

Initial Study/Negative Declaration: Helms Uprate Project

NOVEMBER 2026

PREPARED FOR
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

PREPARED BY
Stillwater Sciences
622 20th Street, Suite 100
Sacramento, CA 95811

Stillwater Sciences

ADMINISTRATIVE DRAFT – DO NOT DISTRIBUTE

Suggested citation: Stillwater Sciences. 2026. Initial Study/Negative Declaration for the Helms Uprate Project. Prepared by Stillwater Sciences, Sacramento, California, for the State Water Resources Control Board, Sacramento, California.

Cover photo: Staging Area 7 and Wishon Reservoir.

PROJECT SUMMARY

Helms Uprate Project	
Lead agency name and address:	State Water Resources Control Board 1001 I Street Sacramento, California 95814
Contact person and phone number:	Jessica Dyke (916) 341-5448
Project location:	Fresno County
Project sponsor's name and address:	Pacific Gas and Electric Company
General plan designation:	Open Space, Public Lands and Open Space
Zoning:	RC-40 (Resource Conservation, 40-acre minimum)
Description of Project:	Increase the normal operating capacity of the Helms Pumped Storage Project by replacing existing turbine units (i.e., Units 1, 2 and 3) with more efficient, marginally higher capacity units
Surrounding land uses and setting:	Located within the Helms Pumped Storage Project FERC boundary in Fresno County, California, within the Sierra National Forest
Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):	N/A. The applicable federal license or permit is a non-capacity license amendment from FERC for the existing P-2735 license.
Have California Native American tribes traditionally and culturally affiliated with the Project Area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?	In February 2026, State Water Board staff notified the four tribes (Big Pine Paiute Tribe of the Owens Valley, Buena Vista Rancheria of Me-Wuk Indians, Chicken Ranch Rancheria of Me-Wuk Indians, and Santa Rosa Rancheria Tachi Yokut Tribe) on the AB52 list in Fresno and Madera counties of consultation opportunity for tribal cultural resources related to the Project. No tribes requested consultation.

PROPOSED NEGATIVE DECLARATION

Project: Helms Uprate Project

Lead Agency: State Water Resources Control Board

Project Location: Wishon Reservoir and surrounding area, Fresno County

Project Description: The Helms Uprate Project will increase the normal operating capacity of the Helms Pumped Storage Project by replacing existing turbine units (i.e., Units 1, 2 and 3) with more efficient, marginally higher capacity units.

Findings: An Initial Study has been prepared to assess the potential effects of the Project on the environment and the significance of those effects. Based on the Initial Study, the State Water Resources Control Board has determined that the Project, including avoidance and minimization measures that are part of the Project design, would not have significant effects on the environment. This conclusion is supported by the following findings:

- The Project would not result in impacts on or related to agriculture, land use and planning, mineral resources, and population and housing;
- The Project would result in less-than-significant impacts on or related to aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire;

Mandatory Findings of Significance:

- The Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.
- The Project would not have environmental effects that are individually limited, but cumulatively considerable.
- The Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.
- The Project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- No substantial evidence exists that the Project would have a negative or adverse effect on the environment.

Determination: In accordance with Section 21082.1 of the California Environmental Quality Act (CEQA), the State Water Resources Control Board has independently reviewed and analyzed the Initial Study and proposed Negative Declaration for the Project and finds that the Initial Study and proposed Negative Declaration reflects the independent judgment of the State Water Resources Control Board. This Negative Declaration is filed in accordance with CEQA and the State CEQA guidelines.

I hereby approve this Project

_____ _____

Name of Approver Date

TABLE OF CONTENTS

PROJECT SUMMARY ..... **i**

PROPOSED NEGATIVE DECLARATION ..... **ii**

1 INTRODUCTION **1-1**

1.1 Project Purpose and Benefits 1-1

1.2 Project Location 1-1

1.3 Project Area 1-3

1.4 Project Description 1-5

1.4.1 Staging area and access preparation 1-6

1.4.2 Turbine uprate work 1-9

1.4.3 Disposal areas 1-10

1.4.4 Equipment and access 1-10

1.4.5 Biological resource consideration 1-12

1.4.6 Schedule 1-12

1.4.7 Avoidance and minimization measures 1-12

1.4.8 Water Quality Compliance 1-16

2 ENVIRONMENTAL SETTINGS AND IMPACTS **2-1**

2.1 Aesthetics 2-1

2.1.1 Environmental setting 2-2

2.1.2 Findings 2-2

2.2 Agricultural and Forest Resources 2-6

2.2.1 Environmental setting 2-7

2.2.2 Findings 2-7

2.3 Air Quality 2-8

2.3.1 Environmental setting 2-8

2.3.2 Findings 2-11

2.4 Biological Resources 2-14

2.4.1 Environmental setting 2-15

2.4.2 Findings 2-26

2.5 Cultural Resources 2-31
2.5.1 Environmental setting 2-31
2.5.2 Findings 2-33
2.6 Energy 2-34
2.6.1 Environmental setting 2-34
2.6.2 Findings 2-34
2.7 Geology and Soils 2-35
2.7.1 Environmental setting 2-36
2.7.2 Findings 2-37
2.8 Greenhouse Gas Emissions 2-39
2.8.1 Environmental setting 2-39
2.8.2 Findings 2-40
2.9 Hazards and Hazardous Materials 2-41
2.9.1 Environmental setting 2-41
2.9.2 Findings 2-42
2.10 Hydrology/Water Quality 2-44
2.10.1 Environmental setting 2-45
2.10.2 Findings 2-47
2.11 Land Use and Planning 2-49
2.11.1 Environmental setting 2-49
2.11.2 Findings 2-50
2.12 Mineral Resources 2-50
2.12.1 Environmental setting 2-50
2.12.2 Findings 2-51
2.13 Noise 2-51
2.13.1 Environmental setting 2-52
2.13.2 Findings 2-53
2.14 Population and Housing 2-54
2.14.1 Environmental setting 2-54
2.14.2 Findings 2-54
2.15 Public Services 2-55
2.15.1 Environmental setting 2-55
2.15.2 Findings 2-56

2.16 Recreation 2-57
2.16.1 Environmental setting 2-57
2.16.2 Findings 2-58
2.17 Transportation 2-59
2.17.1 Environmental setting 2-59
2.17.2 Findings 2-59
2.18 Tribal Cultural Resources 2-60
2.18.1 Environmental setting 2-61
2.18.2 Findings 2-62
2.19 Utilities and Service Systems 2-64
2.19.1 Environmental setting 2-64
2.19.2 Findings 2-65
2.20 Wildfire 2-66
2.20.1 Environmental setting 2-67
2.20.2 Findings 2-67
2.21 Mandatory Findings of Significance 2-69

3 DETERMINATION 3-1

4 LIST OF PREPARERS 4-1

5 CONSULTATION AND COORDINATION 5-1

6 COMPLIANCE WITH FEDERAL AND STATE ENVIRONMENTAL LAWS AND REGULATIONS 6-1

6.1 Federal 6-1
6.2 State 6-1

7 REFERENCES 7-1

Appendices

Appendix A California Emissions Estimator Model Emissions Summary Sheets
Appendix B Biological Resources Database Query Results

Tables

Table 1-1 Staging area ground types and sizes 1-5
Table 1-2 Existing license and proposed Uprate Project details comparison 1-6
Table 1-3 Equipment list of the Helms Uprate Project 1-11
Table 2-1 Summary of environmental factors potentially affected by the Project 2-1
Table 2-2 Summary air quality statistics for the San Joaquin Valley Air Basin, 2019 to 2024 2-9
Table 2-3 San Joaquin Valley Air Pollution Control District air quality thresholds of significance for construction phase 2-11
Table 2-4 Project emission sources and quantities used to determine emissions 2-12
Table 2-5 Estimated Project construction emissions of criteria pollutants 2-12
Table 2-6 Estimated average daily onsite Project construction emissions of criteria pollutants 2-13
Table 2-7 Landcover types and vegetation alliances within and adjacent to the Project Area 2-18
Table 2-8 Special-status plant species documented or with the potential to occur in the Project Area 2-20
Table 2-9 Special-status amphibian and reptile species with potential to occur within the Project Area 2-21
Table 2-10 Special-status terrestrial species with potential to occur near the Project Area 2-25
Table 4-1 List of preparers 4-1

Figures

Figure 1-1 Helms Uprate Project Vicinity 1-2
Figure 1-2 Helms Uprate Project Area 1-4
Figure 1-3 Detailed view of SA-7 laydown area 1-7

Acronyms and Abbreviations

µg/m^3	microgram per cubic meter of air
ac	acres
ac-ft	acres-feet
AMM	Avoidance and Minimization Measure
Basin Plan	Tulare Lake Basin
BMPs	Best Management Practices
BRE	Biological Resources Evaluation
CA	California
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CHRIS	California Historical Resources Information System
CHSC	California Health and Safety Code
CO2e	carbon dioxide equivalent
CP	carbon monoxide
CVRWQCB	Central Valley Regional Water Quality Control Board
CWHR	California Wildlife Habitat Relationship
cy	cubic yards
db	decibels
DTSC	Department of Toxic Substances Control
EAPs	Emergency Action Plans
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FMMP	Farmland Mapping and Monitoring Program
FRA	Federal Responsibility Area
ft	feet
GHGs	greenhouse gases
Kw	kilowatts
LUST	leaking underground storage tank
MCV	Manual of California Vegetation
mi	mile
MLD	Most Likely Descendent
MMTCO2e	metric tons of carbon dioxide equivalent
MSL	mean sea level
NAHC	Native American Heritage Commission

NMWSE	normal maximum water surface elevation
NO_2	nitrogen dioxide
No_x	nitrogen oxides
NPL	National Priorities List
NRHP	National Register of Historic Places
PG&E	Pacific Gas and Electric Company
PM_{10}	respirable particulate matter less than 10 microns in diameter
$PM_{2.5}$	respirable particulate matter less than 2.5 microns in diameter
ppm	parts per million
Project	Helms Uprate Project
R-C	Resource and Conservation
ROG	reactive organic gas
SA	staging area
SAA	Superfund Alternative Approach
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
State Water Board	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
units	pump-turbine motor-generator units
Uprate Project	Helms Uprate Project
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles travelled
VOC	volatile organic compound
WSE	water surface elevation
YOTO	Yosemite toad

