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DOCKET

07-AFC-6

DATE JAN 30 2009

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Via email

California Energy Commission
Attn: Mike Monasmith, Project Manager
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Re: **Comments on the Preliminary Staff Assessment for the Carlsbad Energy Center Project, 07-AFC-6**

Dear Mr. Monasmith:

On behalf of California Unions for Reliable Energy ("CURE"), this letter provides opening comments on the preliminary staff assessment ("PSA") for the Carlsbad Energy Center Project ("Project" or "CECP"). In its PSA, staff identified a number of issues of significant interest to intervenors and the public and provided preliminary analyses of these issues. Unfortunately, the PSA only provided partial analysis of many of the most significant issues. Because the PSA did not satisfy the requirements of the California Environmental Quality Act ("CEQA"),¹ the Coastal Act² or the Warren-Alquist Act,³ among other things, a revised PSA must be prepared and circulated for public review and comment. Accordingly, these comments are preliminary in nature because CURE was unable to provide staff with meaningful input for several resource areas. We will submit additional, substantive comments, particularly for air quality and land use, once staff completes and recirculates a legally sufficient PSA.⁴

¹ Pub. Resources Code, § 21000 et seq.

² Pub. Resources Code, § 30000 et seq.

³ Pub. Resources Code, § 25500 et seq.

⁴ On January 27, 2009, CURE submitted its Response in Support of Motion for Revised PSA and Project Schedule Relief. We hereby incorporate that filing by reference as it addressed CURE's bases for seeking a revised and recirculated PSA.

I. THE PSA MUST BE REVISED AND RECIRCULATED FOR PUBLIC COMMENT

In the application for certification process for a power plant, the Energy Commission acts as lead agency under CEQA.⁵ In all essential respects, its process is functionally equivalent to that of all other CEQA proceedings.⁶ Specifically, a PSA is the functional equivalent to a draft environmental impact report (“EIR”), the draft environmental document prepared by staff to inform decision-makers and the public of a project’s environmental impacts.

CEQA has two basic purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project.⁷ The PSA, like an EIR, is the “heart” of this requirement.⁸ The EIR has been described as “an environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.”⁹ CEQA mandates that an EIR, or EIR equivalent, be prepared “with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences.”¹⁰ Further, in preparing an environmental document, “an agency must use its best efforts to find out and disclose all that it reasonably can.”¹¹ Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures.¹² Unfortunately, the PSA falls short of satisfying either of these basic requirements.¹³

⁵ Pub. Resources Code, § 25519(c).

⁶ Pub. Resources Code, § 21080.5.

⁷ 14 Cal. Code Regs. (“CEQA Guidelines”), § 15002(a)(1.)

⁸ *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84.

⁹ *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795.

¹⁰ CEQA Guidelines, § 15151.

¹¹ CEQA Guidelines, § 15144.

¹² CEQA Guidelines, § 15002(a)(2) and (3). See also *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Ass’n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400.

¹³ Interestingly, throughout the PSA are descriptions of the Commission’s obligations to comply with certain applicable laws, ordinances, regulations and standards (LORS). However, never once did the PSA actually describe the Commission’s duty to comply with CEQA.

The PSA failed to satisfy these purposes primarily because the CECP itself remains a moving target. For example, the applicant filed a major Project amendment on August 27, 2008; a statutorily-mandated Coastal Act report remains outstanding;¹⁴ new information regarding Caltrans' I-5 widening project is evolving; and, by staff's own reckoning, analyses for numerous resource areas remain incomplete. The PSA simply does not contain the information required by CEQA and its implementing guidelines for a draft environmental document.¹⁵

At the January 7 and 8 workshop, staff proposed that it would aim to include all of the missing analyses and mitigation measures in the final staff assessment ("FSA"). Staff also proposed that it may hold an additional, although not required, hearing on the FSA. Given the importance and sheer scope of unaddressed issues, this course of action is unacceptable and would not comply with CEQA. CEQA requires recirculation of an EIR, or EIR equivalent, when significant new information is added to the EIR following public review but before certification.¹⁶ The CEQA Guidelines clarify that new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect."¹⁷ The purpose of recirculation is to give the public and other agencies an opportunity to evaluate the new data and the validity of conclusions drawn from it.¹⁸ Consequently, staff's goal to include critical additional analyses and mitigation measures in the FSA violates CEQA. Instead, staff must recirculate a revised PSA that includes the outstanding analyses and currently unidentified mitigation measures. It is only under this scenario that intervenors and the public can review and comment upon staff's draft environmental impact analysis.

II. THE PSA'S COASTAL ACT CONSISTENCY ANALYSIS IS BOTH FLAWED AND INCOMPLETE

The California Coastal Act unequivocally requires the Coastal Commission to prepare an in-depth report for all thermal power plant projects proposed within a

¹⁴ Pub. Resources Code, § 30413(d).

¹⁵ Pub. Resources Code, § 21100; CEQA Guidelines, §§ 15120(c), 15122-15131.

¹⁶ Pub. Resources Code, § 21092.1.

¹⁷ CEQA Guidelines § 15088.5.

¹⁸ *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (1981) 122 Cal.App.3d 813, 822.

coastal zone.¹⁹ Unfortunately, due to budgetary constraints, the Coastal Commission is unable to participate in the CECP proceeding at this time. Given that the Coastal Commission's organic act is clear that its participation is mandatory, there is a strong legal argument that the Energy Commission cannot proceed absent Coastal Commission involvement. Nevertheless, staff chose to proceed anyway, and made its own flawed, barebones assessment that the Project is coastal dependent, and is consistent with the Coastal Act's legal requirements.

To make matters worse, it failed to substantiate its findings by preparing a statutorily-required report pursuant to the Coastal Act, the components of which are enumerated here in footnote number 19. Instead, as shown below, the PSA did not provide the required report, but rather made contradictory and conclusory findings in the PSA's land use section, then referred the reader to numerous other PSA sections making it impossible to discern whether the Project is coastal dependent or complies with the Coastal Act at all. The reality is, only the Coastal Commission has the authority to make these determinations and it must do so by making specific, statutorily-required findings. Nevertheless, for the sake of argument, if the Energy Commission staff intended to assume this responsibility, a stand-alone analysis was required with all mandatory sections in one place.

¹⁹ The Coastal Commission's report shall contain a consideration of, and findings regarding, all of the following:

- (1) The compatibility of the proposed site and related facilities with the goal of protecting coastal resources.
- (2) The degree to which the proposed site and related facilities would conflict with other existing or planned coastal-dependent land uses at or near the site.
- (3) The potential adverse effects that the proposed site and related facilities would have on aesthetic values.
- (4) The potential adverse environmental effects on fish and wildlife and their habitats.
- (5) The conformance of the proposed site and related facilities with certified local coastal programs in those jurisdictions which would be affected by any such development.
- (6) The degree to which the proposed site and related facilities could reasonably be modified so as to mitigate potential adverse effects on coastal resources, minimize conflict with existing or planned coastal-dependent uses at or near the site, and promote the policies of this division.
- (7) Such other matters as the commission deems appropriate and necessary to carry out this division. (Public Resources Code § 30413(d).)

A. The CECP is Not a Coastal-Dependent Development

Under the Coastal Act, “[c]oastal dependent development or use” means any development or use which **requires** a site on, or adjacent to, the sea to be able **to function at all**.²⁰ This definition poses a very high bar, and is not one easily met by industrial facilities. Here, it must be shown that a power plant is a development or use that requires proximity to the sea in order to even operate. Such is clearly not the case. The era when power plants relied upon sea water to operate has long passed. Today, there are power plants sited in all corners of the state, which, increasingly, like the CECP, no longer depend upon water for once-through cooling. Instead, this project would use evaporative air cooling.²¹ Accordingly, the Project’s *minimal* industrial and landscaping needs would be met through an onsite desalination system.²²

Importantly, the desalination system component of the Project was added through an application amendment in August 2008, nearly one year after the applicant filed its AFC. Also, according to the PSA, the desalination system may not be needed at all if the City is able to provide the Project with reclaimed water pursuant to Title 22.²³ Thus, the CECP will be air-cooled; the Project was not originally proposed to use sea water for secondary purposes; and, in the end, the desalination system may not be needed at all. Combined, these facts unequivocally prove that the CECP is not coastal dependent. A finding otherwise would violate the plain language of the Coastal Act.

B. The CECP is Not a Coastal-Dependent Industrial Facility

The PSA next concluded that the Project is coastal-dependent because the project site is currently occupied by an existing power plant.²⁴ This analysis was based upon Coastal Action section 30260:

“Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long term growth where consistent with this division.”²⁵

²⁰ Pub. Resources Code, § 30101 (emphasis added).

