

DOCKET

08-AFC-1

DATE May 21 2009

RECD. May 21 2009

**Avenal Power Center, LLC
500 Dallas Street, Level 31
Houston, TX 77002**

May 21, 2009

Mr. Joseph Douglas
Project Manager
c/o Dockets Unit, 4th Floor
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Environmental Analysis for Gates Substation and surrounding property owned
by PG&E

Dear Mr. Douglas,

We have been working diligently with California Energy Commission Staff ("Staff") for some time in an attempt to provide the information requested by the transmission system engineering Staff. Based upon a further conversation with transmission system engineering Staff on May 11, 2009, we believe the attached documents should provide all of the information necessary to complete the Transmission System Engineering section of the Final Staff Assessment ("FSA"). The Transmission System Engineering Summary of Conclusions in the Preliminary Staff Assessment ("PSA") requested additional information about the termination facilities for the proposed 230 kV tie line at the Gates substation. Avenal Power Center, LLC (the "Applicant") is providing the following supplemental information for clarification purposes.

The PSA stated "The applicant should submit the following materials to the Energy Commission:

Electrical one-line diagrams about any new termination facilities of the proposed Avenal Energy overhead 230 kV tie line at the Gates substation including any changes and a physical layout plan of the Gates substation according to the California Energy Commission's Data Requests #54 and #55 in order to comply with engineering Laws, Ordinances, Regulations and Standards ("LORS") for the new project facilities."¹

As the Applicant stated in Data Response #55, physical layout drawings are sensitive documentation requiring execution of nondisclosure agreements with the applicable transmission owner. However, detailed information discussing the required modifications to Gates Substation developed for the previously proposed Avenal Energy

¹ California Energy Commission Staff. *Preliminary Staff Assessment* for Avenal Energy Project Power Plant. January 30, 2009, page 5.5-1.

project is provided as Exhibit 'A' to this filing and Avenal has provided one-line diagrams prepared by a third party consultant under confidential cover. The attached preliminary job scope for Pacific Gas and Electric Company's ("PG&E") portion of the Avenal interconnection details the 230 kV bus extension for the new tie line position. PG&E's plan was to "expand the existing 230 kV double buses (Section E) on the east end, which required grading and fencing a new area about 240 ft west-east and 360 ft north-south, starting at the existing fence line on the east side of the 230 kV area."² Although this area is outside of the existing Gates substation fence line, Avenal has determined from the pre-project one line diagram provided by PG&E and Fresno County Assessor records that the potential bus expansion for Avenal Energy's new bay position could occur entirely on PG&E-owned property. Furthermore, the area identified for the planned expansion of the fence line is regularly maintained by PG&E and was included in the environmental analysis provided in the Application for Certification. More detailed information on the area and environmental studies evaluating potential environmental impacts is provided as Exhibit 'B'.

An electrical one-line diagram showing any new termination facilities, including breaker and disconnect ratings, of the proposed Avenal Energy overhead 230 kV tie line at the Gates substation is not currently available from PG&E or the CAISO. This will be provided as it becomes available, but no later than 60 days prior to the start of construction as stated in Condition of Certification TSE-5. However, based on the attached Exhibit 'A', PG&E and the CAISO had previously proposed a new 230 kV SF6 gas filled high voltage circuit breaker and associated disconnect (with ratings and protection devices based on the characteristics provided in the generator interconnection request) to interconnect the Avenal Energy generation tie line to the Gates substation suitable to satisfy the CAISO and PG&E tariff requirements for system reliability and protection. Breakers and busses in the power plant switchyard and other switchyards (Gates substation) will be sized to accommodate full output from the project and to comply with a short-circuit analysis. Avenal's nominal project output of 783 MVA equates to approximately 1,970 amps (at 230 kV). The short circuit studies done for Avenal Energy's 3rd party System Impact Study indicate the post-Project fault current at the Gates 230 kV bus would be about 38,500 amps. Accordingly, a new SF6 gas-filled 230 kV breaker with a continuous rating of 3,000 amperes and a fault capability of 63,000 amps would have ample capacity to accommodate the Avenal Energy tie line in accordance with all applicable LORS. Two associated disconnect switches with continuous ratings of 3,000 amperes and interruptible ratings of 42,000 amperes would have ample capacity to accommodate the Avenal Energy tie line in accordance with all applicable LORS. Avenal's current interconnection request is substantially identical to that provided for the Exhibit 'A' preliminary job scope.

