

ENVIRONMENTAL ASSESSMENT

APPLICATION FOR NON-PROJECT USE OF PROJECT LANDS

FEATHER RIVER HYDROELECTRIC PROJECT
FERC No. 2100-182
California



Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
888 First Street, N.E.
Washington, DC 20426

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ACRONYMS

Advisory Council	Advisory Council on Historic Preservation
APE	Area of Potential Effect
California DWR	California Department of Water Resources
California SHPO	California State Historic Preservation Officer
Commission or FERC	Federal Energy Regulatory Commission
DO	Dissolved Oxygen
EA	Environmental Assessment
Enterprise Rancheria	Enterprise Rancheria of Maidu Indians of California
ESA	Endangered Species Act
FEIS	Federal Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FWS	U.S. Fish and Wildlife Service
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PA	Programmatic Agreement
PG&E	Pacific Gas and Electric Company
Section 106	Section 106 of the National Historic Preservation Act
Section 401	Section 401 of the Clean Water Act
Section 7	Section 7 of the Endangered Species Act
THPO	Tribal Historic Preservation Officer
401 certification	Water Quality Certification under Section 401 of the Clean Water Act

ENVIRONMENTAL ASSESSMENT

**Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
Washington, DC**

**Feather River Hydroelectric Project
FERC No. 2100-182**

1.0. APPLICATION

Application Type: Non-project use of project lands

Date Filed: June 23, 2017

Applicant's Name: California Department of Water Resources

Water Body: Feather River

County and State: Butte County, California

Federal Lands: The project occupies Federal Lands administered by the U.S. Forest Service and U.S. Bureau of Land Management

2.0 PURPOSE OF ACTION

The California Department of Water Resources (California DWR), licensee for the Feather River Hydroelectric Project No. 2100, requests approval from the Federal Energy Regulatory Commission (Commission or FERC) to permit Pacific Gas and Electric Company (PG&E) to permanently reroute a portion of its 230-kilovolt (kV) Table Mountain–Palermo transmission line, which currently occupies lands within the project boundary, to avoid portions of the project's damaged emergency spillway. The original transmission line route included two towers located within the flow route of the Feather River Project's emergency spillway. Following a February 2017 emergency event at the project (further discussed in the section below), PG&E found that if the emergency spillway were to be used again, these PG&E towers would be at risk of either flowing water or erosion from that flow. Because of this, PG&E immediately removed a 3,000-foot segment of the original line, including three towers on the north side of the project's Thermalito Diversion Pool and installed a temporary line. The temporary line carries half of the capacity of the original line and is located just west of the original line alignment. PG&E is seeking approval to permanently reroute the transmission line to avoid portions of the project's emergency spillway and to return to the full capacity of the original line.

California DWR and PG&E request an expedited review of the proposed non-project use of project lands. They cite two critical time constraints: (1) PG&E has to restore the full circuit or risk localized power outages when peak power demands exceed available transmission capacity; and (2) PG&E's temporary transmission alignment is in conflict with, and prevents California DWR's plan to construct its own permanent reroute of the project's primary transmission lines, which are critical to the continued control and operation of the Feather River Project's Hyatt pumping-generating plant integrated into the Oroville Dam. As a result, any delays in completing the proposed PG&E permanent transmission reroute will directly affect and delay California DWR's permanent transmission reroute. These delays may also affect the timing associated with the ongoing repairs to the Feather River Project's emergency spillway in response to the February emergency event.

3.0. BACKGROUND

In February 2017, abnormally heavy precipitation resulted in high flows in the Feather River basin that caused extensive erosion and damage to the main spillway and emergency spillway at the Feather River Project's Oroville Dam. California DWR first observed major damage to the main spillway on February 7, 2017. Due to high inflows into Lake Oroville and reduced outflow capacity on the main spillway, Lake Oroville overtopped the adjacent emergency spillway on February 11, 2017, which resulted in back-cutting erosion on the emergency spillway that threatened the stability of the emergency spillway's crest structure. Unavoidable increased operation of the main spillway led to the loss of the lower portion of the spillway chute and caused significant erosion in the vicinity of the spillway failure site.

Since that time, California DWR has implemented numerous emergency recovery actions including temporarily relocating transmission lines, dredging in the diversion pool, removing sediment in the vicinity of the main spillway, establishing site access, and initiating early stages of reconstruction of the spillways. PG&E also temporarily relocated its transmission line in the vicinity of the emergency spillway to avoid any further impacts related to flows through the emergency spillway channel. This environmental assessment analyzes California DWR's application to the Commission to allow PG&E to permanently reroute its 230-kV transmission line away from the area of the emergency spillway.

3.1 Feather River Project Description

The Commission issued a 50-year license for the Feather River Project on February 11, 1957,¹ which expired on January 31, 2007. The project has been operating on an annual license since February 1, 2007.² The project is located on the Feather River in Butte County, California, and encompasses 41,540 acres (Figure 1). The project includes three power plants, two on-river impoundments, and two off-river impoundments. The proposal by PG&E to permanently reroute its transmission line will occur in the vicinity of the 770-foot-high Oroville Dam, which impounds the 15,810-acre Lake Oroville. Flows can pass out of Lake Oroville in one of four ways: through the six-unit, 645-megawatt (MW) Hyatt pumping-generating plant; through the gated main spillway; over the ungated emergency spillway; or through the low-level river outlet valve. Flows pass into the 320-acre Thermalito Diversion Pool, which is impounded by the 143-foot-high Thermalito Diversion Dam located about four miles downstream.

