STATE OF CALIFORNIA

Energy Resources Conservation And Development Commission

In the Matter of:	)	Docket No. 03-AFC-2
	)	
Application for Certification of Los Esteros Critical Energy Facility II, Phase 2	)	**Staff's Brief on the Evidentiary Hearings** July 29, 2005

#35109

DOCKET 03-AFC-2
DATE JUL 29 2005
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INTRODUCTION

On June 30, 2005, the Committee assigned to review Los Esteros Critical Energy Facility II (LECEF II), Phase 2 Application for Certification (AFC) held an evidentiary hearing to establish the factual record necessary to reach a decision in the case. The hearing took written and oral testimony as well as exhibits from the parties. Declarations and affidavits were accepted as evidence for those topic areas that were undisputed and for which the Committee found the information adequate. The Committee directed the parties to submit Briefs by July 29, 2005. There is one active intervenor in the proceeding. The only contested topic was the Air Quality issue concerning the emissions limitations to be required for the unreacted ammonia (slip) from the Selective Catalytic Reduction (SCR) System. (*6/30/05 Record Transcript (RT), p. 66:9-12*) In the Final Staff Assessment (FSA), staff has proposed condition **AQ-SC11** that would require the facility to replace the SCR catalysts within 12 months after the ammonia slip exceeds a 5 ppm level. (*FSA-Air Quality*) This condition is the

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same as that required for the recently licensed Roseville Energy Park. (*03-AFC-1*) This is staff's Brief addressing the emission limitation for the ammonia slip.

ARGUMENT

I. SECONDARY PARTICULATE MATTER (PM) FORMED FROM AMMONIA SLIP IS SCIENTIFICALLY RECOGNIZED AS A SEVERE HEALTH ISSUE THAT REQUIRES LIMITING EXPOSURE

A. Recent Scientific Studies Show that Secondary PM, Such as that Formed from Ammonia Slip Emissions, Include Very Small Particles that are Significantly Damaging to Humans when Present in the Ambient Air.

It is undisputed in the record that mounting bodies of scientific studies have shown that the smaller size of particulate matter (PM2.5), such as that formed during the chemical reaction of ammonia with either NO_x or SO_x compounds in the flue gas and the downwind ambient air, can be significantly damaging to both humans and animals.[1] (*6/23/05 Staff Supplemental Testimony, p.1 and 6/30/05 RT, p. 75:10-18*) These studies have found that PM10 is associated with an increase in respiratory-related disease, but that the fine (PM2.5) and ultra-fine (PM0.1) fractions of PM10 likely cause the most significant adverse effects. (*6/30/05 RT, p. 75:5-9 and p. 112:11-23 and 6/23/05 Staff Supplemental Testimony, References: "Smith et al, 2003")* Studies have shown that the smaller

[1] Ammonia Slip is defined as the unreacted ammonia from the Selective Catalytic Reduction (SCR) system that is emitted into the atmosphere from the exhaust gases of the turbine. SCR is a post-combustion control technology capable of reducing NOx emissions by about 80 to 95 percent by combining ammonia (NH_3) and oxygen (O_2) with NOx in the turbine exhaust gas in the presence of a catalyst to form molecular nitrogen (N_2) and water (H_2O). Ammonia slip ions react with NOx and SOx compounds that are in the exhaust gases, and in the downwind ambient air to form ammonium nitrate and ammonium sulfate particulate matter.

particle fraction of PM10 can be 10 to 50 times as potent as the larger fraction in inducing tissue damage, such as inflammation. (*Ibid. References: SN Vol. 164, No. 5, pg. 74*) According to studies conducted by health researchers, ambient particulate matter has been linked to not only acute and chronic respiratory diseases, but also to circulatory system problems. (*Ibid. References: SN Vol. 166, No. 23, pg. 365*)

B. Both the U.S. Environmental Protection Agency and the California Air Resources Board have Adopted PM10 and PM2.5 Standards for the Protection of Public Health Due to Evidence of Serious Health Impacts Caused by Exposure to Excessive Levels of Smaller Size PM in the Ambient Air.

