OAKLEY GENERATING STATION

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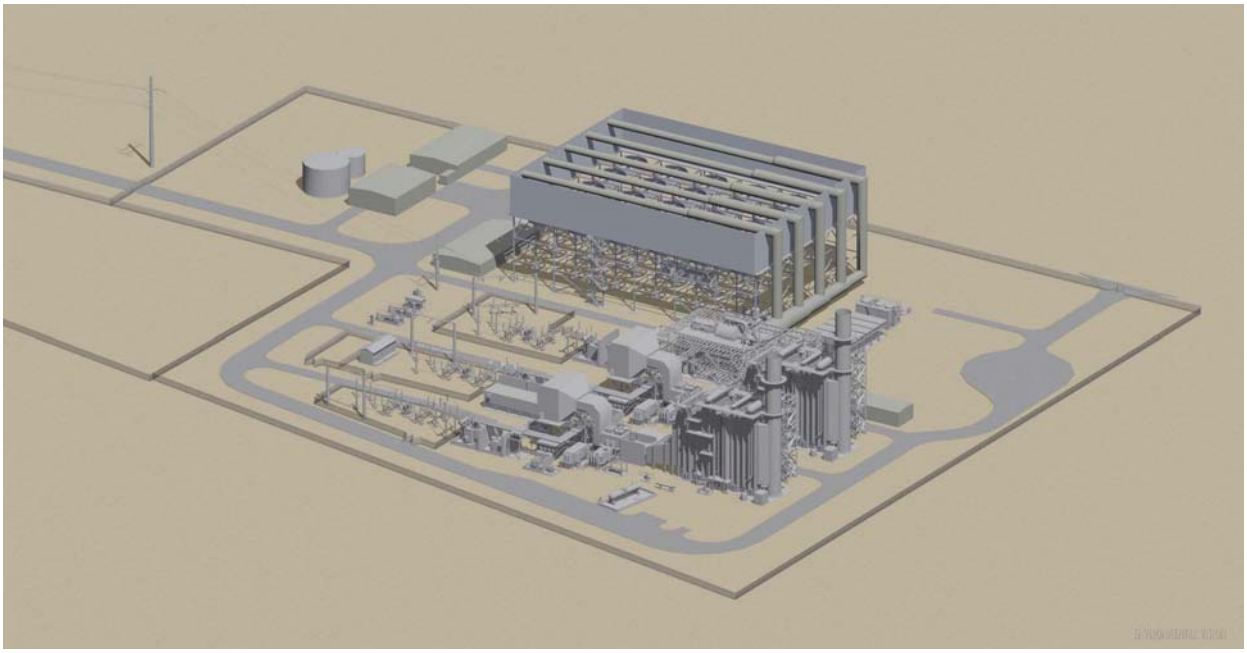

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APPENDIX A
TRANSMISSION SYSTEM ENGINEERING
DOWNSTREAM IMPACTS
RECONDUCTORING ANALYSIS

TABLE OF CONTENTS

LIST OF FIGURES

APPENDIX TO TRANSMISSION SYSTEM ENGINEERING RECONDUCTORING IMPACT ANALYSIS

Testimony of Energy Commission Staff

1.0 INTRODUCTION AND PURPOSE

Energy Commission staff has prepared this appendix to the **Transmission System Engineering** section of the Final Staff Assessment (FSA) prepared for the Oakley Generating Station (OGS) project to discuss transmission system impacts beyond the first point of interconnection. This appendix examines the potential indirect impacts of future reconductoring of transmission line upgrades that may be required as a result of the OGS.

The Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger and associated facilities. The Energy Commission also has the licensing authority up to the first point of interconnection for transmission facilities and has prepared a FSA to assess engineering, environmental, public health, and safety aspects of the OGS project at a project level to that first point of interconnection. However, under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the action," which may include facilities not licensed by the Energy Commission. Therefore, the Energy Commission must identify the system impacts and necessary new or modified transmission facilities downstream of the proposed interconnection that are required for interconnection and represent the "whole of the action."

Contra Costa Generating Station, LLC (CCGS) submitted a request to the California Independent System Operator (CAISO) for interconnecting the OGS to the CAISO-controlled grid in 2007. CAISO and PG&E subsequently completed a Phase II Interconnection Study (CH2MHILL 2010r), including Revision 1 (CH2MHILL 2010y) and Revision 2 (CH2MHILL 2010ad)), to determine the impacts of the OGS along with other generation projects on the CAISO system facilities. Under the Federal Energy Regulatory Commission-approved Large Generator Interconnection Procedures, interconnection requests are now processed together in clusters. A total of twelve proposed projects were grouped together in Transition Cluster Group 1, including OGS, and their transmission system impacts were assessed as a group, but with the relative contribution of each proposed project in the cluster assigned a percentage weight. Following the Phase I Interconnection Study (CH2MHILL 2010a), six of the twelve proposed projects dropped from the CAISO interconnection queue.

The Transition Cluster Phase II Interconnection Study, and the subsequent revisions to it, identified potential overloads on the downstream facilities that would occur with the addition of the remaining six projects in the cluster. In order to eliminate the identified overloads, preferred mitigation options identified in the study include reconductoring of the overloaded lines with higher-capacity conductors and replacing some circuit breakers.

On January 20, 2011, California Energy Commission (Energy Commission) staff issued a data request (CEC 2011b), requesting that CCGS provide information about the potential environmental impacts of reconductoring segments for which the cluster study identified the OGS project as having a significant percentage of responsibility, which include the following:

- 18.3 miles of the Contra Costa PP to Delta Pumps 230-kV transmission line;
- 21 miles of the Las Positas to Newark 230-kV transmission line; and
- 8 miles of the Kelso to Tesla 230-kV transmission line.

Another power plant development currently under Energy Commission review, the Mariposa Energy Project (MEP) has prepared an environmental analysis of the Kelso to Tesla reconductoring in the Supplemental Staff Assessment of the Mariposa Energy Project prepared in December of 2010. Therefore, this appendix does not include that environmental analysis, but does incorporate it by reference.

The two transmission line segments are shown in **Figures 1, 2a – 2c, and 3a – 3b**. The reconductoring project would involve replacing the conductors on one or more transmission line segments with new conductors that would increase current-carrying capacity of the segment. At this time, it is anticipated that reconductoring would not involve modifying any transmission line towers.

The Energy Commission's direct jurisdiction extends to the first point of interconnection with the electrical transmission system at the Contra Costa Substation. The Application For Certification (AFC) included an analysis of all OGS project facilities to Contra Costa Substation. The reconductoring program will be permitted specifically under the jurisdiction of the California Public Utility Commission (CPUC), and the CPUC will be responsible for preparing the appropriate CEQA documents with specific mitigation requirements as needed when issuing its authorization for PG&E to implement the program. Because the CAISO study identifies transmission system impacts that will require reconductoring, such actions could be (1) reasonably foreseeable and (2) resulting partly from construction and operation of the OGS. The CEQA requires an environmental analysis to include disclosure of the potential environmental effects of actions that are caused by a project.

The purpose of Staff's reconductoring analysis is to inform the Energy Commission Committee, interested parties and the general public of the environmental and public health effects caused by the approval of the OGS project. This analysis describes the process of reconductoring and the types of environmental impacts that might occur as a result of reconductoring. Project-specific details regarding the locations of the pull and tensioning sites and staging areas, and the specific techniques that would be used for each span, however, would not be finalized until the reconductoring project is designed. The project, if implemented, could be accomplished with no significant environmental impacts, if appropriate mitigation measures are applied.

Please note that this analysis is not equivalent in depth or detail to the analyses that are prepared in the applicant's AFC or Energy Commission staff's FSA. Because the line segments to be reconductored lie beyond the first point of interconnection with the grid

and because they will be carried out by a separate entity, PG&E, at a future time and under the permitting jurisdiction of a separate authorizing agency (the CPUC), the analysis herein gives an overview of potential project impacts. Furthermore, it is important to note that because the reconductoring project owner will be PG&E and not CCGS, and the reconductoring is beyond the jurisdiction of the Energy Commission, this analysis cannot commit the project to specific mitigation measures that would or must be carried out by PG&E. The final assignment of mitigation measures must take place as part of the CPUC's CEQA analysis. This analysis draws conclusions as to the likelihood that the reconductoring could be accomplished with no significant environmental impacts, and identifies minimization measures that could be enacted to ensure the reconductoring project would not cause significant impacts.

Summary of Conclusions

This analysis of downstream potential impacts of reconductoring the Contra Costa PP to Delta Pumps and Las Positas to Newark 230-kV line transmission line upgrades was prepared to inform the Energy Commission Committee and the general public of the potential direct and indirect effects of this project, which is considered a reasonably foreseeable development resulting from the OGS project. The analysis of potential environmental impacts is based on a planning-level project description of required facilities and recommended measures to minimize potential effects. Once a more detailed project description is developed, no significant environmental impact is anticipated, once implementation of the recommended impact minimization measures in this document and/or any mitigation measures resulting from the required CEQA process conducted by the CPUC for the reconductoring project are implemented.

2.0 DESCRIPTION OF THE PROPOSED PROJECT

This appendix identifies the specific transmission line segments that may be reconductored, and provides an overview of the reconductoring process on a general level. It describes the basic work involved in reconductoring a transmission line segment, as well as specific designs (when known) for the reconductoring project that is a reasonably foreseeable result of the approval of the project.

2.1 PROJECT LOCATION

Construction of the OGS along with other projects in the same Transmission Cluster may require PG&E to reconductor three transmission lines within its transmission system, as shown in **Figures 1**, **2a – 2c**, and **3a – 3b**, while the third line, the Keslo to Tesla 230 kV line, was analyzed in the Supplemental Staff Assessment for the Mariposa Energy Project in December of 2011. The two lines analyzed in this document are the Contra Costa PP to Delta Pumps 230-kV line, which is approximately 18.3 miles long, and the Las Positas to Newark 230-kV line, which is approximately 21 miles long. The total length of the lines to be reconductored is approximately 39.3 miles.

The Contra Costa PP to Delta Pumps transmission line consists of a single 230-kV circuit with three conductors mounted on the existing double-circuit lattice towers in the existing right-of-way. The line begins at the Contra Costa PP switching station. Tower modifications and excavation work near the towers are not anticipated at this time.

The Contra Costa PP switching station at the northern end of the project area is located in the northeastern corner of the city of Antioch, just south of the San Joaquin River and approximately 1 mile west of the city of Oakley. At the southern end of the project is the Delta Pumps Subsation, which is located approximately 5 miles south of the town of Byron and 2 miles southwest of Clifton Court Forebay. These sections of the reconductoring project are located within eastern Contra Costa County. The majority of the project is within grazed annual grassland habitat, interspersed with seasonal aquatic features, housing developments, and numerous golf courses and residential walking trails.

The Las Positas to Newark 230-kV line extends from the Las Positas Substation to the Newark Substation in Newark, California. The Las Positas Substation is located in the City of Livermore just south of I-580. The reconductoring project runs south from the substation for approximately 3 miles then it turns in a southwest direction and runs the remaining 18 miles in a southwest direction terminating at the Newark Substation. The Newark substation is located approximately 3.5 miles from downtown Newark and 1 mile southwest of I-880. This section of the reconductoring project is in Alameda County.

There are large stretches of urban/developed and recreational urban developed land (golf course, hiking and biking trails) along both project corridors.

2.2 CONSTRUCTION METHODS

In general, reconductoring is accomplished by disconnecting the old conductor and using it like a rope to pull the new conductor through the temporary pulleys, called “travelers” or “sheave blocks,” that are mounted on each tower, until it reaches the other end. Workers would access each tower by truck, then climb the tower or use a truck-mounted aerial bucket to access the tower, place the travelers on the tower arms, disconnect the conductors from their insulators, and place them on the travelers. Once this has been accomplished, the old line is connected to a winch and spool at the pulling site. As a winch pulls the old conductor through the travelers and off of the towers on one end of a work segment, new conductor is spooled from the tensioning spooling truck positioned at the other end of the work segment, and is pulled into place on the travelers by the old conductor as it is spooled off. The tensioning crew keep the conductors taut, preventing them from sagging to the ground or on other objects in the right-of-way. Workers then revisit each tower in the segment and move the new conductor off of the travelers and connect it with the insulator strings. Work crews set up temporary structures across roads and other potentially inhabitated areas to protect those areas in the unlikely event that a conductor breaks and falls to the ground.

If the old conductor is not in good enough condition to be used to pull in the new line, it would be used to pull a carrier cable, or “sock line,” through the pulleys to the end of the segment to be replaced; the sock line would then be used to pull in the new conductors. If the new conductor is significantly heavier than the old conductor, it may be necessary to reinforce or rebuild some towers.

The work would involve setting up two work crews on each end of the segment that is being replaced. Each crew would consist of two tractor/trailer units, which either feed

out the new line or wind in the old line on spools mounted on the trailers, and two or three utility trucks carrying tools, other materials, and workers, for a total of six to eight trucks and about 20 workers. One crew would set up at a “pull site” near a tower at one end of the pull, and the other at a “tensioning site” near a tower at the other end of the pull. The tensioning crew would employ a special tensioner truck, which is essentially a large drum winch that is used to put back tension on the conductor being pulled.

The crews usually pull the new conductors through one or more miles of transmission towers at a time, depending on the length of conductor on the reels, and availability of suitable set-up locations. Because the potential for environmental impact is very low between the pull and tensioning sites, this analysis focuses on examining potential effects at the pulling and tensioning sites, as well as other locations that could be disturbed by truck movement. Activities between the pull and tensioning sites are generally restricted to:

- Accessing the towers (either by climbing or using a truck-mounted aerial bucket) to place the pulleys and to remove the conductor from the pulleys and refasten it once stringing is completed; and
- Work on the tower structure to repair or replace spars that are damaged, or to replace insulators or reinforce the tower structure.

Although determining precisely where the pull and tensioning sites would be located is not possible, they would generally be sited at “angle” towers, which are located where the line makes a change in direction of more than 10 degrees. Pulling the old conductors and reeling out the new conductors is easier at these locations because the pulling and tensioning equipment can be arranged in line with the transmission line. Conversely, the crews try to avoid pulling the line through one or more angle towers because the conductors cannot be efficiently pulled through such an angle. Pulling and tensioning can also take place at “dead-end” sites, which are towers where the transmission line is physically connected to the tower rather than merely passing through the insulator clamps. In general, they are located where one spool of conductor is spliced to the next spool. Dead-end sites are generally located at angle towers, but also can be located at towers that are in-line with the route, rather than at an angle to the route. Dead-end towers have significant structural strength and resist the forces of pulling.

