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Testimony

for the

Application for Certification Pastoria Energy Facility Expansion Project 05-AFC-1

Submitted to the
California Energy Commission
January 10, 2006

Submitted by
Pastoria Energy Facility, LLC

I. Introduction

A. **Name:** Gary Rubenstein

B. **Purpose:** This testimony addresses the air quality issues associated with the proposed Pastoria Energy Facility Expansion Project, and presents underlying technical analyses that support portions of the Applicant's public health, visual resources, and biological resources testimony.

C. **Qualifications:** I am a Senior Partner in the firm of Sierra Research, an air quality consulting firm located in Sacramento, California. I have a Bachelor of Science degree in Engineering from the California Institute of Technology.

I co-founded Sierra Research in 1981, after serving as Deputy Executive Officer for technical programs for the California Air Resources Board (ARB). While at ARB, I supervised the work of more than 300 engineers and scientists involved in the development and enforcement of a wide variety of air pollution control regulations.

Since co-founding Sierra Research, I have had primary responsibility for the firm's activities in the areas of stationary source (i.e., industrial) air pollution. These activities include the preparation of permit applications for new facilities; evaluation of the effect of existing or proposed regulations on existing or new sources of air pollution; and assessments of compliance by existing sources of air pollution with federal, state and local requirements. I have had extensive experience in regard to advising clients in interpretation and compliance with regulations concerning environmental air pollution, including the regulations of the San Joaquin Valley Air Pollution Control District (SJVAPCD or "District").

While with Sierra Research, I have prepared application materials, participated in energy facility siting workshops and hearings, and/or presented testimony before the California Energy Commission, in the following cases:

- San Francisco Electric Reliability Project
- Los Esteros Critical Energy Facility, Phase II
- MID Electric Generation Station (MEGS)
- Walnut Energy Center
- San Joaquin Valley Energy Center
- Avenal Energy Project
- Cosumnes Power Plant Project
- Inland Empire Energy Center
- East Altamont Energy Center
- El Segundo Power Redevelopment Project
- Morro Bay Modernization Project
- Metcalf Energy Center
- Woodland II Generating Station
- Los Esteros Critical Energy Facility
- Gilroy Energy Center
- King City Energy Center
- Los Medanos Energy Center
- Mountainview Power Project
- Moss Landing Power Plant Project
- Delta Energy Center
- Sutter Power Project
- San Francisco Energy Project
- Carson Ice-Gen Project
- SMUD/Sacramento Power Authority Cogeneration Project
- SMUD/Sacramento Cogeneration Authority Cogeneration Project
- SDG&E South Bay 3 Repowering Project
- Crockett Cogeneration Project

- Argus Cogeneration Expansion (ACE) Project
- Texaco Coolwater Coal Gasification Project
- Mojave Cogeneration Project
- Midway Sunset Cogeneration Project
- Sycamore Cogeneration Project

While with the California Air Resources Board, prior to founding Sierra Research, I participated in energy facility siting workshops and hearings, and presented testimony before the California Energy Commission, in the following cases:

- PG&E Fossil 1&2
- Various PG&E geothermal power plants
- SCE Cal Coal
- SCE Coolwater

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the documents submitted in this proceeding that are listed in Attachment A to my testimony.

To the best of my knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The proposed licensing conditions related to air quality include those identified in the Final Determination of Compliance issued by the SJVAPCD, and in the Final Staff Assessment. The Applicant has reviewed these conditions and has no substantive objections to any of the conditions at the present time. However, the Applicant will propose clarifying change to Conditions AQ-44 and AQ-45, and to Appendix A of the proposed Air Quality conditions, prior to hearings in this proceeding. This proposed change would conform the Commission's Conditions to an expected revision of the corresponding conditions in the Final Determination of Compliance regarding the calculation technique used to determine the inter-pollutant trading ratio used in this case for PM₁₀ offsets. In short, the SJVAPCD has reached agreement with US EPA to implement a change to the calculation procedure, beginning with the PEFE project,

which would require a slightly higher quantity of emission reduction credits (ERCs) than was required under the calculation technique previously used by the District and approved by EPA. The Applicant has concurred in this change, and has notified both the District and US EPA of its concurrence.

During the week of January 9, 2006, Applicant will formally file with the District and the Commission its proposed revised offset package to address the new calculation technique. We believe, and we believe that the Staff will concur, that this change is minor and does not change the Staff's conclusions regarding the adequacy of project mitigation. Applicant and Staff will coordinate in the submission of revised testimony so that this last-minute agreement between the District and EPA will not delay the Commission's proceedings.

In addition, Applicant notes for the record that AQ-SC9 does not resemble in any manner the corresponding condition presented in the PSA. Applicant has not reviewed this condition in detail, and does not object to this completely revised condition, for the sole reason that Applicant expects to report greenhouse gas emissions to the California Climate Action Registry and, as a result, AQ-SC9 would not be applicable to PEFE.

III. Summary

Air pollutant emissions from the proposed Pastoria Energy Facility Expansion (PEFE) will be controlled through the use of the best available pollution control technology. These controls will make PEFE one of the cleanest power generation facilities in the United States. The project will be located at the site of the existing Pastoria Energy Facility, where air quality levels are within many (but not all) air quality standards. The air quality impacts of PEFE were evaluated and shown to satisfy all state and federal air quality requirements. Emissions from the project result from operation of the gas turbine used to generate electricity, and from additional supporting equipment.

A. Existing Air Quality

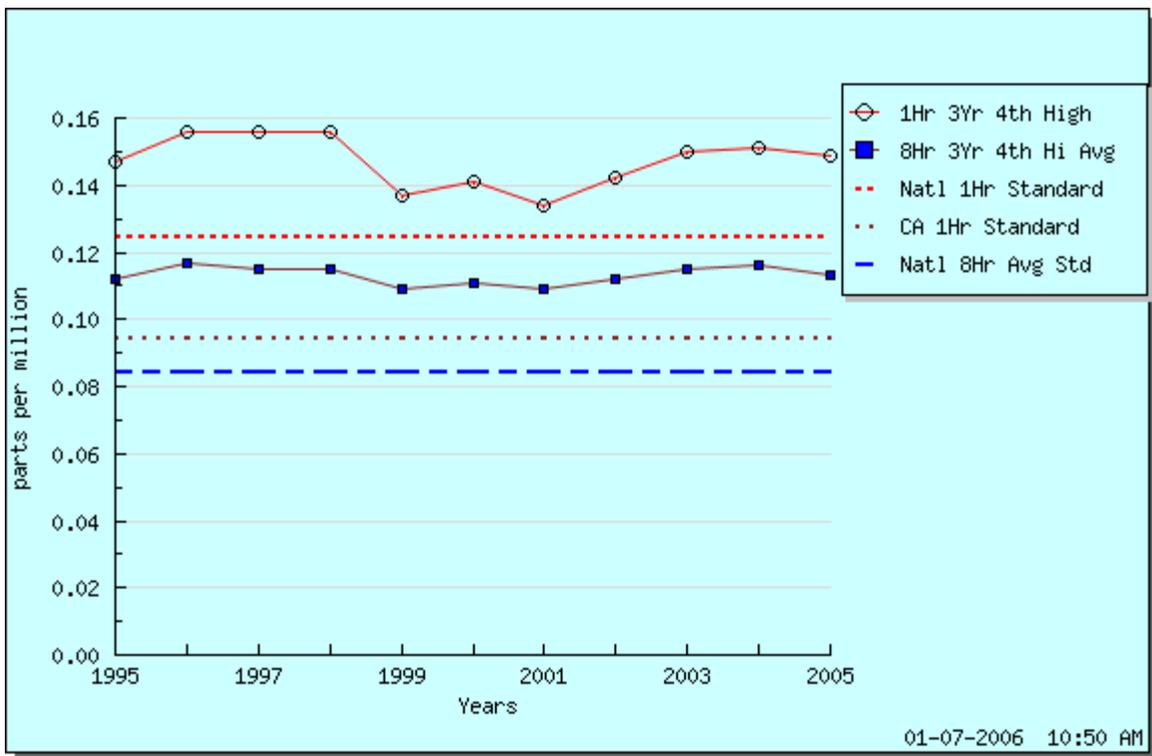
The U.S. Environmental Protection Agency (EPA) and California Air Resources Board have each established ambient air quality standards to protect public health and welfare. Both state and national ambient air quality standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of pollutants on human health, crops, and vegetation. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period.

Air quality standards have been set for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate sulfates, and fine particulate matter (PM₁₀ and PM_{2.5}).

Ambient air quality data for all of these pollutants are monitored by the Air Resources Board or District at Arvin, Bakersfield, and Fresno, at varying distances from the PEFE site. Each of the selected stations was the closest to the project site for the selected pollutant. Data from these sites were reviewed to evaluate existing air quality at the PEFE location.

Ozone is formed in the atmosphere as a result of complex reactions between reactive organic gases and oxides of nitrogen in the presence of sunlight. Consequently, peak ozone levels are seen during the summer months, when there is the most sunlight. The state and federal ozone standards have been exceeded at Arvin on numerous occasions since at least 1995. In general, 1-hour and 8-hour average ozone levels in the southern San Joaquin Valley have been flat or shown a slight upward trend over the last ten years. This trend is shown below in Figure 1, which is taken from the California Air Resources Board’s web site.¹