1 INTRODUCTION

1.1 Project Purpose and Benefits

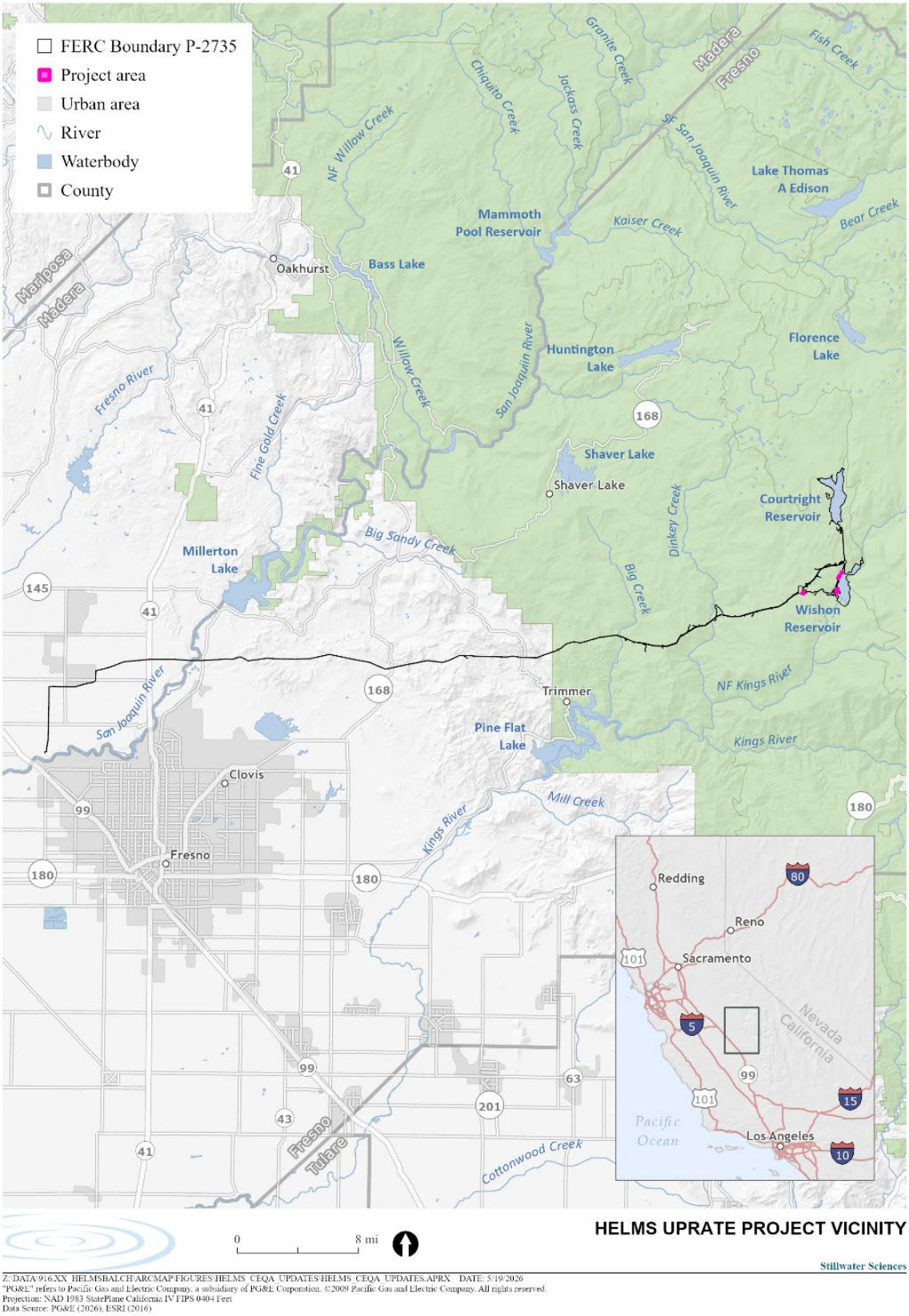
Pacific Gas and Electric Company (PG&E) is seeking an amendment to their Federal Energy Regulatory Commission (FERC) license to replace three pump-turbines for the Helms Pumped Storage facility with new efficient and higher capacity pump-turbines under the Helms Uprate Project (Uprate Project; Project). The Helms Pumped Storage facility is located on the west slope of the Sierra Nevada in Fresno and Madera Counties, California (CA). The facility is an open-loop pumped storage hydroelectric project with intake-outlet structures that are underwater, and all facilities and structures used to exchange water between the two reservoirs are underground. The normal operating capacity is 1,212,000 kilowatts (kW). PG&E is the existing licensee and current owner of the Helms Pumped Storage Project. The existing FERC license (FERC Project Number 2735) was issued to the PG&E on May 18, 1976, for the construction of a pumped storage facility to generate hydroelectric power by pumping water between Courtright and Wishon Reservoirs.

Under typical operations, the Helms Pumped Storage facility generates power during periods of high electricity demand by releasing water from Courtright Reservoir into Wishon Reservoir for approximately 6 hours daily, though this may range from 4 to 12 hours, during a 7-day week. Water is pumped from Wishon Reservoir to Courtright Reservoir during periods of low electricity demand, typically midday, late at night or on weekends. In general, when the facility is generating, Courtright Reservoir's water surface elevation (WSE) drops by approximately 1.25 feet (ft) each day and Wishon Reservoir's WSE rises by approximately 1.6 ft each day. During pumpback mode, Courtright Reservoir's WSE rises by approximately 1.2 ft each day and Wishon Reservoir's WSE drops by approximately 1.5 ft. Following a cycle of generation and pumpback, Wishon Reservoir's WSE is slightly lower at the end of the cycle due to downstream releases from Wishon Reservoir.

The Uprate Project would increase the normal operating capacity by replacing the turbine units with more efficient and marginally higher capacity turbine units. Specifically, the facilities that will be upgraded are: (a) 3 pump-turbine motor-generator units (Units), and (b) generators for units with existing unit ratings as follows: Unit 1 = 403,650 kW, Unit 2 = 405,000 kW, and Unit 3 = 403,650 kW. Currently, the maximum combined hydraulic capacity for the three units is estimated to be 10,500 cubic feet per second (cfs). In pumping mode, the rated hydraulic capacity of each unit is 2,400 cfs at an effective head of 1,500 ft. When all three units are operating in pumping mode, the rated capacity is 7,200 cfs and the maximum capacity is 7,530 cfs.

1.2 Project Location

The Uprate Project is located within the FERC Boundary in the Helms Pumped Storage underground powerhouse in Fresno County, California (Figure 1-1). It is approximately 78 miles (mi) northeast of Fresno, California, within Sections 34 and 36, Township 10, Range 27, Nelson Mountain and Courtright Reservoir U.S. Geological Survey 7.5-minute topographic maps. Figure 1-2 shows the staging areas that will be used during construction/installation associated with the Uprate Project Area within the existing FERC Boundary.



Z:\DATA\916.XX_HELMSBALCH\ARC\MAP\FIGURES\HELMS_CEQA_UPDATES\HELMS_CEQA_UPDATES.APRX DATE: 5/19/2026
"PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2009 Pacific Gas and Electric Company. All rights reserved.
Projection: NAD 1983 StatePlane California IV FIPS 0404 Feet
Data Source: PG&E (2026), ESRI (2016)

Figure 1-1 Helms Uprate Project Vicinity

1.3 Project Area

The Uprate Project Area contains nine staging area polygons as well as the underground pumped storage facility (Figure 1-2). Each staging area polygon occurs in an area where the ground has been historically disturbed. Staging areas SA-1 through SA-5 are located along the shoulder adjacent to Powerhouse Road. SA-1 and SA-4 are paved, while SA-2, SA-3, and SA-5 have gravel surfaces. SA-6, SA-8, and SA-9 are paved parking areas. SA-7 is land that was previously disturbed as a quarry to build Wishon dam. Acreages for each staging area are shown in Table 1-1.

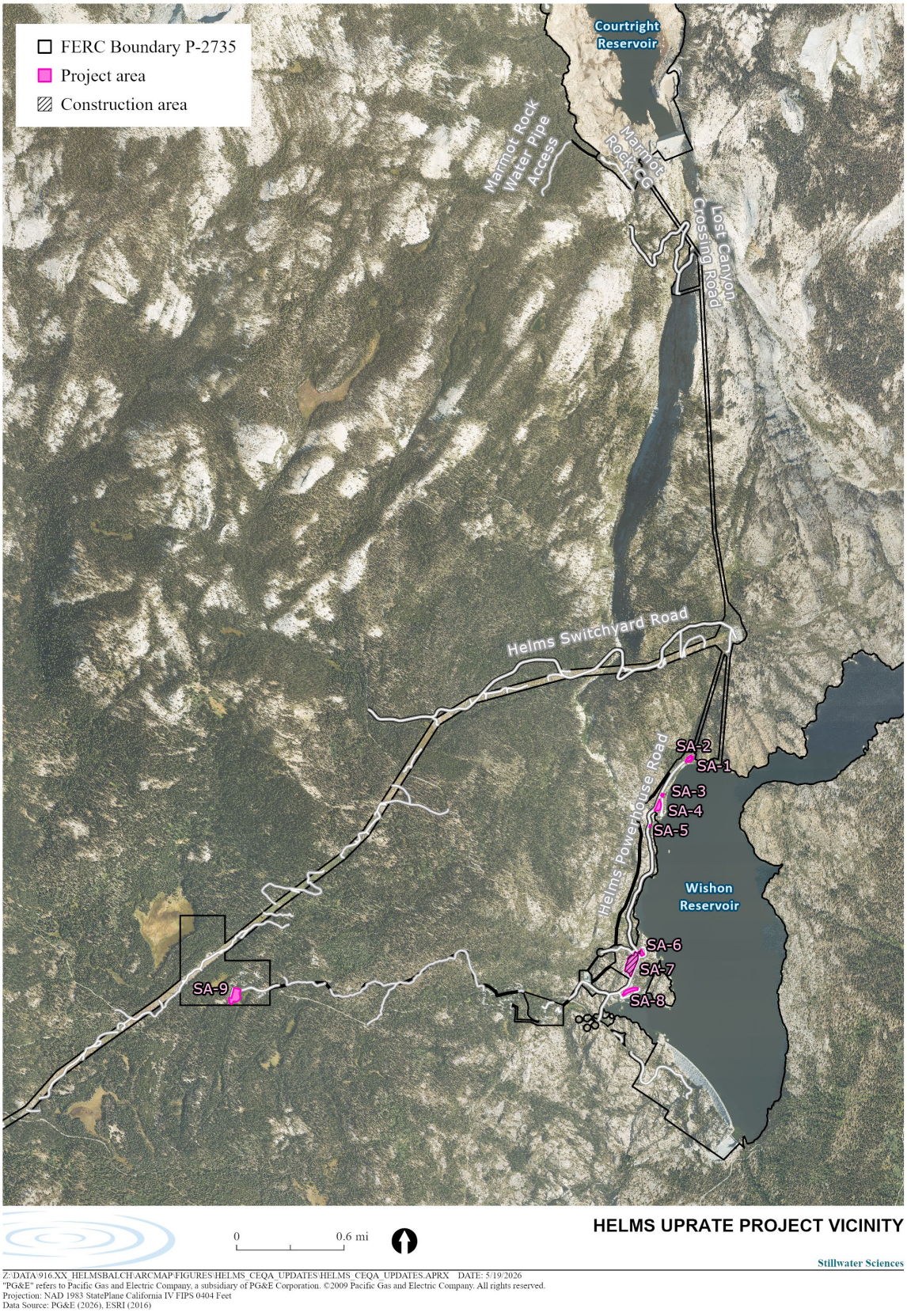


Figure 1-2 Helms Uprate Project Area

Table 1-1 Staging area ground types and sizes

Staging Area	Ground Type	Area (ac)
SA-1	Paved	0.21
SA-2	Unpaved	0.13
SA-3	Unpaved	0.11
SA-4	Paved and Unpaved	0.76
SA-5	Unpaved	0.04
SA-6	Paved	0.27
SA-7	Unpaved	3.53
SA-8	Paved and Unpaved	0.88
SA-9	Paved	2.27

1.4 Project Description

On May 30, 2025, PG&E filed an application with FERC to amend the license for the Uprate Project, which would replace Units 1, 2, and 3 with marginally higher capacity units and result in an increase in the Helms Pumped Storage Project's normal operating capacity by 180,000 kW from 1,212,000 kW to 1,392,000 kW in generation mode. The Uprate Project would result in an increase in the FERC-authorized installed capacity from 1,080,000 kW to 1,305,000 kW (Table 1-2). The hydraulic capacity of each turbine unit is expected to be 3,900 cfs, which results in an expected combined hydraulic capacity of 11,700 cfs. The maximum hydraulic capacity with all three units operating at or near full load is expected to be 12,050 cfs. The increase in installed capacity would not require a capacity amendment as the maximum hydraulic capacity would not increase by 15% or more, which is the threshold for a capacity amendment. Therefore, PG&E is proceeding with a non-capacity-related amendment.

