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October 19, 2010

Ms. Brenda Cabral
Supervising Air Quality Engineer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco CA 94109

Subject: Mariposa Energy LLC's Response to Public Comments Received on the Mariposa Energy Project Preliminary Determination of Compliance—Application 20737

Dear Ms. Cabral:

On behalf of Mariposa Energy LLC (Mariposa Energy), we respectfully submit the following responses for consideration with regards to public comments submitted by Mr. Robert Sarvey on the District's Mariposa Energy Project (MEP) Preliminary Determination of Compliance (PDOC). Mariposa Energy believes that many of the comments received on the MEP PDOC were also received on the Marsh Landing PDOC and were addressed in the District's response to comments presented in the Marsh Landing Generating Station Final Determination of Compliance (MLGS FDOC).[1] Therefore, Mariposa Energy is only providing responses to specific comments that are unique to the MEP PDOC. The original comments have been excerpted from the comment letter to organize our responses.

Simple-Cycle Power Plant – Sarvey Comments Page 4

> Based on vendor information, startup (i.e., the period from initial firing to compliance with emission limits) of the 275 MW FP10 units proposed for Willow Pass is expected to occur within 12 minutes. In comparison the units proposed for the Mariposa Project have a 10 minute startup time and will not meet emission limits for as long as 30 minutes.
>
> The advent of these faster starting combined cycle turbines has permitting implications. Because "simple-cycle turbines are inherently less efficient than combined-cycle turbines," they emit much higher GHG emissions per megawatt and also have much higher criteria air pollutant emissions per megawatt and consume much more natural gas per megawatt. It is no longer necessary to sacrifice efficiency for shorter start up times. The FDOC needs to address these factors in the permitting analysis.

Response:

The Willow Pass Generating Station (WPGS) referenced in the comment proposes to use a Siemens Flex-Plant™ 10 (FP10) design. The FP10 design is based on the SGT6-5000F turbine,[2] which is the same turbine that the Bay Area Air Quality Management District (BAAQMD) recently permitted for the Marsh Landing Generating Station (MLGS). Based on

[1] Marsh Landing Generating Station Final Determination of Compliance, Appendix F, June, 2010.

[2] http://www.energy.siemens.com/co/en/power-generation/power-plants/gas-fired-power-plants/combined-cycle-power-plant-concept/scc6-5000f-1x1-flex-plant-10.htm

a review of the California Energy Commission (CEC) siting case materials for WPGS, it appears that the turbine vendor (Siemens) indicates that the turbine can achieve full load operation within 12 minutes, but noted the following in response to a CEC data request.

> "Please note that the startup time used here reflects the time from ignition to 100 percent load. The shutdown time reflects the time from 100 percent load to full speed-no load (FSNL) without any cool down at FSNL. Siemens has provided mass emission estimates that include all emissions during the **expected 12-minute startup plus the next 10 minutes of operation**. [*emphasis added*] The maximum 1-hour emissions for a turbine startup were represented very conservatively in the AFC and in the ATC application to the BAAQMD. Even though startup duration is conservatively **estimated to take no longer than 22 minutes** [*emphasis added*] in the AFC, URS included all of those emissions as if they occur within a 12-minute period, as expected by Siemens."[3]

The final Marsh Landing ATC (Condition 18) ultimately limited the MLGS turbines to a 30-minute startup and a 15-minute shutdown to allow an adequate margin of compliance, which is consistent with the proposed MEP startup and shutdown times.

A review of other recently permitted FP10 or Siemens SGT6-5000F turbine startup times produced the following startup limitations:

> El Segundo Power Redevelopment Project (00-AFC-14C) CEC Conditions of Certification AQ-16 and AQ-17: Startup time shall not exceed 3 hours per day 60 minutes for each startup.
>
> Lodi Energy Center (08-AFC-10) CEC Condition of Certification AQ-16 and AQ-20:
>
> AQ-16 – The duration of startup or shutdown period shall not exceed 3.0 hours per event for any type of startup event (hot, warm, or cold).
>
> AQ-20 – A margin of compliance of 60 minutes (or less) may be added to the longest startup to establish a startup limit for each type of startup event (hot, warm, or cold). The established startup limit shall not exceed 3.0 hours. [District Rule 2201]