Figure 1
Ozone Trends Summary – Arvin Monitoring Station



¹ <http://www.arb.ca.gov/adam/cgj-bin/db2www/polltrends.d2w/start>

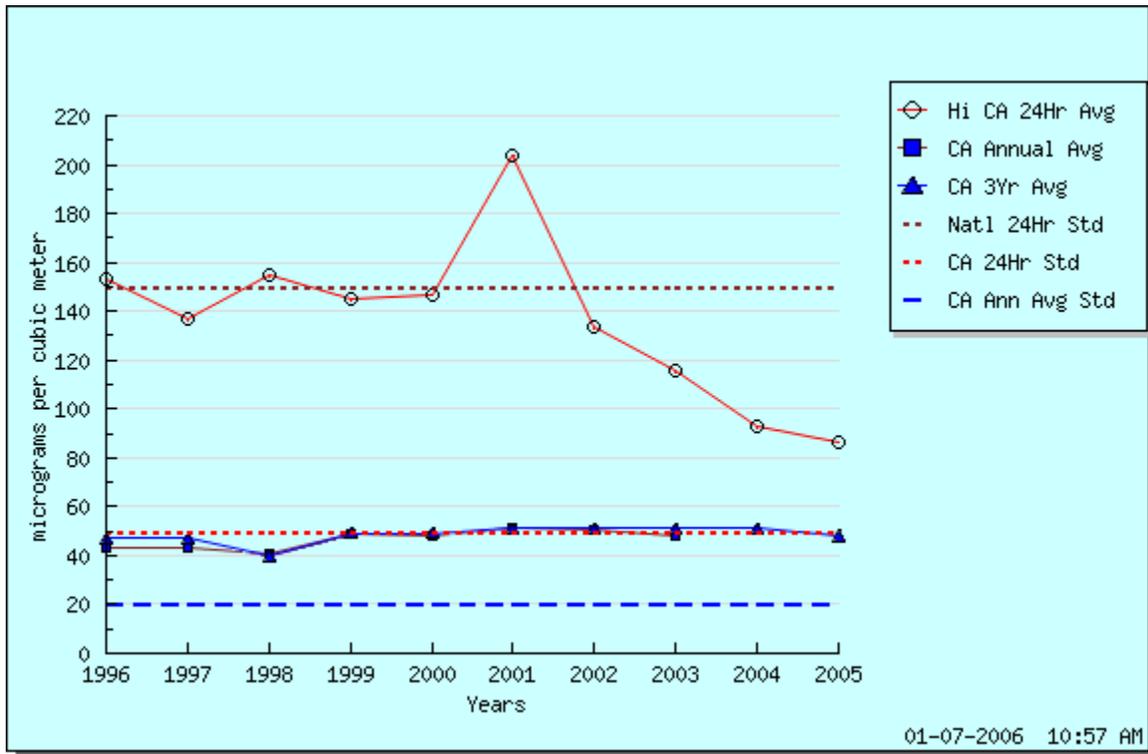
Carbon monoxide (CO) results from inefficient combustion, principally from motor vehicles and other mobile sources of air pollution. In many areas of California, CO emissions from wood-burning stoves and fireplaces can also be measurable contributors. Industrial sources typically contribute less than ten percent of ambient CO levels. Peak CO levels are usually seen during winter months. There have been no violations of state or federal CO standards measured in the project area since at least 1994.

Nitrogen dioxide (NO₂) is formed primarily in the air from reactions between nitric oxides and oxygen or ozone. Nitric oxide is formed during high temperature combustion, when nitrogen and oxygen in the air combine. Although nitric oxide is much less harmful than nitrogen dioxide, it can be converted to nitrogen dioxide in the atmosphere within a matter of hours, or even minutes, under certain conditions. There have been no violations of state or federal nitrogen dioxide standards measured in the project area since at least 1994.

Sulfur dioxide (SO₂) is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing compounds. Natural gas contains negligible amounts of sulfur. Sulfur dioxide levels measured the project area have been well below state and federal air quality standards since at least 1994.

Respirable particulate matter (PM₁₀) in the air is caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources, including wood stoves and fireplaces (usually carbon particles); organic, sulfate, and nitrate aerosols formed in the air from emissions of gaseous pollutants; and natural aerosols (such as salts from sea sprays). PM₁₀ levels generally have been below the federal 24-hour and annual average standards, but above the state 24-hour and annual average standards, in the Southern San Joaquin Valley over the last ten years. The trend of PM₁₀ levels measured in Bakersfield is shown in Figure 2. The data indicate a general downward trend in peak 24-hour average levels, and a flat trend in annual average concentrations, over this period.

Figure 2
PM₁₀ Trends Summary - Bakersfield - California Avenue



PM_{2.5} has been monitored at the Bakersfield California Avenue monitoring station since 1999. As shown in the AFC at Table 5.2-7 and Figure 5.2-15, the 98th percentile 24-hour average PM_{2.5} concentration levels have been generally declining and have come just under the federal standard of 65 µg/m³. The 3-year average of annual arithmetic means declined somewhat from 1999 to 2004, but remains above the state and federal standards for this pollutant.

B. Environmental Impacts

Air emissions will result from the operation of the simple cycle gas turbine. Air pollutant emissions from the PEFE are shown in the Final Determination of Compliance issued by the Air District, and in the Final Staff Assessment. These emissions have been calculated based on the maximum capacity of the equipment, consistent with operating limits expected to be imposed as permit conditions, and thus represent a worst case. Actual emissions during plant operation are expected to be much lower than the levels shown in the Staff Assessment.

C. Regulatory Requirements

The project's emissions and air quality impacts are required to comply with various local, state, and federal laws, regulations, and standards. In addition to the California Energy Commission's review, the air quality impacts of the PEFE have been reviewed by the SJVAPCD and US EPA.

The requirements applicable to the PEFE include new source review (NSR) requirements, as well as a number of prohibitory rules. The facility is subject to Prevention of Significant Deterioration (PSD) review by US EPA; this review is pending, and a PSD permit is not expected to be issued until after the Commission issues its final decision. The NSR program applies to the facility as a whole, and is designed to ensure that new projects are developed in a manner that will not interfere with meeting health- and welfare-based ambient air quality standards. Prohibitory rules apply to specific pieces of equipment, rather than to the facility as a whole. They impose specific limits on emissions, including opacity and odors, and are enforced through permit conditions. Compliance with all of these rules is demonstrated in the Application for Certification, and has been confirmed in the Final Determination of Compliance issued by the Air District.

The main air quality requirements applicable to the PEFE are summarized below.

- **Best Available Control Technology (BACT):** Emissions of all pollutants will be kept as low as possible by using clean natural gas as the fuel for all equipment. Because natural gas is a clean-burning fuel, emissions of sulfur dioxide (SO₂), precursor organic compounds (POC, or hydrocarbons), and particulate matter (PM₁₀) will be very low. To minimize emissions of oxides of nitrogen (NO_x) and carbon monoxide, the gas turbine will use dry low NO_x combustors. To further reduce NO_x emissions, the gas turbine will also use selective catalytic reduction (SCR) technology.
- **Offsets:** Both Air District and Energy Commission rules require that overall air quality does not deteriorate as a result of the project. This goal is achieved by using the best available pollution control technology, and then using emission reductions from other facilities to "offset" or mitigate most emission increases. Pursuant to Air District rules, the net emissions increase from the project is evaluated looking at the forecasted maximum future emissions from the new units. The emissions increases of volatile organic compounds, oxides of nitrogen, sulfur dioxide, and PM₁₀ from the PEFE project will be mitigated by the purchase and surrender of emission reduction credits in accordance with Air District requirements.

- **Ambient Air Quality Impacts:** The impact of the PEF on ambient air quality was evaluated using dispersion models approved by the U.S. EPA. Worst-case ground-level impacts were assessed for various meteorological and operating conditions (flat terrain, elevated terrain/hillsides, fumigation, startup, part-load and full-load operations). The worst-case ground-level impacts were added to existing (background) concentrations from nearby monitoring stations to determine the total ambient concentrations. These total concentrations were then compared with the ambient air quality standards. As confirmed in the Final Determination of Compliance and Final Staff Assessment, the project will result in concentrations well below the most stringent air quality standards. Even when combined with existing background levels, the proposed project will not cause a new violation of any state or federal air quality standard. The project will add a small amount (less than two percent) to existing PM₁₀ and PM_{2.5} concentrations at the point of maximum impact. The emission reduction credits surrendered by the Applicant will mitigate this potential cumulative impact to a less than significant level.
- **Screening Health Risk Assessment:** A screening level health risk assessment was performed to evaluate the potential impact of emissions of potentially toxic compounds that result from the combustion of natural gas. This assessment demonstrated that the facility will not pose a significant health risk. The worst-case cancer risk is far below the level of 10 in one million that is considered significant, and is below the level of 1 in one million that triggers additional control technology requirements.
- An analysis was performed of the cumulative air quality impacts of the PEF, in conjunction with other existing and proposed air pollution sources in the area (including the PEF facility). This analysis concluded that these projects would not contribute significantly to existing violations, or cause new violations, of state or federal ambient air quality standards.

D. Conclusion

The Pastoria Energy Facility Expansion project has been designed to have extremely low emission rates and minimal environmental impacts. It will be one of the cleanest power plants in the United States, with state-of-the-art design features and emission control capabilities. Remaining increases in emissions will be offset at a ratio of at least one to one, so that the emission reductions provided as mitigation will be greater than the project's emission increases, thus ensuring a net benefit to regional air quality.

With the implementation of the above mitigation measures, and in combination with the proposed conditions of certification contained in the Staff Assessment, the project complies with all applicable federal, state and local laws, ordinances, regulations and

standards, and remaining potential impacts, if any, will be mitigated to a level that is less than significant.

Attachment A

Mr. Rubenstein will sponsor the following exhibits in the area of Air Quality:

Application Materials and Data Responses

- Application for Certification, Pastoria Energy Facility Expansion Project, dated April 2005, Section 5.2 (Air Quality) and Air Quality Technical Report (Appendices A through F). (Docket No. 34217) Exhibit 1
- Air Quality Modeling Files in support of Application for Certification, dated April 2005. (Docket No. 31127) Exhibit 5D
- Application for a Prevention of Significant Deterioration Permit, dated May 2, 2005, filed with the US EPA. (Docket Nos. 34223, 34277) This document consists of a transmittal letter, and the following sections of the AFC: Table of Contents, Executive Summary (1.0), Facility Description and Location (3.0), Air Quality (5.2) including the Air Quality Technical Report (Appendices A through F), Agriculture and Soils (5.4), Land Use (5.9) and Biological Resources (5.6), and air quality modeling files on CD. Exhibit 5E
- Application for Determination of Compliance and Authority to Construct, filed with the SJVAPCD, dated May 3, 2005. (Docket No. 34224) This document consists of a transmittal letter with application forms, and the following sections of the AFC: Table of Contents, Executive Summary (1.0), Facility Description and Location (3.0), Air Quality (5.2) including the Air Quality Technical Report (Appendices A through F), Public Health (5.16 and air quality modeling files on CD. Exhibit 5F
- Letter from Nancy Matthews, Sierra Research to Dr. James Reede, CEC, transmitting additional information responding to informal CEC Staff requests, dated May 18, 2005. (Docket No. 34842) Exhibit 5G
- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility Expansion Project, dated June 10, 2005. (Docket Nos. 34582, 34583) Exhibit 5A
- Applicant's Response to CEC Staff Data Requests, Responses to Data Requests 1 through 33 (Response Package #1). Exhibit 5B
- Applicant's Response to CEC Staff Data Requests, Responses to Data Requests 8, 10, 11, 12, 25, 29, 30, 31 and supplemental information regarding separate permits (Response Package #2). Exhibit 5C

Correspondence and Other Materials

- Letter from Nancy Matthews, Sierra Research, to Tom Goff, SJVAPCD, seeking data to support a cumulative impacts analysis, dated May 18, 2005. Exhibit 5H

