Pacific Gas and Electric Company
Power Generation
Fossil Plant Construction

Colusa Generating Station Project
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California Energy Commission
1516 Ninth Street, MS-4
Sacramento, CA 95814

Subject: Pacific Gas & Electric's Colusa Generating Station Project (06-AFC-9C)
License Petition Amendment #2

Enclosed for filing with the California Energy Commission are one original and twelve (12) copies of Pacific Gas & Electric Company's second Petition to Amend the Colusa Generating Station License.

Sincerely,

Jon Maring, Director
New Generation
Enclosure

cc: Scott Galati, Galati & Blek LLP
Andrea Grenier, Grenier & Associates, Inc.
Jerry Salamy, CH2MHill

Colusa Generating Station

(06-AFC-09)

Amendment 2

Submitted to the

California Energy Commission

Submitted by

Pacific Gas & Electric Company

January 2009

With Assistance from

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SECTION 1

Introduction

1.1 Background

On April 23, 2008, the California Energy Commission (CEC) approved and licensed Pacific Gas and Electric Company's (PG&E) Colusa Generating Station (CGS) Project. The CGS project is a nominal 660-megawatt combined-cycle power plant located in the unincorporated portion of Colusa County, approximately 6 miles north of the community of Maxwell. The project site is located on a 100-acre parcel that is leased from the 4,800-acre Holthouse Ranch. PG&E's Delevan natural gas compressor station is located immediately east of the project site. Grazing land surrounds the 100-acre leased parcel to the west, north, and south. Construction of the project is expected to last 22 to 24 months and commercial operation is targeted for August 2010.

Site mobilization and excavation activities began in August 2008. Work on the major foundations, including the heat recovery steam generators, air-cooled condenser, and steam turbine began in October 2008. The project's water supply line has been installed and work on the other two linear features associated with the project, the new transmission line and gas line interconnection, will begin early next spring.

1.2 Description of Proposed Amendment

The CEC Final Decision for the CGS approved not only the water and gas supply lines noted above, but also a new interconnection to the nearby existing electrical infrastructure owned by PG&E. The electrical switchyard and transmission facilities will allow delivery of the power plant's output to PG&E's existing Cottonwood to Vaca-Dixon 230-kilovolt (kV) transmission corridor located approximately 1,800 feet east of the project site. The CEC Final Decision approved the construction of 12 double-circuit, lattice steel transmission towers to accommodate both the looping of the 230-kV lines into the plant switchyard and for the connections from the generator step-up transformers to the switchyard. The purpose of this filing is to request the CEC's approval to amend the CGS project description to allow slight modification of the size and layout of the switchyard and the electric transmission interconnection route. More detailed information on these proposed changes is provided in Section 2.

1.3 Necessity of Proposed Changes

Sections 1769 (a)(1)(A), (B), and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed revisions to the GGS project and whether the revisions are based on information known by the petitioner during the certification proceeding. These changes are necessary to meet PG&E's standard design and safety criteria as they relate to the construction of the new transmission facilities.

1.4 Summary of Environmental Impacts

Section 1769 (a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address impacts the proposed revisions may have on the environment and proposed measures to mitigate significant adverse impacts. Section 1769 (a)(1)(F) requires a discussion of the impacts of proposed revisions on the facility's ability to comply with applicable laws, ordinances, regulations, and standards (LORS). Section 3 discusses the potential impacts of the proposed changes on the environment, as well as the proposed revisions' consistency with LORS.

1.5 Consistency of Changes with License

Section 1769 (a)(1)(D) of the CEC Siting Regulations requires a discussion of the consistency of each proposed project revision with the assumptions, rationale, findings, or other bases of the Final Decision and whether the revision is based on new information that changes or undermines the bases of the final decision. Also required is an explanation of why the changes should be permitted. The proposed revisions do not undermine the assumptions, rationale, findings, or other basis of the Final Decision for the project.

SECTION 2

Description of Project Changes

Consistent with the CEC Siting Regulations Section 1769(a)(1)(A), this section includes a description of the requested project modifications, as well as the necessity for the changes.