A review of other projects currently in the permitting cycle resulted in the following proposed startup time for the Siemens SGT6-5000F turbines:

> Blythe Phase II (02-AFC-1C) – Because the facility will utilize the Siemens Flex Start design, the cold starts will not exceed 3 hours with the warm/hot starts lasting 30 minutes. Associated with the Flex Start design will be an auxiliary boiler which will operate approximately 2,500 hours per year.[4]
>
> Carlsbad Energy Center Project (07-AFC-06) Final Staff Assessment Condition of Certification AQ-11 – A startup period is the period of time that begins when fuel flows to the combustion turbine following a non-operational period. For purposes of

[3] http://www.energy.ca.gov/sitingcases/willowpass/documents/index.html

[4] http://www.energy.ca.gov/sitingcases/blythe2/compliance/index.html Amendment Petition, Page 16.

> determining compliance with the emission limits of this permit, the duration of a startup period shall not exceed 60 consecutive minutes.[5]

Based on the projects listed above, the shortest startup time for the Siemens SGT6-5000F turbine is the 30-minute limit for the Blythe II project. It should be noted that this startup time is also supported by an auxiliary boiler, which would potentially increase the overall startup emissions. Therefore, the proposed startup time for MEP is consistent with the previous projects, including the recently permitted MLGS.

With regards to the efficiency of simple-cycle turbines compared to combined-cycle turbines, several of the key project objectives which directed the MEP turbine selection were a minimum dispatch requirement of 25 megawatts (MW) per turbine, a combined peak July output of 184 MW, and a maximum contracted capacity of 196 MW. The combined-cycle Willow Pass Generating Station (WPGS) FP10 plant has an electrical output of 259 MW (100% load at 59°F).[6] In order to operate at a 196 MW output, the turbine load rate would need to be reduced to approximately 75 percent. At 60 percent and 85 percent loads, the WPGS project is expected to have heat rates (the measure of efficiency) of 8,455 and 7,410 Btu/kWh- LHV, respectively (see footnote 6). Assuming a linear relationship between heat rates and electrical production, the WPGS would be expected to have a heat rate of approximately 8,000 Btu/kWh-LHV at 75 percent load. MEP is expected to have a heat rate of 8,566 Btu/kWh-LHV, which is approximately 6 percent higher than WPGS. This 6 percent advantage for the combined-cycle unit is minimized when considered with the additional capital and construction costs, estimated at $234 million (estimated at 40 percent of the $585 million associated with the WPGS including demolition costs)[7] or an increase in cost of approximately $49 million over the MEP capital and construction cost of $185 million.[8]

Best Available Control Technology for Particulate Matter (PM) for Turbines—Sarvey Comment Page 8

> The district in its analysis of BACT for PM-10 looked at emissions performance data for seven recently permitted simple cycle facilities that utilize the LM6000 turbine. Of those seven facilities analyzed only one facility has measured PM-10 emissions over 2.3 pounds per hour which was the Goosehaven Facility. The next highest PM-10 emission rate was from the Los Esteros Facility which had a 2.266 lb/hr emission rate back in 2005. Five of the seven facilities have never exceeded 2.2 pounds per hour for PM-10. The best performing facility the Gilroy energy Center has never exceeded 2 lbs/hr. The district instead of looking to the BEST performing facilities and their work practices and technology the district looked to the worst performing facility the Goosehaven facility to establish a BACT limit of 2.5 pound per hour. An emission limit between 2.0 and 2.3 pounds per hour should be considered BACT since these limits have been achieved in practice at similar facilities.
>
> The district in table 25 of the PDOC also completes a review of "RECENT BACT PM-10 PERMIT LIMITS FOR LARGE SIMPLE-CYCLE GAS TURBINES" The districts review omits three recent PM-10 BACT determinations for large simple cycle turbines that have been recently licensed by the CEC and support a lower PM-10 BACT emission rate for the Mariposa Project. The first determination is for the Hanford facility. The projects simple cycle PM-10 emission rate is

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5 http://www.energy.ca.gov/sitingcases/carlsbad/documents/index.html, page 4.1-69.

