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July 7, 2008

Via Email: Lee.Anita@epamail.epa.gov

Anita Lee  
Environmental Protection Agency,  
Air Permits Office  
75 Hawthorne Street (AIR-3)  
San Francisco, CA 94105

### **Re: Comments on the Victorville 2 Draft PSD Permit**

Dear Ms. Lee:

On behalf of California Unions for Reliable Energy ("CURE"), this letter provides comments on the EPA's draft prevention of significant deterioration ("PSD") air permit for the City of Victorville's proposed power plant ("Project"). The Project is a 563 MW electric generating facility located in the City of Victorville in San Bernardino County. The EPA's Region 9, the PSD permitting authority, issued a statement of basis and ambient Air Quality Impact Report ("SOB") and a Draft Clean Air Act PSD Permit ("Draft Permit").<sup>1</sup>

CURE is a coalition of labor unions whose members help solve the state's energy problems by building, maintaining and operating conventional and renewable energy power plants. Since its founding in 1997, CURE has been committed to building a strong economy and a healthier environment. (See <http://www.sbctc.org/cure/>.) Individual members of the CURE unions live in and use areas that will suffer the impacts of the Project. These members breathe the polluted air and suffer the adverse health and safety impacts from unnecessary air

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<sup>1</sup> U.S. Environmental Protection Agency, Region IX, Victorville II Hybrid Power Project (SE07-02), Prevention of Significant Deterioration Permit, Proposed Permit Conditions, June 2008 ("proposed PSD Permit"); Docket No. EPA-R09-OAR-2008-0406-0017; and Statement of Basis and Ambient Air Quality Impact Report for a Clean Air Act Prevention of Significant Deterioration Permit, June 2008 ("Statement of Basis"); Docket No. EPA-R09-OAR-2008-0406-0016.

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pollution. Given the proximity to this and other projects, CURE has helped cut smog-forming pollutants in half, reduced toxic emissions, increased the use of recycled water for cooling systems and pushed for groundbreaking pollution control equipment as the standard for all new power plants, all while ensuring new power plants are built with highly trained, professional workers who live and raise families in nearby communities.

As discussed below, the proposed PSD Permit is inadequate because the proposed PSD Permit and the supporting Statement of Basis prevent full and fair public review; EPA prematurely issued the application completeness determination rendering the determination deficient; the EPA failed to determine that the Project may result in violations of the 24-hour PM<sub>2.5</sub> National Ambient Air Quality Standard (“NAAQS”); the best available control technology (“BACT”) determinations were incomplete and flawed, including the lack of a BACT determination for greenhouse gases and the failure to require BACT for particulate matter and carbon monoxide (“CO”) emissions from the combustion turbine generators (“CTGs”); EPA failed to set a limit for the ammonia slip from the selective catalytic reduction (“SCR”) system; the proposed permit limits are not federally enforceable; and the project does not comply with the Endangered Species Act or the National Environmental Policy Act among other things described below.

We have prepared these comments with the assistance of Dr. Petra Pless. Dr. Pless’ comments along with her *curriculum vitae* are provided herein as Attachment 1. Please note that the expert’s comments supplement the issues addressed below, thus her comments should be addressed and responded to separately.

## **I. THE PROPOSED PSD PERMIT AND STATEMENT OF BASIS DETERMINATION PREVENT FULL AND ACCURATE PUBLIC REVIEW**

For all practical purposes, the proposed PSD Permit and the supporting Statement of Basis were presented in a way that makes it nearly impossible for an independent reviewer to trace and evaluate the EPA’s decision making process.

The Statement of Basis did not present all of the information necessary for members of the public to verify whether the EPA’s determinations were correct. Instead, the reviewer was forced to consult a multitude of documents beyond the Applicant’s application for a PSD Permit (“PSD Application”), its supplements and the EPA’s administrative record for this project. For example, rather than provide

a complete BACT analysis for each pollutant and source subject to PSD review to support the BACT-based permit limits in the body of the document, the Statement of Basis provided only brief summaries that were based on a number of additional documents. The PM10 (as a surrogate for PM2.5) BACT analysis for the Project's CTGs is a prime example. The Statement of Basis provided the following terse summary:

Particulate emissions from the gas turbine trains result from fuel sulfur, inert trace contaminants, and incomplete combustion of hydrocarbons. We do not believe that any add-on particulate emission controls have been demonstrated in practice for this type of source. Thus, the proposed permit limits the sulfur content of the fuel to no more than 0.2 grains per 100 dry standard cubic feet as BACT, which would limit sulfate particulate emissions.

We are proposing to limit particulate emissions (PM and PM10) to 12 lb/hr from each turbine without duct burner firing, and 18 lb/hr with duct burner firing. As noted earlier, using PM10 as a surrogate for PM2.5 does not affect the emission controls selected as BACT.<sup>2</sup>

The EPA's conclusion regarding PM and PM2.5 BACT appear to be based on the BACT analyses contained in two supplemental submissions to the PSD Application for PM2.5 and PM, but the Statement of Basis did not mention these documents. These supplements to the PSD Application can be found in the docket on the EPA's website.<sup>3</sup> Our review of these documents shows that they, in turn, do not contain all of the information relied upon to come to conclusions regarding BACT either. The necessary information, specifically, the PM and PM10 permit limits from the South Coast Air Quality Management District's BACT Guidelines and the EPA's RACT/BACT/LAER Clearinghouse for other, similar facilities relied upon to determine the BACT permit limits for Victorville II are not provided in the supplements to the PSD Application, or for that matter anywhere in documents

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<sup>2</sup> Statement of Basis, pp. 14-15.

<sup>3</sup> Sara Head, ENSR, Letter to Ed Pike, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project (VV2), June 25, 2007; Docket No. EPA-R09-OAR-2008-0406-0009; Thomas Barnett, Inland Energy, Inc., Letter to Anita Lee, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration (PSD) Permit for Victorville 2 Hybrid Power Project, January 28, 2008; Docket No. EPA-R09-OAR-2008-0406-0010.

listed on the EPA's website. The respective BACT determinations contain no reference where to find the information they relied upon to reach their conclusions regarding the proposed BACT permit limits. The docket shows that a number of California Energy Commission documents have been submitted into the administrative record, such as the Application for Certification ("AFC"),<sup>4</sup> the Preliminary<sup>5</sup> and Final Staff Assessments,<sup>6</sup> and some mysterious "Distribution of Supplemental Information," which are not available directly on the EPA's website but rather are available on the CEC's website.<sup>7</sup> This sends the reviewer on a wild goose chase searching through these several hundred-page documents and their respective, equally long appendices, updates, and revisions to find the most up-to-date list of permit limits for these pollutants. At a bare minimum, EPA should have referenced and provided cites to the relevant data.

The EPA's failure to "show its work" runs counter to its obligation to conduct an independent review of the Applicant's BACT determinations, giving instead the impression that EPA simply-rubber-stamped the application. In addition, the review process the EPA used here effectively frustrated public review and analysis. The analytic path showing the basis for the EPA's decisions must be clear and well-documented in a stand-alone document referencing a few clearly identified documents without requiring the reviewer to wade through literally stacks of documents on the EPA's and the California Energy Commission's websites.

Finally, CURE's experts attempted to evaluate the Project's modeling data purported to be part of EPA's administrative record. However, the modeling data was completely omitted from the record. CURE attempted to obtain the modeling data on July 3, 2008, however no one at Region 9 was available to provide the data. This omission begs the question whether EPA itself ever reviewed the modeling data.

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<sup>4</sup> Inland Energy, Inc., Application for Certification, Victorville Hybrid Power Project, February 2007.

<sup>5</sup> California Energy Commission, Victorville 2 Hybrid Power Project, Application For Certification (07-AFC-1), San Bernardino County, Preliminary Staff Assessment, CEC-700-2007-021-PSA, November 2007.

<sup>6</sup> California Energy Commission, Victorville 2 Hybrid Power Project, Application For Certification (07-AFC-1), San Bernardino County, Final Staff Assessment, CEC-700-2007-021-FSA, March 2008.

<sup>7</sup> See U.S. Environmental Protection Agency, Region IX, Administrative Record Index, Victorville 2 Hybrid Power Project, PSD Permit (SE-07-02), Docket No. EPA-R09-OAR-2008-0406, *see* footnote referencing the availability of CEC documents at:

<http://www.energy.ca.gov/sitingcases/victorville2/documents/index.html>.

## **II. THE EPA'S COMPLETENESS DETERMINATION WAS ISSUED PREMATURELY AND IS DEFICIENT**

On June 13, 2007, the EPA issued an application completeness determination ("Completeness Determination") to the Applicant stating that the EPA received the initial PSD Application on May 8, 2007 and an update on June 22, 2007, which together would cover the pollutants NO<sub>x</sub>, CO, and PM<sub>2.5</sub>, and that the EPA deems the PSD Application administratively complete.<sup>8</sup> The Completeness Determination was prematurely made and is thus invalid for several reasons.

First, the Completeness Determination was issued prematurely because it did not address PM, one of the criteria pollutants subject to PSD review.<sup>9</sup> On December 20, 2007, six months after the Completeness Determination was issued, the EPA requested information regarding PM and received a PM analysis from the Applicant on January 28, 2008.<sup>10</sup> An analysis of PM is essential for the EPA's review of the Project as PM is a regulated PSD pollutant. Thus, this information was required to be available to the EPA before issuing a Completeness Determination. EPA's request for this information six months after issuing the Completeness Determination demonstrated that the Completeness Determination was issued prematurely because it omitted PM.

Second, greenhouse gases are also pollutants subject to regulation under the Clean Air Act, as discussed in more detail in Comment IV.A and the EPA was required to address these pollutants in its review and ensure that the Applicant had provided EPA with all necessary information prior to issuing a Completeness Determination. Therefore, the Completeness Determination is invalid because it failed to address pollutants subject to regulation under the Act.

Third, the Agency failed to set PM<sub>2.5</sub> BACT limits, instead using PM<sub>10</sub> BACT as a surrogate. As discussed below this approach violates federal law.

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<sup>8</sup> U.S. Environmental Protection Agency, Region IX, Jon Roberts, City of Victorville, Subject: Application Completeness Determination for Victorville II Prevention of Significant Deterioration Permit Application, June 13, 2007; Docket No. EPA-R09-OAR-2008-0406-0008S.

<sup>9</sup> Statement of Basis, Table 3, p. 9.

<sup>10</sup> Thomas Barnett, Inland Energy, Inc., Letter to Anita Lee, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration (PSD) Permit for Victorville 2 Hybrid Power Project, January 28, 2008; Docket No. EPA-R09-OAR-2008-0406-0010.

In sum, the EPA prematurely issued the Applicant a Completeness Determination even though the Application itself was deficient of critical information and analyses essential to the PSD Application.