Table 1-2 Existing license and proposed Uprate Project details comparison

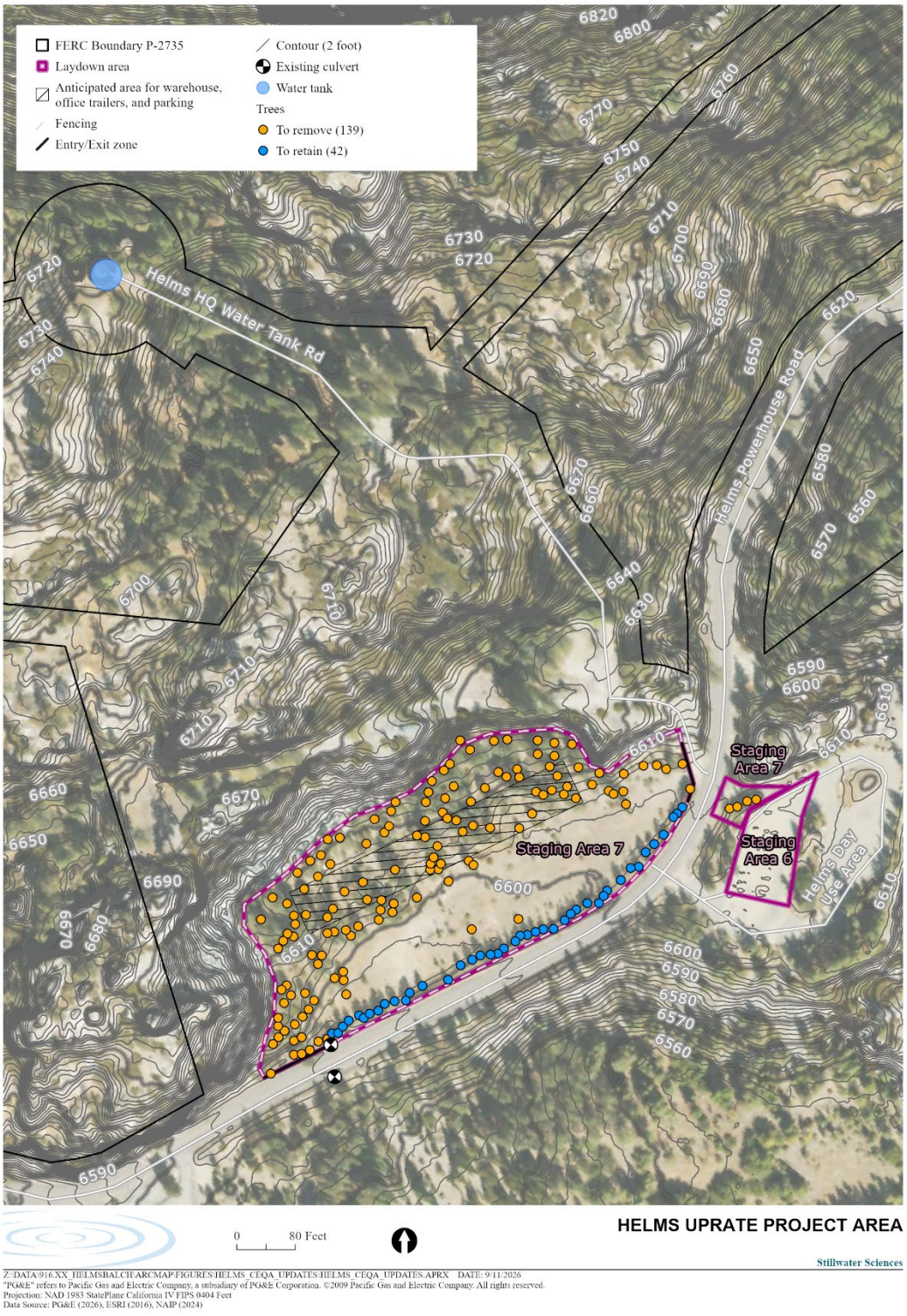
Description	Existing License			Proposed Uprate Project		
	Generator kW (80C)	Turbine kW	Hydraulic Capacity (cfs)	Generator kW (80C)	Turbine kW rated	Hydraulic Capacity (cfs)
Helms U1	404,000	360,000	3,400	464,000	435,000	3,900
Helms U2	405,000	360,000	3,400	464,000	435,000	3,900
Helms U3	404,000	360,000	3,400	464,000	435,000	3,900
Total Generation (Rounded)	1,212,000			1,392,000		
Authorized Installed Capacity (kW)	1,080,000			1,305,000		
Maximum Hydraulic Capacity in Generating Mode with all 3 units operating at or near full load (Design Head is 1,625 feet)			10,500			12,050
Maximum Hydraulic Capacity in Pumping Mode (Design Head is 1,500 feet)			7,530			8,640

The Uprate Project would have minimal effect on the existing facility operations and would not result in additional diversion/reduction of water from source streams. The Uprate Project would only increase the conveyance of water previously stored under existing water rights. When needed to meet system demand, the new turbine units would allow for the generation of more electricity by conveying up to about 500 cfs more flow through each generator unit. When all three units are operated at or near full load, the maximum combined hydraulic capacity is estimated to be an increase of about 1,550 cfs total for all three units to account for additional head losses. Due to existing water storage rights, the additional hydraulic capacity does not necessitate additional direct diversion of water. The Uprate Project does not propose to modify any FERC license conditions associated with minimum instream flows or water deliveries and therefore no FERC license variances have been requested by PG&E. The Project will continue to be operated within the limitations of existing water rights.

1.4.1 Staging area and access preparation

Equipment would be transported to the powerhouse via existing roads, with no permanent road closures or road modifications required. Temporary traffic control measures (such as signage, flaggers, and outages lasting no more than a few hours) may be implemented to accommodate oversized tractor-trailer deliveries. The staging areas along PG&E's Powerhouse Road and the Helms Support Facility (SA-1, SA-6, SA-8, and SA-9; Figure 1-2) would be utilized as temporary laydown and staging areas. No borrow or spoil areas are expected for these temporary staging areas. Staging Area 7 (SA-7) will be utilized for the Project (Figure 1-3). SA-7 is a previously disturbed area that was formerly part of the Wishon Quarry and

is located on PG&E-owned lands. SA-7 will require further preparation and improvements (see Section 1.4.1.1).



Source: PG&E 2025a

Figure 1-3 Detailed view of SA-7 laydown area

1.4.1.1 Staging and SA-7 preparation

SA-7 will be used for the Uprate Project and is anticipated to be developed into a permanent area for equipment storage and long-term support for routine operations and maintenance. SA-7 is a previously disturbed area that was formerly part of the Wishon Quarry. The Wishon Quarry was mined when the Wishon Dam was built and completed in 1958. PG&E prepared most of the Helms Pumped Storage Project design plans between 1973 and 1976. Project construction began with roadwork in June 1976, followed by construction of the intake-discharge structures at Courtright Lake and Wishon Reservoir during the winter of 1976. Tunnel excavation and powerhouse construction commenced in April 1977 (PG&E 1984, 1986).

As construction progressed, the quarry area (SA-7) was backfilled with spoil material and subsequently landscaped.

As development of SA-7 progresses, the area will be graded for use as a staging and support area, with construction occurring in phases. Prior to any tree removal, a tree inventory and species identification survey will be conducted and documented. Beginning in 2027, approximately 120 trees will be removed west of Powerhouse Road, followed by initial grading and site preparation activities. A pre-construction nesting bird survey will be conducted prior to removal activities to determine removal schedule. Appropriate nest buffers and avoidance measures will be implemented if active nests are identified. The tree line on the east side near Powerhouse Road will be retained (Figure 1-3).

Depending on construction progress and available work windows, some grading activities may extend into the 2028 construction season. Approximately 11,000 cubic yards of rocky material and spoil will be excavated from the western side of SA-7 and temporarily stockpiled onsite at SA-7 for up to two years. The stockpile is anticipated to occupy an area approximately 400 feet long by 100 feet wide, with an average height of about 7 feet. The stockpile area will be graded and stabilized with appropriate erosion and sediment control measures, including straw wattles, to minimize erosion from precipitation and snowmelt runoff. During the 2028 or 2029 construction season, depending on project scheduling, the approximately 4-acre staging area will be graded to a generally level surface with a slight slope (approximately 2 to 4 percent) toward Powerhouse Road to promote drainage. A 4- to 8-inch layer of imported aggregate base will then be placed and compacted. Following site preparation, the warehouse, tool storage buildings, office trailers, and portable toilets will be installed, and the remaining staging area will be paved.

A new entrance ramp will be constructed on the southern side of SA-7. An existing road on the northern side of SA-7 will be improved and used as an exit ramp. As part of SA-7, improvements in the area between the northwestern edge of the Helms Picnic Area and Powerhouse Road will include tree removal, grading, placement of 4 to 8 inches of road base, and asphalt paving. These permanent improvements will require removal of approximately 20 trees and will enhance future public access to the existing Helms Picnic Area. For the Uprate Project, PG&E will also use SA-6, which occupies a portion of the parking lot between the Helms Picnic Area and SA-7, to facilitate the turnaround of large trucks and trailers. This temporary outage-related use of the recreation area may result in occasional, short-term disruptions (a few hours) to public access and use.

The perimeter of SA-7 would be enclosed by a 5-foot-high chain-link security fence. Additional ground-disturbing activities are anticipated to facilitate the extension of water and power infrastructure into the area to support outage-related construction activities and provide permanent utility service. An existing water tank, approximately 800 feet upslope of SA-7, would be used to supply water to the site. To provide additional water capacity to the warehouse, the existing water supply line extending from the water storage tank to the upper end of the asphalt-paved roadway would be upsized and replaced within the existing trench alignment. This work would require excavation of approximately 400 feet of trench in previously disturbed ground.

Beginning at the upper end of the roadway, a new joint utility trench would be installed for approximately 630 feet to provide water and electrical service to facilities located northwest of the northern end of SA-7. The trench would be excavated beneath the existing PG&E-owned and maintained asphalt-paved roadway connecting the PG&E facility to Powerhouse Road. The trench would be approximately 36 to 40 inches wide and 40 to 48 inches deep and would accommodate both water and electrical service to SA-7. Water service would be connected to an existing water line near the upper end of the roadway, and electrical service would be supplied from an existing overhead distribution line and pole in the same vicinity. Alternatively, electrical service could be provided via new poles installed along the roadway shoulder and water service could be supplied from a new water storage tank located within SA-7. Where the electrical poles depart from the roadway shoulder, they would be located within the security fencing surrounding SA-7. Installation of the poles would not require excavation beyond the depth of prior disturbance resulting from historical quarry operations at the site. The final utility configuration would be determined during detailed design. Based on available information, no known cultural resources have been identified within the utility improvement area; however, PG&E will comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project.

The primary purpose of the water service would be to support PG&E and Fresno County fire protection requirements for the new warehouse. The existing area drains to a culvert and ditch located west of Powerhouse Road and south of SA-7. Minor drainage improvements may be implemented, as necessary, to accommodate the SA-7 improvements. Final drainage requirements will be evaluated during final design, and any required environmental reviews, approvals, or permits will be obtained, as applicable.

The equipment anticipated for the construction and improvements in SA-7 is described in Table 1-3. The tree removal crew is anticipated to consist of 5 to 7 personnel, with activities expected to occur over an approximately one-month period. The grading and stockpiling crew is anticipated to consist of 8 to 10 personnel, with activities expected to occur over an approximately two-month period. All crew members would be housed at Helms Headquarters.

SA-7 would require an estimated 2,000 cubic yards of imported road base, resulting in approximately 200 truckloads.

1.4.2 Turbine uprate work

Each year, PG&E would replace one turbine unit. Each turbine being replaced would be offline for approximately 12 months during replacement. Following completion of each uprate, the unit would be

returned to service and operated for approximately 5 to 8 months to allow for performance monitoring, testing, and validation before the next unit outage begins. The other two units would be available for operation during the one unit uprate. After construction of SA-7 is completed and the warehouse is available, the outage work activities would be the following: (1) supplier mobilization, (2) installer mobilization, (3) equipment delivery and storage, (4) unit disassembly, (5) unit refurbishment/ modernization, (6) unit reassembly, (7) system testing and start-up. After all three units have been uprated, all temporary staging areas will be restored to pre-outage conditions, except for SA-7. Demobilization and restoration activities would be completed by the end of 2034.

PG&E anticipates no more than 50 trailer (low-bed heavy-haul trucks and trailers) truck roundtrips per turbine replacement would be required to transport heavy materials and equipment to the Project Area. The project workforce during each 12-month outage period may reach approximately 70 personnel at any given time, consisting of craft labor, supervisory personnel, and PG&E oversight staff. Personnel would be housed at Helms Headquarters and at accommodations located near Dinkey Creek Campground. If housing capacity at Helms Headquarters and the accommodations near the campground are not sufficient to accommodate all Uprate Project construction personnel at a given time, Wishon RV Village may be used for lodging. Personnel will primarily carpool to the Project Area by vans or bus but may also drive individually.

1.4.3 Disposal areas

All spoils will be used for grading and kept in the area. All removed equipment and refuse would be transported off site and disposed of in areas approved for such disposal.