6 Willow Pass Generating Station AFC, Appendix J, Page J4-1.

7 Willow Pass Generating Station AFC, Project Description, Page 2-1.

8 Mariposa Energy Project AFC, Socioeconomics, Page 5.10-17.

2.2 pounds per hour utilizing the LM 6000 turbine. The Henrietta Project has just been licensed with a 2.2 lb/hr PM-10 emission limit for simple cycle operation also with the LM-6000.[9] The Marsh Landing simple cycle facility was just permitted with PM-10 rate of 0.0041 lb/MMBTU or just 1.97 lbs/hr. The three most recent BACT determinations for simple cycle turbines have been 2 pounds per hour or less for PM-10 and support a lower BACT limit for PM-10.

Response:

In response to the comments raised in the first paragraph, the turbine vendor, General Electric (GE), has provided documentation which concludes that the combustion process by itself does not play a major role in PM formation from natural gas combustion in a gas turbine.[10] Rather, GE states the major sources of natural-gas-fired turbine PM emissions are the following four sources:

1. Fuel sulfur conversion to sulfates and ammonium sulfates.

   Fuel sulfur is converted to oxides of sulfur, primarily sulfur dioxide and sulfate. The catalysts used to control NOx and CO emissions are also capable of converting fuel sulfur to sulfates. GE estimates that the gas turbine, oxidation catalyst, and SCR convert approximately half of the fuel sulfur to sulfates and ammonium salts, contributing to the formation of particulate matter.11

2. Particulate matter in the ambient air that enters the gas turbine through the inlet air filtration system, SCR tempering air, and aqueous ammonia dilution air.

   Any particles that enter the combustion turbine through the inlet air will be emitted at the stack as PM. Because gas turbines consume a significant volume of ambient air, inlet air filtration is applied to minimize degradation of gas turbine performance/efficiency and life[12,13] and minimize particulate matter emissions in the exhaust.

3. Contaminants contained in the water used for the NOx control and power augmentation SPRINT systems.

   As with the ambient air consumed by the gas turbine, impurities in the water used for NOx control and power augmentation (Spray Inter-Cooled Turbine or SPRINT) can contribute to particulate matter emissions. These impurities are in the form of total suspended and dissolved solids (found in all water).

4. Particulate matter measurement uncertainties.

   GE also notes the difficulty of measuring PM from a combustion turbine and the requirement to extend typical PM tests in order to collect a quantifiable amount of PM. Furthermore, GE notes the current PM measurement method (EPA Reference Methods 202) has a positive bias due to artifacts of the testing method, as SO_2 is converted then measured as PM. This testing bias is also discussed in the EPA preamble to the

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9 http://www.energy.ca.gov/2009publications/CEC-700-2009-013/CEC-700-2009-013-REV1.PDF Page 4.1-21

10 General Electric, "PM10 Emissions from LM6000 for Mariposa Energy, LLC", page 2.

11 General Electric, PM10 Emissions from LM6000 for Mariposa Energy, LLC, Appendix A.

12 General Electric Global Projects Operation, Particulate Matter, PM10 and PM2.5: What is it, How is it Regulated, How is it Measured, and What is GE's Position on PM emission from Gas Turbines? September 3, 2009, page 6.

13 General Electric Power Generation, Gas Turbine Inlet Treatment (GER-3419A), page 1.

> March 25, 2009, proposal to revise the PM sampling methodology to "revise the sample collection and recovery procedures of the method to reduce the formation of reaction artifacts that could lead to inaccurate measurements of condensable particulate matter (CPM) minimize sampling/analytical errors due to the conversion of SO_2 to sulfate species in the sampling system."[14] Given the inherently low combustion-related PM formation, any artifact PM formation leads to wide variations in accuracy of the PM measurements.

Taking into account the considerations noted above, it is reasonable to expect that there would be variability in the source test data for similar turbines. For instance, it is evident from the results presented in Table 26 of the MEP PDOC that there is considerable variability for the same unit firing the same fuel, and identical requirements for inlet air filtration and water quality. For example, the source test results vary by as much as a factor of 3 between the results from 2003 and 2009, and the results for each turbine vary on average by a factor of 2.2.

GE indicates that its PM emission guarantees are based on a 97.5 percent pass rate with an 85 percent confidence interval, meaning GE predicts with 85 percent confidence that the PM emission rate would be less than the emission guarantee level 97.5 percent of the time.[15] GE's standard PM emission rate guarantee for the LM6000PC SPRINT is 3.0 pounds per hour (lb/hr).