²¹ PSA, at p. 3-2.

²² Id.

²³ PSA, at p. 3-3.

²⁴ PSA, at p. 4.5-13.

The PSA found that the CECP is consistent with the above provision based on the conclusory and unsubstantiated finding that: “Construction of the CECP on the site of an existing industrial property with access to existing power infrastructure, and with limited adjacent sensitive uses, has greater relative merit to development of a power plant at an alternative site.”²⁶ First, the mere fact that the site is currently occupied by a power plant does not make the CECP coastal-dependent. And, having already shown that the Project is not coastal-dependent renders this component of the PSA moot. Coastal Act section 30260 only applies to coastal-dependent industrial facilities. Once that definition is met, such facilities should be sited on existing, industrial sites. Instead, the PSA makes the highly circular argument that because the CECP will be sited on an industrial site, it is therefore coastal dependent. No.

Second, the bald assertion that the site contains “limited adjacent sensitive uses” is refuted by the PSA itself. For example, Agua Hedionda Lagoon is located 0.1 mile north of the CECP site, a mere 500 feet.²⁷ The Lagoon is known for its “high quality habitat for a wide variety of species.”²⁸ The Lagoon provides nesting and foraging habitat for various special status species such as southwestern pond turtle, white-faced ibis, western snowy plover, peregrine falcon and osprey.²⁹ The Lagoon provides recreational opportunities such as waterskiing, boating and youth camp.³⁰ The City has pointed out that “the EPS property is predominantly surrounded by residences and open space.”³¹ Tellingly, that which is omitted from the PSA speaks volumes too. As far as we could discern, the PSA omitted any photographs which accurately depict the CECP’s proximity to the California coast, and the quality of that coast. The truth is, the CECP would essentially sit on an otherwise pristine and highly valued beach. The omission of any discussion or photographs of this bucolic, tourism-dependent beach town in the PSA’s Coastal analysis unfairly skewed the analysis in favor of the CECP.

²⁵ Pub. Resources Code, § 30260 (emphasis added).

²⁶ PSA, at p. 4.5-13.

²⁷ PSA, at p. 4.2-3.

²⁸ PSA, at p. 4.2-4.

²⁹ PSA, at p. 4.2-7.

³⁰ Id.

³¹ PSA, at P. 4.5-18.

Finally, the PSA made the finding that the CECP “has greater relative merit to development of a power plant at an alternative site.”³² In order to verify this conclusion, staff would have had to conduct an alternatives analysis in conformance with the Coastal Act and evaluate various alternative sites’ relative merit. Because no such alternatives analysis in terms of coastal resources was included in the PSA, this finding has no merit.

In conclusion, the Project has not been adequately analyzed for Coastal Act consistency. The Coastal Commission is statutorily required to conduct such an analysis. Based upon the Coastal Commission’s notice that it could not participate at this time, the staff tried to step into the Coastal Commission’s shoes. However, the PSA’s land use section on coastal resources is the best evidence of why the Coastal Commission is an indispensable party to this proceeding. Before the Commission may certify the CECP, a legally and factually defensible coastal report is required.

III. THE PSA MUST PROVIDE SUFFICIENT DETAIL TO ANALYZE THE PROJECT’S IMPACTS

A PSA, like an EIR, must provide sufficient information to allow decision-makers and the public to understand the environmental consequences of the Project.³³ Because the applicant failed to provide staff with necessary information, and because the Project continues to evolve and change due to outside events, the PSA fell short of CEQA’s requirements. Accordingly, staff was compelled to release an incomplete PSA, with the intention of providing additional information and analyses in the FSA. This, in turn, has denied the public and intervenors with an adequate opportunity to evaluate the Project’s environmental impacts.

Preparation of an EIR, or EIR equivalent, and consideration of comments on it from the public enables the agencies that will consider the project to have the information necessary to weigh competing policies and interests.³⁴ Further, if significant new information is added to the EIR, the lead agency must recirculate the document for further review and comment.³⁵

³² PSA, at p. 4.5-13.

³³ *Napa Citizens for Honest Gov’t v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 356.

³⁴ *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 576.

³⁵ Pub Resources Code, § 21092.1; Cal. Code Regs., § 15088.5.

A. THE PSA'S AIR QUALITY ANALYSIS IS WHOLLY INCOMPLETE

CURE's air quality expert, Dr. Pless, was precluded from developing meaningful and accurate comments on the PSA's air quality section because the PSA is deficient because the applicant's Project description, relied upon by CEC staff to draft the PSA, does not accurately reflect all aspects of the CECP's proposed operations. The Preliminary Determination of Compliance ("PDOC") issued by the San Diego County Air Pollution Control District ("SDCAPCD" or "District"),³⁶ for example, evaluated a number of operational scenarios that had not been fully disclosed or explained in the AFC, responses to data requests, or any other documents the applicant had submitted to the CEC. In addition, on January 5, 2009, almost four weeks after release of the PSA and more than six weeks after release of the PDOC, the applicant submitted comments on the District's PDOC that included substantial new information on critical aspects of the CECP's operational modes and associated emissions that had not been previously evaluated in either the PDOC or the PSA. To account for this new information, the applicant suggested a number of substantive revisions to permit operating conditions proposed in the PDOC. Evidently, staff had not been apprised of any of this information during their preparation of the PSA.

On January 22, 2009, staff sent Data Request Set #4 to the applicant which addressed issues related to the inadequately described operational scenarios presented in the District's PDOC and issues raised by the new information supplied by the applicant in its January 5, 2009, comment letter on the PDOC.³⁷ Staff's data requests covered some of the same issues the applicant's January 5, 2009, comment letter raised. (Unfortunately, staff's Data Request Set #4, which was docketed on January 22, 2009, was not immediately distributed via the docket distributor list or posted on the CEC's website as a download link. Dr. Pless only by chance discovered that staff's data requests had been released on the CEC's docket list. The document was made available on the CEC's website on January 27, 2009, after CURE requested a copy from the CEC's project manager, Mike Monasmith.) The

³⁶ NRG, Letter to Steven Moore, San Diego Air Pollution Control District, Re: Comments on the Preliminary Determination of Compliance for the Proposed Carlsbad Energy Center Project, January 5, 2009.

³⁷ California Energy Commission, Carlsbad Energy Center Project (07-AFC-6), Air Quality Data Request Set #4, January 22, 2009.

Applicant has until February 23, 2009 to submit written responses to staff's data requests.

The applicant's responses to these data requests have the potential to substantially change or even invalidate the air quality modeling contained in the PSA and may require substantive revisions of the PSA. For example, staff's Data Request No. 157 specifically requested the applicant to demonstrate that increased NOx emission levels requested for transient load events would not result in impacts greater than those already modeled and analyzed in the PSA for worst-case 1-hour NOx emission events. Further, as discussed below, information provided by the Applicant casts doubt on the ability of the proposed plant setup to comply with the emission limits set by the CEC and SDAPCD, potentially requiring a revision of the PSA's alternatives analysis. It is Dr. Pless's expert opinion that it is premature to comment on the December 2008 PSA before having the opportunity to review the applicant's responses to the January data requests, and before staff makes a decision on whether the responses necessitate a revision of the PSA's air quality analysis.

B. THE PSA'S SOIL CONTAMINATION ANALYSIS IS INCOMPLETE

The following examples concerning soil contamination demonstrate that, due to insufficient information, the PSA is deficient under CEQA:

- The PSA failed to identify the locations for the stockpiles of petroleum-impacted soils that are proposed to be excavated, and failed to require measures to ensure contaminated soil will not be mobilized by stormwater runoff to drain offsite and toward surface water bodies, including Agua Hedionda Lagoon, a water body listed as impaired under section 303(d) of the Clean Water Act;
- The PSA and AFC omitted site-specific BMPs that would ensure protection of Agua Hedionda Lagoon from contamination via soil runoff;
- The PSA omitted discussion of whether the Project site has an existing Spill Prevention, Control and Countermeasures (SPCC) plan. If there is a current SPCC plan, the PSA failed to document the requirement that an SPCC plan must be amended in connection to the demolition of Tanks 5, 6, and 7, as

required by Federal Code of Regulations (40 CFR 112, Oil Pollution Prevention);

- The PSA failed to identify that demolition of Tanks 5, 6, and 7 might alter secondary containment structures which may impact surface water quality over the period of demolition; and
- The PSA did not include specific information about the removal schedule for Tanks 5, 6, and 7, nor did it discuss a schedule for verification sampling in the vicinity of the tanks planned for removal.

