

## DOCKETED

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4 June 2015

Karen Douglas, Presiding Member  
Janea A. Scott, Associate Member  
**Redondo Beach Energy Project**  
**AFC Committee, California Energy Commission**  
1516 Ninth Street  
Sacramento, CA 95814

Subject: **Redondo Beach Energy Project (12-AFC-03)**  
**Comments on Noise and Vibration Section of the Preliminary Staff**  
**Assessment**

Dear Commissioners Douglas and Scott:

On behalf of the City of Redondo Beach (City), we reviewed the Noise and Vibration section of the Preliminary Staff Assessment (PSA, July 2014) prepared by the Energy Commission Staff. We also reviewed the noise and vibration section of the Application for Certification (AFC, November 2012) prepared by AES. This letter summarizes our comments on both documents.

**SUMMARY**

1. AES has not provided the technical documentation necessary to support its noise analysis.
2. The RBEP noise analysis is not tailored to the site. In particular, it fails to address past complaints in the assessment of future impact.
3. The RBEP design engineering needs to “guarantee” a solution that mitigates the potential noise impacts in the original construction, rather than take a “wait-and-see” approach with a lengthy retrofit process.
4. The technical document needs to provide additional information and have specified errors corrected. The environmental analysis and the design-phase analysis should be independently reviewed.
5. Based on California State Code and Guidelines for City Noise Elements, we recommend that the City of Redondo Beach revise its noise regulations in the Municipal Code to address the ongoing noise issues related to power plant noise. This might results in a substantial change to the Laws, Ordinances, Regulations and Standards (LORS).

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## 1. AES HAS NOT PROVIDED THE NECESSARY TECHNICAL DOCUMENTATION

Based on our initial review of the PSA, the City requested that AES provide the backup documentation or technical report(s) that were used as the basis of the analysis summarized in the PSA. At the PSA Workshop on May 20, 2015, AES agreed to provide this data to Staff and to the City. Despite the City's request, AES has not provided the requested documentation. Instead, it has provided a copy of documents that were already available.

The documents provided by AES are not what we expected to receive when we requested a copy of their technical noise analysis, for the reasons listed below.

1. There is no additional documentation or explanation of their operational noise study. At a minimum, we would expect to find:
  - A. Equipment noise levels that are the basis of their study (including their reference source for information).
  - B. Documentation showing which noise reduction measures were included in their analysis and thus should become necessary mitigation to achieve their projected noise levels.
  - C. Noise reduction data for the mitigation measures.
  - D. Calculation methodology with site plan details and other assumptions of acoustical shielding, directivity, and similar factors.
  - E. Safety factor used in their analysis.
2. In our opinion, the Application for Certification (AFC) Noise Chapter does not provide the necessary information to substantiate the noise impact analysis claims of AES.
3. The AFC also does not provide adequate information for Intervenors or the public to conduct a peer evaluation of their analysis.
4. The AFC and PSA do not constitute a CEQA-level study of projected noise and its expected impact on the community, because it does not provide the information described above which is necessary for public review.
5. We would expect AES to provide the study described above and we will need time to review it.
6. Alternatively, we have discussed the possibility of our team conducting a peer review study in the absence of their technical study. This would require several weeks for noise measurements, data gathering, analysis, and report generation.

## 2. INADEQUATE ENVIRONMENTAL NOISE SURVEY AND IMPACT ANALYSIS

We understand that numerous noise complaints have been registered regarding the existing power plant operations. However, the PSA does not acknowledge or address this history of the project site.

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An effort should be made to understand the nature of the complaints, such as tonal noise, the character of the offending noise, and other reasons for annoyance.

It seems that no community survey was conducted to assemble feedback from the nearby residential communities. We also understand that no measurements were conducted at the locations of previous or current complainants. In a situation like this, we would conduct measurements where people have complained, in people's homes and at night, if necessary. In our opinion, past and future power plant noise impacts have not been adequately studied.

No measurements were made to specifically identify existing power plant noise. And the predicted power plant noise was not compared to existing power plant noise. Existing noise must be documented for the assessment of future impact. If noise levels are expected to go up, clearly additional mitigation is needed. If AES claims that noise levels will go down, the information should be made available for public review and confirmation.

The PSA acknowledges that pure-tone noise as a significant issue. However, existing tonal noise was never measured. Tonal noise was not studied or predicted in the technical analysis. If necessary, noise measurements of other similar facilities should be conducted to gather baseline tonal noise data for the proposed power plant. Without this information, the study does not provide adequate information for public review of proposed mitigation.

The PSA ignores the existing noise impact and fails to require specific mitigation to avoid the same potential noise impact from the proposed project. The conditions of certification should contain specific mitigation measures. In this case, the approach of the PSA is not sufficient to protect citizens from being significantly impacted by power plant noise.