2.1 Proposed Changes

Generation output from the CGS will be transmitted to the electrical grid via a new connection between the CGS plant and the existing PG&E electric transmission corridor that is located immediately east of the project site. The project description information for the CGS electrical substation design and interconnection was originally prepared by E&L Westcoast LLC (E&LW), the former project owner. Figure 1, excerpted from the CEC's Final Staff Assessment for the project, shows the approved location and size of the switchyard area and transmission facilities.

In its Application for Certification (AFC) filed with the CEC, E&LW noted that PG&E, as owner and operator of the transmission facilities, would be responsible for preparing the final design to interconnect the power plant with the PG&E transmission system located directly adjacent to the proposed power plant.[1] PG&E's transmission engineers have now completed their final design efforts and have prepared an optimal layout that accommodates both the CGS switchyard as well as a new 230-kV interconnection switchyard and gen-tie substation. As shown on Figure 2, the area for these facilities is slightly larger than the area originally approved in the CEC Final Decision (8.20 acres licensed vs. 9.07 acres currently proposed) but continues to be located entirely within the 100-acre construction site originally approved by the CEC.

The CEC Final Decision also approved a total of eight new circuits to be constructed between the new switchyard and the adjacent PG&E transmission corridor—four circuits in and four circuits out. Two circuits are carried on each tower line, so there will be four tower lines connecting the switchyard to the electric transmission corridor. The original plan called for 12 new double-circuit, lattice steel transmission towers to be installed to accommodate both the looping of the 230-kV lines into the plant switchyard and for the connections from the generator step-up transformers to the switchyard. Figure 1 shows the location of the four double-circuit lines and the transmission tower locations that were approved in the Final Decision for the CGS Project.

Modification of the switchyard/substation layout has necessitated some changes to the alignment of the approved transmission interconnection (see Figure 2). The CEC Final Decision approved a total of 12 new towers, four on site (within the 100-acre parcel) and eight off site. Under the new design, a total of 20 new towers will be constructed, with eight on site and 12 off site. The following paragraphs describe the proposed changes in more detail.

[1] Application for Certification for the Colusa Generating Station Project, November 2006, page 5-1.