With regards to the lower emission rates cited for the Hanford and Henrietta Projects, the GWF Hanford and Henrietta Combined Cycle Power Plant projects are currently being operated in simple-cycle mode with a PM10 emission limit of 3.0 lb/hr. GWF plans to convert the simple-cycle units to combined-cycle units by adding a once-through boiler which will allow the units to operate in both simple and combined-cycle modes. The Hanford and Henrietta conversion projects were approved by the CEC in March 2010. Therefore, the combined-cycle projects have not been constructed and the LM6000 units have only demonstrated compliance with the 3.0 lb/hr emission limit. Likewise, the Marsh Landing simple-cycle unit was approved by the CEC on August 25, 2010. Therefore, Marsh Landing has not demonstrated compliance with the 1.97 lb/hr emission limit.

Best Available Control Technology for Particulate Matter (PM) for Turbines—Sarvey Comment Page 9

> The district clearly needs to establish a lower emission limit for PM-10 to comply with the BACT requirements of District Regulation 2-2-301. The Majority of the LM-6000 turbines examined by the district have achieved in practice a PM-10 emission rate of 2.2 lbs/hr or less which would qualify as BACT under District Regulation 2-2-301(b). "The most stringent emission limitation achieved by an emission control device or technique."

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[14] Preamble to the March 25, 2009 Proposal to Revise EPA Reference Method 202.

[15] General Electric, "PM10 Emissions from LM6000 for Mariposa Energy, LLC", page 7.

Response:

As the District noted in the response to comments in the MLGS FDOC, "… it is not appropriate to establish enforceable not-to-exceed permit limits based on average emissions."[16] Given the wide variation in expected PM10 emission rates for similar LM6000 turbines within the District, Mariposa Energy believes the District is correct in not basing PM10 emission rates on average source test data and that the proposed PM10 BACT level of 2.5 pounds per hour is appropriate.

Furthermore, a review of the District's BACT Guidelines for simple-cycle gas turbines (89.1.3) notes that the technologically feasible and cost-effective determination for PM10 is Natural Gas Fuel with the typical technology defined as "Exclusive use of CPUC-regulated grade natural gas." This is consistent with GE's engineering conclusions that gas turbine PM10 emissions are controlled by fuel selection and not by the application of an arbitrary emission limitation.

Best Available Control Technology for Oxides of Nitrogen (NOx) for Turbines – Sarvey Comment Pages 9–14

> The Draft PDOC states on page 24, "Overall, all three of the LM6000-based gas turbines could meet the project contractual requirements of dispatchable and high degree of unit turndown. However, the LM6000PD and LM6000PF gas turbines do not meet the project objective of being capable of generating 184 MW (net electrical output of all 4 combustion turbines including parasitic loads) during peak July conditions. Furthermore, the limited hours of operating data available for the LM6000PF turbine increases the risk the turbine may not be available "on demand" which would lead to the imposition of penalties per the PPA. Therefore, the LM6000PC turbine was selected by Mariposa Energy for MEP in order to meet the electrical output and reliability requirements outlined in the Mariposa Energy PPA with PG&E.
>
> First the applicants PPA with PG&E is irrelevant to the BACT analysis. Secondly the PPA is confidential and is not available to BAAQMD or members of the public who wish to comment on this permit application. BAAQMD and the public have no way to confirm the applicant's claims about the PPA's, "required output" and "the imposition of any penalties that the applicant would incur." In any case those issues are of no concern in determining which combustion control technology is BACT for this project.

Response:

The commenter states that the Power Purchase Agreement (PPA) between Mariposa Energy and Pacific Gas & Electric Company is irrelevant. Mariposa Energy disagrees with this contention as the PPA defines the project's objectives, similar to how other industrial facility's confidential business plans would define their need to expand. Therefore, the fact that the PPA is confidential does not eliminate Mariposa Energy's ability to define its project objectives as a basis for air permitting.

In fact, as Mariposa Energy concluded in the January 27, 2010 submittal to the District, the LM6000PF turbine does not meet the PPA objectives of being able to generate 184 MW during peak July conditions[17] because the LM6000PF turbine only generates 46.8 MW (gross at 59°F) per turbine. With a total plant parasitic load of 6 MW, operation of the four

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[16] Marsh Landing Generating Station Final Determination of Compliance, Appendix F, Page 5, June, 2010.

