

CALIFORNIA ENERGY COMMISSION

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June 1, 2009

Zenis M. Walley
EHS Manager
Complete Energy
La Paloma Generating Plant
PO Box 175 (Mailing Address)
1760 West Skyline Road
McKittrick, CA 93251

DOCKET

98-AFC-2C

DATE June 1 2009

RECD. June 1 2009

**SUBJECT: LA PALOMA GENERATING PLANT (98-AFC-2C) – STAFF ANALYSIS
OF PROPOSED SUNGEN 1 GEN-TIE INTERCONNECTION**

Dear Mr. Walley:

On March 23, 2009, the California Energy Commission (Energy Commission) received copies of an application for a Conditional Use Permit (CUP) submitted to Kern County and an application for Right of Way (ROW) grant submitted to the Bureau of Land Management (BLM) submitted by CEH Ventures, LLC (CEH). The project descriptions provided in both of these applications were provided to Energy Commission staff to determine the Energy Commission's jurisdiction of the proposed SunGen 1 Solar Project Transmission Line tie-in within the existing La Paloma Generating Plant (LPGP). The La Paloma Generating Station is a 1,048 megawatts (MW) power plant located near McKittrick, in Kern County. The project was certified by the Energy Commission on in October 1999. Staff has prepared an analysis of this proposed interconnection, and a copy is enclosed for your information and review.

CEH Ventures, LLC is proposing the SunGen 1 project, a 29 MW photovoltaic (PV) array facility to be located within an approximately 398-acre parcel of undeveloped private land adjacent to the existing La Paloma Generating Plant (LPGP). Both LPGP and the site for SunGen 1 are owned by La Paloma Generating Company, LLC, an indirect subsidiary of CEH. The proposed SunGen1 facilities on private land will be addressed by the Kern County Planning Department's California Environmental Quality Act review process that will be initiated by the Conditional Use Permit application. The proposed Gen-tie line would cross a small amount of federal land to supply power to the California power grid at the nearest point of interconnection; therefore, a Standard Form 2999 Application for Transportation and Utility Systems and Facilities on Federal Land (Right-of-Way) was submitted to the Bureau of Land Management (BLM) for review and approval. Copies of both these documents were provided to Energy Commission staff for review.

Energy Commission staff reviewed the documentation and assessed the impacts of this proposal and concluded that, due to its proximity to the LPGP, the proposed project might cause some power flow impacts to the interconnection grid and should be

evaluated as a separate project. While the existing La Paloma 230 kV tie-line would be adequate to withstand the additional 29 MW of the SunGen 1 project, the potential downstream impacts caused by the project should be reviewed through a System Impact Study. Staff also notes that other studies may be required to determine the system overload criteria violations, stability of the system and fault duty of the breakers of the adjacent substations. It is staff's opinion that CEH should contact the California ISO and PG&E regarding the interconnection approval since the proposed project is interconnecting to the California ISO grid by tapping the 230 kV La Paloma transmission line near the 230 kV La Paloma substation.

The Energy Commission is approving the proposed SunGen 1 Gen-tie interconnection within the LPGP boundaries. All conditions of certification imposed in the original LPGP license will apply to any work done within the LPGP boundaries, including the addition of the mono-pole dead-end structure where the SunGen 1 Gen-tie line will be switched and tapped into the existing La Paloma Transmission Line.

Sincerely,



Mary Dyas
Compliance Project Manager

cc: Dockets

EXECUTIVE SUMMARY

Prepared By Mary Dyas

INTRODUCTION

The project owner, CEH Ventures, LLC (CEH), filed information with the California Energy Commission on March 23, 2009, for Energy Commission staff's determination regarding jurisdiction over the transmission tie-in of the proposed SunGen 1 Solar Photovoltaic Project (SunGen 1).

Documentation provided to the Energy Commission includes:

- Standard Form 2999 Application for Transportation and Utility Systems and Facilities on Federal Land (Right-of-Way) submitted to the Bureau of Land Management for approval, and
- Application for Kern County Conditional Use Permit filed with Kern County.

