

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #8
NOISE

BACKGROUND

Energy Commission staff evaluates power plant operational noise impacts on sensitive receptors by comparing the noise levels at the receptor with the power plant operating to the ambient noise levels at the receptor before the project is constructed. Specifically, staff compares power plant noise to the background (L_{90}) noise levels at the receptor during the nighttime hours, when people are most likely to be annoyed by excessive noise. To eliminate the effects of short-term anomalies, staff typically considers the average of the four quietest contiguous hours of the night for this comparison.

In describing the pre-project ambient noise survey results, the Application presents only broadly averaged figures. Background noise levels at nearby sensitive receptor LT-1 are given as only a single 25-hour average figure. In order to perform its standard analysis, staff needs to see the hourly averages throughout the 25-hour monitoring period.

DATA REQUEST

8. Please provide a more detailed summary of the ambient noise survey results at monitoring location LT-1, the residence at 1017 North 3rd Street. Specifically, show the hourly average values for L_{90} and L_{eq} (i.e., L_{eq} represents average noise level), as a minimum, throughout the 25-hour monitoring period.

DATA RESPONSE

The attached table (Attachment A, Hourly Average and 15-minute Average Values for the 25-Hour Monitoring Period) presents the hourly average values for L_{eq} and L_{90} throughout the 25-hour monitoring period. Also included are the L_{eq} , L_{max} , L_{min} , L_5 , L_{10} , L_{50} , and L_{90} average values for every 15 minutes during the 25-hour monitoring period. To help provide additional perspective on the relative bearing and application of L_{eq} and L_{90} to the Project, we also submit the following information.

The Applicant believes that potential noise impacts must be based on adverse effects resulting from changes in the ambient noise levels (i.e., L_{eq} or L_{eq} -based metrics) as CEQA defines and requires. Adverse effects from increases in nighttime period L_{eq} or in overall L_{dn} (which includes a built-in penalty for nighttime noise) have proven most useful in this regard. It is worth noting that the L_{90} descriptor (used by staff to analyze noise impacts), by definition,

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describes the decibel level that is exceeded 90 percent of the measurement period. In other words, the actual sound levels are higher (louder) 90 percent of the time and lower (quieter) than L_{90} for only 10 percent of the time. For example, this descriptor only describes the lower bound of the noise that is (or would be) present 54 minutes during a 60-minute period.

This adopted approach evaluates background noise level only during some limited number of the quietest minutes occurring during the nighttime (or daytime). For example, limiting the L_{90} data to the four (4) quietest contiguous hours of a day places the focus on only 24 minutes out of 24 hours of ambient sound. This method of analysis basically disregards a total of 23.6 hours of daily ambient sound, or 98.3 % of the day. Using this approach may lead to a skewed analysis of project noise.

One of the problems with utilizing a very small relative number of minutes in the day is that the results obtained are highly variable. Although widely used professionally accepted measures such as the L_{dn} will vary somewhat from day to day, the L_{90} descriptor, particularly when used for a narrow period, can be quite variable because it is examining such a statistically small portion of the ambient noise environment. Relying on such a statistically narrow "window" likely exaggerates the prominence of extremely infrequent conditions.

Further, it is important to the public, to applicants, and to the integrity of the CEQA/CEC permitting process, that the Commission use well defined, professionally accepted environmental noise terms and descriptors. It is also important that the Commission apply these terms and descriptors consistently to the same or similar time periods in order to determine the potential for noise impacts and the necessity for noise mitigation. In doing so, all participants in the CEQA/CEC process will be afforded the opportunity to use readily available, scientifically documented, data and analysis as an aid to decision making. It will allow applicants to more accurately anticipate the degree of noise control that will be necessary to avoid significant impacts and support informed decisions regarding project viability at a much earlier point in the planning, development, and engineering process.