The work crews would likely have a great deal of flexibility in choosing the locations of the pull and tension sites, as it may be possible to pull through the angles on some of these towers (less than 30 degrees). Because of the flexibility in locating work sites, crews can generally select sites that either avoid creating impacts altogether, or create less-than-significant impacts with certain mitigation measures enacted.

Throughout the reconductoring project, temporary staging areas would be required for equipment and materials storage. The reconductoring project would require two or three staging yards, each about one acre in size, located near each end of the transmission line segments. Although it is not known at this time where the stage areas would be located, it is likely they would be located at existing storage areas near or at the substations during the construction period.

2.3 TYPICAL MITIGATION MEASURES

Reasonable measures would be taken to reduce impacts to the environment. Vegetation clearing and trimming would be kept to the minimum necessary for safe construction, operation, and maintenance of the line. Dragging and whipping of conductors and sock lines would be avoided to further minimize vegetation and ground disturbance. Use of materials labeled as potential pollutants would be minimized to the extent practicable. Where possible, use of potential pollutants that could ooze, drip, flake, or crumble would be avoided in and around wetland areas.

3.0 ANALYSIS OF RECONDUCTORING

3.1 AIR QUALITY

Environmental Setting

The reconductoring for the OGS project would occur entirely within the Bay Area Air Quality Management District (BAAQMD) in eastern Contra Costa County and between central and western Alameda County. The linear transmission facilities span 18.3 miles between Contra Costa PP switching station in the northeastern corner of the city of Antioch and the Delta Pumps Substation, which is located approximately 5 miles south of the town of Byron, are located within eastern Contra Costa County. Portions of this reconductoring would occur through land uses including large housing developments, numerous golf courses, and residential walking trails.

In Alameda County, the Las Positas to Newark linear transmission facilities span 21 miles between the Las Positas Substation, in the city of Livermore just south of I-580, and the Newark Substation, approximately 3.5 miles from downtown Newark and 1 mile southwest of I-880. This section of the reconductoring would occur through urban and suburban land uses, including recreational (golf course and hiking and biking trails) and industrial properties.

Impacts of Reconductoring

Reconductoring would require use of heavy-duty construction equipment and motor vehicles that would generate exhaust emissions and activity on unpaved surfaces causing fugitive dust emissions. The work would involve setting up two work crews on each end of a segment that is being replaced. Each crew would consist of two tractor-trailer units, which either feed out the new line or wind in the old line on spools mounted on the trailers, and two or three utility trucks carrying tools, other materials, and workers, for a total of 6 to 8 trucks and about 20 workers. The emissions would occur along the reconductoring corridor without occurring in any one location for more than a brief duration, typically no more than a few days. All reconductoring activities would be in addition to those necessary for construction of OGS.

Reconductoring activities would generate temporary (short-term) emissions similar to those of the OGS construction phase. Exhaust emissions would occur from the operation of construction equipment and vehicles. Exhaust emissions would include carbon monoxide (CO), ozone precursors including nitrogen oxides (NOx) and volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), fine particulate

matter (PM2.5), and inhalable particles (PM10), including diesel particulate matter, a toxic air contaminant.

Impact Minimization Measures

Impacts from exhaust emissions from heavy-duty diesel-fueled construction equipment can be reduced by using the newest available engines and other practices such as idle time restrictions and appropriate engine maintenance, similar to those recommended for the OGS construction phase. The reconductoring emissions would likely comply with applicable LORS, and the emissions would not likely cause or contribute to a violation of the ambient air quality standards or otherwise result in a potential for a significant air quality impact. Therefore, the reconductoring activities would not be expected to result in air quality impacts greater than those analyzed in the final staff assessment.

Implementing the following measures during the linear construction activity related to reconductoring would minimize the potential air quality impacts from reconductoring activities:

- Construction diesel engines with a rating of 50 hp or higher should meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1). In the event that a Tier 3 engine is not available for any off-road equipment larger than 100 hp, that equipment should be equipped with a Tier 2 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels unless certified by engine manufacturers or the on-site construction manager that the use of such devices is not practical for specific engine types.
- All heavy duty construction-related trucks and equipment should be properly maintained and the engines tuned to the engine manufacturer's specifications.
- All diesel heavy construction equipment should not idle for more than five minutes, to the extent practical.
- Construction equipment should employ electric motors when feasible.
- Fugitive dust emissions should be reduced by: reducing speeds when traveling off-road or on unpaved roadways, watering unpaved work areas as necessary if disturbed by vehicles and work activities, and inspecting and washing tires as necessary to be free of dirt prior to reentering paved roadways.

Conclusion

The construction impacts to air quality along the linear corridors for reconductoring would not be significant. The linear construction is expected to be short term and present minor emission increases. With the implementation of the recommended minimization measures, the additional potential air quality impacts would be less than significant. The reconductoring project would not be expected to result in any significant air quality impacts, and would be likely to comply with all applicable air quality LORS.

GREENHOUSE GAS EMISSIONS / RECONDUCTORING

The downstream reconductoring would require replacement of approximately 39.3 miles of transmission line. However, because the reconductoring activities are minor in general and would not require additional grading or the replacement of the existing transmission towers, the reconductoring activities are not expected to significantly increase the GHG emissions associated with the number of workers, the number of pieces of equipment, or the number of deliveries required for the OGS. The period of reconductoring work would be short-term and the emissions intermittent during that period, not ongoing during the life of the project. Additionally, minimization measures such as limiting idling times would ensure that fuel is used efficiently and that the construction-related GHG emissions are minimized. Based on this information, the downstream reconductoring is not expected to result in significant GHG impacts, and would comply with applicable GHG LORS.

3.2 BIOLOGICAL RESOURCES

The biological resources analysis of the Contra Costa PP to Delta Pumps and Las Positas to Newark 230-kV transmission line reconductoring project (project) is based on the OGS applicant-provided Biological Resource Reconnaissance Report in the *Transmission Line Reconductoring Analysis, Responses to Data Request 74* submitted February 17, 2011 (Appendix A in CH2MHILL 2011b). The downstream transmission facilities will be permitted by the California Public Utilities Commission (CPUC) and that agency will prepare the appropriate environmental document necessary to license those facilities pursuant to the California Environmental Quality Act (CEQA). Further biological resource surveys and analysis would be required to complete that environmental document and develop mitigation measures.

Environmental Setting

The applicant conducted a review of aerial photographs using Google Earth, a site visit on February 7, 2011, and a search of known or potential species occurrences using online database information. The online search included the California Natural Diversity Database (CNDDB), a species list provided by the Sacramento Fish and Wildlife Office of U.S. Fish and Wildlife Service (USFWS), and a search of the California Native Plant Society (CNPS) rare plant database. Energy Commission staff independently reviewed these data in preparation of this analysis.

Existing Vegetation Communities and Common Wildlife

The following vegetation communities and common wildlife species occur within the reconductoring project area. Special-status species are discussed further below.

California Annual Grassland

Annual grassland is the most common cover type within the study area. Non-native annual grasses are the dominant plant species in this habitat; characteristic species include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp*. rubens*), wild oats (*Avena fatua*), barley (*Hordeum murinum*), and rat-tail fescue (*Vulpia myuros*). Introduced forbs are also commonly observed, such as filarees (*Erodium cicutarium* and *E. botrys*), wild radish (*Raphanus sativa*), black mustard (*Brassica nigra*), yellow star-thistle (Centaurea solstitialis), Great Valley

gumweed (*Grindelia camporum*), and horehound (*Marrubium vulgare*). Native wildflowers typically found in this vegetation type include lupine (*Lupinus* ssp.), fiddleneck (*Amsinkia* spp.), popcornflower (*Plagiobothrys* spp.), California poppy (*Eschscholzia californica*), owl's clover (*Triphysaria* spp.) and clarkia (*Clarkia* spp.). Vernal pools and seasonal swales may also occur within this vegetation community.

Grasslands in the project area provide foraging habitat for red-tailed hawk (*Buteo jamaicensis*), loggerhead shrike (*Lanius ludovicianus),* white-tailed kite (*Elanus leucurus*), and California horned lark (*Eremophila alpestris actia*) as well as suitable breeding habitat for ground-nesting birds such as western meadowlark (*Sturnella neglecta*). Common mammals include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and California vole (*Microtus californicus*). Rodent burrows in grassland habitat provide essential upland refuge sites (hibernacula) for amphibians and reptiles.

Ruderal

Ruderal vegetation is characterized by non-native, annual grasses and other weedy species that readily colonize disturbed soils in areas such as vacant lots and right-of-way strips. Species include grasses such as ripgut brome and wild oat, and weedy herbs such as yellow star-thistle, Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and bull thistle (*Cirsium vulgare*). Patches of ruderal vegetation occur along the project corridor, on elevated berms and levees within agricultural areas, adjacent to golf courses, and along State Route 4 and other roadways. Many of these areas are routinely disturbed during maintenance and agricultural activities, which may include mowing and herbicide application.

Due to high levels of repeated disturbance, ruderal habitat along the proposed project corridor is low-quality wildlife habitat. However, raptors including red-tailed hawk may forage within these areas for small mammals.

Non-native Woodland

Small patches of non-native woodland occur in the project corridor. These small stands of non-native trees are not connected with a larger woodland area. Non-native woodland near the town of Brentwood is associated with the golf courses and hiking and walking trails. These habitats are characterized by ornamental trees, including olive (*Olea europaea*), Bishop pine (*Pinus muricata*), eucalyptus (*Eucalyptus* spp.), and Peruvian pepper (*Schinus molle*).

Mature trees within this vegetation community provide suitable nesting habitat for raptors and other birds including red-tailed hawk and white-tailed kite. Non-native woodlands are typically surrounded by annual grasslands that provide important foraging habitat for these bird species.

Agricultural

Active agricultural and pasture lands exist throughout the project area. Agricultural areas primarily include orchards and grain crops within the project area. Pasture lands provide suitable foraging habitat for raptors and other wildlife species.

Chaparral

Sparse and isolated patches of chaparral occur in the project area. These patches include coyote brush (*Baccharis pilularis*) and other shrubs typical of this habitat type.

Urban/Developed/Landscaped

There are intermittent areas of developed land along the project corridor, including substations, some commercial development, residential and industrial development, and some areas of landscaping that consist of non-native trees.

Potentially Jurisdictional Wetlands and Waters

Several habitat types within the project area are potentially under the jurisdiction of U.S. Army Corps of Engineers (USACE) and/or California Department of Fish and Game (CDFG) and Regional Water Quality Control Board (RWQCB) as wetlands and waters of the U.S. and/or state.

Freshwater Marsh

Freshwater marshes occur where fresh water creates inundated or saturated soil conditions for most or all of the year. These marsh areas are typically composed of stands of perennial emergent plants such as cattail (*Typha* spp.), bulrush (*Scirpus* spp.), rush (*Juncus* spp.), and sedge (*Carex* spp.). Non-native emergents such as common reed (*Arundo donax*) may also be present. Marsh wetlands occur on the numerous golf course properties as well as drainage channels and irrigation canals within the reconductoring project area.

Freshwater marshes support a variety of wildlife typically adapted to aquatic conditions, including frogs, toads, and salamanders. During the spring and summer, dense stands of emergent vegetation will support foraging and breeding habitat for resident and migratory birds, including red-wing blackbird.

Seasonal Wetland

Seasonal wetlands are depression areas which may have wetland indicators of all three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) during the wetter portion of the growing season, but usually lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Soil conditions are generally dry from late summer through fall, and vegetation can be highly variable. Common plant species include Italian ryegrass (*Lolium multiflorum*), nutsedge (*Cyperus* spp.), rush, cattail, and a variety of herbaceous plants. Seasonal wetlands are found in many of the roadside ditches and irrigation ditches within the project corridor. Drainage features along the entire length of the project corridor may also support seasonal wetlands. Seasonal wetlands found within or adjacent to developed areas may be subject to routine disturbances, including mowing, use of herbicides, or scour/dredging during irrigation.

Seasonal wetlands provide many of the same wildlife opportunities as freshwater marshes. Freshwater invertebrates including special-status vernal pool species may inhabit the seasonal wetlands found along the project corridors.

Cottonwood-willow Riparian

Mixed riparian forest occurs along perennial or nearly perennial stream and other water bodies that provide subsurface irrigation even when the surface may be dry (Holland 1986). This habitat was formerly extensive, but is now reduced to scattered, isolated remnants or young stands because of flood control, water diversion, agricultural development, and urban expansion (Holland 1986). Typical species include willows (*Salix* sp.), Fremont cottonwood (*Populus fremontii*), and walnut (*Juglans* sp.).

Riparian vegetation communities provide important nesting habitat for birds including mallard (*Anas platyrhynchos*) and great egret (*Ardea alba*); offer cover and refuge sites for amphibians, reptiles, and small mammals; and serve as valuable movement corridors for wildlife. The majority of drainages within the project area are seasonal.

Open Water

Open water was observed along both reconductoring routes and was mainly confined to agricultural irrigation canals, golf course lake features, and heavily industrial settling ponds. Numerous cattle stock ponds also occur within and adjacent to the project area.

Special-Status Species

Special-status species include those listed as threatened or endangered under the federal or California Endangered Species acts, species proposed for listing, California species of special concern, and other species that have been identified by the USFWS, CDFG, CNPS or another agency as unique or rare. **Table 1** identifies the special-status species that have moderate or high potential to occur within the project corridor, based on the presence of suitable habitat within the project area and a review of existing occurrence information. Attachment B to the Biological Resources Reconnaissance Report (Appendix A in CH2MHILL 2011b) presents a comprehensive listing of all special-status species, including those with no or low potential to occur, that are considered in this analysis. Focused biological surveys have not been conducted for this project. Subsequent environmental review conducted pursuant to CEQA as well as consultation under the federal and California Endangered Species acts will necessitate protocol-level surveys for burrowing owl and vernal pool branchiopods and Swainson's hawk, wetland delineation, and rare plant surveys, and potentially other focused field surveys.