### **III. The Agency's PM<sub>2.5</sub> PSD Analysis Is Flawed**

The Statement of Basis identified PM<sub>2.5</sub> as an attainment pollutant subject to PSD review.<sup>11</sup> For purposes of PSD review of PM<sub>2.5</sub>, the Agency determined that the use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> is appropriate.<sup>12</sup> Accordingly, the Project impact analysis of ambient air quality relied on modeling of estimated PM<sub>10</sub> emissions.<sup>13</sup> For a 24-hour averaging period, maximum project impacts from all Project sources were estimated at 6.1 µg/m<sup>3</sup> of PM<sub>2.5</sub> (on a PM<sub>10</sub> as a surrogate basis). On an annual basis, maximum Project impacts were modeled at 0.3 µg/m<sup>3</sup> of PM<sub>2.5</sub> (on a PM<sub>10</sub> as a surrogate basis).<sup>14,15</sup> Based on these modeled maximum impacts, the Agency concluded that Project operation would not cause a violation of the PM<sub>2.5</sub> National Ambient Air Quality Standards ("NAAQS") and would therefore not be significant.<sup>16</sup> The Agency's analyses violate federal law and are flawed. Therefore, the Agency's conclusions regarding the significance of Project impacts are erroneous as shown below.

#### **A. The Use of PM<sub>10</sub> as a Surrogate for PM<sub>2.5</sub> Violates Federal Law and Relies on Guidance That Is In Conflict with Statutory Requirements and Is No Longer Technically Justified**

Contrary to the Agency's assertions, PM<sub>10</sub> cannot be used as a surrogate for PM<sub>2.5</sub> for purposes of PSD review. This surrogate approach violates federal law

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<sup>11</sup> Statement of Basis, p. 9.

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid* and footnote 15, p. 20.

<sup>14</sup> Statement of Basis, Table 7, p. 20.

<sup>15</sup> Sara Head, ENSR, Letter to Ed Pike, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project (VV2), June 25, 2007; Docket No. EPA-R09-OAR-2008-0406-0009; Table 2, p. 5.

<sup>16</sup> Statement of Basis, p. 19.

and relies on guidance that is in conflict with statutory requirements, and is no longer technically justified.

Using PM10 as if it were PM2.5 violates federal and state law. The EPA since 1997 has distinguished PM2.5 from PM10, most importantly by setting different NAAQS for each pollutant based on their different health impacts.<sup>32</sup> The Clean Air Act contains specific requirements regarding areas whose air quality violates the National Ambient Air Quality Standards, or NAAQS.<sup>31</sup> Therefore, the EPA must determine directly whether the project will result in a significant emissions increase and significant net emissions increase of PM2.5 to ensure protection of the public health and compliance with the NAAQS.

Further, the EPA based its decision to use PM10 as a surrogate for PM2.5 emissions on its “October 23, 1997 transition memo guidelines, which authorize limits for PM10 as a surrogate for limits on PM2. 5 during the transition period lasting until final PSD PM2.5 regulations are issued...”<sup>17</sup> Reliance on this memo was improper and invalidates the EPA’s analysis of PM2.5.

First, the EPA cannot rely on guidance that does not have the force of law when that guidance, as here, is in conflict with statutory and regulatory requirements. Further, a BACT limit is required “for each regulated NSR pollutant for which the source has the potential to emit in significant amounts.”<sup>18</sup> A “regulated NSR pollutant” includes any “pollutant for which a national ambient air quality standard has been promulgated...” and any other “pollutant that otherwise is subject to regulation under the [Clean Air] Act...”<sup>19</sup> Therefore, the Agency should have analyzed PM2.5 as a separate pollutant and issued a separate PM2.5 BACT limit.

Second, the Agency’s recommended use of PM10 as a surrogate for PM2.5 expired by its own terms when the EPA published the final PM2.5 implementation rule in September 2007.<sup>20</sup> The 1997 memo cited above provided *interim* guidance

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<sup>17</sup> Statement of Basis, footnote 8, p. 12.

<sup>18</sup> 40 CFR 52.21(j)(2).

<sup>19</sup> 40 CFR 52.21(b)(50(i) – (iv).

<sup>20</sup> See Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5).

for implementing the new PM<sub>2.5</sub> NAAQS.<sup>21</sup> This ten-year-old memo stated that sources could use the PM<sub>10</sub> surrogacy approach to meet NSR requirements until certain difficulties were resolved, most notably with respect to monitoring, emissions estimation, and air quality modeling. A more recent EPA memo reaffirmed the surrogacy approach specifically for nonattainment NSR, but noted that EPA recommended using PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> “until [U.S. EPA] promulgate[s] the PM<sub>2.5</sub> implementation rule.”<sup>22</sup> As mentioned above, the final PM<sub>2.5</sub> implementation rule has been published in September 2007.

Third, technical difficulties in directly implementing the PM<sub>2.5</sub> NAAQS that grounded the 1997 interim guidance have been resolved. The EPA itself noted in the preamble to the November 2005 Proposed PM<sub>2.5</sub> Implementation Rule that these technical concerns have been resolved: “As discussed in this preamble, *those difficulties have been resolved in most respects, and where they have not been, the proposal contains appropriate provisions to account for it.*”<sup>23</sup> The EPA also has included the PM<sub>2.5</sub> algorithms in the AERMOD air quality computer modeling program, the recommended model for short distance air quality assessment, thus formally resolving prior concerns about PM<sub>2.5</sub> modeling capabilities.<sup>24</sup>

## **B. The Agency Must Implement the Final Rule for Implementation of the New Source Review Program for PM<sub>2.5</sub>**

On May 8, 2008, EPA finalized its regulations to implement the NSR program for fine particulate matter, effective July 15, 2008.<sup>25</sup> The new rule, entitled “Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM<sub>2.5</sub>),” requires all sources to determine Project impacts on a PM<sub>2.5</sub> as PM<sub>2.5</sub> basis. The rule applies to all

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<sup>21</sup> John S. Seitz, U.S. Environmental Protection Agency, Memorandum, Interim Implementation of New Source Review Requirements for PM<sub>2.5</sub>, October 23, 1997.

<sup>22</sup> Stephen D. Page, U.S. Environmental Protection Agency, Memorandum, Implementation of New Source Review Requirements in PM-2.5 Nonattainment Areas, April 5, 2005.

<sup>23</sup> Proposed Rule To Implement the Fine Particle National Ambient Air Quality Standards, 70 Fed. Reg. 65984, 66043, November 1, 2005; *emphasis added*.

<sup>24</sup> See Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule, 70 Fed. Reg. 68218, 68253, November 9, 2005, adopting AERMOD as the “preferred model”.

<sup>25</sup> Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM<sub>2.5</sub>).



projects except those where EPA had issued a valid completeness determination prior to the rule's effective date.<sup>26</sup>

As shown above, the EPA's Completeness Determination was premature because the application is incomplete in numerous ways. EPA must rescind the proposed PSD Permit, request a BACT analysis of greenhouse gases from the Applicant, and issue a new Completeness Determination once these BACT analyses have been submitted. Because this new Completeness Determination will occur after July 15, 2008, the Agency must also include a PM<sub>2.5</sub> BACT analysis based on the Final Implementation Rule's requirements.

### **C. Modeled PM<sub>2.5</sub> Emissions from the Project's Stationary Sources Exceed PM<sub>10</sub> Significant Impact Levels**

The EPA was required to find significant impacts for PM<sub>2.5</sub> emissions from the Project when using the PM<sub>10</sub> surrogacy approach. The first step in determining whether a source would cause significant deterioration of air quality is to compare maximum modeled ambient air concentrations of attainment pollutants to established significant impact levels ("SILs"), also called significance levels. A SIL for a given criteria pollutant and averaging period is defined as the ambient concentration produced by a source's emissions below which the source is assumed to have a less-than-significant impact on air quality. The SILs for emissions of SO<sub>2</sub>, PM<sub>10</sub>, NO<sub>x</sub>, CO, and O<sub>3</sub> in Class II areas can be found in the EPA's NSR Manual,<sup>27</sup> Table C-4.<sup>28</sup> The Class II SIL for PM<sub>10</sub> established for a 24-hour period is 5.0 µg/m<sup>3</sup>. The Class II PM<sub>10</sub> SIL on an annual basis is 1.0 µg/m<sup>3</sup>.<sup>29</sup> The Class I SIL for PM<sub>10</sub> established for a 24-hour period for areas located within 100 kilometers of a Class I area is 1.0 µg/m<sup>3</sup>.<sup>30</sup> (The Project is located within 100 kilometers of five Class I areas, and just outside of 100 kilometers from Joshua Tree National Park.<sup>31</sup>)

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<sup>26</sup> Id. at pp.75-76.

<sup>27</sup> U.S. Environmental Protection Agency, New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft, October 1990; cited pages attached as Exhibit 1.

<sup>28</sup> NSR Manual, Table C-4, p. C.28, *see* Exhibit 1.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Ibid.*

<sup>31</sup> Statement of Basis, p. 20.

The EPA opted to use the PM10 surrogacy approach for analyzing PM2.5 impacts. Under the PM10 surrogacy approach, PM10 is used as a surrogate for PM2.5. Practically, this means that PM10 emissions are calculated and modeled to determine ambient PM10 concentrations and these are compared to PM10 thresholds, in this case, the PM10 SILs. The EPA did not mention the 24-hour and annual PM10 SILs and instead notes that SILs for PM2.5 have not yet been established.<sup>32</sup> The EPA failed to identify that the modeled 24-hour PM10 ambient air quality concentrations of 6.1  $\mu\text{g}/\text{m}^3$  by far exceed the Class II PM10 SIL of 5.0  $\mu\text{g}/\text{m}^3$  established for a 24-hour period.

Because EPA followed the surrogacy approach for PM2.5, it must finish what it started. The EPA must model 24-hour PM10 ambient concentrations with the 24-hour PM10 SIL to determine the significance of the Project. Using the 24-hour PM10 SIL to determine significance of maximum project impacts is analogous to the use of the PM10 significant emissions rate to determine whether PSD applies for PM2.5. The EPA used the PSD significant emissions rate to determine PSD applicability for the Project,<sup>33</sup> but failed to explain why the PM10 SILs are not equally applicable for determining significance.

Under the PM10 surrogacy approach, EPA should have required the Applicant to conduct a full-impact analysis to determine if the Project plus existing sources would cause a significant ambient impact anywhere, including whether it would cause or contribute to a violation of any NAAQS or PSD increment, among others. As the area where the Project is located is nonattainment for PM10, any increase in PM10 will contribute to a NAAQS violation and thus any increase in PM10 emissions is per se a significant impact. Thus, the Application is incomplete. The EPA must rescind the Application Completeness Determination and require that the Applicant complete a full-impact analysis.

Further, the EPA has recently proposed three different options for Class I and Class II SILs for PM2.5.<sup>34</sup> The proposed Class II SIL options for a 24-hour period are 5.0, 4.0, and 1.2  $\mu\text{g}/\text{m}^3$ . The modeled Project emissions exceed all three of

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<sup>32</sup> Statement of Basis, p. 19.

<sup>33</sup> Statement of Basis, Table 3, p. 9.