[17] ME also indicated that due to the limited operating data for the LM6000PF, increased the risk the turbine may not be available when needed.

LM6000PF turbines would only result in a net generation of 181.2 MW, which does not meet the project objectives.

> Water-injection and dry low-NOx combustion are both technically feasible simple-cycle combustion turbine control technologies that are available to control NOx emissions from the Mariposa project. Water injection is capable of reducing NOx concentrations to 25 ppm while DLE systems are capable of reducing NOx concentrations to 15 ppm. Clearly the DLE system is BACT for combustion controls since it is capable of a 40% reduction in NOx concentrations over water injection prior to application of the SCR post combustion control technology.
>
> The combustion controls BACT analysis must identify the superior performance of the LM 6000 PF and other new variants recently developed by GE such as the GE LM6000 Nexgen. The BACT analysis must consider the collateral impacts of the additional water use and the superior NOx reduction capability of the dry low NOx products. The impacts of the treatment, transportation, and consumption of the additional water must be considered and quantified in the BACT analysis. The lower heat rate offered by other variations of the GE LM-6000 turbine must be investigated as the lower heat rate will save millions of dollars of ratepayer money and reduce greenhouse gas and criteria pollutant emissions per megawatt.

Response:

The commenter notes that the LM6000PF with the 15 ppmvd Dry Low NOx (DLN) combustors should be considered the BACT combustion control technology for NOx. To address these concerns, Mariposa Energy consulted GE to determine the number of LM6000PF turbines that have been sold with the 15 ppmvd DLN combustors[18]. Based on GE's response, there have been 31 LM6000PF turbines sold from 2005 to March 2010. However, considering GE announced the commercial availability of the LM6000PF 15 ppmvd DLN turbine in April 2010, the number of LM6000PF with the DLN turbines in operation is likely in the single digits.[19] Therefore, the LM6000PF turbine employing the 15 ppm NOx combustor package does not have a significant operating history.

Furthermore, Mariposa Energy contacted GE for a cost estimate for an LM6000PF for the MEP project. Assuming the LM6000PF were viable for the MEP, which in Mariposa Energy's opinion it is not, the cost differential between the PC and PF turbines is $1.5 million per turbine.[20] Using this cost, the estimated total annualized operating cost (assuming no installation costs or indirect costs) is $284,380. Each MEP turbine is expected to emit 11.4 tons of NOx per year, including startup and shutdown emissions.[21] If the MEP NOx emissions were reduced to zero (resulting in the lowest cost per ton removed), the cost effectiveness of the employing the LM6000PF turbine to reduce NOx emissions is approximately $25,000/ton of NOx removed. The BAAQMD's NOx cost effectiveness threshold is $17,500.

Therefore, the reduced NOx emission level associated with the LM6000PF turbine with DLN technology would not be considered a combustion BACT technology for NOx emissions because the performance has not been proven to be achieved in practice at a commercial-scale facility nor is it a cost-effective means of reducing NOx emissions.

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[18] Exhibit 1 showing GE LM6000 PF units sold from March 2005 to March 2010.

[19] The 2 units sold in 2010 in the US were to Southern Montana Electric and employ the 25 ppm DLN combustors. http://deq.mt.gov/AirQuality/ARMPermits/AWM_final_permit.mcpx

[20] Exhibit 2 – GE Email dated October 4, 2010 from Scott Dayer, GE Regional Sales Manager.

[21] PDOC Condition 20.

In addition, Mariposa Energy consulted with catalyst vendors to determine the incremental cost difference for a post-combustion selective catalytic reduction system capable of achieving a 2.3 ppm NOx emission level. The vendor determined that the incremental cost difference between systems that could achieve 2.5 ppm NOx and 2.3 ppm NOx is $500,000 with an additional 1 inch of water back pressure on the turbine. [22] Calculating the annualized cost for this system yields an annualize costs of $106,000 with a potential reduction in NOx emission of 0.7 tons per year. The resulting cost effectiveness is $151,000/ton of NOx removed.

Finally, the commenter notes that the BAAQMD prioritize for NOx emissions reductions over CO, noting that the LM6000PF turbine has slightly higher CO emissions. However, a review of Table 1 of the MEP PDOC shows that the comment ignored the significantly higher precursor organic compound (POC) emissions, which are between approximately 2 to 7 times higher for the LM6000PF turbine over the proposed LM6000PC turbine.

