Supplement to Preliminary Staff Assessment

LOS ESTEROS CRITICAL ENERGY FACILITY II PHASE 2

Application For Certification (03-AFC-2)
Santa Clara County

CALIFORNIA ENERGY COMMISSION

STAFF REPORT

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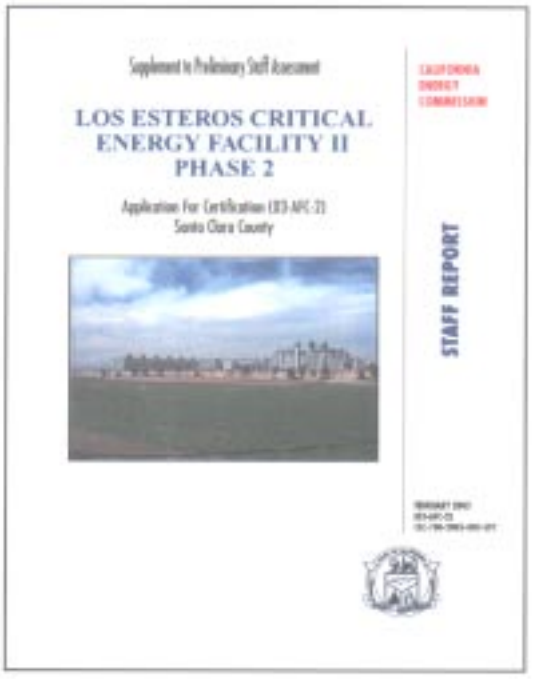

CALIFORNIA ENERGY COMMISSION

SITING OFFICE

Robert Worl
Project Manager

Eileen Allen
Licensing Program Manager

SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

Terrence O'Brien
Deputy Director

TRANSMISSION LINE SAFETY AND NUISANCE

Obed Odoemelam, Ph.D.

INTRODUCTION

The energy from the operating Los Esteros Critical Energy Facility (LECEF) is currently being delivered to the Pacific Gas and Electric (PG&E) power grid through a 150-ft, overhead, wood-pole 115 kV transmission line connecting the project's switchyard to PG&E's 115 kV Los Esteros-Nortec transmission line immediately to the west of the switchyard. While Phase 1 of the present application seeks to re-certify the existing 180 megawatt (MW) simple-cycle gas-fired project and its 115 kV line, Phase 2 seeks a permit to convert the LECEF to a 320 MW combined-cycle project increasing power generation by 140 MW. The generated power would be transmitted at 230 kV through two new 200-ft overhead lines connecting the upgraded facility to a new Silicon Valley Power (SVP) Switching Station located immediately north of the existing LECEF power plant substation (LECEF 2003, pp. 2-1, 2-13, 5-1, and 5-7). The new SVP Switching Station will connect PG&E's Los Esteros Substation to the SVP Northern Receiving Station (LECEF 2003, p. 5-1). At the completion of the Phase 2 combined-cycle conversion and interconnection to the SVP Switching Station, the current Phase 1 115 kV connection to the Los Esteros-Nortech line will be removed.

The new Phase 2 230 kV, 200-ft line would lie within the boundaries of LECEF and the SVP Switching Station where there would be neither public access nor nearby residences. As with the existing 115 kV Phase 1 line, this lack of public access and nearby residences means that the long-term residential field exposures and other field impacts at the root of the present health and safety concern would be insignificant during operations. Since electric power is the product of applied voltage and current level, transmitting the generated power at 230 kV would reduce the level of magnetic field that would have resulted from continued transmission at the 115 kV being applied to the Phase 1 line. The applicant proposes to design, build, and operate the proposed Phase 2 lines in compliance with the applicable safety Laws, Ordinances, Regulations, and Standards regarding aviation safety, interference with radio-frequency communication, audible noise, fire hazards, hazardous shocks, nuisance shocks, and electric and magnetic field exposure (LECEF, 2003, p. 5-1). These categories of impacts and related mitigation measures were addressed in the Final Staff Assessment (CEC, 2002), and summarized in the Commission Decision for the original LECEF (CEC, 2002b, pages 89-92).

The Final Staff Assessment for Phase 1, published November 15, 2004, discusses the recertification of the current simple-cycle facility. Staff has further reviewed the applicable laws, ordinances, regulations and standards (LORS) for any changes that apply to the proposed Phase 2 combined-cycle application. Based upon these reviews and the information in the current Phase 2 AFC (03-AFC-2), staff concludes that there would be no unmitigated environmental impacts resulting from permitting the new 230 kV Phase 2 lines as proposed by the applicant.