Table 1
Special-status Species Likely to Occur within the Reconductoring Project Area

Scientific Name	Status*	Habitat	Likelihood of Occurrence in Project Area
Plants			
Amsinckia grandiflora large-flowered fiddleneck	FE, SE, G1, S1.1, CNPS List 1B.1	Cismontane woodland, valley and foothill grassland. 275-1,800 ft	**High**. One occurrence 3.5 miles east of project area and one occurrence one mile west. Suitable habitat present on site.
Cordylanthus palmatus palmate-bracted bird's-beak	FE, SE, G1, S1.1, CNPS List 1B.1	Chenopod scrub, valley and foothill grassland/alkaline. 16-510 ft	**Moderate**. One occurrence 2 miles northeast of project area. Suitable habitat present on site.
Lasthenia conjugens Contra Costa goldfields	FE, G1, S1.1, CNPS List 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. 0-1,542 ft	**High**. Two occurrences within 5 miles of project area and one occurrence one mile west of project area. Suitable habitat present on site.
Tropidocarpum capparideum caper fruited tropidocarpum	G1, S1.1, CNPS List 1B.1	Valley and foothill grassland (alkaline hills). 1-1,492 ft	**Moderate**. Numerous occurrences within 5 miles of project area. Suitable habitat present on site.
Invertebrates			
Branchinecta lynchi vernal pool fairy shrimp	FT	Vernal pools, ephemeral alkali pools, seasonal drainages, stock ponds, vernal swales and rock outcrops.	**High**. Suitable habitat is present. This species may be present in the wetlands along the reconductored alignment.
Branchinecta mesovallensis midvalley fairy shrimp	--	Shallow vernal pools, swales and various artificial ephemeral wetland habitats.	**Moderate**. Project area is located on edge of this species range, but suitable habitat is present.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT	Riparian scrub; nearly always found on or close to its host plant, elderberry.	**Moderate**. The elderberry host plant was not observed during the reconnaissance surveys.
Helminthoglypta nickliana bridgesi Bridges' coast range shoulderband (snail)	--	Inhabits open hillsides of Alameda and Contra Costa counties. Tends to colonize under tall grasses and weeds.	**Moderate**. Nearest occurrence is over 5 miles from project site. Microhabitats not present in project area.
Hygrotus curvipes curved-foot hygrotus diving beetle	--	Aquatic, known only from Alameda and Contra Costa counties. It inhabits alkali vernal pools and other seasonal wetlands or slow-moving streams with pools and fringed with alkali vegetation.	**Moderate**. Nearest occurrence is over 5 miles from project site. Suitable seasonal wetland habitat is present along the reconductored alignment.

Scientific Name	Status*	Habitat	Likelihood of Occurrence in Project Area
Lepidurus packardi vernal pool tadpole shrimp	FE	Typically larger playa pools or vernal pool complexes.	**Moderate**. Large playa pools and vernal pool complexes lacking in the project area, however one documented occurrence 1 mile south of Newark Substation.
Linderiella occidentalis California linderiella	--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity and total dissolved solids.	**High**. Suitable habitat is present. This species may be present in the wetlands along the reconductored alignment.
Fishes			
Oncorhynchus mykiss steelhead (Coastal, Central Valley)	FT	Aquatic; from Russian River south to Pajaro River and tributaries.	**Moderate**. Mill Creek with numerous occurrences runs through project area south of Fremont, CA.
Amphibians and Reptiles			
Actinemys marmorata western pond turtle	CSC	Ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with abundant vegetation.	**Moderate**. Suitable breeding habitat may occur on the waterways crossing the reconductored alignment.
Ambystoma californiense California tiger salamander	FT, SE, CSC	Grassland, oak savanna, and edges of mixed woodlands. Breeding: vernal pools, temporary rainwater ponds, permanent human-made ponds if predatory fishes are absent.	**High**. Occurrences within project area. Potentially suitable aestivation and dispersal habitat throughout project area.
Rana draytonii California red-legged frog	FT, CSC	Grasslands and streamsides with plant cover; permanent water sources: lakes, ponds, reservoirs, slow streams, and freshwater marshes and bogs.	**High**. Occurrences within project area. Potentially suitable aestivation and dispersal habitat throughout project area.
Birds			
Accipiter cooperii Cooper's hawk	CSC	Open, interrupted, or marginal woodland. Nests in riparian areas of deciduous trees and live oaks.	**Moderate**. Suitable nesting habitat is present within the woodland area and recreational urban developed areas of the project area. May disperse through the project area.
Accipiter striatus Sharp-shinned hawk	CSC	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats, preferably riparian. North-facing slopes with plucking perches are critical. Usually nests within 275 ft of water.	**Moderate**. Suitable nesting habitat is present within the woodland area and recreational urban developed areas of the project area. May disperse through the project area.

Scientific Name	Status*	Habitat	Likelihood of Occurrence in Project Area
Agelaius tricolor tricolored blackbird	CSC, BCC	Near open accessible water with dense emergent vegetation (e.g., cattails).	**Moderate**. Suitable marsh habitat on extension to Brentwood Substation.
Aquila chrysaetos golden eagle	CFP, BCC	Open grasslands and savannahs. Nests on cliffs of all heights and in large trees in open areas.	**High**. This species is well known in the Altamont Hills and vicinity. Grassland areas of project provide suitable foraging habitat; however suitable breeding habitat not present in project area.
Athene cunicularia burrowing owl	CSC, BCC	Open, dry grassland. Usually nests in old burrow of ground squirrel, or other small mammal.	**High**. This species is well known in the Altamont Hills and vicinity.
Buteo swainsoni Swainson's hawk	ST, BCC	Open riparian habitat, in scattered trees or small groves in sparsely vegetated flatlands. Usually near water in the Central Valley.	**High**. There are CNDDB occurrences within 0.25 mile of the alignment from Contra Costa PP to the Delta Pumps.
Circus cyaneus northern harrier	CSC	Flat, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding.	**Present**. This species is well known in the Altamont Hills and vicinity, and was observed during February 2011 site survey. Suitable foraging habitat and nesting habitat in project area.
Elanus leucurus white-tailed kite	CFP	Open grasslands, meadows, farmlands and emergent wetlands. Groves of dense, broad-leafed deciduous trees used for nesting and roosting.	**Moderate**. No occurrences recorded in project area. Suitable breeding and foraging habitat is present in the project area.
Eremophila alpestris actia California horned lark	--	Coastal regions, short-grass prairie, “bald” hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats	**High**. CNDDB occurrences within 1 mile of alignment. Suitable nesting and foraging habitat is present in project area.
Lanius ludovicianus loggerhead shrike	CSC, BCC	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	**High**. Suitable nesting and foraging habitat is present in project area.
Mammals			
Perognathus inornatus inornatus San Joaquin pocket mouse	--	Typically found in grasslands and blue oak savannahs.	**High**. Suitable habitat exists along project area and species is known from general area.
Taxidea taxus American badger	CSC	Friable soils, and relatively open, uncultivated ground; grasslands, savannas.	**Moderate**. Suitable foraging habitat in project area; small mammal burrow located on site may provide denning opportunities for this species.

Scientific Name	Status*	Habitat	Likelihood of Occurrence in Project Area
Vulpes macrotis mutica San Joaquin kit fox	FE, ST	Annual grasslands or grassy open stages of vegetation, some agricultural areas.	**High**. CNDDB occurrences within 0.05 mile of the reconductored alignment from Contra Costa PP to Delta Pumps. Suitable foraging habitat in project area; small mammal burrows located on site may provide denning opportunities for this species.

Sources: CNDDB 2011, USFWS 2011, CDFG 2011a, CDFG 2011b, CH2MHILL 2011b

*Status legend:

"—" on CDFG's Special Animals List (CDFG 2011) but without other status tracked in this table.

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
BCC = Fish and Wildlife Service: Birds of Conservation Concern: identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities <www.fws.gov/migratorybirds/reports/BCC2002.pdf>

State CSC = California Species of Special Concern.
CFP = California Fully Protected
SE = State-listed as Endangered
ST = State-listed as Threatened

CNPS (California Native Plant Society (Plants only)
List 1B = Rare, threatened, or endangered in California and elsewhere
0.1 = Seriously threatened in California (high degree/immediacy of threat)

Global Rank/State Rank (Included for plants only**)**
G1 or S1 = Critically imperiled; Less than 6 viable element occurrences OR less than 1,000 individuals
Threat Rank - T/ .1 = very threatened

Potential Impacts of Proposed Downstream Upgrades

While excavation or other ground disturbance is not expected, reconductoring would require construction equipment access, potentially across drainages and through special-status species habitat. In addition, construction of this project would require temporary staging areas for equipment and materials. These activities could affect habitat and biological resources in the project corridor.

Potential Impacts to Special-Status Plant Species

There is moderate to high potential for large-flowered fiddleneck, palmate-bracted bird's-beak, Contra Costa goldfields, caper-fruited tropidocarpum, and potentially other special-status plants to occur in the project area. Rare plant surveys during the appropriate blooming period would be required to identify the distribution of potentially affected special-status plants.

If present on the project site or in the vicinity, direct and indirect impacts could occur from project construction. Direct impacts could occur if plants are crushed by construction equipment and vehicle or foot traffic. Indirect impacts could occur to species associated with wetlands or drainages, if water quality in drainages is adversely affected during project construction. In addition, construction activities have the potential to indirectly affect adjacent vegetation communities by facilitating the transport and dispersal of invasive weed propagules, thereby potentially introducing new weeds and exacerbating invasions already present in the project vicinity.

Special-status plant surveys would be required to complete adequate environmental review per CEQA. If special-status plants are found to occur within the project area and cannot be avoided, then consultation with the appropriate agency (CDFG and/or USFWS) would be needed to identify appropriate mitigation measures.

Potential Impacts to Special-Status Wildlife Species

There is potential for several special-status wildlife species to occur in the project corridor, including vernal pool branchiopods, California tiger salamander, California red-legged frog, tricolored blackbird, golden eagle, western burrowing owl, Swainson's hawk, and San Joaquin kit fox. In addition, breeding birds protected under the Migratory Bird Treaty Act are likely to be present within the project area. Protocol-level or other focused surveys must be completed to identify the distribution of potentially affected special-status wildlife. Additionally, this project is within California red-legged frog critical habitat (Critical Habitat Unit CCS-2).

Potential impacts to special-status wildlife include direct mortality from encounters with construction equipment, burrow/nest destruction during equipment staging, entombing adults, eggs, or young, and disruption or harassment. In addition, short and long-term habitat loss, modification, and fragmentation, as well as the potential spread of noxious weeds could decrease local and regional wildlife habitat values.

Consultation with resource agencies (USFWS and CDFG) would be required to identify appropriate impact avoidance, minimization, and mitigation measures and ensure compliance with the federal and California Endangered Species acts.

Potential Impacts to Sensitive Habitats

Direct impacts to potentially jurisdictional waters could occur if construction equipment is staged in or crosses project area drainages. The drainages that occur within the project area may be regulated by the CDFG under the state's Fish and Game Code section 1600, the San Francisco Regional Water Quality Control Board, and potentially the USACE under the federal Clean Water Act. A wetland delineation would provide information to further assess potential impacts to jurisdictional wetlands and waters. If warranted, acquisition of a Lake and Streambed Alteration Agreement (section 1602 permit), Water Quality Certification (section 401 permit), and USACE section 404 permit and implementation of the measures within these permits and agreements would ensure that potential impacts to sensitive habitats are mitigated and compliance with applicable laws, ordinances, regulations, and standards (LORS) is achieved.

Impact Minimization Measures

Agency consultation would identify appropriate measures to avoid, minimize, and mitigate potential impacts to species listed under the federal and/or California Endangered Species acts (e.g., California red-legged frog, California tiger salamander, Swainson's hawk, San Joaquin kit fox, vernal pool fairy shrimp, vernal pool tadpole shrimp) and sensitive habitats (e.g., jurisdictional waters), as described above. If special-status species or sensitive habitats are identified within the project area, limited construction periods, no-disturbance buffers, passive relocation, artificial burrow construction, revegetation plans, and habitat compensation may be required to avoid, minimize, or mitigate impacts to special-status species and sensitive habitats.

To minimize impacts to nesting birds, pre-construction surveys would need to be conducted and no-disturbance buffers established if project activities occur during the nesting season (typically February 1 through August 30). At all times of the year, noise generating activities should be limited during early morning and evening to avoid impacts to birds protected under the Migratory Bird Treaty Act.

In addition, standard measures and best management practices recommended to minimize impacts to biological resources include but are not limited to:

- Designate a lead biologist to be on-site during construction activities to supervise, conduct and coordinate mitigation, monitoring, and other biological resource compliance efforts.
- Develop and implement a Worker Environmental Awareness Program to inform and educate workers prior to site mobilization about sensitive biological resources associated with the project.
- Limit disturbance area by erecting temporary exclusion fencing to keep workers out of sensitive habitat and within designated work areas.
- Minimize traffic collisions with wildlife.
- Avoid use of toxic substances and minimize spills of hazardous materials.
- Minimize lighting impacts.
- Avoid wildlife pitfalls and entrapment by covering trenches, bores, and other excavations at the end of the work day.
- Establish worker guidelines including pet control as well as trash containment, disposal, and removal.
- Avoid spread of noxious weeds and reestablish native vegetation quickly in temporarily disturbed areas.
- Implement erosion control measures and conduct construction activities during dry summer months.

Required Permits and Authorizations

LORS compliance for the project may require acquisition of some or all of the permits/authorizations listed in **Table 2**.

Table 2. Responsible Agencies and Required Permits

Responsible Agency	Permit/Authorization
U.S. Army Corps of Engineers	Preconstruction Notification for Nationwide Permit (Section 404) may be required for impacts to waters of the U.S. including wetlands
U.S. Fish and Wildlife Service	Consultation with USFWS under section 7 or 10 of the federal Endangered Species Act may be required for impacts to federally-listed species resulting in issuance of a Biological Opinion or determination of "No Effect"
California Department of Fish and Game	Section 1602 Streambed Alteration Agreement of the CDFG Code may be required for impacts to waters of the state, including associated riparian vegetation
California Department of Fish and Game	California Endangered Species Act Section 2081 Incidental Take Permit (or Consistency Determination with federal Biological Opinion) may be required for impacts to State-listed species
San Francisco Bay Regional Water Quality Control Board	Section 401 Water Quality Certification and Porter-Cologne waste discharge requirements may be required for impacts to wetlands and waters of the U.S. and state

Conclusion

Sensitive biological resources, including special-status species and jurisdictional waters, potentially occur within and adjacent to the reconductoring area. Additional surveys, including protocol surveys and a wetland delineation, may be required to determine the occurrence and distribution of these potentially affected biological resources and assess impacts. Potential direct and indirect impacts to biological resources may be avoided, minimized, or mitigated, as necessary with implementation of standard and project-specific measures. Consultation with USFWS, CDFG, and USACE would be necessary to identify appropriate measures. In addition, permits would likely be required from these agencies to demonstrate compliance with the federal and California Endangered Species acts as well as the federal Clean Water Act. If compliance with all applicable LORS is achieved and impact avoidance, minimization, and mitigation measures are implemented as recommended by the resource agencies, the construction and operation of the proposed reconductoring project is not likely to result in significant, unmitigated impacts to biological resources. However, this will ultimately be determined through subsequent environmental review conducted by CPUC pursuant to CEQA.