The overwhelming evidence of the serious health impacts caused by exposure to excessive levels of smaller size PM is why both the California Air Resources Board (ARB) and the U. S. Environmental Protection Agency (U.S. EPA) have recently promulgated new health standards for the smaller PM2.5. (*6/23/05 Staff Supplemental Testimony, p.1, and 6/30/05 RT, p. 36:9-25, and p. 137:1-6*) In fact, the ARB has found that the health effects from both PM10 and PM2.5 are so severe that it adopted ambient standards lower than those established by the U.S. EPA. (*FSA, Air Quality Table 1, pg. 4.1-5)*

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C. Ammonia Slip Emissions from Power Plants Using SCR Systems Similar to LECEF II Can Contribute Significant Levels of Unhealthy Smaller Size Secondary PM in the Ambient Air.

PM emissions from power plant facilities similar to LECEF II are generated directly from PM formation during fuel combustion and as secondary PM formed from unreacted ammonia combining with NO_x and SO_x compounds. (*FSA, p. 4.1-9 and 4.1-25*) The unreacted ammonia and the NO_x and SO_x compounds formed during combustion create secondary PM emissions of ammonium nitrate and ammonium sulfate in the exhaust gases following the SCR. (*Ibid.*) Secondary PM emissions are also formed downwind in the atmosphere where the unreacted ammonia reacts with ambient NO_x and SO_x compounds produced from other combustion sources such as mobile and stationary sources located in the air basin. Staff believes that the down wind chemical reaction is "very reactive" due to the ammonia's "potential to combine with [NO_x and SO_x] reactants and will ultimately form particulate matter." (*6/30/05 RT. p. 92:20-23*)

It is undisputed in the record that secondary PM formation from the chemical reaction of ammonia in the atmosphere with ambient NO_x and SO_x compounds form very small particles less than 10 microns in diameter (PM10) and predominately less that 2.5 microns in diameter (PM2.5) which is considered to be the most unhealthy for inhalation. (*6/23/05 Staff Supplemental Testimony, p. 1 and 6/30/05 RT, p. 75:21-25 and p. 76:1-2*) Moreover, the U.S. EPA, ARB, Commission staff, South Coast Air Quality Management District and San Luis Obispo Air District believe that the scientific evidence shows that ammonia slip

from a project like LECEF II does contribute to secondary PM formation.

(*6/30/05 RT, p. 70:3-36, p. 77:2-7, p. 78:9-14, and p. 136:15-25*)

II. SECONDARY PM EMISSIONS FORMED BY THE LECEF II AMMONIA SLIP ARE CUMULATIVELY CONSIDERABLE UNDER CEQA DUE TO POTENTIAL SIGNIFICANT CONTRIBUTIONS OF PM EMISSIONS TO AN AIR BASIN THAT IS NON-ATTAINMENT FOR THE STATE'S PM10 AND PM2.5 STANDARDS AND REQUIRE MITIGATION MEASURES

A. CEQA Requires an Analysis of Cumulative Impacts.

The Commission, as lead agency for LECEF II, has the legal responsibility under CEQA to determine if there will be a significant effect on the environment due to secondary PM emissions from the ammonia slip. (*CEQA Guidelines, Cal. Code Regs., tit. 14, § 15253(b) and Pub. Res. Code §§ 21080 and 25523*)

Under CEQA Guidelines, a significant effect on the environment is generally defined as a substantial or potentially substantial adverse change in the physical environment. (*CEQA Guidelines, Cal. Code Regs., tit. 14, § 15382*) With respect to impacts on air quality from PM, environment means the existing air quality levels for PM within the surrounding area that could be adversely affected by the addition of secondary PM emissions from LECEF II.[2] (*Ibid.*) In *Kings County Farm Bureau v. City of Hanford*, (221 Cal.App.3d 687, 718), the court stated that the "significance of an activity depends upon the setting," and the "relevant question to be addressed" in the environmental study is "whether any

[2] The reader should keep in mind that direct PM emissions are from the combustion process. Secondary PM emissions are formed as a result of the chemical reaction of the unreacted ammonia with NOx and SOx compounds in the exhaust gas where NOx and SOx are a product of combustion, and in the ambient air where there are NOx and SOx compounds available from other sources in the air basin.

additional amount of precursor emission should be considered significant in light of the serious nature" of the associated air quality problem in the air basin. This is precisely the issue staff has analyzed concerning the potential significant effect of adding additional ammonia slip that forms secondary PM in a site-specific area that is non-attainment for PM10 and PM2.5.