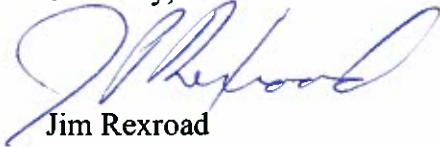
The interconnection design, including specification of all equipment, will be provided by the CAISO and PG&E through the interconnection study process. This process includes CAISO and PG&E review for compliance with applicable laws as well as General Orders and other requirements specified by the California Public Utilities Commission

² Appendix B- Work Scope to Interconnect Avenal Energy Center Project, Facilities Study performed by PG&E/CAISO for Duke Avenal Generation Project, October 27, 2003.

("CPUC"). Furthermore, all construction of the new 230 kV transmission line and associated upgrades will be conducted by Avenal Energy in accordance with the conditions of certification issued by the California Energy Commission or by PG&E under the rules and regulation of the CPUC; therefore, the new 230 kV tie line from Avenal Energy to Gates Substation will comply with all applicable LORS.

The Applicant believes that the supplemental information on Transmission System Engineering provided in this filing sufficiently resolves any outstanding questions about the termination facilities for the proposed 230 kV tie line at the Gates Substation. Furthermore, Staff's Conditions of Certification TSE-5 through 8 that require design, construction and operation of interconnection facilities to comply with applicable LORS including general orders of the CPUC provide adequate assurance and opportunity for the Staff to ensure the interconnection will be built consistent with applicable LORS. Therefore, Avenal Energy requests that Staff confirm their acceptance of the supplemental information provided as adequate and issue the FSA as soon as possible.

Sincerely,



Jim Rexroad
Vice President
Avenal Power Center, LLC

EXHIBIT A

**Preliminary Job Scope
For
PG&E's Portion of the Duke Avenal Generation Project
Including Work @ Gates Substation, TOC and SFGO**

Gates Substation: 230 kV Bus Extension for New Line Position

In order to interconnect Duke Avenal's new 230 kV generation tie coming from the south, it is necessary to create a new 230 kV breaker position by expanding the existing 230 kV double buses (Section E) on the east end and expanding the existing 230 kV Control Building. Expansion requires grading and fencing a new area about 240 ft west-east and 360 ft north-south, starting at the existing fence line on the east side of the 230 kV area.

OUTDOOR:

- Extend one bay position at the end of Bus Section E double buses using bundled 2300 kcmil Al. and run overhead across the existing fence line, using two dead-end tubular steel structures.
- Install three (3) 230 kV, double bus, single-breaker bays, with support structures and low profile buses only.
- Install one (1) breaker-and-switch support structure for new 230 kV line breaker to interconnect Avenal EC's generation tie line.
- Install one (1) 230 kV SF6 gas filled high voltage circuit breaker for one 230 kV bay.
- Install two (2) 230 kV, three-phase center-side-break, vertical insulators, disconnect switches, manually operated, with low-profile steel support structure for breaker disconnects.
- Install two (2) 230 kV, three-phase center-side-break, vertical insulators, disconnect switches, manually operated, with low-profile steel support structure for bus selector switches.
- Install one (1) 230 kV, three-phase center side-break, vertical insulators, disconnect switches, manually operated, mounted on top of breaker and switch support structure for breaker bypass.
- Install four (4) 230 kV CCVT's, three on the line side and one on the bus side, for the new 230 kV line breaker.
- Install five (5) yard lighting fixtures along with yard receptacle providing 120/240 V one-phase power. Three mounted on dead-end structures and two on lighting standards.
- Install drivable cable trench or duct banks, plus pull boxes.
- Run conduit from trench and pull boxes to all above ground equipment.
- Install concrete foundations for all above ground structures, supports and equipment.
- Expand ground grid system to tie to existing main ground grid.
- Install one 35 ft x12 ft extension to the existing control building.
- Pull new control and DC wiring between 230 kV HVCB, CCVT's, and all other equipment to the control room.
- Add contribution of new line breaker to existing Bus 1 and Bus 2 differential schemes.