3.3 CULTURAL RESOURCES

Environmental Setting

The proposed project may require the reconductoring of the Contra Costa PP to Delta Pumps 230-kV transmission line (approximately 18.3 miles) and the Las Positas to Newark 230-kV transmission line (approximately 21 miles). The Contra Costa PP to Delta Pumps transmission line is within Contra Costa County and the Las Positas to

Newark transmission line is within Alameda County. The majority of the project is within grazed annual grassland habitat, interspersed with seasonal aquatic features and large housing developments, including numerous golf courses and residential walking trails. There are large stretches of urban/developed and recreational urban developed land along both project corridors (CH2MHILL 2011b, p. 2-1).

If cultural resources, including structures, are more than 45 years old, and might be affected by the project, the cultural resources would need to be evaluated for eligibility for listing on the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP). As part of the effort to identify cultural resources within the proposed project area, the applicant's consultant, CH2MHILL, commissioned a literature search from the staff of the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) in January, 2011 (CH2MHILL 2011b, p. 3-4). In accordance with the California Energy Commission's *Rules of Practice and Procedure & Power Plant Site Certification Regulations* for assessing potential impacts to archaeological and architectural resources, the literature search area was defined by a one-quarter mile buffer zone on either side of the transmission line facility (half-mile-wide corridor in total). The literature research at the NWIC included a review of all previously recorded archaeological sites and historic-period architectural resources, as well as all known cultural resources survey and excavation reports, within the designated search area. In addition, the NRHP, the CRHR, the California Historical Landmarks, the California Points of Historical Interest, and assorted historic maps were also consulted as part of the literature and records review. The literature search identified eleven previously recorded cultural resources within the transmission line corridors or intersecting them, including two prehistoric archaeological sites and nine historic-period structures. One of these resources, the Contra Costa Canal (P-07-002695) is eligible for the CRHR and NRHP. The following five previously recorded resources have been determined through past evaluation to be not eligible for the CRHR or NRHP:

- Pittsburg-Tesla Transmission Line (P-07-002956);
- Atchison, Topeka and Santa Fe Railroad (segment, P-07-000806);
- Contra Costa Power Plant Substation (P-07-000853);
- Southern Pacific Northern Contra Costa Route (P-07-000813); and
- South Bay Aqueduct (P-01-010629)

Five previously identified resources have not been evaluated:

- Historic Irrigation Ditch (P-07-000432)
- Historic Barbed Wire Fence (P-07-0002969)
- Prehistoric Village Site (P-01-000048)
- Unspecified Site (P-01-000049)
- Multi-component site (P-01-000003)

An additional 65 cultural resources are located within the one-half mile buffer area (CH2MHILL 2011b, p. 3-4–3-5).

CH2MHILL also evaluated the Las Positas – Newark and Contra Costa PP – Delta Pumps 230-kV transmission lines for historic significance. The Las Positas – Newark line entered into service in 1944, and the Contra Costa PP – Delta Pumps line began service in 1950 (the Delta Pumps loop was added in 1966). While both lines are essentially unaltered, CH2MHILL determined that neither line met any of the CRHR or NRHP criteria and are therefore not eligible for either listing (CH2MHILL 2011b, p. 3-5–3-6). Staff concurs with this recommendation, based on the applicant's assessment that the towers are examples of a standard design that do not appear to be the first of their kind, and are of a common type of junction line.

CH2MHILL contacted the Native American Heritage Commission (NAHC) and obtained a list of Native Americans who might have heritage concerns in the vicinity of the OGS site area in January, 2011. The NAHC responded on February 1, 2011, stating that there are no known Sacred Lands in the proposed project area (CH2MHILL 2011b, p. 3-4). Should the reconductoring project be necessary, staff recommends obtaining an updated list of Native American representatives from the NAHC and seeking input from the Native American representatives regarding potential concerns they may have for heritage resources along the proposed eighteen- and twenty one-mile reconductoring routes.

Impacts of Reconductoring

The literature research conducted for the project revealed eleven prehistoric or historic-period cultural resources within the proposed reconductoring project area. One of these resources, the Contra Costa Canal (P-07-0002695), has previously been determined eligible for listing on the NRHP; however, no impacts to the canal are expected during the reconductoring of the two transmission lines. The project does not anticipate tower replacements or other excavation at this time, so it is unlikely that reconductoring would have a significant and unavoidable impact on buried cultural resources. However, it is possible that the project could encounter surface archaeological resources or built-environment resources. It is also possible that ground-disturbing activities, such as vehicles driving overland or excavation work of any sort, could encounter as-yet-unknown buried archaeological resources.

Impact Minimization Measures

Since the applicant's analysis did not include pedestrian archaeological surveys or built-environment windshield surveys, previously unidentified resources could be present and impacted by reconductoring activities. For this reason, staff recommends the following actions prior to reconductoring:

- Complete pedestrian archaeological and windshield surveys of both transmission line corridors;
- Evaluate for significance those previously known resources that have not yet been evaluated and those newly identified resources resulting from the survey; and
- Attempt to avoid known significant resources or mitigate any resulting unavoidable impacts.
- Should the proposed reconductoring project area and/or associated staging areas change or expand beyond what has currently been investigated for cultural

resources, as described here, further studies, including literature research, pedestrian field survey, and Native American consultation, would be necessary.

It is possible that surface archaeological resources and built-environment resources could be identified in the reconductoring area. Possible avoidance measures to prevent impacts would include, but are not limited to, the following:

- Flagging or fencing areas to be avoided, creating a buffer zone around known or discovered cultural resources and signifying ground-disturbing activities or equipment is not allowed in these areas;
- Monitoring construction activities in order to identify undiscovered cultural resources and redirecting construction activities to avoid them.

It is also possible that unidentified resources could be discovered during the reconductoring project, and would need to be either avoided or impacts mitigated. Staff recommended measures would include, but are not limited to, the following:

- Designation of a qualified on-call Cultural Resources Specialist (CRS) to investigate any cultural resources discovered during construction.
- Implementation of a construction worker cultural resources awareness training program, to be conducted by the CRS.
- Procedures for halting construction in the event of inadvertent discovery of surface or subsurface archaeological deposits or subsurface human remains.
- Procedures for evaluating the CRHR eligibility of any inadvertent archaeological discovery by the designated CRS.
- Procedures for the mitigation of adverse impacts on any inadvertent archaeological discovery determined to be significant. Significant built-environment resources that cannot be avoided should be fully recorded on Department of Parks and Recreation (DPR) 523 Primary Record and Building, Structure, Object forms, including photographs, site maps and a complete written description.
- Archaeological resources should be excavated for data recovery purposes and recorded on the applicable DPR 523 forms.
- Should any human remains be discovered during construction, project officials should contact the designated CRS immediately, and are required by the California Health and Safety Code (Section 7050.5) to contact the Alameda County coroner. If the Coroner determines that the find is Native American, he or she must contact the NAHC. The NAHC, as required by Public Resources Code (Section 5097.98), would then determine and notify the Most Likely Descendant (MLD), tendering a formal request to inspect the burial and make appropriate recommendations regarding the disposition of the remains.

Details for these and any other additional measures should be arranged prior to the proposed reconductoring work and the necessary information disseminated to the appropriate project manager(s) and/or field supervisor(s), prior to the commencement of construction operations for the proposed reconductoring project.

Conclusion

The applicant completed a limited cultural resources investigation within the corridor of the proposed reconductoring project, consisting of a literature review (CH2MHILL 2011b, pp. 3-4–3-5). Eleven cultural resources were identified within the proposed project area as a result of this cultural resources investigation. Based on the information provided by the applicant regarding the proposed reconductoring project, staff cannot conclude that there is no potential that the project would have a significant and unavoidable impact on cultural resources during construction. Staff believes, however, that it would be possible to mitigate any potential impacts to a less-than-significant level through the implementation of impact minimization measures and avoidance measures that are recommended to apply to cultural resources, as outlined above.

3.4 GEOLOGY AND PALEONTOLOGY

Environmental Setting

The Oakley Generating Station (OGS) site is located in Contra Costa County, California, along the boundary between the Coast Ranges and the Great Valley (Central Valley) physiographic provinces (Norris and Webb 1990). The Great Valley is approximately 400 miles long and 60 miles wide, bounded on the north by low-lying hills; on the northeast by the volcanic plateau of the Cascade Range; on the west by the Coast Ranges; on the east by the Sierra Nevada; and on the south by the Coast Ranges and the Tehachapi Mountains. The northern third of the valley is known as the Sacramento Valley, while the southern two-thirds are known as the San Joaquin Valley. The Coast Ranges stretch about 600 miles from the Oregon border to the Santa Ynez River with northwest-trending mountain ranges, and valleys. The northern and southern Coast Ranges are separated by a depression containing San Francisco Bay. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata and are subparallel to the active San Andreas fault (CGS 2002). The OGS site lies in the flat land between the floodplain of the San Joaquin River to the north and Los Medanos Hills, piedmont of the Diablo Range, to the southwest. The Diablo Range extends south of the San Joaquin-Sacramento Delta in the western side of the San Joaquin Valley and comprises a series of large en echelon anticlines composed of Franciscan Complex rocks and intervening synclines containing younger rocks.

The OGS transmission line corridor is underlain by Quaternary alluvial deposits and bedrock units (CH2MHILL 2011b). The local geology consists of alluvial fan deposits of Holocene age underlain by consolidated to semi-consolidated deposits of Cretaceous to Pleistocene age.

The OGS project area has experienced seismic activity with strong ground motion during past earthquakes, and it is likely that strong earthquakes causing seismic shaking will occur in the future (CH2MHILL 2011b). The most significant geologic hazard in the project area is the potential for strong ground shaking from an earthquake. Ground shaking from a magnitude 6.0 earthquake or greater could occur along several active faults within a 100-mile radius of the project area (Blake 2004). The estimated peak horizontal ground acceleration for the project is 0.62 times the acceleration of gravity (0.62g) for a bedrock acceleration with a 2 percent probability of exceedence in 50 years, based on 2007 California Building Code (CBC) criteria (USGS 2009a).

Ground rupture is caused when an earthquake along a fault creates rupture at the surface. Several active faults were identified that cross or are proximate to the OGS project area including, most notable, the Las Positas, Calaveras, and Hayward faults (CH2MHILL 2011b). Because known active faults cross or are near the project area, the likelihood of ground rupture is considered high.

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. The OGS project area is underlain by both unconsolidated soils and relatively shallow competent bedrock (CH2MHILL 2011b). As a result, direct impact from liquefaction potential along the transmission line alignment is low to nonexistent in the bedrock areas and moderate in the unconsolidated soils area.

Subsidence can be caused by natural phenomena during seismic activity, consolidation, hydrocompaction, or rapid sedimentation. Subsidence can also result from human activities, such as ground water or hydrocarbon withdrawal. No known subsidence problems exist in the OGS project area (CH2MHILL 2011b).

Potentially fossiliferous rock units occur in the OGS project area; however, because the reconductoring activities would take place above ground, it is unlikely that these activities would encounter paleontological resources (CH2MHILL 2011b). Other than surface disturbance due to construction vehicle operation along the transmission line alignment, no grading or earthwork activities are expected to be required for the project. Surface disturbance due to construction vehicle operation would disturb materials previously disturbed during original transmission line construction. Operation of the transmission line would not cause any ground disturbance and, therefore, would not affect paleontological resources.

Impacts of Reconductoring

Since no new facilities are anticipated, the identified reconductoring project would not change the impacts of seismic hazards, including but not limited to strong ground shaking, liquefaction, fault rupture and subsidence, on the transmission line above current levels. The potential impacts to geologic and paleontological resources would be limited to temporary construction sites. These sites would not require grading or other disturbance of surface soils, other than construction vehicle disturbance. Since such ground disturbance was experienced during original construction, the impacts to geologic and paleontological resources would not be significant. However, should new (or replacement) tower foundations be required as part of reconductoring, compliance with applicable laws, ordinances, regulations, and standards (LORS) and compliance with recommended mitigation measures consistent with those contained in the Final Staff Assessment **Geology and Paleontology** section for the OGS project would reduce these potential impacts to a less-than-significant level.

Impact Minimization Measures

Although not anticipated, in the event that reconductoring of the transmission line would involve construction of new tower footings or replacement of existing tower footings, the area(s) affected by such construction would need to be evaluated with respect to paleontological resources. For this condition, a paleontologist would periodically

examine excavation spoils during reconductoring operations in paleontologically sensitive materials. Any fossil materials found and recovered in native materials might be considered scientifically significant. Transmission line towers represent small areas of disturbance, typically at 500 to 1,500-foot spacing. Observance of the following types of mitigations measures would likely reduce these potential impacts to a less-than-significant level.

- Hiring of a qualified Paleontological Resources Specialist (PRS) if any earthwork activities are needed.
- Project owner should provide PRS copies of maps, drawings, and other similar material showing location, depth, and extent of the area of any earthwork to be conducted.
- If after review of the information describing anticipated areas of earthwork the PRS determines that materials of moderate, high, or unknown paleontological sensitivity could be impacted, the project owner should ensure that the PRS prepares a paleontological resources monitoring and mitigation plan (PRIMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. The PRIMMP, if needed, should be prepared prior to ground disturbance and should function as the formal guide for monitoring, collecting, and sampling activities and should be used as the basis of discussion when on-site decisions or changes are proposed. The PRIMMP should be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP 1995).
- If materials of moderate, high, or unknown paleontological sensitivity could be impacted, then prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS should prepare and conduct training for workers, such as: project managers, construction supervisors, foremen, and general workers involved with or who operate ground-disturbing equipment or tools. This training would be intended to provide awareness of the possibility of encountering paleontological resources in the field, the sensitivity and importance of the resources, and legal obligations to preserve and protect the resources.
- Monitoring of earthwork consistent with the PRIMMP should be done by a qualified PRS and the project owner, through the PRS, should ensure that all components of the PRIMMP are adequately performed.

Conclusion

The proposed work would comply with applicable LORS as related to the identified reconductoring project. The existing transmission line was most likely designed and constructed in accordance with seismic requirements of the CBC. No significant geologic resources have been identified in the project area. There is the potential to encounter paleontological resources if grading and excavation is necessary for new tower foundations, but such impacts can be reduced to less-than-significant levels if it complies with applicable LORS and the suggested impact minimizations measures noted above.