- Letter from David Warner, SJVAPCD, to Andrew Whittome, PEF, confirming that the application has been accepted as complete by the SJVAPCD, dated May 19, 2005. (Docket No. 34414) Exhibit 5I
- Letter from Nancy Matthews, Sierra Research, to Thomas Goff, SJVAPCD, revising the VOC BACT emission rate for the project, dated May 24, 2005. (Docket No. 34428) Exhibit 5J
- Letter from Gerardo Rios, US EPA, to Andrew Whittome, Calpine, confirmed that the PSD application has been accepted as administratively complete, dated June 6, 2005. Exhibit 5K
- Letter from David Warner, SJVAPCD to Nancy Matthews, Sierra Research, confirm that no sources for the cumulative impacts analysis have been identified, dated June 6, 2005. Exhibit 5L
- Letter from Nancy Matthews, Sierra Research, to Dr. James Reede, CEC, transmitting EPA letter regarding administrative completeness, dated June 8, 2005. (Docket Nos. 34650, 34612) Exhibit 5M
- Letter from Nancy Matthews, Sierra Research, to Dr. James Reede, CEC, transmitting SJVAPCD letter regarding cumulative impacts, dated June 9, 2005. (Docket Nos. 34667, 34609) Exhibit 5N
- Letter from Nancy Matthews, Sierra Research, to Thomas Goff, SJVAPCD, transmitting corrected pages from the AFC and Application for Authority to Construct, dated June 14, 2005. (Docket Nos. 34668, 34608) Exhibit 5O
- Letter from Nancy Matthews, Sierra Research, to Dr. James Reed, CEC, transmitting an SJVAPCD report referenced in the response to Data Request 26, dated July 25, 2005. (Docket No. 35064) Exhibit 5P
- Letter from Nancy Matthews, Sierra Research, to Trent Procter, US Forest Service, transmitting Class I Impacts Analysis, dated August 8, 2005. Exhibit 5Q
- Preliminary Determination of Compliance issued by the SVJAPCD for PEFE, dated August 31, 2005. (Docket No. 35444) Exhibit 5R
- Letter from Paul Richins, CEC, to David Warner, SJVAPCD, providing the CEC Staff's comments on the PDOC, dated September 29, 2005. (Docket No. 35744) Exhibit 5S
- Letter from Gary Rubenstein, Sierra Research, to David Warner, SJVAPCD, providing comments on the PDOC, dated October 5, 2005. (Docket No. 35596) Exhibit 5T
- Letter from Gerardo Rios, US EPA, to Dave Warner, SJVAPCD, providing EPA's comments on the PDOC, dated October 5, 2005. (Docket No. 35607) Exhibit 5U

- Letter from Gary Rubenstein, Sierra Research, to Dave Warner, SJVAPCD, responding to EPA and CEC Staff comments on the PDOC, dated October 25, 2005. (Docket No. 35813) Exhibit 5V
- Letter from David Warner, SJVAPCD, to Mike Tollstrup, California Air Resources Board, providing notice of issuance of a final Determination of Compliance for PEFE, dated November 9, 2005. Exhibit 5W
- Final Determination of Compliance issued by the SJVAPCD for PEFE, dated November 9, 2005. (Docket No. 35894) Exhibit 5X

Mr. Rubenstein will sponsor the following exhibits in the area of Public Health:

Application Materials and Data Responses

- Application for Certification, Pastoria Energy Facility Expansion Project, dated April 2005, analyses in support of Section 5.16 (Public Health). (Docket No. 34217) Exhibit 1
- Applicant's Response to CEC Staff Data Requests, Responses to Data Requests 40. Exhibits 11A and 11B

Mr. Rubenstein will sponsor the following exhibits in the area of Biological Resources (related to nitrogen deposition):

Application Materials and Data Responses

- Application for Certification, Pastoria Energy Facility Expansion Project, dated April 2005, analyses in support of Section 5.6 (Biological Resources) related to nitrogen deposition. (Docket No. 34217) Exhibits 1, 6A and 6B.

Mr. Rubenstein will sponsor the following exhibits in the area of Visual Resources (visible plumes):

Application Materials and Data Responses

- Application for Certification, Pastoria Energy Facility Expansion Project, dated April 2005, analyses in support of Section 5.13 (Visual Resources) related to visible plumes. (Docket No. 34217) Exhibit 16.

Applicant's Testimony

Biological Resources

Exhibit 6

I. Introduction

- A. **Name:** Andrew Whittome, Jennifer Scholl, and Russell Kokx
- B. **Purpose:** This testimony addresses biological resource issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Russell Kokx – Designated Biologist. Mr. Kokx has 14 years of experience conducting biological resources survey, monitoring, and restoration work throughout California. He has served as the Designated Biologist for numerous power plants throughout California, responsible for conducting resource surveys and managing biological resource monitoring activities

during construction. As the Designated Biologist for the Calpine Pastoria Energy Facility, he implemented biological resource surveys, implemented avoidance and mitigation measures during construction and site/linear route restoration, conducted environmental awareness training, translocated small mammals and sensitive species, coordinated with onsite contractors, hired and trained biology field staff, set up construction monitoring schedules, and prepared compliance reports.

Copies of their resumes are attached.

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.18.
- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility Expansion Project, dated June 9, 2005, Biological Resources Section, Exhibit No. 6A.
- Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Responses to Data Requests 34 and 35, Exhibit No. 6B.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that seven Conditions of Certification be adopted to address biological resource issues. These Conditions, BIO-1 through BIO-7, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's biological resource impacts. We have reviewed the Conditions of Certification set forth in the FSA and find the Conditions to be acceptable.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

Natural habitats in the rights-of-way for linear facilities of the existing PEF include native grassland, non-native grassland, freshwater marsh, and riparian scrub. Other habitats that occur in the project area are ruderal (weedy) and agriculture. The dominant habitat is non-native grassland with scattered ruderal fields in previously disturbed areas. The existing plant site is located in an area that was a ruderal, grazed field. Freshwater marsh and riparian scrub habitats occur outside the plant site in a narrow corridor along the banks of Pastoria Creek and other small ephemeral drainages

Because the PEF Expansion will share common facilities and identical footprints of disturbance with the existing PEF, the site disturbance remains unchanged from the existing PEF. Consequently, no new impacts to biological resources are expected as a result of the PEF Expansion.

Cultural Resources

Exhibit 7

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl
- B. **Purpose:** This testimony addresses Cultural Resources issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.7.
- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility Expansion Project, dated June 9, 2005, Cultural Resources Section, Exhibit No. 7A.
- Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Cultural Resources Section, Response to Data Request 36, Exhibit No. 7B.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 13 Conditions of Certification be adopted to address cultural resources issues. These Conditions, CUL-1 through CUL-13 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's cultural resources impacts. We have reviewed the Condition of Certification set forth in the FSA and find the Conditions to be acceptable.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

Multiple cultural resource surveys were conducted for the PEF that resulted in the recordation of 15 new cultural resource sites. Additionally, 22 isolates

were also recorded, during both field survey and construction monitoring. A Cultural Resources Monitoring and Mitigation Plan (CRMMP) was prepared and approved by the CEC. The purpose of the CRMMP was to ensure measures were in place to avoid known significant cultural resources and to address any cultural resources identified during construction of the PEF. Testing programs were conducted at seven cultural resource sites. The results of these testing programs were reported in technical reports that were previously approved by the CEC. The previous technical reports reporting on the various phases of survey and testing programs are on file with the South San Joaquin Valley Information Center (SSJVIC).

The PEF Cultural Resource Specialist prepared a cultural resources training program that was presented by CEC-approved trainers. The purpose of the program was to inform all construction personnel of the types of cultural resources that could be encountered during construction; areas already demarcated as sensitive, appropriate protocols for stopping work and notification procedures in the event of a discovery. Cultural resource monitors and Native American monitors were present at ground disturbing activities at the plant site and along the linear facilities. Full-time monitoring was employed at areas considered particularly sensitive for cultural resources. The designated cultural resource monitor prepared daily monitoring logs. Weekly summaries were then provided to the project owner for inclusion in the project owner's monthly report to the CEC.

The PEF has complied with all Cultural Resource-related conditions related to construction and curation of artifacts recovered during construction activities. These conditions and required reports have been approved by the CEC. Compliant with CEC conditions, the PEF has submitted all required reports to the curation facility (Santa Barbara Museum of Natural History), State Historic Preservation Officer (SHPO) and the SSJVIC.

Because the PEF Expansion will share common facilities and identical footprints of disturbance with the existing PEF, the site disturbance remains unchanged from the existing PEF. Consequently, no new impacts to cultural resources are expected as a result of construction of the PEF Expansion.

Applicant's Testimony

Hazardous Materials Management

Exhibit 8

I. Introduction

A. **Name:** Andrew Whittome and Barbara McBride

B. **Purpose:** This testimony addresses Hazardous Materials Management issues associated with the Pastoria Energy Facility Expansion proceeding.

C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

B. McBride – Calpine Corporation. Ms. McBride is the Director of Safety, Health, and Environment in California and the Western Power Regions. She has 13 years experience in power generation and 15 years experience in engineering and construction.

Copies of their resumes are attached.

D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.15.
- Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Responses to Data Requests 38 and 39, Exhibit No. 8A.
- Applicant's Response to CEC Staff Data Request Set 2, dated August 12, 2005, Responses to Data Request 39, Exhibit No. 8B.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this

testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that eight Conditions of Certification be adopted to address hazardous materials management issues. These conditions, HAZ-1 through HAZ-8 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's hazardous materials management impacts. We have reviewed the Conditions of Certification set forth in the FSA and find the Conditions to be acceptable, with the exception that a portion of HAZ-7 that requires changes in the security measures applicable to the existing PEF plant. Calpine's objections to HAZ-7 are set forth below in Section IV of this testimony.

III. Summary

The PEF Expansion consists of a 160 MW natural gas-fired, simple cycle. The additional Expansion area will comprise of approximately two acres, located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

The proposed PEF Expansion site is located in southern Kern County. The site vicinity is predominantly undeveloped with the exception of active and abandoned oil exploration, gravel quarrying, and farming operations. Oil fields are located approximately one mile north of the plant site. There are no schools, hospitals, residences, or other sensitive receptors within five miles of the site. Also, no known urban development is presently planned within five miles of the site,

Construction Phase. The only hazardous materials expected to be used onsite during construction are gasoline, diesel fuel, oil, lubricants, solvents, adhesives, and paint materials. There are no feasible alternatives to these materials for the operation of construction vehicles and equipment, or for painting and caulking of enclosures and equipment. Welding gases (i.e., acetylene and oxygen) are also likely to be used

onsite in small volumes. No acutely hazardous materials, other than small volumes of acetylene, will be used or stored onsite during construction.

