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September 10, 2007

Ms. Raquel Rodriguez
California Energy Commission
Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **Walnut Creek Energy Park Supplemental Testimony**
Docket No. 05-AFC-2

Dear Ms. Rodriguez:

Enclosed for filing with the California Energy Commission are one original and 12 (Twelve) copies of the **Walnut Creek Energy Park Supplemental Testimony, for the Walnut Creek Energy Park Docket No. 05-AFC-2.**

Sincerely,

Marguerite Cosens
Administrative Assistant
GalatiBlek

Walnut Creek Energy Park

Additional Testimony of Larry Kostrzewa Regarding Project Capacity Factor and Expected Operating Profile

Capacity Factor

Page 10 of the Presiding Members Proposed Decision (PMPD) cites the AFC in saying that the WCEP's capacity factor would be 20 to 40 percent, then cites the FSA Visual Resources Section indicating that the capacity factor would be 65 percent, reaching 78 percent seasonally (see quotations, below).

"Thus, the WCEP will be economical to operate more than is typical for peaking generators. The project is expected to have an annual capacity factor of approximately 20 to 40 percent, depending on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors. (AFC, 2-19.)

The Energy Commission staff reasons that the applicant's estimate of power plant operations may be reasonable for only the short-term; however, Staff believes that this power plant's operation will increase significantly over time. The CEC Electricity Analysis Office estimated that over the long term a reasonable annual capacity factor for this facility would be 65 percent. Additionally, a review of 2005 SCE load data provided by the CEC Electricity Analysis Office shows an overall power demand split of 60/40 between the May to October versus November to April periods. Combining the annual capacity factor and the seasonal power demand splits results in an estimated seasonal capacity factor of 78 percent from May to October and 52 percent from November through April. (FSA, 4.12-28.)"

Neither the PMPD nor the Staff's analysis, however, cite a document or person as the source of the information that the capacity factor could be this high. Instead, the documents state that the source of the information was the CEC Electricity Analysis Office. Staff has indicated that they will file additional information from the Electricity Analysis Office to the effect that the previous estimate of 65 percent, as indicated in the FSA Visual Resources Section, is incorrect and that a realistic capacity factor would be 20 to 40 percent for new generation, simple-cycle, peaking power facilities.

I disagree that the WCEP will ever operate near the 65 percent capacity factor presented by the Electricity Analysis Office and relied upon by the PMPD. Further, as illustrated in attached Figures 1-7, I believe that the evidence of past peaking operating profiles shows the following:

1. According to the Energy Information Administration, capacity factors for simple-cycle peaking plants in CAISO's SP15 zone during January-September 2006 were all less than 20 percent (Figure 1)
2. Based on heat rate, LMS100-based facilities such as WCEP would be likely to be dispatched at a capacity factor intermediate between existing peakers (0 to 20 percent) and combined-cycle baseload plants (45 to 75 percent) in SP15 (Figures 2-3).

3. The 20% highest electric loads served by CAISO over the course of a year all occur between the 9th and 23rd hour of the day; the 40% highest all occur between the 9th hour of the day and midnight (Figure 4).

4. On CAISO's all-time peak day (July 24, 2006), most peaking capacity was dispatched between hour-ended 08 and hour-ended 23 (Figure 5).

5. Based on economic dispatch principles, peaking units such as WCEP's would generally not run during off-peak hours and would incur a considerable variable operating loss if they did (Figures 6-7).

Staff's analysis for the Pastoria project showed that, in 2004, 19 simple-cycle peaking plants in California with a gross generating capacity of 50 MW or more operated an average of 6.2 percent of the time (range 0.3 to 31.9 percent) (Table 1). This is equivalent to 543 hours per year. Only 4 of these 19 plants operated more than 10 percent of the time (none in SP15) and only 1 more than 20 percent of the time.

TABLE 1
2004 Capacity Factors of California Simple-Cycle Peaking Plants Greater than or Equal to 50 MW *

Facility Name	Generating Capacity (MW)	Hours of Operation	Capacity Factor (pct)
Harbor (City of Los Angeles)	282	1,266	14.5
Oakland Power Plant	224	95	1.1
Los Esteros Critical Energy Fac.	180	1,498	17.1
Tracy Peaker	169	67	0.8
Potrero Power	156	306	3.5
Indigo Energy Facility	150	505	5.8
Gilroy Peaker	135	521	5.9
Larkspur Energy Facility	100	373	4.3
Henrietta Peaker	98	112	1.3
Hanford Energy Park Peaker	92	105	1.2
Pittsburg Power Plant	74	2,794	31.9
Lake (City of Burbank)	70	636	7.3
Agua Mansa Power Plant	61	401	4.6
Roseville (NCPA)	50	22	0.3
Panoche Peaker	50	41	0.5
Almond Power Plant (TID)	50	1,110	12.7
Vaca-Dixon No. 1	50	93	1.1
Panoche No. 2	50	90	1.0
Border	50	194	2.2
Average	110	538	6.2

* Cogeneration plants are excluded because their capacity factors may be more dependent on steam host demand than on electrical demand.

Source: California Energy Commission. 2006. Errata to the Presiding Member's Proposed Decision, Application for Certification for the Pastoria Energy Facility 160 MW Expansion (05-AFC-1). November 16, 2006.

In addition, the WCEP would be restricted by South Coast recent amendment to Rule 1309.1 which limits the WCEP 4,000 hours of operation per turbine, per year, which amounts to a 45.6 percent capacity factor. Applying the seasonal allocation postulated in the PMPD of 60 percent summer, 40 percent winter would result in summer daily operating regime of 12.9 hours per day (2400 hours/185 days), or 9 am to 10 pm, which is outside the quietest nighttime hours.

In summary, the capacity factor of 65 percent cited in the FSA and PMPD is incorrect and unlikely to occur. A more realistic scenario would be a maximum of 20 to 40 percent. The PMPD's noise analysis is therefore based on an incorrect assumption about capacity factor.