IV. THE PSA MUST DISCLOSE AND ANALYZE ALL POTENTIALLY SIGNIFICANT IMPACTS

CEQA requires the PSA to disclose and analyze all of a project's potentially significant adverse environmental impacts.³⁸ Identification of a project's significant environmental effects is one of the primary purposes of an EIR and is necessary to implement the stated public policy that agencies should not approve projects if there are feasible mitigation measures or project alternatives available to reduce or avoid significant environmental impacts.³⁹ Because the applicant failed to provide necessary information, however, staff could not effectively evaluate the Project's impacts in the PSA. Thus, the PSA does not satisfy CEQA's requirements.

Specifically, due to insufficient information from the Applicant, the PSA contains cursory or flawed analyses of impacts associated with air quality and hazardous waste. The PSA must be revised to address the impacts outlined below, and recirculated for public review and comment.

A. The PSA's Air Quality Analysis is Incomplete

1. The Definition of Startup is Flawed

Both the PSA and the District's PDOC defined a startup period as the period of time that begins when fuel flows to the combustion turbine following a non-

³⁸ Pub. Resources Code, § 21100(b)(1).

³⁹ Pub. Resources Code, §§ 21002, 21002.1(a).

operational period not to exceed 60 consecutive minutes.⁴⁰ This definition did not address the variability of startup times depending on turbine temperature (cold, warm, hot start) and appears to be at odds with information provided by the applicant that under the CECP's proposed daily cycling duty (plant shut down for 8 hours per day), the turbines would be able to reach full load in approximately 45 minutes for a hot start and approximately 125 minutes for a cold start.⁴¹ Further, the turbine manufacturer Siemens provided estimated duration per startup event under different ambient temperatures for the CECP's proposed STG6-5000 turbines and estimated the time from gas turbine ignition through 100 percent load at 22 minutes including a 10-minute period by which time it is assumed that emissions would be in compliance.⁴²

Based on this information, the proposed definition of a startup period to include up to 60 minutes appears to be overly lenient. The applicant must supply additional information on emission levels for all startup scenarios (cold, warm, and hot) and at different ramp rates for loads from zero to 100 percent to better define the startup period and to avoid permitting excess periods during which the turbines are capable of but not required by permit conditions to comply with the 2 ppm NO_x limit for normal operations (similar to the manufacturer information included in the applicant's comment letter on the PDOC).

2. The Number of Startup and Shutdown Events is Unclear

Based on the applicant's proposed typical operating scenarios, the PSA determines maximum annual emissions from the CECP based on the assumption that each turbine operates up to 4,100 hours per year, of which 300 hours are for startups, 300 hours are for shutdowns, and 3,500 hours are for steady-state full-load operation at annual average base conditions.⁴³ Yet, both the PSA and the PDOC incorporated a condition, PSA AQ-47 and PDOC Condition 47, which limit the number of startups for each turbine to 1,460 events per year. Combined with the definition of a startup period contained in PSA AQ-11 and PDOC Condition 11, which limits the duration of a startup period to 60 consecutive minutes, this provision potentially permits operation of each turbine under startup conditions of up to 1,460 hours per year. A total of 1,460 startup events would also require a

⁴⁰ PSA, AQ-11, p. 4.1-67 and PDOC, Appendix C, Condition 11.

⁴¹ PSA, p. 5.3-4.

⁴² AFC, Appendix 5.1B, Table 5.1-B.

⁴³ PSA, p. 4.1-27 and Table 18, p. 4.1-28.

total of 1,460 shutdown events, which based on the limit on the duration of a shutdown event of 35 minutes as defined in PSA AQ-10 and PDOC Condition 10, would amount to 852 hours per year. Thus, the CECP could potentially be operated for up to 2,311 hours per year under conditions that are exempt from compliance with the 2 ppm NO_x emission limit for normal operations. (Neither the PSA nor the PDOC contains a limit on annual numbers of shutdown events or annual hours of normal operational periods.)

This inconsistency was not explained in the PSA. Consequently, potential annual emissions from the Project under startup conditions and shutdown conditions as presented in the PSA may be underestimated. While the applicant would still have to comply with facility-wide annual emission limits, this potentially drastically increased number of startups and shutdowns would considerably reduce the percentage of time under which the turbines would have to comply with the normal operating emission limits of 2 ppm NO_x. For example, for 300 hours of startups and 300 hours of shutdowns, as discussed in the PSA, the total permissible time operating in excess of the 2 ppm NO_x limit would be about 17 percent of the total of 3,500 operating hours.⁴⁴ In the case of 1,460 startups and the corresponding 1,460 shutdowns, the time remaining for normal operations without exceeding the annual facility limits would be limited and only make up a small percentage of the Project's operations. This issue must be resolved in a revised condition.

3. The Project's Transient Load Change Must be Properly Clarified in a Revised PSA and NO_x Emissions Fully Mitigated

The applicant requested short-term excursions from the BACT emission limit of 2 ppm NO_x to account for periods with rapid load changes, so-called transient periods. The District's PDOC conditions define transient load changes when the turbine exceeds a 50 Megawatt per minute ("MW/min") load change and includes provisions to permit transient load conditions to meet the 2 ppm BACT NO_x, CO, and VOC emission levels with a 3-hour averaging period rather than a 1-hour averaging period for normal operating conditions. The applicant's January 5, 2009 comment letter disclosed that the turbines cannot meet the NO_x BACT levels of 2 ppm at load changes as low as 5 MW/min. (The applicant supplied no information

⁴⁴ $(300 + 300) / 3,500 = 0.17$; Not accounting for transient periods, low-load operations, tuning or other exempt conditions.

on whether CO and VOC emissions are similarly affected.) Based on that, the applicant asked to replace the 2 ppm NO_x emission limit with a 12 ppm NO_x emission limit for transient conditions and redefines the transient period as exceeding a 10 MW/min load change for a total of 15 hours per year per turbine.⁴⁵ The applicant further requested that the 3-hour averaging period for transient loads be replaced with a 1-hour averaging period that excludes minutes during transient conditions.⁴⁶

In addition to considerably altering the conditions under which the turbines would not have to meet the 2 ppm NO_x BACT limit, it appears that the applicant's proposed definition of a transient period as exceeding a 10 MW/min load change may not be workable. In fact, based on the data supplied by Siemens, it appears that even minimal load changes, *i.e.* considerably smaller than 5 MW/min, would result in non-compliance with the 2 ppm NO_x BACT limit. Specifically, Siemens data show that for every 5 MW/min load change above 60 percent load, uncontrolled NO_x emission levels increase by about 4 ppm to about 13 ppm at 15 percent oxygen above the nominal steady state level of about 9 ppm at 15 percent oxygen. (Steady-state uncontrolled NO_x levels of 9 ppm controlled by a selective catalytic reduction ("SCR") system are below 2 ppm.) The Siemens data show that uncontrolled NO_x emission levels increase during both negative and positive load changes.

The manufacturer notes that higher ramp rates as well as higher turbine inlet temperatures can be expected to result in even larger NO_x emission levels of up to 20 ppm. The manufacturer also notes that the potential additional time delay with a SCR system could extend the length of the transient. In other words, because of the lag time associated with the response of the SCR system to achieve steady state levels of 2 ppm NO_x, the time period during which the turbine would not meet its 2 ppm BACT NO_x emission level may be longer than the time period during which the actual load change occurs. However, the applicant's proposed definition of transient periods only accounts for the time period during an actual load change, not for the lag time of the SCR system. While actual emissions during transient periods would count towards cumulative emission limits, the time period exceeding the steady state operating emission limit of 2 ppm NO_x would not be detected. Thus, the actual time period above 2 ppm NO_x BACT emission levels as a

⁴⁵ NRG PDOC Comment Letter, Proposed Condition XX.

⁴⁶ NRG PDOC Comment Letter, Proposed Condition 28.A.

result of load changes may exceed the 15-hour limit proposed by the applicant for transient operations.

In order to address these potentially significant issues, a revised PSA must include additional information for NO_x, VOC, and CO emission levels during transient periods at various ramp rates and load levels before and after the SCR system is required.