1.4.4 Equipment and access

PG&E anticipates that no more than a total of 50 trailer (low-bed heavy-haul trucks and trailers) truck roundtrips per outage would be required to transport heavy materials and equipment to the Project Area for the uprate work. During the preparation of SA-7 in the first year, PG&E anticipates approximately 22 trailer trucks to deliver heavy equipment for tree removal work and grading work. No changes in road conditions are anticipated as a result of the work.

Table 1-3 provides a list of equipment expected to be used during Uprate Project implementation.

Table 1-3 Equipment list of the Helms Uprate Project

Equipment type	Number of rigs (or trips, if specified)	Staging Area preparation estimated hours (or total trips, if specified)	Turbine replacement estimated hours (or total trips, if specified)	Total for all three years	Imported Material (cubic yards)
Low-bed heavy-haul trucks and trailers	72 total round trips	1,600-8,000 miles per year; 10-50 round trips x 3 years	-	59,520 miles	-
Haul trucks	~ 200 loads, 10 rigs	32,000 miles per year; ~ 200 loads over 2 weeks	-	32,000 miles	2,000 CY road base and compact
Crane (200 ton)	1	1,500 hours per year	300 hours per year	2,400 hours	-
Gradall/Forklift (15k)	2	10 hours per day; 3,000 hours per year	5 hours per day; 2,000 hours per year	9,000 hours	-
500-700 kW Generator	2	10 hours per day; 3,000 hours per year	12 hours per day; 7,200 hours per year	24,600 hours	-
750-1,000 CFM air compressor	3	10 hours per day; 4,500 hours per year	12 hours per day; 10,800 hours per year	36,900 hours	-
DFM tracked log loader	2	400 hours per year	-	400 hours	-
Front End Large Wheel Loader	4	150-1,500 hours per year	-	2,650 hours	-
Rubber tire skid loader w/ winch	1	200 hours per year	-	200 hours	-
Tracked skidder	2	300 hours per year	-	300 hours	-
Peterson Pacific 4310B chipper	2	300 hours per year	-	300 hours	-
4,000-gallon water truck	1-3	150-1,500 hours per year	-	150–1,500 hours	-
Log truck/chip van	2	500 hours per year	-	500 hours	-
Track-mounted bulldozer (medium to large)	2	100-500 hours per year	-	100-500 hours	-
CAT TL 1255 telehandler	1	500 hours per year	-	500 hours	-
CAT 330 series excavator	4	3,000 hours per year	-	3,000 hours	-
CAT 735 off-highway haul truck	6	3,000 hours per year	-	3,000 hours	-
CAT CP Series compactor	4	1,200 hours per year	-	1,200 hours	-

1.4.5 Biological resource consideration

Construction of SA-7 is planned for the March to November season. Since tree removal and construction at SA-7 will take place during nesting bird season, work will be coordinated with biologists to avoid impacts to nesting birds. Since this area is considered potentially suitable upland habitat for Yosemite toad (*Anaxyrus canorus*), pre-construction consultation will be coordinated with the U.S. Fish and Wildlife Service. The outage work on the turbine uprate will be performed in the underground powerhouse.

1.4.6 Schedule

PG&E proposes to uprate Units 1, 2, and 3 at the Helms Powerhouse. Each unit uprate would require an outage period of approximately 12 months. Following completion of each uprate to a unit, the unit would be returned to service and operated for approximately 5 to 8 months to allow for performance monitoring, testing, and validation before the next unit outage begins. The first unit outage is anticipated to occur between October 1, 2029 and September 30, 2030. Including the operational periods between successive unit uprates, the overall uprate construction and monitoring program is expected to extend over approximately 4 to 4.5 years. All uprate work on generating units would occur within the underground powerhouse. Uprate work within the underground powerhouse would occur mostly during daylight hours with potential for work during the night.

Outside construction activities are planned for the March through November season and would occur during daylight hours. Construction of Staging Area 7 (SA-7) is currently anticipated to begin in 2027, with the installation of the associated warehouse, tool sheds, office trailers, and asphalt surfacing occurring in 2028 and 2029. Remaining staging areas will be cleared and erosion control implemented in 2028 or 2029, depending on when equipment storage is needed to support the unit uprate work. All construction and ground disturbing activities would occur within the existing FERC Project Boundary, and no modifications to the power tunnel would be required. Demobilization and restoration activities would be completed by the end of 2034.

1.4.7 Avoidance and minimization measures (AMMs)

The following avoidance and minimization measures will be implemented as part of the Uprate Project during construction. The measures are based on standard practices to avoid, minimize, or reduce potential impacts to environmental resources and to comply with existing regulations and requirements pertaining to aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

- AMM-1: Vehicles and heavy equipment must be refueled at least 100 ft away from riparian areas. Handheld tools must be refueled outside of riparian areas. The fueling operator must stay with the fueling operation at all times. Do not top off tanks.
- AMM-2: Petroleum spill containment and cleanup materials must be available at the job site. Spills must be immediately cleaned up and contaminated materials disposed of properly. Spills greater than 8 ounces on soil or spills that create sheen on the water must be reported

immediately to the supervisor and the PG&E Representative and License Coordinator for appropriate management.

- AMM-4: Park vehicles and equipment only on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).
- AMM-5: Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
- AMM-6: Prior to beginning Project activities each day or before moving vehicles or equipment, staging areas as well as areas under and around vehicles and equipment will be scanned to avoid crushing wildlife.
- AMM-7: Trash and waste items (including microtrash) generated by Project activities will be properly contained and removed from the work area at the end of each workday to prevent attracting wildlife.
- AMM-8: Utilize standard erosion and sediment control, hazardous waste, and petroleum product Best Management Practices (BMPs) (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways.
- AMM-9: Work will occur during daylight hours. In limited instances, loading debris piles (i.e., logs and vegetation debris) for off-site removal from staging areas may be necessary early in the morning prior to daylight.
- YOTO (Yosemite Toad)-1: Environmental Training – Before any work occurs in the Uprate Project Area, including equipment staging or accessing sites, all Project personnel, including contractors, will participate in an environmental awareness training regarding Yosemite toad. If new personnel are added to the Project, they must receive the mandatory training before starting work. Workers will receive the training at least annually at the start of the work season. A qualified person will provide the training, which will include at a minimum:
  - Information (brochures or simple handouts) that describes and illustrates toad sensitive resources to be avoided (e.g., burrows, flagged areas)
  - Description of YOTO (including photographs)
  - Overview of AMMs
- YOTO-2: If Yosemite toads are encountered in a work site, each encounter will be treated on a case-by-case basis, but the general procedure will be as follows: (1) leave the non-injured animal alone if it is not in danger or (2) in accordance with relevant permits, move the animal to a nearby safe location if it is in danger. These actions are further described below.
  - Stop all activities in the surrounding area that may have the potential to cause the harassment, injury, or death of the individual. Work will not resume until the situation has been resolved to the Biologist's satisfaction.

- Take photographs (without handling the animal) and contact a Biologist trained in Yosemite toad identification and handling procedures to assess the situation and select a course of action that will minimize adverse effects on the individual.
- If the Biologist determines that the individual is a Yosemite toad, the Biologist will inspect the toad and the area to evaluate measures to protect the animal, including the necessity of fencing, signage, etc.
- Avoidance is the preferred option if an individual Yosemite toad is not moving or is using a burrow or other refugia.
- If possible, the toad will be allowed to leave the hazardous situation on its own volition to a safe location. This applies to situations where individuals encountered are already moving, and during conditions that make their upland travel feasible. The toad must be allowed to move in the direction it was originally headed.
- If the toad does not leave on its own, and it is not in danger, work will be delayed until the toad leaves the area. An animal will not be picked up and moved based on it not moving fast enough or being an inconvenience for activities associated with rehabilitation or operation.
- Individual Yosemite toads will be captured and moved by hand only when it is necessary to prevent harassment, injury, or death (e.g., if the toad will not move and is in peril of being run over by a vehicle). If the toad needs to be moved to a safe location, the following procedures will be implemented.
    - Only an approved Biologist or personnel trained in Yosemite toad identification and handling procedures will capture the animal.
    - Only move toads with a clean net, clean hands, a clean rag, and/or fresh latex gloves, as toad skin is permeable and will absorb lotion/grease/sunscreen, etc.
    - Soaps, oils, creams, lotions, repellents, or solvents of any sort will not be used on hands within two hours before and during capture and relocation.
    - If suitable habitat is located immediately adjacent to the capture location, then the preferred option is relocation to that site.
    - An individual will not be moved outside of the radius it would have traveled on its own.
    - Under no circumstances will a toad be relocated to private property (non-PG&E) without the landowner's written permission.
    - To avoid transferring disease or pathogens between suitable habitats while translocating the Yosemite toad, the Biologist will use currently accepted protocol/guidance for disinfecting equipment and clothing.
    - PG&E will notify U.S. Fish and Wildlife Service (USFWS) within 48 hours of the encounter with the Yosemite toad.
- YOTO-3: Pre-construction surveys will be conducted by a qualified biologist at laydown area SA-7 to inspect all temporary and permanent cover components and rodent burrows for

signs of Yosemite toad prior to grading and tree removal. If Yosemite toads are found, the procedure outlined in YOTO-2 will be followed.

- AVIAN-1: If Uprate Project activities at laydown area SA-7 must be conducted within a nesting bird Limited Operating Period (February 15-August 31), the Biologist will assess whether a pre-activity survey for target bird species within an appropriate buffer of the proposed work area will occur. The survey will be conducted within 2 weeks prior to the start of activities. Survey areas may be adjusted based on site conditions, such as topographical barriers or inaccessible areas.
- AVIAN-2: If an active nest is discovered, a species-specific no-disturbance buffer will be established. The no-disturbance buffer will remain in effect until the end of the Limited Operating Period, or the Biologist determines the young have left the nest (i.e., fledged) and are independent. The buffer may be reduced or increased depending on site-specific conditions including observations of the pair's sensitivity to human activity, proximity to existing human activity or development (e.g., roads, structures), current site conditions (e.g., screening vegetation, terrain), and the site-specific Project activities.
- FISHER-1: If a fisher is observed within the Project Area, work will cease immediately and the qualified biologist will be contacted for guidance. PG&E will notify USFWS within 48 hours of the encounter with the fisher.
- BAT-1: If hazard tree removal occurs for trees larger than 12 inches diameter at breast height with bat habitat (e.g., cavities, cracks, gaps, peeling bark, or goose pens), the following measures will be implemented.
    - Remove trees during the warmest possible conditions; warmer than average, if possible. Removal should begin no earlier than mid-morning to allow temperatures to warm.
    - Create noise and disturbance at the tree base or adjacent trees, such that roosting bats experience vibration for several minutes in the following order: (1) 2 minutes of continuous vibration, (2) 5 minutes with no disturbance to allow bats time to evacuate the tree, (3) 1 minute of vibration, and then (4) 1 minute of no disturbance prior to felling the tree. Noise and vibrations may include running the chainsaw and making shallow cuts or pie cut in the trunk or striking the tree base with fallen limbs or tools such as hammers. If felling several trees in an area, the initial trees will receive a longer timeline of disturbance/vibration (as described above) as compared with subsequent adjacent trees, since vibration will have already been present in the vicinity. Subsequent trees will receive 2 minutes of continuous vibration followed by 2 minutes of no disturbance prior to tree felling.
    - Fell hazard trees directionally in such a way to minimize damage to other nontarget trees or trees with features that may support roosting habitat.

1.4.8 Water Quality Compliance

PG&E will comply with the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, State Water Board Order WQ 2022-0057-DWQ (Construction General Permit). Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation.

2 ENVIRONMENTAL SETTINGS AND IMPACTS

Each of the following resource sections includes a completed checklist (from Appendix G of the CEQA Guidelines) of environmental factors potentially affected and identifies potential Project impacts by significance level (i.e., no impact, less-than-significant impact, less-than-significant impact with mitigation incorporated, and potentially significant impact). The environmental factors checked in Table 2-1 would potentially be affected by this Project.