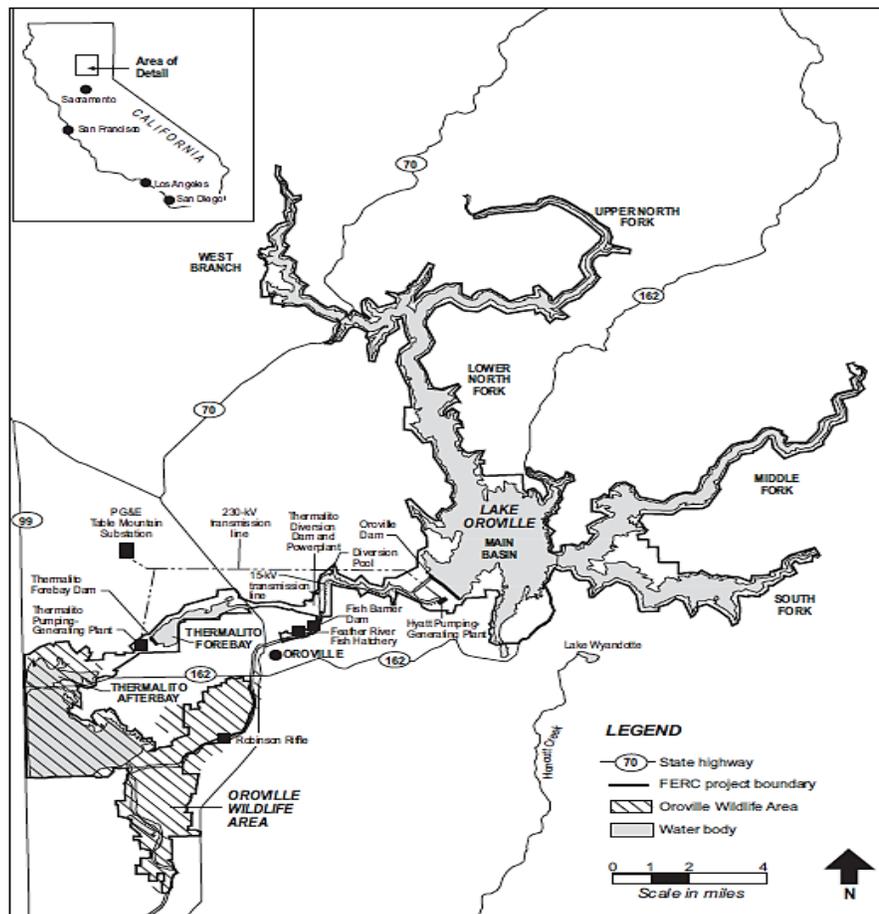


Figure 1. Location of the Feather River Project facilities

¹ *Dep't of Water Res. of the State of Cal.*, 17 FPC 262.

² See Notice of Authorization for Continued Project Operation, issued February 1, 2007, in Project No. 2100-000.

4.0 PROPOSED ACTION AND ALTERNATIVES

4.1 Proposed Action

The licensee requests Commission approval to permit PG&E to permanently reroute a portion of its original 230-kV Table Mountain-Palermo transmission line to an alternate location in the vicinity of the project's Thermalito Diversion Pool. The original transmission line is oriented in a primarily north-south direction and is located west of the main spillway. The rerouted portion would extend approximately 3,000 feet in a northwest direction on the south side of the diversion pool parallel with the licensee's separately proposed reroute of the project's primary transmission line. PG&E's reroute would then diverge from co-location with the primary transmission line to turn more to the north to cross the diversion pool. The line would continue north for approximately 2,800 feet before reconnecting to the existing east-west portion of the Table Mountain-Palermo transmission line. For PG&E, the total reroute corridor would be approximately one-mile in length; of which a corridor of approximately 2,700 feet long by 150 feet wide would be located within the project boundary. PG&E must also construct two new transmission towers (with four footings each) within the project boundary. The licensee also anticipates that various ground-disturbing activities would occur, such as constructing road access, clearing and grubbing an 8.63 acre corridor within the project boundary, and excavating tower footings.

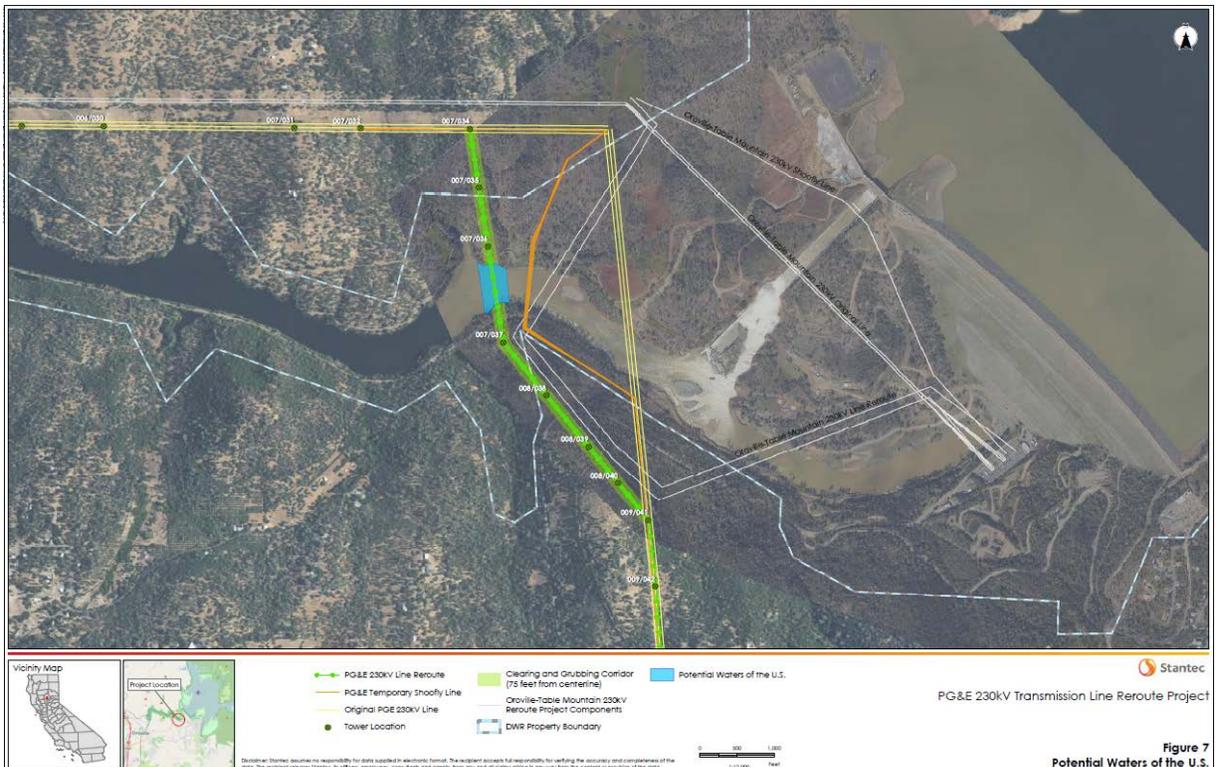


Figure 2. Proposed Realignment of PG&E Table Mountain-Palermo Transmission Line (source: California DWR).

4.2 Other Action Alternatives

No reasonable action alternatives have been presented by PG&E or the California DWR or been identified by Commission staff. PG&E has selected a reroute alignment that accounts for design constraints associated with the existing topography and limited sites for tower placement and possible interference with other existing electrical lines in the area. We conclude that any alternative route alignment would not be feasible due to physical limitations associated with the existing topography and other electrical lines in the vicinity.

4.3 No-Action Alternative

Under the no-action alternative, PG&E would continue to use its temporary transmission line located west of the emergency spillway. As stated in the licensee's application, the separately proposed reroute of California DWR's Oroville-Table Mountain primary transmission line is contingent upon the prompt relocation of PG&E's Table Mountain-Palermo transmission line. Therefore, the no-action alternative would impede the licensee's long-term ability to transmit power from and reliably operate the Hyatt pumping-generating plant. Further, the licensee states that PG&E must restore full transmission capacity to be able to meet peak power demands; failure could cause localized power outages. Consequently, the no-action alternative is not a feasible or preferable long-term solution.