<sup>34</sup> Environmental Protection Agency, 40 CFR Parts 51 and 52, [EPA-HQ-OAR-2006-0605; FRL-8470-1], RIN 2060-AO24, Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5, Micrometers (PM2.5) – Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC).

the proposed options for the 24-hour Class II SIL. Therefore, Project emissions are significant no matter which option of the proposed SILs will be promulgated. The corresponding annual SIL options are 1.0, 0.08, and 0.3  $\mu\text{g}/\text{m}^3$ . If the latter option were promulgated, annual Project impacts, estimated at 0.3  $\mu\text{g}/\text{m}^3$  would also be significant. The proposed Class I SIL options for a 24-hour period are 0.08, 0.24, and 0.07  $\mu\text{g}/\text{m}^3$ . Several maximum modeled concentrations would exceed the proposed 0.07 and the 0.08  $\mu\text{g}/\text{m}^3$  SIL in the Cucamonga, San Geronio, and San Gabriel Wilderness Areas.<sup>35</sup> Thus, when using the new PM<sub>2.5</sub> SILs, Project impacts are also significant.

Finally, as discussed below, the Applicant underestimated PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) emissions because it failed to include in its emissions calculations fugitive dust emissions from wind erosion of the solar field and unpaved roads and from entrained road dust from operations and maintenance vehicles traveling on unpaved roads on site. Thus, the PM<sub>2.5</sub> emissions will likely exceed the 24-hour PM<sub>2.5</sub> NAAQS.

**D. Fugitive Dust PM<sub>2.5</sub> Emissions from the Project May Result in a Violation of the 24-Hour National Ambient Air Quality Standard for PM<sub>2.5</sub>**

In addition to PM<sub>2.5</sub> emissions from the Project's fossil-fuel powered stationary equipment and the cooling tower, the Project would also result in substantial fugitive dust particulate matter emissions due to wind erosion of the 250-acre graded solar field during construction and operation of the Project and the two 20-acre and 30-acre graded construction laydown areas. The Applicant intends to use a chemical dust suppressant on the graded areas during construction, but did not provide information on dust control of the graded solar field during its operational phase.<sup>36</sup> Even if the use of dust suppressants were intended, they have been found to have little efficacy at suppressing small respirable dust particles. Further, while chemical dust suppressants have a relatively high initial efficiency,

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<sup>35</sup> Sara Head, ENSR, Letter to Ed Pike, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project (VV2), June 25, 2007; Docket No. EPA-R09-OAR-2008-0406-0009, Table 3.

<sup>36</sup> California Energy Commission, Victorville 2 Hybrid Power Project, Application for Certification (07-AFC-1), San Bernardino County, Presiding Member's Proposed Decision, CEC-800-2008-003-PMPD, May 2008, p. 115; cited pages attached as Exhibit 2.

estimated to vary between 40 and 98 percent, the control efficiency has been found to decay to zero within a few months.<sup>37</sup>

In addition, fugitive dust emissions would result from entrained road dust emissions from operations and maintenance vehicles driving on the unpaved solar field, and entrained road dust from delivery and waste removal vehicles traveling on paved and unpaved roads off-site. (The Applicant estimated that the Project would have 13 vehicles on site for operations and maintenance, which are estimated to drive a total of 79 miles per month on unpaved roads.)

Major sources that belong to one of the 27 source categories under 40 CFR 52.21 must include fugitive emissions, *i.e.* emissions that cannot reasonably pass through a stack, chimney, vent, or other functionally equivalent opening, in their potential to emit ("PTE"). The source category "Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input" applies to the Project.<sup>38</sup> Therefore, calculations of Project emissions must include fugitive emissions.<sup>39</sup> The Applicant's modeled Project PM<sub>2.5</sub> emissions only accounted for the Project's stationary emissions including the CTGs and duct burners, the auxiliary heater, the auxiliary boiler, the emergency diesel engine, and the cooling tower, but failed to account for fugitive dust particulate matter emissions.<sup>40</sup>

As mentioned before, modeling of the Project's stationary source PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) emissions resulted in a maximum project impact of 6.1 µg/m<sup>3</sup>.<sup>41</sup> Added to the background ambient concentration of 26 µg/m<sup>3</sup>, this results in a total impact of 32.1 µg/m<sup>3</sup>, less than 3 µg/m<sup>3</sup> lower than 24-hour NAAQS of 35 µg/m<sup>3</sup>. If the PM<sub>2.5</sub> fraction of fugitive dust emissions were included in the modeling, the NAAQS would likely be exceeded. Therefore, the Completeness Determination must be rescinded and the Applicant directed to estimate fugitive emissions and revise the dispersion modeling to include them.

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<sup>37</sup> T. Piechota, J. van Ee, J. Batista, K. Stave, D. James, University of Nevada, Las Vegas, and U.S. Environmental Protection Agency (Eds.), *Potential Environmental Impacts of Dust Suppressants: "Avoiding Another Times Beach," An Expert Panel Summary*, Las Vegas, Nevada, May 30-31, 2002, Table 5, pp. 16 and 50; cited pages attached as Exhibit 3.

<sup>38</sup> Statement of Basis, p. 8.

<sup>39</sup> 40 CFR 52.21(b)(iii)(z).

<sup>40</sup> See, for example, AFC, p. 6.3-66.

<sup>41</sup> Statement of Basis, Table 7, p. 20.

#### **IV. THE EPA FAILED TO DETERMINE THAT PM<sub>2.5</sub> EMISSIONS FROM THE PROJECT WOULD BE SIGNIFICANT**

For purposes of the Project's PSD review for PM<sub>2.5</sub>, the EPA determined that the use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> was appropriate.<sup>42</sup> Accordingly, the analysis of Project impacts on ambient air quality relied on modeling of estimated PM<sub>10</sub> emissions.<sup>43</sup> For a 24-hour averaging period, maximum project impacts from all Project sources were estimated at 6.1 µg/m<sup>3</sup> of PM<sub>2.5</sub> (on a PM<sub>10</sub> as a surrogate basis). On an annual basis, maximum Project impacts were modeled at 0.3 µg/m<sup>3</sup>.<sup>44</sup> Based on these modeled maximum impacts, the EPA concluded that operation of Victorville II would not cause a violation of the PM<sub>2.5</sub> NAAQS.<sup>45</sup> There are a number of problems with the EPA's analyses and conclusions and the Applicant's supporting documents, as shown below.

##### **A. Modeled PM<sub>2.5</sub> Emissions from the Project's Stationary Sources Exceed the PM<sub>10</sub> Significant Impact Level**

The first step in determining whether a source would cause significant deterioration of air quality is to compare maximum modeled ambient air concentrations of attainment pollutants to established significant impact levels ("SILs"), also called significance levels. A SIL for a given criteria pollutant and averaging period is defined as the ambient concentration produced by a source's emissions below which the source is assumed to have a less-than-significant impact on air quality.

The SILs for emissions of SO<sub>2</sub>, PM<sub>10</sub>, NO<sub>x</sub>, CO, and O<sub>3</sub> in Class II areas can be found in the EPA's NSR Manual,<sup>46</sup> Table C-4.<sup>47</sup> The SIL for PM<sub>10</sub> established

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<sup>42</sup> Statement of Basis, p. 9.

<sup>43</sup> Statement of Basis, p. 9 and footnote 15, p. 20.

<sup>44</sup> Statement of Basis, Table 7, p. 20; Sara Head, ENSR, Letter to Ed Pike, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project (VV2), June 25, 2007; Docket No. EPA-R09-OAR-2008-0406-0009; Table 2, p. 5.

<sup>45</sup> Statement of Basis, p. 19.

<sup>46</sup> U.S. Environmental Protection Agency, New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft, October 1990; cited pages attached as Exhibit 1.

<sup>47</sup> NSR Manual, Table C-4, p. C.28, *see* Exhibit 1.  
1994-034a

for a 24-hour period is  $1.0 \mu\text{g}/\text{m}^3$  for areas located within 100 kilometers of a Class I area.<sup>48</sup> The Project is located within 100 kilometers of five Class I areas, and just outside of 100 kilometers from Joshua Tree National Park.<sup>49</sup> The PM10 SIL on an annual basis is also  $1.0 \mu\text{g}/\text{m}^3$ .<sup>50</sup> The EPA failed to identify that the modeled 24-hour PM10 ambient air quality concentrations of  $6.1 \mu\text{g}/\text{m}^3$  greatly exceeded the PM10 SIL of  $1.0 \mu\text{g}/\text{m}^3$  established for a 24-hour period. The EPA made no mention of the 24-hour and annual PM10 SILs, but instead noted that SILs for PM2.5 have not yet been established.<sup>51</sup>

Because EPA followed the surrogate approach for PM2.5, the EPA should have compared modeled 24-hour PM10 emissions with the 24-hour PM10 SIL to determine significance for impacts on ambient air quality from Project emissions. Using the 24-hour PM10 SIL to determine significance of maximum project impacts is analogous to the use of the PM10 significant emissions rate to determine whether PSD applies for PM2.5. The EPA used the PSD significant emissions rate to determine PSD applicability for the Project,<sup>52</sup> but failed to explain why the PM10 SILs are not equally applicable for determining significance.

**B. Fugitive Dust PM2.5 Emissions from the Project May Result in a Violation of the 24-Hour National Ambient Air Quality Standard for PM2.5**

In addition to PM2.5 emissions from the Project's fossil-fuel powered stationary equipment and the cooling tower, the Project will also result in substantial fugitive dust particulate matter emissions due to wind erosion of the 250-acre graded solar field and the two 20-acre and 30-acre graded construction laydown areas. The Applicant intends to use a chemical dust suppressant on the graded areas during construction, but did not provide information on dust control of the graded solar field.<sup>53</sup> Dust suppressants have been found to have little efficacy

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<sup>48</sup> *Ibid.*

<sup>49</sup> Statement of Basis, p. 20.

<sup>50</sup> NSR Manual, Table C-4, p. C.28; *see* Exhibit 1.

<sup>51</sup> Statement of Basis, p. 19.

<sup>52</sup> Statement of Basis, Table 3, p. 9.

<sup>53</sup> California Energy Commission, Victorville 2 Hybrid Power Project, Application for Certification (07-AFC-1), San Bernardino County, Presiding Member's Proposed Decision, CEC-800-2008-003-PMPD, May 2008, p. 115; cited pages attached as Exhibit 2.

at suppressing small respirable dust particles. Further, while chemical dust suppressants have a relatively high initial efficiency, estimated to vary between 40 and 98 percent, the control efficiency has been found to decay to zero within a few months.<sup>54</sup>

In addition, fugitive dust emissions will result from entrained road dust emissions from operations and maintenance vehicles driving on the unpaved solar field, and entrained road dust from delivery and waste removal vehicles traveling on paved and unpaved roads off-site. (The Applicant estimated that the Project will have 13 vehicles on site for operations and maintenance, which are estimated to drive a total of 79 miles per month on unpaved roads.)