Effect on Noise Conditions

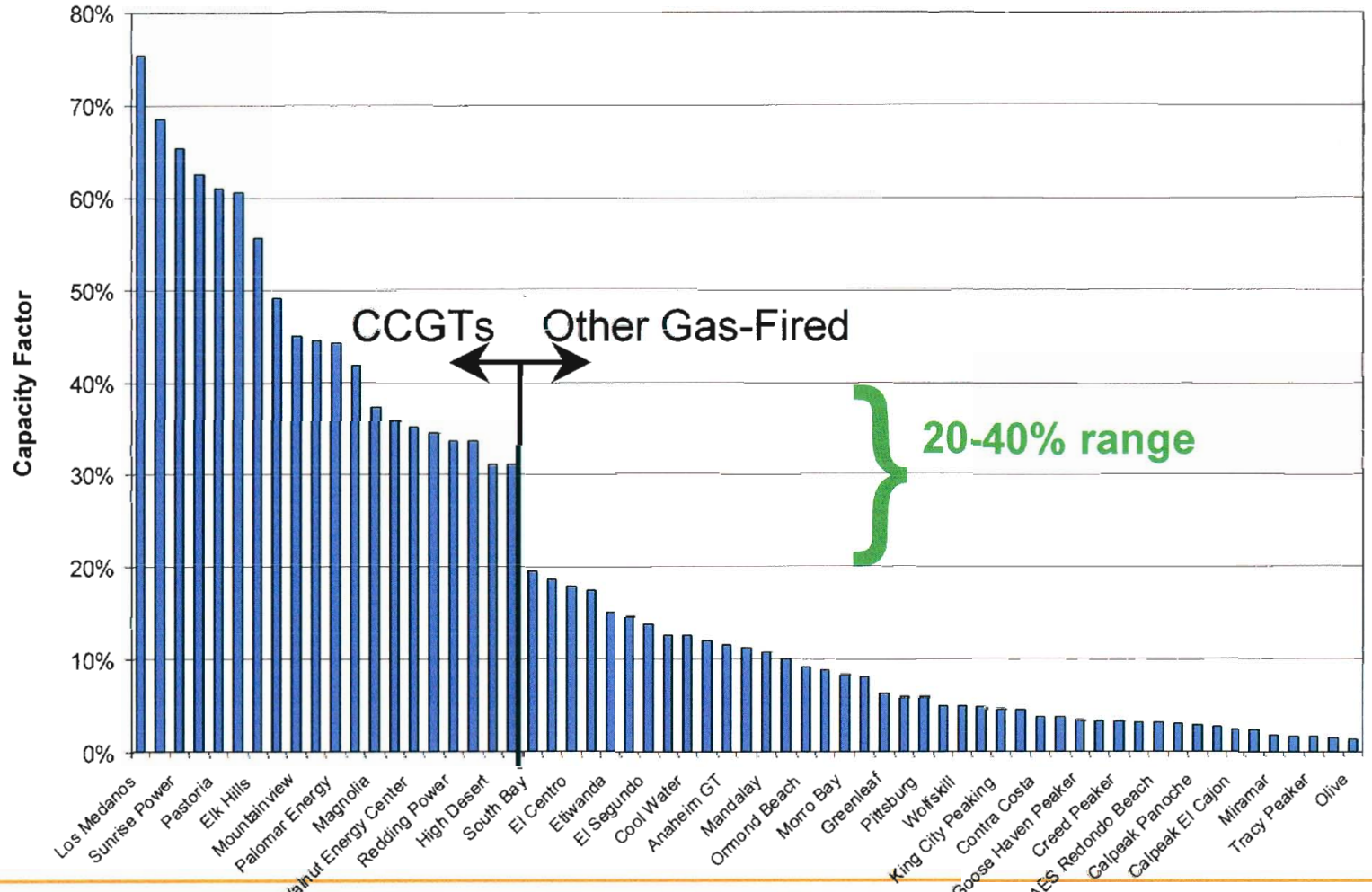
As described above, the PMPD lowered the noise requirements from the 52 dBA agreed by Staff and the Applicant to 49 dBA in Condition of Certification **NOISE-4**. This has the effect of requiring the WCEP to incorporate noise mitigation and improvements at the WCEP site that would add significant costs to the project. The condition was modified by the Committee solely based on the PMPD's assumption that operation during the four quietest hours of the nighttime were routine. As described above, such operation will not only not be routine but will be extremely rare and therefore I request that the Condition of Certification **NOISE-4** be modified to reflect the agreement between Staff and the Applicant as reflected in the FSA.

If however, the Committee does not believe that the WCEP will only rarely, it at all, operate during the four quietest hours of the night, we have proposed a Condition of Certification for consideration in our comments on the PMPD. While we believe such a Condition of Certification is not necessary to support a finding that the project will not result in noise-related impacts, we offer it only if the Committee is not persuaded by this additional testimony.

Figure 1

LMS100 heat rate & capacity factor is between CCGTs & other gas-fired units

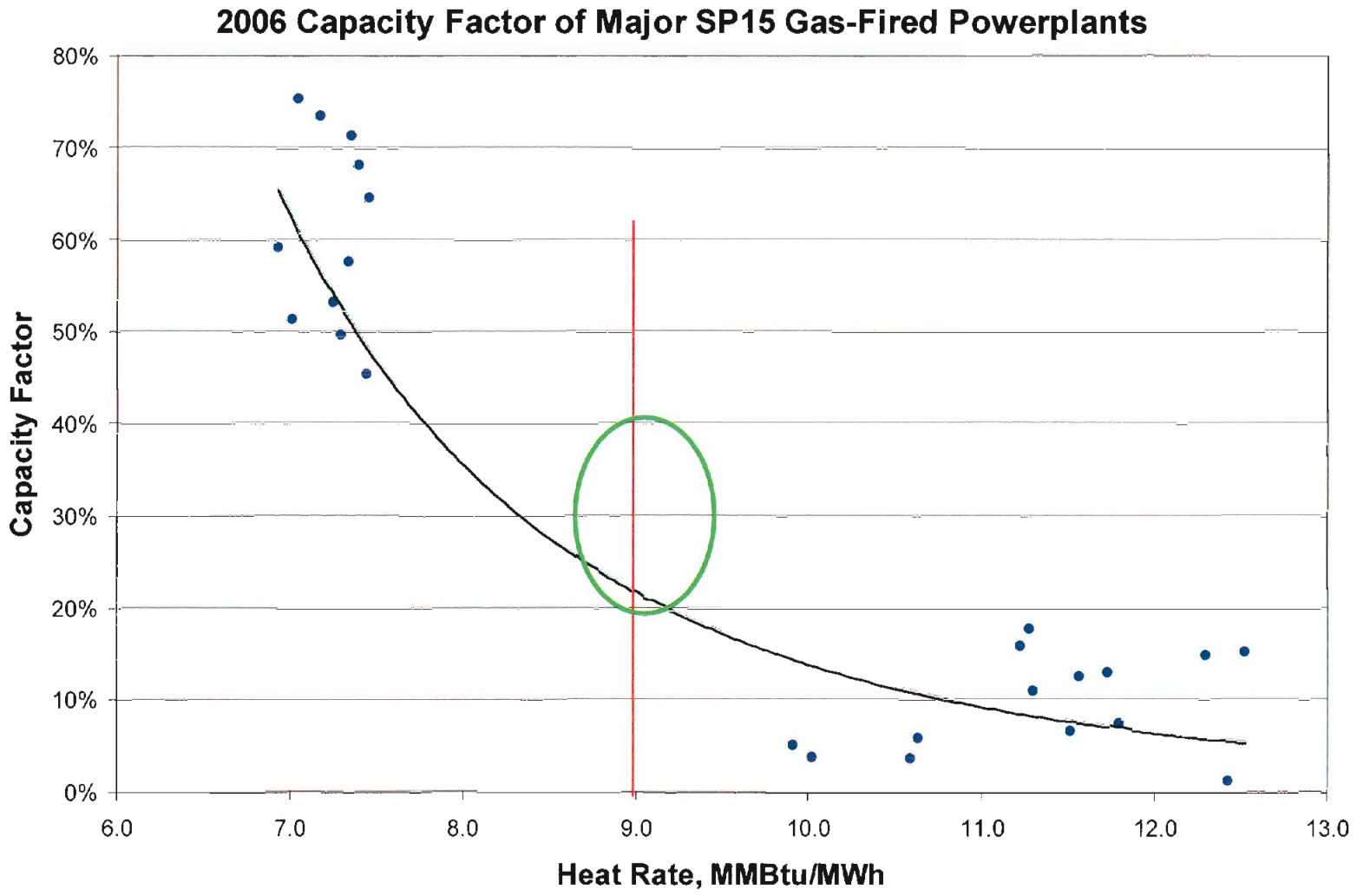
Average Capacity Factor of SP15 Powerplants, Jan-Sept 2006