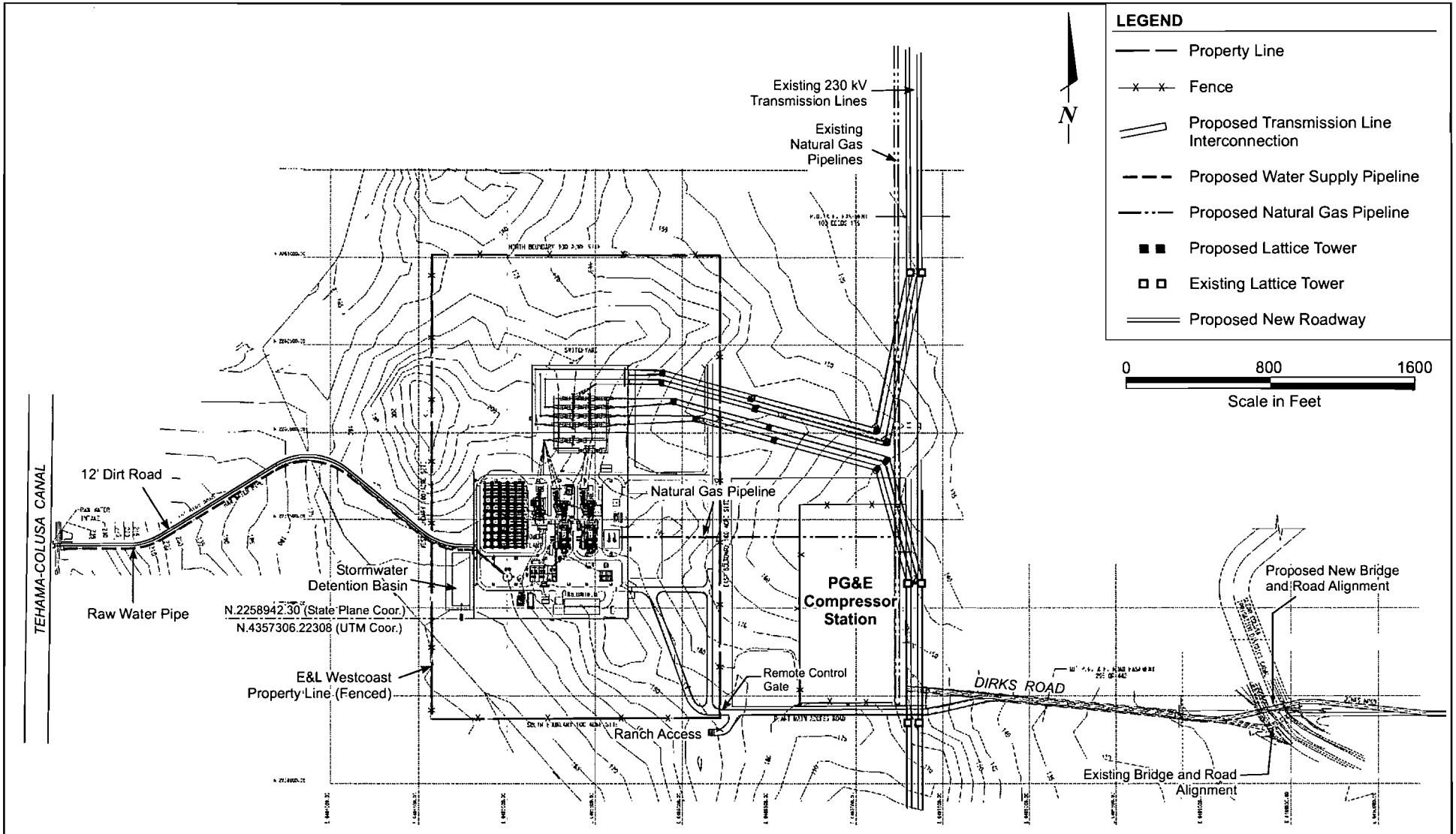
The southernmost transmission lines (Segment A) will interconnect with the existing transmission corridor following an alignment similar to that approved in the CEC Final Decision, but will avoid crossing over the northeast corner of the existing Delevan gas compressor station (PG&E's design criteria prohibits the siting of high voltage electric lines over gas yards). In order to properly connect the new line with the existing PG&E Cottonwood to Vaca-Dixon 230-kV transmission corridor, PG&E will add two additional transmission towers using the same lattice steel design approved by the CEC in the Final Decision, and remove two of the existing 230-kV transmission towers for a net increase of two new towers for this segment.

The two northern lines (Segment B on Figure 2) will also be realigned, requiring a total of 12 transmission towers. The new switchyard design requires that the lines exit the west side of the new switchyard rather than the east side as originally approved in the CEC Final Decision. After exiting the west side of the switchyard, the alignment will turn immediately north and then east to intersect with the existing transmission corridor. In order to support the revised alignment associated with Segment B, PG&E will need to construct six additional new transmission towers using the same lattice steel design approved by the CEC in the Final Decision. Six of these additional towers are located within the 100-acre construction site (only two of the towers in the CEC-approved design were located within this area). The other six transmission towers will be located in an alignment similar to that approved by the CEC except that the alignment eliminates a significant jog to the north. The overall length of Segment B is 2,850 feet compared to 1,800 feet as approved in the Final Decision.

The transmission towers located outside the 100-acre construction site will be placed approximately every 500 feet within a temporary 100-foot-wide construction easement. The temporary disturbance area associated with the six additional towers is 60,000 square feet and the permanent disturbance area will be 9,600 square feet. Construction of the new towers has the potential to slightly increase permanent impacts to Swainson's hawk foraging habitat. These impacts are discussed in Section 3.