Major sources that belong to one of the 27 source categories under EPA's CAA regulations at 40 CFR 52.21 must include fugitive emissions, *i.e.* emissions that cannot reasonably pass through a stack, chimney, vent, or other functionally equivalent opening, in their potential to emit ("PTE"). The source category "Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input" applied to the Project.<sup>55</sup> Therefore, calculations of Project emissions must include fugitive emissions.<sup>56</sup> The Applicant's modeled Project PM<sub>2.5</sub> emissions only accounted for the Project's stationary emissions including the CTGs and duct burners, the auxiliary heater, the auxiliary boiler, the emergency diesel engine, and the cooling tower, but failed to account for fugitive dust particulate matter emissions.<sup>57</sup>

As mentioned before, modeling of the Project's stationary source PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) emissions resulted in a maximum project impact of 6.1 µg/m<sup>3</sup>.<sup>58</sup> Added to the background ambient concentration of 26 µg/m<sup>3</sup>, this results in a total impact of 32.1 µg/m<sup>3</sup>, less than 3 µg/m<sup>3</sup> lower than 24-hour NAAQS of 35 µg/m<sup>3</sup>. If the PM<sub>2.5</sub> fraction of fugitive dust emissions were included in the

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<sup>54</sup> T. Piechota, J. van Ee, J. Batista, K. Stave, D. James, University of Nevada, Las Vegas, and U.S. Environmental Protection Agency (Eds.), *Potential Environmental Impacts of Dust Suppressants: "Avoiding Another Times Beach," An Expert Panel Summary*, Las Vegas, Nevada, May 30-31, 2002, Table 5, pp. 16 and 50; cited pages attached as Exhibit 3.

<sup>55</sup> Statement of Basis, p. 8.

<sup>56</sup> 40 CFR 52.21(b)(iii)(z).

<sup>57</sup> See, for example, AFC, p. 6.3-66.

<sup>58</sup> Statement of Basis, Table 7, p. 20.

modeling, the NAAQS would likely be exceeded. Therefore, the Completeness Determination must be rescinded and the Applicant directed to estimate fugitive emissions and revise the dispersion modeling to include them.

## **V. THE PROPOSED PSD PERMIT'S BACT DETERMINATIONS ARE INCOMPLETE AND DEFICIENT**

Under the Clean Air Act and its implementing regulations, EPA was required to include in the proposed PSD Permit emissions limits consistent with “best available control technology” for each pollutant subject to regulation under the Act.<sup>59</sup> As shown below, the proposed PSD Permit lacks a BACT analysis and permit limits for emissions of greenhouse gases. Also shown below, the proposed BACT limits for criteria pollutants suffer from a variety of other errors such as the failure to follow the top-down BACT procedure. Finally, the proposed emission limits for PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) and for CO suffer from the same fundamental flaw, i.e. the failure to set a BACT limit based on the maximum degree of reduction that is achievable.

### **A. The Proposed PSD Permit Lacks a BACT Analysis and Permit Limits for Greenhouse Gas Emissions**

The Project will emit greenhouse gases, primarily carbon dioxide (“CO<sub>2</sub>”) and nitrous oxide (“N<sub>2</sub>O”) from combustion processes, and methane (“CH<sub>4</sub>”) from unburned natural gas due to leakage from the natural gas pipelines. Other greenhouse gas emissions associated with the Project include sulfur hexafluoride (“SF<sub>6</sub>”), which is used as a gaseous insulator in the Project’s high-voltage circuit breakers, and hydrofluorocarbons (“HFCs”) and perfluorocarbons (“PFCs”), which are used in its refrigeration/chiller equipment.<sup>60</sup> The Applicant estimated 2,020,664 metric tons of annual CO<sub>2</sub>-equivalent emissions of these pollutants from the Project’s stationary sources and from circuit breaker leaks.<sup>61</sup>

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<sup>59</sup> See 42 U.S.C. § 7475(a)(4).

<sup>60</sup> See Exhibit 1, pp. 78, 110 and 119-120.

<sup>61</sup> Inland Energy, Inc., Victorville 2 Hybrid Power Project, Responses to CURE Data Requests, Set 2, August 2007, pp. AQ-19 – AQ-20; cited pages attached as Exhibit 5.



It is now beyond dispute that greenhouse gases are pollutants subject to regulation under the Clean Air Act.<sup>62</sup> Therefore, PSD permits must include a BACT analysis and a permit limit for greenhouse gas emissions. The draft PSD permit contains neither. Accordingly, the draft permit is deficient and must be revised because it omitted a BACT limit for these same pollutants.

Clearly, the Project will be a “major emitting facility” as defined by the CAA because it is a “fossil-fuel fired steam electric plant” of a size greater than the statutory threshold.<sup>63</sup> Thus, because the Project will be a “major emitting facility” it must incorporate BACT for all regulated pollutants. Accordingly, there is no technical or legal justification for omitting greenhouse gases from the draft permit’s BACT analysis. In fact, the applicant and EPA were required to identify, evaluate, and apply available technologies that would control greenhouse gas emissions, but the draft permit contains no greenhouse gas emission limits whatsoever. EPA was required to impose emission limits for greenhouse gases, and was required to include a BACT limit, because Clean Air Act section 165(a)(4) requires BACT “for each pollutant subject to regulation” and emitted from regulated facilities such as the Project.<sup>64</sup>

EPA has regulated CO<sub>2</sub>, a primary component of greenhouse gas, under the CAA since 1993 when the agency adopted regulations for CAA section 821 requiring monitoring, recordkeeping and reporting of facility’s CO<sub>2</sub> emissions. Then, in 2007, the Supreme Court held that greenhouse gases are “pollutants” under the CAA.<sup>65</sup> In short, greenhouse gases are now a regulated pollutant under section 821(a) of the CAA, and EPA is required to impose greenhouse gas BACT emission limits in any final PSD permit for the Project. Under section 821(a) and its implementing regulations, a “regulated NSR pollutant” is defined as:

(50) Regulated NSR pollutant, for purposes of this section, means the following:

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<sup>62</sup> According to the Supreme Court, “greenhouse gases fit well within the Clean Air Act’s capacious definition of air pollutant.” *Massachusetts v. EPA*, 127 S.Ct. 1438, 1460 (2007).

<sup>63</sup> 42 U.S.C. § 7479(1).

<sup>64</sup> 42 U.S.C. § 7475(a)(4).

<sup>65</sup> *Massachusetts v. EPA*, 127 S.Ct. at 1462.

(i) Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds and NO<sub>x</sub> are precursors for ozone);

(ii) Any pollutant that is subject to any standard promulgated under section 111 of the Act;

(iii) Any Class I or II substance subject to regulation under or established by title VI of the Act; or

(iv) **Any pollutant that otherwise is subject to regulations under the Act**, except that any or all hazardous air pollutants either listed in section 112 of the Act or added to the list pursuant to section 112(b)(2) of the Act, which have not been delisted pursuant to section 112(b)(3) of the Act, are not regulated NSR pollutants unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act.<sup>66</sup>

It is unclear whether EPA omitted greenhouse gas analysis from the SOB and an emission limitation in the draft permit simply because EPA has not established a major source threshold.<sup>67</sup> Nevertheless, limiting BACT determinations to those air pollutants for which there is a separate, general numerical limitation effectively ignores section (iv) of the above regulation which unequivocally aims to encompass all pollutants that are “otherwise subject to regulation under the Act.” Thus, as a matter of law, the draft permit and SOB which utterly omit any mention, much less analysis, of the project’s CO<sub>2</sub> emissions, is in direct violation of the Clean Air Act.

Based on the foregoing, EPA must perform a BACT analysis and set BACT-based emission limits for CO<sub>2</sub> and other greenhouse gas emissions from the Project. The BACT analysis must include a discussion of available technologies that would

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<sup>66</sup> 40 C.F.R. § 52.21(b)(50) (emphasis added).

<sup>67</sup> BACT requirements encompass all pollutants subject to regulation under the CAA whether or not they are independently subject to NAAQS or other limits. *See, e.g., Friends of the Chattahoochee v. Georgia Dept of Natural Resources*, Docket No. 2008CV146398, p. 7 (June 30, 2008).

reduce greenhouse gas emissions. For example, on a per-unit energy basis, the use of duct burners is far less efficient than using a larger turbine without duct burners or a small micro- or aeroderivative turbine for peaking power. These options would produce far less greenhouse gas emissions than the proposed duct-fired system. The proposed “major emitting facility” is still the same kind of statutorily defined “facility” under the Clean Air Act whether it uses duct burners or not. Accordingly, the Project should be prohibited from using duct burners because there is a more effective alternative for reducing greenhouse gas emissions. The BACT analysis should therefore analyze Project efficiency on a unit-energy basis and potential options to increase efficiency such as abandoning the use of duct burners, use of thermally more efficient aeroderivative turbines instead of duct burners, requiring a higher percentage of solar power generation, use of CO<sub>2</sub> capture and storage technologies, use of oxy-firing, and other innovative technologies.

#### **B. The EPA Failed to Follow Its Own Procedures in Establishing BACT Limits**

The Statement of Basis provided the definition of BACT under the Clean Air Act and outlined the mechanics of the five steps involved in a top-down BACT analysis. EPA verified that the five-step top-down procedure has been consistently followed by the Environmental Appeals Board in adjudicating PSD permit appeals.<sup>68</sup>

Unfortunately, beyond this generic explanation, the Statement of Basis did not follow the five-step top-down BACT analysis for the Project, but instead merely provided short summaries and conclusions for each of the Project’s emission units and pollutants. Specifically, EPA omitted the required in-depth analysis and support for its conclusions, and as such did not follow the five steps for a Project-specific top-down BACT analysis.<sup>69</sup> As discussed in section I above, the Statement of Basis, did not cite to or reference the supporting documents; thus, the analytic path EPA traveled to derive its unsupported conclusions is entirely unclear to the public. Perhaps, EPA simply relied on the BACT analyses contained in the Applicant’s PSD Application, and several later documents, as well as numerous documents contained on the California Energy Commission’s website including the Preliminary Staff Assessment, the Final Staff Assessment, and an unidentified

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<sup>68</sup> Statement of Basis, pp. 10-11.

<sup>69</sup> Statement of Basis, pp. 14-17.

“Supplemental Information” document. In any case, members of the public have no way of knowing.

The problem is compounded by the Applicant’s own failure to follow the established five-step top-down BACT procedure, rendering the Applicant’s own BACT determination fatally flawed. As shown below, there has been no top-down BACT analyses for: the CO BACT determination for the CTGs, the PM and PM<sub>2.5</sub> BACT determination for the CTGs, and the BACT determinations for the auxiliary boiler, the auxiliary heater, emergency diesel engine, and the firewater pump.

### **C. The CO BACT Determination for CTGs Is Flawed**

The Statement of Basis contained the following paragraph as a CO BACT analysis for the CTGs:

Carbon monoxide (CO) occurs due to incomplete combustion of natural gas in the gas turbine, and in the duct burners when they are operated. The applicant has proposed to install an oxidation catalyst to control CO. The application states that the facility will achieve 2.0 ppmvd CO over a 1-hour averaging period when it does not use duct burning, excluding startups and shutdowns. BACT for periods of startup and shutdown are discussed in Section 7.1.4. We believe 2.0 ppmvd CO is the lowest emission rate that has been included in a permit for a facility of this type. The application also requests a slightly higher 3.0 ppmvd CO emission rate when duct burning is used, due to higher CO concentrations from the duct burners. While the facilities we reviewed generally have higher emission rates, there are some facilities with a 2.0 ppmvd CO limit that applies at all times. We believe that the combination of emission rates proposed by the applicant falls within the stricter end of the range of emission rates acceptable as BACT for CO, based on our review of data in the RBLC. Replacing duct burning with solar energy, when available, will reduce the amount of time that the facility would use duct burning with the higher CO emission rates.<sup>70</sup>

#### **1. The Above CO BACT Determination Did Not Follow the Top-down Procedure Established as a Standard for BACT Determination**

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<sup>70</sup> Statement of Basis, Section 7.1.2 Carbon Monoxide, p. 14.