4. There are Discrepancies Concerning Rapid Response Startup and Shutdown Times

Both the CECP and the El Segundo Project proposed to use two Siemens STG5-6000 turbines with rapid-response technology with a total nominal generating capacity of about 560 MW. According to the applicant, these turbines are able to reach full load and operate at a combined cycle efficiency of approximately 55-56 percent in approximately 45 minutes for a hot start and approximately 125 minutes for a cold start. Yet, to calculate maximum hourly emissions associated with startup and shutdown, the applicant relied on different data. For the CECP, the applicant calculated maximum hourly emissions for startups based on 22 minutes of elevated emission levels followed by 38 minutes of normal operating emission levels.⁴⁷ The 22 minutes of elevated emissions were based on vendor-supplied data for startups at 62 and 41 F.⁴⁸ For the El Segundo project, the vendor-supplied data show a considerably lower startup period of 12 minutes at 62 and 41 F.⁴⁹ The PSA is deficient because neither the applicant nor the PSA addressed these dissimilar startup periods for essentially the same turbine configuration. This issue was raised at the January workshop and must be addressed in a revised PSA.

5. The Applicant Must Quantify Secondary PM₁₀ Emissions

According to the PSA, PM₁₀ emissions “are not estimated to be higher or lower during startup and shutdown events than during normal operation.”⁵⁰

⁴⁷ PSA, p. 5.1-32.

⁴⁸ El Segundo Power, LLC, Application to the South Coast AQMD for a Determination of Compliance and Permit to Construct for the El Segundo Power Redevelopment Project, June 2007, Appendix 5.1B, Table 5.1B-7.

⁴⁹ Appendix I, CTG Vendor Supplied Startup/Shutdown Emissions.

⁵⁰ PSA, p. 4.2-26.

However, elevated NOx emissions during the Project's proposed frequent startup and shutdown periods would contribute to formation of secondary particulate matter. Therefore, the applicant must quantify the potential formation of secondary PM10 (or PM2.5) and the information must be incorporated into a revised PSA.

In conclusion, for the air quality analysis, the lack of critical information available to CEC staff at the time of preparation of the PSA and the applicant's late and incomplete submittal of additional information made it nearly impossible and premature to meaningfully comment on a document that may need substantial revisions. In addition, there are a number of issues that warrant further review after these deficiencies have been addressed.

B. The PSA's Hazardous Waste Analysis was Incomplete

1. The PSA Did Not Address Potential Transport of Contaminated Soils via Stormwater Runoff and Did Not Offer Prevention Measures

Soil contamination in the area of Tank No. 7 was detected and described in a project remediation report prepared in 2004 to document the cleanup of contaminated soils.⁵¹ A 1998 Phase II Environmental Site Assessment identified eight locations at the Encina Power Plant where total extractable hydrocarbons (TEH) concentrations exceeded 1,000 mg/Kg.⁵² Two of these areas, labeled Area 5 and Area 6, were located adjacent to Tank No. 7: Area 5 was a paved area southwest of the tank and Area 6 was an unpaved area north of the tank.⁵³ During November 2003, a total of 4,426 cubic yards of petroleum hydrocarbon-contaminated soil was excavated and removed from the Encina Power Plant, including 139 and 101 cubic yards from Areas 5 and 6 respectively.⁵⁴ However, 12 cubic yards in Area 5 and 4 cubic yards in Area 6 were not removed due to physical limitations.⁵⁵ Following excavation, soil samples were collected from the excavation bottoms and side walls.

⁵¹ Report on Encina Power Plant Remediation Project. Prepared by Haley and Aldrich, Inc. for San Diego Gas and Electric. April 28, 2004.

⁵² Ibid, p. 2.

⁵³ Ibid, p. 7.

⁵⁴ Ibid, Table 5.

⁵⁵ Ibid, p. i

Tank No. 7, along with Tank Nos. 5 and 6, will be demolished along with the removal of the soil from beneath and adjacent to the tanks. Excavation soil samples in Areas 5 and 6 in the vicinity of Tank No. 7 were reported to contain TEH at up to 3,030 mg/kg, well above a cleanup goal of 1,000 mg/kg.⁵⁶ In 2003, not all soil could be excavated because of the presence of a concrete ditch and an above-ground pipe which precluded further excavation. The 2004 report estimated approximately 16 cubic yards of TEH-contaminated soil to remain in areas that were inaccessible to excavation equipment at concentrations above the soil cleanup goal. The TEH-impacted soil may therefore serve as a source of contamination to groundwater and may pose a potential for contamination of stormwater runoff.

Additionally, soil from beneath Tanks 5, 6, and 7 is known to have been mixed with fuel oil for the purposes of preparing the foundation for the tanks.⁵⁷ Approximately 11,300 tons of soil from the area around tanks 5, 6, and 7 are estimated to be impacted by the soil/oil mixture.⁵⁸ The PSA estimated tank demolition activities to generate 11,300 tons of waste soil.⁵⁹

The PSA failed to identify the locations for the stockpiles of petroleum-impacted soils that are proposed to be excavated. A revised PSA is necessary and should require measures to ensure contaminated soil will not be mobilized by stormwater runoff to drain offsite and toward surface water bodies, including Agua Hedionda Lagoon.

The Water Resources Section of the AFC did not mention the presence of the petroleum-impacted soils that remain beneath the Tanks 5, 6, and 7 and the soils that were inaccessible during excavation that are known to be TEH-contaminated. A construction storm water pollution prevention plan, included as Appendix 5.15C to the AFC, only stated:

The project does not have the potential to discharge directly to a water body listed as impaired due to sedimentation/siltation and/or turbidity pursuant to

⁵⁶ Ibid, pp. 12-13.

⁵⁷ PSA, at p. 4.13-10.

⁵⁸ Ibid.

⁵⁹ PSA, at p. 4.13-11.

Clean Water Act Section 303(d). All on-site pollutants have petroleum characteristics for visual monitoring.⁶⁰

This statement was unsubstantiated and did not address the issue of stockpiled soils contaminated by petroleum hydrocarbons that may be mobilized by storm water runoff. The PSA must be revised to include measures to prevent petroleum hydrocarbons-contaminated soil to migrate offsite.

2. The PSA Failed to Analyze Potential Impacts to Agua Hedionda Lagoon

The surface water body nearest to the CECP site is Agua Hedionda Lagoon, located 300 feet to the north of Tank No. 7. The State of California has identified the Agua Hedionda Lagoon on the 303(d) list of water bodies that do not meet federal Clean Water Act water quality standards because of an impairment caused by sediment and siltation.⁶¹ Agua Hedionda Lagoon has existing beneficial uses of contact and non-contact water recreation, areas of special biological significance, marine and wildlife habitat, preservation of rare and endangered species, warm freshwater habitat, and has potential for beneficial use as an estuarine habitat.

The Water Resources Section (Section 5.15) of the AFC failed to acknowledge the impaired status of Agua Hedionda Lagoon. The 303(d)-listed status of Agua Hedionda Lagoon was not identified elsewhere in the AFC despite the fact that tank demolition activities are expected to generate approximately 3,800 tons of metal debris, 49,000 gallons of residual No. 6 fuel oil, and 11,300 tons of waste soil that may serve as a source of contamination.

According to the PSA, stormwater runoff during Project development will rely on an existing storm water collection system which includes pumped collection sumps that feed an existing line which discharges to Agua Hedionda Lagoon. Runoff within the impoundment area currently enclosing Tanks 5, 6, and 7 is planned to be collected and pumped to an above-ground mobile oil/water separator

⁶⁰ AFC, at p. 600-1.

⁶¹ 2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs. SAN DIEGO Regional Water Quality Control Board. Approved by USEPA June 28, 2007. http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_req_tmdls.pdf

and sand media filter for pretreatment prior to discharge to the Agua Hedionda Lagoon.⁶²

Under provisions of State Water Resources Control Board Order No. 99-08-DWQ,⁶³ all dischargers are required to prepare and implement a storm water pollution prevention plan (SWPPP) prior to disturbing a site. A construction SWPPP, included as Appendix 5.15C to the AFC, did not evaluate the efficacy of the above-ground mobile oil/water separator and sand media filter treatment BMP (as identified above) in the removal of petroleum contaminants that are known to exist in the vicinity of Tank No. 7. The construction SWPPP did not specifically address stockpiling of petroleum-contaminated soils and the potential impact from runoff to Agua Hedionda Lagoon. The construction SWPPP only identified generic BMPs in an appendix that included materials downloaded from a website that have not been evaluated for effectiveness at the proposed project site for contaminants that are likely to be encountered.

The PSA failed to note this deficiency in the AFC. In order for intervenors and the public to review and comment upon this component of the Project, the PSA must be revised to require a SWPPP to include site-specific BMPs that would ensure protection of Agua Hedionda Lagoon from contamination via soil runoff.