2.2 Necessity of Proposed Changes

Sections 1769 (a)(1)(B) and 1769(a)(1)(C) of the CEC Siting Regulations require a discussion of the necessity for the proposed changes to the project and whether this modification is based on information that was known by the petitioner during the certification proceeding. The original layout and design of the switchyard area was prepared by E&LW and its consultant, URS, as part of its AFC that was filed with the CEC in November 2006. However, the AFC stated that the final design of the project's transmission facilities would be PG&E's responsibility, as it would own and operate that component of the project. PG&E's transmission design engineers have completed this effort and the revised switchyard design and transmission corridor now comply with PG&E's internal guidelines and design standards.

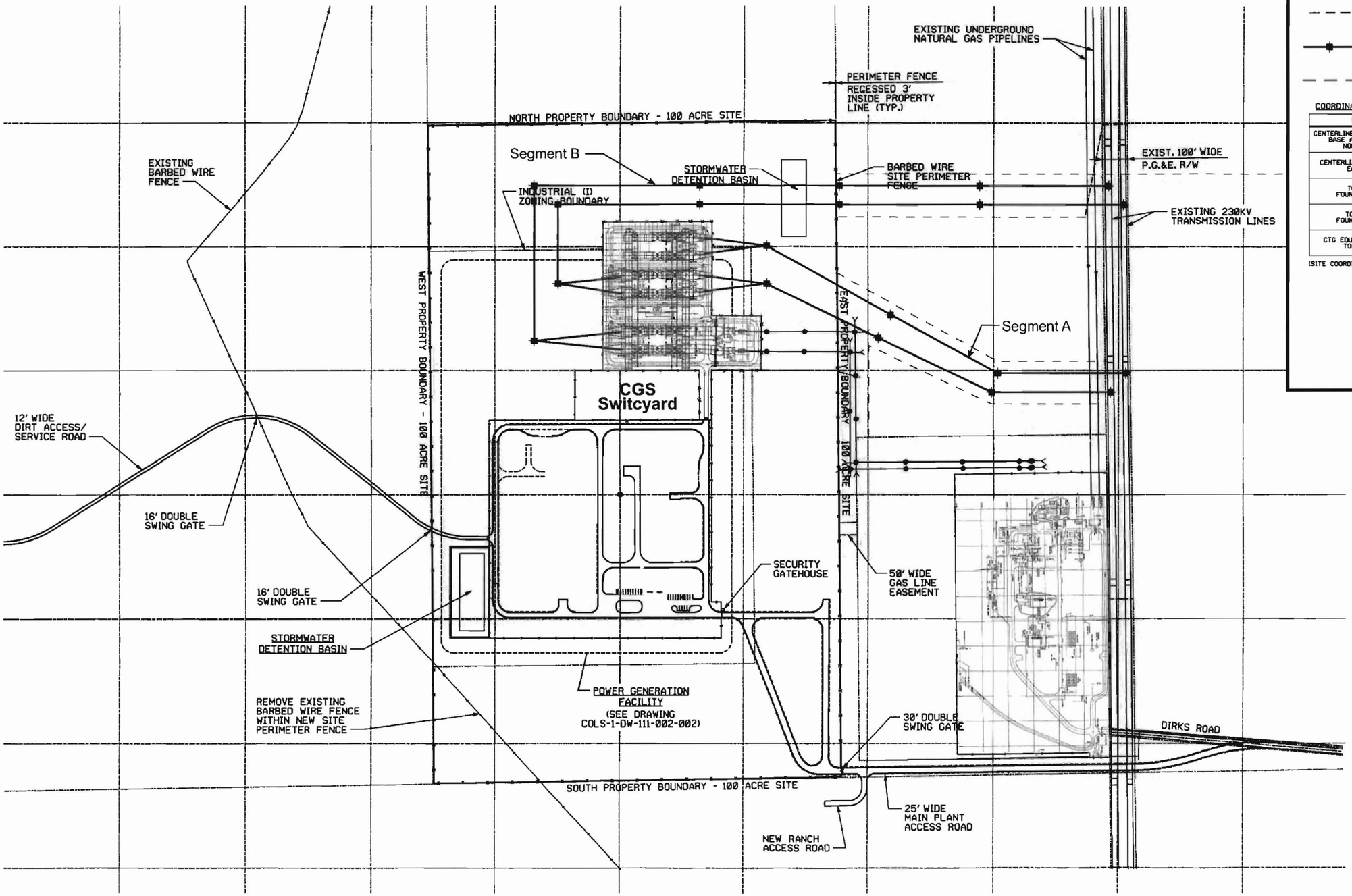


Source:
Bechtel Corporation; Colusa Power Plant, Dwg. No. P1-0100-00003
General Arrangement With Air Cooled Condenser (COL_GA05 Rev Oc) October 4, 2006;
Figure 7.2-1 in progress Oct 20, 2006