Thus, when evaluating the potential significant effects of the secondary PM emissions from the ammonia slip, it is necessary to determine if any additional amount of PM emissions will be significant in light of the serious nature of the existing PM10 and PM2.5 problem in BAAQMD's air basin. (*CEQA Guidelines, Cal. Code Regs., tit. 14, § 15064(b); Kings County Farm Bureau, 221 Cal.App.3d 687, 718*) Under state law, the secondary PM emission must not prevent or interfere with the attainment or maintenance of the State's PM10 and PM2.5 Air Quality Standard. (*Health and Saf. Code § 42301(a))*

Determining whether LECEF II's secondary PM emissions formed by the ammonia slip may contribute to a potential significant cumulative impact on the environment calls for careful judgment by the Energy Commission. (*CEQA Guidelines, Cal. Code Regs., tit. 14, § 15864 (b)*) To the extent feasible, CEQA requires the determination to be based on scientific and factual data. (*Ibid.*) To be meaningful, that data should be the best and most recent data available such as the recent studies used by staff.

BAAQMD's air basin is non-attainment for the state's 24-hour PM 10 and annual PM2.5 air quality standards. (*FSA, p. 4.1-9 and "Air Quality Table 4" page 4.1-*

10) The air quality data from BAAQMD shows that the PM10 and PM2.5 violations are generally more significant towards the south and east regions of the basin and the ambient PM10 and PM2.5 levels in Santa Clara County (where LECEF II is located) tend to be the highest in the basin with violations recorded in all recent years. (*ibid pg 4.1-10 through 12*) The non-attainment status of the region for both the state PM10 and state PM2.5 Standards is an important factor in the overall substantial evidence in assessing the significance of the potential adverse impact of ammonia emissions on the existing ambient air quality. (*Kings County Farm Bureau, 221 Cal.App.3d 687, 718; CEQA Guidelines, Cal. Code Regs., tit. 14, § 15384*)

B. Secondary PM from Ammonia Slip will Result in a Potential Significant Effect Because of the Contribution of PM to the Current Violations of the State's PM10 and PM2.5 STANDARDS.

As discussed above, there is sufficient relevant evidence in the record to support staff's position that ammonia slip emissions will generate secondary PM emissions. The exact amount of secondary PM formation due to ammonia slip is difficult to determine because of the complex chemistry within the exhaust plume and during downwind mixing. (*6/30/05 RT, p. 76:10-22 and p. 92:1-17*) However, the potential magnitude of secondary PM formation can be estimated by using the BAAQMD's figure of 118.7 tons per year of ammonia emissions calculated for the 10 ppm ammonia slip with the assumption that this ammonia will be available in the ambient air for potential chemical reaction with NO_x and SO_x compounds. (*6/30/05 RT, p.92:20-23, p. 76:3-9, p. 93:12-17, and FDOC, p.*

11) This estimated 118.7 tons per year of available ammonia is 59.4 tons per year greater (i.e., 50 percent of the 10 ppm emission rate) than what the facility would be permitted to emit if the facility were required to meet a 5 ppm ammonia-slip limit.

The magnitude of this potential 118.7 tons per year of ammonia emissions could result in a potentially significant impact that is cumulatively considerable because of the potential for a large contribution of PM emissions into an air basin that is non-attainment for the state's PM10 and PM2.5 Standards. This analysis is consistent with *Kings County Farm Bureau*, (221 Cal.App.3d 687 at 718) in which the court stated that the environmental analysis must consider the environmental significance of adding precursor emissions to the ambient air that was non-attainment for the primary pollutant. (*CEQA Guidelines, Cal. Code Regs., tit. 14, §§ 15355, 15065, 15091, 15382, and 15384*) This potentially significant increase could contribute to the ongoing violations of the state's PM10 and PM2.5 Standards and prevent or interfere with attainment of these standards. (*Health and Saf. Code § 42301(a), and FSA 4.1-26*)

C. CEQA Requires Feasible Mitigation or Avoidance of a Project's Cumulatively Considerable Impacts.

Prior to approval, the Commission is required under its regulations to avoid or substantially lessen any significant adverse impact from secondary PM emission through mitigation measures if feasible. (*Cal. Code Regs., tit. 20, § 1755(c) and CEQA Guidelines, Cal. Code Regs., tit. 14, §§ 15091 and 15092*) Feasible options for mitigating include the use of emission offsets or minimizing the

project's PM emissions impacts through available emissions control such as those achieved in previously licensed power plants. (*Ibid.*)

D. Calpine has not Provided in the Record a Site-Specific Scientific Study to Refute Staff's Showing that there is a Potential for a Significant Cumulative Impact Due to the Formation of Secondary PM from LECEF II.