Staff should recommend that an integrated approach that commits to use of the County of San Diego's Low Impact Development program (see the 2007 County of San Diego Low Impact Development Handbook⁶⁴) be used to identify BMPs that together will ensure the greatest degree of contaminant reduction. The Low Impact Development Handbook identifies numerous BMPs not considered by the applicant which are applicable to the proposed development, including:

- Infiltration trenches;
- Infiltration basins;

⁶² PSA, p. 4.9-7.

⁶³ National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 99-08-DWQ. California State Water Quality Control Board.

http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/finalconstpermit.pdf

⁶⁴ Low Impact Development Handbook: Stormwater Management Strategies. County of San Diego, Department of Planning and Land Use. December 31, 2007.

<http://www.sdcounty.ca.gov/dplu/docs/LID-Handbook.pdf>

- Vegetated filter strips;
- Sand filters; and
- Bioretention systems.

3. The PSA must Document a Project-specific Spill Prevention Control and Countermeasures Plan

According to the AFC:

Accidental leaks and discharges inside the power generating areas will be contained and disposed off-site in accordance with approved Spill Prevention, Control and Countermeasures (SPCC) Plans. SPCC plans must be prepared in accordance with the oil pollution prevention guidelines in the Federal Code of Regulations (40 CFR 112). These plans must include procedures, methods, and equipment at the facility to prevent discharges of petroleum from reaching navigable waters. SPCC plans must be certified by a Registered Professional Engineer and a complete copy must be maintained on site. Specific requirements of the SPCC Plan can be found in 40 CFR section 112 or the California Health and Safety Code Chapter 6.67, section 25270 et seq.⁶⁵

The AFC omitted whether an SPCC plan was prepared and approved for the proposed Project. The PSA must be revised to include information about the existing SPCC plan, if one exists. If an SPCC plan does not exist, the PSA must be revised to include a requirement that an SPCC plan be prepared with consideration to the demolition of Tanks 5, 6, and 7, as specified in the Federal Code of Regulations.⁶⁶ Demolishing Tank Nos. 5, 6, and 7 would compromise the secondary containment, thus posing a risk of contaminant transport to neighboring surface water bodies. Either way, given the Project site's proximity to the Agua Hedionda Lagoon and the Pacific Ocean, other agencies, intervenors and the public are entitled to review and comment upon an SPCC plan.

In addition, federal regulations require industrial facility owners and operators of facilities to amend the SPCC plan under certain circumstances,

⁶⁵ AFC, at p. 2.1.

⁶⁶ 40 C.F.R. 112.5.

including “construction or demolition that might alter secondary containment structures.”⁶⁷ The amendment of the SPCC plan must be prepared within six months of the date of demolition. Accordingly, the PSA must be revised to document what the applicant has done to comply with this requirement and then circulated for review and comment.

Finally, none of the three tanks proposed for removal have been inspected by a regulatory agency representative.⁶⁸ The PSA did not reference the new Aboveground Petroleum Storage Act which requires inspections of tank facilities with an aggregate storage capacity of 10,000 gallons or more of petroleum at least every three years.⁶⁹ The PSA must be revised to address the implications of the Aboveground Petroleum Storage Act on the proposed tank removal and to require that a regulatory inspection be conducted.

4. The PSA Failed to Analyze Tank Removal and Verification Sampling

On July 15, 2008, the applicant submitted a Fuel Oil Storage Tank Removal and Verification Sampling Work Plan at the Encina Power Station to the San Diego County Department of Environmental Health (SDCDEH).⁷⁰ On August 5, 2008, SDCDEH approved the work plan.⁷¹ An objective of the work plan was to “briefly describe general procedures for removal of tank bottoms, piping and associated foundations, and underlying contaminated soil (where applicable).”⁷² The work plan further stated (p. 1) that “the removal of Tanks 5, 6, and 7 are described in a

⁶⁷ Code of Federal Regulations Title 40 – Protection of Environment, Chapter I – Environmental Protection Agency, Subchapter D – Water Programs, Part 112 – Oil Pollution Prevention <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=40:21.0.1.1.7&idno=40>

⁶⁸ SDCDEH, January 8, 2009 phone conversation, Ms. Sande Pence.

⁶⁹ Aboveground Petroleum Storage Act, Assembly Bill 1130 (Laird) Fact Sheet. California Department of Environmental Protection Unified Program. December 2007. <http://www.calepa.ca.gov/CUPA/Aboveground/FactSheetAPSA.pdf>

⁷⁰ Carlsbad Energy Center Project – Fuel Oil Storage Tank Removal and Verification Sampling Work Plan, Encina Power Station, Carlsbad California, Voluntary Assistance Program Case Number H13941-004. Prepared by SGI The Source Group. July 15, 2008.

⁷¹ Voluntary Assistance Program, File H13941-004, Cabrillo Power I, LLC. Letter from San Diego County Department of Environmental Health to NRG Energy, Inc. August 5, 2008.

⁷² Work Plan, at p. 1.

separate work plan that will be submitted to the San Diego County Hazardous Materials Management Division.”⁷³

According to section 2.0 of the Project Description in the AFC:

Cabrillo Power I LLC is currently removing the existing fuel oil tanks and completing allowed general remediation of a portion of the East Tank Farm as part of ongoing operations and maintenance. Thus, CECP will begin with the fuel oil tanks removed and proceed to prepare the site for the power plant.

In an attempt to determine if the Tank demolition had begun, CURE’s hazardous waste expert contacted the SDCDEH, but the agency was unaware of any demolition activities.⁷⁴ The AFC omitted any timeline for removal of Tanks 5, 6, and 7, and the PSA did not address the issue. The PSA must be revised to include specific information about the removal schedule and whether any removal that may have already been conducted would be in violation of the Federal Code of Regulations (40 CFR 112.5). Furthermore, neither the AFC nor the PSA mention a schedule for verification soil sampling in the vicinity of the tanks planned to be removed. The PSA should be revised to address the need for verification soil sampling provisions, the schedule for soil sampling and the process by which the results of the sampling would be reviewed and approved by the San Diego County Hazardous Materials Management Division.

⁷³ Id.

⁷⁴ SDCDEH, January 6, 2009 phone conversation, Mr. Nasser Sionit.

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V. CONCLUSION

We commend staff for its efforts in identifying many potentially significant impacts posed by the Project, as well as proposing mitigation measures for those impacts. However, as it stands, the PSA does not satisfy the requirements of CEQA, the Warren-Alquist Act, the California Coastal Act and other LORS; impacts remain significant and unmitigated. Accordingly, an adequate, revised PSA must be prepared and circulated for public review and comment.

Sincerely,

/s/

Gloria D. Smith

GDS:bh

January 30, 2009
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PROOF OF SERVICE

I, Bonnie Heeley, declare that on January 30, 2009, transmission of the California Unions for Reliable Energy's Comments on the Preliminary Staff Assessment for the Carlsbad Energy Center Project, oy-AFC-6 via electronic mail was consistent with the requirements of California Code of Regulation, title 20, sections 1209, 1209.5 and 1210. All electronic copies were sent to all those identified on the Proof of Service list below:

Via U.S. Mail to:

CALIFORNIA ENERGY
COMMISISON
Attn: Docket No. 07-AFC-6
1516 Ninth Street, MS-15
Sacramento, CA 95814-5512

Via email to:

Docket@energy.state.ca.us
David.Lloyd@nrgenergy.com
Tim.Hemig@nrgenergy.com
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January 30, 2009
Page 24

powerofvision@roadrunner.com
siekmann1@att.net

I declare under penalty of perjury that the foregoing is true and correct.
Executed at South San Francisco, California, on January 30, 2009.

_____/s/_____
Bonnie Heeley

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January 29, 2009

Gloria D. Smith
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Re: Review of the California Energy Commission's December 2008 Preliminary Staff Assessment for the Carlsbad Energy Center Project

Dear Ms. Smith,

Per your request, I have reviewed the Preliminary Staff Assessment ("PSA") for the Carlsbad Energy Center Project ("CECP" or "Project") which was released by the California Energy Commission ("CEC") on December 11, 2008.¹

I would first like to emphasize that developing meaningful and accurate comments on the PSA's air quality section is presently impossible because the PSA is deficient in that the Project description submitted by NRG Energy, Inc. ("the Applicant") to the CEC and relied upon by CEC staff to draft the PSA does not accurately reflect all aspects of the CECP's proposed operations. The Preliminary Determination of Compliance ("PDOC") issued by the San Diego County Air Pollution Control District ("SDCAPCD" or "District")², for example, evaluated a number of operational scenarios that had not been fully disclosed or explained in the Application for Certification ("AFC"), responses to data requests, or any other documents the Applicant had submitted to the CEC. In addition, on January 5, 2009, almost four weeks after release of the PSA and more than six weeks after release of the PDOC, the Applicant submitted comments on the District's PDOC that included substantial new information on critical aspects of the CECP's operational modes and associated emissions that had not been previously evaluated in either the PDOC or the PSA. To account for this new information, the Applicant suggested a number of substantive revisions to permit operating conditions proposed in the PDOC. Evidently, CEC Staff had not been apprised of any of this information during their preparation of the PSA.