### 3. POST-CONSTRUCTION MONITORING AND RETROFIT IS THE WRONG APPROACH

The proposed Condition of Certification NOISE-4 regarding Operational Noise Restrictions states that steady-state plant operational noise is to meet nighttime A-weighted noise limits at each monitoring location. According to this Condition, the next step is to conduct a 25-hour community noise survey. *"If the results from the noise survey indicate that the power plant noise at the affected receptor sites exceed the above values, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits."* (PSA, page 4.7-29). The Condition includes no other requirement for mitigation to be incorporated into the original construction to reduce noise to meet the proposed noise limits. This is the wrong approach to noise mitigation.

Incorporating mitigation post-construction is not a reasonable plan since adding mitigation after operation has commenced is often a lengthy process mired in verification studies, cost analyses, and investigation into the design and construction of the project. Do we have assurance that a retrofit will even be feasible? Meanwhile, the community would have to suffer under the noise impact from the power plant operations. Retrofitting is not an appropriate "guarantee" that the criteria will be met.

Not only does Condition NOISE-4 fail to include specific mitigation needed to meet the A-weighted noise criteria, it does not effectively address tonal noise. The PSA acknowledges that pure-tone noise is a significant issue, as follows (PSA, Page 4.7-29):

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*No new pure-tone components (as defined in Noise Table A1, bottom row defining pure tone) shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.*

However, no mitigation is proposed to avoid a tonal noise impact, nor is there a study proposed to assess tonal noise in the design phase. In a situation like this, we would study tonal noise and the expected spectrum of noise as part of a detailed noise mitigation design effort. This should be done in the design of this power plant.

We recommend that Condition of Certification NOISE-4 be revised to require that a detailed noise mitigation plan be developed during the design process. The purpose is to identify the specific mitigation measures that must be incorporated in the initial power plant construction to meet the A-weighted noise limits and to control tonal noise. This solution should also include a factor of safety, standard practice in engineering design. The mitigation plan should undergo an independent peer review towards the goal of protecting nearby residents from excessive noise.

As discussed previously, this required detailed noise analysis during the design phase should also address noise at locations where residents have complained. In addition, once the new plant is completed, the post construction noise survey should also include locations where residents have complained about noise.

#### 4. ERRORS IN THE DOCUMENT

##### *Pile Driving Vibration Criteria*

The *CEQA Impacts* section of the PSA (in the *Vibration* subsection) invokes a threshold of perception standard from the Federal Transit Administration (FTA). It states the following:

*The FTA measure of the threshold of perception is 65 vibration decibels, which correlates to a peak particle velocity of about 0.2 in/sec (inches per second). Condition of Certification NOISE-8 (Pile Driving Management) would ensure potential vibrations from pile driving are limited to a peak particle velocity of 0.2 in/sec at the nearest sensitive receptors.*

This is restated in the NOISE-8 Condition of Certification section later in the report. This perception standard is to be used as the threshold of significance for pile driving vibration impact. While 65 VdB is stated by the FTA<sup>1</sup> as the threshold of perception for humans, this does not correspond to a vibration velocity level of 0.2 inch/second. This is an error. In fact, 0.2 inch/second is an FTA criteria related to building damage and corresponds to a level of approximately 94 VdB (or  $L_v$ , see the table excerpt below).

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<sup>1</sup> See the Federal Transit Administration report titled: *Transit Noise and Vibration Impact Assessment* (Report FTA-VA-90-1003-06), dated May 2006, see Section 7.2 Human Perception of Ground-Borne Vibration and Noise.

Building Category	PPV (in/sec)	Approximate L <sub>v</sub> <sup>†</sup>
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

<sup>†</sup> RMS velocity in decibels (VdB) re 1 micro-inch/second

Table 12-3 excerpt from FTA Report FTA-VA-90-1003-06

Perhaps this is a typo in the PSA. Obviously, 0.2 inch/second, 94 VdB, and “building damage,” should NOT be used as the threshold of significance for pile driving vibration at sensitive receptors. Instead, we expect that 65 VdB would be selected as the criteria. Nonetheless, this technical error concerns us. We have not been given an opportunity to review any calculations or analysis performed by AES’ consultant. Thus, we recommend that their work be peer reviewed by an independent acoustical engineer for other mistakes.

**Redondo Beach Municipal Code Error**

In the LORS section, the interior noise limits of the Redondo Beach Municipal Code are not included, nor are they addressed in the noise study. These standards are listed below This local noise standard should be addressed per CEQA guidelines. Interior noise criteria should be studied and addressed in the required mitigation.