Table 2-1 Summary of environmental factors potentially affected by the Project

✓ Aesthetics	☐ Agriculture and Forestry Resources	✓Air Quality
✓ Biological Resources	✓ Cultural Resources	✓Energy
✓ Geology and Soils	✓ Greenhouse Gas Emissions	✓Hazards and Hazardous Materials
✓ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
✓ Noise	☐ Population and Housing	✓Public Services
✓ Recreation	✓Transportation	✓Tribal Cultural Resources
✓ Utilities and Service Systems	✓ Wildfire	

2.1 Aesthetics

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the Project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	✓	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	✓
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	✓	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	✓

2.1.1 Environmental setting

The Project Area is located within the upper montane forest of the Sierra Nevada, characterized by granite outcroppings, conifer forest, and alpine lakes (PG&E 2021). Vegetation in the vicinity consists of Jeffrey pine, red fir, ponderosa pine, sierran mixed conifer, and montane hardwood-conifer communities (PG&E 2025a). The Project is located primarily along the western shore of Wishon Reservoir and scenic resources are primarily associated with the reservoir and surrounding mountainous landscape.

Existing infrastructure associated with the Helms Pumped Storage Project is present throughout the Project Area, including transmission lines, roads, support facilities, and hydroelectric power production facilities (PG&E 2021). The Project Area itself consists primarily of previously developed staging areas, both paved and unpaved. These areas are generally pullouts along Powerhouse Road and within portions of recreation parking areas that are accessible to the public and may provide opportunities for scenic views of the reservoir and surrounding landscape. The exception is SA-7, which is located primarily across Powerhouse Road from the Helms Picnic Area, with a smaller portion in the picnic area parking lot. SA-7 was formerly part of Wishon quarry (PG&E 1976) and has since been filled in and become vegetated. An existing access road located northwest of SA-7 is paved for approximately 800 feet and then transitions to an unpaved surface extending to an existing water tank.

Public views within the Project Area are generally limited to those available from Powerhouse Road and nearby recreation site parking areas. These views primarily include Wishon Reservoir and adjacent forested open space. There are no designated scenic highways or corridors within the Project Area. The nearest designated scenic route is located along McKinley Grove Road/Courtright Way, extending from State Highway 168 to Courtright Lake (Fresno County 2024).

2.1.2 Findings

a) Would the Proposed Project have substantially adverse effects on a scenic vista?

All staging areas (SAs), except for SA-7, would be used on a temporary basis for construction laydown and turbine uprate equipment staging. No borrow or spoil is proposed in these areas. As such, potential effects on scenic vistas would be limited to short-term, construction-related visual impacts.

SA-1 and SA-2 are located behind a locked gate on Powerhouse Road and are not accessible to or visible from publicly accessible scenic vistas. Similarly, SA-9 is located within the Helms Support Facility, not accessible or visible to the public. Because these areas are not visible from scenic vistas or to the public, their use would not affect scenic vistas.

SA-3, SA-4, and SA-5 are on the publicly accessible portion of Powerhouse Road leading to the Short Hair Creek Fishing Area. These staging areas provide partial views of Wishon Reservoir and are visible from the road but not from designated recreation areas. Use of these staging areas for staging or laydown would be temporary and would not result in a substantial adverse effect on a scenic vista.

SA-6 is located within the parking lot for the Helms Picnic Area and is visible from the picnic area and Powerhouse Road. The mountains are partially visible from SA-6, blocked by trees and recreational buildings. Similarly, SA-8 is located in the parking area for the Wishon Boat Launch and is visible from the road and the boat launch. Views of Wishon Reservoir and the mountains are available from SA-8,

though partially blocked by trees. Use of these areas for staging or laydown would temporarily disrupt scenic vistas within previously developed recreational areas.

SA-7 will be utilized during the turbine uprate and will be developed into a permanent area for equipment storage and long-term support for routine operations and maintenance. A small portion of SA-7 is located in the northwestern edge of the Helms Picnic Area parking lot, which is visible from this scenic viewpoint. This portion of SA-7 will be permanently altered by grading, paving, and the removal of approximately 20 trees. During the turbine uprate, this portion would be used occasionally for truck and trailer turnarounds, resulting in temporary visual impacts lasting a few hours.

The larger portion of SA-7 is located on the western side of Powerhouse Road. Preparation and construction activities will involve grading, tree removal, terracing, paving, construction of an entrance ramp, culvert upgrades, and installation of chain-link fencing, a warehouse, tool storage buildings, office trailers, and portable toilets. Trees will be left remaining on the eastern side, along Powerhouse Road. The chain link fence will be installed between the line of remaining trees and Powerhouse Road. Approximately 11,000 cubic yards of rocky material and spoil will be excavated from the western side of SA-7 and temporarily stockpiled onsite at SA-7 for up to two years. The stockpile is anticipated to occupy an area approximately 400 feet long by 100 feet wide, with an average height of about 7 feet. Along the existing utility line and paved road northwest of SA-7, a total of approximately 1,030 feet will be excavated to extend water and electrical services to the facilities proposed within SA-7. The alternative method to expand water and electrical services is to install new poles along the roadway shoulder of Powerhouse Road and a new water tank, both within the larger portion of SA-7. The equipment anticipated for the construction in SA-7, the existing utility line, and the existing access road includes a haul trucks and trailers, a crane, forklift, log loader, wheel loader, skid loader, skidder, chipper, water truck, bulldozer, telehandler, excavator, and series compactor. The construction is estimated to take 3 months. These features and activities would be visible from Powerhouse Road, but not from the Helms Picnic Area.

Overall, the Project would not result in a substantial adverse effect on scenic vistas. Construction-related impacts would be temporary and given that construction activities would be localized to staging and laydown areas, would not result in a substantial adverse effect on a scenic vista. Permanent changes would occur within previously disturbed or developed areas, and not visible from scenic viewpoints or vistas. Therefore, impacts to scenic vistas would be less than significant.

b) Would the Proposed Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The Project Area is not located within a state scenic highway or designated scenic route. The nearest state scenic highway is State Route 168 (approximately 30 mi away), and the nearest county-designated scenic route is located along McKinley Grove Road/Courtright Way, extending from State Highway 168 to Courtright Lake (Fresno County 2024).

The closest staging areas to this scenic highway are SA-8 and SA-9. SA-9 is the closest of the two and is located within the Helms Support Facility, 0.3 mi from Courtright Road and not accessible or visible to the public from the road. The second closest staging area is SA-8, located 2.5 mi from McKinley Grove

Road/Courtright Road. Both staging areas are already disturbed areas that will be used only for laydown and staging, not construction, tree removal, or other activities that would damage scenic resources. Given that the Project is not located in the vicinity of a state scenic highway, no impact would occur.

c) In nonurbanized areas, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

All staging areas (SAs), except for SA-7, would be used on a temporary basis for construction laydown and turbine uprate equipment staging. No borrow or spoil is proposed in these areas. As such, potential effects on public views would be limited to short-term, construction-related visual impacts.

SA-1 and SA-2 are located behind a locked gate on Powerhouse Road and are not accessible or visible to the public. Similarly, SA-9 is located within the Helms Support Facility, not accessible or visible to the public. Because these areas are not visible to the public, their use would not affect public views.

SA-3, SA-4, and SA-5 are on the publicly accessible portion of Powerhouse Road leading to the Short Hair Creek Fishing Area. These staging areas provide partial views of Wishon Reservoir and are visible from the road but not from designated recreation areas. Use of these staging areas for staging or laydown would be temporary and would not substantially degrade the visual character or public views.

SA-6 is located within the parking lot for the Helms Picnic Area, which is closed indefinitely, and is visible from the picnic area and Powerhouse Road. The mountains are partially visible from SA-6, blocked by trees and recreational buildings. Similarly, SA-8 is located in the parking area for the Wishon Boat Launch and is visible from the road and the boat launch. Views of Wishon Reservoir and the mountains are available from SA-8, though partially blocked by trees. Use of these areas for staging or laydown would temporarily disrupt public views within previously developed recreational areas.

SA-7 will be utilized during the turbine uprate and will be developed into a permanent area for equipment storage and long-term support for routine operations and maintenance. A small portion of SA-7 is located in the northwestern edge of the existing Helms Picnic Area parking lot, which is visible from this scenic viewpoint. This portion of SA-7 will be permanently altered by grading, paving, and the removal of approximately 20 trees. During the turbine uprate, this portion would be used occasionally for truck and trailer turnarounds, which would result in temporary visual impacts of a few hours to public views.

The larger portion of SA-7 is located on the western side of Powerhouse Road. Preparation and construction activities will involve grading, tree removal, terracing, paving, construction of an entrance ramp, culvert upgrades, and installation of chain-link fencing, a warehouse, tool storage buildings, office trailers, and portable toilets. Trees will be left remaining on the eastern side, along Powerhouse Road. The chain link fence will be installed between the line of remaining trees and Powerhouse Road. Approximately 11,000 cubic yards of rocky material and spoil will be excavated from the western side of SA-7 and temporarily stockpiled onsite at SA-7 for up to two years. The stockpile is anticipated to occupy

an area approximately 400 feet long by 100 feet wide, with an average height of about 7 feet. Along the existing paved road northwest of SA-7, a total of approximately 1,030 feet will be excavated to extend water and electrical services to the facilities proposed within SA-7. The equipment anticipated for the preparation and construction in SA-7 includes haul trucks and trailers, a crane, forklift, log loader, wheel loader, skid loader, skidder, chipper, water truck, bulldozer, telehandler, excavator, and series compactor. The construction is estimated to take 3 months. These features and activities would be visible from Powerhouse Road, but not from the Helms Picnic

Overall, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. While visible to the public, construction-related impacts would be temporary and localized to staging and laydown areas, and therefore, would not substantially degrade the existing visual character or quality of public views. Permanent changes would occur within previously disturbed or developed areas, visible from roadways but not from recreational areas or scenic viewpoints. Therefore, impacts would be less than significant.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction activities would occur during daylight hours only and would not require or generate any additional light. The warehouse, tool storage buildings, office trailers, and portable toilets would be utilized during daylight hours and would not generate new substantial light or glare during day or nighttime. Replacement of turbines would occur underground and would not introduce new sources of light or glare. Therefore, no impact would occur.

2.2 Agricultural and Forest Resources

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	✓
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✓
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✓
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	✓

2.2.1 Environmental setting

The Project Area is located in the Sierra Nevada foothills and is characterized by conifer forest, oak woodland, and chaparral vegetation (Stantec Consulting Services Inc. 2025). Land within and adjacent to the Project Area is neither used nor zoned for forestry or agricultural purposes (County of Fresno 2026a); however, surrounding lands are primarily forested and lie within the Sierra National Forest. The nearest agricultural land is located approximately 40 mi southwest of the powerhouse (Stantec Consulting Services Inc. 2025).

Fresno County contains approximately 1.88 million acres (ac) of productive farmland, representing nearly half of the county's total land area of 3.84 million ac (Fresno County Farm Bureau 2026). Agricultural operations in the county produce more than 350 crop varieties, with nuts, grapes, cattle, milk, and poultry among the top commodities in 2024 (County of Fresno Department of Agriculture 2024).

2.2.1.1 Farmland

The California Farmland Mapping and Monitoring Program (FMMP), administered by the State Division of Land Resource Protection, produces agricultural resource maps based on soil quality and land use. The FMMP designates land into the following categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban or Built-up Land, Other Land, and Water. Descriptions of these categories are detailed in the FMMP (California DOC 2026a). The Project Area does not fall within these agricultural land-use designations.

2.2.2 Findings

a) Would the Proposed Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The Project is not in an agricultural area and would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, no impact would occur.

b) Would the Proposed Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Project Area is not zoned for agriculture and is not included in a Williamson Act contract (California DOC 2026b). The Project Area is zoned for Resource Conservation (County of Fresno 2026a). The Project would not impact existing zoning and would not conflict with a Williamson Act contract. Therefore, no impact would occur.

c) Would the Proposed Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The Project Area is not zoned as forest land, timberland, or timberland zoned Timberland Production. Therefore, no impact would occur.

d) Would the Proposed Project result in the loss of forest land or conversion of forest land to non-forest use?

Forest land is not present within the Project Area. In addition, the Project Area is not zoned as forest land, timberland, or timberland zoned Timberland Production. Therefore, no impact would occur.

e) Would the Proposed Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Land use within the Project Area and vicinity would not change following Project implementation; therefore, the Project would not involve other changes resulting in the conversion of Farmland to non-agricultural use. Therefore, no impact would occur.