Source: EIA

Figure 2

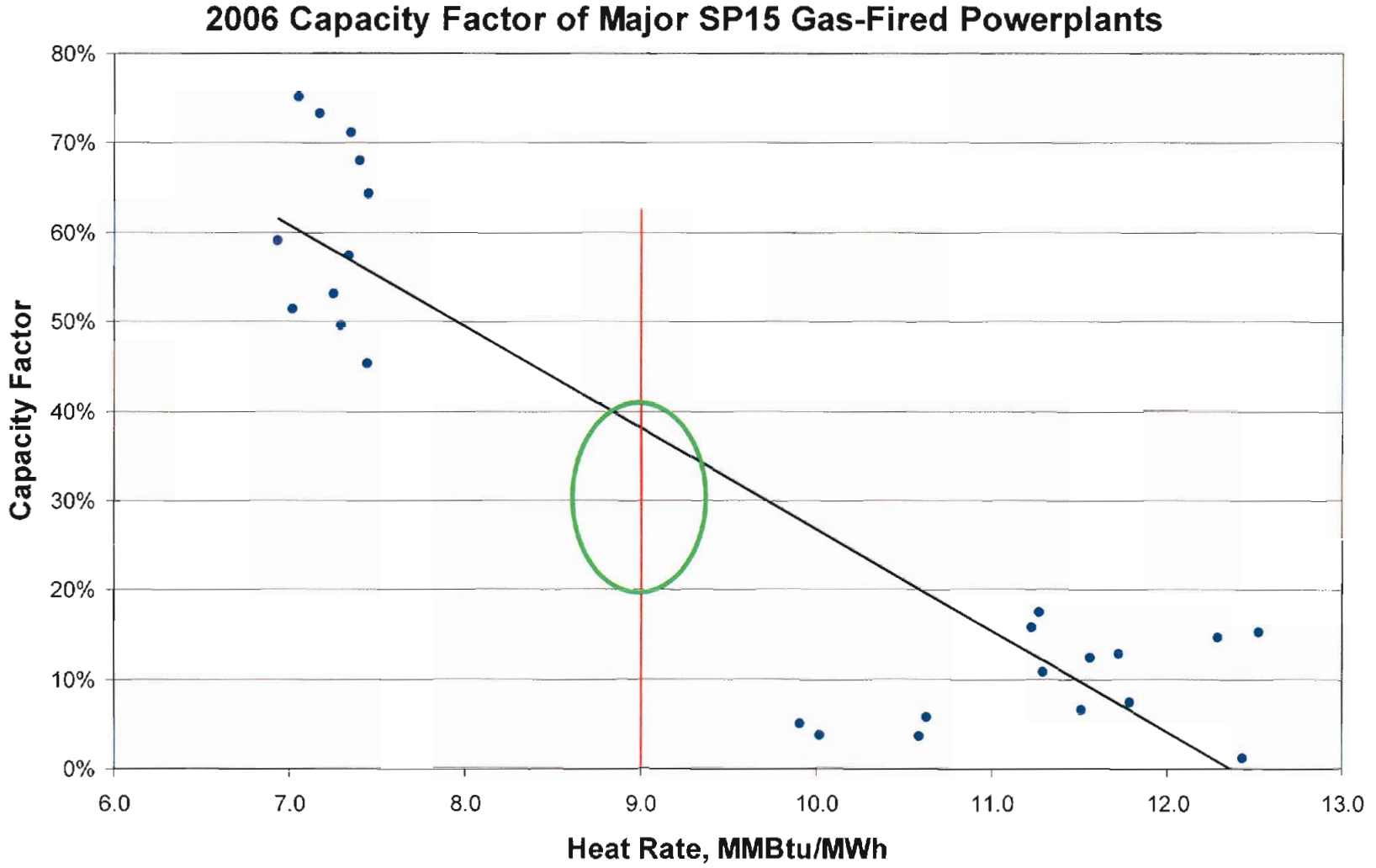
Interpolation between existing plants' capacity factors supports 20-40% estimate