URS Corporation, November 2006, Figure 3.3-1

FIGURE 1
SITE LAYOUT AND LINEAR FACILITIES
COLUSA GENERATING STATION
PACIFIC GAS AND ELECTRIC

10/27/06 vsa ..\28067004 CPV Colusa\3.0 Facility Description\3.3-1_site plan.cdr
ES022008013SAC Figure_1.ai 01/14/09 tdaus



LEGEND

- ROW Easement Line
- 230 KV Transmission Line
- New Gas Line to Colusa P/P

COORDINATE SYSTEM:

LOCATION	SITE COORDINATE	PLANT COORDINATE
CENTERLINE OF CTG-2 TURBINE BASE ANCHOR SUPPORT NORTH/ SOUTH	N 2259519.171	N 10000.000
CENTERLINE OF CTG-2 UNIT EAST/ WEST	E 6485331.470	E 5000.000
TOP OF CTG FOUNDATION CONC.	EL. 183'-0"	EL. 100'-0"
TOP OF HRSG FOUNDATION CONC.	EL. 183'-0"	EL. 100'-0"
CTG EQUIPMENT BASELINE TOP OF GROUT	EL. 183'-1½"	EL. 100'-1½"

(SITE COORDINATES BASED ON CALIFORNIA STATE PLANE GRID NAD83, ZONE 2)

N

0 200 400
Feet

FIGURE 2
TRANSMISSION LINE REROUTE AND SWITCHYARD MODIFICATIONS
COLUSA GENERATING STATION
PACIFIC GAS AND ELECTRIC

Source: WorleyParsons LTD, 2008

CH2MHILL

ES022008013SAC Figure_2.ai 01/14/09 tdaus

SECTION 3

Environmental Analysis of the Project Changes

PG&E has reviewed the modifications proposed herein to determine if the changes will result in any environmental impacts that were not originally analyzed by the CEC when it approved the project in April 2008. The only disciplines that could be affected by the changes described in this amendment are air quality, biological resources, cultural resources, and visual resources. Additionally, the proposed changes discussed in this amendment will not alter the operational impacts that were used as the basis to license the project during the original proceeding. Therefore, operational impacts are expected to be equal to those analyzed in the Final Decision and are not addressed in this amendment.

3.1 Air Quality

Modification of the transmission interconnection will require the construction of 20 new transmission towers as compared to the 12 approved in the CEC Final Decision. PG&E intends to fully implement all provisions of the Air Quality Construction Mitigation Plan (AQCMP) that was approved by the CEC to cover the construction site and associated linears, including the transmission line interconnection. PG&E and Gemma have already successfully implemented the mitigation measures set forth in the AQCMP when the site grading and excavation work was completed on the entire 100-acre site, and will continue to do so during construction of the revised transmission facilities to ensure that air quality construction impacts associated with the project do not exceed the permit levels set forth in the CEC Final Decision.

3.2 Biological Resources

PG&E's Designated Biologist, Rick Crowe, performed a reconnaissance survey of the revised transmission line interconnection alignment on October 28, 2008. The proposed transmission line re-route will impact an additional 0.26 acre of annual grassland habitat that is dominated by yellow star-thistle (*Centaurea solstialis*), medusa head (*Taeniatherum caput-medusae*), wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), storksbill (*Erodium botyrs*), and geranium (*Geranium dissectum*). The annual grassland within the project site and within the proposed transmission line alignment provides habitat for common wildlife species such as western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and coyote (*Canis latrans*). This annual grassland habitat also provides foraging habitat for many raptor species such as northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and potentially Swainson's hawk (*Buteo swainsoni*). Historically, agricultural use of this land was cattle grazing and dry land farming.