1. Calpine has the Burden of Proof under Commission Regulations to Show that LECEF II will not Contribute Cumulatively to the Existing Violations of the State's PM10 and PM2.5 Standards.

Under Commission regulations, Calpine has the "burden of proof and of producing evidence" to show their proposed emission levels will not cause new violations or contribute to the existing violation of any standards. *(Cal. Code Regs., tit. 20, § 1723.5 (a))* In this case there are existing violations of both state PM10 and PM2.5 standards in the region.

2. Calpine has not Carried its Burden of Proof Under Commission Regulations to Show that LECEF II will not Significantly Contribute to the Existing Violations of the State's PM10 and PM2.5 Standards.

The applicant has assumed that the118.7 tons of ammonia slip per year (based on 10 ppm ammonia slip) proposed for their facility "<u>will produce no particulate</u>" matter which staff believes is "incorrect and an over-simplication" of the actual site-specific emission formation of secondary PM. (*6/30/05 RT, p. 93:12-17*) The applicant has not provided any scientific evidence that ammonia emitted from this facility will be different from any other ammonia that is emitted into the

atmosphere in the way it reacts with NO_x and SO_x compounds to form PM10 and PM2.5. (*6/30/05 RT, p. 76:3-9*)

Calpine testified that its only evidence in the record to support their belief that there will be no air quality impacts due to the proposed 10 ppm ammonia slip is the written and oral testimony provided by BAAQMD. (*6/30/05 RT, p. 69:8-11, and p. 108:15-17*) As discussed below, BAAQMD did not perform an air quality modeling analysis for LECEF II emissions to examine the potential impacts on existing air quality due to the formation of secondary PM emissions by the 10 ppm of ammonia slip.

BAAQMD testified that it believes the Bay Area air basin is "ammonia rich" and that there are not enough NO_x compounds in the air basin to react with the additional ammonia slip emissions from the LECEF II to produce secondary PM emissions. (*6/29/05 letter from BAAQMD concerning LECEF II*) Staff believes the basis for this belief is scientifically problematic because it is based on a "study that the District did about ten years ago." (*6/30/05 RT, p. 84:12-13*) Since that original study, the District testified it performed "some statistical analysis of trends" for NO_x and nitrates but admitted that this analysis did not confirm a direct "causation" for nitrate PM formation. (*Ibid. p. 84:24-25*) The testimony concerning BAAQMD's subsequent analysis also indicated that it did not investigate the trends for ammonia and fine particulate formation in the ambient air. (*Ibid. p. 85:6-22*) In Kings County Farm Bureau (221 Cal.App.3d 687 at 710) the court stated that an adequate environmental study must be

prepared "with sufficient degree of analysis to provide" the decision makers with information for an informed decision on the potential adverse environmental consequences. Staff does not believe the 10-year-old study and non-conclusive subsequent analysis are sufficient scientific evidence for the record to allow the decision makers to make an "informed decision" that there will be no adverse air quality impact from LECEF II ammonia slip emissions. Furthermore, staff notes that SO_x contribution to potential ammonium sulfate PM was omitted from BAAQMD's discussion on ammonia slip.

