

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET, MS 2000
SACRAMENTO, CA 95814-5512



October 5, 2009

DOCKET**99-AFC-1C**

DATE OCT 05 2009

RECD OCT 05 2009

Taylor O. Miller
Senior Environmental Counsel
Sempra Energy
925 L Street, Suite 650
Sacramento, CA 95814

**SUBJECT: ELK HILLS POWER PLANT (99-AFC-1C) – APPROVAL OF PHASE 2
230KV SWITCHYARD MODIFICATIONS**

Dear Mr. Miller:

On March 26, 2009, the California Energy Commission (Energy Commission) received a request from Occidental of Elk Hills (OEHI), for expedited review of its project to convert the current PG&E 115kV system to the PG&E 230kV system. OEHI operates the Elk Hills oil field. As presented in the OEHI's Summary Project Description (see attached) provided to staff on March 30, 2009, the conversion project will include a new substation on OEHI property, modifications to the Elk Hills Power (EHP) Switchyard and a short transmission line to connect the two. The Energy Commission has jurisdiction over the modification to the EHP switchyard and the related transmission line tie-in, whereas the proposed new OEHI substation is being reviewed by Kern County. The proposed project was to be completed in two phases. Phase 1 which was scheduled to begin in April 2009 and end in May 2009 was approved by Energy Commission Staff on April 6, 2009. Phase 2, is scheduled to begin in late 2009.

The Energy Commission staff has reviewed the information provided and has concluded that the proposed modifications appear to be an efficient means to serve growing loads at the OEHI facility and approves the proposed EHP Phase 2 switchyard modifications. All conditions of certification imposed in the original EHP license will apply to any work done within the EHP boundaries. Staff's analysis outlining the conclusions and recommendations of their review is enclosed.

Sincerely,

Mary Dyas
Compliance Project Manager

Attachment

cc: Docket Unit
Robert Hoffman, Director Business Development, OEVC

ELK HILLS POWER PLANT - 230 KV SWITCHYARD MODIFICATIONS
Occidental of Elk Hills Summary Project Description
And Proposed Scope of Work
March 30, 2009

OBJECTIVE

Occidental of Elk Hills (OEHI), which operates the Elk Hills oil field, is planning to improve the reliability of its electricity supply by converting from the current PG&E 115kV system to the PG&E 230 kV System. This conversion is scheduled to be completed by late 2010.

The conversion project will include a new substation on OEHI property, modifications to the Elk Hills Power Switchyard within the power plant premises, and a short transmission line to connect the two. These modifications will allow OEHI access to the existing 230 kV transmission line from Elk Hills Power (EHP) to PG&E Midway Substation, in Buttonwillow.

The work to be done in the EHP Switchyard is planned to take place during the power plant's downtime for routine maintenance. The will be done in two phases in order to best coordinate field construction with material deliveries and minimize impact on EHP operations. Phase 1 will take advantage of the EHP maintenance outage starting April 1, 2009 and ending on May 10, 2009, in order to install structures and modify bus work. Phase 2 will be performed during a maintenance outage to install a 230 kV breaker with associated control equipment and will be done in the Fall of 2009 or Spring of 2010.

PHASE 1 - PRELIMINARY SITE WORK AT EHP SWITCHYARD

Construction work within the EHP Switchyard will start in April 2009 as part of a planned maintenance outage and involve excavation, forming, and pouring foundations, modify bus work, install steel and switches, and install underground conduit and grounding. All work will take place within the existing switchyard and switchyard control building. Work will include, but not be limited to:

1. trenching for underground conduits,
2. excavation, forming, and pouring foundations,
3. underground conduit installation,
4. ground grid tie-ins,
5. steel structure assembly and setting (take-off, bus support, potential transformer (PT) stands),
6. AC and DC distribution panel installation in switchyard control building,
7. cut-out in existing panel in switchyard control building,
8. assembly and installation of steel switch supports item 9,
9. install isolation switches for 230 kV breaker 52-6,

ELK HILLS POWER PLANT - 230 KV SWITCHYARD MODIFICATIONS
Occidental of Elk Hills Summary Project Description
And Proposed Scope of Work
March 30, 2009

10. install bus between switches,
11. addition of control switches to mimic panel in switchyard control building,
12. modify existing bus work to extend to new take-off structure.

PHASE 2 - COMPLETION OF 230 kV TIE-IN AT EHP SWITCHYARD

Phase 2 will install a 230 kV breaker, potential transformers, relay and metering panels, AC and DC distribution panels, distributed control system (DCS) tie-ins, add metering current transformers (CTs) to existing 230 kV breaker, and perform equipment commissioning.

The construction work will start 2 weeks prior to a plant maintenance outage during the Fall of 2009 or Spring of 2010 and be complete 7 days after the start of the outage. This will potentially extend the typical 5 day outage by 2 days. Prior to the outage the following will be installed:

1. relay and metering panels
2. cables
3. DCS tie-ins.