5.0 CONSULTATION AND COMPLIANCE

5.1 Background

The California DWR developed its proposal in consultation with the U.S. Fish and Wildlife Service (FWS), California Department of Fish and Wildlife, U.S. Army Corps of Engineers, California State Historic Preservation Officer (California SHPO), the Enterprise Rancheria of Maidu Indians of California (Enterprise Rancheria), and the Advisory Council on Historic Preservation (Advisory Council). The FWS issued a take permit for bald eagle (*Haliaeetus leucocephalus*) under the Bald and Golden Eagle Protection Act on February 17, 2017 that is effective through August 31, 2017. The FWS also issued a permit under the Migratory Bird Treaty Act on June 8, 2017 that is effective through March 31, 2018. Under the National Historic Preservation Act, the Enterprise Rancheria Tribal Historic Preservation Officer (THPO) concurred with California DWR's plan for treatment of the discovery of cultural resources at the site. Also, the Commission developed a Programmatic Agreement (PA) with the California SHPO and the Federal Emergency Management Agency (FEMA) for the management and protection of cultural resources. The PA was executed on July 5, 2017 with California DWR, the California Governor's Office of Emergency Services, and the Enterprise Rancheria as concurring parties.

5.2 Statutory Compliance

5.2.1 Section 401 Water Quality Certification

Under section 401 of the federal Clean Water Act, an applicant for a federal license or permit to conduct any activity which may result in any discharge into the navigable waters must obtain a water quality certification from the appropriate state pollution control agency verifying that the activity would not violate water quality standards.³ Here, the proposed reroute alignment will cross above the Thermalito Diversion Pool but is not expected to result in any discharge to navigable waters. Therefore, the proposed action does not require a water quality certification.

³ 33 U.S.C. § 1341(a)(1) (2012).

5.2.2 Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of federally-listed threatened or endangered species or result in the destruction or adverse modification of the critical habitat of such species.⁴ There is no critical habitat in the proposed work area for any known federally-listed species. Based upon the detailed analysis below in section 6.5-Threatened and Endangered Species, we conclude that the proposed action would have no effect on federally-listed species.

5.2.3 National Historic Preservation Act

Under section 106 of the NHPA and its implementing regulations, federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places and must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.⁵ In a letter to the California SHPO dated March 31, 2017, the Commission designated California DWR its non-federal representative for conducting informal, day-to-day consultations under section 106 of the NHPA for the identification, evaluation, and determination of effects to historic properties arising from the relocation of the PG&E transmission line. Pursuant to that designation, the California DWR formally initiated consultation with the California SHPO and Advisory Council on its proposal and potential effects to cultural resources in a letter dated April 24, 2017. Following that initiation, by letters dated April 26, May 8, May 11, May 18, May 19, May 25, and June 5, 2017, the California SHPO provided direction and concurrence on various cultural resource determinations made by the California DWR within the footprint of the transmission line reroute project area. California DWR also notified the California SHPO, the Commission, and the Advisory Council on April 25, 2017 of an unanticipated discovery of a prehistoric site made by a tribal monitor in an area that was previously surveyed with negative results. The aforementioned PA includes provisions for the identification and management of potential effects to historic properties arising from transmission line relocations. Up until the PA was executed, California DWR had been consulting with the California SHPO as the Commission's non-federal representative under the emergency provision of section 106.

⁴ 16 U.S.C. § 1536 (2012)

⁵ 54 U.S.C. § 306108 (2012); 36 C.F.R. Part 800 (2017).

6.0 ENVIRONMENTAL ANALYSIS

6.1 Scope of the Analysis

The geographic scope of this environmental analysis is limited to the approximately one-mile-long segment of PG&E's proposed transmission line reroute that crosses within the project boundary, beginning just south of the Thermalito Diversion Pool and extending across and over the diversion pool in a northwest direction to the interconnection with the existing east–west portion of the Table Mountain–Palermo transmission line, just west of the emergency spillway. The temporal scope of this environmental analysis focuses on the period from the start of site preparation in May 2017, followed by construction in summer of 2017, and the transmission line's perpetual existence thereafter. The resources potentially affected by this proposal include water quality and aquatic resources, terrestrial resources, threatened and endangered species, cultural resources, and recreation resources.

6.2 General Description of the Project Area

The project is located on the Feather River in Butte County, California. Like PG&E's original transmission line, the proposed transmission line reroute would cross lands owned by the California DWR within the project boundary and cross the Thermalito Diversion Pool, but at a new separate location.

6.3 Water Quality and Aquatic Resources

6.3.1 Affected Environment

The proposed transmission line reroute would cross over the Thermalito Diversion Pool at a new location farther downstream. Water quality in the diversion pool is generally good and is a function of water quality in Lake Oroville and its releases. As a result of nearly constant flow releases from Oroville Dam and the Hyatt pumping-generating plant, water temperatures are generally cool and undergo very little stratification. Turbidity levels are also generally low, due to the majority of sediments settling out in Lake Oroville, upstream of the diversion pool. Nonetheless, several highly elevated turbidity events have occurred recently, due to severe erosion in the vicinity of the main and emergency spillways following the February 7, 2017 damage to the main spillway. In addition, dissolved oxygen (DO) and pH levels at the project generally comply with the 7.0 milligram per liter DO and 6.5-8.5 pH objectives of the Basin Plan.

Historically, the Thermalito Diversion Pool fishery has been a predominantly cold water fishery, consisting of rainbow trout, brook trout, brown trout, and Chinook salmon. The diversion pool also contains several native and non-native species, including common carp, golden shiner, Sacramento pikeminnow, Sacramento sucker, wakasagi,

prickly sculpin, bluegill, black crappie, largemouth bass, smallmouth bass, and tule perch. However, the diversion pool fish community and abundance may have been significantly altered by the exceptionally high flows and turbidity levels following the main spillway failure.

6.3.2 Environmental Effects

As discussed above, the proposed transmission line reroute would cross over the diversion pool at a new location, just west of the previous line. The water crossing would not necessitate any in-water work or construction of in-water structures. In addition, the support towers for the line would be constructed approximately 500 feet from the diversion pool, such that no sediment or other construction debris would enter the diversion pool. Therefore, the proposed transmission line reroute should have no effect on water quality or aquatic resources.

6.4 Terrestrial Resources

6.4.1 Affected Environment

The Feather River Project is located within the Sacramento Valley and Sierra Nevada Foothills on land designated as a State Recreation Area. Vegetation in this area differs with elevation changes from the valley floor (elevation 100 feet above mean sea level at the lower end of the Oroville Wildlife Area) to the upper elevation of the mountain range (about 1,200 feet above mean sea level). The vegetation changes from valley grasslands to foothill woodlands (characterized by blue-oak /foothill pine woodlands with varying amounts of chaparral) to mixed conifer forests in the higher elevations.