3.5 LAND USE

Environmental Setting

The proposed reconductoring includes an 18.3-mile 230-kV transmission line from the Contra Costa PP to the Delta Pumps Substation, and a 21-mile 230-kV transmission line from the Las Positas Substation to the Newark Substation. The reconductoring project would string new wires on existing transmission towers in transmission line rights-of-way (ROW). The Land Use analysis for the proposed reconductoring of the two transmission line segments focuses on the project's compatibility with the existing and planned land uses, and the project's consistency with applicable LORS.

The 18.3-mile transmission line segment to be reconductored from Contra Costa PP to Delta Pumps Substation is located within the city of Antioch and traverses southeast through the jurisdiction of Contra Costa County. Existing land uses surrounding the transmission line in the city of Antioch include industrial and commercial uses at the northern end of the line, and then transition into areas of low and medium density residential development. As the line heads southeast through unincorporated areas of Contra Costa County, the existing land uses are predominantly open space and agricultural lands. Based on maps provided by the applicant (CH2MHILL 2011b, Figures 3-14 through 3-18), the transmission line traverses the following General Plan land use designations: Heavy Industry, Open Space, Business Park, Single-Family Residential – Low Density, Water Management, Commercial, Public/Semi-Public, Watershed, Agricultural Core, Agricultural Lands, Parks and Recreation, and Non-Open Space Lands (CH2MHILL 2011b).

The Las Positas Substation is located in the city of Livermore. The 21-mile transmission line to be reconductored starts from this substation and heads southwest through Alameda County, and terminates at the Newark Substation in the city of Newark. Existing land uses adjacent to the exiting transmission line ROW within the city of Livermore include commercial and residential development. As the line heads southwest, it traverses open space and agricultural lands within unincorporated Alameda County. The line then terminates in the city of Newark where existing land uses consist of residential and commercial development. Based on maps provided by the applicant (CH2MHILL 2001b, Figures 3-19 through 3-24), the transmission line traverses the following General Plan land use designations: Business Park, Single-Family Residential – Low Density, Non-Open Space Lands, Agricultural Lands, Parks and Recreation, Open Space, Water Management, Public/Semi-Public, and Medium-Family Residential – Medium Density (CH2MHILL 2011b).

Impacts of Reconductoring

The proposed reconductoring would replace transmission conductors within an existing transmission line ROW. This transmission system upgrade would not involve alterations of existing land uses or any expansion of the existing transmission line ROWs, and therefore, would not change the character of the transmission line corridor.

During the construction period, the project would require several staging areas, each about one acre in size. It is likely that the staging areas would be located at each end of the transmission line segments either near or at the substations. In addition,

reconductoring activities would require temporary stockpiling of materials and equipment along the existing ROW or in staging areas adjacent to the existing substations. Since these activities would occur only during the construction period, no long-term impacts to the current surrounding land uses would occur. Any impacts to existing land uses would be short-term while construction crews restring wires on the existing transmission towers, and therefore, the impacts would not be significant.

Construction activities would also require access to the existing transmission line ROW by construction vehicles and equipment. However, equipment travel and reconductoring activities would be limited to the pre-existing access routes for the transmission line ROW. Therefore, existing surrounding land uses would not be disturbed. However, if damage were to occur as a result of construction vehicles or equipment, the PG&E would be responsible for repairs or replacement.

As an established high voltage transmission line ROW, the proposed reconductoring would not disrupt or divide the physical arrangement of an established community; and the project is not expected to conflict with applicable land use LORS of the jurisdictions traversed by the transmission line ROW.

Impact Minimization Measures

To ensure disturbance is minimized to the greatest extent possible, staff recommends the following:

- Any fences and gates damaged during maintenance and upgrade activities, such as reconductoring, should be repaired or replaced, and fences and gates would be restored to their preconstruction condition.
- If any land uses occurring along the ROW need to be temporarily closed or have limited access, proper signage should be posted in these areas.
- Landowners adjacent to the ROW should be notified of upcoming project activities.

Conclusion

The proposed reconductoring project would not cause a change in existing land uses. Temporary construction-related activities could result in impacts to surrounding land uses; however, the impacts would be short-term, and therefore, would not be significant.

Since the reconductoring would be entirely within an existing and established high voltage transmission line ROW, the act of reconductoring the transmission line (i.e., placing new wires on existing structures) would not disrupt or divide the physical arrangement of an established community, and is expected to be consistent with applicable land use LORS.

3.6 NOISE AND VIBRATION

Environmental Setting

The surrounding land uses along the downstream reconductoring route include open grazing and agricultural land, residential development, and some industrial facilities (pump stations and wind farms). The primary source of noise in the area is traffic on

local roads, and near highways I-680 and I-880 on the Las Positas to Newark line and Highway 4 on the Contra Costa PP to Delta Pumps line.

Impacts of Reconductoring

Noise would be produced temporarily along the transmission line rights-of-way during reconductoring by construction-type activities. Reconductoring work at each of the pull and tensioning sites would be short term (approximately one week at each site). Noise levels would be similar to heavy trucks at maximum engine speed. After the transmission lines are reconductored, there would be no change in existing noise levels in the project area as a result of the operation of the transmission line.

Conclusion

Reconductoring activities are anticipated to take place between 7 a.m. and 5 p.m. on week days, and standard noise-reduction devices would be used to reduce equipment noise. Temporary increases in noise levels above existing ambient levels during reconductoring may be noticeable beyond areas immediately adjacent to the rights-of-way; however, they would be temporary and no additional mitigation measures are proposed. Therefore, the reconductoring project would not be likely to cause significant and adverse impacts in terms of noise and vibration.

3.7 PUBLIC HEATH

The project would require replacement of approximately 39.3 miles of conductor. However, because the reconductoring activities would not require additional grading or the replacement of the existing transmission poles, the reconductoring activities are not expected to result in significant quantities of toxic air contaminant emissions. Other project activities would also not have an effect on public health.

3.8 SOCIOECONOMICS

The construction workforce for the downstream reconductoring would not change substantially from that presented in the AFC. The applicant has stated that the construction workforce would be relatively small (20 workers) and would be drawn from existing PG&E and contractor workforce in the Bay Area. Construction of the project would result in a minor increase in local purchases of materials and local construction labor. The project would not result in potential impacts or benefits greater than those analyzed in the staff assessment and would comply with applicable LORS. Therefore, any potential socioeconomic impacts would be less than significant.

3.9 SOIL AND WATER RESOURCES

Environmental Setting

The project involves the reconductoring of two transmission lines within existing transmission rights-of-way:

- 18.3 miles of the Contra Costa PP to Delta Pumps 230-kV transmission line.
- 21 miles of the Las Posita to Newark 230-kV transmission line.

The Contra Costa PP to Delta Pumps transmission line runs south-southeast through eastern Contra Costa County. This transmission line connects the Contra Costa PP switching station located in the northeast corner of Antioch, just south of the San Joaquin River to the Delta Pumps Substation located about 5 miles south of Byron and 2 miles southwest of the Clifton Court Forebay. This transmission line traverses grazed annual grasslands and large housing developments that include golf courses and open space areas. The transmission line crosses at least eight small ephemeral creeks, drainage channels, and water supply canals.

The Las Positas to Newark transmission line runs south-southwest through Alameda County. This transmission line connects the Las Positas Substation in Livermore just south of Interstate 580 to the Newark Substation located about 3.5 miles from downtown Newark, southwest of Interstate 880. This transmission line traverses large stretches of urban/suburban developed areas with recreational/open space corridors and swaths of rural rolling hills and agricultural areas. The transmission line crosses at least eleven small ephemeral creeks and drainage channels.

The reconductoring work generally entails pulling new conductor through temporary pulleys mounted on each tower. The work involves two crews set up at each end of a pull segment, usually one or more miles apart. Each crew consists of two tractor/trailer units. One crew set up at a pull site that winds old conductor on to spools and pulls new conductor. The other crew spools out new conductor and sets tension on the line. In addition, a number of utility trucks are utilized to carry tools, materials and crew.

Throughout the reconductoring work, temporary staging areas would be set up for equipment and materials. Staging areas would be about one acre in size and set up at each end of the transmission line segments. The reconductoring work is not expected to require replacement of existing transmission towers, therefore goundwater impacts related to additional foundations or earthwork are not anticipated.

Impacts of Reconductoring

Vegetation clearing and trimming would be required at the pulling and tensioning sites. The main impact to soils would be related to soil disturbance and compaction by construction vehicles and equipment at the pull and tension sites. Soil disturbance and compaction could result in a short-term increase in wind and water erosion until work areas are stabilized. Soil compaction could also impact the reestablishment of vegetation along the route. However, disturbed areas along the route would be allowed to revegetate following construction activities. Hazardous materials utilized during construction could also be released, resulting in impacts to soils.

In work areas that are away from ephemeral creeks and drainage channels, impacts to water resources are expected to be limited. However, in work areas adjacent to ephemeral creeks and drainage channels, the potential for water resource impacts are more significant. Impacts to water resources would be related to soil erosion due to vegetation clearing and soil disturbance and, to a lesser extent, increased runoff due to soil compaction. Release of hazardous materials during construction could also cause water quality impacts.

During construction about one water truck per day would be required for dust control.

Impact Avoidance and Minimization Measures

During construction, implementation of erosion and dust control best management practices (BMPs) as outlined in a Stormwater Pollution Prevention Plan (SWPPP) would limit impacts to soil and water resources associated with erosion. Standard BMPS including the use of filter fences or straw bales to trap eroded sediments, would prevent release offsite. Special consideration would be required for any work adjacent to existing ephemeral creeks or drainage channels. Dust control through watering would limit wind erosion impacts. Over-compacted soils could be reconditioned through ripping or tilling, and disturbed soils could be revegetated through hydroseeding.

Implementation of the SWPPP would also included BMPs for hazardous materials handling during construction to limit the potential for impacts to soils and water resources. Portable toilets would be supplied by a licensed contractor for collection and disposal of sanitary wastes during the construction period.

Conclusion

Overall, the construction impacts to soils along the project corridor are not expected to be significant. With implementation of the appropriate BMPs, potential impacts to soil and water would be less than significant. The project is not expected to result in significant impacts, and would comply with the applicable LORS.

Water for dust suppression would be minimal and is not anticipated to create impacts on either groundwater or stormwater. Dust suppression would be temporary and construction related. Any potential impacts to water resources impacts would be less than significant through implementation of BMPs as outlined in a project specific SWPPP.

3.10 TRAFFIC AND TRANSPORTATION

Environmental Setting

The existing Contra Costa PP to Delta Pumps 230-kV transmission line corridor begins at the existing Contra Costa PP switching station in Antioch, California, and passes through industrial and residential areas before heading south along the Highway 4 Bypass toward Brentwood. It runs through rolling hills and primarily traverses grazing land, agricultural lands, and wind farms until it reaches the Delta Pumps Substation.

The Las Positas to Newark 230-kV line runs south from the Las Positas Substation, which is located south of I-580 northeast of Livermore, California. The line then travels through residential areas and turns to run in a generally southwesterly direction through agricultural areas near the intersection of Tesla and Mines roads. It then crosses the Coast Range and begins to run in a southwesterly direction south of I-680 near Sunol. It continues roughly parallel to and south of I-680 and eventually enters the southern San Francisco Bay Area, crosses I-680 and I-880, and ends at the Newark Substation in Newark, California.

There are large stretches of urban/developed and recreational urban developed land (golf course and hiking and biking trails) along both project corridors.

Impacts of Reconductoring

The applicant has estimated that the reconductoring project would require a maximum of 20 workers. During reconductoring activities, workers would first meet at PG&E's substation facilities, then travel together in crew trucks and park adjacent to the construction corridor. Therefore, construction would generate a maximum of only 40 daily one-way trips to the substation sites. From there, the work would involve setting up two work crews utilizing two or three utility trucks carrying tools, other materials, and workers, for a total of 6 to 8 trucks (12 to 16 daily one-way trips). This volume of short-term and temporary construction related trips is expected to be negligible when compared to utilized roadway capacities and is not expected to cause significant impacts to roadway or intersection level of service (LOS).

Reconductoring could cause potential traffic impacts where the lines cross over roadways. During reconductoring, there would be a small chance of a conductor breaking and falling across these roads, which could create hazards and block traffic. Furthermore, reconducturing activities could require brief temporary closures of travel lanes or roadways as well as encroachment. To mitigate potential impacts, PG&E would likely implement a traffic control plan prepared in accordance with the California Department of Transportation Manual on Uniform Traffic Control Devices and the Work Area Traffic Control Handbook. The traffic control plan would likely identify methods for installing temporary structures (i.e., netting) across affected roadways and freeways to catch any falling conductors, as well as safety measures for any temporary roadway/lane closures and worker egress and ingress of construction sites. As discussed above, there are large stretches of urban/developed and recreational urban developed land (hiking and biking trails) along both project corridors. The traffic control plan would also likely identify safety measures for pedestrian and bicycle path crossings. Implementation of the traffic control plan for the affected area for the short duration of construction in that area would likely be adequate to minimize the traffic impacts to a less than significant level.

Impact Minimization Measures

Staff recommends that the following measure, discussed above, be implemented during construction to mitigate potential traffic and transportation impacts resulting from reconductoring:

- Prepare a Construction Traffic Control Plan in accordance with Caltrans Manual on Uniform Traffic Control Devices and the WATCH Manual to include, but not be limited to, the following issues:
    - Temporary closure of travel lanes or disruptions to freeways, street segments, intersections, and rail line operations during reconducturing activities
    - Compliance with Caltrans and all applicable local jurisdiction limitations on roadway encroachment, vehicle sizes, weights, and travel routes and obtain any permits required for these actions
    - The use of protective temporary structures (i.e., netting) across freeways and

roadways crossed by the transmission lines to be reconductored to prevent any broken conductors from landing in the path of vehicles below.

- The use of signing and flagmen to redirect traffic during reconductoring and when setting up temporary protective structures.
- Staging of construction in areas as far from freeways and roadways as possible and in a way to minimize impacts to LOS.
- Ensurance of access for emergency vehicles into the project site and through any construction-related temporary travel lane closures or disruptions
- Ensurance of pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane or pedestrian/bicycle path closures or disruptions
- Procedures for exiting and entering construction sites
- Access to residential and/or commercial property located near reconductoring line routes during construction-related temporary travel lane closures or disruptions

Conclusion

Because the majority of reconductoring activities would take place in rural areas, it is projected that the activities would have minimal impact on the traffic level of service for nearby roadways and freeways. Based on the temporary nature of the reconductoring activities and the minimal number of daily trips generated during construction, combined with implementation of feasible mitigation measures, staff concludes that any potential impacts to traffic and transportation resulting from proposed reconductoring would be less than significant.