The specific proposal to design, build and operate these new 230 kV lines according to the listed CPUC requirements and industry practices constitutes compliance with the health and safety LORS of concern to staff. Staff's line-related recommended conditions of certification are listed below.

The purpose of this staff analysis is to assess the proposed interconnection line's construction and operation plan for incorporation of the measures necessary to minimize the related field and non-field impacts whose reduction remains the focus of the current laws, ordinances, regulations, and standards (LORS). If such compliance were established, staff would recommend approval with respect to the issues of concern in this analysis; if not, staff would recommend revisions as appropriate. Staff's analysis focuses on the following issues as related primarily to the physical presence of the lines, or secondarily, to the physical interactions of their electric and magnetic fields:

- aviation safety;
- interference with radio-frequency communication;
- audible noise;
- fire hazards;
- hazardous shocks;
- nuisance shocks; and
- electric and magnetic field (EMF) exposure.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Discussed below by subject area are design-related LORS applicable to the physical impacts of the overhead transmission lines as proposed to connect the LECEF Phase 2 with the Silicon Valley Power (SVP) 230 kV Switching Station. The potential for these impacts is assessed in terms of compliance with specific federal or state regulations or established industry standards and practices. There presently are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit the impacts noted above. However, many local jurisdictions require such lines to be located underground in new housing developments because of the potential for visual impacts on the landscape. Such requirements are not related to the concern over health effects.

AVIATION SAFETY

Any potential hazard to area aircraft would relate to the potential for collision in the navigable air space. The applicable federal LORS, as discussed below, are intended to ensure the distance and visibility necessary to prevent such collisions.

Federal

- Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting the Navigation Space."

Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid the aviation hazards of concern.

- FAA Advisory Circular (AC) No. 70/460-2H, "Proposed Construction and or Alteration of Objects that May Affect the Navigation Space." This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.
- FAA AC No. 70/460-1G, "Obstruction Marking and Lighting." This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge, but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines.

Electric fields are unable to penetrate most materials, including the soil, therefore, such interference and other electric field effects are not associated with underground lines. The level of any such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for perception could be assessed from considering the field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal

Federal Communications Commission (FCC) regulations are specified in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff recommends specific conditions of certification as necessary to ensure compliance with this FCC requirement.

State

California Public Utilities Commission (CPUC), General Order 52 (GO-52), governs the construction and operation of power and communications lines to prevent or mitigate inductive interference.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated into the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

Industry Standards

There are no design-specific federal or state regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited through design, construction or maintenance practices established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All modern overhead high-voltage lines are designed to assure compliance with such noise limits. As with radio-frequency noise, such audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum, especially in wet weather. Since the noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from those of less than 345 kV as proposed for LECEF Phase 2. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects.

State

CPUC, General Order 95 (GO-95), “Rules for Overhead Electric Line Construction,” specifies tree-trimming criteria to minimize the potential for power line-related fires. Title 14, California Code of Regulations, Section 1250: “Fire Prevention Standards for Electric Utilities” specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line whether overhead or underground. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

State

CPUC, GO-95, “Rules for Overhead Line Construction,” specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and line workers.

Title 8, California Code of Regulations, Section 2700 et seq.: “High Voltage Electric Safety Orders,” establish essential requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.

Industrial Standards

No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry from compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

NUISANCE SHOCKS

Industry Standards

Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields.

There are no design-specific federal or state regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). As with the proposed overhead lines, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff recommends specific conditions of certification as necessary to ensure that such grounding is made along the proposed route.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans.

However, staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Staff, therefore, considers it appropriate in light of present uncertainty, to recommend reduction of such fields as feasible without affecting safety, efficiency, reliability and maintainability.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

State

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Utilities which are not within the jurisdiction of the CPUC, voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, staff requires a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability, efficiency, and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by the ground-level field strengths as measured during operation. When estimated or measured for lines of similar voltage and current-carrying capacity, such field strength values can be used by staff and other regulatory agencies to assess the effectiveness of the applied reduction measures. These field strengths can be estimated for any given design using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures,

degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required by the CPUC to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, its fields are required under this CPUC policy to be similar to fields from similar lines in that service area. Designing the proposed LECEF Phase 2 connection line according to existing SVP field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management. Staff recommends a specific condition of certification (**TLSN-1**) to ensure implementation of the design measures necessary.