The Applicant believes that further discussion of these issues with the CEC is necessary to come to a mutually acceptable resolution and how the CEC intends to assess impacts under CEQA. In preparation for those discussions, it may also be useful to note that no recognized national standards-making organizations, such as the American National Standards Institute (ANSI), recommends or supports the use of L_{90} for noise/land use compatibility determinations, noise compliance, or environmental impact assessment. No federal agencies, including

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those with recently revised noise standards, use L_{90} in any way. No other State of California agency uses L_{90} . No counties or cities in California use L_{90} for noise compatibility

planning or nuisance noise enforcement. The following table lists the descriptors used by a number of State and Federal agencies. California aside, only one of the other 49 states (Massachusetts) has used an increase in L_{90} as a standard for environmental compliance. (The Massachusetts methodology was developed more than 30 years ago and has never been updated. They specify 10 dBA as an allowable increase and offer flexibility regarding compliance with their standard.)

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Noise Metric/Descriptors Used by Numerous Federal and State Agencies

Agency and Noise Metric / Descriptor	CNEL	L _{dn}	L _{eq}	L ₁₀	L ₅₀	L ₉₀
Federal						
Federal Energy Regulatory Commission		•				
Environmental Protection Agency		•				
Federal Highway Administration			•	• ¹		
Federal Transit Administration		•				
Federal Rail Administration		•				
Federal Aviation Administration	• ²	•				
Housing and Urban Development		• ³				
State						
California Energy Commission			• ¹		• ¹	•
California Dept. of Health Services (CCR 65302(f))	•	•				
Streets and Highways Code (Section 216)			•			
Department of Transportation (Title 21, Subchapter 6, CCR) Airport Noise Regulations	•					
California Department of Transportation (Caltrans)			•			
Building Code (Part 2, Title 24, CCR)		•				
Regional						
Southern California Association of Governments	•	•				
San Diego Association of Governments	•	•				
San Bernardino Association of Governments	•	•				
Local						
Counties'/Cities' General Plan Noise Elements	• ⁴	• ⁴				
Counties'/Cities' Noise Ordinances ⁵			•	•	•	
Counties'/Cities' Regulations for intermittent noise control ⁶						

Notes:

- 1 - Rarely used.
- 2 - Used in California.
- 3 - Prior to the 1980's, used L₃₃.
- 4 - Per guidance promulgated by the State of California (Guidelines for Preparation and Content of the Noise Element of the General Plan).
- 5 - A variety of descriptors are commonly used, including statistical descriptors such as L₅₀, L₂₅, L_{8,3} and so on, but not greater than L₅₀ (i.e., not more than 30 minutes in any one hour period).
- 6 - In the past, specialized metrics or descriptors were devised, such as L_{max} – 30% for military jet aircraft. However, these are not applicable to constant or quasi-constant noise sources.