2.3 Air Quality

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✓	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	✓	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✓	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	✓

2.3.1 Environmental setting

The Project is within the San Joaquin Valley Air Basin, which includes Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and is administered by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The San Joaquin Valley Air Basin is bounded by mountainous areas to the east, west, and south and an opening to the north into the Sacramento Valley. The region experiences relatively long summers with generally hot and dry conditions and short winters with cool, wet conditions. Subtropical high air pressure events can occur year-round and result in the formation of strong atmospheric inversion layers. The combination of these topographical and

meteorological factors can prevent the dispersion of pollutants, making the San Joaquin Valley Air Basin particularly conducive to poor air quality.

2.3.1.1 Criteria Air Pollutants

The federal Clean Air Act of 1970 (Section 6.1) and the California Air Resources Board (CARB) have established air quality standards for several common pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, sulfates, and hydrogen sulfide (CARB 2026a). Air quality data for some criteria air pollutants in the San Joaquin Valley Air Basin from 2019 to 2024 are summarized in Table 2-2 to describe existing conditions.

Table 2-2 Summary air quality statistics for the San Joaquin Valley Air Basin, 2019 to 2024

Year	Pollutant (averaging time)	Maximum concentration[1]	Federal standard	Number of days exceeding federal standard	State standard	Number of days exceeding state standard
2019	Ozone (1-hour)	0.110 ppm	NA	NA	0.09 ppm	24
	Ozone (8-hour)	0.093 ppm	0.070	96	0.070	100
	$PM_{2.5}$ (daily)	83.7 µg/m^3	35 µg/m^3	21	NA	NA
	PM_{10} (daily)	652.2 µg/m^3	150 µg/m^3	16	50 µg/m^3	130
2020	Ozone (1-hour)	0.142 ppm	NA	NA	0.09 ppm	50
	Ozone (8-hour)	0.114 ppm	0.070	119	0.070	121
	$PM_{2.5}$ (daily)	199.7 µg/m^3	35 µg/m^3	52	NA	NA
	PM_{10} (daily)	517.2 µg/m^3	150 µg/m^3	39	50 µg/m^3	157
2021	Ozone (1-hour)	0.125 ppm	NA	NA	0.09 ppm	41
	Ozone (8-hour)	0.100 ppm	0.070	101	0.070	104
	$PM_{2.5}$ (daily)	556.7 µg/m^3	35 µg/m^3	53	NA	NA
	PM_{10} (daily)	437.5 µg/m^3	150 µg/m^3	16	50 µg/m^3	152
2022	Ozone (1-hour)	0.141 ppm	NA	NA	0.09 ppm	31
	Ozone (8-hour)	0.113 ppm	0.070	102	0.070	105
	$PM_{2.5}$ (daily)	62.9 µg/m^3	35 µg/m^3	41	NA	NA
	PM_{10} (daily)	250.8 µg/m^3	150 µg/m^3	4	50 µg/m^3	171
2023	Ozone (1-hour)	0.117 ppm	NA	NA	0.09 ppm	26
	Ozone (8-hour)	0.095 ppm	0.070	73	0.070	77
	$PM_{2.5}$ (daily)	123.1 µg/m^3	35 µg/m^3	11	NA	NA
	PM_{10} (daily)	270.4 µg/m^3	150 µg/m^3	3	50 µg/m^3	126

Year	Pollutant (averaging time)	Maximum concentration[1]	Federal standard	Number of days exceeding federal standard	State standard	Number of days exceeding state standard
2024	Ozone (1-hour)	0.121 ppm	NA	NA	0.09 ppm	55
	Ozone (8-hour)	0.099 ppm	0.070	105	0.070	108
	$PM_{2.5}$ (daily)	71.9 µg/m^3	35 µg/m^3	15	NA	NA
	PM_{10} (daily)	188.6 µg/m^3	150 µg/m^3	10	50 µg/m^3	161

Source: CARB (2026b)

Notes: µg/m^3 = microgram per cubic meter of air
NA = not applicable
$PM_{2.5}$ = respirable particulate matter less than 2.5 microns in diameter
PM_{10} = respirable particulate matter less than 10 microns in diameter
ppm = parts per million

[1] Maximum concentration observed in the San Joaquin Valley Air Basin based on national reference or equivalent method, which adjusts observations to standardized conditions to eliminate variability and allow for comparison across locations.

Air quality in the San Joaquin Valley Air Basin does not consistently meet all applicable air quality standards. It is currently designated as being in attainment for federal ozone (1-hour) and PM_{10} standards, and both state and federal carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide standards (SJVAPCD 2026c). It is designated as being non-attainment for state ozone, $PM_{2.5}$ (respirable particulate matter less than 2.5 microns in diameter) and PM10 (respirable particulate matter less than 10 microns in diameter) standards and for federal ozone (8-hour) and $PM_{2.5}$ (respirable particulate matter less than 2.5 microns in diameter) standards (SJVAPCD 2026c). Therefore, criteria air pollutants and precursors of primary concern for construction activity within the Project Area include ozone precursors (e.g., nitrogen oxides, reactive organic gases), fugitive/exhaust dust particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Between 1998 and 2024, SJVAPCD prepared air quality management plans for carbon monoxide, particulate matter, and ozone to support attainment of federal and state air quality standards through emissions reductions (SJVAPCD 2026b). In alignment with these plans, emissions thresholds for criteria pollutants were established to evaluate the significance of air quality impacts from individual construction projects. Because these thresholds are more stringent than those set by the U.S. Environmental Protection Agency (USEPA), construction emissions are considered significant if they exceed SJVAPCD's locally adopted thresholds. Thresholds established by SJVAPCD are shown in Table 2-3.

Table 2-3 San Joaquin Valley Air Pollution Control District air quality thresholds of significance for construction phase

Pollutant	Thresholds of significance for construction phase[1] (tons/year)
NO_x	10
ROG (VOC)	10
PM_{10}	15
$PM_{2.5}$	15
CO	100
NO_2	10
SO_2	27

Source: SJVAPCD (2015)

Notes: CO = carbon monoxide
NOx = nitrogen oxides
NO_2 = nitrogen dioxide
PM_{10} = respirable particulate matter (less than or equal to 10 microns in diameter)
$PM_{2.5}$= respirable particulate matter (less than or equal to 2.5 microns in diameter)
ROG = reactive organic gas
SO_2 = sulfur dioxide
VOC = volatile organic compound

[1] A project is considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of any California Ambient Air Quality Standard or National Ambient Air Quality Standard (SJVAPCD 2013).

2.3.1.2 Sensitive receptors

Some individuals have heightened health risks associated with exposure to air pollution, and for some air quality constituents, impacts are determined based on the distance to the closest sensitive receptor. Sensitive receptors include, but are not limited to, residential areas, schools, and hospitals. The nearest sensitive receptors to the Project Area include seasonal residents of the Wishon Village RV Park, located approximately 0.7 mi from SA-7, as well as users of nearby day-use and overnight recreational areas, such as Helms Picnic Area and Lily Pad Campground, located approximately 150 feet and 0.4 mi from SA-7, respectively. PG&E and U.S. Forest Service (USFS) personnel accessing the recreational areas may also be present.

2.3.2 Findings

Project construction details (e.g., duration, timing, equipment use) were analyzed using the California Emissions Estimator Model, Version 2022.1.1.45 (CalEEMod), to estimate Project emissions, including exhaust from construction equipment, fugitive dust generated by construction activities, and emissions from vehicle travel over unpaved roads. Operational emissions were not analyzed because there would be no change in operations or maintenance activity following Project construction. The CalEEMod data entry and emissions summary sheet is provided in Appendix A.

The modeling was based on the emission sources and construction equipment provided in Table 2-4. Model results for total anticipated Project emissions of criteria pollutants are shown in Table 2-5 and Table 2-6 and included in detail in Appendix A.

Table 2-4 Project emission sources and quantities used to determine emissions

Emission Source	Project quantities
Imported aggregate base	2,000 cubic yards
Fuel-fired construction equipment[1]	4000-gallon water truck: 7 500-700 kW Generator: 4 750 -1,000 CFM air compressor: 6 CAT 330 series excavator: 4 CAT 735 off-highway haul truck: 6 CAT CP Series compactor: 4 CAT TL 1255 telehandler: 1 Crane (200 ton): 2 DFM tracked log loader: 2 Front End Large Wheel Loader: 4 Gradall/Forklift (15k): 4 Log truck/chip van: 2 Peterson Pacific 4310B chipper: 2 Rubber tire skid loader w/ winch: 1 Tracked skidder: 2 Track-mounted bulldozer (medium to large): 2
Haul truck trips	Haul truck round trips/phase[2]: 10–50 Length of one-way trip: 160 miles
Employee commute trips	Employee trips/day[3]: 6 daily van round trips Length of one-way trip[4]:16.5 miles

[1] Numbers shown for fuel-fired construction equipment quantities represent the total number of units expected to be used over all construction phases.

[2] Number of haul trips vary by phase.

[3] Daily van round trips for employees commuting from offsite were estimated during the turbine replacement phase. Remaining employees from SA-7, existing utility line, and existing access road construction and turbine replacement phases were assumed to be staying on-site.

[4] Estimated employee commute travel distance.

Table 2-5 Estimated Project construction emissions of criteria pollutants (tons/year)

	NO_X	ROG	PM_{10}	$PM_{2.5}$	SO_X	CO
Estimated Project emissions	1.7	0.8	3.3	0.4	0.0	2.6
San Joaquin Valley Air Pollution Control District's emissions threshold	10	10	15	15	27	100

Source: California Emissions Estimator Model, Version 2022.1.1.45 (Appendix A), SJVAPCD (2015)

Notes: CO = carbon monoxide
NO_x = nitrogen oxides
$PM_{2.5}$= respirable particulate matter (less than 2.5 microns in diameter)
PM_{10} = respirable particulate matter (less than 10 microns in diameter)
ROG = reactive organic gas
SO_x = sulfur oxides

Table 2-6 Estimated average daily onsite Project construction emissions of criteria pollutants (lb/day)

Year	NO_X	ROG	PM_{10}	$PM_{2.5}$	SO_X	CO
2027	7.0	4.6	0.3	0.3	0.0	14.3
2028	5.4	0.7	0.2	0.2	0.0	7.4
2029	1.8	0.2	0.0	0.0	0.0	2.1
2030	5.2	0.6	0.1	0.1	0.0	6.3
2031	5.7	0.7	0.1	0.1	0.0	7.0
2032	3.9	0.5	0.1	0.1	0.0	4.9
2033	3.9	0.5	0.1	0.1	0.0	4.9

Source: California Emissions Estimator Model, Version 2022.1.1.45 (Appendix A), SJVAPCD (2015)

Notes: lb = pound
CO = carbon monoxide
NO_x = nitrogen oxides
$PM_{2.5}$= respirable particulate matter (less than 2.5 microns in diameter)
PM_{10} = respirable particulate matter (less than 10 microns in diameter)
ROG = reactive organic gas
SO_x = sulfur oxides

a) Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?

Based on air quality modeling, Project construction is expected to result in temporary emissions of criteria pollutants that are below SJVAPCD significance thresholds. Because the SJVAPCD thresholds are designed to ensure that individual projects do not interfere with regional attainment and maintenance strategies, emissions below these levels would not conflict with or obstruct implementation of the applicable air quality plans (i.e., 2024 Plan for the 2012 Annual PM2.5 Standard [SJVAPCD 2024a]; 2022 Plan for the 2015 8-Hour Ozone Standard [SJVAPCD 2022]; 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard [SJVAPCD 2023]; Ozone Contingency Measure State Implementation Plan Revision for the 2008 and 2015 8-Hour Ozone Standards [SJVAPCD 2024b]; Carbon Monoxide Maintenance Plan [SJVAPCD 2024c]). The Project would not conflict with or obstruct implementation of an applicable air quality plan. Project impacts would be less than significant.

b) Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

The CalEEMod results summarized in Table 2-5 demonstrate that emissions resulting from Project construction activities are not expected to exceed thresholds for criteria air pollutants. Although Project construction would result in some emissions for which the SJVAPCD is not in attainment, the minimal amount and temporary nature of these emissions would not result in a cumulatively considerable net increase of these pollutants. Conversely, the Project would increase renewable energy capacity of the facility, providing a potential benefit to air quality. Impacts would be less than significant.

c) Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?