The lands around Lake Oroville and the Diversion Pool are mostly composed of open to dense woodland, forest, and chaparral communities consisting of mixed oak woodlands, foothill pine/mixed oak woodlands, and oak/pine woodlands and chaparral. Primary species include interior and canyon live oaks, blue oak, and foothill pine. The open areas within the woodlands consist of annual grassland species. Also found around the Diversion Pool is scrub vegetation, consisting of mostly chaparral vegetation, which is characterized by evergreen, tough waxy leaves. Common chaparral species include whiteleaf manzanita, buckbrush, toyon, and scrub oak. Downstream of Oroville Dam and the Thermalito Diversion Pool, vegetation around open waters of the off-river Thermalito Complex (including a forebay, power plant, and afterbay) include emergent wetland types with annual grasslands on the surrounding slopes.

A total of 219 species of non-native plants were identified within the project boundary during relicensing surveys conducted in 2002 and 2003. Of these species, 39

are target species identified as noxious or invasive plants by the California Department of Food and Agriculture, California Invasive Plant Council, U.S. Department of Agriculture, and the Plumas National Forest. The largest concentration of noxious or invasive species is located within the Oroville Wildlife Area, outside of the proposed transmission line reroute corridor. However, noxious and invasive species also occur in areas with existing land disturbance near roads, trails, and in the immediate vicinity of the spillway and power facilities. Similar land disturbance will occur within the proposed transmission line reroute corridor.

Terrestrial species in and around the proposed transmission line reroute corridor include mountain lions, raccoons, turkeys, opossums, coyotes, tree and ground squirrels, rabbits, deer, skunks, ringtails, bears, and many species of birds native to the area. The proposed transmission line reroute area supports a diverse number of migratory birds that travel through the area for breeding, migrating, and wintering. The area is also known to provide year round habitat for several species of migratory birds, which are likely to occur within the area of the proposed transmission line reroute.

Commission staff accessed FWS's Information for Planning and Consultation system on June 27, 2017, and generated the following list of birds protected under the Migratory Bird Treaty Act that are likely to occur within the proposed transmission line reroute corridor:

Common Name	Scientific Name	Season(s)
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Year-round
Black Rail	<i>Laterallus jamaicensis</i>	Breeding
Black Swift	<i>Cypseloides niger</i>	Breeding
Burrowing Owl	<i>Athene cunicularia</i>	Year-round
California Spotted Owl	<i>Strix occidentalis</i>	Year-round
Calliope Hummingbird	<i>Stellula calliope</i>	Breeding
Flammulated Owl	<i>Otus flammeolus</i>	Breeding
Fox Sparrow	<i>Passerella iliaca</i>	Wintering
Green-tailed Towhee	<i>Pipilo chlorurus</i>	Breeding
Lewis's Woodpecker	<i>Melanerpes lewis</i>	Wintering
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Year-round
Long-billed Curlew	<i>Numenius americanus</i>	Wintering
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	Year-round
Oak Titmouse	<i>Baeolophus inornatus</i>	Year-round
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Breeding
Peregrine Falcon	<i>Falco peregrinus</i>	Wintering
Rufous Hummingbird	<i>Selasphorus rufus</i>	Migrating
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>	Year-round
Short-eared Owl	<i>Asio flammeus</i>	Wintering

Snowy Plover	<i>Charadrius alexandrinus</i>	Breeding
Swainson's Hawk	<i>Buteo swainsoni</i>	Breeding
Western Grebe	<i>Aechmophorus occidentalis</i>	Wintering
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	Year-round
Yellow-billed Magpie	<i>Pica nuttalli</i>	Year-round

There is currently an active bald eagle nest located adjacent to the transmission line reroute corridor, on PG&E land in close proximity to the current project boundary. While the nest is currently outside of the project boundary, California DWR has a pending application with the Commission to bring these lands into the boundary.⁶ If approved, the protection of this nest will fall under the Commission's jurisdiction and be subject to the protections outlined in any order incorporating the land into the boundary. Bald eagles have been removed from the list of threatened and endangered species since 2007, but are still protected under the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act.

6.4.2 Environmental Effects

Construction of the proposed transmission line reroute would temporarily and permanently disturb land and vegetation within the footprint of the approximately one-mile-long transmission line reroute corridor on a total of approximately 18 acres; of which approximately 2,700 feet would be within the project boundary. The proposed construction work may also temporarily disturb and displace wildlife and avian species. These disturbances would occur primarily during vegetation-clearing and grubbing activities; constructing work pads, crane pads, staging areas, and access roads within the right-of-way; installing poles; and wire-tensioning activities. Last, the permanent transmission lines have the potential to affect avian bird species within the project area.

Generally, land-clearing activities have the potential to cause loss of wildlife habitat, noise, vibration, dust, and increased potential for vehicle collisions and other human interactions with wildlife. The construction of additional access roads and vehicular traffic necessary during any construction activities will increase human presence and noise, which may have added effects on local wildlife. The clearing of vegetation has the potential to disturb nesting birds and disturb or destroy animal burrows and habitat. Disturbance and removal of existing vegetation for any of the proposed construction activities also has the potential to create conditions conducive to the introduction and spread of invasive plant species, which could out-compete and displace native species, thereby reducing biodiversity and altering compositions of existing native communities. The proposed application defined a clearing and grubbing route but it did

⁶ See California DWR's filings on May 17, June 16, and June 20, 2017, in Project No. 2100-180.

not include explicit plans and specifications regarding PG&E's proposal for land-clearing methods (i.e., machinery clearing, hand cutting, etc.) nor did it define clearing and grading areas for any potential access roads, staging areas, or work pads necessary to complete the proposed construction work.

While it is not possible to completely eliminate all direct and indirect effects on terrestrial resources regarding vegetation clearing and other ground-disturbing activities, there should be an effort to reduce disturbance as much as possible. As discussed above, because the machinery and vehicles used during land-clearing activities have the potential to introduce and spread invasive or noxious plant species, PG&E and its contractors should use best management practices to reduce these potential effects. PG&E's use of post-construction mitigation measures to restore cleared areas, where appropriate, to pre-construction conditions would also aid in alleviating both short- and long-term effects on the vegetative environment and wildlife habitat.

The construction of the proposed transmission line reroute will have temporary effects on avian species including the bald eagle through removal of habitat, increased noise and vibrations, and increased human activity in the area. The permanent location of the proposed transmission line would increase the probability of avian collision and electrocution during flight and foraging if measures are not implemented to avoid or minimize these effects.