Source: EIA

. . . whether exponential or linear curve fit

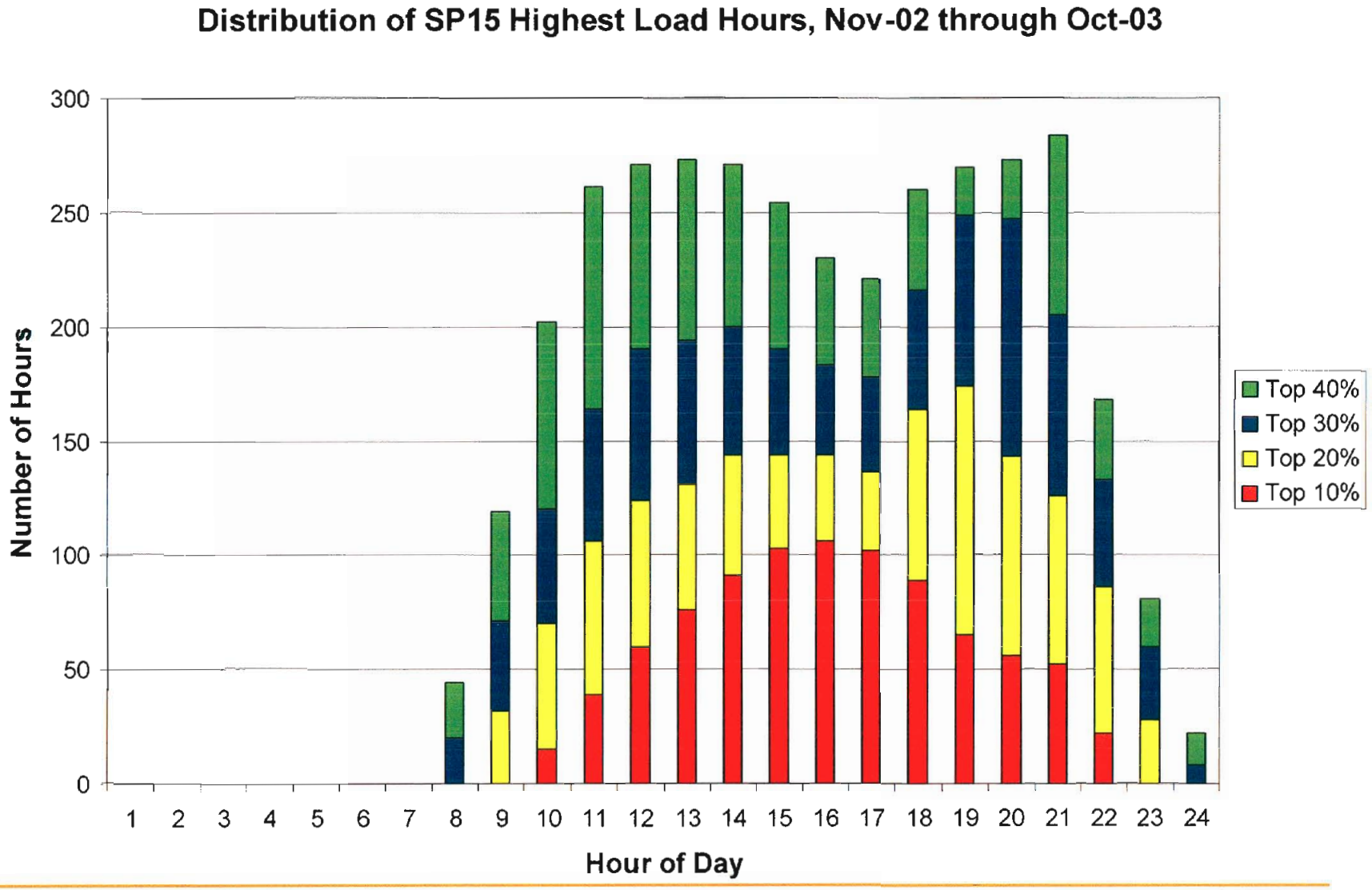
Figure 3



Source: EIA

Figure 4

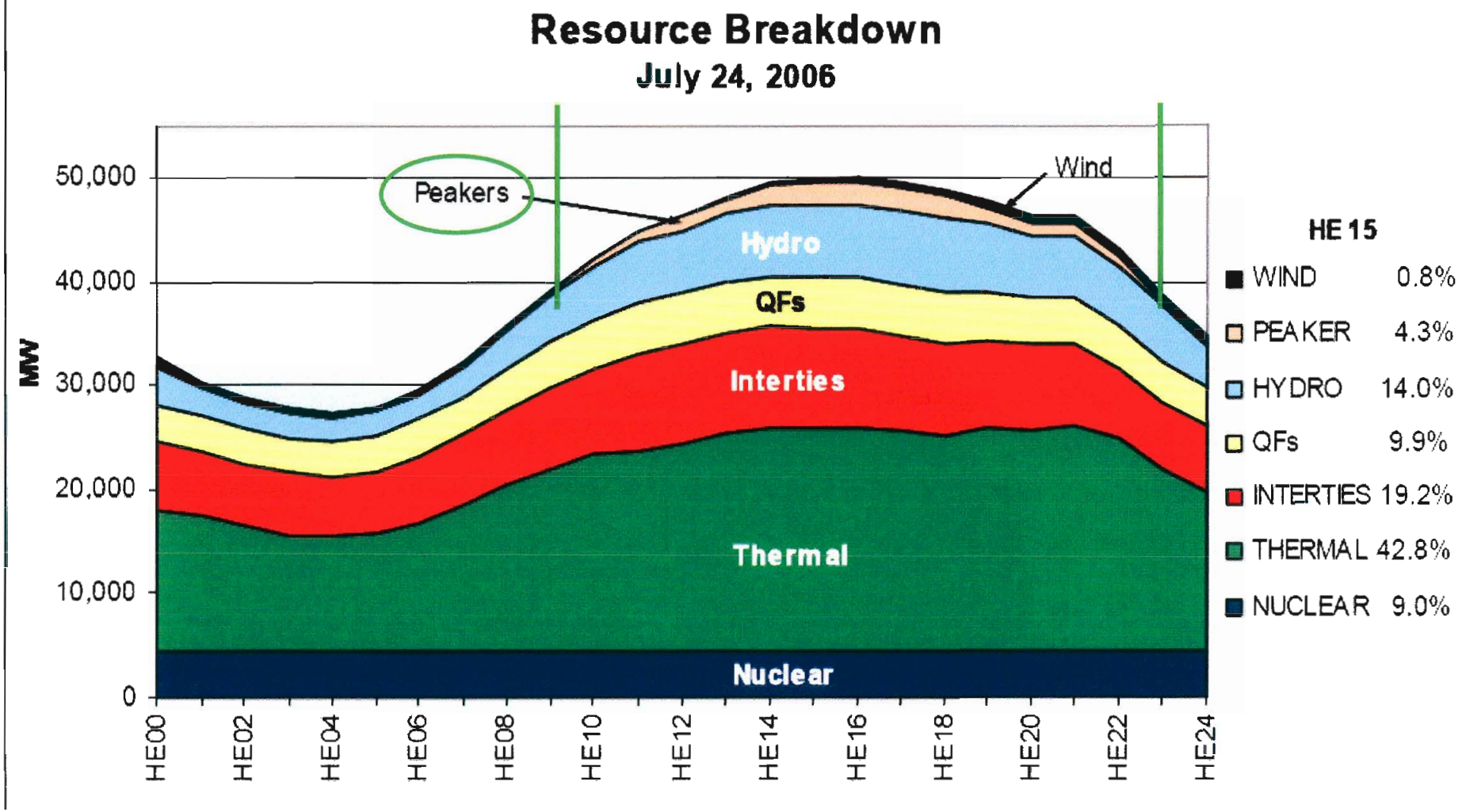
CAISO Annual Highest Loads by Time-of-Day