As discussed in Section 2.3.1.2, the nearest sensitive receptors to the Project Area include seasonal residents of the Wishon Village RV Park, located approximately 0.7 mi from SA-7, as well as users of nearby day-use and overnight recreational areas, such as Helms Picnic Area and Lily Pad Campground, located approximately 150 feet and 0.4 mi from SA-7, respectively. PG&E and USFS personnel accessing the recreational areas may also be present. The Project would not result in substantial diesel particulate emissions (i.e., $PM_{2.5}$ and PM_{10}) (Table 2-5 and Table 2-6). Project construction activities would be temporary, resulting in increased diesel exhaust for approximately 7 months in 2027 and 2028, with minimal additional emissions during turbine replacement in 2029–2034. Therefore, impacts associated with the exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

d) Would the Proposed Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Project construction is not expected to result in other emissions, such as those leading to objectionable odors, adversely affecting a substantial number of people. Post-construction, the Project would not result in any change to current operation or maintenance activities that would result in additional emissions. The Project would not result in additional emissions. Therefore, no impact would occur.

2.4 Biological Resources

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	✓	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	✓
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	✓

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	✓	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	✓

2.4.1 Environmental setting

A biological resources evaluation was conducted for the Uprate Application to identify sensitive biological resources within or near the Project Area and to inform the development of appropriate avoidance, minimization, and mitigation measures (PG&E 2025b, Attachment 4: *Biological Resource Assessment*). As part of this evaluation, desktop reviews of special-status plants, wildlife species, and their potentially suitable habitats within and in the vicinity of the Project Area were conducted.

Information on additional biological resources for this evaluation were referenced from studies previously conducted for the Helms Final License Application (FLA) (PG&E 2024a). These relicensing studies were conducted across the entire FERC boundary, which encompasses the Project Area, and included landcover classification and vegetation mapping, delineation of potential jurisdictional waters/wetlands, surveys for special-status plants, and surveys and habitat assessments for special-status wildlife species across the entire FERC boundary (PG&E 2024b: Exhibit E, Attachment E3: *Study Data Summaries for studies AR-1, AR-2, BR-1, BR-2, BR-3, TR-1, TR-2, TR-3, TR-4*).

Special-status species are defined in this IS/ND as those that are:

- Listed, proposed, or under review (e.g., candidate) as endangered or threatened under the federal Endangered Species Act ESA (Section 6.1) or California ESA (Section 6.2);
- Designated by California Department of Fish and Wildlife (CDFW) as a Species of Special Concern;
- Designated by CDFW as Fully Protected under the California Fish and Game Code (Sections 3511, 4700, 5050, and 5515) (Section 6.2);
- Protected under the federal Bald and Golden Eagle Protection Act (Section 6.1);
- Designated as rare under the California Native Plant Protection Act (Section 6.2);

- Included on CDFW's *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2021) with a California Rare Plant Rank of 1, 2, 3, or 4; and/or
- Included on the U.S. Department of Agriculture, Forest Service's (Forest Service) updated list of Threatened, Endangered, and Sensitive Plants of the Sierra National Forest (SNF) (USFS 2013 rev. 2021).

In addition, sensitive natural communities are defined as vegetation communities identified as critically imperiled (S1), imperiled (S2), or vulnerable (S3) on CDFW's most recent California Sensitive Natural Communities List (CDFW 2026a).

2.4.1.1 Methods

Desktop review

As part of the biological resources evaluation for the Uprate Project, an updated list of special-status wildlife species with the potential to occur in or near the Project Area was developed through a query of USFWS's Information for Planning and Conservation (IPaC) portal (USFWS 2025). Baseline lists of special-status plant and wildlife species with the potential to occur in or near the Project Area were previously developed during the relicensing studies by querying the following databases and other resources:

- CDFW's California Natural Diversity Database (CNDDB) (CDFW 2023a);
- CDFW's CNDDB Spotted Owl Viewer (SOV) (CDFW 2023a);
- USFWS's Information for Planning and Conservation portal (IPaC) (USFWS 2023);
- California Native Plant Society's online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2023);
- U.S. Department of Agriculture, Forest Service's updated list of Threatened, Endangered, and Sensitive Plants of the Sierra National Forest (SNF) (USFS 2013 rev. 2021); and
- U.S. Department of Agriculture, Forest Service Natural Resource Information System Data (USFS 2023b, USFS 2024).
- eBird (2023) online database for bird distribution, abundance, and special-status bird occurrences within the Project vicinity

Wetlands that occur in or near the Project Area were developed during the relicensing studies by querying the following databases and other resources:

- Aerial imagery
- CaliforniaLVEG (USFS 2021)
- National Wetlands Inventory (NWI) (USFWS 2021)
- CDFW's California Natural Diversity Database (CNDDB) (CDFW 2023a);

Desktop database query methods and results conducted for the relicensing studies are described in Exhibit E, Attachment E3 of the Helms Final License Application (PG&E 2024b: Attachment E3). Updated queries and limitations of these results to the Project Area conducted for the Uprate Application are described in the Biological Resources Assessment of the Helms Uprate Application for Amendment of License (PG&E 2025b: Attachment 4).

Field surveys

Field survey methods and results for the vegetation mapping, aquatic resource delineation for waters and wetlands, botanical surveys, wildlife, and wildlife habitat assessment conducted for the relicensing studies and the Uprate Amendment are described in Exhibit E, Attachment E3 of the Helms Final License Application (PG&E 2024b: Attachment E3) and the Biological Resources Assessment of the Helms Uprate Application for Amendment of License (PG&E 2025b: Attachment 4).

2.4.1.2 Vegetation mapping

Landcover within the Project Area is primarily non-vegetated (road, disturbed, barren) features. SA-7 additionally contained *Pinus jeffreyi* Forest and Woodland Alliance. Beyond non-vegetated features, the areas adjacent to the Staging Areas are composed primarily of *Pinus jeffreyi* Forest and Woodland Alliance. SA-4 and SA-5 are adjacent to *Pinus ponderosa–Calocedrus decurrens–Pseudotsuga menziesii,* and *Quercus kelloggii* Forest and Woodland Alliances. Adjacent to SA-9 is *Abies magnifica* Forest and Woodland Alliance and the sensitive natural wetland community, *Danthonia californica - Deschampsia cespitosa* - Camassia quamash Herbaceous Alliance. Landcover types and vegetation alliances within the Survey Area and Project Area~~s~~ are summarized in Table 2-7.

Table 2-7 Landcover types and vegetation alliances within and adjacent to the Project Area

Landcover Type	CWHR Habitat Type[1]	Corresponding MCV Alliance	Sensitive Natural Community?	Present Within Project Area?
Unvegetated Lands	Barren	Road	No	Yes
		Developed/ Disturbed	No	Yes
		Barren	No	Yes
		Urban	No	No
Upland Forests and Woodlands	Sierran Mixed Conifer	*Pinus jeffreyi* Forest and Woodland Alliance	No	Yes
		Pinus ponderosa–Calocedrus decurrens–Pseudotsuga menziesii Forest and Woodland Alliance	No	No
	Jeffrey Pine	*Pinus jeffreyi* Forest and Woodland Alliance	No	Yes
	Red Fir	*Abies magnifica* Forest and Woodland Alliance	No	No
	Ponderosa Pine	*Pinus ponderosa* Forest and Woodland Alliance	No	No
	Montane Hardwood	*Quercus kelloggii* Forest and Woodland Alliance	No	No
	Montane Hardwood-Conifer	*Pinus ponderosa–Calocedrus decurrens–Pseudotsuga menziesii* Forest and Woodland Alliance	No	No
		Pinus jeffreyi Forest and Woodland Alliance	No	Yes
		Quercus kelloggii Forest and Woodland Alliance	No	No
Upland Shrublands	Montane Chaparral	*Arctostaphylos patula - Arctostaphylos nevadensis* Shrubland Alliance	Yes, S3S4[3]	No
Wetlands	Wet meadow	*Danthonia californica - Deschampsia cespitosa* - Camassia quamash Herbaceous Alliance	No	No

Notes: CWHR = California Wildlife Habitat Relationships
MCV = A Manual of California Vegetation
[1] Communities are typed to alliance level based on the online edition of A Manual of California Vegetation (MCV; CNPS 2022). Source: CWHR (2005)
[2] According to (CNPS 2021), as applicable
[3] Sensitive natural community rankings (CDFW 2022) (CNPS 2026a):
S#S# Range Rank – A numeric range rank (e.g., S3S4) is used to indicate any range of uncertainty about the status of the community.
S3 Vulnerable
S4 Apparently Secure

Waters and wetlands

No wetlands occur within the Project Area; however, palustrine and riverine wetlands are present in the immediate vicinity. Near SA-1, SA-2, and SA-3, a roadside drainage along Powerhouse Road functions as a perennial riverine wetland, characterized by a mud substrate and indicators of surface water and saturation. North of Short Hair Creek, upslope of SA-3 and SA-4, a seasonal snowmelt rivulet is classified as an intermittent riverine wetland, with cobble and gravel substrate and indicators including bed and bank features and a sparsely vegetated concave surface. A wet meadow adjacent to SA-9 is classified as a palustrine perennial wetland, characterized by an organic substrate and indicators of algal mat crusts, saturation, and surface water.

2.4.1.3 Special-status species

Thirty special-status species were identified from database queries as potentially occurring in the Project region (Appendix B). The Project activities would be confined to the nine staging areas, located in previously disturbed habitats. Of these, the following seven species have no or low potential to occur in or near the Project Area because no or marginally suitable habitat is present, habitat is unoccupied, and/or the Project Area is outside the species' known range:

- Sierra Nevada yellow-legged frog (*Rana sierrae*);
- Northwestern pond turtle (*Actinemys marmorata*);
- Monarch butterfly (*Danaus plexippus*);
- California condor (*Gymnogyps californianus*);
- Sierra Nevada red fox, Sierra Nevada DPS (*Vulpes vulpes necator*);
- North American wolverine (*Gulo gulo luscus*); and
- Gray wolf (*Canis lupus*).

The remaining 23 special-status species with potential to occur or that are known to occur within or near the Project Area are shown in the tables in the following sections.

Plants and critical habitat

One special-status species, Bolander's clover (*Trifolium bolanderi*) was documented in the vicinity of the Project Area during relicensing studies (Table 2-8, PG&E 2024b: Attachment E3). Multiple patches in excellent condition were documented throughout the meadow northwest of SA-9 (PG&E 2024b: Attachment E3).

Whitebark pine (*Pinus albicaulis*) has the potential to occur within the Project Area due to the presence of potentially suitable habitat east of Wishon Reservoir but was not observed during surveys (PG&E 2025a; Attachment 4). Critical habitat has not been proposed or designated for this species (USFWS 2022). Relicensing Study BR-2 (PG&E 2024b: Attachment E3) provides a comprehensive list of plants documented within and surrounding the Project Area during the botanical surveys.

Table 2-8 Special-status plant species documented or with the potential to occur in the Project Area

Scientific Name	Common Name	Status[1] Federal/State/CRPR	Potential Occurrence
Pinus albicaulis	Whitebark pine	FT, BLMS	Potential to occur
Trifolium bolanderi	Bolander's clover	SSC, CRPR 1B.2	Known to occur

[1] Status:
State List
CR State Listed as Rare
California Rare Plant Rank (CRPR):
1B Plants rare, threatened, or endangered in California and elsewhere
CRPR Threat Rank:
0.2 Fairly threatened in California (moderate degree/immediacy of threat)

Fish

No special-status fish species, designated critical habitat, or essential fish habitat have been identified as having the potential to occur within the Project Area, Wishon Reservoir, or Courtright Lake. Fish surveys conducted documented brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) in Wishon Reservoir, and those same two species as well as brook trout (*Salvelinus fontinalis*) in Courtright Lake (PG&E 2024b: Attachment E3). Of these, only rainbow trout is native to California. However, existing populations in both reservoirs are likely naturalized from historical stocking (Attachment 4 in PG&E 2024).

Amphibians and Reptiles

Two special-status amphibian species with the potential to occur within or near the Project Area are shown in Table 2-9. Relicensing Study AR-2 includes a brief description of habitat associations for these and other species identified from database queries (PG&E 2024b: Attachment E3). Descriptions of habitat associations and occurrence potential for these species are based on Relicensing Study AR-2, unless otherwise noted.