The potential for significant environmental impacts from hazardous material incidents during construction is minimal. Only small volumes of hazardous materials will be onsite during construction. In addition, trained maintenance and service personnel will be handling these materials when they are used. The most likely incidents involving these materials are dripping of gasoline, diesel fuel, oil, hydraulic fluid, and lubricants from vehicles or equipment. The worst-case scenario is an accident involving the release of one of these materials from a service vehicle during equipment maintenance or fueling. The risk of such an occurrence will be mitigated through the emergency response training program and procedures. These materials have low acute toxicity, and long-term or cumulative impacts will be avoided by cleaning up spills when they occur. In the case of a large spill, contaminated soil will be placed into barrels or roll-off bins by service personnel for subsequent evaluation and offsite disposal. Handling procedures for hazardous chemicals onsite during construction activities will be handled in compliance with applicable LORS.

Operational Phase. During operation of the generating plant (existing PEF and PEF Expansion), hazardous materials will be used and stored onsite. These materials are listed in the PEF Expansion AFC [Exhibit 1, Section 5.15, pp. 5.15-2 through 5.15-3.] Management of these materials to reduce potential releases will be conducted in compliance with applicable LORS. Two flammable gases, natural gas and hydrogen, will be used in the power generation process. Minor amounts of other gases used for maintenance activities may also be stored onsite. Details on the uses of these gases are provided in the AFC [Exhibit 1, Section 5.15, pp. 5.15-3 through 5.15-4.].

The amount of anhydrous ammonia that will be used for the PEF Expansion SCR system would exceed regulatory thresholds, therefore, an offsite consequences analysis (OCA) for accidental releases of anhydrous ammonia was conducted. The results of the OCA are presented in the AFC [Exhibit 1, Section 5.15, pp. 5.15-6 through 5.15-9.]. The OCA concluded that the theoretical worst-case and alternative release scenarios would not have a significant impact on sensitive receptors. Workers in the vicinity of the ammonia truck unloading area could be exposed to potentially lethal concentrations of ammonia gas in the unlikely event of an accidental ammonia release. However, the project design includes measures to reduce the likelihood and consequences of an accidental ammonia release. Also, workers at the PEF will be trained to avoid and respond to accidental releases of hazardous materials, including ammonia. The proposed project design and worker

safety training limit the hazard due to an accidental ammonia release to an acceptable level.

During operation of the existing PEF and PEF Expansion, environmental impacts from management of hazardous materials will be minimized by implementation of the agreed upon mitigation measures and compliance with applicable LORS. Monitoring of the ongoing effectiveness of the measures will be performed by onsite environmental staff under the supervision of the facility manager. This ongoing monitoring will be used to update operating procedures and plans to minimize facility environmental impacts.

IV. HAZ-7

Calpine is strongly committed to maintaining a safe and secure facility. During construction of the PEF and since the plant began operation in May 2005, the facility has been operated safely and securely under the existing security plan. There have been no incidents that would warrant any change in the existing security plan. There has been no indication from any law enforcement agency that there is any defect or inadequacy in the existing security measures. Because the PEF expansion will occur within the existing fence line, the expansion will not cause a need to alter the existing security measures.

Despite these facts, which were presented to the Staff during the PSA workshop, the Staff proposes to significantly modify the security measures at the existing facility, using the license for the expansion as a pretext for these proposed changes. In Haz-7, Staff proposes that the Commission require that the facility have security guards to be present 24 hours a day, 7 days a week or that the Project Owner install a closed circuit television system with tilt/pan/zoom capabilities and a perimeter breach detectors or on-site motion detectors.

The requirement to have either 24 hour security guards or a perimeter breach detection system has not been shown to be either necessary or effective for an existing facility that is operating in a remote rural location. The Staff has offered no evidence at all that perimeter breach detectors, which we estimate will cost approximately \$500,000 to install, are either necessary or effective in a rural setting. Wildlife in the vicinity of the plant (i.e., coyote, raccoons, ground squirrels, and birds) could result in many undue alarms requiring immediate response by the plant staff without creating a safer facility.

Commander Keith Nelson, Kern County Sheriff Department Homeland Security Division has adamantly said that he would *not* recommend installation of a perimeter breach system at the PEF because of the high volume of expected "false" alarms. He stated that after approximately eleven false alarms, the

department would probably not respond to further alarms. He also said that he expected that the system would receive numerous “false” alarms due to the abundance of wildlife in the area. Further, he said that this type of system is usually installed in areas of high "human" traffic, and that the location of the existing PEF, in a very remote and isolated area, would not warrant such measures.

Barbara McBride, Calpine’s Safety, Health, and Environment Director, spoke with Mark Kehoe from GWF on October 18, 2005, who said that GWF has motion detectors on the fence lines of all of their facilities. The main reason that GWF added the motion detectors was because they have several unmanned peaker sites. They also expanded the motion detector systems to their baseload operations because they have had specific problems with intruders at particular locations. All of these plants are small facilities in close proximity to populations. PEF is a remote facility and has had no incidents involving intruders or other operating experiences that would warrant the installation of this device.

Although the facility is equipped with a closed circuit television system that is relatively new, Calpine would agree to upgrade this television system with one that is capable of tilting and zooming cameras when the PEF expansion is constructed. However, with respect to the proposed changes that would require 24 hour security guards or a perimeter breach system, Calpine feels these are unnecessary to maintain a secure facility.

Applicant's Testimony

Land Use

Exhibit 9

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Land Use issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 5.9.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that one Condition of Certification be adopted to address land use issues. This condition, LAND-1, requires the submission of a proposed site development plan prior to ground disturbance. We have reviewed the Condition of Certification set forth in the FSA and find it to be acceptable.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF. The PEF Expansion will share common facilities with the existing PEF and thus, the site disturbance remains unchanged from the existing PEF. No new land use impacts are expected as a result of the PEF Expansion.

Applicant's Testimony

Noise and Vibration

Exhibit 10

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl
- B. **Purpose:** This testimony addresses Noise and Vibration issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following document submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.12.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that six Conditions of Certification be adopted to address noise and vibration issues. These Conditions, NOISE-1 through NOISE-6 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's noise and vibration impacts. We have reviewed the Conditions of Certification set forth in the FSA and find the Conditions to be acceptable.

III. Summary

The PEF Expansion consists of a 160 MW natural gas-fired, simple cycle. The additional Expansion area will comprise of approximately two acres, located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF. Land uses in the vicinity of the PEF plant site include agricultural operations and a gravel mine. The nearest sensitive receptor is located more than four miles from the PEF plant site.

Construction Activities. During construction of the PEF Expansion project, a number of pieces of construction equipment will be on site. The construction schedule currently assumes that all construction activities will take place during the normal workweek (Monday through Friday). Noisy construction work (that which causes offsite annoyance as evidenced by the filing of a legitimate noise complaint) is restricted to 7:00 a.m. to 10:00 p.m. The PEF Expansion will not require steam blows. Construction activities are normally of short duration and do not occur all at the same time; therefore it is unlikely that the existing ambient noise level within adjacent mining or agricultural

production areas will be impacted, or that the noise levels indicated above would adversely impact (or even be audible at) the nearest residential receptors.

Operational Activities. Based upon information included in the PEFE AFC (Exhibit 1), if all of the PEF plus PEFE equipment were to operate simultaneously at maximum power, a total noise level of approximately 89 dBA would occur at a distance of 50 feet from the acoustic center of the site. Accounting for the attenuation of sound by distance, the equipment noise of 89 dBA at 50 feet would be reduced to a noise level of 62 dBA at a distance of 1,000 feet from the construction activity. The noise impact calculations indicate that the normal operating noise impact from the PEF Expansion will be less than 20 dBA L_{eq} at the nearest residential receptor locations, which is well below the maximum allowable noise level of 46 dBA L_{eq} . This noise level is also below the existing ambient noise levels at the noise-sensitive receptor locations and will be inaudible, thus operational impacts will not be significant.

Applicant's Testimony

Public Health

Exhibit 11

I. Introduction

- A. **Name:** Andrew Whittome, Jennifer Scholl, and John Lague
- B. **Purpose:** This testimony addresses Public Health issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines) and offshore oil and gas facilities with onshore processing and storage components. Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

John Lague – Senior Air Quality Consultant. Mr. Lague has worked continuously in the air quality consulting field since 1971. His technical specialties include permitting and compliance support for government and

industrial facilities, air quality impact assessments, air toxics evaluations, air quality and meteorological monitoring, and applied research programs. Mr. Lague has had extensive experience in providing Air Quality, Public Health and Hazardous Materials Handling consulting support for energy projects, including California Energy Commission (CEC) licensing efforts for proposed new power plants and modifications in California. He has also prepared applications to the local air quality control authorities for the associated air quality construction and operating permits for these projects.

Copies of their resumes are attached.

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.16.
- Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Responses to Data Request 40, Exhibit No. 11A.
- Applicant's Response to CEC Staff Data Request Set 2, dated August 12, 2005, Responses to Data Request 40, Exhibit No. 11B.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that one Condition of Certification be adopted to address public health issues. This condition, Public Health-1 addresses applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's public health impacts. We have reviewed the Condition of Certification set forth in the FSA and find it to be acceptable.

III. Summary

The existing PEF includes three natural gas-fired combustion turbine generators (CTGs), each with a heat recovery steam generator (HRSG); two steam turbines; a 16-cell cooling tower; a 436 hp diesel-fired emergency IC

engine powering a water pump; a 1,529 hp natural gas-fired emergency IC engine powering a 1,100 kW generator; and ancillary facilities. The plant output will be increased from the current nominal rating of 750 MW to a total of 910 MW by the addition of the fourth CTG. Both the incremental impacts to public health associated with the PEF Expansion and the cumulative health impacts associated with the existing PEF and the PEF Expansion combined were evaluated in the AFC (Exhibit 1). Impacts from air toxics and Electromagnetic Fields (EMF) were evaluated.

For the purposes of the Public Health analysis for the PEF Expansion project, public health impacts were measured by the potential for air emissions and electromagnetic frequency (EMF) to impact sensitive receptors within the vicinity of the PEF project. Sensitive receptors are defined as groups of individuals that may have a heightened susceptibility to health risks from chemical exposures. Schools, day care facilities, convalescent homes, and hospitals are typically of particular concern. No sensitive receptors were identified within ten miles of the PEF site; however, the following discussion summarizes the results of the findings of the Public Health AFC Section 5.16 [Exhibit 1].

The construction phase of the PEF Expansion project is expected to take approximately 12 months. Construction activities will be temporary and localized and, as noted previously, there are no sensitive receptors in the vicinity of the project site. Accordingly, no significant public health effects are expected during the construction phase of the PEF Expansion. Strict construction practices that incorporate safety and compliance with all applicable laws, ordinances, regulations, and standards (LORS) will be followed.