Source: CAISO

Figure 5

CAISO Dispatch on 2006 All-Time Peak Day



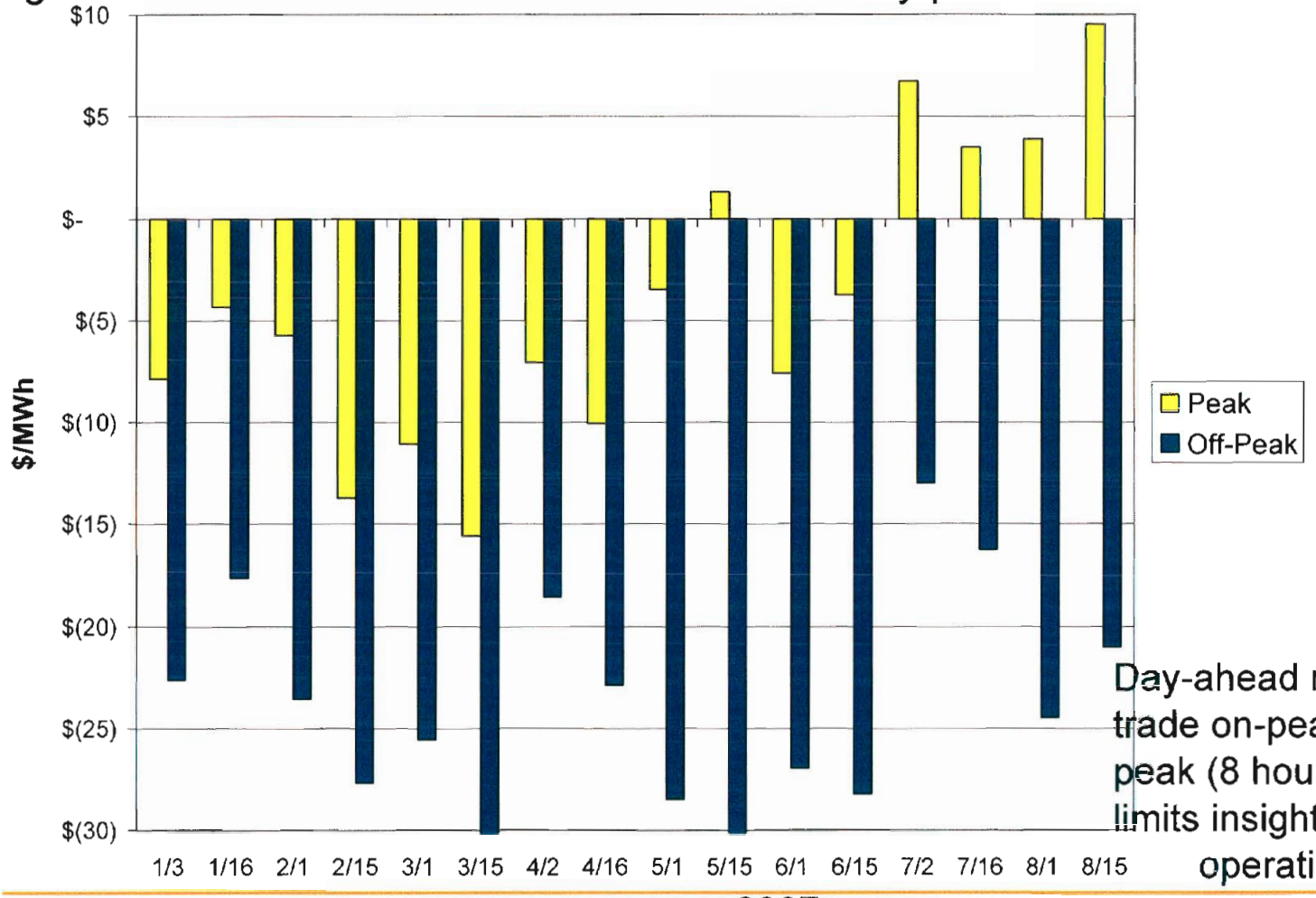
Source: CAISO

Figure 6

LMS100 margins for day-ahead market blocks are only positive for summer peak

LMS100 Margin vs Full-Period Day-Ahead SP15 Price, Selected Days

"Margin" is the difference between market electricity price and fuel + variable O&M cost



Day-ahead markets currently trade on-peak (16 hour) & off-peak (8 hour) blocks, which limits insight to partial-period operation

Source: ICE

Figure 7

CAISO Real-Time Market Margins

	8/16/07		8/17/07		8/18/07		8/19/07		8/20/07		8/21/07		8/22/07	
	SP15	Margin	SP15	Margin	SP15	Margin	SP15	Margin	SP15	Margin	SP15	Margin	SP15	Margin
HE01	59.15	(11.36)	52.18	(16.05)	56.52	(12.84)	62.80	(6.55)	47.07	(22.37)	51.39	(13.94)	48.49	(12.50)
HE02	47.91	(22.60)	42.75	(25.49)	48.84	(20.52)	48.79	(20.56)	42.55	(26.89)	49.10	(16.23)	32.17	(28.82)
HE03	36.88	(33.63)	43.42	(24.82)	48.32	(21.03)	47.25	(22.11)	40.25	(29.19)	40.19	(25.14)	21.43	(39.55)
HE04	44.29	(26.22)	37.95	(30.28)	52.46	(16.90)	48.47	(20.89)	35.84	(33.60)	23.05	(42.28)	21.89	(39.10)
HE05	42.38	(28.13)	41.57	(26.67)	51.38	(17.98)	49.06	(20.29)	25.82	(43.62)	28.48	(36.85)	24.24	(36.75)
HE06	47.77	(22.74)	49.31	(18.93)	48.69	(20.66)	49.90	(19.45)	47.61	(21.83)	29.62	(35.71)	32.85	(28.14)
HE07	47.98	(22.53)	40.43	(27.81)	41.76	(27.60)	36.05	(33.30)	40.64	(28.80)	30.26	(35.08)	48.44	(12.54)
HE08	54.21	(16.30)	56.24	(11.99)	55.23	(14.13)	30.10	(39.26)	37.56	(31.88)	38.14	(27.19)	43.90	(17.09)
HE09	47.81	(22.70)	65.12	(3.12)	42.50	(26.85)	21.99	(47.36)	50.67	(18.77)	49.81	(15.52)		
HE10	63.44	(7.07)	67.37	(0.86)	56.91	(12.45)	25.60	(43.76)	59.65	(9.79)	54.35	(10.98)		
HE11	65.94	(4.57)	68.54	0.31	94.61	25.26	36.78	(32.58)	65.40	(4.05)	59.63	(5.70)		
HE12	67.14	(3.37)	69.76	1.52	68.68	(0.67)	57.50	(11.86)	65.31	(4.13)	61.23	(4.10)		
HE13	65.48	(5.03)	66.55	(1.68)	65.28	(4.08)	60.22	(9.13)	65.39	(4.06)	60.70	(4.63)		
HE14	68.17	(2.34)	69.84	1.60	70.10	0.75	63.22	(6.14)	67.35	(2.10)	63.97	(1.36)		
HE15	214.48	143.97	67.80	(0.44)	70.32	0.97	66.01	(3.35)	68.10	(1.34)	69.01	3.68		
HE16	83.05	12.53	75.59	7.35	68.11	(1.24)	65.49	(3.86)	79.36	9.91	68.94	3.61		
HE17	80.24	9.73	70.85	2.62	67.37	(1.99)	70.17	0.81	166.80	97.36	72.51	7.18		
HE18	67.51	(3.00)	68.52	0.28	66.02	(3.33)	70.64	1.29	81.02	11.57	63.58	(1.75)		
HE19	70.55	0.04	67.21	(1.03)	65.47	(3.89)	64.97	(4.39)	68.84	(0.61)	62.93	(2.40)		
HE20	67.60	(2.91)	65.89	(2.34)	60.01	(9.34)	65.24	(4.11)	64.78	(4.66)	61.20	(4.13)		
HE21	67.53	(2.98)	65.85	(2.38)	64.90	(4.46)	64.44	(4.91)	66.86	(2.58)	64.72	(0.62)		
HE22	67.80	(2.71)	64.51	(3.73)	63.90	(5.46)	61.34	(8.01)	62.78	(6.66)	59.75	(5.58)		
HE23	67.84	(2.67)	58.81	(9.43)	60.84	(8.52)	59.59	(9.76)	63.27	(6.17)	60.04	(5.29)		
HE24	58.50	(12.01)	61.34	(6.90)	59.25	(10.11)	52.68	(16.68)	52.51	(16.93)	58.06	(7.27)		
SoCal Gas, $/MMBtu		6.660		6.415		6.535		6.535		6.545		6.100		5.630
Delivered Gas, $/MMBtu		7.199		6.949		7.072		7.072		7.082		6.630		6.152
Production Cost, $/MWh		70.51		68.24		69.35		69.35		69.44		65.33		60.99
Hours >$1/MWh Margin		3		4		1		1		3		3		0
Off-Peak Margin		($79,682)		($79,283)		($64,272)		($68,147)		($100,304)		($91,360)		($92,427)