Neither the EPA's one paragraph CO BACT determination nor the CO BACT determination contained in the PSD Application for the Project's CTGs included any of the five steps followed in a top-down BACT analysis, i.e. 1) identify available control options; 2) eliminate technically infeasible options; 3) rank the remaining control technologies; 4) evaluate the most effective control alternative; and, 5) select BACT.<sup>71</sup> In fact, neither the Statement of Basis nor the PSD Application even mentioned which technologies are available to reduce CO emissions from the CTGs.

Available control technologies that should have been analyzed include good combustion practices, alternatives to duct burning, catalytic oxidation, thermal oxidation, and SCONOX. (Presumably, duct burning and the use of solar power would occur concurrently during periods of high demand. Therefore, solar energy would not reduce the amount of time that the facility would use duct burning in the summer, contrary to the EPA's suggestion. Further additional solar could be added.) Instead, the PSD Application's CO BACT determination contained a "Top-down Ranking of Achievable Control Levels," which simply excerpted CO permit limits for a number of facilities from the South Coast Air Quality Management District's BACT Guidelines and the EPA's RACT/BACT/LAER Clearinghouse.<sup>72</sup> This approach is inadequate. The provided documents do not discuss which control technologies these facilities employ to comply with their CO permit limits.<sup>73</sup> EPA's approach was neither legally or technically consistent with the NSR Manual's longstanding methodology.

The Application's CO BACT determination proposed CO limits and then concluded that the facility would use an oxidation catalyst to comply with the proposed limits. As such, the Applicant's CO BACT analyses omitted explanation of how it determined that the use of an oxidation catalyst would constitute BACT, and why other control technologies, or combinations of control technologies, would not be feasible.<sup>74</sup> This "analysis" is insufficient to determine that the proposed permit

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<sup>71</sup> New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, Chapter B, (1990); City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Docket No. EPA-R09-OAR-2008-0406-0001, p. 4-4.

<sup>72</sup> *Ibid.*

<sup>73</sup> *Ibid* and Appendix B to Application, Control Technology Listings, Docket No. EPA-R09-OAR-2008-0406-0003, Table B-2.

<sup>74</sup> *Ibid.*

limits are indeed BACT for CO emissions from the CTGs, especially because the EPA erred in determining BACT for the CTGs. The Permit and Statement of Basis must be revised.

## **2. Lower CO Limits Have Been Permitted Under All Firing Conditions**

The Draft PSD Permit limits CO emissions from the CTGs to 2.0 ppm when the duct burners are not in use and to 3.0 ppm when the duct burners are firing based on the use of an oxidation catalyst and averaged over one hour.<sup>75</sup>

Other similar combined-cycle projects that incorporate duct firing have been permitted at 2.0 ppm with no CO limit adjustment or a lower CO limit when duct firing. (See attached Table A-2 for a partial list of these Projects.) In fact, the Applicant's summary of BACT determinations obtained from the EPA's RBLC database shows 11 such determinations.<sup>76</sup> The lowest CO limits were permitted for Kleen Energy Systems, CT, whose two Siemens SGT6-5000 F turbines were permitted at 0.9 ppm CO with the duct burners off and at 1.7 ppm CO when firing the 445 MMBtu/hr duct burners.<sup>77</sup> The Applicant did not mention the permit limits for Kleen Energy Systems. In addition, CPV Warren, VA, was permitted with two of either GE7FA, GE207FA, or Siemens STG6-5000F turbines at 1.8 ppm CO with the duct burners off and at 2.5 ppm CO with the duct burners firing. Based on the Applicant's RBLC summary table, ten power plants in Arizona, California, Georgia, Michigan, Oregon, and Washington have been permitted at 2.0 ppm CO with no CO limit adjustment for the duct burners. These include COB Energy Facility, OR, Duke Energy Arlington Valley II, AZ, Vernon City's Malburg Generating Station, CA, Magnolia Power Project, CA, and McIntosh Combined Cycle Facility, GA. Finally, the BP West Coast Products Cherry Point Cogeneration Project, WA, was also permitted at 2.0 ppm under all firing conditions. Several power plants have demonstrated compliance with these low permitted limits as discussed below.

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<sup>75</sup> Proposed PSD Permit, Condition IX.B and IX.C.1, pp. 4-5.

<sup>76</sup> City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Appendix B, Docket No. EPA-R09-OAR-2008-0406-0003, Table B-2.

<sup>77</sup> U.S. Environmental Protection Agency, RACT/BACT/LAER Clearinghouse (RBLC), 15.210 Natural Gas Fired, Combined-Cycle and Cogeneration(>25 MW).

The Applicant's CO BACT determination for the CTGs merely stated that duct burners would emit additional CO, increasing the uncontrolled emission levels entering the oxidation catalyst. The Application failed to reasonably explain why the Project, with similar turbines, can not comply with the lower limits.<sup>78</sup> The Statement of Basis, while recognizing that several facilities have been permitted with a lower CO limit of 2.0 ppm that applies at all times, including when the duct burners are firing, impermissibly rationalized the proposed higher CO limit for the Project of 3.0 ppm when the duct burners are firing, on grounds that "the combination of emission rates proposed by the applicant falls within the stricter range of emission rates acceptable as BACT for CO."<sup>79</sup> However, there is no justification for a higher CO limit while duct firing. Clean Air Act section 169(3) defines BACT as "an emission limitation based on the *maximum* degree of reduction ... achievable for such source,"<sup>80</sup> not a "*range* of emission rates" as applied by the EPA.

### 3. Lower CO Emissions Have Been Demonstrated in Practice

Finally, basing BACT limits on previously permitted limits is a self-fulfilling prophecy that contravenes the technology-forcing nature of BACT. A BACT limit must represent the lowest limit "*achievable*" for the source—not the lowest limit previously *achieved* by sources in the past.<sup>81</sup> This forward-looking emphasis is the "most important" mechanism promoting the Clean Air Act's "philosophy of encouragement of technology development."<sup>82</sup> The BACT standard is intended to require use of "the latest technological developments [in pollution control] as a requirement in granting the permit," so as to "lead to rapid adoption of improvements in technology as new sources are built," rather than "the stagnation that occurs when everyone works against a single national standard for new sources."<sup>83</sup>

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<sup>78</sup> City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Appendix B, Docket No. EPA-R09-OAR-2008-0406-0003, Section 4.1.2.2. Top-down Ranking of Achievable Control Levels.

<sup>79</sup> Statement of Basis, p. 14.

<sup>80</sup> See also 40 CFR 52.21(b)(12), *emphasis* added.

<sup>81</sup> 40 CFR 52.21 (b)(12); *emphasis* added.

<sup>82</sup> S. Rep. No. 95-127 at 18; see also *Alabama Power v. Costle*, 636 F.2d 323, 372 (D.C. Cir. 1980) (noting that Prevention of Significant Deterioration Program is intended to be "technology forcing").

<sup>83</sup> S. Rep. No. 95-127 at 18.

Here, the CO BACT determination impermissibly relied on emission levels that have been permitted in the past or demonstrated in the past at other sources. The record contained no evidence that an analysis was conducted to determine emission levels that are “achievable” with the selected BACT technology, as opposed to achieved. The Applicant and the EPA should have collected and evaluated test data reported to the EPA under various regulatory programs, discussed technology performance and guarantees with vendors, and then made an engineering judgment based on physical and chemical principles using this data as to which limits are “achievable” for the Project to fulfill the technology forcing nature of BACT. The permit limits for plants built in the past serve only as the starting point for the BACT analysis for what is achievable for a future plant. Those limits cannot also be the end of the BACT analysis; limits achieved in the past are a floor, not the ceiling, for the BACT determination of what is “achievable” for a new source.

For example, CO concentrations of 0.046 and 0.043 ppm at 15% oxygen were measured on the two GE Frame 7FA turbines at the Los Medanos Energy Center, at full load with duct burners on, during October 2001 compliance testing.<sup>84</sup> CO concentrations of 0.12 and 0.04 ppm were measured on the two SW 501FD turbines at the Sutter Power Project, at full load with duct burners on and power augmentation operational, during June 2001 compliance testing.<sup>85</sup> Numerous such source tests demonstrate that much lower CO limits are routinely achieved at other similar facilities. The EPA has access to this data and should collect and analyze it to make a fresh CO BACT determination that complies with the statutory and regulatory definition of BACT which require an emission limit based on the maximum degree of reduction that is achievable.

#### **D. The PM and PM10 (as a Surrogate for PM2.5) BACT Determination for CTGs Was Flawed**

According to the Statement of Basis, absent full explanation, no add-on particulate emission controls have been demonstrated in practice for this type of source, and that BACT for PM and PM2.5 emissions from this Project’s two General

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<sup>84</sup> The Avogadro Group, Los Medanos Energy Center Report for Initial Emission Compliance Tests, January 22, 2002; attached as Exhibit 6.

<sup>85</sup> The Avogadro Group, Revised Report for Startup Emission Compliance Tests and CEMS Part 60 and Part 75 RATA, Sutter Power Project, Yuba City, California, January 2002; attached as Exhibit 7.



Electric (“GE”) 7FA CTGs would be the use of natural gas with a sulfur content of 0.2 grains per 100 dry standard cubic feet (“g/100 dscf”) or less to limit sulfate particulate emissions.<sup>86</sup>

**1. The PM and PM2.5 BACT Determinations Did Not Follow the Top-down Procedure Established as Standard for BACT Analyses**

The EPA’s meager BACT analysis for PM and PM2.5 was presumably based on the Applicant’s equally short BACT analysis found in a supplement to the PSD Application for PM2.5.<sup>87</sup> The Applicant’s PM and PM2.5 BACT determinations also did not follow the established five-step top-down BACT procedure. (The additional supplement to the PSD Application for PM did not contain a BACT analysis, but rather relied on the PM2.5 supplement because PM emissions are assumed to be equal to the PM10/PM2.5 emissions.<sup>88</sup>) Based on this scant data, the Statement of Basis and the Applicant’s PM2.5 BACT analysis concluded that BACT for both PM and PM10 (as a surrogate for PM2.5) emissions from the CTGs is 12.0 pounds per hour (“lb/hour”) without the duct burner firing and 18.0 lb/hour with the duct burner firing.<sup>89</sup> There is no support in EPA’s administrative record for this conclusion, as neither the Statement of Basis nor the Applicant’s documents contain any discussion of achievable PM10 and PM2.5 emission levels, permitted PM and PM10 emission limits at similar facilities, or results of source tests. As such, the entire analysis is deficient and flawed and must be redone.

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<sup>86</sup> Statement of Basis, pp. 14-15.