Receiving Land Use Category	Time Interval	Allowable Interior Noise Level (dBA)
Residential	10:00 p.m. to 7:00 a.m.	40
	7:00 a.m. to 10:00 p.m.	45
School	7:00 a.m. to 10:00 p.m.	45
Hospital and designated quiet areas	Any time	40

Redondo Beach Municipal Code excerpt from Section 4-24.401

**Ambient Noise Error**

Existing site noise levels were measured by the applicant at Locations M1 and M2 from 23-31 August 2011. However, the available data<sup>2</sup> show that the existing power plant was in operating from 23-30

<sup>2</sup> Ambient noise data measured by the applicant at Locations M1 and M2 are available in Appendix 5.7A of the Project Application for Certification.

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August. This leaves only about 1.5 days of data with no power plant noise. It seems that all of the data was used to calculate the average “ambient noise level.” As a result ambient noise is overestimated in the noise study report by 2 to 5 dB at Locations M1 and M2, respectively.

**Noise Table 2  
Sensitive Receptor Summary<sup>4</sup>**

1 Receptor	2 Description	3 L <sub>day</sub> Daytime Average dBA	4 L <sub>night</sub> Nighttime Average dBA	5 L <sub>90</sub> Nighttime Lowest 4- hr Avg.
M1	Best Western Motel W. Beryl & Harbor Dr.	58	57	56
M2	3-Story Residential Harbor Drive & Herondo Street	60	57	55

*Excerpt from PSA*

Table 5.7A-1  
Noise Monitoring Site M1 - Best Western  
Redondo Beach Energy Project

Date & Time	Total Facility Output (MW)	Leq	L10	L50	L90
8/30/11 3:00 AM	0	54	55	54	53
8/30/11 4:00 AM	0	54	55	54	54
8/30/11 5:00 AM	0	55	56	55	54
8/30/11 6:00 AM	0	56	57	55	55
8/30/11 10:00 PM	0	56	57	56	55
8/30/11 11:00 PM	0	56	56	56	55
8/31/11 12:00 AM	0	55	56	55	55
8/31/11 1:00 AM	0	55	55	55	54
8/31/11 2:00 AM	0	55	55	55	54
8/31/11 3:00 AM	0	55	55	55	55
8/31/11 4:00 AM	0	55	55	55	55
8/31/11 5:00 AM	0	56	56	55	55
8/31/11 6:00 AM	0	56	57	55	55

Table 5.7A-2  
Noise Monitoring Site M2 - Apartments West of 6th  
Redondo Beach Energy Project

Date & Time	Total Plant Output (MW)	Leq	L10	L50	L90
8/30/11 3:00 AM	0	51	53	51	50
8/30/11 4:00 AM	0	51	53	51	50
8/30/11 5:00 AM	0	52	54	51	50
8/30/11 6:00 AM	0	55	57	53	51
8/30/11 10:00 PM	0	54	56	53	51
8/30/11 11:00 PM	0	53	55	52	51
8/31/11 12:00 AM	0	52	54	51	50
8/31/11 1:00 AM	0	52	53	51	50
8/31/11 2:00 AM	0	52	52	51	50
8/31/11 3:00 AM	0	51	52	51	50
8/31/11 4:00 AM	0	52	53	52	51
8/31/11 5:00 AM	0	53	55	52	50
8/31/11 6:00 AM	0	55	58	53	51

*Excerpts from Project Application for Certification Appendix 5.7A*

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Ambient noise data, which is the basis of evaluation of noise impact in this study, should be reevaluated to avoid contamination from the existing power plant. In addition, the noise impact criteria should be revised accordingly.

## 5. CITY OF REDONDO BEACH NOISE STANDARDS

California Government Code Section 65302 mandates each city to prepare and adopt a comprehensive, long-term General Plan that includes a Noise Element. The Noise Element must also "*identify and appraise noise problems in the community*" (Section 650302 Part F.1). In addition, "*the Noise Element shall include implementation measures and possible solutions that address existing and foreseeable noise problems*" (Section 650302 Part F.4). In the California Noise Element Guidelines,<sup>3</sup> Cities are directed to "*adopt and apply a community noise ordinance for the resolution of noise complaints.*"

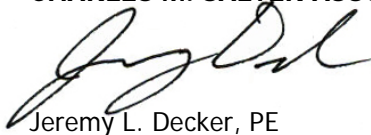
The existing Redondo Beach Noise Ordinance does not address the unique nature of power plant noise. In light of the past power plant noise problems, we recommend that the City consider changing the Noise Ordinance to reduce the power plant noise impact in the community. We anticipate that these changes could result in a substantial change to the LORS.

\* \* \*

This concludes our comments on the Preliminary Staff Assessment and Application for Certification. Should you have any questions, please call.

Sincerely,

### CHARLES M. SALTER ASSOCIATES



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<sup>3</sup> Appendix C: Guidelines for the Preparation and Content of the Noise Element of the General Plan contained in the California General Plan Guidelines published by the Governor's Office of Planning and Research (2003).