**SoCalGas**	
Ruby	1,500		North	1,340
			South	1,250
Southern Trails	120		Wheeler Ridge	750
Mojave	400			
Tuscarora				
Otay Mesa	400		**SDG&E**	400
North Baja	600			
Total	10,680			7,000
*Take-Away Capacity EXCLUDES CA Production				

Source: C. Elder, Aspen Environmental Group

Abundant Underground Storage in CA

Northern California	Maximum Working Capacity (Bcf)	Southern California	Maximum Working Capacity (Bcf)
PG&E Storage (+25% Gill Ranch)	105.3	SoCal Gas Storage	137.1
Independent			
Wild Goose	75		
Central Valley	11		
Lodi	29		
Gill Ranch (20 Bcf, 75% Ind.)	15		
Northern CA Total	**235.3**	**Southern CA Total**	**137.1**
Statewide Total Existing and Approved			**372.4**

Peak Day Demand and Supply

- PG&E Abnormal Peak Day (APD) demand of core customers
  - 1 in 90-year probability event
  - Equates to 27˚F average temperature = ~3.2 Bcf/d
  - Total **noncore** demand during APD = ~2.5 Bcf/d with EG as ½ to ⅔ of total noncore demand
- SoCalGas/SDG&E Extreme Peak Day
  - 1 in 35 year probability event
  - Equates to 40˚F for SoCalGas and 42.6˚F for SDG&E
  - SoCalGas/SDG&E approved to hold 2.225 Bcf/d of firm storage withdrawal to serve their combined core portfolio

SoCalGas Winter Balancing Rules

- Nov. 1 – Mar. 31 customers must deliver from combo of pipeline supply and storage:
- Pipeline delivery requirement
  - 50% of usage over 5-day period
    - Charge: 150% of highest S. California border price
  - 70% of daily usage – when storage inventory is “peak day minimum* + 20 Bcf”
    - Charge: 150% of highest S. California border price, interruptible storage withdrawals cut in half
  - 90% of daily usage - when storage inventory is “peak day minimum* + 5 Bcf”
    - Charge: 150% of highest S. California border price, Interruptible storage withdrawals not allowed

*That level of total inventory that must be in storage to provide deliverability for the core 1-in-35 year peak day event, firm withdrawal commitments and noncore balancing requirement.

PG&E Flow Orders

- PG&E uses High and Low OFO/EFO system
  - Requires shippers to balance scheduled supply with customer's usage within a specified tolerance band

	Tolerance Band as % of Usage	Noncompliance Charge $/Dth
Stage 1	up to +/- 25%	$0.25
Stage 2	up to +/- 20%	$1.00
Stage 3	up to +/- 15%	$5.00
Stage 4	up to +/- 5%	$25.00
Stage 5	up to +/- 5%	$25.00 + Daily Citygate Index
EFO	0%	$50.00 + Daily Citygate Index

  - 1 Dth = 1 MMBtu
  - SoCalGas has filed for a **Low** OFO/EFO system just like PG&Es (CPUC Proceeding # A.14-06-021)

Gas Scheduled in Four Cycles

- Gas Day runs from 7am to 7am (Pacific Time)
- Four nomination cycles consistent with North American Energy Standards Board (NAESB)
- First cycle: 9:30am for tomorrow's gas (confirm 2:30pm)
- Second cycle: 4pm for tomorrow's gas
- Third cycle: 8am for today's gas, effective at 3pm
- Fourth cycle: 3pm for today's gas, effective 7pm
- Gas moves at 30 mph and must be scheduled (and burned) in EVEN HOURLY quantities

Wrap – Up

- PG&E and Sempra will elaborate on the specifics of their systems.

Thank you to the utilities, the CPUC, CAISO, and our panelists for their help today and to the stakeholders for their participation in the AB 1257 report process.