<sup>87</sup> Sara Head, ENSR, Letter to Ed Pike, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project (VV2), June 25, 2007; Docket No. EPA-R09-OAR-2008-0406-0009.

<sup>88</sup> Thomas Barnett, Inland Energy, Inc., Letter to Anita Lee, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration (PSD) Permit for Victorville 2 Hybrid Power Project, January 28, 2008; Docket No. EPA-R09-OAR-2008-0406-0010.

<sup>89</sup> Statement of Basis, pp. 14-15; Thomas Barnett, Inland Energy, Inc., Letter to Anita Lee, U.S. Environmental Protection Agency, San Francisco, CA, Subject: Supplement to Application for Prevention of Significant Deterioration (PSD) Permit for Victorville 2 Hybrid Power Project, January 28, 2008; Docket No. EPA-R09-OAR-2008-0406-0010.

## **2. Lower PM10 Emissions Limits Have Been Permitted**

A number of natural gas-fired power plants with substantially similar F-class turbines have been permitted by the EPA and licensed by the California Energy Commission with considerably lower PM10 emissions limits for the CTGs and associated duct burners than those EPA proposed here. In California, these facilities include the Blythe Energy Project Phase II, the Cosumnes Power Plant Phase I, the Los Medanos Energy Facility, the Russell City Energy Center, the Moss Landing Power Plant Project, the Metcalf Energy Center, the Mountainview Power Plant Project, and the Inland Empire Energy Center. Turbine and duct burner characteristics and permit limits for these facilities are summarized in attached Table A-1 and some facilities are discussed in more detail below.

Particularly noteworthy is the Blythe Energy Project Phase II, which employed Siemens Westinghouse F-class turbines. This facility was licensed by the Energy Commission in 2005 and permitted by the EPA in 2007 with an emission limit of 6.0 lb/hour of PM10 emissions per turbine with and without firing the duct burners and using natural gas with more than twice as much sulfur content as proposed for Victorville II.<sup>90,91,92</sup> The Energy Commission required testing of the permitted PM10 limits based on EPA Methods 5 and 202,<sup>93</sup> the same testing methods as proposed for this Project.<sup>94</sup> On a unit energy-basis, the Blythe Energy Plant is permitted to emit 0.0034 lb/MMBtu of PM10 with the duct burners off and 0.0031 lb/MMBtu with the duct burners firing, less than half of the PM10 emissions the EPA proposed here, i.e. 0.0069 lb/MMBtu with the duct burners on and 0.0083 lb/MMBtu with the duct burners firing, and determined with the same test

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<sup>90</sup> California Energy Commission, Blythe Energy Project Phase II, Application for Certification (02-AFC-1), Commission Decision, CEC-800-2005-005-CMF, December 2005, Condition AQ-4.e, p. 35; cited pages attached as Exhibit 8.

<sup>91</sup> U.S. Environmental Protection Agency, Region IX, Caithness Blythe II, L.L.C. (Blythe II), Authority to Construct, Issued Pursuant to Prevention of Significant Deterioration (PSD) Requirements at 40 CFR §52.21, PSD Permit Number SE 02-01, April 25, 2007, Condition D, p. 6; cited page attached as Exhibit 9.

<sup>92</sup> Construction of the facility is currently on hold. See California Energy Commission, Energy Facility Status, Projects Since 1997, Updated: 6/20/2008; [http://energy.ca.gov/sitingcases/all\\_projects.html](http://energy.ca.gov/sitingcases/all_projects.html); attached as Exhibit 10.

<sup>93</sup> The CEC additionally permits the use of CARB Method 5; see Exhibit 8, Condition AQ-4.e, p. 35.

<sup>94</sup> See Exhibit 2, Condition AQ-14.e, p. 38.

methods.<sup>95</sup> The EPA should explain, based on physical and chemical properties of the exhaust gases, why these lower emission levels cannot be achieved at this Project.

### **3. Lower PM10 Emissions Have Been Demonstrated in Practice**

The Cosumnes Power Plant Phase I, which employed two GE 7FA turbines with no duct burners, was licensed by the Energy Commission in 2003 with an emissions limit of 9.0 lb/hr PM10 per turbine based on an emission factor of 0.00483 lb/MMBtu.<sup>96</sup> The Cosumnes Power Plant Phase I is operational and has demonstrated compliance with this emission limit. The most recent stack tests measured average PM10 emission rates of 4.0 and 3.3 lb/hr from the two turbines, respectively, with EPA Methods 201A and 202. On a unit energy-basis, average PM10 emissions were determined to be 0.00235 and 0.00195 lb/MMBtu, respectively, less than a third of the proposed PM10 emissions for this Project.<sup>97</sup>

The Los Medanos Energy Center, which employed two GE S207FA turbines, was initially licensed with PM10 emission limits of 16.3 lb/hr per turbine train with and without duct burner operation. In 2006, the project owner requested lowering the PM10 permit limits to 9.0 lb/hr based on stack tests repeatedly demonstrating PM10 emissions considerably below 9.0 lb/hr. As a result, the Energy Commission approved revised turbine PM10 emission limits of 9.0 lb/hr or 0.0040 lb/MMBtu per turbine including when the 330 MMBtu/hr duct burner is firing.<sup>98</sup>

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<sup>95</sup> Blythe II:  $(6.0 \text{ lb/hr}) / (1,776 \text{ MMBtu/hr turbine}) = \mathbf{0.0034 \text{ lb/MMBtu}}$   
 $(6.0 \text{ lb/hr}) / (1,776 \text{ MMBtu/hr turbine} + 132 \text{ MMBtu/hr duct burner}) = \mathbf{0.0031 \text{ lb/MMBtu}}$ ;

Victorville II:  $(12.0 \text{ lb/hr}) / (1,736.4 \text{ MMBtu/hr turbine}) = \mathbf{0.0069 \text{ lb/MMBtu}}$   
 $(18.0 \text{ lb/hr}) / (1,736.4 \text{ MMBtu/hr turbine} + 424.3 \text{ MMBtu duct burner}) = \mathbf{0.0083 \text{ lb/MMBtu}}$ .

<sup>96</sup> California Energy Commission, Cosumnes Power Plant Project, Sacramento County, Application for Certification (01-AFC-19), Commission Decision, P800-03-013, September 2003, Condition AQ-17, pp. 27-28; cited pages attached as Exhibit 11.

<sup>97</sup> The Avogadro Group, LLC, Source Test Report, 2007 Emission Compliance Tests, SFA Cosumnes Power Plant, Herald, California, March 16, 2007, pp. 4 and 11; document without appendices attached as Exhibit 12.

<sup>98</sup> California Energy Commission, In the Matter of: Los Medanos Energy Center, Order No. 07-0523-4, Order Approving a Petition to Lower the Annual PM10 Emissions Limit for the Facility, Docket No. 98-AFC-1C; attached as Exhibit 13.

These examples and others given in Table A-1 for similar turbines, including other GE Frame 7FA turbines, demonstrate that the proposed PM10 (as a surrogate for PM2.5) limits of 12.0 lb/hr without and 18.0 lb/hr with duct burners firing are not BACT for the CTGs. As shown for the CO BACT determination, the Applicant and the EPA should have collected and evaluated test data reported to the EPA under various regulatory programs, discussed technology performance and guarantees with vendors, and then made an engineering judgment based on physical and chemical principles using this data as to what limits are “achievable” for the Project to fulfill the technology-forcing nature of BACT. The failure to fully employ the top-down BACT procedures rendered the entire analysis flawed.

#### **4. Demonstrated In Practice Is the Wrong Standard for Emission Control Technologies**

The Statement of Basis states without further discussion that no add-on particulate emission controls have been demonstrated in practice. Demonstrated in practice is the LAER standard and does not apply to a BACT analysis. A BACT technology need only be achievable.

The NSR Manual sets out a process to determine the technical feasibility of a control technology that has not been installed and operated successfully on the type of source under review. NSR Manual, Sec. IV.B. If a technology is “available” and “applicable” it qualifies as a BACT technology that must be included in Step 2 of the top down process. A technology is available if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is “applicable” if it can reasonably be installed and operated on the source type under consideration. A technology that is available and applicable is technically feasible.

There are a number of technologies that meet these criteria that should have been evaluated and required as BACT for PM10/PM2.5. These include fabric filter baghouses, Pall filters, wet electrostatic precipitators (“Wet ESP” or “WESP”),<sup>99</sup>

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<sup>99</sup> Candidate Stationary and Area Control Measures, Chicago PM2.5 Workshop, June 21, 2007, Tim Smith, USEPA at slide 15 (recognizing Wet ESP’s as “innovative PM2.5 controls”); available at [http://earth1.epa.gov/ttn/naaqs/pm/presents/control\\_measures\\_stationary\\_and\\_area-tim\\_smith.ppt](http://earth1.epa.gov/ttn/naaqs/pm/presents/control_measures_stationary_and_area-tim_smith.ppt).

*See also* Evaluation of Potential PM2.5 Reductions by Improving Performance of Control Devices: Conclusions and Recommendations, Prepared for: U.S. Environmental Protection Agency by E.H. 1994-034a

advanced hybrid particulate collectors,<sup>100</sup> removal of sulfur from the natural gas feed, and use of an ammonia slip cleanup catalyst. Wet electrostatic precipitators, for example, are widely used in many industries and many more are considering the WESP as the maximum achievable control technology (MACT).” The Completeness Determination must be revoked and the BACT analysis for PM<sub>2.5</sub> redone to cure this serious deficiency.

#### **5. Proposed Test Methods to Determine Compliance Require Lowering the PM and PM<sub>10</sub> (as a Surrogate for PM<sub>2.5</sub>) BACT Limits**

The proposed PSD Permit requires determination of compliance with the PM and PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) permit limits by measuring PM and PM<sub>10</sub> emissions using EPA’s Reference Methods 5 and 202. In lieu of Method 202, the proposed PSD Permit allows the use of EPA Conditional Test Methods for particulate matter, *i.e.* CTM-039 or CTM-040.<sup>101</sup> There are a number of problems with allowing the Applicant to choose from these test methods.

First, EPA Conditional Test Method CTM-040 has been superseded by OTM27 on May 8, 2008.<sup>102,103</sup> Thus, the proposed PSD Permit should be revised to refer to OTM27 and its successors, rather than CTM-040.

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Pechan & Associates, Inc., EPA Contract No. 68-D-00-265 at 23 (September 30, 2005) (“Pechan Report”); available at [http://www.epa.gov/pm/measures/pm25\\_recommend\\_2007.pdf](http://www.epa.gov/pm/measures/pm25_recommend_2007.pdf) (describing Wet ESP as an “innovative control system” that “yield[s] higher PM<sub>2.5</sub> emissions reductions than the methods identified to improve existing control device performance”); CIBO Industrial Emissions Control Technology II Conference, August 2 - 4, 2004 Portland, Maine at 6 (explaining that Wet ESP’s are an effective control technology for PM<sub>2.5</sub>: “There are no moving parts in a wet ESP. The [fine] particles never really reach the electrode and are constantly washed away by the water flow”); available at <http://www.cibo.org/emissions/2004/summary.pdf>.