The term "ammonia rich," in fact, is overly broad for purposes of assessing the significance of the environmental effect from the project's ammonia slip emissions. The term is based on basin-wide averages for NO_x, SO_x, and ammonia concentrations and does not necessarily portray the actual current ambient concentrations of these pollutants around the proposed site. Site-specific air quality analysis requires site-specific air quality modeling using emissions from the LECEF site. (*6/30/05 RT, p. 91:8-18*)

Neither BAAQMD nor Calpine introduced into evidence any site-specific scientific analysis concerning whether increasing the ammonia concentration in the atmosphere from LECEF II would likely result in increased formation of ammonium nitrate and ammonium sulfate. Additional ammonia concentration in the ambient air, even if "ammonia rich," would increase the probability that an ammonia molecule will find a NO_x or SO_x compound to complete the chemical reaction that forms higher concentrations of PM. *(6/30/05 RT, p. 108:15-17, and*

FDOC) From a kinetic standpoint, an increase in the ammonia reactant, even if in excess, will accelerate the reaction and the likelihood that the molecules will be encountered for a reaction to occur. (*6/30/05 RT, p. 111:12-17)*

Furthermore, there was no site-specific scientific analysis introduced into evidence concerning the potential particulate generation in NO_x or SO_x "hot spots" near LECEF II where localized concentrations of NO_x or SO_x could be above the basin average (e.g., from areas of high traffic levels, the nearby airport, or emissions from a stationary source). (*6/30/05 RT, p. 108:15-17, and FDOC)* There is no evidence in the record to counter staff's assertion that ammonia slip from LECEF II will react with NO_x and SO_x compounds in these "hot spots" areas to form secondary PM. (*6/30/05 RT, p. 93:4-11)*

Because the record does not contain a "sufficient degree" of scientific analysis, to determine the site-specific impact due to the formation of secondary PM from the emissions of 10 ppm ammonia slip, Calpine has not met its burden of proof concerning potential significant incremental and cumulative impacts on the state's PM standards under the Commission's siting regulations. (*Cal. Code Regs., tit. 20, § 1723.5(a); See, Kings County Farm Bureau, (221 Cal.App.3d 682 at 710).)*

E. Staff's Proposed Limitations through AQ-SC11 on Ammonia Slip would Mitigate the Potential for Secondary PM Formation.

Staff testified that "[a]mmonia is a fairly active compound" in the atmosphere. (*6/30/03 RT, p. 91:11*) Since there are "numerous sources and sinks", the

chemistry involved in ammonia reacting with NO_x and SO_x in the ambient air is very complex. (*Id. at p. 91:19-25*) The exact amount of secondary PM formation due to ammonia slip is unknown. (*6/30/05 RT, p. 76:10-22 and p. 92:1-17*) Because of this complexity, staff is not proposing to require a specific amount of offset mitigation for secondary ammonia PM emissions, but is recommending stringent control of ammonia slip to minimize formation of secondary PM and substantially lessen the potential for a significant cumulative contribution to the existing violations of the state PM10 and state PM2.5 Standards in the Bay Area Air Basin. (*6/30/05 RT, p. 76:18-25, p. 92:1-7, FSA, 4.1-34; see Cal. Code Regs., tit. 20, § 1755(c) and CEQA Guidelines, Cal. Code Regs., tit. 14, §§ 15091 and 15092*)

III. LIMITING AMMONIA SLIP TO 5 PPM IS A FEASIBLE MITIGATION MEASURE THAT IS RECOMMENDED BY FEDERAL AND STATE AGENCIES FOR SECONDARY PM FORMATION AND HAS BEEN REQUIRED BY THE ENERGY COMMISSION FOR SEVEN POWER PLANTS.

A. Staff's Proposed Condition, AQ-SC11, Recognizes that New Catalysts are Very Efficient in Controlling Ammonia Slip to Levels as Low as 1 PPM.

Staff believes that ammonia emissions should be controlled to the maximum extent possible and the trend towards requiring projects to meet a 5 ppm ammonia slip level and a 2 ppm NO_x emissions level supports a similar requirement discussed in the FSA. *(6/30/05 RT, p.78:12-14)*

The basis for **AQ-SC11** for LECEF II is that new catalysts are very efficient using available ammonia and there is very little ammonia slip emitted into the atmosphere. Staff testified that it reviewed various source test data that shows that new catalysts and recently retrofitted catalysts emit only 1 ppm ammonia slip. (*6/30/05 RT, p. 79:7-14*) Staff's test data included data from the existing Los Esteros peaker facility that shows approximately 1 ppm ammonia slip with the new catalysts. (*Ibid.*) Staff believes this source test data confirms that, as the catalyst degrades, ammonia slip increases, which is the basis for the recent Commission approval for the Roseville Energy Center requirement to replace the catalysts within one year of the ammonia slip exceeding 5 ppm.[3]

B. Staff Recommendation which is Based on a 5 PPM Ammonia Slip Level is Supported by the Fact that the Level has Been Accepted as a Limitation on Various Gas Turbine Configurations by Various Governmental Agencies, Including the Commission on Seven Recently Licensed Facilities.