The transmission line reroute application did not provide specific measures that PG&E will implement to minimize the temporary and permanent effects above. California DWR's separate application to amend the project boundary to add land will incorporate the bald eagle nest, if approved. For this reason California DWR should work directly with PG&E prior to starting construction activities adjacent to the nesting tree to minimize disturbances to the eagle nest. At a minimum, California DWR and PG&E should implement the requirements of the FWS's Bald Eagle Take Permit and Migratory Bird Treaty Act Permit and any other applicable protection laws. The Bald Eagle Take Permit requires California DWR to coordinate with PG&E to install flight diverters near the known nest and where the line crosses the waterway. The permit also requires California DWR or its sub-permittees (e.g., PG&E) to monitor the bald eagle nest for three years following emergency activities to determine the disturbance effect to the Glen Pond breeding territory. Efforts by PG&E to minimize disturbances may include incorporating any provisions of California DWR's existing Bald Eagle Protection Plan for this particular nest. If the separate application to include these lands into the project boundary is approved, California DWR should inform PG&E of any new requirements for protection of this area imposed by that action. To further minimize the effects of transmission line construction and operation on avian resources, the FWS's June 8, 2017 Migratory Bird Treaty Act Permit includes provisions for California DWR or its sub-permittees (e.g., PG&E) to live-trap and relocate specific avian nests, requirements for the placement of young/eggs into foster nests or transport to a licensed wildlife rehabilitator,

and measures for preventing nest establishment for the duration of the construction of the proposed transmission line reroute.

The inclusion of the measures outlined in the Bald Eagle Take Permit and the Migratory Bird Treaty Act Permit, in combination with any other measures required by California DWR, would help reduce adverse impacts during and after construction on federally protected and other avian species located in the project area.

While there will be temporary effects to vegetation and wildlife, sufficient habitat exists in the areas immediately surrounding the project construction area such that the majority of wildlife and avian species are expected to temporarily disperse to less disruptive locations. Construction-specific effects will be temporary and should not create long-lasting adverse effects. If implemented, the proposed measures listed above should reduce the overall effect on terrestrial resources within the proposed project area within the project boundary.

6.5 Threatened and Endangered Species

6.5.1 Affected Environment

The California DWR's June 23, 2017 filing, as part of its non-project use of project lands application, includes a list of the potential federally-listed species that may occur in the proposed project boundary as determined during the relicensing proceeding and supplemented with data from the California Natural Diversity Database. Commission staff accessed the FWS' Information for Planning and Consultation system on June 27, 2017, and did not find any additional species known or with the potential to occur within the proposed project area. The table below provides a list of the federally-listed species that may occur in the proposed project boundary.

Common Name	Scientific Name	Federal Status
Wildlife		
Vernal pool tadpole shrimp	<i>Lepidurus packardi</i>	Endangered
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered
Giant garter snake	<i>Thamnophis gigas</i>	Threatened
California red-legged frog	<i>Rana draytonii</i>	Threatened
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened
California tiger salamander	<i>Ambystoma californiense</i>	Threatened
Southern Bald Eagle	<i>Haliaeetus leucocephalus</i>	Delisted
Plants		
Butte County meadowfoam	<i>Limnanthes floccosa</i> ssp. <i>Californica</i>	Endangered
Green's tuctoria	<i>Tuctoria greenei</i>	Endangered
Hairy Orcutt grass	<i>Orcuttia pilosa</i>	Endangered
Hoover's spurge	<i>Chamaesyce hooveri</i>	Threatened
Layne's ragwort	<i>Senecio layneae</i>	Threatened
Slender Orcutt grass	<i>Orcuttia tenuis</i>	Threatened
Fish		
Sacramento River winter-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Endangered
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	Threatened
Delta Smelt	<i>Hypomesus transpacificus</i>	Threatened
Central Valley spring-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Threatened
Southern Distinct Population Segment – North American Green sturgeon	<i>Acipenser medirostris</i>	Threatened
Central California Coast steelhead	<i>Oncorhynchus mykiss</i>	Threatened

6.5.2 Environmental Effects

The FWS issued a Biological Opinion on April 9, 2007, that addressed the effects of issuing a new license for the Feather River Project on federally-listed threatened and endangered species.⁷ The Biological Opinion states that the Feather River Project is not located within critical habitat for any federally-listed species under the jurisdiction of the

⁷ The FWS's Biological Opinion was filed with the Commission on April 16, 2007, under Project No. 2100-000.

FWS. The National Marine Fisheries Service issued a separate Biological Opinion on December 5, 2016, which identified critical habitat for Central Valley spring-run Chinook salmon, California Central Valley steelhead, and the Southern distinct population segment of North American green sturgeon in the Feather River extending upstream to the fish barrier dam but no farther.⁸

California DWR conducted habitat surveys during the relicensing process for the Feather River Project, and a review of those surveys was performed to determine the potential for threatened and endangered species habitat to occur within the transmission line reroute area. No habitat exists in the proposed project area for any of the federally-listed terrestrial or plant species. Because there are no vernal pools within the transmission reroute corridor, no habitat exists for the federally-listed vernal pool invertebrates-vernal pool tadpole shrimp, Conservancy fairy shrimp, and vernal pool fairy shrimp. Because there will be no in-water work associated with the proposed transmission line, federally-listed aquatic species should not be affected. Because the transmission line reroute corridor and the surrounding area provides no habitat for the federally-listed threatened and endangered species, thus the project will have no effect on the 20 species listed above.

6.6 Cultural and Historic Resources

A comprehensive overview of cultural resources located within the Feather River Project area, including the prehistory and history of the Feather River and Lake Oroville along with other supporting documents, can be found in California DWR's 2005 application for a new license. Additional information and staff analysis can be found in the Final Environmental Impact Statement for the Feather River Project, dated May 18, 2007.

6.6.1 Affected Environment

In addition to cultural resources identified during relicensing studies, the California DWR's June 23, 2017 filing includes a draft report addressing cultural resources that could be affected by PG&E's proposed transmission line reroute. Far Western Anthropological Research Group, a consultant to PG&E, surveyed the proposed reroute corridor on March 20, 2017. Seven previously recorded cultural resources and one new resource were identified within the 150-foot-wide survey corridor. Seven of the eight resources are historic in age and one is a multicomponent site.

⁸ The NMFS's Biological Opinion was filed under Project No. 2100-134.

6.6.2 Environmental Effects

The Area of Potential Effect (APE) is, generally, the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of sites eligible for listing in the National Register of Historic Places (NRHP).⁹ The APE for the overall emergency recovery and repair work at the Feather River Project is larger than, and encompasses the APE for PG&E's proposed transmission line reroute. The APE for the transmission line reroute is roughly a one-mile long, 150-foot-wide corridor that occupies approximately 18 acres; of which 2,700 feet is within the project boundary. California DWR, in light of the emergency nature of the work, is assuming that all cultural resources located within the APE are eligible for listing in the NRHP.

In summary, the PG&E line reroute corridor was surveyed to identify any additional cultural resources beyond those identified during the project's relicensing. Additional resources were discovered, recorded, and assumed eligible for listing in the NRHP. Design constraints have forced placement of a transmission tower in an existing archaeological site, however field testing in the presence of a tribal monitor determined that there would be no adverse effect to the resource by the work. The California SHPO concurred with the no adverse effect determination as long as archaeological and tribal monitors were present during construction of the tower.