Industrial Standards

There are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF health issue.

In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar to those from existing lines. Some states (Florida, Minnesota, New Jersey, New York, Montana) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component whose effects can manifest themselves as the previously noted radio noise, audible noise and nuisance shocks. The present focus is on the magnetic field because only it can penetrate soil, building and other materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the strong magnetic fields from the more visible overhead transmission and other high-voltage power lines, staff considers it important, for perspective, to note that an individual in a home could be exposed to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). The difference between these types of field exposures is that the higher-level, appliance-related exposures are short-term, while the exposure from power lines are lower level, but long-term. Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than around high-voltage power lines.

SETTING

The LECEF is located within a 34-acre project site that includes the 21-acre fenced area of the LECEF and the facility's surrounding landscaping. The project site includes a vacant 13-acre site, adjacent to the south sound wall, proposed for use as the phase 2 construction lay-down area. The project address is 800 Thomas Foon Chew Way in north San Jose. South of the project parcel is State Route 237. To the east is agricultural land, and further east is Coyote Creek. To the north is agricultural land and open space buffer lands belonging to the Water Pollution Control Plant (WPCP). To the west is undeveloped WPCP buffer land and about 2,500 feet west of the LECEF Zanker Road runs north-south. The PG&E Los Esteros Substation, and the new Silicon Valley Power (SVP) 230 kV Switching Station, are immediately north of the LECEF. See the Phase 2 Project Description section for more detail, and **Project Description Figure 2** showing the orientation of these features. There is a single residence 450 feet from the project site to the southeast, and six tenths of one mile (0.6/mile) to the south across SR 237 is a trailer park residential area. Since the 200 foot-long 230 kV transmission line is completely within the fence line of the LECEF and the newly-constructed SVP Switching Station, no residences are in the immediate vicinity of the proposed LECEF and point of interconnection. This insures that the residential magnetic field exposure at the root of the present health concern would be insignificant for this project. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in transit under the project's lines. These types of exposures are short term and well understood as not significantly related to the present health concern. The same lack of nearby residences means that the previously noted electric field-related communication impacts would be unlikely from operations.

PROJECT DESCRIPTION

The proposed LECEF interconnection will consist of the segments listed below:

- Two new 115/230 kV step up transformers
- Two new overhead lines connecting the LECEF 115 kV switch yard to the new 115/230 kV transformers
- Two new 200 foot-long overhead lines connecting the new transformers to the 230 kV SVP Switching Station

The proposed Phase 2 project would expand the existing LECEF switchyard to include two short 230 kV connecting lines and two 115/230 kV transformers. The expanded switchyard or substation would then connect to the SVP Switching Station through two 200-foot long three-phase single circuit 230 kV overhead transmission lines. Each of these transmission circuits would be sized to carry the output of the entire facility. The switchyard expansion and transmission lines would be built within the fenceline of the existing project and will not require new rights-of-way. When the interconnection of Phase 2 is completed the existing Phase 1 tap interconnection to PG&E's Los Esteros – Nortech 115 kV circuit would be removed (LECEF 2004a, Page 5-2).

In addition to connecting the Phase 2 combined-cycle output of the LECEF to SVP, the Updated Final System Impact Study (PG&E, 2004b, pp. 2, and 19) also analyzes the impacts of connecting the Phase 1 simple-cycle power output to the new SVP Switching Station. This interconnection of the Phase 1 output would involve adding the new LECEF transformers, and making the identical connections described above for Phase 2, converting the simple-cycle output to 230 kV from its current 115 kV. With this option the addition of the new 115/230 kV transformers and interconnecting LECEF to the SVP Switching Station could occur earlier and independently from the Phase 2 combined-cycle conversion. This would further reduce the potential magnetic field impacts by increasing the transmission of the 180 MW ouput to 230 kV from the current 115 kV transmission circuits.

Since the proposed interconnection lines would be designed and operated according to standard SVP practices, its design-driven field strengths (and, therefore, potential contribution to existing area field levels) should be at the same level expected for SVP and PG&E lines of the same voltage and current-carrying capacity. Staff recommends a specific condition of certification (**TLSN-2**) to provide the data necessary for the required compliance assessment.

IMPACTS

PROJECT SPECIFIC IMPACTS

Aviation Safety

Given these conditions, staff considers the proposed interconnection line as unlikely to pose a significant obstruction-related aviation hazard to utilizing aircraft as defined using current FAA criteria. Therefore, no FAA “Notice of Construction or Alteration” would be required.