During initial project site disturbance (clearing and grubbing), numerous Swainson's hawks and red-tailed hawks were observed foraging over the 100-acre project site. Nesting Swainson's hawk and nesting raptor pre-disturbance surveys were conducted on March 27, and April 15, 2008, prior to the beginning of construction of the CGS project. No nest sites

were observed within 1 mile of the project site and only 11 potential nest trees were identified within the 1 mile corridor.

The reconfigured switchyard/substation will result in an additional 0.87 acre of disturbance of annual grassland. The two project component changes will result in a total of 1.15 acres of additional impacts to annual grassland beyond what was originally permitted in the CEC's Final Decision for the CGS project. See Table 1 for a comparison of the original permitted transmission system acres of annual grassland disturbance to the proposed transmission system design changes.

TABLE 1
Comparison of the Permitted Transmission System Grass Land Disturbances to the Proposed Design Changes

Feature	Final Staff Assessment Permitted Annual Grassland Disturbed Acreage	Proposed Design Annual Grassland Disturbed Acreage	Difference from Originally Permitted Acreage
Switchyard/Substation	8.20	9.07	0.87
Transmission Line	0.40	0.66	0.26
		Total Change	**1.15 acres**

3.2.1 Mitigation

The Biological Monitor will be on site during the construction of the revised transmission line alignment, as required by the approved Biological Resources Mitigation and Implementation Plan. Pre-disturbance surveys will also be conducted prior to beginning work within the proposed alignment.

Because of the additional annual grassland impacts and after consultation with the California Department of Fish and Game (CDFG), the CGS project will need to provide offsite mitigation for Swainson's hawk. Below are the CDFG guidelines used for mitigating impacts to Swainson's hawks. PG&E discussed the revised transmission interconnection with the CDFG representative (Jenny Marr – 530-895-4267). The CDFG representative agreed with the need and quantity of mitigation required and that revising the Consistency Determination was not warranted.

Swainson's Hawk: California Threatened Species

Mitigation ratios, recommended by CDFG (1994), are based on the distance from the project site to the closest active nest site as follows;

- Projects within 1 mile of an active nest tree shall establish offsite habitat management lands through fee title acquisition or a conservation easement on suitable foraging habitat (1:1 ratio); or one-half acre that allows for the active management of the habitat for prey production (0.5:1 ratio).
- Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide habitat management lands at a 0.75:1 ratio.

- Projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree shall provide habitat management lands at a 0.5:1 ratio.

The Final Decision concluded that based on the nesting survey results conducted during the licensing proceeding, the appropriate mitigation ratio for the CGS project is 0.75:1 (3/4 of an acre for every acre developed). Therefore, the re-routed transmission line and reconfigured switchyard/substation result in additional project impacts to annual grasslands of 1.15 acres. Therefore, offsite preservation of at least 0.86 acre at a CDFG-approved mitigation bank will be required. To satisfy the additional Swainson's hawk mitigation PG&E is proposing to purchase 1 acre of Swainson's hawk habitat preservation/management credits at the Elsie Gridley Multi-species Conservation Bank. Condition of Certification BIO-20 will need to be modified to account for the additional mitigation acreage as described in Section 4.

3.3 Cultural Resources

The proposed new transmission interconnection alignment is situated within the study area that was originally evaluated during the CEC licensing process. Kruger Frank, a cultural resources monitor for the CGS project, conducted a cultural resources survey of the new alignment areas on October 29, 2008 and found four isolated artifacts during the survey, including a mano, pecked stone, flaked cobble, and a chert scraper. These artifacts are similar in nature to the ones that have been found on the project site since construction began in August 2008, and which have been reported to the CEC compliance project manager as necessary via daily reports. Realignment of the transmission interconnection alignment and construction of the new transmission towers are expected to result in the same type of impacts originally identified in the CEC Final Decision. The cultural resources monitor will be on site during the construction of the revised alignment, as required by the approved Cultural Resources Implementation and Monitoring Plan.