Due to design constraints, PG&E must place a transmission tower on the south side of the Thermalito Diversion Pool within the boundaries of an existing, large mining/habitation site (CA-BUT-1105H). The placement will potentially impact the site and a ditch (CA-BUT-2380H) recorded within the mining site. As part of studies conducted during the project's relicensing, CA-BUT-1105H was recommended as a contributing element to a proposed Forks of the Feather River Historic District that would be eligible for listing in the NRHP. CA-BUT-2380H was also recommended as a contributing element. Neither site was evaluated for individual listing in the NRHP.

Stantec, a consultant to PG&E, prepared an archaeological data recovery plan for the potentially affected sites that California DWR submitted to the California SHPO on May 16, 2017. The California SHPO provided comments on the plan and concurred in a letter dated May 18, 2017, with California DWR's finding of no adverse effect for the tower work. California DWR incorporated the California SHPO's comments into a revised plan and resubmitted the plan to the California SHPO on May 19, 2017. The California SHPO in a letter that same day said they had no additional comments on the revised plan.

On May 23, 2017, Stantec completed archaeological presence/absence testing at the sites in the presence of a tribal monitor from Enterprise Rancheria. It was concluded,

⁹ 36 C.F.R. § 800.16(d) (2017).

based on the testing, that work in this location would not impact significant deposits that contribute to either site's eligibility for listing in the NRHP, either individually or as contributing elements to the historic district, and confirmed the finding of no adverse effect. A report summarizing the field testing was submitted to the California SHPO on June 1, 2017. In a letter dated June 5, 2017, the California SHPO said that the work met the plan requirements and concurred with the finding of no adverse effect so long as archaeological and tribal monitoring would take place during construction and California DWR will follow the regulations at 36 CFR 800.13(b) in the event of any unanticipated discoveries.

Additionally, PG&E recognized that construction at another proposed tower had the potential to impact two cultural resource sites and arranged for archaeological monitors during the preliminary clearing and grubbing for the transmission reroute corridor. On April 21, 2017, in a location planned for the new tower, an unanticipated discovery of a prehistoric site was made by a tribal monitor in an area that had been previously surveyed with negative results. The discovery was reported to the California SHPO on April 25, 2017, to the Commission on April 26, 2017, and to the Advisory Council on April 27, 2017. The Advisory Council, after reviewing the notification, said in a letter to California DWR dated April 27, 2017, that they did not have any comments on the find.

Far Western Anthropological Research Group prepared a work plan for the new site, designated NL-1. The plan was designed to assess the nature and extent of archaeological deposits in the area of direct impact and then mitigate effects through data recovery, if necessary, thereby resolving adverse effects per 36 CFR 800.6(a). The plan was submitted to the Enterprise Rancheria for review and the Enterprise's Tribal Council approved the plan on May 8, 2017. The plan was then submitted on May 8, 2017, to the California SHPO for review and comment. Following the submittal of a revised plan, the California SHPO said they had no further comments in a letter to California DWR dated May 11, 2017.

Data recovery at site NL-1 began on May 13, 2017. High-density cultural deposits were identified in some locations where work for the new tower would need to occur. After reviewing the deposits, California DWR applied the criteria of adverse effect pursuant to 36 CFR 800.5(a)(1) and determined that placing a transmission tower and access road through the newly discovered site would impact significant deposits contributing to the site's eligibility and result in an adverse effect to a historic property. To address the adverse effect, data recovery excavation was conducted at the site. No human remains or items identified as sacred by the tribal monitor were encountered at the time of excavation. All artifacts and soil samples recovered during the field excavations are securely stored on California DWR property. Far Western Anthropological Research Group completed a report of the archaeological work and sent it to the California SHPO for review and comment on May 24, 2017. The California SHPO acknowledged the

report and said that it appeared to meet the requirements of the work plan and gave concurrence on the finding of adverse effect.

During preparation work for placement of a different tower, there was an additional unanticipated discovery of a cultural site. Significant deposits were found during field testing and it was determined that work to install the tower would have an adverse effect on the cultural resource, which is assumed eligible for listing in the NRHP. The California SHPO concurred with this effect determination. The adverse effect was resolved through implementation of an approved data recovery plan.

On July 5, 2017, the Commission, California SHPO, and FEMA executed a PA for the management and treatment of cultural resources related to the response to the February spillway failure. The PA also includes provisions for the identification and management of potential effects to historic properties arising from transmission line relocations, including any future unanticipated discoveries. Additionally, PG&E and California DWR would continue to ensure that all construction and ground clearing is monitored by archaeological and tribal monitors and would use, where possible, hand tools to clear vegetation. Therefore, with the executed PA, monitoring during construction, and hand clearing in sensitive areas, we do not anticipate any significant effects to cultural resources for PG&E's transmission line reroute.

6.7 Recreation Resources

Recreational activities in the vicinity of Lake Oroville include high- and low-speed boating, non-motorized boating, fishing, swimming, bicycling, equestrian use, hiking, and developed and primitive camping. License-required recreation at the Feather River Project includes: Lake Oroville Visitors Center; Bidwell Canyon Boat Ramp and Day Use Area; Lime Saddle Boat Ramp and Day Use Area; Loafer Creek Boat Ramp and Day Use Area; Oroville Dam Day Use Area; Spillway Boat Ramp and Day Use Area; Enterprise Boat Ramp; Thermalito Afterbay Boat Launch and Day Use Areas; car-top boat launch ramps (Dark Canyon, Foreman Creek, Nelson Bar, Stringtown, and Vinton Gulch); North Thermalito Forebay Recreation Area; South Thermalito Forebay Recreation Area; Diversion Pool Day Use Area; equestrian, bicycle, and hiking trails (Brad Freeman Trail, Dan Beebe Trail, and Saddle Dam Trailhead); campgrounds (Bidwell Canyon, Lime Saddle, Loafer Creek, North Thermalito Forebay RV, and the Oroville Wildlife Area Afterbay outlet camping area); floating and boat-in campsites; and other miscellaneous day use areas.¹⁰

¹⁰ See Table 43 and Figure 18 in the FEIS at pages 207-213.

6.7.1 Affected Environment

The proposed transmission line reroute corridor is located within the Lake Oroville State Recreation Area, which includes the recreational facilities at the Thermalito Diversion Pool. The Thermalito Diversion Pool and shoreline are used for day-use activities such as swimming, fishing, non-motorized boating, trail use, and picnicking. The proposed transmission line reroute corridor will cross portions of the Brad Freeman and Dan Beebe trails in locations on the south side of the diversion pool.

The Brad Freeman Trail is a multi-use trail providing recreation for hikers, bikers, and equestrian trail riders. The Brad Freeman Trail circles the off-river Thermalito forebay and Thermalito afterbay, follows the northern shore of the Thermalito Diversion Pool, crosses the crest of the Oroville Dam, and turns back to follow the southern shore of the diversion pool. The full trail is roughly 41 miles long and is predominantly dirt or gravel, with a small paved section. The original transmission line route crossed the Brad Freeman Trail on the north side of the Thermalito Diversion Pool in at least one location within the general area of the proposed transmission line reroute. The Dan Beebe Trail is a 14.6-mile-long multi-use trail for equestrians and hikers. The Dan Beebe Trail parallels the southern shore of the Thermalito Diversion Pool a short distance upland from the Brad Freeman Trail.