- Re-locate one existing distribution wood pole line in order to avoid interference with the new 230 kV bus extension.

INDOOR:

- Install one or more simplex switchboard panel(s) for relay and control per Protection requirements, for the new 230 kV line position. Protection requires two levels of current differential protection using GE L90 and Schweitzer SEL 311L relays. Design will be per latest standards.
- Provide general lighting and receptacles in the extended area.
- Install any required SCADA for substation automation for this new line position
- Provide communication hardware, including (fiber optic) terminal equipment for current differential line protection.
- Modify existing 230 kV bus differential schemes to include new line breaker

Gates Substation: Replace Four 230 kV Overstressed Breakers

- Replace overstressed breakers CB 222, 242, 262 and 292 with new 230 kV, SF6 gas-insulated breakers.
- Install 230 kV CCVT's as follows:
 1. Two on line side and one on bus side, each for CB 222, 242, 262. Re-use existing B-phase CCVT with carrier on each of CB 222, 242, 262.
 2. One CCVT on CB 292.
- Pull a second set of CT wire for connection or future connection to Set B relay.
- This project does not propose to change the existing line protective relays on the overstressed breakers.

Duke Avenal Energy Center

- Review protection design associated with interconnection.
- Provide pre-parallel inspection and witness testing.
- Coordinate with Duke on Duke-installed equipment and system for EMS telemetry to PG&E's SFGO and Transmission Operating Center (TOC).

PG&E TOC and SFGO

- Install telecom equipment for EMS telemetry and SCADA at TOC and SFGO.

Communication Paths

Protection schemes on the new 230 kV generation tie require two independent digital communication paths. Duke is responsible to provide these required communication mediums between Gates Substation and Avenal Energy Center Station. The costs of install these communication mediums are not included in the Facilities Study.

1. Direct Fiber for GE L90.
2. Direct Fiber or Sonet digital communication path for SEL-311L

EXHIBIT B



21 Technology Drive
Irvine, CA 92618

949.727.9336 PHONE
949.727.7399 FAX

www.TRCSolutions.com

April 3, 2009

Mr. Jim Rexroad
Vice President
Avenal Power Center, LLC
500 Dallas Street, Level 31
Houston, TX 77002

Project No.: 158156 TA01

Via E-mail

RE: AVENAL ENERGY AFC ANALYSIS AREA FOR GATES SUBSTATION

Dear Mr. Rexroad:

Pursuant to your request, TRC has evaluated the environmental information included in the Avenal Energy Application for Certification (08-AFC-1) (AFC) to confirm that the environmental analysis addresses the area outside of the Gates Substation fence line, but within the Gates substation property owned by Pacific Gas & Electric (PG&E), where PG&E has previously indicated the substation will be expanded to accommodate Avenal Energy's 230 kV interconnection. Based on our evaluation, we have concluded that the area within one-quarter mile of the transmission line has been adequately documented in the AFC to allow California Energy Commission (CEC) staff to conduct a comprehensive California Environmental Quality Act (CEQA) analysis, as described further below.