Heat Rate, MMBtu/MWh	9.1
VOM, $/MWh	5.00

Hourly Average (Electric) Energy Prices as posted on CAISO's OASIS
SoCal Gas midpoint price as published by Gas Daily
Delivered Gas includes SoCalGas GT-F5 rate

Real-time prices reflect last-minute balancing & under-indicate expected operation

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August 27, 2007

Mr. Ken Coats
Permit Engineer
Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Subject: Walnut Creek Energy Park
Documentation Demonstrating Compliance with
Applicable Requirements of Amended Rule 1309.1

Dear Mr. Coats:

As requested by Mr. Mohsen Nazemi's letter of August 16, 2007, Walnut Creek Energy Park (WCEP) is submitting its documentation demonstrating compliance with applicable requirements of the amended Rule 1309.1. The attached documentation includes the discussion on compliance with Criteria Pollutant & Toxics Requirements and technical supporting data.

We appreciate your continued expeditious processing of our overall permitting request. As you are aware, the California Energy Commission has scheduled its hearing for September 12, 2007 on the WCEP Presiding Member's Proposed Decision. Thus we request that you provide the finding of compliance with applicable requirements of amended Rule 1309.1 prior to the hearing date.

Please contact Greg Darvin at (805 569-6555) or me at (949 798-7895) on any questions.

Sincerely,

Victor Yamada
Director,
Environmental, Health & Safety

VY:bcs

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Suite 1700
Irvine, CA 92612-1046
Tel: 949 752 5588
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Cc: Mohsen Nazemi, SCAQMD
Mike Mills, SCAQMD
John Yee, SCAQMD
Jack Caswell, CEC
Larry Kostrzewa, EME
Tom McCabe, EME
Greg Darvin, Atmospheric Dynamics

Enclosures

WALNUT CREEK ENERGY PARK
DOCUMENTATION DEMONSTATING COMPLIANCE WITH APPLICABLE REQUIREMENTS OF AMENDED RULE 1309.1

1309.1 EMISSION LIMITS FOR PM10 AND NO_x

The WCEP project is proposing to use the General Electric (GE) LMS-100 natural gas fired turbine. At standard ISO conditions (59° F, 14.7 PSI, and 60 % RH), the LMS-100 turbine generates a nominal 102.8 MW of electrical power. 1309.1 establishes Zone 2 emission limits for PM10 and NOx at the following rates under ISO conditions:

- PM10 not to exceed 0.060 lb/MW-hr
- NO_x not to exceed 0.080 lb/MW-hr

The GE LMS-100 turbine proposed for use at WCEP will meet or exceed the 1309.1 emission limits under ISO conditions and will be:

- PM10 0.058 lb/MW-hr
- NO_x 0.078 lb/MW-hr

The attached GE data sheet presents the GE LMS-100 performance specifications for the ISO condition case (Case 103).

Thus, the proposed GE LMS-100 natural gas turbines at WCEP will satisfy the emission limits in 1309.1 for Zone 2.

1309.1 PM10 MODELING ANALYSIS

The WCEP project was modeled to investigate whether the model calculated 24-hour PM_{10} concentration would exceed the SCAQMD Rule 1309.1 Zone 2 modeling significance threshold of 5.0 ug/m^3 on a facility wide basis. Previous modeling determined that on a source by source basis, the 24-hour PM_{10} significance levels would not be exceeded but the facility wide analysis projected that the significance level would be exceeded. The facility wide annual concentration of 0.57 ug/m^3 (as submitted in the original permit application) already complies with Rule 1309.1 limit of 0.75 ug/m^3. The initial modeling analysis relied on the ISCST3 dispersion model using the 1981 Walnut meteorological data set as supplied by the SCAQMD and presented in the original permit application.

The revised modeling analysis used the AERMOD (V07026) dispersion model to assess facility wide impacts from WCEP. AERMOD has recently been promulgated for use as a preferred model and has replaced the ISCST3 model. Tom Chico of the SCAQMD was contacted with regards to using AERMOD for a regulatory air quality assessment and the

SCAQMD found that AERMOD would be acceptable for use. As requested by the SCAQMD, five (5) years of meteorology was to be used rather than the one (1) year that is typically required. Generating meteorology for AERMOD requires hourly surface and upper air data that is representative of the project site both from a meteorological and dispersion prospective.

Following the Auer classification method, the land use within a 3 km radius around the Walnut Creek site is characterized as urban.

Meteorological data used in the modeling for each site was based upon a review of available surface and upper air stations in the area, the US EPA Guidelines on Air Quality Modeling, and the AERMOD Implementation Guidance document (US EPA, September 2005). Five years of the most recent available data were used for WCEP (2001-2005). Extensive data sources were reviewed including CARB/SCAQMD list of stations, and NCDC list of stations. Some stations were considered initially as representative, but rejected upon further scrutiny.