3.11 TRANSMISSION LINE SAFETY AND NUISANCE

Impacts of Reconductoring

Since the reconductored lines would remain within the rights-of-way (ROW) for the existing PG&E conductors to be replaced, the potential safety and nuisance impacts in the operational phase would occur within the existing rights of way. The replacement line for the 18.3-mile Contra Costa PP to Delta Pumps line would remain a 230-kV line while the one for the existing 21-mile Las Positas to Newark to be reconductored would continue to be operated at the same 230-kV. Since the line voltage would remain the same, the voltage-dependent noise, corona and other field impacts (noted in the final staff assessment, FSA) would remain at existing levels when the reconductored lines are operating. Since these electric field impacts would be as expected for PG&E lines of the expected designs, the reconductoring would not pose a significant noise or other electric field-related problems. As also noted in the FSA, the only field component that would increase from the power additions from the proposed OGS and other area sources (for which reconductoring would be necessary) would be the magnetic field. The strength of such magnetic fields is inversely proportional to the distance from the conductors. Since the route of the proposed transmission line upgrade is sited in proximity to residential areas according to CPUC requirements, long-term residential field exposures would not be a significant concern. The magnetic field strengths of most

significance in this regard would be as encountered at the edge of the existing rights-of-way.

Following a decision from 1993 (D.93-11-013) that was reaffirmed on January 27, 2006 (D.06-01-042), the CPUC requires utilities to incorporate “low-cost” or “no-cost” design and operational measures to minimize the levels of the electric and magnetic fields from new or upgraded lines such as those to be reconductored. Since these field-reducing measures would be evaluated by PG&E and incorporated into the proposed lines’ design as appropriate to ensure the field strength minimization in accordance with CPUC requirements. PG&E will perform the identified upgrades according to the requirements of CPUC’s General Order 95, General Order 52, General Order 131 D, Title 8, and Group 2. High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations.

Conclusion

The long-term, mostly residential magnetic exposure of health concern in recent years would be insignificant for the proposed line given its routing in accordance with CPUC requirements. On-site worker or public exposure would be short term and at levels expected for PG&E lines of similar design and current-carrying capacity. Such exposure has not been established as posing a significant human health hazard.

3.12 TRANSMISSION SYSTEM ENGINEERING

Environmental Setting

The reliable interconnection of the OGS at the PG&E Contra Costa Substation would involve downstream reliability upgrades including the reconductoring of two 230 kV transmission lines:

- Contra Costa PP – Delta Pumps 230 kV line and
- Las Positas - Newark 230 kV line.

The Contra Costa PP – Delta Pumps line includes two sections: 16.5 miles of Contra Costa – Windmaster section and 1.8 miles of Windmaster – Delta Pumps section, for a total length of 18.3 miles. The Las Positas – Newark line is 21 miles long. PG&E would do the construction work for reconductoring the lines. Reconductoring the lines would involve removing the existing conductors and replacing them with new conductors with a higher rating, in a manner that complies with applicable construction, safety and reliability standards. This would increase transmission capacity. Insulators would also be removed and replaced with new strings, which would increase the line’s capability to withstand voltage surges. Please see sections 1 and 2 of this Appendix A for additional description of the likely construction areas and methods.

Impacts of Reconductoring

The reconductoring of the Contra Costa PP – Delta Pumps 230 kV line may impact the operation of the California Department of Water Resource (CDWR) Banks Pumping Plant (CDWR 2011b). PG&E will need to coordinate with CDWR to ensure that the service interruptions at the pumping plant are minimal and possible outages are acceptable to the CDWR.

The reconductoring of existing transmission lines owned by PG&E would be licensed by the California Public Utilities Commission (CPUC), any licensing conditions or mitigation measures placed on reconductoring would be done by the CPUC.

During construction, applicable safety and reliability laws, ordinances, regulations and standards (LORS) must be met. These include the CPUC GO-95, Title 8 CCR Construction Safety Orders, PG&E Construction Standards and National Electric Safety Code, 1999 (NESC). Additionally, to maintain system reliability, the California ISO must be advised by PG&E per the California ISO scheduling protocol of scheduled circuit outages prior to occurrence. Such outages are scheduled about 30 days prior to occurrence and are verified just prior to actual outage. In the event that system reliability requires restoring such circuits, a “no work” order is given and where practicable, circuits are restored.

Reconductoring the Contra Costa PP – Delta Pumps 230 kV line and Las Positas - Newark 230 kV line would result in local system benefits, in that it would provide considerably greater flexibility in routing power in the PG&E greater bay area transmission network, even if the OGS is not built. The reconductoring project would ensure that the project could generate at its rated/reasonable capacity as it would mitigate overloads on the existing Contra Costa PP – Delta Pumps 230 kV line and the Las Positas - Newark 230 kV line.

Impact Minimization Measures

To mitigate potential safety and reliability impacts, the above-stated applicable LORS and California ISO scheduling protocols would be used. PG&E would assure conformance with the above safety and reliability requirements in coordination with the California ISO.

Conclusion

Conformance with applicable construction standards, safety and reliability LORS as stated above is likely to occur and would be successful in mitigating any safety or reliability implications of reconductoring the transmission lines.

3.13 VISUAL RESOURCES

The Oakley Generating Station project (OGS) would trigger the reconductoring of three existing transmission lines. The two lines discussed in this analysis are the Contra Costa PP to Delta Pumps 230-kV line and the Las Positas to Newark 230-kV line. The third line, the 8-mile Kelso to Tesla line, was previously analyzed for the Mariposa Energy Project and is not included in this analysis. Reconductoring involves the replacement of existing electrical transmission line with new conductors and does not change the configuration or the height of the towers themselves.

Environmental Setting

The Contra Costa Power Plant switching station is located in the city of Antioch and the 18.3 mile transmission line extends to the Delta Pumps Substation, which is located approximately 5 miles south of the community of Byron and 2 miles southwest of Clifton Court Forebay. This section of the reconductoring project is located within eastern

Contra Costa County. The project passes through the foothills of the Diablo Range, grassland habitat and large residential developments. The portion of the line that traverses through Antioch is located at the edge of a dense, urban environment. The corridor does not appear to be in the vicinity of state-designated scenic highways in Contra Costa County.

The Las Positas to Newark 230-kV line extends 21 miles from the Las Positas Substation to the Newark Substation located in the city of Newark, California. The Las Positas Substation is located in the city of Livermore, just south of I-580. The reconductoring project runs south from the substation for approximately 3 miles then it turns in a southwest direction for 18 miles, terminating at the Newark Substation. The Newark Substation is located approximately 3.5 miles from downtown Newark and 1 mile southwest of I-880. This section of the reconductoring project is in Alameda County. I-680 in both Alameda and Contra Costa counties and Highway 84 between I-680 and I-880 in Alameda County are designated state scenic highways. The project does not appear to be within the viewshed of Highway 84, due to both the undulating topography and the distance to the transmission corridor. The rolling topography and other foreground clutter will likely block most direct views from I-680. Therefore, the project impact upon state scenic highways would be minimal or non-existent.

Both transmission lines are within existing 230-kV corridors. The lines run through rolling hills, agricultural lands, and the mountains between the San Joaquin Valley and the Bay Area. Residential development and some urban and industrial areas are located adjacent to the transmission line rights-of-way, but the visual impacts from the reconductoring of the existing transmission line would be negligible. In areas beyond the urban locations of the Antioch and Newark substations, the project primarily traverses grazing land, agricultural lands, undeveloped areas such as the Coast Range mountains, and wind farms. All work is proposed to take place within the existing rights-of-way and substations. Where possible, work would be completed using existing access roads adjacent to the existing transmission line corridor.

Project construction is expected to last approximately 6 to 8 weeks and would require temporary staging areas for equipment and materials storage. The staging yards would likely be located within or immediately adjacent to the Contra Costa Power Plant, Delta Pumps, Las Positas, and Newark substations. Equipment may also be stored within the rights-of-way adjacent to reconductoring activities. At this time, the exact number of required pull stations is unknown, but it is assumed they would be located at angle towers whenever possible. Tower modifications and excavation work near the towers are not anticipated at this time. Construction equipment and activities would be visible to motorists on adjacent roadways, as well as to residents living near the existing corridor. Due to the short duration of project construction, any potentially adverse visual impacts that would occur during construction would not be significant. The construction areas and the rights-of-way are proposed to be restored to their pre-project conditions. Reconductoring involves the replacement of existing electrical transmission line with new conductors and does not change the configuration of the towers themselves.

Conclusion

Much of the landscape through which the two transmission corridors run is either quite remote or adjacent to or located within urbanized areas. These landscapes include existing industrial facilities such as towers, sub-stations, water pumping stations, aqueducts and wind-powered generators. The urbanized landscapes vary from densely developed cities to residential subdivisions and parks. No designated scenic highways would be affected by the project.

No changes to the existing transmission towers are anticipated. Therefore, the new conductors would not degrade the visual quality of the viewed landscape. Once construction is complete, this change to the transmission line would be undetectable to most viewers of the line, including motorists and residents living near the area. All visual impacts would be temporary and construction-related. There would be no significant adverse visual impacts, therefore no mitigation measures would be necessary as long as the replacement conductors are non-specular (non-reflective). The project would need to comply with applicable federal, state and local laws, ordinances and regulations (LORS). Final determination of environmental impacts and mitigation needed will be the responsibility of the permitting agency, the California Public Utilities Commission (CPUC).

3.14 WASTE MANAGEMENT AND HAZARDOUS MATERIALS

Impacts of Reconductoring

Hazardous materials use during reconductoring activities would be limited to fuels and lubricants associated with the equipment. Potential impacts would be limited to small fuel or oil spills. Equipment refueling would most likely be performed away from the linear reconductoring area; any hazardous material use would be performed away from water bodies to prevent contamination of water in the event of a spill. Therefore, any potential environmental effects would be limited to small areas of contaminated soil. In the unlikely event of a spill, the contaminated soil would be placed into barrels or trucks for offsite disposal as a hazardous waste.

The downstream reconductoring would not result in hazardous material use beyond activities documented in the staff assessment for OGS construction, and would not result in any potential impacts greater than those analyzed in the staff assessment. Construction of the downstream reconductoring would not result in a significant increase in waste. Therefore, any potential hazardous materials management impacts and waste management would be less than significant.

Impact Minimization Measures

Staff recommends that the following measures be implemented prior to and during construction to mitigate potential impacts resulting from improper waste or hazardous materials management:

- A waste management plan should be prepared to ensure that all construction materials and debris would be removed from the area and recycled or properly disposed of offsite.

- Construction waste should be recycled where feasible.
- Hazardous waste handling should incorporate the following: properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees to comply with state and federal hazardous waste management requirements.
- Hazardous wastes should be stored in accordance with accumulation time limits and then properly manifested, transported to, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies.
- A Phase I Environmental Site Assessment of the reconductoring route should be prepared in accordance with the American Society for Testing and Materials Standard Practice E 1527-05 to ensure there are no environmental conditions that would result in impacts due to or be exacerbated by project activities.

Conclusion

The downstream reconductoring would comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during both project construction and operation. In addition, the site should be managed such that contaminants would not pose a significant risk to humans or to the environment. Implementing the measures recommended above or similar for construction and operation would avoid impacts to workers and the environment.

3.15 WORKER SAFETY AND FIRE PROTECTION

Implementation of worker safety plans and protocols would be the same for the downstream reconductoring as those described in the final staff assessment.

Impact Minimization Measures

Staff would recommend that a fire prevention and response plan be implemented similar to that utilized at the Oakley Generating Station (OGS) project site and would include fire protection and prevention methods specific to the reconductoring work. The plan would include procedures to reduce the potential for igniting combustible materials by preventing electrical hazards, use of flammable materials, and smoking onsite during construction. Project personnel would be directed to park away from dry vegetation; to equip vehicles with fire extinguishers; not to smoke; and to carry water, shovels, and fire extinguishers in times of high fire hazard. Construction crews would receive training on fire prevention requirements prior to reconductoring construction activities.

Conclusion

The reconductoring would likely not result in potential impacts greater than those analyzed in the final staff assessment for the OGS site and would comply with applicable LORS if recommended mitigation measures were implemented. Therefore, any potential worker safety and fire protection impacts would be less than significant with implementation of recommended mitigation measures.

4.0 SUMMARY OF CONCLUSION

This analysis of downstream potential impacts of reconductoring the Contra Costa PP to Delta Pumps and Las Positas to Newark 230-kV line transmission line upgrades was prepared to inform the Energy Commission Committee and the general public of the potential direct and indirect effects of this project, which is considered a reasonably foreseeable development resulting from the OGS project. The analysis of potential environmental impacts is based on a planning-level project description of required facilities and recommended measures to minimize potential effects.

The proposed project is not anticipated to result in significant and unmitigable impacts to any issue area. The following issue areas would not be impacted by the proposed project: Facility Design, Power Plant Efficiency and Power Plant Reliability, For the remainder of the issue areas, it is anticipated that environmental impacts associated with the proposed downstream upgrades would be less than significant with implementation of the recommended mitigation measures identified herein. Additional measures may be required by CPUC and CAISO upon further environmental analysis pursuant to CEQA, once preliminary project design information is available.

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Biological Resources ..... Heather Blair

Cultural Resources ..... Kathleen Forrest

Geology and Paleontology ..... Patrick Pilling, Ph.D., P.E., G.E., D.GE.

Land Use ..... Negar Vahidi and Susanne Huerta

Noise and Vibration ..... Shahab Koshmashrab

Public Health ..... Obed Odoemelam, Ph.D

Soicoeconomics ..... Kristen Ford

Soils and Water Resources ..... Paul Marshall and Mark Lindley

Traffic and Transportation ..... Scott Debauche

Transmission Line Safety and Nuisance ..... Obed Odoemelam, Ph.D.