General

The environmental analysis in the Avenal Energy AFC encompasses the lands surrounding the proposed Avenal Energy 230 kV electric transmission line and its tie-in to the Gates substation. The lands immediately surrounding the Gates Substation are owned by PG&E (AFC at Figure 2.1-2C and Appendix 1.1) and are 100 percent disturbed land (AFC Figure 2.1-5B). Commission Data Adequacy requirements at 20 CCR Chapter 5, Appendix B, dictate minimum environmental survey areas and other analysis requirements. We considered each of the environmental resource parameters addressed in the AFC and 20 CCR Chapter 5, Appendix B, Section (g), and determined that the environmental parameters relevant to the specific location of improvements at the substation include: Agriculture and Soils; Water Resources; Biological Resources; Cultural Resources; Paleontological Resources; and Land Use. The following paragraphs describe the study areas for these parameters and document that the study areas for these parameters adequately support a defensible CEQA analysis.

Agriculture and Soils

Existing regional agriculture and soil conditions described in the AFC encompass the agricultural region of the west side of the San Joaquin including the area on and around the project site, transmission line, and Gates Substation (AFC at 6.4-1). Furthermore, the specific types of soil occurring within one-half mile of the 230 kV Gates Substation and their characteristic were evaluated and documented in the AFC (AFC at 6.4-3, Table 6.4-1, Figure 6.4-1B). Agricultural crops types and irrigation practices within one-half mile of the 230 kV Gates substation also were evaluated and are documented in the AFC (AFC at Figure 6.4-3B). Williamson Act parcels within one-half mile of the substation were evaluated and are documented in the AFC (AFC at Figure 6.4-4B). These study areas exceed the CEC's one-quarter mile study area requirement for agricultural resources required by 20 CCR, Chapter 5, Appendix B, Section (g)(3)(iv)(D). Considering these factors, the AFC provides comprehensive agriculture and soils information to support a CEQA analysis of potential work outside the substation fence line.

Water Resources

Existing regional water resource conditions described in the AFC encompass the entire San Joaquin Valley, with additional emphasis on the Westside Groundwater Basin, which underlies the entire project area including the site, transmission line, and Gates Substation and surrounding areas (AFC at 6.5-1, 6.5-2 through 6.5-6, 6.5-9, 6.5-10, Figure 6.5-3, Figure 6.5-4, Figure 6.5-5, Figure 6.5-6 and Appendix 6.5-2). The AFC demonstrates that ground water resources in the vicinity of the substation are too deep to be impacted by any work that could occur in the substation vicinity (*id.*) Furthermore the AFC documents that for the northern portion of the transmission line, which includes the substation vicinity, the closest perennial surface drainages are Arroyo Vadoso located approximately 2 miles south of the substation, and Los Gatos Creek, located more than 3 miles north of the substation (AFC at 6.5-4, 6.5-5 and Figure 6.5-1B). No 100-year flood hazard zones occur in the vicinity of the gates substation as shown in Exhibit 35-1 provided to CEC in response to Staff's Data Request No. 35, which shows a minimum one-half mile radius from the substation. The study areas encompassed for water resources extend one-half mile or more from the Gates Substation and meet or exceed CEC's Data Adequacy requirements of 20 CCR, Chapter 5, Appendix B, Section (g)(14). Considering these factors, the AFC provides comprehensive water resources information to support a CEQA analysis of potential work outside the substation fence line.

Biological Resources

Existing regional biological resource conditions described in the AFC encompass the entire area within 10 miles of the project site as required by 20 CCR, Chapter 5, Appendix B, Section (g)(13)(A). This is shown in AFC Figure 6.6-2 and encompasses all lands within a minimum of approximately 5 miles of the Gates Substation (AFC at 6.6-1 to 6.6-18, Figure 6.6-2, Figure 6.6-3, Figure 6.6-4, Appendix 6.6-1, Appendix 6.6-2, Appendix 6.6-3). Furthermore, an intensive evaluation of biological resources, including field surveys, encompasses all lands within one mile of the site and within 1,000 feet of the transmission line, which includes the area surrounding the substation (AFC at 6.6-18 to 6.6-28, Figure 6.6-1, Appendices 6.6-1 to 6.6-3). The survey area around the substation is shown in AFC Figure 6.6-1. As documented in the AFC, no special status species or sensitive habitat occurs in proximity to the substation that could be impacted by work at or adjacent to the substation. The area is 100 percent disturbed with ongoing utility or agricultural use (see *General* and *Agriculture and Soils* sections of this letter). Considering these factors, the AFC provides comprehensive biological resources