3.4 Visual Resources

Although the modifications being proposed to the transmission interconnection will include construction of eight transmission towers beyond what was approved in the CEC Final Decision, the additional towers will be identical in size and structure to the 12 new towers already approved. Six of the eight additional towers will be situated on the west and north sides of the plant farthest away from public access roads. These towers will be back-dropped by the CGS power block facilities, resulting in slightly increased visual clutter from sensitive viewers at Key Observation Points (KOPs) north of the site (KOPs 3, 4, and 5). This increase in visual clutter will not result in new significant impacts and these changes will not alter the assumptions or conclusions made in the Final Decision for the CGS project. The new transmission towers located between the existing transmission corridor and the plant site will likely not be distinguishable from the licensed interconnection configuration due to the distance to the KOPs (between 1.5 and 4.5 miles from the site). The proposed revisions will not change the discussion related to LORS as presented in the CEC Final Decision.

No new significant cumulative impacts are expected from the proposed changes relative to those presented in the CEC Final Decision.

SECTION 4

Proposed Modifications to the Conditions of Certification

Consistent with the requirements of the CEC Siting Regulations Section 1769 (a)(1)(A), this section addresses the proposed modifications to the project's Conditions of Certification.

A slight modification to the Condition of Certification BIO-20 in the CEC Final Decision for the CGS Project will be required due to additional annual grassland impacts of 1.15 acres. The original annual grassland impacts were 33.44 acres mitigated at 0.75:1 (3/4 of an acre for every acre developed), which resulted in the purchase of 25.05 acres at the Elsie Gridley Multi-species Conservation Bank. PG&E is proposing to purchase an additional 1 acre of Swainson's hawk habitat preservation/management credits at the Elsie Gridley Multi-species Conservation Bank. The proposed revision to Condition of Certification BIO-20 is presented below.

BIO-20 The project owner shall survey for Swainson's hawk as part of the Applicant's proposed pre-construction surveys within 1 mile of construction activities between March 20 and April 20. If active nests are found, mitigation measures consistent with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG 1994) shall be implemented.

To compensate for impacts to Swainson's hawk foraging habitat, the project owner shall provide habitat management lands to CDFG. Habitat management lands shall be protected through fee title acquisition or conservation easement and shall be suitable for Swainson's hawk foraging. A minimum of 26~~5~~.05 acres of Swainson's hawk foraging habitat in Colusa County shall be protected by the project owner. The project owner shall provide additional monetary funds for long-term management and monitoring of the protected lands as necessary based on the Center for Natural Lands Management property analysis record, or a similar cost analysis. The project owner shall identify the location of the mitigation area and the entity that shall preserve and manage the property in perpetuity for approval by the CPM prior to ground disturbance.

Verification: Pre-construction Swainson's hawk survey results shall be provided to the CPM within 60 days of completion of surveys. At least fifteen (15) days prior to site or related facilities mobilization, the project owner shall provide a copy of the check to the CPM. The project owner shall also provide a letter from the land management organization stating the amount of funds received and the number of acres purchased for perpetual management.

SECTION 5

Potential Effects on the Public and Property Owners

The proposed change described in this amendment will have no effect on the public and property owners beyond what was originally approved by the CEC.

The proposed project transmission design changes are expected to result in comparable impacts to the public and property owners as were analyzed during project licensing. Therefore, impacts to the public and property owners are expected to be the same than those analyzed during the license proceeding for the project.

SECTION 6

List of Property Owners

Consistent with the CEC Siting Regulations Section 1769(a)(1)(H), this section lists the property owners affected by the proposed modifications. The list of property owners within 1,000 of the proposed project is provided as an attachment to this Amendment.

SECTION 7

References

California Department of Fish and Game (CDFG). 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the central valley of California. Sacramento, CA. November 8, 1994.

Marr, Jenny, Staff Environmental Scientist / California Department of Fish and Game (CDFG). 2009. Personal communication with Richard Crow/CH2M HILL. January 15.

ATTACHMENT

List of Property Owners within 1,000 of the Proposed Project