Interference with Radio-Frequency Communication

The previously noted corona-related communications interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other discontinuities around the conductor surface. The proposed lines would be built and maintained according to standard SVP practices, minimizing such surface irregularities and discontinuities (LECEF 2003, p. 5-7). Moreover, the potential for such corona-related interference is usually of concern for lines of 345 kV and above, and not the proposed 230 kV, even in rainy weather when the presence of raindrops increases the strengths of the offending surface electric fields. The intended low-corona design would be the same as used for exiting SVP and adjacent PG&E lines of similar voltage rating. Since these existing lines do not currently produce the corona effects of specific concern, staff does not expect any corona-related radio-frequency interference in the area around the line. Moreover, the line would be located within the LECEF property lines in an area without residences making it unnecessary to recommend a specific condition on the issue of residential radio or television signal interference.

Audible Noise

As happens with radio noise, the low-corona design to be used for the proposed LECEF lines would serve to minimize the potential for corona-related audible noise. This means, as noted by the applicant (LECEF 2003, p. 5-7), that the proposed line operation would be unlikely to add significantly to current background noise levels in the project area. For an assessment of the noise from all phases of the proposed project and related facilities, please refer to staff's analysis in the **Noise and Vibration** section of this Preliminary Staff Assessment.

Fire Hazards

Standard fire prevention and suppression measures for all LECEF lines would be implemented for the proposed interconnection line (LECEF 2003, p. 5-8). The applicant's intention to ensure compliance with the clearance-related aspects of GO-95 would be an important part of this compliance approach. Moreover, the line would be located within LECEF's property lines without the trees that could pose a fire hazard from line contact.

Hazardous Shocks

The applicant's stated intention to implement the GO-95- related measures against direct contact with the energized line (LECEF 2003, pp. 5-5 and 5-8 through 5-11) would serve to minimize the risk of hazardous shocks. Staff's recommended condition of certification (**TLSN-1)** would be adequate to ensure implementation of the necessary mitigation measures.

Nuisance Shocks

The potential for nuisance shocks around the proposed line would be minimized through standard industry grounding practices (LECEF 2003, pp. 5-8 through 5-11). Staff recommends Condition of Certification **TLSN-2** to ensure such grounding.

Electric and magnetic field exposure

As noted by the applicant (LECEF 2003, p. 5-8, and Volume II Appendix 5-B), specific field strength-reducing measures would be incorporated into the proposed connecting line design to ensure the field strength minimization currently required by CPUC in light of the concern over EMF exposure and health.

The field reduction measures to be applied include the following:

1. Increasing the distance between the conductors and the ground;
2. Reducing the spacing between the conductors;
3. Minimizing the current in the line; and
4. Arranging current flow to maximize the cancellation effects from interacting of conductor fields.

Connecting the proposed LECEF Phase 2 line to the SVP-related equipment of the same voltage would not change the existing voltages within the area transmission grid. Staff recommends specific field strength measurements in Condition of Certification **TLSN-3** to verify that the LECEF Phase 2-related voltage would not change the existing electric fields without significant changes to the applied voltage. These measurements would also allow for comparison with electric fields from SVP and PG&E lines of the same design and voltage. The recommendation for magnetic field strength measurements would allow for comparison with magnetic fields from SVP and PG&E lines of the same design and current-carrying capacity as well as those from similar lines in the few states with specific limits on line magnetic fields. These magnetic field strength limits vary from 150 to 250 mG established (depending on voltage level) for the edges of the rights-of-way.

Since optimum field-reducing measures have been incorporated into the proposed line design, staff considers further mitigation to be unnecessary at this point, but would seek to validate the applicant's assumed reduction efficiency from the recommended field strength measurements.

CUMULATIVE IMPACTS

Since the proposed LECEF Phase 2-related transmission lines would be designed according to applicable field-reducing SVP guidelines (as currently required by the CPUC for effective field management), staff expects the resulting fields to be similar in intensity to fields from lines of the similar voltage and current-carrying capacity. Any contribution to cumulative area exposures would be at similar levels. It is this similarity in intensity that constitutes compliance with current CPUC requirements on EMF management. The actual field strengths and contribution levels for the proposed line design would be assessed from the results of the field strength measurements specified in Condition of Certification **TLSN-3**.