> The applicant has proposed and the district has selected the use of Selective Catalytic Reduction (SCR) as BACT for the simple-cycle gas turbines. SCR is capable of over 90 percent NOx removal. Therefore, when combined with water or steam injection, NOx emissions levels of 2.5 ppmvd at 15 percent O2 when firing natural gas are achievable. This technology is considered feasible for MEP.
>
> In doing so the District recognizes that the use of SCR results in collateral impacts because of ammonia slip from the SCR system. The district lists three impacts from the use of ammonia in SCR systems: secondary particulate formation, health risks, and ammonia transportation and storage dangers.
>
> The district ignores one very large collateral impact from ammonia slip which is nitrogen deposition. Nitrogen deposition is the input of nitrogen oxide (NOx) and ammonia (NH_3) derived pollutants from the atmosphere to the biosphere. Mechanisms by which nitrogen deposition can lead to impacts on sensitive species include direct toxicity, changes in species composition among native plants, and enhancement of invasive species. The project area is home to many endangered species including the red legged frog and tiger salamander among others. The ammonia emissions from power plants are a larger contributor to nitrogen deposition than the projects NOx emissions. The PDOC fails to analyze or discuss this collateral impact entirely.

Response:

Mariposa Energy has initiated a Section 7 consultation with the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), and the Army Corp of Engineers through the Section 404 permitting process. The Biological Assessment (BA) submitted to the USFWS on April 20, 2010, included a qualitative assessment of the potential for nitrogen deposition impacts on biological resources.[23] The BA concluded that "Although operation of MEP will result in some additional N deposition in the project area, these cumulative inputs are not expected to have an adverse effect on California red-legged frog, California tiger salamander, or listed Branchiopods." The USFWS, CDFG, and the CEC will independently assess potential impacts of nitrogen deposition. Therefore, nitrogen deposition impacts are not expected to adversely impact biological resources.

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22 Exhibit 3 – Johnson Matthey SCR Cost Estimate.

23 http://www.energy.ca.gov/sitingcases/mariposa/documents/applicant/2010-09-22_Clean_Water_Act_Section_401_TN-58578.pdf

> With respect to secondary particulate formation the district relies on a modeling report to conclude that there would be no significant impact from secondary particulate formation from the projects ammonia emissions. The BAAQMD Draft PM 2.5 study concluded, "Reducing ammonia emissions by 20 percent (around 15 tons/day) was the most effective of the precursor emissions reductions. Secondary PM2.5 levels were typically reduced 0-4 percent, depending on location, with an average around 2 percent. Reducing NOx and VOC emissions by 20 percent (around 250 tons/day total) was relatively ineffective. Reducing sulfur containing PM precursor emissions by 20 percent (around 16 tons/day) typically had a small impact on Bay Area PM2.5." The districts own modeling report has preliminarily concluded that reductions in other PM-2.5 precursors would be ineffective in reducing particulate matter formation and that only reductions in ammonia emissions have the potential to reduce particulate formation. Despite the contrary conclusions of the study the district concludes that ammonia slip would not form significant secondary particulate in the BAAQMD.
>
> The study and the districts conclusions regarding secondary particulate formation in the BAAQMD are not particularly relevant since the emissions from the Mariposa Project will primarily impact the San Joaquin Valley not the BAAQMD. The districts efforts in this regard are misplaced and an additional analysis of secondary particulate matter formation in the San Joaquin Valley is necessary to conclude that the impacts would not be significant enough to eliminate SCR as a post combustion control.
>
> BAAQMD did not perform an air quality analysis for Mariposa Project to examine the potential formation of secondary PM from the 28 tons per year of ammonia slip, but instead relied on a drat study that concludes that ammonia slip is the only precursor emission that contributes to significant secondary formation of particulate. The limited nature of the draft analysis did not confirm a direct "causation" for nitrate PM formation and did not include an investigation on trends for ammonia and fine particulate formation in the ambient air in the project area or San Joaquin Valley. The potential increase in secondary PM from the ammonia slip could violate Health and Safety Code section 42301(a) by preventing or interfering with the attainment of the State's PM10 and/or PM2.5 standards for both the BAAQMD and the SJVAPCD.