<sup>100</sup> Since its original development, the name of this technology has been changed to “Advanced Hybrid™.” The name was trademarked by W.L. Gore and Associates, Inc. See “Demonstration of a Full-Scale Retrofit of the Advanced Hybrid Particulate Collector Technology,” U.S. Department of Energy (February 2007); available at [http://204.154.137.14/technologies/coalpower/cctc/PPII/bibliography/demonstration/environmental/ott/PPA\\_Otter%20Tail\\_PPA\\_Final%20for%20Posting.pdf](http://204.154.137.14/technologies/coalpower/cctc/PPII/bibliography/demonstration/environmental/ott/PPA_Otter%20Tail_PPA_Final%20for%20Posting.pdf).

<sup>101</sup> Proposed PSD Permit, p. 10.

<sup>102</sup> See U.S. Environmental Protection Agency, Conditional Test Methods, CTM-040: “Draft Method for Determination of PM<sub>10</sub>/PM<sub>2.5</sub> has been superseded by OTM027”; <http://www.epa.gov/ttnemc01/ctm.html>.

Second, the use of these test methods results in considerably different PM10 measurements for the same source. EPA Method 5 for filterable particulate matter and Method 202 for condensable particulate matter are known to overestimate PM10 emissions from gas turbines and other fired sources.<sup>104,105</sup> Method 5 measures total particulate matter, rather than PM10, thus overestimating actual PM10 emissions. Method 202 overestimates condensable PM10 due to the formation of artifacts in the wet impinger train, such as the oxidation of SO<sub>2</sub> to SO<sub>3</sub>. The artifact problems with Method 202 can be minimized by selecting options listed in the method, such as nitrogen purge, which is required to determine compliance for Victorville II.<sup>106,107,108</sup> To address these artifact problems, the U.S. EPA has developed alternative test method CTM-039 for total PM10, which employs a dilution tunnel method and measures both total PM10 and PM2.5, and is currently developing an alternate for Method 202.<sup>109</sup>

Most stack tests at other facilities in the past used EPA Method 5 and 202 without the nitrogen purge.<sup>110</sup> Thus, the resulting measured emissions are artificially high and BACT determinations made using this data report emission limits are artificially high. If these facilities were stack-tested with EPA Method 202 using a nitrogen purge or with CTM-039, lower PM10 emissions rates would be measured. These lower PM10 emissions should result in lower BACT emission limits. Therefore, the proposed PSD Permit should have established separate permit limits for PM10 depending on the test method used to determine compliance.

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<sup>103</sup> U.S. Environmental Protection Agency, Determining PM10 and PM2.5 Emissions from Stationary Sources (Constant Sampling Rate Procedure), May 8, 2008.

<sup>104</sup> See <http://www.epa.gov/ttn/emc/methods/method202.html>.

<sup>105</sup> See, for example, G.C. England, Development of Fine Particulate Emission Factors and Speciation Profiles for Oil and Gas-fired Combustion Systems, Technical Memorandum: Conceptual Model of Sources of Variability in Combustion Turbine PM10 Emissions Data, March, 2004.

<sup>106</sup> See <http://www.epa.gov/ttn/emc/methods/method202.html>.

<sup>107</sup> U.S. Environmental Protection Agency, Conditional Test Method (CTM) 039, Measurement of PM2.5 and PM10 Emissions by Dilution Sampling, (Constant Sampling Rate Procedures), CTM-039 (04\_Rev 2), July 2004.

<sup>108</sup> Proposed PSD Permit, Condition H.d.iv.a., p. 9.

<sup>109</sup> See <http://www.epa.gov/ttn/emc/methods/method202.html>

<sup>110</sup> See attached Table A-1 and Exhibits 6 and 13.

In addition to the comments on the proposed PM10 BACT limits above, the Agency must revise its BACT determination to address the lower emission rates that would be achieved when using Method 5 with nitrogen purge or CTM-039.

**E. BACT Determinations for Auxiliary Boiler, Auxiliary, Heater, Emergency Engine, and Firewater Pump Are Flawed**

Most of the Applicant's analyses for the auxiliary boiler, the heat transfer fluid ("HTF") heater, the emergency diesel engine, and the firewater pump engine suffer from the same problems as the CO and PM and PM10 BACT analyses for the turbines, *i.e.* the failure to follow a top-down BACT procedure, resulting in failure to select proper BACT levels. With the exception of the CO BACT determination for the auxiliary boiler and auxiliary heater, the Agency's and the Applicant's "BACT analyses" consist of one paragraph per unit with no further support for the conclusions in the docket.

The EPA must revise the PM and PM10 (as a Surrogate for PM2.5) BACT Determination for CTGs and recirculate the analysis for public comment.

**VI. THE PROPOSED PSD PERMIT FAILS TO INCLUDE A PERMIT LIMIT FOR AMMONIA SLIP**

According to the Statement of Basis, the excess ammonia emissions from the CTGs' selective catalytic reduction ("SCR") system, the so-called ammonia slip, would be limited to 5 ppmvd.<sup>111</sup> Yet the proposed PSD Permit did not contain any restrictions on the ammonia slip from the SCR. Because ammonia is a precursor to PM2.5 particulate matter emissions, the proposed PSD Permit must be revised to provide for monitoring and recordkeeping of the ammonia slip.

**VII. THE PROPOSED PSD PERMIT LIMITS ARE NOT ENFORCEABLE**

The proposed permit limits must be enforceable as a practical matter to qualify as legitimate restrictions on emissions. Practical enforceability means the source and/or enforcement authority must be able to show continual compliance (or

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<sup>111</sup> Statement of Basis, p. 14.

noncompliance) with each limitation or requirement.<sup>112</sup> The proposed PM/PM10 limits are not practically enforceable because the proposed PSD Permit contains inadequate monitoring requirements.

The EPA has substantial guidance on effectively limiting a source's potential to emit through enforceable permit conditions. Practical enforceability means the source must be able to show continuous compliance with each limitation or requirement.<sup>113</sup> Adequate testing, monitoring, and record-keeping must be included in the permit.<sup>114</sup> The permit conditions in the proposed PSD Permit provide no assurance that the proposed limits are enforceable as a practical matter.<sup>115</sup>

The NSR Manual includes a chapter on "Effective Permit Writing." This chapter explains that emission and operational limits "must be clearly expressed, easily measurable, and allow no subjectivity... Such limits should be of a short term nature, continuous and enforceable."<sup>116</sup> In addition, an NSR Manual appendix further clarifies the meaning of enforceability:

Compliance with any limitation must be able to be established at any given time. When drafting permit limitations, the writer must always ensure that restrictions are written in such a manner that an inspector could verify instantly whether the source is or was complying with the permit conditions. Therefore, short-term averaging times on limitations are essential.

Emission limits should reflect operation of the control equipment, be short-term, and, where feasible, the permit should require a continuous emissions monitor. Blanket emissions limits alone (e.g., tons/yr, lb/hr) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter.

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<sup>112</sup> See, *U.S. v. Louisiana-Pacific Corp.* 682 F.Supp. 1122 (D. Colorado 1988).

<sup>113</sup> See, e.g., "Guidance on Limiting Potential to Emit in New Source Permitting," from Terrell F. Hunt, Associate Enforcement Counsel, OECA, and John Seitz, Director, OAQPS, to EPA Regional Offices, June 13, 1989, attached as Exhibit 14.

<sup>114</sup> NSR Manual, pp. A.5-A.6; see Exhibit 1.

<sup>115</sup> In these comments, the terms "enforceable" and "enforceable as a practical matter" are used interchangeably.

<sup>116</sup> NSR Manual, p. H.5; see Exhibit 1.



When permits contain production or operational limits, they must also have requirements that allow a permitting agency to verify a source's compliance with its limits. These additional conditions dictate enforceability and usually take the form of recordkeeping requirements.<sup>117</sup>

As explained below, the proposed PSD Permit is not enforceable because it failed to specify monitoring requirements and did not contain adequate monitoring or record keeping to assure continuous compliance. Some of the limits are also not enforceable because they are based on long averaging periods and/or do not include both an instantaneous limit and an emissions cap.

**A. The Testing for PM and PM<sub>10</sub> Emission Limits for CTGs in the Proposed Permit Is Not Adequate to Assure Continuous Compliance**

The proposed PSD Permit limits PM and PM<sub>10</sub> (as a surrogate for PM<sub>2.5</sub>) emissions from the CTGs to 12.0 lb/hr when the duct burners are off and 18.0 lb/hr when the duct burners are fired based on a 12-month rolling average to be verified with annual performance testing (stack test) and monthly natural gas fuel testing.<sup>118</sup> This condition as written cannot ensure continual compliance with the permit limits. According to the NSR Manual, "BACT emission limits or conditions must be met on a continual basis at all levels of operation (e.g., limits written in pounds/MMBtu or percent reduction achieved), demonstrate protection of short term ambient standards (limits written in pounds/hour) and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements)."<sup>119</sup>

A stack test normally lasts only a few hours (3 to 6 hours) and is conducted under ideal, prearranged conditions. Staged annual or other periodic testing is not indicative of emissions during routine operation or startups and shutdowns on the other 364 days of the year, or 8,750-plus hours. One 3-hour test per year over a 50-year facility life at 85% capacity amounts to testing only about 0.04% of the operating hours. Thus a stack test is not adequate to demonstrate continuous compliance.

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<sup>117</sup> *Ibid*, pp. c.3–c.5.

<sup>118</sup> Proposed PSD Permit, Conditions IX.C.1, IX.H.1.a.i, and IX.H.1.d.iv.

<sup>119</sup> NSR Manual, p. B.56; *see* Exhibit 1.

Further, annual stack testing does not capture spikes caused by normal process operations. It is well known that “[m]annual stack tests are generally performed under optimum operating conditions, and as such, do not reflect the full-time emission conditions from a source.”<sup>120</sup> A widely-used handbook on Continuous Emissions Monitoring (“CEMs”) notes, with respect to PM<sub>10</sub> source tests, that: “Due to the planning and preparations necessary for these manual methods, the source is usually notified prior to the actual testing. This lead time allows the source to optimize both operations and control equipment performance in order to pass the tests.”<sup>121</sup>

An annual stack test does not provide any method to assure that the BACT limits for PM and PM<sub>10</sub> are met on a “continual basis.” The Permit must be revised to include an instantaneous permit limit in parts per million (“ppm”) and installation of a CEMS for PM and PM<sub>10</sub> in the stack to address those periods when direct stack testing is not conducted. Annual and quarterly stack testing of the CEMS should be performed to demonstrate its performance.

As discussed, an annual stack test does not provide any method to assure that the BACT limits for PM and PM<sub>10</sub> are met on a “continual basis.” The Permit should be revised to include an instantaneous permit limit (in, for example, lb/MMBtu) and installation of a CEMS for PM and PM<sub>10</sub> in the stack to address those periods when direct stack testing is not conducted. Annual and quarterly stack testing of the CEMS should be performed to demonstrate its performance.