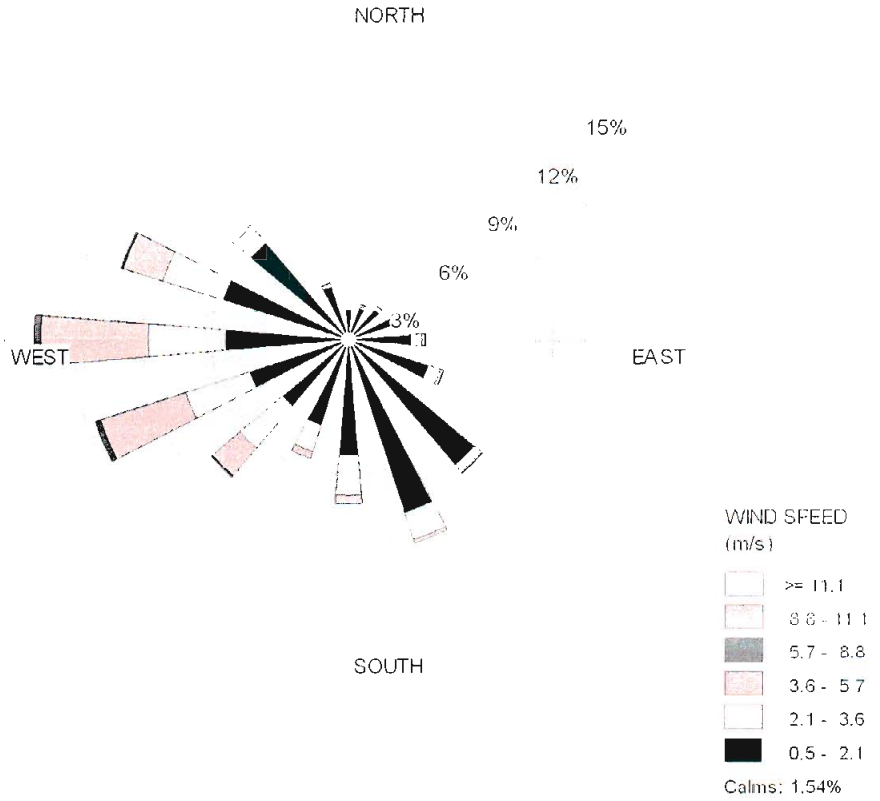
The data was obtained from the following sources: San Diego/Miramar upper air from www. fsl.noaa.gov. Miramar and Edwards AFB are the only choices. Although NCDC lists El Torro as an upper air station, there is only one year of data. For Walnut Creek Energy, the surface data from Fullerton was used in combination with upper air data from San Diego/Miramar. The Fullerton ASOS data was obtained from the NCDC.

The results from the analysis are shown in Table 1 below. For all years, the maximum model-predicted 24-hour PM_{10} concentration at WCEP is less than 5.0 ug/m^3.

Table 1. Maximum AERMOD-Predicted 24 hour PM_{10} Concentration (ug/m^3)

Year	*Walnut Creek*
2001	1.0
2002	1.4
2003	2.2
2004	1.0
2005	1.0

An addition ISCST3 formatted meteorological data set was provided by Tom Chico of the SCAQMD. This three-year data set was collected at the Quemetco facility (720 S. 7th Avenue, City of Industry), which is 3.84 kilometers west-northwest of the WCEP project site. A wind rose is presented below.



Given the close proximity to WCEP and the fact that there are no terrain features between the Quemetco and WCEP sites, this meteorological data set is considered representative. ISCST3 was rerun, with the no-calms option selected and the results of the modeling are listed in Table 2. The resulting facility wide 24-hour PM10 concentrations are all less than 5 ug/m^3.

Table 2. Maximum ISCST3-Predicted 24 hour PM_{10} Concentration ($\mu g/m^3$)

Year	*Walnut Creek*
1999	3.8
2000	3.7
2001	3.1

The results of using both AERMOD with Fullerton ASOS data and ISCST3 with Quemetco meteorological data demonstrate that the WCEP 24-hour PM10 concentrations from all five (5) turbines will not exceed the SCAQMD Rule 1309.1 significance threshold of 5 ug/m^3. The modeling analysis submitted with the original permit application already demonstrates compliance with the annual limit of 0.75 ug/m^3. Thus, based on these results, WCEP is in compliance with Rule 1309.1. The modeling input/output files from both AERMOD and the revised ISCST3 analysis is included on compact disk.

1309.1 HEALTH RISK ASSESSMENT LIMITS

The following tables prepared on June 7, 2007 shows the risk assessment values for WCEP for the facility (turbines and cooling tower):

Receptor ID	Cancer Risk	Chronic HI	Acute HI
MIR	6.23 E-7	0.0124	0.0635
MEIR	9.48 E-9	0.000188	0.00105
MEIW	1.06 E-9	0.0000156	0.000879

The cancer burden for the above noted MIR was less than 0.001. (Based on the distance to the MIR of ~1000m, affecting four (4) census tracts (4082.02, 4086.24, 4086.01, and 4077.02) with a total population of ~1000 individuals).

In addition, health risk data for Nearest Residential and Worker Location Receptors for the WCEP are as follows:

Walnut Creek Energy Center		
Risk Parameter	**Residential**	**Worker**
Cancer Risk per Million	9.48E-9	1.98E-10
Acute Hazard Index	1.05E-3	8.79E-4
Chronic Hazard Index	1.88E-4	1.56E-5
Receptor UTMs	412423E/3763083N	413123E/3763141N

All of these values comply with the Rule 1309.1 (b)(5)(A)(iii) requirements. These HRA files are included in the attached compact disk.

CONCLUSION

The proposed project at WCEP will comply with all of the Zone 2 emission, modeling, and health risk standards of significance as required in Rule 1309.1.

GE Energy

Performance By: Johnny Metcalf
Project Info:

Engine: LMS100 PA
Deck Info: G0179C - 87o.scp
Generator: BDAX 98-330ER 60Hz, 13.8kV, 0.9PF (35410)
Fuel: Site Gas Fuel#900-1056, 20629 Btu/lb,LHV

Date: 08/09/2005
Time: 9:19:39 AM
Version: 3.3.6

Case #	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
Ambient Conditions															
Dry Bulb, °F	30.0	30.0	30.0	59.0	59.0	59.0	84.0	84.0	84.0	90.0	90.0	90.0	110.0	110.0	110.0
Wet Bulb, °F	26.2	26.2	26.2	51.4	51.4	51.4	70.9	70.9	70.9	70.0	70.0	70.0	68.4	68.4	68.4
RH, %	60.0	60.0	60.0	60.0	60.0	60.0	53.0	53.0	53.0	37.0	37.0	37.0	10.0	10.0	10.0
Altitude, ft	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Ambient Pressure, psia	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506	14.506
Engine Inlet															
Comp Inlet Temp, °F	30.0	30.0	30.0	52.6	52.6	52.6	72.8	72.8	72.8	73.0	73.0	73.0	74.6	74.6	74.6
RH, %	60.0	60.0	60.0	92.9	92.9	92.9	91.0	91.0	91.0	86.4	86.4	86.4	73.3	73.3	73.3
Conditioning	NONE	NONE	NONE	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP
Tons or kBtu/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pressure Losses															
Inlet Loss, inH20	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Exhaust Loss, inH20	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Partload %	**100**	**75**	**50**	**100**	**75**	**50**	**100**	**75**	**50**	**100**	**75**	**50**	**100**	**75**	**50**
kW, Gen Terms	101576	78202	50819	102756	77095	51413	98511	73904	49287	98673	74025	49368	98583	73958	49323
Est. Btu/kW-hr, LHV	**7778**	**8184**	**9041**	**7826**	**8181**	**9036**	**7933**	**8294**	**9158**	**7930**	**8290**	**9154**	**7931**	**8293**	**9162**
Guar. Btu/kW-hr, LHV	**8103**	**8525**	**9418**	**8152**	**8522**	**9413**	**8264**	**8640**	**9540**	**8260**	**8636**	**9535**	**8262**	**8638**	**9544**
Fuel Flow															
MMBtu/hr, LHV	790.1	623.7	459.5	804.3	630.7	464.6	781.5	613.0	451.4	782.4	613.7	451.9	781.9	613.3	451.9
lb/hr	38301	30232	22272	38987	30575	22521	37883	29714	21881	37929	29749	21906	37903	29730	21906
NOx Control	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Water Injection															
lb/hr	34252	24278	15540	33004	22754	14360	30143	20143	11881	30206	20183	11907	30188	20166	12278
Temperature, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Intercooler	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**
Humidification	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
IC Heat Extraction, btu/s	21773	16319	10223	24805	19385	12511	28110	21984	14065	27826	21734	13857	27274	21264	13974
IC Water Extraction, lb/s	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.2	0.2	1.5	0.9	0.0	0.8	0.3	0.0
Control Parameters															
HP Speed, RPM	9253	9088	8924	9326	9127	8958	9358	9151	8978	9358	9151	8978	9358	9151	8974
LP Speed, RPM	5059	4758	4546	5231	4867	4651	5277	4944	4721	5278	4944	4721	5279	4948	4725