¹ California Energy Commission, Preliminary Staff Assessment, Carlsbad Energy Center Project, Application for Certification (07-AFC-6), San Diego County, CEC-700-2008-014-PSA, December 2008.

² NRG, Letter to Steven Moore, San Diego Air Pollution Control District, Re: Comments on the Preliminary Determination of Compliance for the Proposed Carlsbad Energy Center Project, January 5, 2009.

On January 22, 2009, CEC Staff submitted Data Request Set #4 to the Applicant which addresses issues related to the inadequately described operational scenarios presented in the District's PDOC and issues raised by the new information supplied by the Applicant in its January 5, 2009 comment letter on the PDOC.³ Staff's data requests covered some of the same issues the Applicant's January 5, 2009, comment letter raised during my review. (Unfortunately, Staff's Data Request Set #4, which was docketed on January 22, 2009, was not immediately distributed via the docket distributor list or posted on the CEC's website as a download link. I only by chance discovered that Staff's data requests had been released on the CEC's docket list. The document was made available on the CEC's website on January 27, 2009 after I requested a copy from the CEC's project manager for the CECP, Mike Monasmith.) The Applicant has until February 23, 2009 to submit written responses to Staff's data requests.

The Applicant's responses to CEC Staff's data requests have the potential to substantially change or even invalidate the air quality modeling contained in the PSA and may require substantive revisions of the PSA. For example, Staff's Data Request No. 157 specifically requests the Applicant to demonstrate that increased NOx emission levels requested for transient load events would not result in impacts greater than those already modeled and analyzed in the PSA for worst-case 1-hour NOx emission events. Further, as discussed below, information provided by the Applicant casts doubt on the ability of the proposed plant setup to comply with the emission limits set by the CEC and SDAPCD, potentially requiring a revision of the PSA's alternatives analysis. It is therefore premature to comment on the December 2008 PSA before having a chance to review the Applicant's responses to CEC's data requests and before CEC Staff makes a decision on whether the responses necessitate a revision of the PSA.

Some of the issues raised by discrepancies between operational scenarios analyzed in the CEC's PSA and the District's PDOC and the new information provided by the Applicant's in its comments on the PDOC are discussed below in addition to general comments on the PSA and the Project. Some or all of these issues may be resolved by information supplied by the Applicant in response to CEC Staff's Data Request Set #4.

I. Definition of Startup Period

Both the PSA and the District's PDOC define a startup period as the period of time that begins when fuel flows to the combustion turbine following a non-operational period not to exceed 60 consecutive minutes.⁴ This definition does not address the variability of startup times depending on turbine temperature (cold, warm, hot start)

³ California Energy Commission, Carlsbad Energy Center Project (07-AFC-6), Air Quality Data Request Set #4, January 22, 2009.

⁴ PSA, AQ-11, p. 4.1-67 and PDOC, Appendix C, Condition 11.

and appears to be at odds with information provided by the Applicant that under the CECP's proposed daily cycling duty (plant shut down for 8 hours per day), the turbines would be able to reach full load in approximately 45 minutes for a hot start and approximately 125 minutes for a cold start.⁵ Further, the turbine manufacturer Siemens provided estimated duration per startup event under different ambient temperatures for the CECP's proposed STG6-5000 turbines and estimated the time from gas turbine ignition through 100 percent load at 22 minutes including a 10-minute period by which time it is assumed that emissions would be in compliance.⁶ Based on this information, the proposed definition of a startup period to include up to 60 minutes appears to be overly lenient. The Applicant should be required to supply additional information on emission levels for all startup scenarios (cold, warm, and hot) and at different ramp rates for loads from zero to 100 percent to better define the startup period and to avoid permitting excess periods during which the turbines are capable of but not required by permit conditions to comply with the 2 ppm BACT NO_x limit for normal operations. (Similar to the manufacturer information included in the Applicant's comment letter on the PDOC.)

II. Number of Startup and Shutdown Events

Based on the Applicant's proposed typical operating scenarios, the PSA determines maximum annual emissions from the CECP based on the assumption that each turbine operates up to 4,100 hours per year, of which 300 hours are for startups, 300 hours are for shutdowns, and 3,500 hours are for steady-state full-load operation at annual average base conditions.⁷ Yet, both the PSA and the PDOC incorporate a condition, PSA AQ-47 and PDOC Condition 47, which limit the number of startups for each turbine to 1,460 events per year. Combined with the definition of a startup period contained in PSA AQ-11 and PDOC Condition 11, which limits the duration of a startup period to 60 consecutive minutes, this provision potentially permits operation of each turbine under startup conditions of up to 1,460 hours per year. A total of 1,460 startup events would also require a total of 1,460 shutdown events, which based on the limit on the duration of a shutdown event of 35 minutes as defined in PSA AQ-10 and PDOC Condition 10, would amount to 852 hours per year. Thus, the CECP could potentially be operated for up to 2,311 hours per year under conditions that are exempt from compliance with the 2 ppm NO_x emission limit for normal operations. (Neither the PSA nor the PDOC contain a limit on annual numbers of shutdown events or annual hours of normal operational periods.) This inconsistency is not explained in the PSA. Consequently, potential annual emissions from the Project under startup conditions and shutdown conditions as presented in the PSA may be underestimated. While the Applicant would still have to comply with facility-wide annual emission limits, this potentially drastically increased number of startups and shutdowns would considerably

⁵ PSA, p. 5.3-4.

⁶ AFC, Appendix 5.1B, Table 5.1-B.

⁷ PSA, p. 4.1-27 and Table 18, p. 4.1-28.

reduce the percentage of time under which the turbines would have to comply with the BACT emission limits of 2 ppm NO_x for normal operations. For example, for 300 hours of startups and 300 hours of shutdowns, as discussed in the PSA, the total permissible time operating in excess of the 2 ppm NO_x limit would be about 17 percent of the total of 3,500 operating hours.^{8,9} In the case of 1,460 startups and the corresponding 1,460 shutdowns, the time remaining for normal operations without exceeding the annual facility limits would be limited and only make up a small percentage of the Projects operations. This issue should be resolved in a revised condition.

III. Transient Load Changes

The Applicant requested short-term excursions from the BACT emission limit of 2 ppm NO_x to account for periods with rapid load changes, so-called transient periods. The District's PDOC conditions define transient load changes when the turbine exceeds a 50 Megawatt per minute ("MW/min") load change and includes provisions to permit transient load conditions to meet the 2 ppm BACT NO_x, CO, and VOC emission levels with a 3-hour averaging period rather than a 1-hour averaging period for normal operating conditions. The Applicant's January 5, 2009 comment letter discloses that the turbines cannot meet the NO_x BACT levels of 2 ppm at load changes as low as 5 MW/min. (The Applicant supplies no information on whether CO and VOC emissions are similarly affected.) Therefore, the Applicant requests to replace the 2 ppm NO_x emission limit with a 12 ppm NO_x emission limit for transient conditions and redefines the transient period as exceeding a 10 MW/min load change for a total of 15 hours per year per turbine.¹⁰ The Applicant further requests that the 3-hour averaging period for transient loads be replaced with a 1-hour averaging period that excludes minutes during transient conditions.¹¹

In addition to considerably altering the conditions under which the turbines would not have to meet the 2 ppm NO_x BACT limit, it appears that the Applicant's proposed definition of a transient period as exceeding a 10 MW/min load change may not be realistic. In fact, based on the data supplied by Siemens it appears that even minimal load changes, *i.e.* considerably smaller than 5 MW/min, would result in non-compliance with the 2 ppm NO_x BACT limit. Specifically, Siemens data show that for every 5 MW/min load change above 60 percent load, uncontrolled NO_x emission levels increase by about 4 ppm to about 13 ppm at 15 percent oxygen above the nominal steady state level of about 9 ppm at 15 percent oxygen. (Steady-state uncontrolled NO_x levels of 9 ppm controlled by an selective catalytic reduction ("SCR") system are below 2 ppm.) The Siemens data show that uncontrolled NO_x emission levels increase during both negative and positive load changes. The manufacturer notes that higher ramp rates

⁸ $(300 + 300) / 3,500 = 0.17$.