Public health impacts resulting from air emissions from the PEF Expansion were quantified using air toxics risk assessment modeling, which indicated that there would be no significant incremental public health risks (including risks to the more sensitive members of the population) as a result of air toxics emissions associated with either construction or operation of the PEF Expansion. Further, as discussed in the AFC [Section 5.16.2.2 Public Health Risks – Operation Impacts and summarized in Section 5.16.2.5 Summary of Air Toxics Public Health Risk Impacts, Exhibit 1, pp. 5.16-3 through 5.16-14], results of dispersion modeling for routine project operations indicate that predicted ambient concentrations of NO₂, CO, SO₂, and PM₁₀ meet the federal requirements that have been established to protect public health.

Public health impacts related to EMF exposure were discussed in Section 5.16.3 Electromagnetic Field Exposure Evaluation of the AFC, [Exhibit 1, pp. 5.16-14 through 5.16-16.] The PEF Expansion requires no modifications to the existing PEF electric transmission line system. The PEF Expansion will share common transmission facilities with the existing PEF. The existing PEF switchyard will accommodate the PEF Expansion with the addition of a 230 kV circuit breaker in one of the switchyard spare bays. The transmission lines connecting the plant to SCE's system are already sized to carry the output of the PEF Expansion.

Applicant's Testimony

Socioeconomic Resources

Exhibit 12

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses socioeconomic issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
 - Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 5.10.

- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility Expansion Project, dated June 9, 2005, Exhibit 12A, Socioeconomics Section.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

There are no Conditions of Certification for Socioeconomic Resources.

III. Summary

Local environmental impacts associated with the PEF Expansion Project were determined by comparing project demands during construction and operation with the socioeconomic resources of the project area. A proposed power generating facility could impact employment, population, housing, public services and utilities, and/or schools. Impacts could be felt locally and/or regionally, though most impacts would tend to be more regional than local. Regional consequences were determined by comparing project demands with the socioeconomic resources of Kern County. The project will not have any significant adverse impacts on the socioeconomic environment, but rather will benefit the local economy.

Applicant's Testimony

Soil and Water Resources

Exhibit 13

I. Introduction

- A. **Name:** Andrew Whittome, Jennifer Scholl, and Michael Argentine
- B. **Purpose:** This testimony addresses Water Resources issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines) and offshore oil and gas facilities with onshore processing and storage components. Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Michael Argentine – Calpine Corporation. Mr. Argentine is a registered Mechanical Engineer with over 20 years of engineering experience in the power industry. His qualifications are summarized more completely in the attached resume

Copies of their resumes are attached.

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.4.
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 5.5.
- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility Expansion Project, Soils Section, dated June 9, 2005, Exhibit No. 13A.
- Applicant’s Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Responses to Data Requests 41 through 44, Exhibit No. 13B.
- Applicant’s Response to CEC Staff Data Request Set 2, dated August 12, 2005, Responses to Data Requests 42 and 44, Exhibit No. 13C.
- Industrial Water Services Contract Between Wheeler Ridge-Maricopa Water Storage District and Pastoria Energy Facility, LLC, Recorded on February 19, 2002, Docketed on June 16, 2005, Exhibit No. 13D.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that six Conditions of Certification be adopted to address water resources issues. These Conditions, SOIL&WATER-1 through SOIL&WATER-6 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the

project's water resources impacts. We have reviewed the Conditions of Certification set forth in the FSA and find the Conditions to be acceptable, with the exception of SOIL&WATER-4 that imposes a new annual water use limit on the expanded facility, imposes a requirement to install and maintain a metering device for the expanded facility, and imposes a requirement to monitor and record the total water use of the expanded facility on a monthly basis. Calpine's objections to SOIL&WATER-4 are set forth below in Section IV of this testimony.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

Soil Resources. The PEF Expansion will share common facilities with the existing PEF, and thus the site disturbance remains unchanged from the existing PEF. Therefore, no new impacts to agriculture and soils are expected as a result of the PEF Expansion.

Water Supply. The PEF Expansion will require up to 55 acre-feet of additional water per year. The PEF and the PEF Expansion projects combined will require less than 5,000 acre-feet of water per year (AFY) at full plant load. Essential plant functions requiring water are evaporative cooling of the CTG inlet air, cooling of the CTG auxiliary heat exchangers, and utility water for washdown and other purposes.

The maximum make-up water flow rate to the existing PEF is limited by contract to 10.5 cubic feet per second (4,713 gpm). This limit will also apply to the PEF Expansion. With the PEF Expansion included, the combined facilities (existing PEF and PEF Expansion) will operate at or below this limit when operating at full capacity. The peak water demand will occur during the months of June, July, August and September.

Because the PEF Expansion will share common facilities with the existing PEF and no new ground disturbance will be required, no new impacts to surface water resources or soils will occur.

IV. SOIL&WATER-4

Condition SOIL&WATER-4 as proposed by CEC Staff, imposes an annual water use limit on the PEF Expansion, imposes a requirement to install and maintain a metering device for the expanded facility, and imposes a requirement to monitor and record the total water use of the expanded facility on a monthly basis. These requirements were not included in the water-use condition for the existing PEF (See PEF (99-AFC-7) **SOIL&WATER-5**, as amended in 2001).

As noted in the PEF Expansion Final Staff Assessment, dated November 28, 2005, CEC Staff agrees that the existing PEF does not significantly impact water resources in any way. Furthermore, Staff concedes that the PEF Expansion will require only a very small increase in water consumption relative to the current PEF water consumption rate and would not cause a significant adverse impact on water resources [FSA, p. 4.9-1].

However, while staff has determined that there is no impact to project water supplies from the PEF Expansion, staff is still requiring Condition SOIL&WATER-4 [FSA, pages 4.9-7 through 4.9-9 and 4.9-14 through 4.9-16].

Staff believes “that without these provisions, there would be no limit to the amount of water that the project could use and no means by which to ensure that the proposed water-conservation processes were implemented.”

Staff is incorrect for several reasons. First, apart from new meters and monitors, there are very practical and obvious limits on the amount of water that the PEF Expansion could use. These limits are a function of the physical operation of the facility, its engineering and design, and contractual limits from the Wheeler Ridge Maricopa Water Storage District (WRMWSD). Second, these contractual limits and further support that a separate meter for the PEF Expansion are not necessary are summarized in the WRMWSD comment letter on the PSA dated October 19, 2005 [as cited in the FSA Response to Agency and Public Comments Section, p. 4.9-20 and 4.9-21]. The WRMWSD asserts that separate metering is not necessary because all water deliveries to the existing PEF are already metered by the WRMWSD.

Third, additional metering is not the only means of ensuring that specified water-conservation practices are implemented. The facility is open to

inspection by CEC Staff and appropriate water agencies and compliance with any required water conservation processes can be easily verified at any time.

Fourth, assuming solely for the sake of argument that the water consumption of the expanded facility was 100% larger than the Applicant's estimate of a maximum of 55 acre feet per year (a level of consumption that is impossible to achieve), this level of consumption would still be just 5% of the consumption of the existing facility, a level of consumption that the Commission has found will not cause any significant adverse impact.

Therefore, because even a worst-case scenario regarding water use of the PEF Expansion will not create a significant adverse impact on water resources, there is absolutely no justification for imposing the cost and burden of additional meters, monitoring and reporting. The applicant proposes to obtain water through the existing PEF water contracts, which contain more than adequate amounts to meet the combined PEF and PEF Expansion water needs.

Staff argues that its proposed annual limit on water use by the expanded facility is reasonable because "staff has added a provision by which the water-use limit may be modified if unforeseen conditions warrant a change. Staff's proposed water-use limitations for **SOIL&WATER-4** would permit the project owner to increase water use for PEF Expansion above 55 acre-feet per year if the owner obtains prior approval from the CPM. Approval would be granted by the CPM if the project owner could demonstrate that the requested increase is necessary and is not caused by wasteful practices or malfunctions in the water processing systems.

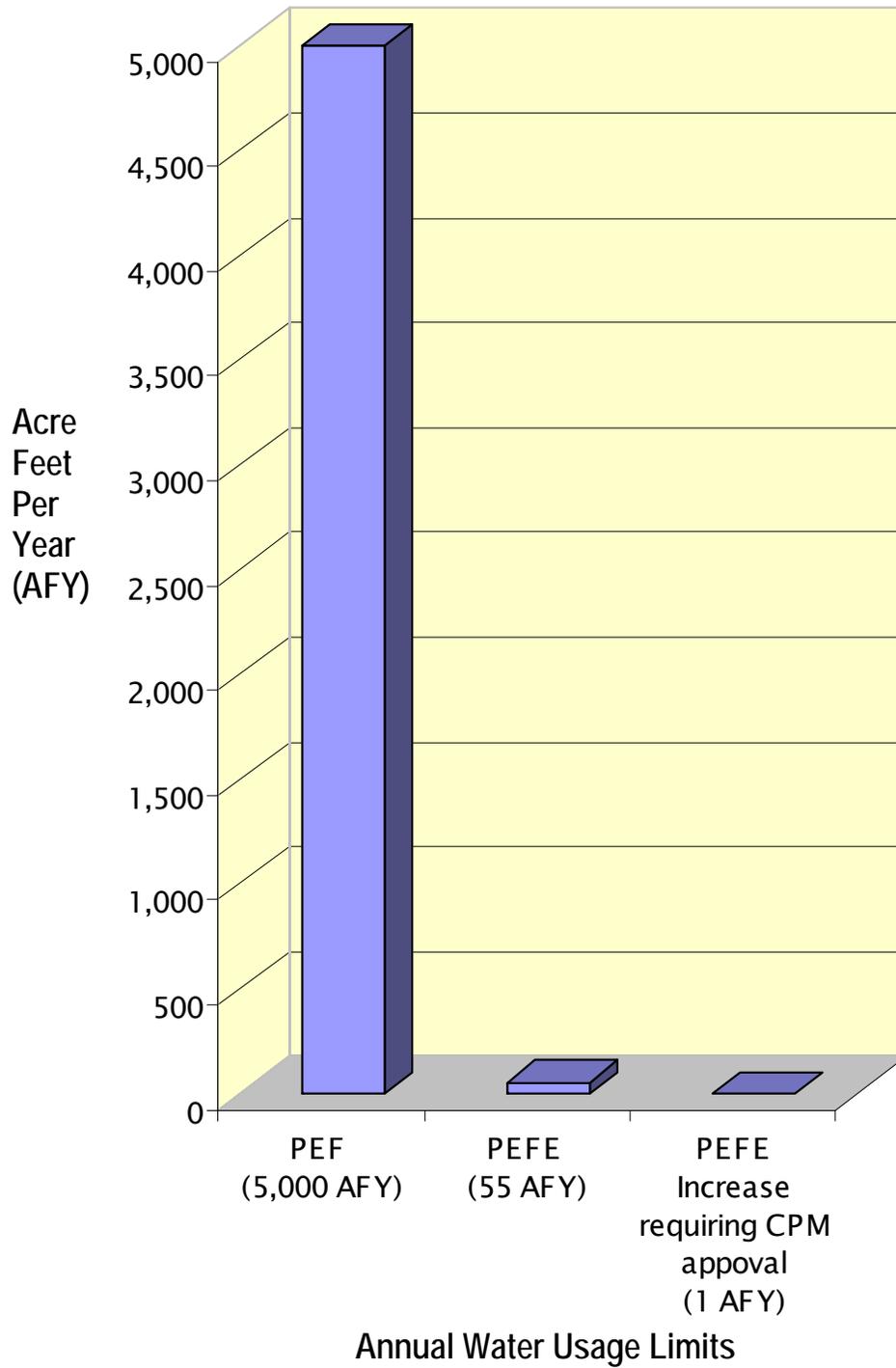
However, when these proposed requirements are put in proper perspective, it is readily obvious that the burden far exceeds any possible benefit. The Staff is proposing that for a facility that will consume up to 5000 acre feet per year of water, it is necessary to require metering and reporting requirements in order to prevent the PEF Expansion from consuming even 1 acre foot above an arbitrary annual limit of 55 acre feet per year. To prevent a consumption increase of as little as little as 1/5th of 1%, the Staff would impose requirements of metering, monitoring, reporting, petitions, administrative review and perhaps even hearings before the full Commission, All of this for what might be as little as one acre foot of water. We believe the following graph depicts the absurdity of this burden.