COMPLIANCE WITH LORS

As previously noted, current CPUC policy on safe EMF management requires that any high-voltage line within a given area be designed to incorporate the field strength-reducing guidelines of the main area utility, which for LECEF Phase 2 will be SVP. Since the proposed connection lines would be designed according to the requirements of GO 95, GO 52, and Title 8, Section 2700 et seq. of the California Code of Regulations and operated and maintained according to current SVP guidelines on line safety and field strength management, staff considers the presented design and operational plan to be in compliance with the health and safety LORS of concern in this analysis. The actual contribution to the area's field exposure levels would be assessed from results of the field strength measurements required in Condition of Certification **TLSN-2**.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Since electric or magnetic field health effects have neither been established nor ruled out for overhead and underground lines, the public health significance of any LECEF Phase 2-related field exposures cannot be characterized with certainty. The only conclusion to be reached with certainty is that the proposed line design and operational plan would be adequate to ensure that the generated electric and magnetic fields are managed to an extent CPUC considers appropriate in light of the available health effects information. The long-term, mostly residential magnetic exposure at the root of the present health concern would be insignificant for the proposed interconnection lines given the general absence of residences along the proposed route. On-site worker or public exposure would be short term and at levels expected for lines of similar designs and current-carrying capacity. Such exposure is well understood and has not been established as posing a significant human health hazard.

The potential for nuisance shocks would be minimized through grounding and other field-reducing measures to be implemented in keeping with current SVP guidelines (reflecting standard industry practices). These field-reducing measures would maintain the generated fields within levels not associated with radio-frequency interference or audible noise. The potential for hazardous shocks would be minimized through compliance with the height and clearance requirements of General Order 95. Compliance with Title 14, California Code of Regulations, Section 1250, should be adequate to minimize any fire hazards. Since there are no major airports or aviation centers in the immediate project area, staff does not expect the proposed line to pose a significant aviation hazard. The use of low-corona line design, together with appropriate corona-minimizing construction practices, minimizes the potential for corona noise and its related interference with radio-frequency communication in the area around the proposed route.

RECOMMENDATIONS

Since the interconnecting LECEF Phase 2, or Phase 1, 230 kV lines would be designed to minimize the safety and nuisance impacts of specific concern to staff, and located at a site with no nearby residences, staff does not recommend further mitigation and recommends approval of the proposed design and operational plan. If such approval is granted, staff recommends that the Energy Commission adopt the conditions of certification specified below to ensure implementation of the measures necessary to achieve the field reduction and line safety assumed by the applicant.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall build the proposed and any future underground interconnection lines according to the requirements of CPUC's GO-128.

Verification: Thirty days before line-related ground disturbance, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the proposed line will be constructed according to the requirements of GO-128.

TLSN-2 The project owner shall engage a qualified consultant to measure the strengths of the magnetic fields from ~~PG&E~~ SVP to LECEF's switchyard. Measurements shall be made at the same points (identified as Points A, B, C, and D) for which calculated field strength measurements were provided by the applicant.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.

TLSN-3 The project owner shall build the proposed overhead 230 kV interconnection lines according to the requirements of CPUC's GO-52, (and GO-128 if underground) Title 8, Section 2700 et seq. of the California Code of regulations, and PG&E's EMF reduction guidelines arising from CPUC Decision 93-11-013.

Verification: Thirty days before line-related ground disturbance, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the proposed line will be constructed according to the requirements noted above.

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

APPLICATION FOR CERTIFICATION FOR THE LOS ESTEROS CRITICAL ENERGY FACILITY PHASE 2 (LOS ESTEROS 2)

DOCKET NO. 03-AFC-2

(Revised 12/16/04)

PROOF OF SERVICE

I, **Keith A. Muntz,** declare that on **February 23, 2005**, I deposited copies of the attached **Supplement to the Preliminary Staff Assessment** in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to the following:

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Sacramento, CA 95814-5512
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APPLICANT

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

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

COUNSEL FOR APPLICANT

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

INTERESTED AGENCIES

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

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

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

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

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

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

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

INTERESTED PARTICIPANTS

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

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

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

INTERVENORS

CURE
Marc D. Joseph, Esq.
Adams Broadwell Joseph & Cardozo
651 Gateway Blvd., Suite 900
South San Francisco, CA 94080

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

***Californians for Renewable Energy, Inc. (CARE)**
Robert Sarvey
501 W. Grantline Road
Tracy, CA. 95376

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

(Signature)

INTERNAL DISTRIBUTION LIST

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