The proposed SunGen 1 project would deliver power from the project to the nearest available point of interconnection with the California power grid. CEH is working with the Kern County Planning staff on the CEQA permitting process for the proposed PV project. A copy of the Conditional Use Permit application filed with Kern County has been provided to staff for review. Similarly, a copy of the Right of Way (ROW) Grant application filed with the Bureau of Land Management (BLM) has been provided. The ROW Grant application was filed with the BLM due to the proposed transmission line from SunGen 1 to the La Paloma transmission line traversing BLM property.

INTERCONNECTION LOCATION AND DESCRIPTION

SunGen 1 is a proposed 29 megawatt (MW) photovoltaic (PV) array facility to be located within an approximately 398-acre parcel of undeveloped private land adjacent to the existing La Paloma Generating Plant (LPGP). Both LPGP and the site for SunGen 1 are owned by La Paloma Generating Company, LLC, an indirect subsidiary of CEH. The proposed SunGen1 facilities on private land will be addressed by the Kern County Planning Department's California Environmental Quality Act review process that will be initiated by the Conditional Use Permit application and the BLM ROW application.

The nearest available point of interconnection with the California power grid is the privately owned La Paloma transmission line which connects LPGP to the Pacific Gas and electric company's (PG&E) Midway Substation. The length of the proposed SunGen 1 Gen-tie line would be approximately 0.50 miles (approximately 0.39 miles on BLM property and approximately 0.11 miles on private property). Upon leaving the proposed SunGen 1 switchyard in a northeasterly direction, the line will cross Reserve Road, a county roadway, undercross the existing Sunrise and La Paloma transmission lines, run in an east-west direction parallel and north of the existing La Paloma transmission line and then turn south to an interconnection point near the LPGP

switchyard where it would be switched and tapped into the existing La Paloma transmission line.

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff's analysis of the information provided from CEH presents the conclusions and recommendations regarding the SunGen 1 Gen-tie interconnection to the La Paloma transmission line. Staff has concluded that:

- If the studies show that the interconnection of the project causes the grid to be out of compliance with reliability standards, then the study will identify mitigation alternatives or ways in which the grid could be brought into compliance with reliability standards.
- If either the California ISO or interconnecting utility determines that the only feasible mitigation includes transmission modifications or additions requiring CEQA review, the Energy Commission must analyze those modifications or additions according to CEQA requirements.

A letter will be provided to CEH, along with staff's analysis, outlining these conclusions and recommendations.

REFERENCES

- CEC (California Energy Commission). La Paloma Generating Plant (98-AFC-2C). Final Commission Decision. October 1999.
- CEH (CEH Ventures, LLC). Standard Form 2999 Application for Transportation and Utility Systems and Facilities on Federal Land (Right-of-Way) submitted to the Bureau of Land Management. March 2009.
- CEH (CEH Ventures, LLC). Application for Kern County Conditional Use Permit. March 2009.

SUNGEN 1 SOLAR PHOTOVOLTAIC POWER PLANT

Amendment Petition: Increase in Interconnection Capability Transmission System Engineering Staff Analysis

Sudath Arachchige and Mark Hesters

INTRODUCTION

CEH Ventures, LLC (CEH) is proposing to construct and operate a 29 megawatt (MW) photovoltaic (PV) power generating project (SunGen 1) adjacent to the existing natural gas fired (CTG), 1048 MW La Paloma Generating Plant (LPGP) near McKittrick, California. The PV system configuration for SunGen 1 is the single-axis tracking PV system, which will track the sun's position in the sky throughout the day. The single-axis PV system will include a horizontal tracker. It is expected that a total of approximately 5,067 trackers will be installed at the SunGen 1 solar site. The surface rights of the property are owned by La Paloma Generating Company, LLC, who also is the owner of the LPGP (98-AFC-2C). The planned operation date for the proposed project is third quarter of 2011. The detailed descriptions of the design facilities have been discussed in the documents provided (Appendix A- SunGen 1).