Response:

The comment also questions the relevance of District's secondary particulate matter formation analysis and conclusions due to MEP's use of ammonia. The contention by the commenter is that the District's analysis is irrelevant because it is not focused on impacts in the San Joaquin Valley. Mariposa Energy believes the conclusions reached by the District are accurate and supported by planning documentation prepared by the San Joaquin Valley Air Pollution Control District (APCD). In the APCD's 2008 PM2.5 Plan, it was stated that "Particulate NH_4NO_3 concentrations are limited by the rate of HNO_3 formation, rather than by the availability of NH_3."[24] The APCD's plan concludes that "In addition, this plan indicates ammonia is abundant throughout the Valley and does not act as a limiting precursor, which means reducing ammonia is ineffective in reducing $PM_{2.5}$ in the Valley."[25]

Therefore, Mariposa Energy believes the conclusion reached by the District that MEP's use of ammonia would not be a significant contributor to secondary particulate matter formation is supported in the APCD's 2008 PM2.5 Plan.

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[24] SJVAPCD 2008 PM2.5 Plan, Page 3-10, Adopted April 30, 2010.

[25] SJVAPCD 2008 PM2.5 Plan, Page 7-4, Adopted April 30, 2010.

If you have any questions regarding our comments, please contact me at (916) 286-0207.

Sincerely,
CH2M HILL

Jerry Salamy
Principal Project Manager

c: Craig Hoffman/CEC
Bo Buchynsky/Mariposa Energy
Doug Urry/CH2M HILL
Keith McGregor/CH2M HILL

Exhibits:
1. List of GE LM6000PF Turbines Sold Through March 2010
2. GE Email dated October 4, 2010 from Scott Dayer, GE Regional Sales Manager
3. Johnson Matthey Email dated October 6, 2010 from Bob McGinty

Exhibit 1
List of GE LM6000PF Turbines
Sold Through March 2010

LM6000-PF gaining global experience

Country	Application	Industry	Order year	No. of units	Op. Hours
UK	Cogen	Foods	2005	1	36,100
UK	Cogen	Foods	2006	1	28,300
Italy	Cogen	Foods	2006	1	21,800
Spain	Cogen	Pulp & Paper	2007	1	10,200
Israel	Cogen	Cement	2007	1	1,600
Italy	CHP	Chemical	2007	1	
Slovakia	CHP	Pulp & Paper	2008	1	
Canada	Simple Cycle	Power producer	2008	3	3,000
Italy	CHP	Chemical	2008	1	
USA	Comb. Cycle	Power producer	2008	3	
Russia	CHP	District Power & Heating	2008	2	
Canada	Simple Cycle	Power producer	2009	2	
Germany	CHP	District Power & Heating	2009	2	
Germany	Comb. Cycle	District Power & Heating	2009	1	
USA	Simple Cycle	Power producer	2009	3	
Canada	Comb. Cycle	Power producer	2009	1	
USA	Comb. Cycle	Power producer	2010	2	
Italy	Cogen	Industrial	2010	1	
Thailand	Comb. Cycle	Power producer	2010	3	
			Total	**31**	**101,000**

As of March 2010

Exhibit 2
GE Email dated October 4, 2010 from Scott Dayer, GE Regional Sales Manager

From: Dayer, Scott H (GE Power & Water) [mailto:scott.dayer@ge.com]
Sent: Monday, October 04, 2010 1:27 PM
To: Gary Normoyle
Cc: Bo Buchynsky
Subject: RE: LM6000PF

Without considering production schedules, etc, the estimated price difference between the PF-Sprint and PC-Sprint is $1.5MM (PF-Sprint being more expensive).

Regards,
Scott

Scott Dayer
Region Sales Manager
GE Energy
Aeroderivative Gas Turbines

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6130 Stoneridge Mall Rd.
Suite 300B
Pleasanton, CA 94588
GE Packaged Power, Inc.

From: Gary Normoyle [mailto:g.normoyle@dgc-us.com]
Sent: Monday, October 04, 2010 12:21 PM
To: Dayer, Scott H (GE Power & Water)
Cc: Bo Buchynsky; 'Jerry.Salamy@CH2M.com'
Subject: LM6000PF

Scott,
Can you advise what the cost delta would be between the LM6000PC and the LM6000PF with the 15ppm DLN combustors? Order-of-Magnitude cost would be sufficient.