1. Staff's Recommendation which is Based on a 5 PPM Ammonia Slip Level Does not Surpass what has Already been Recommended by Various Governmental Agencies for Similar Power Plants:

For over five years, the U.S. EPA and the California Air Resources Board have supported a 5 ppm ammonia slip from power facilities similar to LECEF II to reduce the health impacts due to the formation of secondary particulate matter of ammonium nitrate and sulfate. (*6/23/05 Staff Supplemental Testimony, p. 1 and 6/30/05 RT, p.77:2-7)* South Coast Air Quality Management District has required an ammonia slip limitation of 5 ppm in combination with a 2.0 ppm NO_x

[3] Roseville Energy Center is permitted with the same conditions as proposed for LECEF II which is 2 ppm NOx, and 5 ppm ammonia slip with catalyst replacement within one year of exceeding the 5 ppm slip. (Mr. Taylor, June 30, 2005 testimony, Pg. 98, lines 16-20)

limitation from power facilities similar to LECEF II. (*6/23/05 Staff Supplemental Testimony, p. 1)*

2. Staff's Recommendation for a 5 PPM Ammonia Slip and NO_x Level of 2 PPM has been Approved by the Commission on Seven Recently Licensed Facilities.

The 5 ppm ammonia limit in combination with a 2 ppm NO_x limit has already been required for the following Commission-licensed facilities: Malburg-Vernon (*01-AFC-25*), El Segundo (*00-AFC-14*), Inland Empire (*01-AFC-17*), Magnolia (*01-AFC-6*), Morro Bay (*00-AFC-12*), Palomar (*01-AFC-24*), and Tesla (*01-AFC-21*). In addition, Roseville Energy Park has been permitted with the same ammonia slip condition as is being proposed for LECEF II. (*03-AFC-1*). (*6/23/05 Staff Supplemental Testimony, p. 1)*

3. The Use of Dry Low-NO_x Burners with SCR on Gas Fired Turbines has been Used to Meet Both NO_x and Ammonia Slip Emission Rates on the Seven Above Cited Facilities.

Calpine performed an experiment on its existing Los Esteros peaker power plant to see if they could meet the 2.0 ppm NO_x emission level. *(6/30/05 RT, p.71:21-24)* They increased the amount of water injection beyond the turbine's manufacturer design levels which resulted in lower NO_x but high CO emission levels due to incomplete combustion caused by the excessive water injection. *(Ibid. p. 72:4-7, and p. 94:15-25)*

Calpine testified that it was not feasible for LECEF II to meet both the 2.0 ppm NO_x emission level and the 5 ppm ammonia slip, which staff has proposed. (*6/30/05 RT, p.131:8-13 and p. 132:1-4*) Calpine stated that because they

chose to use water injection combustors in their turbines instead of dry low-NO_x combustors, which were used in the above cited facilities, LECEF II could not meet similar NO_x, CO, and ammonia slip levels. (*Ibid.*) Staff has found nothing in the record provided by Calpine indicating that it could not change out the combustors for dry low-NO_x combustors at the time they change out the catalysts.

It should be noted that Calpine's experimental test, which was performed on a simple cycle turbine, cannot be used to predict NO_x emission levels (and excessive ammonia slip levels) for the combined cycle system of LECEF II. This is because the existing facility uses high temperature catalysts that must be replaced to insure satisfactory performance for the combined cycle units. (*FDOC, p.5)* Staff believes the combined cycle system of LECEF II can be designed to meet the required 2.0 ppm NO_x and the proposed ammonia slip levels similar to the permitted design for the Roseville Energy Center facilities LM6000 option. Furthermore, the 4 ppm CO limit at the Roseville Energy Center facility should be attainable without the need of excessive water injection that has the adverse effect of causing the high CO levels as shown in Calpine's experimental test.[4] *(6/30/05 RT, p.77:14-23 and p.78:3-8)*