With regards to water metering, staff correctly notes both water contracts state that the supplying agency is responsible for metering the total amount of water delivered. However, because "the supplying agencies have no means by

which to monitor the amount of water used by PEFE”, Staff recommends that the Commission mandate a meter dedicated to the expanded facility. However, the water agencies will not separately monitor water delivered to the PEF Expansion because they have no need for this information. Similarly, as shown above, the Commission has no compelling need for this information either. In the absence of any applicable LORS and any impact to be mitigated, the Staff’s proposed condition Soil and Water-4 should be rejected.

In lieu of the Staff’s proposed condition, the Commission should adopt a simple requirement for the Applicant to report annual total consumption of the existing and expanded facility. Such a requirement would not require installation of new meters or additional monitoring.

**PRESENTATION OF DATA TO SUPPORT CALPINE'S
RESPONSE TO SOIL&WATER-4**



Applicant's Testimony

Traffic and Transportation

Exhibit 14

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl
- B. **Purpose:** This testimony addresses Traffic and Transportation issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines) and offshore oil and gas facilities with onshore processing and storage components. Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No. 1, Section 5.11.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 5 Conditions of Certification be adopted to address traffic and transportation issues. These conditions, TRANS-1 through TRANS-5 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's traffic and transportation impacts. We have reviewed the Condition of Certification set forth in the FSA and find it to be acceptable.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

Significant effects on the local transportation system are not expected from the PEF construction activities for the following reasons:

The construction traffic requirements include that construction of the PEF Expansion project will require a total construction workforce of 146 workers on average, assuming a single shift and a 40-hour workweek. Of the 146 workers, approximately 30 will be field staff. Based on Calpine's experience

during the construction of the existing PEF, about 15 of the field staff are expected to commute from a non-local region. During the peak construction period (in the 7th month after the Notice-To-Proceed) an estimated 225 construction workers will be required for PEF Expansion. Of the 225 workers, 210 are assumed to be local workers and the remaining 15 will make up the non-local workforce. Construction of the PEF Expansion project could result in a total of approximately 146 vehicle trips per day on average, and about 225 vehicle trips per day during the peak construction period. As a result of these vehicle trips, there will be no change to the LOS of any project area roads for average or peak hour conditions. Further, due to the remote location of the PEF site, area intersections do not presently exceed LOS levels.

The projected number of truck deliveries over the construction period is not expected to significantly impact truck/passenger car traffic ratios of the surrounding network as it currently exists.

No additional operating staff will be required for operations of the PEF Expansion project. Further, it is not expected that the number of truck deliveries of hazardous materials and acutely hazardous materials will increase with the addition of the PEF Expansion. Therefore, traffic and transportation impacts are not expected to result from implementation of the PEF Expansion.

Applicant's Testimony

Transmission Line Safety and
Nuisance

Exhibit 15

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Transmission Line Safety and Nuisance issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 3.6.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that one Condition of Certification be adopted to address Transmission Line Safety and Nuisance. This condition, TLSN-1, addresses engaging a qualified individual to measure the strengths of the line electric and magnetic fields from the PEF line before and after the introduction of the energy from the proposed PEF Expansion. We have reviewed the Condition of Certification and find it to be acceptable.

III. Summary

Generation of Electric and Magnetic Fields. Power lines, electrical wiring, electrical machinery and appliances all produce electric and magnetic fields, commonly referred to as EMF. The electric and magnetic fields produced by PEF Expansion power system have a frequency of 60 Hertz (Hz), meaning that the intensity and orientation of the field changes 60 times per second. This section addresses the estimates of the maximum possible electric and magnetic field strengths that will be produced by the PEF Expansion transmission facilities. These estimates are computed for a height of one meter above the ground and include the canceling effects of other electrical transmission lines existing along the proposed transmission line right of way.

When a conductor is energized, an electric field is formed around the conductor that is proportionate to the energization voltage. The strength of the electric field is independent of the current flowing through the conductor. When alternating current (AC) flows through a conductor, an alternating magnetic field is created around the conductor. Overhead AC transmission lines carry power over three conductors with currents and voltages that are 120 degrees out of phase with each other. The fields from these conductors tend to cancel out because of the phase difference. However, when a person stands on the right of way under a transmission line, one conductor is always significantly closer and will contribute a net uncanceled field at the person's location. The strength of the magnetic field depends on the current in the

conductor, the geometry of the structures, the degree of cancellation from other conductors, and the distance from the conductors.

Line Loads for EMF Calculation. Maximum magnetic fields are produced when the maximum amount of electric load is flowing through the conductor. The EMF analysis in the existing PEF AFC utilized a maximum line loading based on 1,000 MW at a power factor of 90 percent. This loading converts to approximately 2,790 amps per phase at 230 kV. Therefore, no further EMF calculation is needed for the PEF Expansion.

Calculation Methods. To estimate the maximum fields, calculations are performed at mid-span where the conductor is positioned at its lowest point between structures (the estimated maximum sag point). The magnetic fields are computed at one meter above ground. The BPA Corona and Fields Effects program was used to calculate the magnetic field strengths for the line. This program and others like it has been used to predict electric and magnetic field levels that have been confirmed by field measurements by numerous utilities.

All loads on all circuits on the same tower are assumed maximum and taken at normal plant operating conditions. The dimensions of the existing power lines were based on preliminary information received from SCE.

Electric Fields Along the Rights of Way. Calculated electric field strengths at the left and right edges of the proposed right of way, as derived from the structure configuration sketches and corresponding field strength graphs, are included in Attachment A of Exhibit 1. Note that at the edge of 80 feet right of way from the centerline on the east side, the electric field level is approximately 0.06 kV/meter.

Magnetic Fields Along the Rights of Way. Calculated magnetic field values at the left and right edges of the proposed right of way, as derived from the structure configuration sketches and corresponding field strength graphs, are included in Attachment A of Exhibit 1. Note that for maximum current flow, the magnetic field at the edge of 80 feet right of way from the centerline on the east side is approximately 15 mG. The magnetic field values are not impacted by the PEF Expansion.

The PEF Expansion requires no modifications to the existing PEF offsite linear facilities including electric transmission. The PEF Expansion has no significant incremental impacts on aviation safety, audible noise, radio interference, induced currents, or electric or magnetic fields relative to the existing PEF

Applicant's Testimony

Visual Resources

Exhibit 16

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Visual Resource issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 5.13.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 2 Conditions of Certification be adopted to address visual resource issues. These conditions, VIS-1 and VIS-2, address applicable federal, state, and local laws, ordinances, regulations, and standards dealing with visual resource issues. We have reviewed the Conditions of Certification set forth in the FSA and find them to be acceptable.

III. Summary

The only changes to visual resources for the PEF Expansion will result from the addition of a new combustion turbine stack with a maximum height of 131 feet that is less than the existing stacks that are 150 feet in height. In evaluating the impact to visual resources, the addition of the stack is considered a small addition to the existing PEF.

During the processing of 99-AFC-7, CEC staff concluded that the most prominent key observation point (KOP 2) of the PEF site is from Interstate 5, approximately 6.5 miles west of the PEF site. Views from Edmonston Pumping Plant Road (KOP 1) and Laval Road (KOP 3) were determined to be less important given the relatively few number of viewers, the surrounding visual context, and the view blockage by other structures and vegetation.

During the Discovery Phase of 99-AFC-7, CEC staff presented several data requests relating to the potential impacts of visible plumes from the PEF. In response to the CEC Data Requests, the Applicant conducted an investigation into where and how plumes from the PEF HRSG stacks and cooling towers could be seen in the vicinity of the project, with special attention given to potential impacts to KOP 2. The investigation concluded that significant visual impacts are not expected to result from visible plumes emanating from PEF.

Since the existing facility, including the visual plumes, was determined not to create a significant impact, this almost imperceptible addition of the combustion turbine stack does not change the original finding that the impacts are less than significant.

Applicant's Testimony

Waste Management

Exhibit 17

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Waste Management issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 5.14.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 5 Conditions of Certification be adopted to address Waste Management issues. These conditions, WASTE-1 through WASTE-5, address applicable federal, state, and local laws, ordinances, regulations, and standards dealing with visual resource issues. We have reviewed the Conditions of Certification set forth in the FSA and find them to be acceptable.

III. Summary

The following sections describe the wastes that are expected to be generated during the construction and operation of the PEF Expansion.

Non-Hazardous Solid Waste

Construction. The types of wastes generated during construction include debris and other materials requiring removal during site grading and excavation including excess concrete, lumber, scrap metal, insulation, packaging, and empty non-hazardous containers (see Table 3.4.9-1 of this application).

Operation. Non-hazardous solid wastes generated during operation of the generating plant will include routine maintenance solid waste, office waste, CTG used air filters, and oily rags (see Table 3.4.9-2 of this application).

It is anticipated that disposal of solid waste from the PEF Expansion, as well as the existing PEF, will represent only a nominal (less than 0.01 percent) increase relative to current disposal volume at the Bena Sanitary Landfill, and a negligible increase as compared to the combined current disposal volumes at the landfills in the vicinity of the generating plant site. These increases will not significantly alter available landfill capacity and can be considered insignificant.

Wastewater

Construction. Wastewater generated during construction is not expected to change from the existing PEF.

Operation. The wastewater collection system remains unchanged from the existing PEF.