⁹ Not accounting for transient periods, low-load operations, tuning or other exempt conditions.

¹⁰ NRG PDOC Comment Letter, Proposed Condition XX.

¹¹ NRG PDOC Comment Letter, Proposed Condition 28.A.

as well as higher turbine inlet temperatures can be expected to result in even larger NO_x emission levels of up to 20 ppm. The manufacturer also notes that the potential additional time delay with an SCR system could extend the length of the transient. In other words, because of the lag time associated with the response of the SCR system to achieve steady state levels of 2 ppm NO_x, the time period during which the turbine would not meet its 2 ppm BACT NO_x emission level may be longer than the time period during which the actual load change occurs. However, the Applicant's proposed definition of transient periods only accounts for the time period during an actual load change, not for the lag time of the SCR system. While actual emissions during would count towards cumulative emission limits, the time period exceeding the steady state operating emission limit of 2 ppm NO_x would not be detected. Thus, the actual time period above 2 ppm NO_x BACT emission levels as a result of load changes may exceed the 15-hour limit proposed by the Applicant for transient operations.

To address these issues, additional information for NO_x, VOC, and CO emission levels during transient periods at various ramp rates and load levels before and after the SCR system is required. Alternative turbine configurations that better meet the Applicant's objectives of frequent startups and expected variations in ramp rates should also be evaluated.

IV. Rapid Response Startup and Shutdown Times

Both the proposed CECP and the proposed El Segundo Power Redevelopment Project proposed to use two Siemens STG5-6000 turbines with rapid-response technology with a total nominal generating capacity of about 560 MW. According to the Applicant, these turbines are able to reach full load and operate at a combined cycle efficiency of approximately 55-56 percent in approximately 45 minutes for a hot start and approximately 125 minutes for a cold start. Yet, to calculate maximum hourly emissions associated with startup and shutdown, the Applicant relies on different data. For the CECP, the Applicant calculates maximum hourly emissions for startups based on 22 minutes of elevated emission levels followed by 38 minutes of normal operating emission levels.¹² The 22 minutes of elevated emissions were based on vendor-supplied data for startups at 62 and 41 F.¹³ For the El Segundo project, the vendor-supplied data show a considerably lower startup period of 12 minutes at 62 and 41 F.¹⁴ Neither the Applicant nor the PSA addressed these dissimilar startup periods for essentially the same turbine configuration.

¹² PSA, p. 5.1-32.

¹³ El Segundo Power, LLC, Application to the South Coast AQMD for a Determination of Compliance and Permit to Construct for the El Segundo Power Redevelopment Project, June 2007, Appendix 5.1B, Table 5.1B-7.

¹⁴ Appendix I, CTG Vendor Supplied Startup/Shutdown Emissions.

V. Secondary PM10 Emissions

The PSA states that PM10 emissions “are not estimated to be higher or lower during startup and shutdown events than during normal operation.”¹⁵ However, elevated NOx emissions during the Project’s proposed frequent startup and shutdown periods would contribute to formation of secondary particulate matter. Therefore, the Applicant should be required to quantify the potential formation of secondary PM10 (or PM2.5) and the information should be incorporated into the PSA.

Conclusion

As discussed above, due to lack of critical information available to CEC staff at the time of preparation of the PSA and the late and incomplete submittal of additional information by the Applicant, it is premature to make comments on a document that may need substantial revisions. In addition, there are a number of issues that warrant further review after these deficiencies have been addressed.

Regards,

A handwritten signature in black ink, appearing to read "Petra Pless". The signature is stylized with a large, sweeping initial "P" that loops back over the name.

Dr. Petra Pless

¹⁵ PSA, p. 4.2-26.



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January 29, 2009

Ms. Gloria D. Smith
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Subject: Comments on the Preliminary Staff Assessment for the Proposed Carlsbad Energy Center Project, Carlsbad, California

The Carlsbad Energy Center Project (CECP) project is located on approximately 23 acres of the 95-acre existing Encina Power Station (EPS) in the City of Carlsbad in northern San Diego County. The proposed CECP will use high-efficiency, combined-cycle power generation units fueled by natural gas.

The proposed site is currently occupied by the EPS tank farm, which includes aboveground fuel oil Tanks 5, 6, and 7. As part of the proposed project, these three fuel oil tanks would be demolished and removed, and the soil underneath them would be remediated, as appropriate.

CECP construction is proposed to begin during the third quarter of 2009 and take 25 months to complete. Commercial operations are expected to begin in late summer, 2011.

We have reviewed the Preliminary Staff Assessment (PSA)¹ that was prepared by the California Energy Commission staff to evaluate the Application for Certification (AFC) for the CECP and we provide our comments below.

¹ Preliminary Staff Assessment for the Carlsbad Energy Center Project, Application For Certification (07-AFC-6), San Diego County. California Energy Commission. December 2008.
<http://www.energy.ca.gov/2008publications/CEC-700-2008-014/CEC-700-2008-014-PSA.PDF>

COMMENTS

1. **The PSA Does Not Address Potential Transport of Contaminated Soils via Stormwater Runoff and Does Not Offer Prevention Measures**

Soil contamination in the area of Tank No. 7 was detected and described in a project remediation report prepared in 2004 to document the cleanup of contaminated soils.² A 1998 Phase II Environmental Site Assessment identified eight locations at the Encina Power Plant where total extractable hydrocarbons (TEH) concentrations exceeded 1,000 mg/Kg.³ Two of these areas, labeled Area 5 and Area 6, were located adjacent to Tank No. 7: Area 5 was a paved area southwest of the tank and Area 6 was an unpaved area north of the tank.⁴ During November 2003, a total of 4,426 cubic yards of petroleum hydrocarbon-contaminated soil was excavated and removed from the Encina Power Plant, including 139 and 101 cubic yards from Areas 5 and 6 respectively.⁵ However, 12 cubic yards in Area 5 and 4 cubic yards in Area 6 were not removed due to physical limitations.⁶ Following excavation, soil samples were collected from the excavation bottoms and side walls.

Tank No. 7, along with Tank Nos. 5 and 6, are slated for demolition with removal of the soil from beneath and adjacent to the tanks. Excavation soil samples in Areas 5 and 6 in the vicinity of Tank No. 7 were reported to contain TEH at up to 3,030 mg/kg, well above a cleanup goal of 1,000 mg/kg.⁷ Not all soil could be excavated because the presence of a concrete ditch and an aboveground pipe which precluded further excavation. The 2004 report estimated approximately 16 cubic yards of TEH-contaminated soil to remain in areas that were inaccessible to excavation equipment at concentrations above the soil cleanup goal. The TEH-impacted soil may therefore serve as a source of contamination to groundwater and may pose a potential for contamination of stormwater runoff.

Additionally, soil from beneath Tanks 5, 6, and 7 is known to have been mixed with fuel oil for the purposes of preparing the foundation for the tanks (PSA, 4.13-10). Approximately 11,300 tons of soil from the area around tanks 5, 6, and 7 are estimated to be impacted by the soil/oil mixture (PSA, 4.13-10). The CEC PSA estimated tank demolition activities to generate 11,300 tons of waste soil (p. 4.13-11).

The PSA fails to identify the locations for the stockpiles of petroleum-impacted soils that are proposed to be excavated. A revised PSA should be prepared that would require measures to ensure contaminated soil will not be mobilized by stormwater runoff to drain offsite and toward surface water bodies, including Agua Hedionda Lagoon.

² Report on Encina Power Plant Remediation Project. Prepared by Haley and Aldrich, Inc. for San Diego Gas and Electric. April 28, 2004.

³ Ibid, p. 2.

⁴ Ibid, p. 7.

⁵ Ibid, Table 5.

⁶ Ibid, p. i

⁷ Ibid, pp. 12-13.

The Water Resources Section of the AFC does not mention the presence of the petroleum-impacted soils that remain beneath the Tanks 5, 6, and 7 and the soils that were inaccessible during excavation that are known to be TEH-contaminated. A construction storm water pollution prevention plan, included as Appendix 5.15C to the AFC, only states:

The project does not have the potential to discharge directly to a water body listed as impaired due to sedimentation/siltation and/or turbidity pursuant to Clean Water Act Section 303(d). All on-site pollutants have petroleum characteristics for visual monitoring. (p. 600-1).

The above statement is unsubstantiated and does not address the issue of stockpiled soils contaminated by petroleum hydrocarbons that may be mobilized by storm water runoff. The PSA should be revised to include measures to prevent petroleum hydrocarbons-contaminated soil to migrate offsite.