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[4] The recently permitted Roseville Energy Center facility was permitted by Commission for 2 ppm NOx, 4 ppm CO, and 5 ppm ammonia slip with catalyst replacement within 12 months of exceeding the ammonia slip limit. This facility uses the same GE LM6000 gas turbine but uses dry low-NOx combustors rather than water injection combustors. (*6/30/05 RT, p. 98:16-20, p. 98 25, and p. 99:1*)

IV. STAFF'S PROPOSED CONDITION AQ-SC11 TO LIMIT AMMONIA SLIP COMPLEMENTS BAAQMD'S POSITION.

A. BAAQMD has Authority to Control Ammonia Emissions for its Direct Impacts, but Lacks Authority to Limit Ammonia for its Secondary Impacts from PM Formation.

BAAQMD's 10 ppm limit on ammonia slip in the Final Determination of Compliance (FDOC) is based only on its Air Toxic Management Policy and was not established to protect health from ammonia slip as a precursor to the formation of secondary PM.[5] (*6/30/05 RT, p. 82:11-15, and FDOC p. 22 & 25.*) The FDOC is silent on the potential secondary particulate contribution from the project's expected ammonia emissions.[6] *(FDOC and 6/29/05 letter from BAAQMD concerning LECEF II).* The District stated it does not have regulatory authority over ammonia formation as secondary PM and only regulates ammonia as "direct impacts on health risks and from odors." (*6/30/05 RT, p.83:11-15*) Lacking authority to regulate secondary impacts from ammonia slip, the District is not necessarily at odds with staff's recommendation--that the Commission require the reduction of ammonia slip for its secondary impacts to public health. BAAQMD testified that they are neutral on this issue and did not oppose staff's proposed mitigation methods **AQ-SC11**. *(6/30/04 RT, p. 116:8-9, p. 117:23-25 and p.118:1)*

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[5] Staff concurs that a 10 ppm ammonia slip level does provide adequate protection against toxic effects of the ammonia emissions.

[6] Note: Health and Safety Code § 42301(a) requires that emissions from new sources will not prevent or interfere with the attainment or maintenance of the State's PM10 and PM2.5 Air Quality Standards.

B. Staff's Proposed Condition on Ammonia Slip Addresses Secondary PM Health Impacts that Fall Outside the Scope of BAAQMD's Regulatory Authority.

Staff generally relies on BAAQMD's FDOC for support in making its required CEQA determinations on air quality impacts. However, that support is limited *to those issues that the District has scientifically addressed here.* (*CEQA Guidelines, Cal. Code Regs., tit. 14, § 15064 (b) and (d))* The FDOC does not scientifically evaluate the secondary PM emissions impact on existing air quality at LECEF II from ammonia slip, thus, such reliance would be misguided for CEQA compliance. Therefore, to support the findings required under the Commission's regulations and CEQA, staff has evaluated the potential air quality impacts from secondary PM emissions caused by ammonia slip and investigated feasible mitigation measures. (*Cal. Code Regs., tit. 14, § 1755(c); CEQA Guidelines, Cal. Code Regs., tit. 14, §§ 15091 and 15091)*

BAAQMD is on record concerning the health issues of smaller PM. BAAQMD testified that it recognizes that the health issues of smaller particulates in the ambient air "is of continuing and rising concern," and it is the "District's position" to reduce fine particles because "it is necessary for the quality of life in the Bay Area." (*6/30/05 RT, p. 86:8-11, 25 and p. 87:1-2*) However, the District testified that, at this time, it has taken no formal action and they are in preliminary stages of developing measures to mitigate fine PM formation and are "brainstorming ideas right now." (*6/30/05 RT, p. 137:21-24)*

V. CONCLUSION

In conclusion, staff believes that all of the issues associated with Los Esteros Critical Energy Facility II can be adequately addressed by adopting the proposed conditions of certification proposed by staff. These conditions will ensure that the project is constructed and operated in a manner that complies with applicable laws and protects environmental quality.