## **B. The Proposed Permit Failed to Require Recordkeeping for Hours of Operation for Duct Burners**

The proposed PSD Permit restricted the combined hours of operation for both duct burners to 2,000 hours per year per 12-month rolling average in Condition C.2.<sup>122</sup> Yet, the proposed PSD Permit failed to require any recordkeeping to ensure that the 2,000-hour limit for operation of both duct burners is not exceeded. The Proposed Permit must be revised to include a requirement for record keeping for operations of the two duct burners to be submitted annually to EPA.

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<sup>120</sup> 40 Fed. Reg. 46,241 (Oct. 6, 1975).

<sup>121</sup> James A. Jahnke, *Continuous Emission Monitoring*, 2<sup>nd</sup> Ed., John Wiley & Sons, Inc., New York, 2000, at p. 241.

<sup>122</sup> Proposed PSD Permit, p. 5.

**C. The Proposed Permit Contained Insufficient Monitoring for Cooling Tower Emissions**

The proposed PSD Permit limited cooling tower PM emissions to 1.6 lb/hr based on a 0.0005% drift rate with a maximum circulation rate of 130,000 gallons per minute and a maximum total dissolved solids (“TDS”) content of 5,000 ppm.<sup>123</sup> The proposed PSD Permit required an annual source test for cooling tower PM emissions.<sup>124</sup> To demonstrate continual compliance with the PM permit limit, the proposed PSD Permit required calculation of the mass emissions rate based on the TDS content determined by weekly testing of the blow-down water quality and the permitted circulation rate.<sup>125</sup> The proposed PSD Permit further required that a maintenance procedure be established that shows how often and which procedures will be used to guarantee the integrity of the drift eliminators to ensure that TDS limits are not exceeded and to ensure compliance with recirculation rates.<sup>126</sup> These requirements are insufficient to ensure continuous compliance with the proposed PM permit limit.

The EPA must specify the proposed maintenance procedure for establishing the integrity of the drift eliminators in a plan subject to public review, as part of the permitting process and must require record keeping to assure that the procedure is followed. To ensure continuous compliance with the proposed PM permit limit of 1.6 lb/hr, it is essential to continuously monitor the cooling tower circulation rate and TDS in the circulating water, and to require periodic testing of PM emissions in the cooling tower drift rate.

**D. The Proposed Permit Contained No Restrictions on Hours of Operation and No Compliance Testing for Heater, Boiler, Emergency Use Engine, or Fire Water Pump**

The proposed PSD Permit required installation and maintenance of an operational non-resettable totalizing mass or volumetric flow meter in each fuel line for the heater (Unit D5) and the boiler (Unit D6). In addition, the proposed PSD Permit required installation and maintenance of an operational non-resettable

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<sup>123</sup> Proposed PSD Permit, Condition IX.F, p. 7.

<sup>124</sup> Proposed PSD Permit, Condition, IX.H.1.v.

<sup>125</sup> Proposed PSD Permit, Condition IX.H.2.a through IX.H.2.c.

<sup>126</sup> Proposed PSD Permit, Condition IX.H.2.d.

elapsed time meter for the heater, the boiler, the emergency use engine (Unit D7), and the firewater pump (Unit D8).<sup>127</sup> The proposed PSD Permit failed to restrict the operating hours for any of these units, thus rendering installation of the elapsed time meters meaningless.

Emission estimates for the auxiliary boiler were based on maximum operation of 500 hours per year.<sup>128</sup> Emission estimates for the auxiliary heater were based on maximum operation of 1,000 hours per year.<sup>129</sup> Emission estimates for the emergency use engine and the fire water pump were based on maximum operation of 50 hours per year.<sup>130</sup> These maximum hours of operation must be written into a permit condition to ensure that actual annual emissions from the Project do not exceed permitted annual emissions.

Beyond requiring installation of the two meters, the Proposed PSD contained no monitoring or source testing requirements for any of these four emissions units. Installation of fuel and elapsed time meters alone is insufficient to ensure that emissions from these units would not exceed the proposed BACT limits. The proposed PSD Permit should be revised to contain a permit condition requiring at least an initial and annual source test for the heater, boiler, emergency use engine, and the firewater pump.

## **VIII. THE PROJECT DOES NOT COMPLY WITH THE ENDANGERED SPECIES ACT**

In addition to issuing a PSD permit for the Project, EPA was also responsible for initiating formal consultation under the Endangered Species Act with the Fish and Wildlife Service (Service) for the federally threatened desert tortoise. Under

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<sup>127</sup> Proposed PSD Permit, p. 12.

<sup>128</sup> City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Appendix C, Docket No. EPA-R09-OAR-2008-0406-0004, Table C-5 "Emissions from Natural Gas Fired Auxiliary Boiler."

<sup>129</sup> City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Appendix C, Docket No. EPA-R09-OAR-2008-0406-0004, Table C-6 "Emissions from Natural Gas Fired HTF Heater."

<sup>130</sup> City of Victorville, Application for Prevention of Significant Deterioration Permit for Victorville 2 Hybrid Power Project, April 2007, Appendix C, Docket No. EPA-R09-OAR-2008-0406-0004, Table C-7 "Emissions from Emergency Diesel Generator" and Table C-8 "Emissions from Firewater Pump Diesel Engine."

ESA section 7, all federal agencies must initiate consultation under section 7 whenever it undertakes an action that “may affect” a listed species or species’ critical habitat.<sup>131</sup> Because the Project will affect desert tortoise, the Service’s formal consultation resulted in a biological opinion and incidental take statement issued on January 23, 2008.

**1. The Service Cannot Conclude Formal Consultation Until It Has Approved a Final Translocation Plan**

The biological opinion’s incidental take statement allows the City to “take” desert tortoise so long as the City complies with the measures described in the biological opinion. The central component of the incidental take statement is the Service’s requirement that the City provide a translocation plan to the Service for its written approval prior to the onset of ground-disturbing activities.<sup>132</sup> According to the biological opinion, the City can only avoid unlawful take in violation of ESA section 9 if it strictly adheres to a Service-approved translocation plan.<sup>133</sup>

Unfortunately, the section 7 consultation process for the Project has been deeply flawed from start to finish. First, the Service was asked and consented to conducting and completing the section 7 consultation process before the City even identified any proposed translocation site options, and well before the public comment period for the proposed PSD Permit. This backward process led to the Service issuing its final biological opinion and the EPA issuing the proposed PSD Permit months before any specific translocation lands have been identified, approved and secured. In this way, EPA in its PSD permitting capacity and the Service’s biological opinion’s cannot make a finding that only lawful take of desert tortoise will occur until the Serviced has a approved a final translocation plan. The Service unlawfully allowed the Applicant to defer a final translocation plan until it begins project construction. But the Environmental Appeals Board has held that ESA section 7 consultation must be concluded before issuance of the final PSD permit.<sup>134</sup> This action unlawfully presupposed ESA compliance.

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<sup>131</sup> 50 C.F.R. § 402.14(a).

<sup>132</sup> Biological Opinion for the Victorville 2 Hybrid Power Project, San Benardino County, California (1-8-07-F-67), p. 32 (January 23, 2008).

<sup>133</sup> Id. at p. 33.

<sup>134</sup> See *In re: Indeck-Ellwood, LLC* (Sept. 27, 2006) EAB PSD Appeal No. 03-04, p. 114; *see also* Center for Biological Diversity, 198 F.Supp.2d 1139, 1154-56 (D. Arizona 2002).

## **2. The Federal Agencies Are Required to Prepare NEPA Analysis for this Act**

Second, neither the Service nor EPA has performed any environmental analysis of the incidental take statement, and the decision to translocate a listed species. The federal agencies must prepare an environmental impact statement (“EIS”) under National Environmental Policy Act (“NEPA”). The EIS must look at the final translocation plan in connection with impacts to the recipient lands, impacts to translocated and residential desert tortoise, along with impacts to species and vegetation currently inhabiting the translocation lands. Analyses of disease risk, site carrying capacities, food availability, and a guarantee of long term site management, are among the considerations that must be investigated, but are just examples of impact analyses required under federal law. To date, the City has proposed federal, state and private land as potential translocation sites. It is incumbent on the federal agencies to properly and fully evaluate all of the environmental impacts associated with the various options under consideration prior to approving a final translocation plan under ESA section 7.

The concerns raised here are not abstract or insignificant. On May 13, 2008, the Fish and Wildlife Service voiced concerns regarding the various types of translocation sites the City has proposed. In effect, the Service rejected all of the City’s translocation options, requesting instead that the City consider translocating desert tortoise to areas of critical habitat within desert wildlife management areas.<sup>135</sup> The problem with this option is it is directly contrary to the existing desert tortoise recovery plan which does not recommend translocating tortoises into critical habitat areas. Given this contradiction, the Service acknowledged “that the existing recovery plan for the desert tortoise recommends against translocating desert tortoise into areas that are important for recovery (e.g., critical habitat)”.<sup>136</sup> Still, according to the Service, “the City of Victorville [should] strongly consider areas of critical habitat with desert wildlife areas as a translocation site.”<sup>137</sup> The Service’s May 13 letter did not explain why it was reversing longstanding translocation policy, and what effect this about face may have on desert tortoise and

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<sup>135</sup> Letter to Gerardo C. Rios Chief, Air Permits Office, Region 9, from Carl T. Benz, Assistant Field Supervisor, Fish and Wildlife Service, p.3 (May 13, 2008).

<sup>136</sup> Id.

<sup>137</sup> Id.

other environmental considerations for existing critical habitat sites. It appears that the service's translocating to critical habitat lands may be the least harmful option available. These issues must be investigated in an EIS subject to public and state agency notice and comment. In addition, the staff biologists for the Energy Commission and California Department of Fish and Game also raised concerns regarding environmental impacts associated with the Service's biological opinion.<sup>138</sup>

An EIS must evaluate impacts associated with all of the various translocation options the City has proposed and also include a no action alternative. The City's draft translocation plan acknowledged that an EIS would be required were the Service to approve desert tortoise translocation to BLM lands.<sup>139</sup> However, the draft translocation plan contains an impermissibly cramped interpretation of NEPA. In reality, an EIS is required regardless of the particular land use designation of any proposed site because the Project is a major federal action under NEPA.<sup>140</sup>

## IX. CONCLUSION

As shown above and in the supporting documents, the EPA issued its Completeness Determination prematurely, rendering the determination fatally deficient and thus invalid. Also, the proposed PSD Permit and the supporting Statement of Basis must be revised to address the shortcomings described above and in the attached documents and re-circulated for public review. The Fish and Wildlife Service cannot conclude its section 7 consultation until the Service has

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<sup>138</sup> See California Energy Commission's Evidentiary Hearing Transcript (April 3, 2008); see also California Energy Commission's, Prehearing Conference Transcript (April 1, 2008).

<sup>139</sup> Victorville 2 Hybrid Power Project, Final Desert Tortoise Translocation Plan, p. 44 (June 27, 2008).

<sup>140</sup> See *Ramsey v. Kantor*, 96 F.3d 434 (9th Cir. 1996).

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approved and finalized the desert tortoise translocation plan, the cornerstone of the incidental take statement. Finally, the federal agencies were required to prepare a NEPA document in connection with the Services section 7 consultation and incidental take statement.

Sincerely,

/s/

Gloria D. Smith

GDS:bh