Process wastewater will be treated in an onsite zero discharge system. This will reduce the plant demand for raw water supply. The zero discharge system will generate approximately two to four cubic yards per day of non-hazardous salt cake, which will be disposed of at an offsite Class III Landfill if classified as non-hazardous, or at an offsite Class I or II facility if classified as a “designated waste.” The quantity of salt cake that will be generated has not increased from the quantity estimated in 99-AFC-7.

Hazardous Wastes

Construction. Small quantities of hazardous wastes and used oil will likely be generated over the course of construction of the PEF Expansion. These may include waste paint, spent solvents, spent welding materials, and spent batteries.

Operation. A description of the hazardous wastes to be generated during operations is presented in Section 3.4.9, summarized in Table 3.4.9-2 of this application, and described in more detail in Section 5.14 of 99-AFC-7, included for reference in Attachment M of this application.

The hazardous waste quantities generated by the PEF Expansion, and the existing PEF combined, will be minimal and the facility will likely be classified as a Small Quantity Generator. The used oil expected to be generated by the existing PEF and the PEF Expansion will be transported by a licensed transporter to an existing oil petroleum recycling facility in California, which has an estimated capacity of 187,263 tons per year (California Department of Toxic Substances Control [DTSC], 1994). Hazardous waste capacity assurance documents for California have not been prepared since 1993 because DTSC and EPA believe that the hazardous waste treatment capacity in the State is more than sufficient for hazardous wastes generated within the state (Radimsky, 1998). Hazardous waste generated during operation of the generating plant will not have significant impacts upon available hazardous waste treatment and disposal capacity.

The additional non-hazardous solid waste, wastewater, and hazardous waste expected to be generated by the PEF Expansion and the existing PEF will not

significantly impact available landfill, hazardous waste treatment, or wastewater discharge capacity.

Worker Safety and Fire Protection

Exhibit 18

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl
- B. **Purpose:** This testimony addresses Worker Safety and Fire Protection issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit No.1, Section 5.17.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that three Conditions of Certification be adopted to address worker safety and fire protection issues. These conditions, WORKER SAFETY-1 through WORKER SAFETY-3 address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's worker safety and fire protection impacts. We have reviewed the Condition of Certification set forth in the FSA and find it to be acceptable.

III. Summary

The PEF Expansion consists of a nominal 160 MW simple cycle combustion turbine generator. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF.

In addition to the existing worker safety programs in effect at the PEF, prior to the start of construction of the PEF Expansion project, a Construction Safety Program will be developed that will include information on the hazards associated with this project, and the control measures that must be implemented to protect construction personnel and visitors from identified hazards. It will also outline procedures to which project staff will adhere as they operate the facility in compliance with the LORS. The primary components of the Construction Safety Program will include the following: Injury and Illness Prevention Program, Fire Protection Prevention Plan, Personal Protective Equipment Program, and Emergency Action Plan.

Periodic audits will be performed by qualified individuals to determine whether proper work practices are being used to mitigate hazardous conditions and to evaluate regulatory compliance.

In addition to the existing worker safety programs in effect at the PEF, during general operation of the PEF Expansion project, workers may be exposed to various health and safety hazards. Operational hazards will be managed through the implementation of a comprehensive Operational Health and Safety Program. The major elements of this program will include: an Operations Injury and Illness Prevention Program, Fire Protection Prevention Plan, Personal Protective Equipment Program, a Hazardous Materials Management Program, and an Emergency Action Plan. Periodic audits will be performed by qualified individuals to determine whether proper work practices are being used to mitigate hazardous conditions and to evaluate regulatory compliance.

Applicant's Testimony

Facility Design

Exhibit 19

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Facility Design issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 3.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 20 Conditions of Certification be adopted to address Facility Design issues. These conditions, GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, and ELEC-1, address applicable federal, state, and local laws, ordinances, regulations, and standards dealing with Facility Design issues. We have reviewed the Conditions of Certification set forth in the FSA and find them to be acceptable.

III. Summary

With the proposed Conditions of Certification contained in the Final Staff Assessment, the project will comply with all applicable federal, state and local laws, ordinances, regulations and standards, and remaining potential impacts, if any, are mitigated to a level that is less than significant.

Applicant's Testimony

Geology and Paleontology

Exhibit 20

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Geology and Paleontology issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Sections 5.3 and 5.8.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 7 Conditions of Certification be adopted to address Paleontology issues. These conditions, PAL-1 through PAL-7, address applicable federal, state, and local laws, ordinances, regulations, and standards dealing with Paleontology issues. We have reviewed the Conditions of Certification set forth in the FSA and find them to be acceptable. There are no Conditions of Certification for Geology.

III. Summary

The PEF Expansion will share common facilities with the existing PEF so the site disturbance remains unchanged from the existing PEF. Consequently, no new impacts to geological hazards and paleontology resources are expected as a result of the PEF Expansion.

With the implementation of the applicable Conditions of Certification, no significant unavoidable adverse impacts to paleontology resources are anticipated due to construction or operation of the PEF Expansion.

I. Introduction

A. **Name:** Andrew Whittome, Rick Tetzloff, and Gary Rubenstein

B. **Purpose:**

This testimony addresses the power plant efficiency issues raised by the Committee and associated with the proposed Pastoria Energy Facility Expansion Project.

C. **Qualifications:**

Andrew Whittome - Calpine Corporation. Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Rick Tetzloff, B.S.M.E., P.E., - Calpine Corporation. Mr. Rick Tetzloff is the Project Engineer for the Pastoria Energy Facility Expansion Project. In addition to the PEFE project, Mr. Tetzloff has worked on numerous power plant development projects in California and the Pacific Northwest for Calpine.

Gary Rubenstein – Sierra Research. Mr. Rubenstein is a Senior Partner in the firm of Sierra Research, an air quality consulting firm located in Sacramento, California. He has a Bachelor of Science degree in Engineering from the California Institute of Technology. Mr. Rubenstein has testified on issues related to power plant efficiency in the MID Electric Generating Station (MEGS) and Los Esteros Critical Energy Facility (LECEF) Phase I relicense proceedings.

D. Prior Filings:

In addition to the statements herein, this testimony includes by reference the documents submitted in this proceeding that are listed below:

- Application for Certification, Pastoria Energy Facility Expansion Project, dated April 2005, Exhibit 1, Sections 1.3 (Facility Location and Description), 3.4 (Facility Description), and 5.2 (Air Quality), to the extent those sections provide supporting information for the testimony provided herein. (Docket No. 34217)

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The Commission Staff have not proposed any conditions of certification related to power plant efficiency. However, the Staff have proposed a sample condition should the Committee choose to impose one. This condition is based on, but substantively different from, the condition proposed by Applicant in response to the Committee's concerns raised last year. Applicant objects to the Staff's proposed condition, and restates its proposal, as discussed in further detail below.

III. Summary

The Commission Staff has concluded that the simple cycle turbine proposed for PEFE "if constructed and operated as proposed, would generate a nominal 160 MW of peaking and load following electric power, at a fuel efficiency of 35.1 percent LHV at full load. While it would consume substantial amounts of energy, it would do so in the most efficient manner practicable. It would not create significant adverse effects on energy supplies or resources, would not require additional sources of energy supply, and would not consume energy in a wasteful or inefficient manner."

Applicant agrees with this statement without reservation. Thus, both Applicant and Staff agree that the proposed project would not create a significant adverse effect on energy supplies and resources.

The issue raised by the Committee is whether the project should be denied certification, or otherwise restricted in operation, simply because a combined cycle unit would be more efficient. However, California's electrical supply consists of a

number of generating resources for both base load and peaking resources. Recent requests for proposals issued by the state's two largest utilities – Southern California Edison Company and Pacific Gas & Electric Company – specifically requested proposals for the construction and operation of peaking generation facilities. Thus, Applicant respectfully suggests that a Commission decision to deny certification to, or restrict operation of, the proposed PEFE project would place the Applicant at a severe disadvantage when responding to the clear requests of the state's largest utilities for new generating resources.

As the Commission itself explained so well in the 2005 Integrated Energy Policy Report, electricity demand in California, which increases most dramatically in the summer, is becoming increasingly more “peak-driven”. “Though peak demand periods typically occur only between 50-100 hours a year, they impose huge burdens on the electric system.” (IEPR, p. 43)

According to the IEPR, “One problem with meeting peak demand is that most new gas-fired power plants are combined-cycle units designed to run at high load factors where they are most efficient and can generate enough revenue to recoup investments. Combined-cycle plants also have less capability to ramp up and down to meet peak demand than the older steam boiler units, which make up the majority of California's fleet of power plants. While some utilities have invested in simple-cycle peaking plants that run just a few hours each year, most of the state's new power plants are combined-cycle and are not well matched with swings in system demand. California must quickly and thoughtfully craft solutions for meeting this increasingly ‘peaky’ demand.” (IEPR, p. 44) Clearly, one quick and thoughtful solution to meeting this peak demand is to permit the construction of new simple-cycle peaking plants to meet increasing peak demand needs, without placing arbitrary limits on the capability of these new peaking units to operate that may make it impossible to finance these plants or market their power.

There are several advantages to the state associated with the construction and operation of a simple cycle peaking facility at PEF:

- Quick ramp-up times and lower emissions during startups.
- Voltage and frequency control.
- Automatic generation control (AGC).
- VAR support.
- Spinning reserve – can operate at lower loads than CC (lower NG consumption). In accordance with the WECC Minimum Operating Reliability Criteria (MORC), spinning and non-spinning reserves must meet the following criteria.

- Spinning Reserves:
 - The portion of unloaded synchronized generating capacity that is immediately responsive to system frequency and that is capable of being loaded in 10 minutes and that is capable of running for at least 2 hours.
- Non-spinning Reserves:
 - The portion of off-line generating capacity that is capable of being synchronized and ramping to a specified load in 10 minutes (or load that is capable of being interrupted in 10 minutes) and that is capable of running (or being interrupted) for at least 2 hours.
- More efficient than most natural gas and coal thermal plants.
- Simple cycle plants cycle better than combined cycle plants. Combined cycle plants may need to remain on-line during off-peak hours when power is not needed due to slow ramp up times for next peaking period.

The Applicant acquired the PEF from another energy developer, who had obtained a license from the California Energy Commission for the project without any peaking capability whatsoever. The Applicant's other projects before this Commission – including the Sutter Energy Project, Delta Energy Center, Metcalf Energy Center, Russell City Energy Center, East Altamont Energy Center, San Joaquin Valley Energy Center, Inland Empire Energy Center, and Los Esteros Critical Energy Facility all incorporated peaking capability through the use of supplemental duct firing. The PEF project originally approved by the Commission included no such peaking capability, despite clear and consistent indications that California requires peaking energy supplies to at least as great an extent – if not a greater extent – than it does baseload generating capacity.