Transmission System Engineering ..... Laiping Ng and Mark Hesters

Visual Resources ..... Michelle Mourkas

Waste Management and Hazardous Materials ..... Geoff Lesh, P.E., Rick Tyler, and Ellie Townsend-Hough

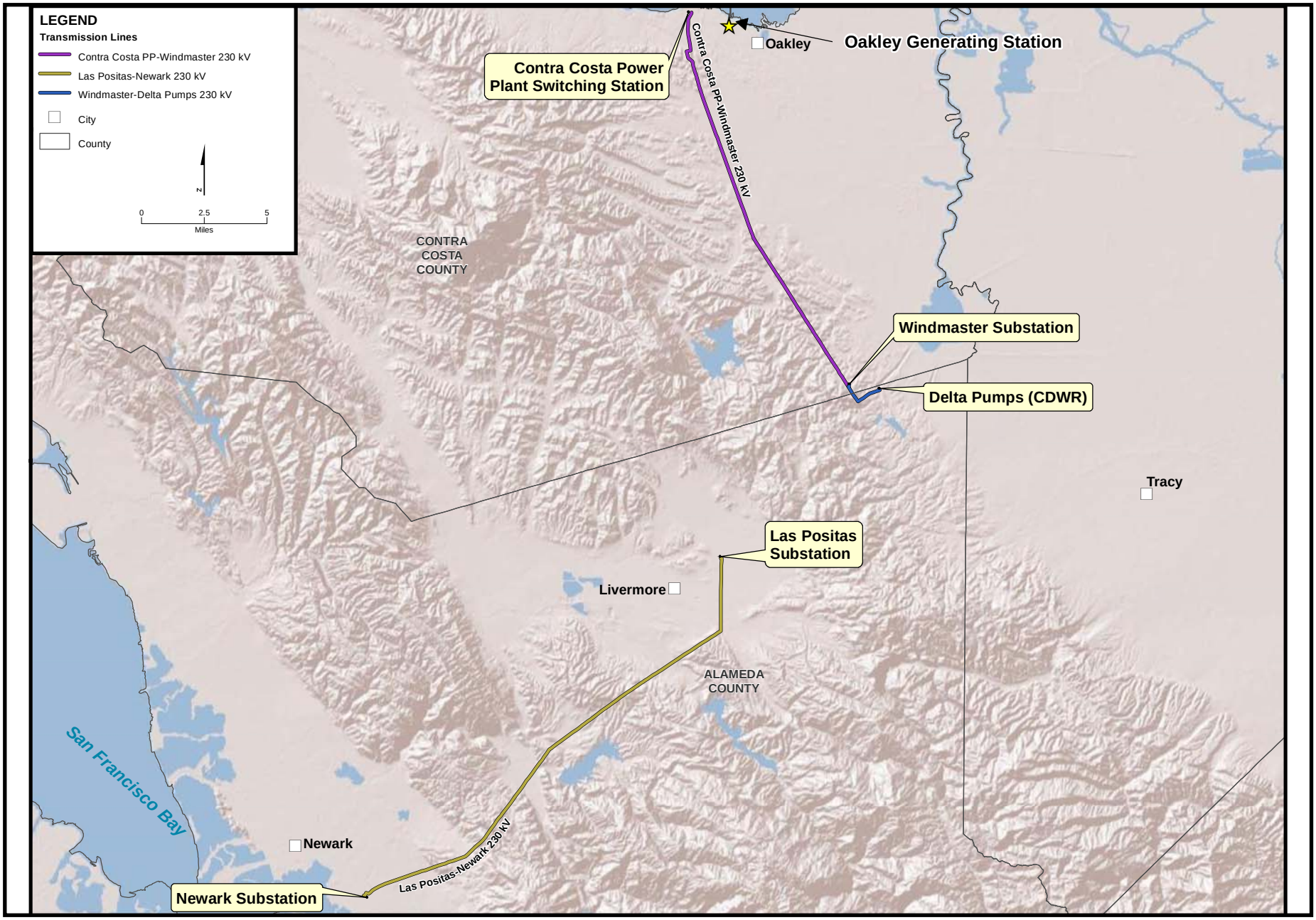
Worker Safety and Fire Protection ..... Geoff Lesh, P.E. and Rick Tyler

Project Assistant ..... Maria Santourdjian

FIGURE 1

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Vicinity - Contra Costa PP to Delta Pumps & Las Positas to Newark 230kV Reconductoring Projects



TRANSMISSION SYSTEM ENGINEERING

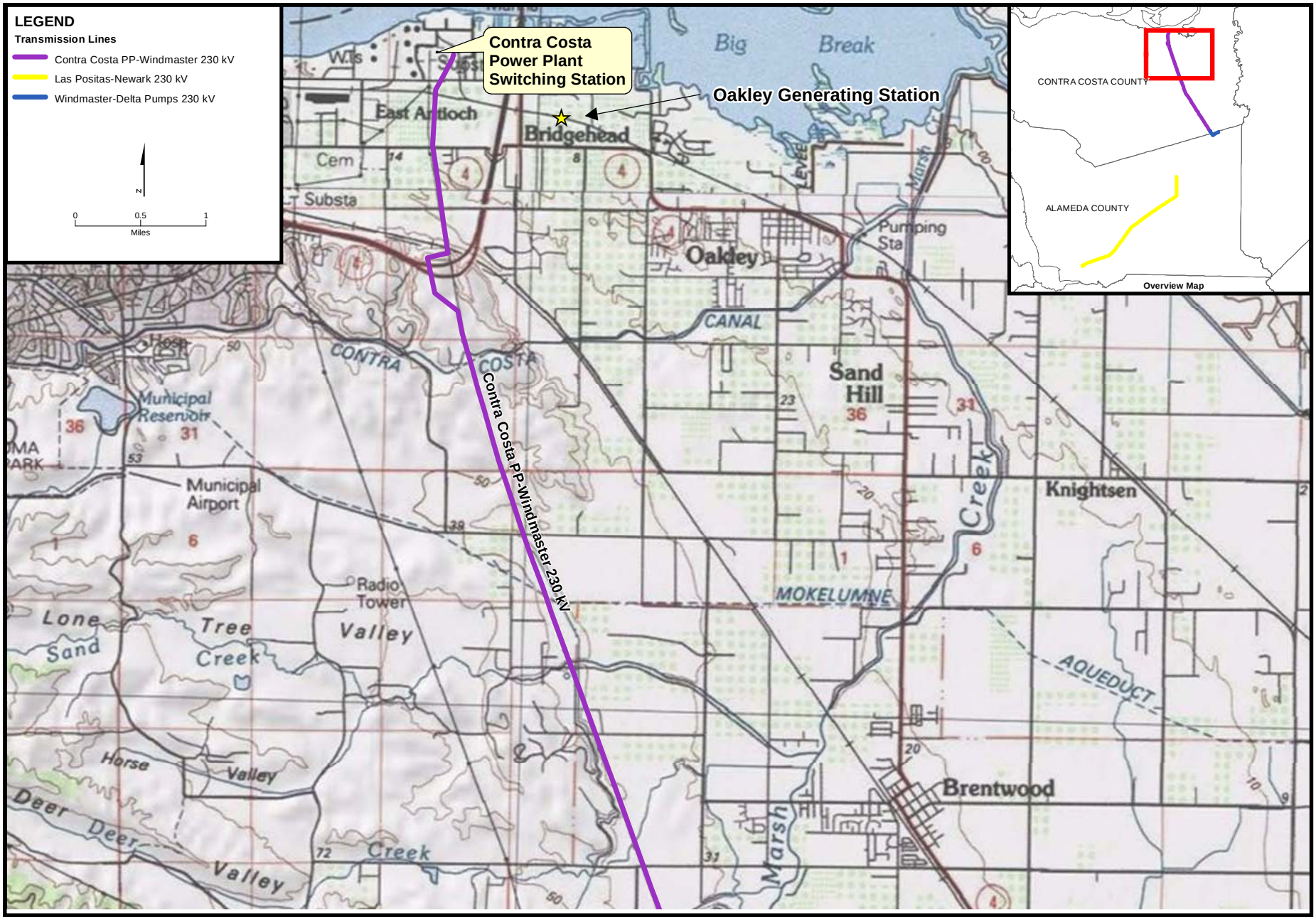
CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

FIGURE 2A

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line



TRANSMISSION SYSTEM ENGINEERING

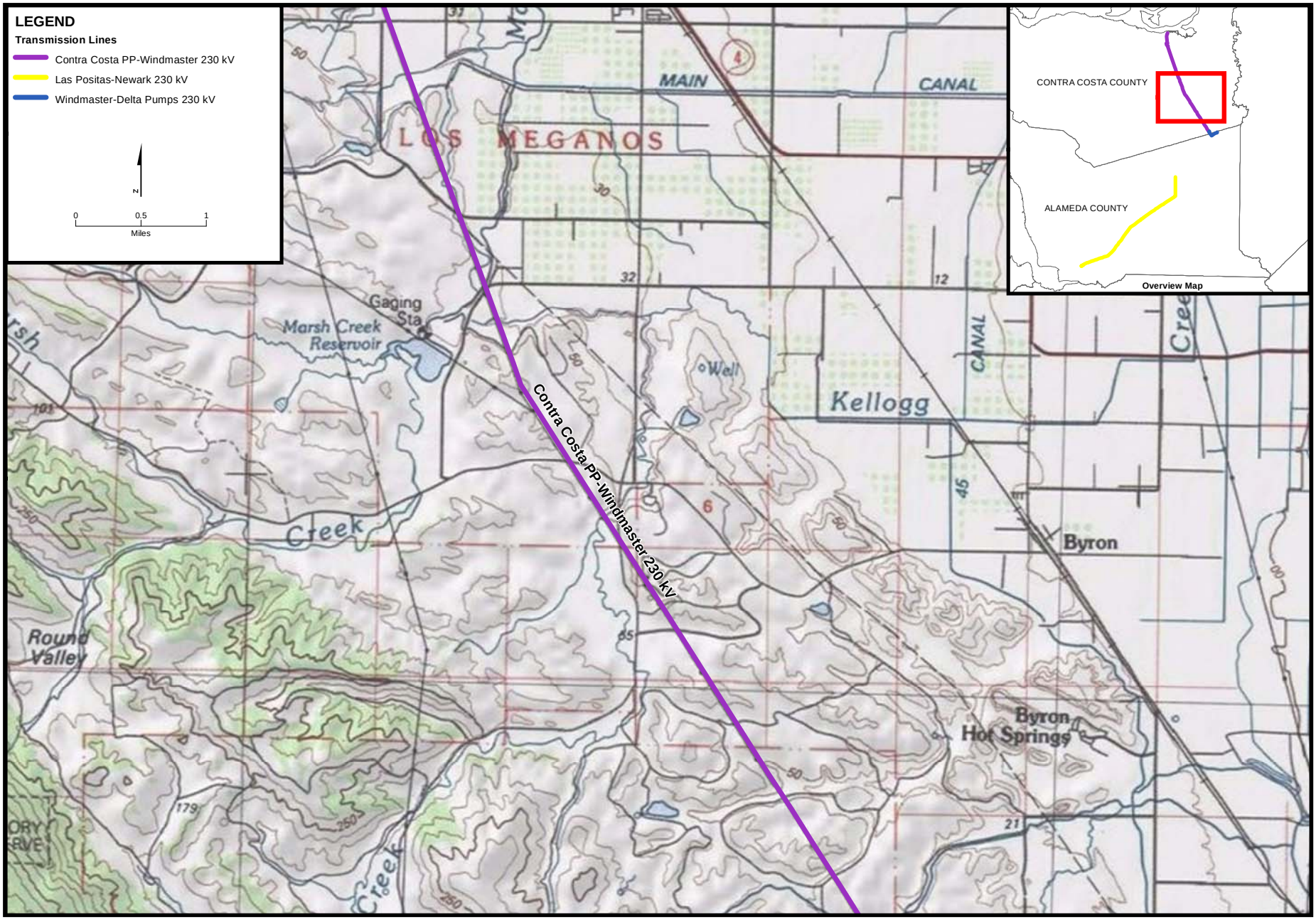
CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

FIGURE 2B

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line

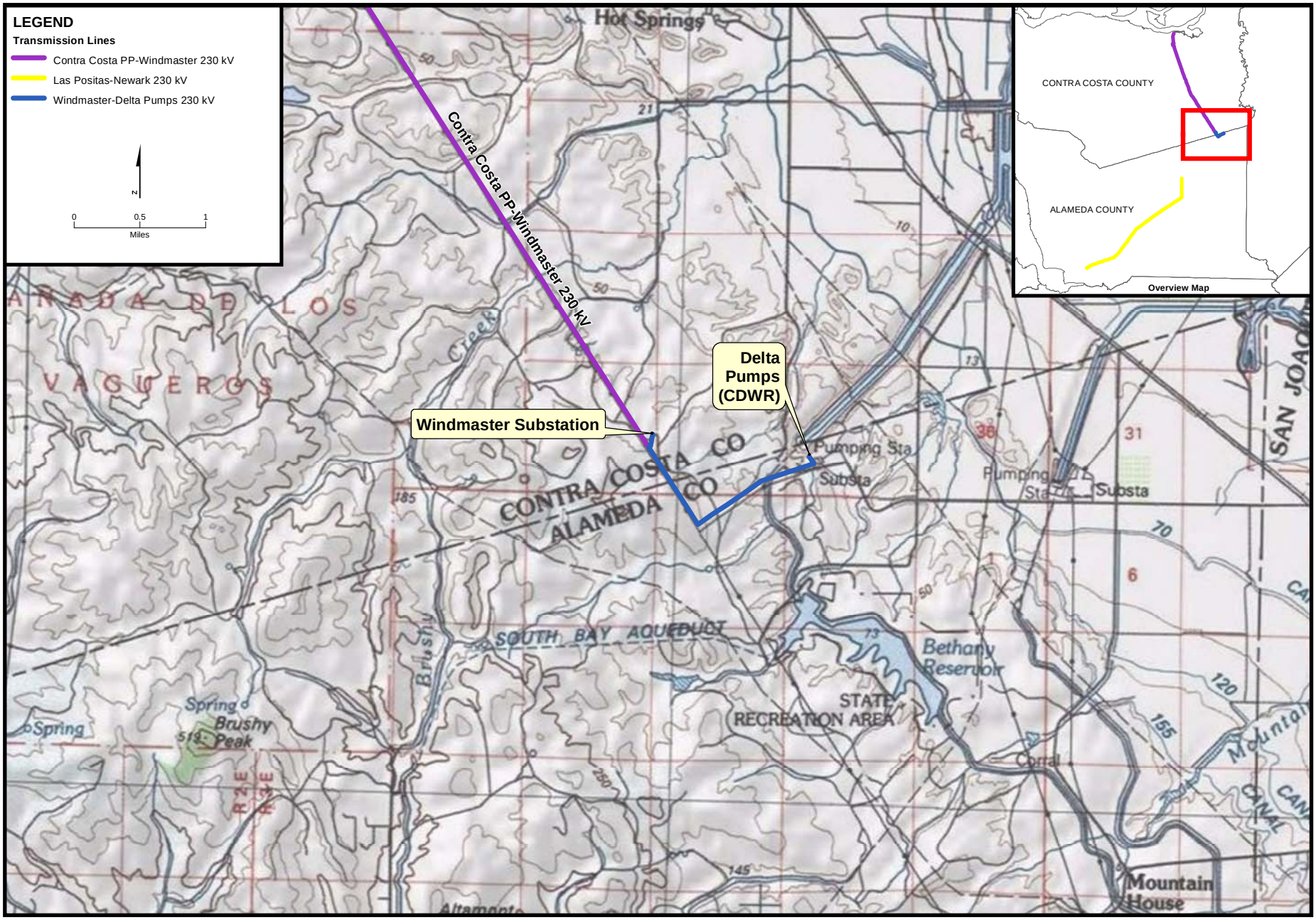


TRANSMISSION SYSTEM ENGINEERING

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

FIGURE 2C
TRANSMISSION SYSTEM ENGINEERING - APPENDIX A
Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line