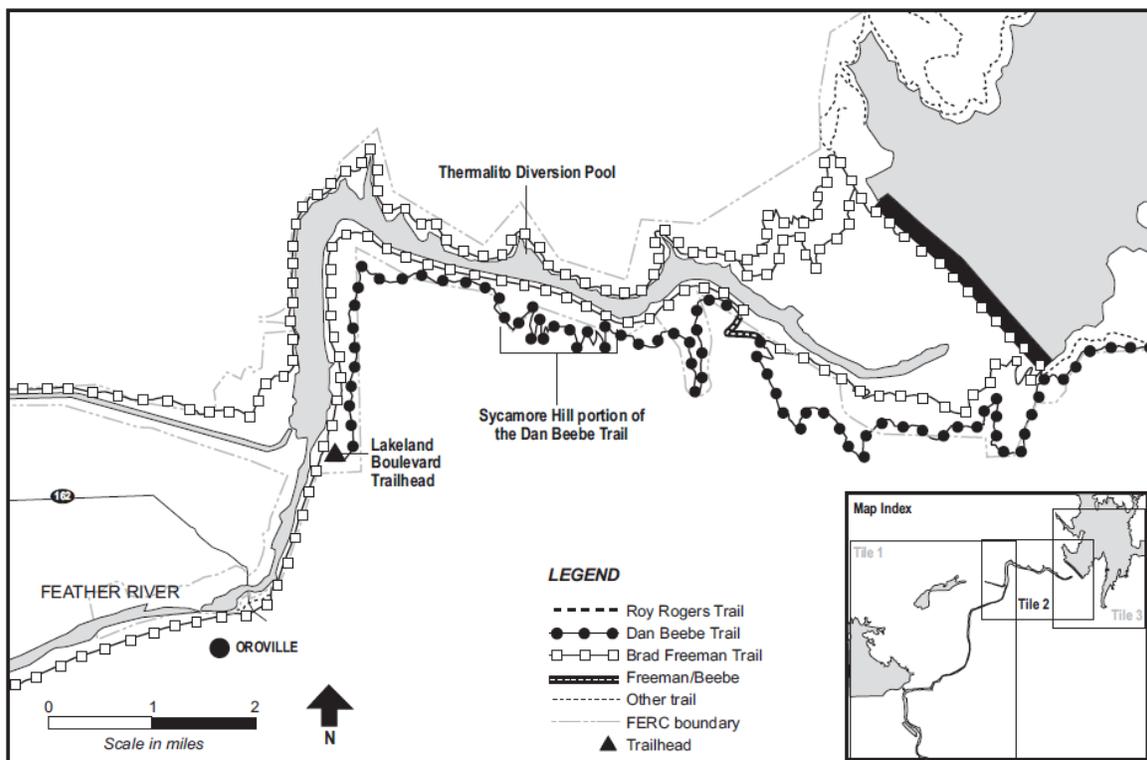


Figure 3. Map of the existing trails within the proposed transmission line reroute corridor (source: California DWR)

6.7.2 Environmental Effects

Following the February 2017 incident, the Thermalito Diversion Pool and trails in the proposed work area were closed after the spillway failure (see Figure 4 below), including portions of the Brad Freeman and Dan Beebe Trails. The trail closures were implemented for public safety purposes, due to active construction equipment in the area. The trail closures are reported to the public through various avenues including the California DWR's Oroville Spillway Incident webpage as well as on the California Department of Parks and Recreation Lake Oroville State Recreation Area webpage.¹¹

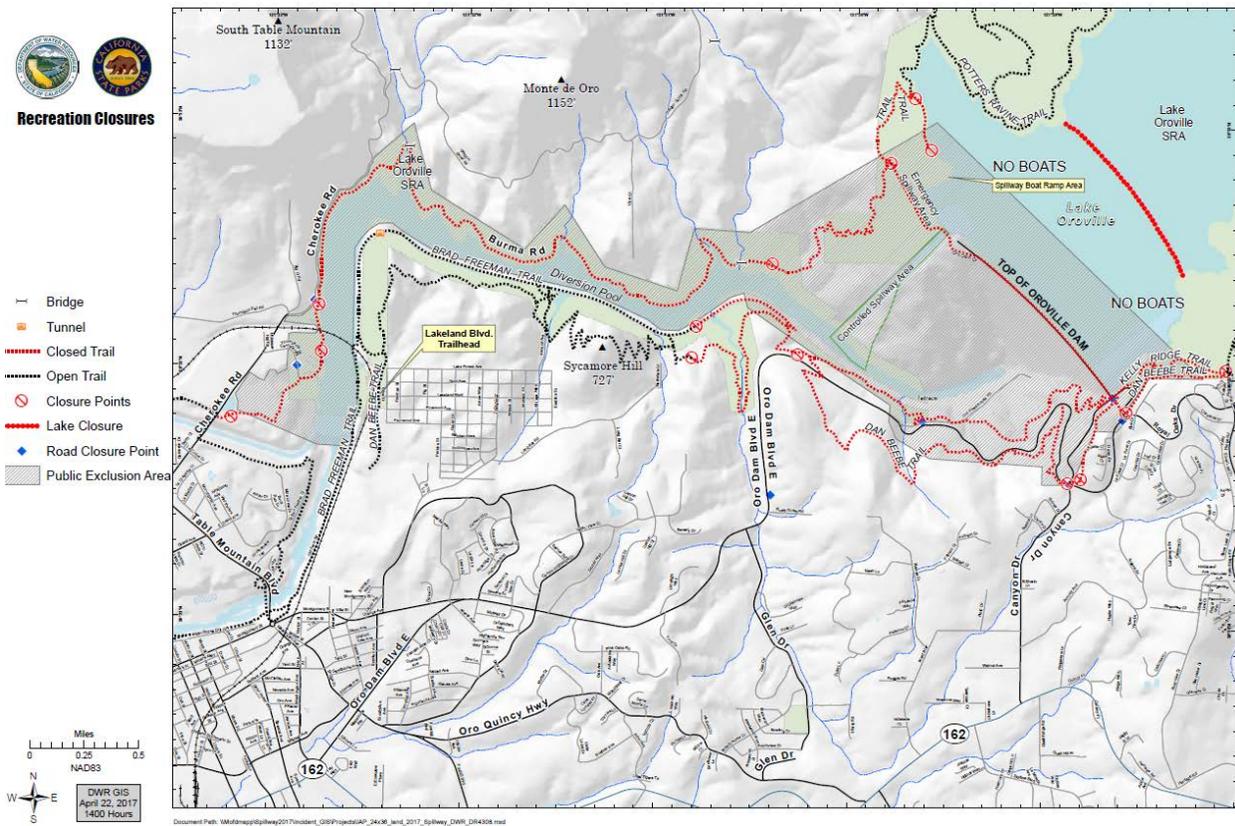


Figure 4. Map of recreation area closures near Oroville Dam (source: California DWR).