information to support a CEQA analysis of potential work outside the substation fence line.

Cultural Resources

Regional cultural resource evaluations described in the AFC encompass the western margin of the San Joaquin Valley between the Kettleman Hills and the Tulare Lake basin, which includes the Gates Substation location and surrounding areas (AFC at 6.7-1, 6.7-2, Figure 6.7-1B). As required by 20 CCR, Chapter 5, Appendix B, Section (g)(2)(B), specific cultural resource record searches documented in the AFC encompassed all lands within one-quarter mile of the transmission line, which includes the lands adjacent to the Gates Substation (AFC at 6.7-3). There is no record of any significant cultural resources having been found in the area. Furthermore, as required by 20 CCR, Chapter 5, Appendix B, Section (g)(2)(C), intensive surveys for cultural resources have been conducted for the project covering lands within and adjacent to the site and linear facilities. No cultural resources were found (AFC at 6.7-10). The area encompassed by the field surveys in the vicinity of the substation are shown in AFC Figure 6.7-1B. While the cultural resources field survey did not encompass all lands adjacent to the substation, the intensive level of disturbance that has occurred in the area surrounding the substation (AFC Figure 12.1-5B) and the absolute absence of cultural resources in the region based on project surveys and literature surveys substantiate a low likelihood of significant cultural resources occurring adjacent to the substation even outside of the areas surveyed. Furthermore, the Preliminary Staff Assessment includes proposed conditions of certification that will limit impacts to cultural resources to a level that is less than significant if unknown cultural resources were to be disturbed by the project. Considering these factors, the AFC provides adequate cultural resource information to support a CEQA analysis of potential work outside the substation fence line.

Paleontological Resources

The paleontological resource evaluations described in the AFC encompass the geologic units occurring in the vicinity of the Gates Substation and surrounding areas. The near-surface geology throughout the area of the site and transmission line is Quaternary alluvium with Holocene alluvium exposed at the surface (AFC at 6.8-2 and Figures 6.3-2 to 6.3-4). The analysis of paleontological resources would be unchanged for any footprint in the region falling within the mapped boundary of the Quaternary alluvium in AFC Figure 6.3-3A. Considering these factors, the AFC provides comprehensive paleontological resources information to support a CEQA analysis of potential work outside the substation fence line.

Land Use

Regional land use characteristics described in the AFC encompass the western San Joaquin Valley region includes the Gates Substation location and surrounding areas (AFC at 6.9-1 to 6.9-4, 6.9-11, 6.9-12, Figure 6.9-1). In addition, as required by 20 CCR, Chapter 5, Appendix B, Section (g)(3), detailed land use characteristics are documented in the AFC for all lands within one-quarter mile of the transmission line, which includes the lands adjacent to the Gates substation (AFC at 6.4-5, 6.4-6, 6.9-2 to 6.9-4, Figure 6.4-1B, Figure 6.4-3B, Figure 6.4-4B, Figure 6.9-2B, Figure 6.9-3B). Considering these factors, the AFC provides comprehensive land use information to support a CEQA analysis of potential work outside the substation fence line.