PROJECT INTERCONNECTION INFORMATION

The nearest available point of interconnection with the California power grid is the privately owned La Paloma generator tie-line which connects La Paloma to the Pacific Gas and Electric Company's (PG&E) Midway substation. The proposed 0.50 miles long, 230kV, 477kcmil, overhead single circuit (project generator tie-line) would be built on 10 direct buried steel poles. The proposed Sun Gen 1 project interconnection into the existing La Paloma 230 kV, double-circuit generator tie line will require two load breakers, selector switches, and relaying and metering modifications as required for the new line termination.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), *Rules for Overhead Electric Line Construction*, specifies uniform requirements for the construction of overhead electric lines. Compliance with this order ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of overhead electric lines, and for the safety of the general public.
- CPUC General Order 128 (GO-128), *Rules for Underground Electric Line Construction*, establishes uniform requirements for the construction of underground electric lines. Compliance with this order also ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of underground electric lines, and for the safety of the general public.
- National Electric Safety Code 1999 provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation.

- California Independent System Operator (California ISO) planning standards also provide the standards and guidelines that assure adequacy, security and reliability during the planning process of the California ISO's electric transmission facilities. The California ISO planning standards incorporate both the NERC and WECC planning standards. With regard to power flow and stability simulations, the California ISO's planning standards are similar to those of the NERC and WECC, and to the NERC's planning standards for transmission system contingency performance. However, the California ISO's standards provide additional requirements that are not found in the NERC, WECC, or NERC planning standards. The California ISO standards apply to all participating transmission owners that interconnect to both the California ISO-controlled transmission grid, and to neighboring grids not operated by the California ISO (California ISO 2002a).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

For the interconnection of this proposed project to the grid, the interconnecting utility (PG&E) and the control area operator (California ISO) are responsible for ensuring grid reliability. These two entities determine the transmission system impacts of the proposed project and any mitigation measures needed to ensure system conformance with utility reliability criteria, NERC planning standards, WECC reliability criteria, and California ISO reliability criteria. System impact and facilities studies are used to determine the impacts of the proposed project on the transmission grid. Staff relies on these studies and any review conducted by the California ISO to determine the effect of the project on the transmission grid and to identify any necessary downstream facilities or indirect project impacts required to bring the transmission network into compliance with applicable reliability standards. System impact and facilities studies analyze the grid both with and without the proposed project, under conditions specified in the planning standards and reliability criteria. The standards and criteria define the assumptions used in the study and establish the thresholds through which grid reliability is determined. The studies analyze the impact of the project for the proposed first year of operation, and are based on a forecast of loads, generation, and transmission. Load forecasts are developed by the interconnected utility. Generation and transmission forecasts are established by an interconnection queue. The studies focus on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads, or cascading outages), and short circuit duties. If the studies show that the interconnection of the project causes the grid to be out of compliance with reliability standards, then the study will identify mitigation alternatives or ways in which the grid could be brought into compliance with reliability standards.

When a project connects to the California ISO-controlled grid, both the studies and mitigation alternatives must be reviewed and approved by the California ISO. If either the California ISO or interconnecting utility determines that the only feasible mitigation includes transmission modifications or additions requiring CEQA review, the Energy Commission must analyze those modifications or additions according to CEQA requirements.

CONCLUSION AND RECOMMENDATIONS

- The proposed SunGen 1 Solar Project will be developed in close proximity to the existing La Paloma Generating Plant. Hence, the proposed project might cause some power flow impacts to the interconnection grid and should be evaluated as a separate project.
- The existing La Paloma double-circuit, bundled 2156 kcmil, ACSR, 230 kV, generator tie-line would be adequate to withstand the additional 29 MW of the SunGen 1 project, but potential downstream impacts caused by the project should be reviewed through a System Impact Study.
- The applicant may need to complete a Power Flow Study, Dynamic Study and a Short Circuit Study to determine the system overload criteria violations, stability of the system and fault duty of the breakers of the adjacent substations.
- The proposed project is interconnecting to the California ISO grid by tapping the 230 kV La Paloma transmission line near the 230 kV La Paloma substation. Therefore, the applicant should contact the California ISO and PG&E regarding the interconnection approval.

REFERENCES

- CEC (California Energy Commission). La Paloma Generating Plant (98-AFC-2C). Final Commission Decision. October 1999.
- CEH (CEH Ventures, LLC). La Paloma Generating Plant (98-AFC-2C). Standard Form 2999 Application for Transportation and Utility Systems and Facilities on Federal Land (Right-of-Way). March 2009.
- CEH (CEH Ventures, LLC). La Paloma Generating Plant (98-AFC-2C). Application for Kern County Conditional Use Permit. March 2009.