PT Speed, RPM	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
PS3 - CDP, psia	567.0	470.3	364.7	567.0	472.0	365.8	547.7	457.0	354.9	548.4	457.5	355.3	548.0	457.3	355.2
T23 - Intcrl Inlet Temp, °F	297.8	274.1	237.2	326.5	305.8	267.2	346.2	325.9	288.8	346.7	326.4	289.2	349.2	328.8	291.5
P23 - Intcrl Inlet Pressure, psia	57.1	51.1	43.1	55.8	50.9	42.8	53.5	49.1	41.6	53.6	49.1	41.7	53.6	49.1	41.6
W23 - Intcrl Inlet Flow, lb/s	455.5	399.1	351.7	450.6	388.1	342.3	435.3	375.6	329.3	435.5	375.7	329.5	434.6	374.9	328.8
T25 - HPC Inlet Temp, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
T3CRF - CDT, °F	713	685	657	721	686	658	722	685	657	722	685	657	722	685	657
T48IN, °R	1987	1922	1856	2018	1934	1871	2031	1942	1877	2031	1942	1877	2031	1942	1877
T48IN, °F	1527	1462	1397	1558	1474	1411	1572	1483	1417	1572	1483	1417	1572	1483	1417
Exhaust Parameters															
Temperature, °F	751.6	748.3	767.7	775.9	758.0	777.7	795.6	774.6	791.4	795.3	774.3	791.2	795.4	774.4	790.9
lb/sec	473.1	401.0	317.7	468.1	400.4	317.0	450.1	386.2	306.6	450.6	386.6	306.9	450.3	386.4	307.0
lb/hr	1703202	1443738	1143876	1685308	1441475	1141203	1620231	1390343	1103911	1622182	1391898	1105012	1621124	1391131	1105223
Energy, Btu/s- ref 0 °R	147435	123960	99377	149772	125343	100427	146829	123021	98718	146963	123128	98798	146887	123074	98702
Cp, Btu/lb-R	0.2733	0.2715	0.2706	0.2758	0.2731	0.2722	0.2773	0.2746	0.2740	0.2773	0.2746	0.2740	0.2773	0.2746	0.2737
Emissions (NOT FOR USE IN ENVIRONMENTAL PERMITS)															
NOx ppmvd Ref 15% O2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
NOx as NO2, lb/hr	79	63	46	81	63	47	79	62	45	79	62	45	79	62	45
CC ppmvd Ref 15% O2	151	151	132	129	129	110	116	110	84	118	111	84	118	110	88
CO, lb/hr	291.67	229.96	148.03	254.76	199.72	125.00	226.21	165.67	92.99	226.76	166.04	93.24	226.63	165.81	97.81
CO2 lb/hr	102850.00	81232.52	59919.82	104738.50	82198.12	60620.92	101796.50	79924.58	58942.17	101920.70	80017.78	59007.73	101849.90	79966.98	59000.82
HC ppmvd Ref 15% O2	7	7	6	6	6	4	5	4	2	5	4	2	5	4	3
HC, lb/hr	8.17	6.44	3.83	6.51	5.10	2.61	5.41	3.74	1.51	5.43	3.75	1.52	5.43	3.74	1.71
SOX as SO2, lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Master Fuel Cycle															
NOx ppmvd Ref 15% O2	25			25	25	25	25	25	25	25	25	25	25	25	25
CO ppmvd Ref 15% O2	151			148	148	116	116	111	84	118	111	84	118	110	88
VOC ppmvd Ref 15% O2	4.2			3.6	3.6	2.5	2.1	2.4	1.7	3.1	2.4	1.7	3.0	2.4	1.8
PM10 lbs/hr	6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Predicted (P) / Guaranteed Emissions - Stack															
NOx ppmvd Ref 15% O2	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5	2.5 / 2.5
NOx as NO2, lb/hr	7.9	6.3	4.6	8.1	6.3	4.7	7.9	6.2	4.5	7.9	6.2	4.5	7.9	6.2	4.5
NH3 Slip ppmvd Ref 15% O2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
CO ppmvd Ref 15% O2	6.3 (P)	6.3 (P)	6.3 (P)	5.6 / 6.0	5.6 / 6.0	5.6 / 6.0	5.3 / 6.0	5.3 / 6.0	5.3 / 6.0	5.3 / 6.0	5.3 / 6.0	5.3 / 6.0	5.2 / 6.0	5.2 / 6.0	5.2 / 6.0
CC, lb/hr	12.2	9.6	7.3	11.1/11.9	8.7/9.3	6.4/6.8	10.2/11.5	8.0/9.1	5.9/6.7	10.2/11.5	8.0/9.0	5.9/6.7	10.8/11.5	7.8/9.1	5.8/6.7
VOC ppmvd Ref 15% O2	2.8 (P)	2.8 (P)	2.4 (P)	2.3 (P)	2.4 (P)	1.6 (P)	1.9 (P)	1.6 (P)	0.8 (P)	1.9 (P)	1.6 (P)	0.8 (P)	1.9 (P)	1.6 (P)	0.8 (P)
VOC, lb/hr	3.3	2.6	1.6	2.5	2.1	1.2	2.1	1.5	0.6	2.1	1.5	0.6	2.1	1.5	0.5
PM10 lbs/hr	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION
OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE WALNUT CREEK ENERGY PARK (WCEP)	DOCKET NO. 05-AFC-2 (Revised 6/6/07)

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 05-AFC-2
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INTERESTED AGENCIES

No agencies to date.

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DECLARATION OF SERVICE

I, Marguerite Cosens, declare that on September 10, 2007, I deposited copies of the attached **Walnut Creek Energy Park Supplemental Testimony, for the Walnut Creek Energy Park (05-AFC-2)** in the United States mail at with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of the California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

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

Marguerite Cosens