During the maintenance outage, the following will be installed:

4. 230 kV breaker 52-6
5. potential transformers (PTs)
6. metering CTs in existing 230 kV breaker 52-1
7. all equipment will be tested and commissioned.

ELK HILLS POWER PLANT (99-AFC-1C)

Amendment Petition: Elk Hills Power 230 kV Switchyard Modifications TRANSMISSION SYSTEM ENGINEERING Staff Analysis

Prepared by Mark Hesters

INTRODUCTION

The Elk Hills Power Plant (EHP), a 500 MW natural gas-fired combined-cycle power facility is located in Kern County on a parcel of land in the middle of Occidental's Elk Hills (OEHI) oil and gas field, which is about 25 miles west of Bakersfield, CA. The facility was approved by the Energy Commission in December 2000 and began operating in July 2003.

Due to increased loads at OEHI's oil and gas field, OEHI is planning to improve the reliability of its electricity supply by converting from the current Pacific Gas and Electric (PG&E) 115kV system to the PG&E 230 kV System. This conversion is scheduled to be completed by late 2010.

The conversion project will include a new substation on OEHI property under separate review by Kern County, modifications to the EHP switchyard and a short transmission line to connect the two. The switchyard modifications and the new transmission line tie-in are the portion of this conversion project under Energy Commission review. These modifications will allow OEHI access to the existing 230 kV transmission line from EHP to PG&E Midway Substation, in Buttonwillow.

The work to install a 230 kV breaker with associated control equipment in the EHP Switchyard and the new transmission line tie-in is the purpose for this analysis. It is the plan of OEHI to do this work during the power plant's downtime for routine maintenance and will begin in the fall of 2009.

PROJECT INTERCONNECTION INFORMATION

Occidental of Elk Hills Inc. (OEHI) plans to expand the existing EHP 230 kV switchyard in order to accommodate a new 230 kV line. PG&E has studied the potential impacts of the new 230 kV interconnection and found that the new line would not have significant impacts on the existing transmission grid.

OEHI proposes to transfer its interconnection point with PG&E's transmission system from the Midway-Taft 115 kV Line to its new 230/115 kV substation. OEHI plans to construct, own, and operate a new 230/115 kV substation in close proximity to generation facilities owned and operated by the EHP. The switchyard associated with EHP (EHP Substation) is currently owned and operated by EHP. In addition, OEHI plans to construct, own and operate a new 230 kV transmission line connecting its new 230/115 kV substation to the EHP Substation with sufficient capacity to serve its 150 MW load. OEHI plans to obtain an undivided interest in the existing nine-mile 230 kV double circuit transmission line between PG&E's Midway Substation and the EHP Substation. The line is currently owned by EHP. The proposed substation and line will be constructed, owned, operated and maintained by OEHI. OEHI intends to energize its new substation by June 1, 2010.

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 changes in interconnection to the existing 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 changes and any mitigation measures needed to ensure system conformance with utility reliability criteria, NERC planning standards, WECC reliability criteria, and California ISO reliability criteria.

The new 230 kV line between OEHI and EHP has been analyzed in PG&E's 2009 Electric Transmission Grid Expansion Plan and actually reduces the forecasted loading on the transmission facilities affected by the proposed changes. The new transmission line is PG&E's preferred means to serve increased loads at the OEHI oil and gas field and has been approved by the California ISO in the 2009 California ISO Transmission Plan.

The existing Transmission System Engineering (TSE) conditions of certification would apply to the EHP switchyard modifications and would insure that the modifications comply with applicable Laws, Ordinances, Regulations and Standards.

CONCLUSION AND RECOMMENDATIONS

Staff has reviewed the information provided by OEHI for potential environmental effects and consistency with applicable LORS. Based on this review, staff has determined that the proposed modifications would be consistent with the LORS identified in December 2000 Commission Final Decision and that the changes at the Elk Hills Power Switchyard associated with the new 230 kV line from OEHI appear to be an efficient means to serve growing loads at the OEHI facility. Staff has concluded that the proposed modifications should therefore be approved.

REFERENCES

- CEC (California Energy Commission). Elk Hills Power Plant (99-AFC-1C). Final Commission Decision. December 2000.
- OEHI (Occidental of Elk Hills). Draft Occidental of Elk Hills Interconnection Project – Summary Project Description. March 25, 2009.
- OEHI (Occidental of Elk Hills). Oxy / Elk Hills Power 230 kV Interconnect Reliability Improvement Project. Powerpoint Slides. March 26, 2009.
- OEHI (Occidental of Elk Hills). Elk Hills Power Plant – 230 kV Switchyard Modifications. March 30, 2009.
- PG&E (Pacific Gas and Electric Company). PG&E's 2009 Electric Transmissio Grid Expansion Plan. March 5, 2009.
- California ISO (California Independent System Operattor) California ISO Transmission Plan: 2009. Amended June 2009.