Gary B. Normoyle
Director, Engineering & Construction
Diamond Generating Corp.
333 S. Grand, Suite 1570
Los Angeles, CA 90071
Office (213) 620-7657
Cell (213) 434-0151
Fax (213) 620-1170
g.normoyle@dgc-us.com

Exhibit 3
Johnson Matthey Email dated October 6, 2010 from Bob McGinty

From:	Gary Normoyle
To:	Salamy, Jerry/SAC; Bo Buchynsky
Subject:	Fw: FW: MEP PDOC
Date:	Wednesday, October 06, 2010 10:17:53 AM

From: Tony Jaime [mailto:tonyjaime@bibb-eac.com]
Sent: Wednesday, October 06, 2010 09:55 AM
To: Gary Normoyle
Cc: 'George Neill' <georgeneill@bibb-eac.com>; 'Nick Francoviglia' <nickfrancoviglia@bibb-eac.com>
Subject: FW: FW: MEP PDOC

Gary,

JMI has responded to our request regarding cost differential between 2.5 and 2.3 ppm NOx levels. Does this suit your needs?

Tony

From: Robert McGinty [mailto:mcginrm@jmusa.com]
Sent: Wednesday, October 06, 2010 11:51 AM
To: Jaime, Tony
Cc: Horn, Richard; Miller, Alec
Subject: Re: FW: MEP PDOC

Tony,

We have completed our analysis and offer the following;

1. The impact resulting from lower stack emissions (2.3 vs 2.5 ppm NOx) results in increased catalyst volume of approximately 12 to 15% for each system.

2. The increased catalyst volume results in an increased SCR system pressure drop of approximately 1" w.c. which exceeds the allowable pressure drop.

3. Increased catalyst weight will slightly increase the total reactor weight which may result in re-calculating the concrete pad.

4. More elaborate modeling and flue gas flow control devices will be required to achieve the higher degree of reduction resulting in higher system cost.

5. Increase in SCR catalyst volume to further reduce NOx levels may impact other emission levels negatively including particulate.

6. Order of magnitude impact will be an increased cost of $500,000.

I hope you find this information beneficial. Please feel free to contact me if you have further questions or need clarification.

Best Regards

Bob McGinty

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>>> "Tony Jaime" <tonyjaime@bibb-eac.com> 10/4/2010 1:36 PM >>>
Bob,

Per our phone conversation, see below the question from DGC regarding cost to obtain NOx emissions for Mariposa. The question below is based on a recent Bay Area Air Quality Management District (BAAQMD) meeting.

--Costs for an SCR to meet a 2.5 ppm NOx outlet limit and a 2.3 ppm NOx limit. This cost estimate also needs to include the additional ammonia required, additional backpressure, any additional electrical consumption (additional ammonia vaporization and fans), and catalyst replacement frequency with costs.

Diamond needs to provide the cost associated with meeting NOx levels for the current guarantee limit of 2.5 ppm. They also need the cost associated with a limit of 2.3 ppm. The costs would be based on the GE information you already have for the project. The NOx level at the turbine exhaust remains the same at 25 ppm. In addition, would JMI be able to guarantee a NOx level of 2.3 ppm? How would this impact the PM10 contribution from the SCR?

The next meeting with BAAQMD is October 7th so we need a response no later than Wednesday afternoon. Give me a call if you have any questions.

Thanks,

Tony

Tony Jaime, PE
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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *MARIPOSA ENERGY PROJECT* (MEP)

Docket No. 09-AFC-3

PROOF OF SERVICE
(Revised 2/8/2010)

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DECLARATION OF SERVICE

I, Mary Finn, declare that on October 25, 2010 , I served and filed copies of the attached Response to Public Comments Received on the (09-AFC-3) Mariposa Energy Project Preliminary Determination of Compliance—Application 20737. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/mariposa/index.html].
The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

For service to all other parties:

x_ sent electronically to all email addresses on the Proof of Service list;

_ by personal delivery or by depositing in the United States mail at Sacramento, California, with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

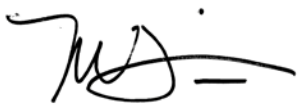
_x_**sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);**

OR

____depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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



Mary Finn