The Applicant had two options for adding peaking capabilities to PEF. The first would have been to redesign the project to incorporate supplemental duct firing. However, this approach would have required substantial time and resources, as the heat recovery steam generators, steam turbines, and cooling water system would have all had to have been redesigned, thus substantially delaying the project at a time when California's needs for additional generating capacity were critical. The second approach, which is the approach selected by the Applicant, was to design a separate, independent peaking combustion turbine to serve the same purpose as the addition of peaking supplemental duct firing capacity. This second approach presented numerous advantages as compared with the duct firing approach:

- No changes to the combined cycle facility would be required, thus enabling construction of the combined cycle facility to continue in parallel with the design and licensing of the simple cycle facility.
- Ramp-up of the peaking capacity would be as quick as, if not quicker than, that associated with supplemental firing.

- The additional water consumption associated with supplement duct firing (for make-up water for the cooling towers) would be avoided.

There has been no evidence in this proceeding that operating up to 8760 hours per year would have any significant adverse impacts on energy resources. Furthermore, all of the environmental and energy resources impacts have been fully analyzed and mitigated based on operating 8760 hrs/yr operation. Finally, although the simple cycle configuration might be less efficient than a combined cycle configuration, and as the Staff has suggested, operation of the simple cycle unit is not likely to occur at high capacity factors except on an infrequent basis.

There are several adverse impacts that would result if operating hours are limited for the simple cycle unit:

- The availability of very efficient and clean facility to provide power when the area or state needs the power the most would be limited.
- Calpine's value of facility to providing capacity and ancillary services to customers would decrease, thus placing the company at a competitive disadvantage as compared with other power generators with unrestricted peaking capability.
- Conflicts with mechanics of supply and demand which, as the Staff has indicated, would efficiently limit the use of the simple cycle unit to times when the power would be needed.
- If this project were restricted and could not operate when needed, less efficient generation would then need to operate to fill the void. The next lowest cost generator is typically what is dispatched for the next incremental capacity that is needed. The next lowest cost generation facility normally corresponds with the most efficient facility of remaining available facilities since fuel is the largest component of a plant's operating (dispatch) cost. If PEFE was not allowed to operate, a less efficient facility would then be dispatched. This less efficient facility would almost certainly have higher emissions per megawatt hour of electricity produced.

There are only limited periods during which PEFE might be called on to operate for 8760 hours in a year:

- An energy crisis due to an insufficient supply of generation to satisfy the state's needs.
- Disasters – earthquake, forest fires, terrorism, prolonged drought in the Pacific Northwest.
- Extended unplanned outages on transmission system and/or at large generators (such as nuclear generating stations).

These infrequent events are not predicted to occur with sufficient frequency as to support the construction of a combined cycle facility to provide peaking capacity during these periods. Thus, the likely effect of a restriction on the operating

potential for PEFE would be an inability to construct this (or any other) unit to serve the state's peaking needs.

As discussed above, the environmental and energy resource impacts associated with the construction and operation of PEFE for up to 8760 hours per year have been analyzed and found to have been mitigated to a less than significant level. In the case of some impacts, such as air quality, the benefits are overwhelming. For air quality, emission offsets have been provided to mitigate the impacts of operating the PEFE unit at full load for 8760 hours per year for the entire life of the facility. Even if the Commission were to restrict annual operations to some lower level, PEFE would still have to provide the same level of offsets – for 8760 hours per year – because of the San Joaquin Valley Air Pollution Control District's (SJVAPCD) provisions regarding emission offsets. The SJVAPCD requires that offsets be provided for each calendar quarter. Thus, for PEFE to be able to offer customers the ability to operate just 2190 hours per year – but in any calendar quarter of the customer's choosing – PEFE has to obtain an air permit allowing operation up to 2190 hours per quarter for *each* calendar quarter of the year.

Applicant's proposed condition – originally presented in Applicant's comments on the Preliminary Staff Assessment, and restated below – is designed to ensure against precisely what the Committee has expressed concerns about – consistent operation of the simple cycle facility, year after year, at high capacity factors. Applicant believes that its proposed condition would protect against such operation – no matter how unlikely – for the life of the facility, without unduly restricting operations so as to make the project unattractive to potential customers.

ENERGY RESOURCES-1.

- a. Except as provided in paragraph b, in the event the simple cycle unit generates 1,280,000 MW hours per year or more for 2 consecutive years, the project owner will, at its option, do one or more of the following to ensure that the project will not continue to operate at that level of energy production:
 1. File an application with the CEC to convert the project to a combined cycle plant,
 2. File an application with the CEC to construct a new combined-cycle plant.
- b. The provisions of this condition shall not apply to generation dispatched by a California utility, or by the California Independent System Operator or a successor entity.
- c. If an application under items a.1 or a.2 is not filed within 6 months after the end of the second consecutive year, the simple cycle unit is prohibited from operating at more than 30 percent of its

maximum annual energy production until this condition is satisfied.

Verification: The project owner shall include in its Annual Compliance Report, or in a separate report filed at a time agreed to by the CPM, a summary of the total megawatt hours of operation for the simple cycle turbine, and the megawatt hours of operation in response to dispatches by a California utility or the California Independent System Operator (or successor entity), for the prior year. If the project generates 1,280,000 MW-hours or more for 2 consecutive years, excluding generation in response to dispatch by a California utility or the California Independent System Operator (or successor entity), the project owner shall file its application to the CEC under items a.1 or a.2 within 6 months after the end of the second consecutive year.

IV. Conclusion

The Pastoria Energy Facility Expansion project has been designed to have minimal environmental impacts. In fact, the Project's impacts have been mitigated to a less-than-significant level even based on the unlikely occurrence of operation 8760 hours during each year of the project's life. Notwithstanding the fact that there are no significant, unmitigated environmental impacts associated with unrestricted operation of the project, the Applicant has proposed a condition requiring conversion of the facility to a combined cycle unit, or construction of a new combined cycle unit, in the unlikely event that market conditions result in high levels of operation for two consecutive years.

The Staff's proposed condition, or any similar restriction, may well prevent – as a practical matter – the construction and operation of this, or any other, simple cycle generating facilities in California. This would be despite the unquestioned need for such facilities, as evidenced by the two most recent procurement requests issued by the state's largest utilities. The Applicant is also aware that other parties have recently filed Applications for Certification for much larger peaking generating facilities in the state. The Applicant expects that the Commission will, as it has in the past, ensure that all applicants for licenses are treated in a consistent and equitable manner.

Applicant's Testimony

Power Plant Reliability

Exhibit 22

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Power Plant Reliability issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Section 4.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

There are no Conditions of Certification for Power Plant Reliability.

III. Summary

The PEF Expansion is expected to provide high availability and to be more responsive than most generation facilities to system demand during periods of peak load, particularly during periods of high ambient temperature. PEF Expansion outage rates are expected to be low. Planned outages will be scheduled during the spring hydrogeneration peak. Most other outages will occur during off-peak periods.

Applicant's Testimony

Alternatives

Exhibit 24

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses Alternatives associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

- D. **Prior Filings:** In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:
- Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pastoria Energy Facility

Expansion Project, dated June 9, 2005, Exhibit 24A, Alternatives Section.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

There are no Conditions of Certification for Alternatives.

III. Summary

The “No Project Alternative” would consist of not developing the PEF Expansion. This Alternative would not meet California’s objective to license the most efficiently running power plants possible, as intended under PRC Section 25552. SCE is soliciting proposals for new generation facilities that meet specific criteria and the PEF Expansion project meets the criteria.

Since the existing PEF was approved and constructed and commercial operations have commenced, there are no reasonable alternative sites for the PEF Expansion.

All of the linear facilities necessary to develop the PEF 160 MW Expansion have been constructed and are in place. Thus, no reasonable alternatives for the linear facilities were identified.

Because the existing PEF anticipated the addition of an expansion of similar generating capacity, no alternative configurations were identified for the 160 MW Expansion project.

Since the existing PEF was approved and constructed and commercial operations have commenced, there are no reasonable alternative technologies to meet the goal of operation of the existing PEF and the proposed PEF Expansion.

Applicant's Testimony

General Conditions Including Compliance Monitoring
and Closure Plan

Exhibit 25

I. Introduction

- A. **Name:** Andrew Whittome and Jennifer Scholl.
- B. **Purpose:** This testimony addresses General Conditions Including Compliance Monitoring and Closure Plan issues associated with the Pastoria Energy Facility Expansion proceeding.
- C. **Qualifications:** *Andrew Whittome - Calpine Corporation.* Mr. Whittome is the Project Development Manager for the Pastoria Energy Facility 160 MW Expansion. In addition to the PEFE project, Mr. Whittome has worked on numerous power plant development projects.

Jennifer Scholl – AFC Project Manager. Ms. Scholl has more than 16 years of experience in environmental planning and permitting of complex and controversial development projects requiring California Environmental Quality Act and National Environmental Policy Act compliance. Specifically, Ms. Scholl has been involved with the permitting and construction compliance for power generation projects and ancillary facilities (i.e., transmission, gas, water, and sewer lines). Ms. Scholl has served as Project Manager or Senior Task Leader for the preparation of several Applications for Certification (AFCs) before the California Energy Commission (CEC). In addition to managing the preparation of AFCs, Ms. Scholl has also managed several construction compliance efforts for power plants, including preparing CEC license amendments, and has also served in an advisory capacity to Independent Power Producers investigating opportunities for new power plants in California.

Copies of their resumes are attached.

D. Prior Filings: In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Application for Certification, Pastoria Energy Facility Expansion, dated April 25, 2005, Exhibit 1, Sections 3.10 and 9.

To the best of our knowledge, all of the facts contained in this testimony (including all referenced documents) are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements, and render these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

II. Proposed Licensing Conditions

The FSA for the project filed by the CEC recommends that 15 Conditions of Certification be adopted to address general conditions including compliance monitoring and closure plan issues. These conditions, COM-1 through COM-15 address applicable federal, state, and local laws, ordinances, and regulations dealing with general compliance issues and closure. We have reviewed the Conditions of Certification set forth in the FSA and find them to be acceptable.

III. Summary

With the proposed Conditions of Certification contained in the Final Staff Assessment, the project will comply with all applicable federal, state and local laws, ordinances, regulations and standards, and remaining potential impacts, if any, are mitigated to a level that is less than significant.

STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

In the Matter of:)
) Docket No. 05-AFC-1
Application for Certification for the Pastoria Energy)
Facility (PEF) 160 MW Expansion by Calpine)
Corporation)
_____)

PROOF OF SERVICE

I, Karen A. Mitchell, declare that on January 10, 2006, I deposited copies of the attached *Applicant's Testimony* in the United States mail in Sacramento, California, with first-class postage thereon fully prepaid and addressed to all parties on the attached service list.

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

Karen A. Mitchell

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05-AFC-1

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