Mr. Jim Rexroad
April 14, 2009
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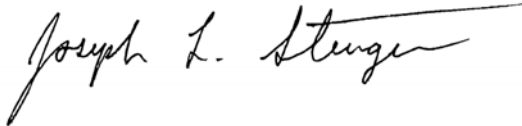
Conclusion

In summary, our evaluation concluded that of the environmental resource parameters addressed in the AFC and 20 CCR Chapter 5, Appendix B, Section (g), those relevant to the specific location of improvements at the substation include: Agriculture and Soils; Water Resources; Biological Resources; Cultural Resources; Paleontological Resources; and Land Use. Furthermore, our evaluation affirmed that for each of these parameters, the AFC provides comprehensive information to support a CEQA analysis of potential work outside the substation fence line and within one-quarter mile of the proposed Avenal Energy 230 kV transmission line route.

Closing

Please let me know if you have questions or if TRC can be of further assistance.

Sincerely,

A handwritten signature in black ink that reads "Joseph L. Stenger". The signature is written in a cursive style with a long horizontal line extending from the end of the name.

Joseph L. Stenger, RG, REA
Project Director



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

**APPLICATION FOR CERTIFICATION FOR
THE AVENAL ENERGY PROJECT**

DOCKET NO. 08-AFC-1

PROOF OF SERVICE
(Revised 2/3/09)

<p><u>APPLICANT</u></p> <p>Jim Rexroad, Project Manager Avenal Energy Center, LLC 500 Dallas Street, Level 31 Houston, TX 77002 jim.rexroad@macquarie.com</p>	<p><u>COUNSEL FOR APPLICANT</u></p> <p>Jane Luckhardt, Esq. Downey Brand, LLP 555 Capitol Mall, 10th Floor Sacramento, CA 95814 jluckhardt@downeybrand.com</p>	<p><u>ENERGY COMMISSION</u></p> <p>Jeffrey D. Byron Commissioner & Presiding Member jbyron@energy.state.ca.us</p>
<p>Tracy Gilliland Avenal Power Center, LLC 500 Dallas Street, Level 31 Houston, TX 77002 tracy.gilliland@macquarie.com</p>	<p><u>INTERESTED AGENCIES</u></p> <p>California ISO e-recipient@caiso.com</p>	<p>Arthur Rosenfeld Commissioner and Associate Member arosenfe@energy.state.ca.us</p> <p>Gary Fay Hearing Officer gfay@energy.state.ca.us</p>
<p><u>APPLICANT CONSULTANT</u></p> <p>Joe Stenger, Project Director TRC Companies 2666 Rodman Drive Los Osos, CA 93402 jstenger@trcsolutions.com</p>	<p><u>INTERVENORS</u></p> <p>Loulena A. Miles Marc D. Joseph Adams Broadwell Joseph & Cardozo 601 Gateway Boulevard, Suite 1000 South San Francisco, CA 94080 mdjoseph@adamsbroadwell.com lmiles@adamsbroadwell.com</p>	<p>Ivor Benci-Woodward Project Manager ibenciwo@energy.state.ca.us</p> <p>Lisa DeCarlo Staff Counsel ldecarlo@energy.state.ca.us</p> <p>Public Adviser's Office publicadviser@energy.state.ca.us</p>

Declaration of Service

I, Lois Navarrot, declare that on May 21, 2009, I served and filed copies of the attached **Avenal Power Center, LLC's Environmental Analysis for Gates Substation and Surrounding Property Owned by PG&E**. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: www.energy.ca.gov/sitingcases/avenal. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service List) and to the Commission's Docket Unit, in the following manner:

(check all that apply)

For Service to All Other Parties

 X sent electronically to all email addresses on the Proof of Service list;

 X by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service List above to those addresses **NOT** marked "email preferred."

AND

For Filing with the Energy Commission

 X sending an original paper copy and one electronic copy, mailed and e-mailed respectively, to the address below (preferred method);

OR

 depositing in the mail an original and 12 paper copies as follow:

California Energy Commission
Attn: Docket No. 08-AFC-1
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

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

/s/
Lois Navarrot