The proposed transmission line reroute will cross the Brad Freeman Trail at two locations and the Dan Beebe Trail once. Each of these crossings are a singular bisection, and the proposed reroute does not run parallel to the trail for any extended length. All trail crossings are located on the south side of the Thermalito Diversion Pool. Both trails are expected to be reopened once all construction efforts associated with the spillway repairs are completed in fall 2018.

¹¹ See <http://www.water.ca.gov/oroville-spillway/> and https://www.parks.ca.gov/?page_id=462 (last visited July 31, 2017).

The proposed construction work—i.e., clearing and grubbing of the transmission line reroute corridor; construction of laydown, staging areas, and access roads; and the placement of transmission line towers and lines—will not have a direct physical impact on the trails. Once the trails are re-opened to the public, the trail routes will remain as they previously existed with minimal effects to the aesthetic environment. Potential temporary effects include the loss of vegetation along the trail cleared for construction as well as temporary displacement of the wildlife and avian species previously existing in the area. As proposed, the transmission line reroute and its clearing and grubbing corridor is oriented in a way that has limited physical and visual effects to the trails and the aesthetic experience. As discussed in section 6.4.2, the inclusion of revegetation requirements into any permit issued to PG&E for this project would allow the licensee to review the effects of the proposed work and return the recreation areas to pre-construction conditions, to the extent possible.

California DWR has taken additional steps to offset the impacts to recreation sites and trails that were closed following the February incident by requesting to implement recreation improvements proposed as part of Settlement Agreement negotiations for the relicensing proceeding.¹² On July 12, 2017, Commission staff issued an Order Amending Recreation Plan,¹³ which authorized California DWR to implement recreation improvements to project recreation facilities to offset the temporary closure of project recreation facilities near the project's damaged Lake Oroville spillways. The order authorized: (1) expanding the Lime Saddle boat ramp parking lot; (2) expanding the Bidwell Canyon boat ramp parking lot and adding a lane to the existing boat ramp; (3) extending the Enterprise boat ramp and providing picnic sites; and (4) providing approximately two acres of gravel parking at the Saddle Dam Trailhead (not previously planned in the proposed 2006 Recreation Management Plan or Settlement Agreement) and new picnic sites. The completion of these facilities will result in a net increase in parking, boat-launching capacity, and other trailhead facilities at Lake Oroville.

6.8 Cumulative Impacts

The Council on Environmental Quality's regulations for implementing the National Environmental Policy Act indicate that an action may cause cumulative impacts on the environment if its effects overlap in space or time with the effects of other past, present, or reasonably foreseeable future actions, regardless of the agency, company, or person undertaking the action.¹⁴ Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

¹² See the Settlement Agreement filed on March 24, 2006, under Project No. 2100-052.

¹³ *Cal. Dep't of Water Res.*, 160 FERC ¶ 62,021.

¹⁴ 40 CFR § 1508.7 (2017).

We conclude that the proposed action is not likely to have a cumulative adverse effect on water quality or aquatic resources, because construction in the transmission line reroute corridor will occur a significant distance away from the Thermalito Diversion Pool with no expected impact. Similarly, we do not anticipate that the proposed action would have cumulative adverse effects on threatened and endangered species, due to the absence of listed species and critical habitat in the vicinity of the construction area. Regarding terrestrial resources, we conclude above that the proposed action would have temporary and permanent effects to vegetation and wildlife. However, sufficient habitat exists in the areas immediately surrounding the project construction area such that the majority of wildlife and avian species are expected to temporarily disperse to less disruptive locations. Also, the proposed action's direct and indirect effects will be reduced through required mitigation. Therefore the proposed action would not result in a cumulative adverse effect to terrestrial resources. For cultural resources, the licensee's ongoing consultation with the California SHPO and implementation of the PA and mitigative measures would negate any cumulative impacts to cultural resources. Finally, the licensee has mitigated for the temporary loss of recreation facilities at the site with other recreation improvements in the area. This, coupled with the minimal aesthetic impact to hiking trails in the vicinity of the transmission line reroute, would not have any lasting cumulative impacts to recreation resources.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

We conclude that the no-action alternative is not feasible and would inhibit the spillway recovery efforts and create electrical reliability issues. Additionally, the Commission, California DWR, and PG&E have not identified a reasonable alternative to the proposed action for relocating the PG&E transmission lines that were affected by the use of the emergency spillway and substantial erosion. The proposed action would result in minor adverse effects to terrestrial, cultural, and recreation resources. However, these effects would be mitigated by the licensee's proposed protective measures, the recommended protective measures described below, and by the programmatic agreement with the California SHPO for protection of cultural resources.

7.2 Staff-Recommended Measures

To mitigate for the loss of vegetation, the habitat it provides, and to reduce the spread and introduction of nonnative, invasive species, staff recommends that the California DWR include in any permit it issues to PG&E the following provisions:

(1) PG&E and its contractors should use best management practices when clearing and grubbing any vegetation to reduce the impact to the existing wildlife and recreation areas, and minimize the introduction of invasive and noxious species.

(2) PG&E must identify and revegetate areas disturbed during construction to simulate pre-construction conditions and/or identify and maintain cleared areas that cannot be revegetated to ensure transmission line safety. PG&E must also identify areas disturbed during construction where invasive and noxious weeds are discovered, and revegetate those areas with plantings of native vegetation, as applicable. In addition, California DWR should be required to coordinate with PG&E to produce a report that measures the success of revegetation efforts.

To reduce the likelihood of disturbance to avian species during construction and of avian collisions and mortality resulting from the permanent transmission lines once erected, staff recommends that California DWR include in any permit it issues to PG&E the measures required by the FWS's Migratory Bird Treaty Act Permit and any other measures California DWR deems necessary to protect avian species within its project boundary.

To ensure continued protection of the active bald eagle nest during and after construction, staff recommends that California DWR include in any permit it issues to PG&E the measures required by the FWS's Bald Eagle Take Permit. Staff also recommends that California DWR share with PG&E its Bald Eagle Protection Plan for this specific nest and determine which measures, if any, should be incorporated into any permit issued for the proposed work and future maintenance of the installed transmission lines.

7.3 Finding of no significant impact

Based on information, analysis, and evaluations contained in this EA, we find that approval of the proposed transmission line reroute would not constitute a major federal action significantly affecting the quality of the human environment.

8.0 LITERATURE CITED

California Department of Water Resources (2005). Application for project license, filed January 26, 2005.

Federal Energy Regulatory Commission (2007). Final Environmental Impact Statement (FEIS) for the Oroville Facilities Project, issued May 18, 2007.

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