**ATTACHMENT A
NOISE
HOURLY AVERAGE AND 15-MINUTE AVERAGE
VALUES FOR THE 25-HOUR MONITORING
PERIOD**

**Hourly Average and 15-minute Average Values
for the 25-Hour Monitoring Period**

Date	Time Start								1-Hour	1-Hour
		Leq	Lmax	Lmin	L(5)	L(10)	L(50)	L(90)	Leq	L90
24-Aug	10:15	59.2	89.6	40.8	56.8	53.7	47.2	41.7	55.4	42.0
24-Aug	10:30	52.6	68.9	40.9	59.1	53.6	47	42.8		
24-Aug	10:45	45.7	53	40.4	49	47.9	44	41.3		
24-Aug	11:00	51.5	66.5	40.4	57.3	51.1	47.2	42.3	52.7	44.2
24-Aug	11:15	51.8	68.5	40.5	58.4	52.2	45.5	44		
24-Aug	11:30	55.3	70.2	45.3	63.2	58.4	47.6	46.1		
24-Aug	11:45	50.4	64.2	42.2	56.3	53.4	48	43.6		
24-Aug	12:00	56.8	75.5	44.8	61.4	55.7	48.9	47.3	54.9	44.9
24-Aug	12:15	54.1	73.4	41.4	59.4	53.9	47.6	42.4		
24-Aug	12:30	56	74.1	43.9	61.1	56.4	48.4	44.7		
24-Aug	12:45	49.9	68	42.1	54.8	52.3	47.7	43.6		
24-Aug	13:00	52.2	70.1	43.1	56.9	55.2	49.4	45.3	56.2	46.2
24-Aug	13:15	52	63.5	46.5	57.4	55.4	49.4	47.5		
24-Aug	13:30	52.3	67.7	43.3	57.1	54.3	47.5	44.3		
24-Aug	13:45	60.7	78.8	42.9	66.7	63	51.1	47		
24-Aug	14:00	52.2	64.7	45.8	57.2	55.3	49.2	47.3	55.4	45.7
24-Aug	14:15	59.1	77	42.5	63.7	58.5	48.3	43.5		
24-Aug	14:30	53.2	68.8	46	57.5	54.5	48.7	47.1		
24-Aug	14:45	52.8	66.8	41.7	59.6	54.2	47.9	43.5		
24-Aug	15:00	51.3	64.2	42	56.2	53.8	48.6	44.3	52.9	45.4
24-Aug	15:15	55.9	75.4	43.9	62.2	56.4	48.5	46.5		
24-Aug	15:30	52.3	67.7	41.7	59.2	53.7	44.9	42.3		
24-Aug	15:45	49.2	61.3	46.1	51.7	50	47.9	47.1		
24-Aug	16:00	51.1	64.7	43.2	57	53.3	47.8	46.6	60.1	46.1
24-Aug	16:15	60.7	81.5	42.5	63.3	55.5	46.7	43.1		
24-Aug	16:30	52.7	68.8	46.3	58.1	53.5	47.9	47.1		
24-Aug	16:45	64.1	82.4	45.7	72.4	60.7	47.9	46.5		
24-Aug	17:00	48.4	57	45.9	52.9	50.8	47.3	46.2	57.5	46.9
24-Aug	17:15	54	71.2	43.5	58.3	51.5	46.7	44.4		
24-Aug	17:30	49.5	58.7	45.6	53.1	52	48.4	47.1		
24-Aug	17:45	62.7	73.9	47.6	69.3	66.8	58.1	48.8		
24-Aug	18:00	67.7	81.5	52.4	73.4	71.3	64.6	58.4	66.2	56.6
24-Aug	18:15	64.5	78.4	49.7	70.1	68	61.3	54.7		
24-Aug	18:30	62.1	76.3	48.9	67.6	65.5	58.7	53.5		
24-Aug	18:45	67.9	81.3	48.6	74.2	71.9	64	57.8		
24-Aug	19:00	57.4	71.2	46.3	62.6	61	54.3	49.1	60.3	49.8
24-Aug	19:15	61.5	76.8	46.3	67.5	65.4	56.4	50.5		
24-Aug	19:30	63	80.9	46.1	64.9	58.2	51.7	47.9		
24-Aug	19:45	55.7	67.6	49.3	59.5	58.1	54.6	51.1		
24-Aug	20:00	63.6	78.8	46.5	69.7	64.3	55.3	49.8	59.0	49.4
24-Aug	20:15	55.7	65.3	46.7	61.8	61.3	51.5	49		