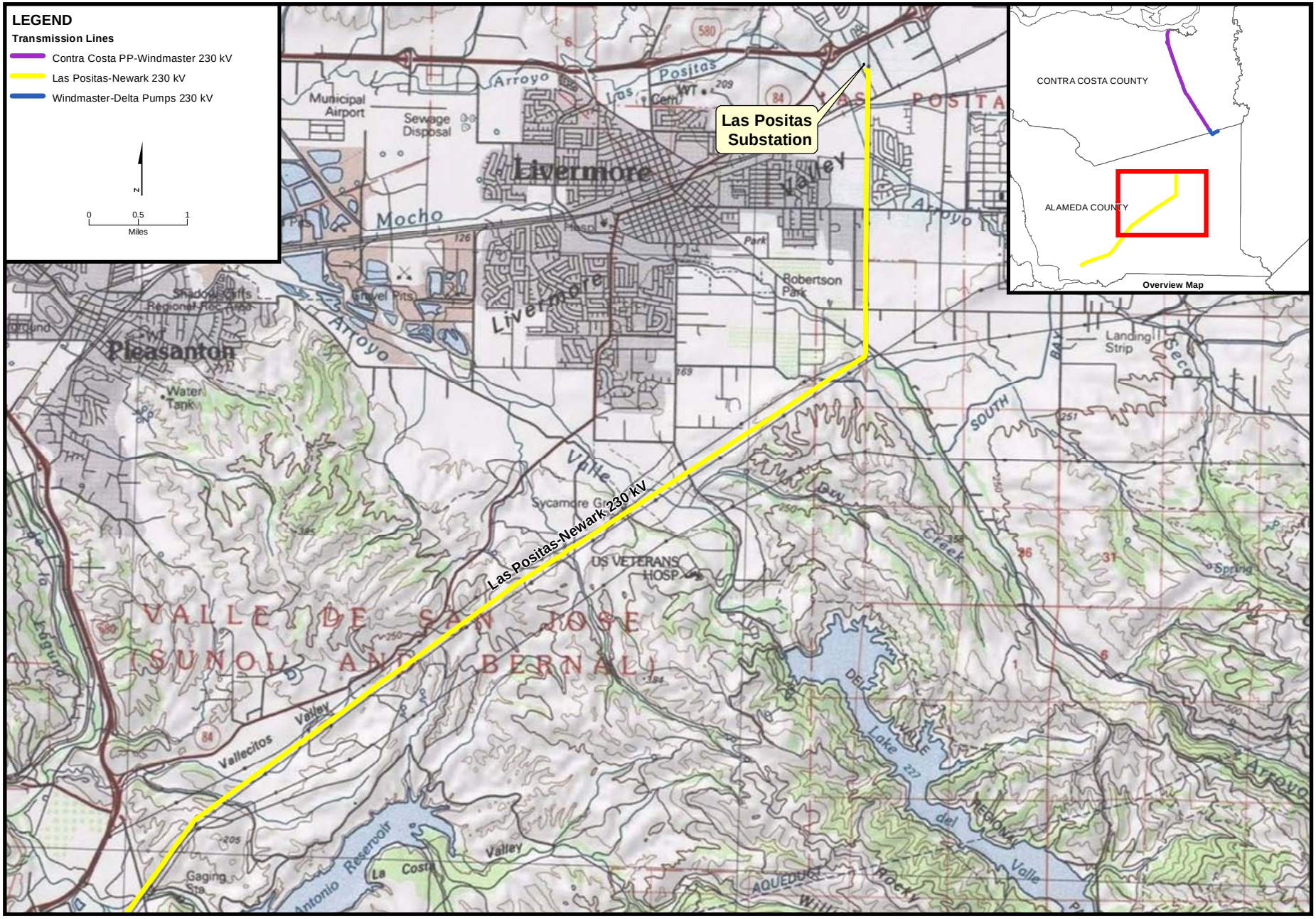
TRANSMISSION SYSTEM ENGINEERING

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: Data Response to Data Request 74

FIGURE 3A

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Las Positas to Newark Transmission Line



TRANSMISSION SYSTEM ENGINEERING

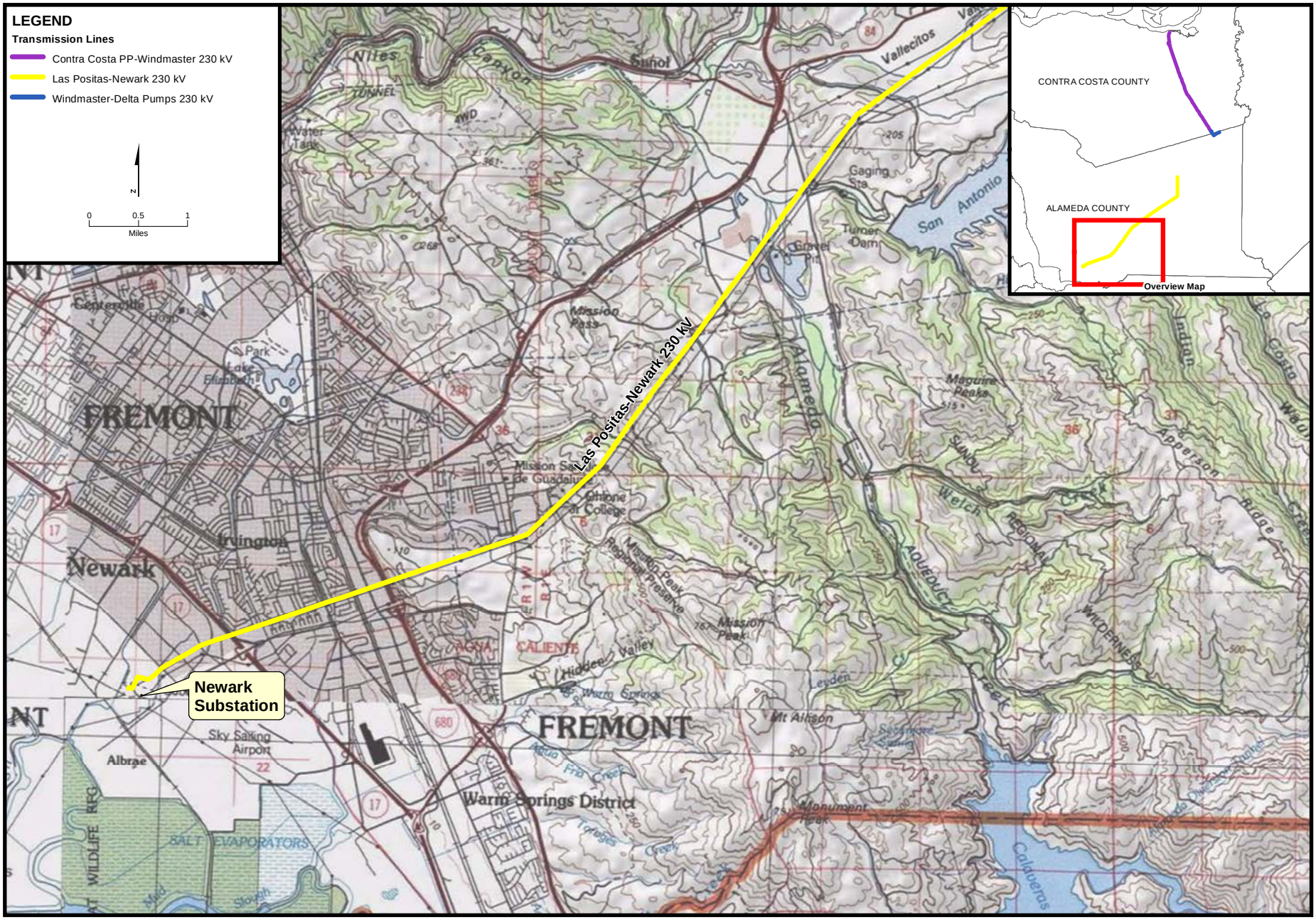
CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

FIGURE 3B

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Las Positas to Newark Transmission Line



TRANSMISSION SYSTEM ENGINEERING

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

PREPARATION TEAM DECLARATIONS

DECLARATION OF
Pierre Martinez, AICP

I, Pierre Martinez, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Project Manger (Planner III).

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Introduction and Purpose** and **Description of the Proposed Project** sections of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Joseph Hughes

I, Joseph Hughes, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as an Air Resources Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Air Quality** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
James Brewster Birdsall

I, James Brewster Birdsall, declare as follows:

1. I am presently employed as a consultant to the California Energy Commission in the Siting, Transmission and Environmental Protection Division under Contract No. 700-08-001.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Air Quality** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: San Francisco, California

DECLARATION OF
Heather Blair

I, Heather Blair, declare as follows:

1. I am presently employed by Aspen Environmental Group, consultant to the California Energy Commission in the Facilities Siting Office of the Systems Assessments and Facilities Siting Division as an Associate Biologist..

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Biological Resources** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Kathleen Forrest

I, Kathleen Forrest, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Planner II.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Cultural Resources** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Geoffrey Lesh

I, Geoffrey Lesh, declare as follows:

1. I am presently employed by the California Energy Commission in the Engineering Office of the Siting, Transmission and Environmental Protection Division, as a Mechanical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Hazardous Materials** and **Worker Safety and Fire Protection** sections of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Rick Tyler

I, Rick Tyler, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Senior Mechanical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Hazardous Materials** and **Worker Safety and Fire Protection** sections of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Negar Vahidi

I, Negar Vahidi, declare as follows:

1. I am presently employed by Aspen Environmental Group, a consultant to the California Energy Commission Siting, Transmission and Environmental Protection Division as a Senior Project Manager/Senior Land Use Technical Specialist.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Land Use** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Agoura Hills, California

DECLARATION OF
Susanne Huerta

I, Susanne Huerta, declare as follows:

1. I am presently employed by Aspen Environmental Group, a consultant to the California Energy Commission Siting, Transmission and Environmental Protection Division as a Land Use Technical Specialist.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Land Use** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Agoura Hills, California

DECLARATION OF
Shahab Khoshmashrab

I, Shahab Khoshmashrab, declare as follows:

1. I am presently employed by the California Energy Commission in the Engineering Office of the Siting, Transmission and Environmental Protection Division, as a Mechanical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Noise and Vibration** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Dr. Obed Odoemelam

I, Obed Odoemelam, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Staff Toxicologist.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Public Health** and **Transmission Line Safety and Nuisance** sections of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Kristin Ford

I, Kristin Ford, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Planner I.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Socioeconomic** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Paul Marshall

I, Paul Marshall, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Senior Engineering Geologist.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Soil and Water Resources** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Mark Lindley

I, Mark Lindley, declare as follows:

1. I am presently employed as a consultant by the California Energy Commission in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Soil and Water Resources** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: San Francisco, California

DECLARATION OF
Scott Debauche

I, Scott Debauche, declare as follows:

1. I am presently employed by Aspen Environmental Group, a contractor to the California Energy Commission Siting, Transmission and Environmental Protection Division as a Traffic and Transportation Technical Specialist.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Transportation and Traffic** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Agoura Hills, California

DECLARATION OF
Melissa Mourkas

I, Melissa Mourkas, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as a Planner II.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Visual Resources** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Ellen Townsend-Hough, REA

I, Ellen Townsend-Hough, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as an Associate Mechanical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Waste Management** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Patrick A. Pilling, Ph.D., P.E., G.E., D.GE.

I, Patrick A. Pilling, declare as follows:

1. I am presently employed as a subcontractor to Aspen Environmental Group, a contractor to the California Energy Commission; Systems Assessment and Facilities Siting Division as Geotechnical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Geology and Paleontology** section of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Reno, Nevada

DECLARATION OF
Laiping Ng

I, Laiping Ng, declare as follows:

1. I am presently employed by the California Energy Commission in the Strategic Transmission Planning Office of the Siting, Transmission and Environmental Protection Division, as an Associate Electrical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Transmission System Engineering** subsection of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

DECLARATION OF
Mark Hesters

I, Mark Hesters, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division, as an Senior Electrical Engineer.

2. A copy of my professional qualifications and experience is attached to the Final Staff Assessment prepared for the **Oakley Generating Station (09-AFC-04)** and incorporated herein.

3. I prepared the staff testimony on the **Introduction and Purpose, Description of the Proposed Project** and **Transmission System Engineering** subsections of the **Appendix A** to the **Transmission System Engineering** section for the **Oakley Generating Station (09-AFC-4)** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: March 8, 2011 Signed: _____

At: Sacramento, California

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *OAKLEY GENERATING STATION*

Docket No. 09-AFC-4
PROOF OF SERVICE
(Revised 3/3/2011)

APPLICANT

Greg Lamberg, Sr. Vice President
RADBACK ENERGY
145 Town & Country Drive, #107
Danville, CA 94526
Greg.Lamberg@Radback.com

APPLICANT'S CONSULTANTS

Douglas Davy
CH2M HILL, Inc.
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ddavy@ch2m.com

COUNSEL FOR APPLICANT

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455 Capitol Mall, Suite 350
Sacramento, CA 95814
sgalati@gb-llp.com
mmills@gb-llp.com

INTERESTED AGENCIES

California ISO
E-mail Preferred
e-recipient@caiso.com

*Maifiny Vang
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State Water Project Power and Risk Office
3310 El Camino Avenue,
RM. LL90
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mvang@water.ca.gov

INTERVENORS

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Pierre Martinez
Siting Project Manager
pmartine@energy.state.ca.us

Kevin W. Bell
Staff Counsel
kwbell@energy.state.ca.us

Jennifer Jennings
Public Adviser
E-mail preferred
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Maria Santourdjian, declare that on March 10, 2011, I served and filed copies of the attached Supplemental Staff Assessment, dated March 10, 2011. 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:
[http://www.energy.ca.gov/sitingcases/oakley/index.html].

The documents have 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;

____ by personal delivery;

_x_ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date 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 emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-4
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, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Originally Signed by
Maria Santourdjian

*indicates change