The Commission has previously found it necessary and prudent to limit the ammonia slip levels to 5 ppm on seven different facilities and required the same ammonia slip condition as the proposed condition **AQ-SC11** on an eighth. Therefore, staff respectfully requests that the Commission carefully consider the issue of ammonia slip for LECEF II in light of the record in *this* case and the *requirements under CEQA* concerning limiting or eliminating significant cumulative impacts. The magnitude of the potential cumulative contribution to existing violations of the state's PM10 and PM2.5 standards from higher ammonia slip levels and the serious health risks associated with PM, together with the fact that neither BAAQMD nor Calpine has provided the record with a scientific evaluation of those impacts to support the applicant's counter-arguments, make the Commission's responsibility clear. It must recognize the significant cumulative effect of the project's ammonia slip and require the feasible

mitigation measures proposed by staff. We therefore urge the Committee to adopt Staff's proposed Condition of Certification **AQ-SC11**.

Date: July 29, 2005

Respectfully submitted,

RICHARD C. RATLIFF,
Senior Staff Counsel
BILL STAACK,
Staff Counsel

Attorneys for Energy Commission Staff
California Energy Commission
1516 9th St.
Sacramento, CA 95814
Ph: (916) 654-654-3873
dratliff@energy.state.ca.us
wstaack@energy.state.ca.us

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE LOS ESTEROS CRITICAL ENERGY FACILITY, PHASE 2 (LOS ESTEROS 2)	**DOCKET NO. 03-AFC-2** **(Revised 7/28/05)** ***PROOF OF SERVICE***

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docket@energy.state.ca.us

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

APPLICANT

Calpine
Rick Tetzloff, Project Manager
700 NE Multnomah, Suite 870
Portland, OR 97232

Steve De Young
Environmental Manager
4155 Arbolado Drive
Walnut Creek, CA 94598
steve4155@astound.net

COUNSEL FOR APPLICANT

Ellison, Schneider & Harris LLP
Greg L. Wheatland
2015 H Street
Sacramento, CA 95814
glw@eslawfirm.com

INTERESTED AGENCIES

San Jose Dept. of City Planning and Building Code Enforcement
Richard Buikema, Sr. Planner II
801 N. First Street, Room 400
San Jose, CA 95110
rich.buikema@ci.sj.ca.us

County of Santa Clara Planning Office
Bob Eastwood
County Government Center
70 West Hedding Street
East Wing, 7th Floor
San Jose, CA 95110-1705

Santa Clara Valley Water District
Luis Jaimes
5750 Almaden Expressway
San Jose, CA 95118-3686

California Air Resources Board (CARB)
Michael Tollstrup
Project Assessment Branch
P.O. Box 2815
Sacramento, CA 95812
mtollstr@arb.ca.gov

William DeBoisblanc, Director Permit Services
Bay Area Air Quality Mgmt. District
939 Ellis Street
San Francisco, CA 94109

Regional Water Quality Control Board (RWQCB)
Judy Huang
1515 Clay Street, Suite 1400
Oakland, CA 94612
jch@rb2.swrcb.ca.gov

City of San Jose
Environmental Services Department
Municipal Water System Division
3025 Tuers Road
San Jose, CA 95121

INTERESTED PARTICIPANTS

Cal-Independent System Operator
Jeff Miller
151 Blue Ravine Road
Folsom, CA 95630
jmiller@caiso.com

Electricity Oversight Board
770 L St., Suite 1250
Sacramento, CA 95814

Doug Davy
Sr. Project Manager
CH2M Hill
2485 Natomas Park Dr., # 600
Sacramento, CA 95833
ddavy@ch2m.com

INTERVENORS

CURE
Marc D. Joseph, Esq.
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000
South San Francisco, CA 94080
mdjoseph@adamsbroadwell.com

Californians for Renewable Energy, Inc. (CARE)
Michael E. Boyd, President
5439 Soquel Drive
Soquel, CA 95073
michaelboyd@sbcglobal.net

Californians for Renewable Energy, Inc. (CARE)
Robert Sarvey
501 W. Grantline Road
Tracy, CA. 95376
sarveybob@aol.com

DECLARATION OF SERVICE

I, Scott McDonald, declare that on 7/29/05, I deposited copies of the attached **"Staff's Brief on the Evidentiary Hearing"** in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of the California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

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

[signature]

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Hearing Officer
MS-9

Gary Fay
Hearing Officer
MS-9

Bob Eller
Project Manager
MS-15

Dick Ratliff
Staff Counsel
MS-14

Margret J. Kim
Public Adviser
MS-12