24-Aug	20:30	55.1	63.9	47.9	61.7	57.9	52.3	49.5		
24-Aug	20:45	52.8	60.2	47.3	56.5	55.6	51.8	49.3		
24-Aug	21:00	62.4	82.9	46.5	62.3	59.4	53.3	47.9	57.7	49.2
24-Aug	21:15	51.8	62.4	44.7	53.7	52.7	51	47.8		
24-Aug	21:30	52.1	55.7	49.4	53.9	53.5	52	50.3		
24-Aug	21:45	55.1	60.6	48.1	59.7	59.4	51.5	50		
24-Aug	22:00	55.1	60.4	49.6	59.6	59.2	54	50.9	52.7	48.8
24-Aug	22:15	51.7	57.3	46	55.1	53.7	51.2	48.7		
24-Aug	22:30	51.3	61.6	45.9	53.8	53	50.8	48.5		
24-Aug	22:45	51.2	68.4	44.6	51	50.8	47.4	45.4		
24-Aug	23:00	52.8	70.3	45.1	55.7	55	49.6	45.8	53.6	49.4
24-Aug	23:15	54.4	57.8	49.2	57.2	56.8	53.7	51.1		
24-Aug	23:30	54.5	70.8	48.5	55.3	54.6	52	50		
24-Aug	23:45	52	55.8	47.1	54.4	53.8	52.1	49.2		
25-Aug	0:00	50.4	54.7	46.4	52.8	52.5	50.4	47.4	57.7	49.1
25-Aug	0:15	55.8	62.3	46.9	61.5	60.9	52.1	49.2		
25-Aug	0:30	59.7	67.2	48.2	62.4	61.9	61	50.2		
25-Aug	0:45	59.7	64.4	46.4	63.8	63.6	51.7	49.3		
25-Aug	1:00	57.2	62.7	45.2	61.9	61	55.5	48.5	56.6	52.2
25-Aug	1:15	58.2	61.5	54.3	61	60.7	57.2	56.2		
25-Aug	1:30	55.1	58.5	46.2	56.9	56.7	55.6	49.2		
25-Aug	1:45	55.1	60.1	46.4	59.6	59.2	54.3	49.4		
25-Aug	2:00	54.3	58	51.5	56	55.8	54.4	52.3	52.1	49.5
25-Aug	2:15	53.3	56.6	45.1	55.9	55.6	53.1	50.3		
25-Aug	2:30	49.2	54.8	44.5	51.4	50.9	49.4	45.5		
25-Aug	2:45	48.8	55.4	45.1	51.6	50.9	48.1	46.4		
25-Aug	3:00	51	55.5	45.9	53.8	53.6	50.7	46.6	50.3	46.4
25-Aug	3:15	48	55.1	45	50.7	50.2	47.1	46		
25-Aug	3:30	49.9	55.4	45.3	51.9	51.6	49.9	46.7		
25-Aug	3:45	51.4	58.5	45.3	56	54.9	50.7	46.3		
25-Aug	4:00	49.6	55	44.9	51.4	50.9	50	46.4	51.4	47.8
25-Aug	4:15	53.4	63.5	45.6	58.5	57.8	50.2	48		
25-Aug	4:30	51.8	61.1	47.5	55.8	54.2	50.7	49.1		
25-Aug	4:45	49.6	57.4	46.5	51.7	50.9	49.2	47.4		
25-Aug	5:00	52.1	65.9	47.2	55.5	52.9	50.8	48.2	51.7	48.4
25-Aug	5:15	50.5	60.6	47	52.7	52	50.1	48.1		
25-Aug	5:30	52.6	69.2	47.6	57	52.9	50.5	48.3		
25-Aug	5:45	51.1	63.5	47.5	53.3	52.3	50.5	48.9		
25-Aug	6:00	51.6	62.4	46.3	56.1	53.3	50.2	47.4	50.1	47.2
25-Aug	6:15	49.7	62.8	46.5	51	50.7	49.2	47.2		
25-Aug	6:30	48.8	56.6	45.8	50.9	50.5	47.8	46.5		
25-Aug	6:45	50	65.1	46.1	51.7	50.9	49.5	47.6		
25-Aug	7:00	49.4	61.4	45.9	52.4	50.9	48.5	47.1	54.3	45.9
25-Aug	7:15	50.7	62.2	45.4	54.8	53.2	49.5	46.5		
25-Aug	7:30	50.7	64	44.2	55.5	53.6	48.1	45.5		
25-Aug	7:45	58.8	74.5	42.4	64.3	58.2	51	44		
25-Aug	8:00	50	59.4	42.2	55.2	53.8	47.8	43.2	55.1	42.8
25-Aug	8:15	49.1	60.3	41.6	53.7	51.7	47.7	43		

25-Aug	8:30	43.3	52.2	41	46.6	45.2	42.5	41.4		
25-Aug	8:45	60.4	84.7	41.8	58.1	53.5	47.6	43.2		
25-Aug	9:00	52.3	72.4	40.5	57.4	53.5	43.6	41.2	52.3	42.6
25-Aug	9:15	47.5	54.7	41.6	50.2	48.9	47.2	44.6		
25-Aug	9:30	54.5	71.6	40.2	58.5	48.1	42.8	41.2		
25-Aug	9:45	52.5	71.5	41.2	58	53.8	47.6	42.6		
25-Aug	10:00	62	79.4	40.3	60.4	50.8	43.3	41.1	56.9	44.8
25-Aug	10:15	52.8	67.3	45.3	60.3	54.1	47.7	46.4		
25-Aug	10:30	47.2	58.4	40.6	53.4	50.9	42.8	41.2		
25-Aug	10:45	51.2	63.3	46	56.8	54.6	48.3	47.1		