2. Potential Impact to Agua Hedionda Lagoon are Not Addressed in the PSA

The surface water body nearest to the site is Agua Hedionda Lagoon, located 300 feet to the north of Tank No. 7. The State of California has identified the Agua Hedionda Lagoon on the 303(d) list of water bodies that do not meet federal Clean Water Act water quality standards because of an impairment caused by sediment and siltation.⁸ Agua Hedionda Lagoon has existing beneficial uses of contact and non-contact water recreation, areas of special biological significance, marine and wildlife habitat, preservation of rare and endangered species, warm freshwater habitat, and has potential for beneficial use as an estuarine habitat.

The Water Resources Section (Section 5.15) of the AFC failed to acknowledge the impaired status under the federal Clean Water Act Section 303(d) of Agua Hedionda Lagoon. The 303(d)-listed status of Agua Hedionda Lagoon was not identified elsewhere in the AFC despite the fact that tank demolition activities are expected to generate approximately 3,800 tons of metal debris, 49,000 gallons of residual No. 6 fuel oil, and 11,300 tons of waste soil that may serve as a source of contamination.

Stormwater runoff during development of the site will utilize an existing storm water collection system which includes pumped collection sumps that feed an existing line which discharges to Agua Hedionda Lagoon. Runoff within the impoundment area currently enclosing Tanks 5, 6, and 7 is planned to be collected and pumped to an above-ground mobile oil/water separator and sand media filter for pretreatment prior to discharge to the Agua Hedionda Lagoon (PSA, p. 4.9-7).

⁸ 2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs. SAN DIEGO Regional Water Quality Control Board. Approved by USEPA June 28, 2007.
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmlds.pdf

Under provisions of State Water Resources Control Board Order No. 99-08-DWQ,⁹ all dischargers shall prepare and implement a storm water pollution prevention plan (SWPPP) prior to disturbing a site. A construction SWPPP, included as Appendix 5.15C to the AFC, does not evaluate the efficacy of the above-ground mobile oil/water separator and sand media filter treatment BMP (as identified above) in the removal of petroleum contaminants that are known to exist in the vicinity of Tank No. 7. The construction SWPPP does not specifically address stockpiling of petroleum-contaminated soils and the potential impact from runoff to Agua Hedionda Lagoon. The construction SWPPP only identifies generic BMPs in an appendix that includes materials downloaded from a website that have not been evaluated for effectiveness at the proposed project site for contaminants that are likely to be encountered.

The PSA failed to note this deficiency in the AFC. The PSA should be revised to require a SWPPP to include site-specific BMPs that would ensure protection of Agua Hedionda Lagoon from contamination via soil runoff.

An integrated approach that commits to use of the County of San Diego's Low Impact Development program (see the 2007 County of San Diego Low Impact Development Handbook¹⁰) should instead be used by the applicant to identify BMPs that together will ensure the greatest degree of contaminant reduction.

The Low Impact Development Handbook identifies numerous BMPs not considered by the applicant which are applicable to the proposed development, including:

- Infiltration trenches;
- Infiltration basins;
- Vegetated filter strips;
- Sand filters; and
- Bioretention systems.

3. An SPCC Plan Must be Documented in the PSA

The AFC states (p. 2.1):

Accidental leaks and discharges inside the power generating areas will be contained and disposed off-site in accordance with approved Spill Prevention, Control and Countermeasures (SPCC) Plans. SPCC plans must be prepared in accordance with the oil pollution prevention guidelines in the Federal Code of Regulations (40 CFR 112). These plans must include procedures, methods, and equipment at the facility to prevent discharges of petroleum from reaching navigable waters. SPCC plans must be

⁹ National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 99-08- DWQ. California State Water Quality Control Board.

http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/finalconstpermit.pdf

¹⁰ Low Impact Development Handbook: Stormwater Management Strategies. County of San Diego, Department of Planning and Land Use. December 31, 2007. <http://www.sdcounty.ca.gov/dplu/docs/LID-Handbook.pdf>

certified by a Registered Professional Engineer and a complete copy must be maintained on site. Specific requirements of the SPCC Plan can be found in 40 CFR section 112 or the California Health and Safety Code Chapter 6.67, section 25270 et seq.

The AFC does not state whether or not an SPCC plan has been prepared and approved for the proposed project. The PSA should be revised to include information about the existing SPCC plan, if one exists.

If an SPCC plan does not exist, the PSA should be revised to include a requirement that an SPCC plan be prepared with consideration to the demolition of Tanks 5, 6, and 7, as specified in the Federal Code of Regulations (40 CFR 112.5). Demolishing Tank Nos. 5, 6, and 7 would compromise the secondary containment, thus posing a risk of contaminant transport to neighboring surface water bodies.

Additionally, 40 CFR 112.5 requires owners and operators of facilities to amend the SPCC plan under certain circumstances, including “construction or demolition that might alter secondary containment structures.”¹¹ The amendment of the SPCC plan must be prepared within six months of the date of demolition. The PSA should be revised to document what the applicant has done to comply with this requirement.

None of the three tanks proposed for removal have been inspected by a regulatory agency representative.¹² The PSA does not reference the new Aboveground Petroleum Storage Act which requires inspections of tank facilities with an aggregate storage capacity of 10,000 gallons or more of petroleum at least every three years.¹³ The PSA should be revised to address the implications of the Aboveground Petroleum Storage Act on the proposed tank removal and to require that a regulatory inspection be conducted.

4. Tank Removal and Verification Sampling have Not been Addressed by the PSA

On July 15, 2008 Carlsbad Energy Center submitted a Fuel Oil Storage Tank Removal and Verification Sampling Work Plan at the Encina Power Station¹⁴ to the San Diego County Department of Environmental Health (SDCDEH). On August 5, 2008, SDCDEH approved the Work Plan¹⁵.

¹¹ Code of Federal Regulations Title 40 – Protection of Environment, Chapter I – Environmental Protection Agency, Subchapter D – Water Programs, Part 112 – Oil Pollution Prevention

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=40:21.0.1.1.7&idno=40>

¹² SDCDEH, January 8, 2009 phone conversation, Ms. Sande Pence.

¹³ Aboveground Petroleum Storage Act, Assembly Bill 1130 (Laird) Fact Sheet. California Department of Environmental Protection Unified Program. December 2007.

<http://www.calepa.ca.gov/CUPA/Aboveground/FactSheetAPSA.pdf>

¹⁴ Carlsbad Energy Center Project – Fuel Oil Storage Tank Removal and Verification Sampling Work Plan, Encina Power Station, Carlsbad California, Voluntary Assistance Program Case Number H13941-004. Prepared by SGI The Source Group. July 15, 2008.

¹⁵ Voluntary Assistance Program, File H13941-004, Cabrillo Power I, LLC. Letter from San Diego County Department of Environmental Health to NRG Energy, Inc. August 5, 2008.

An objective of the Work Plan (p. 1) was to “briefly describe general procedures for removal of tank bottoms, piping and associated foundations, and underlying contaminated soil (where applicable).” The Work Plan further stated (p. 1) that “the removal of Tanks 5, 6, and 7 are described in a separate work plan that will be submitted to the San Diego County Hazardous Materials Management Division.”

Section 2.0, Project Description, of the AFC states (p. 2):

Cabrillo Power I LLC is currently removing the existing fuel oil tanks and completing allowed general remediation of a portion of the East Tank Farm as part of ongoing operations and maintenance. Thus, CECP will begin with the fuel oil tanks removed and proceed to prepare the site for the power plant.

In an attempt to determine if the Tank demolition had begun, the SDCDEH was contacted but the agency was unaware of any demolition activities.¹⁶

The AFC does not clearly state the timeline for removal of Tanks 5, 6, and 7 and the PSA does not address the issue. The PSA should be revised to include specific information about the removal schedule and whether any removal that may have already been conducted would be in violation of the Federal Code of Regulations (40 CFR 112.5). Furthermore, neither the AFC nor the PSA mention a schedule for verification soil sampling in the vicinity of the tanks planned to be removed. The PSA should be revised to address the need for verification soil sampling provisions, the schedule for soil sampling and the process by which the results of the sampling would be reviewed and approved by the San Diego County Hazardous Materials Management Division.

Sincerely,

A handwritten signature in black ink, appearing to read "M Hagemann", with a long horizontal flourish extending to the right.

Matt Hagemann, P.G.

¹⁶ SDCDEH, January 6, 2009 phone conversation, Mr. Nasser Sionit.