Yosemite toad

Yosemite toad occurs in high montane and subalpine vegetation in relatively open wet meadows surrounded by forests of lodgepole pine (*Pinus contorta*) or whitebark pines (*Pinus albicaulis*) (Jennings and Hayes 1994). Suitable breeding sites are generally in shallow, warm water areas found at the edges of wet meadows and ponds, slow moving streams, grassy areas adjacent to lakes, sloughs, and backwaters. These breeding sites are often dominated by short emergent sedges (*Carex* spp.) or rushes (*Juncus* spp.) (Jennings and Hayes 1994). During inactive periods, these toads seek shelter inside abandoned rodent burrows, or in clumps of grasses, sedges, or willows (CDFW 2000, Karlstrom 1962). While they spend most of their time on land, this species is usually found not more than a hundred meters from permanent water (Karlstrom 1962).

Yosemite toad has the potential to occur within the Project Area. Suitable breeding habitat consists of wet meadows, which were found near the Project Area (adjacent to SA-9), but was unoccupied (PG&E 2025b: Attachment 4). Suitable upland habitat was identified within SA-7 and near the project area, for which there is a small potential for Yosemite toads to use for dispersal or foraging (PG&E 2025b: Attachment 4).

No toads were observed during relicensing studies conducted in 2022 or 2023 (PG&E 2025b: Attachment 4). No designated critical habitat for Yosemite toad exists within the Project Area but is within the FERC boundary (PG&E 2025b: Attachment 4).

Kings River slender salamander

The Kings River slender salamander is commonly found in shaded areas of mixed chaparral, oak, or pine woodlands under rocks, logs, or leaf litter. Very little is known about the life history of this species, but they are presumed similar to other species within *Batrachoseps*. They are highly sedentary, with an estimated home range of approximately 1.5 meters (CDFW 2005), although they may occasionally disperse several hundred meters (Hammerson 2004).

Kings River slender salamander has the potential to occur within the Project Area. Suitable habitat exists adjacent to SA-9 and west of Powerhouse Road between SA-7 and Wishon Reservoir (PG&E 2025b: Attachment 4). However, suitable habitat is limited within the Project Area, and both SA-7 and SA-9 are unlikely to support the species due to the lack of suitable habitat and the species generally limited movement capabilities, although SA-9 could potentially be used for dispersal.

Table 2-9 Special-status amphibian and reptile species with potential to occur within the Project Area

Common Name	Scientific Name	Status Federal/State	Potential to Occur within Project Area
Kings River slender salamander	*Batrachoseps regius*	SCC	Potential to occur
Yosemite toad	*Anaxyrus canorus*	FT, SSC	Potential to occur

Terrestrial wildlife and critical habitat

Twenty-three special-status terrestrial wildlife species were identified as having the potential to occur or are known to occur within or near the Project Area are shown in Table 2-10. Relicensing Studies TR-1, TR-2, TR-3, and TR-4 include brief descriptions of habitat associations for these and other species identified from database queries (PG&E 2024b: Attachment E3). Descriptions of habitat associations and occurrence potential for these species are based on Relicensing Studies TR-1, TR-2, TR-3, and TR-4, unless otherwise noted.

Golden eagle

Suitable habitat for golden eagle includes open woodlands, oak savanna, grasslands, chaparral, sagebrush flats. Nesting habitat includes steep cliffs and large trees near foraging habitat. Relicensing Study TR-3 identified approximately 1,600 acres of potentially suitable nesting habitat within 0.25 mile of Project facilities, primarily near Courtright Lake and Wishon Reservoir. Golden eagle has been documented within and near the FERC Project Boundary, including near Courtright Lake and the Helms-Gregg 230 kV Transmission Lines, but was not observed during relicensing studies.

Northern goshawk

Suitable nesting habitat for Northern goshawk includes mature and old-growth stands of coniferous forest. This species tends to nest near openings in dense part of stands, typically at elevations greater than

4,000 feet. Relicensing Study TR-3 identified approximately 8,000 acres of potentially suitable nesting habitat within 0.25 mile of Project facilities, primarily near Courtright Lake and along the upper Helms-Gregg 230 kV Transmission Lines. Northern goshawk has been documented within and near the FERC Project Boundary, including at Courtright Lake, Wishon Reservoir, and along the upper Helms-Gregg 230 kV Transmission Lines, and was incidentally observed multiple times near Courtright Lake during relicensing studies.

Bald eagle

Bald eagle nesting habitat includes advanced-successional conifer forest with snags or other perches near large waterbodies or rivers that provide abundant fish, generally between 1,100 and 7,400 feet in elevation (Jackman and Jenkins 2004). Relicensing Study TR-3 identified approximately 3,500 acres of potentially suitable nesting habitat within 0.25 mile of Project facilities, primarily near Courtright Lake, Wishon Reservoir, and the lower Helms-Gregg 230 kV Transmission Lines near the San Joaquin River. Bald eagle has been documented numerous times within the FERC Project Boundary at Courtright Lake and Wishon Reservoir; however, no nests were observed.

California spotted owl, Sierra Nevada DPS.

California spotted owl habitat includes mature conifer-dominated forests with complex structure and utilizes opening areas for foraging. Nesting generally occurs from 5,000 to 6,000 feet in elevation, but has been documented from 1,000 to 8,500 feet in the Sierra Nevada. Suitable nesting habitat was identified in and near the FERC Project Boundary during relicensing Study TR-3. California spotted owl has been documented numerous times along the Helms-Gregg 230 kV Transmission Lines and near Wishon Reservoir. U.S. Forest Service-designated Protected Activity Centers (PACs) overlap portions of the FERC Project Boundary but not the Project Area.

Great gray owl

Great gray owl habitat includes dense montane coniferous and mixed coniferous forest, typically near meadows used for foraging. Nesting generally occurs in large, broken-topped snags, typically between 2,300 and 8,000 feet in elevation. Relicensing Study TR-3 identified approximately 1,500 acres of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field verification confirmed suitable nesting habitat within 1,000 feet of meadows, primarily along the upper Helms-Gregg 230 kV Transmission Lines. Great gray owl has been documented approximately 0.5 mile north of the FERC Project Boundary, west of McKinley Grove Road.

American peregrine falcon

American peregrine falcon habitat includes a variety of open habitats, such as wetlands, woodlands, agricultural fields, and urban areas, though riparian areas and wetlands are usually used for foraging. The species typically nests on cliffs but may also use human-made structures, snags, or prominent trees, and. Relicensing Study BR-1 identified multiple CWHR habitat types in or adjacent to the FERC Project Boundary that may provide suitable foraging or nesting habitat. American peregrine falcon occurrences have been documented near Courtright Lake, Wishon Reservoir, and the upper Helms-Gregg 230 kV Transmission Lines, and was incidentally observed near Courtright Lake during relicensing studies.

Willow flycatcher

Little willow flycatcher nesting and foraging habitat consists of dense, brushy riparian thickets dominated by willow (*Salix* spp.) or alder (*Alnus* spp.) near permanent standing water. Relicensing Study TR-2 identified approximately 77 acres of potentially suitable nesting and foraging habitat within 500 feet of Project facilities near the western shore of Wishon Reservoir. The species was documented along the western shore of Wishon Reservoir in 1986, but was not observed during relicensing studies. Suitable habitat was field-verified adjacent to SA-9 and between SA-4 and SA-5 along Short Hair Creek. Therefore, the species has potential to occur where suitable riparian habitat is present.

Yellow warbler

Yellow warbler habitat consists of deciduous riparian woodland near water, including streams and wet meadows. Relicensing Study BR-1 identified suitable nesting or foraging habitat in or adjacent to the FERC Project Boundary. Yellow warbler was observed at upper elevations along the Helms-Gregg 230 kV Transmission Lines during the relicensing study.

Western mastiff bat

Western mastiff bat is a crevice-roosting species typically associated with cliffs, steep rocky slopes, outcrops, under granite slabs, or in basalt columns, large boulders, and occasionally buildings. The species forages in open air and over reservoirs and large river pools. Relicensing Study TR-4 identified suitable roosting habitat in buildings and rock features with cracks and cavities near the Project Area. The species was acoustically documented near the Helms Powerhouse (SA-1 and SA-2).

Western small-footed bat

Western small-footed bat roosts in crevices, buildings, caves, mines, under bridges, or under bark. Maternity colonies typically occur in buildings, caves, and mines. Relicensing Study TR-4 identified suitable roosting habitat in buildings, tunnels, bridges, and live trees or snags with peeling bark in areas within and near the FERC boundary. The species was documented from acoustic detections near Courtright Lake and at or near the Helms Sewage Treatment Building, Helms Support Facility, Helms Employee Housing Area, Helms-Gregg 230 kV Transmission Lines, and possibly Helms Headquarters, but not in the immediate vicinity of the Project Area.

Long-eared myotis

Long-eared myotis is a crevice-roosting species that roosts primarily in buildings, snags, and under bark. Maternity colonies are typically small and consist of females and young. Relicensing Study TR-4 identified suitable roosting habitat in buildings and live trees or snags with peeling bark near the Project Area. The species was documented from acoustic detections near the Helms Powerhouse (SA-1 and SA-2), Wishon Reservoir, Courtright Lake, the Helms Sewage Treatment Building, Helms Support Facility, and along the Helms-Gregg 230 kV Transmission Lines. The species was acoustically documented.

Fringed myotis

Suitable roosting habitat for fringed myotis includes rock crevices, caves, mines, buildings, bridges, large-diameter snags, and foliage. The species forages in open air and by gleaning prey from vegetation, often near meadows and vegetation along streams and rivers. Relicensing Study TR-4 identified suitable

roosting habitat including trees, buildings, tunnels, snags, and rock cracks or cavities. The species was documented based on acoustic detections at Helms Headquarters and along the Helms-Gregg 230 kV Transmission Lines but not within or in the vicinity of the Project Area.

Yuma myotis

Suitable roosting habitat for Yuma myotis includes buildings, mines, caves, bridges, and abandoned swallow nests. Relicensing Study TR-4 identified suitable roosting habitat including buildings and tunnels near the Project Area. The species was documented acoustically near the Helms Powerhouse (SA-1 and SA-2), near Courtright Lake, Wishon Reservoir, Helms Headquarters, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.

Pallid bat

Pallid bat roosting habitat includes rock crevices, tree hollows, mines, caves, and vacant or occupied structures. The species forages in open riparian areas, oak savanna, and mixed deciduous forest, feeding primarily on ground-dwelling arthropods and drinking at pools and streams. Relicensing Study TR-4 identified suitable roosting habitat in buildings, tunnels, rock features with cracks or cavities, and trees with goose pens within and near the FERC boundary. The species was detected acoustically near the Helms Sewage Treatment Building and along the Helms-Gregg 230 kV Transmission Lines, but not within or in the vicinity of the Project Area.

Western red bat

Western red bat is a foliage-roosting species that roosts primarily in trees and sometimes shrubs. Relicensing Study TR-4 identified suitable roosting habitat in trees with foliage in the vicinity of the Project Area. The species was documented acoustically near the Helms Powerhouse (SA-1 and SA-2), near Wishon Reservoir, the Helms Headquarters, Helms Support Facility, and along the Helms-Gregg 230 kV Transmission Lines.

Townsend's big-eared bat

Townsend's big-eared bat is a cavity-roosting species that primarily uses tunnels, caves, mines, buildings, and rock shelters, typically near water. Foraging habitat includes riparian areas, creeks, and river drainages. Relicensing Study TR-4 identified suitable roosting habitat in buildings, tunnels, rock features with cracks or cavities, and trees with goose pens within and near the FERC boundary. The species was documented acoustically along the Helms-Gregg 230 kV Transmission Lines but not within or in the vicinity of the Project Area.

Spotted bat

Roosting habitat for spotted bat includes cliffs, steep rock outcrops, and rock crevices, often near river drainages, caves, or buildings. The species forages over open areas, forest edges, and wet meadows. Relicensing Study TR-4 identified suitable roosting habitat in rock features with cracks or cavities, buildings, and tunnels in the vicinity of the Project Area. The species was documented acoustically near the Helms Powerhouse (SA-1 and SA-2), near Wishon Reservoir.

Sierra marten

Sierra marten is associated with advanced-successional or mature forest and den in cavities of large trees, snags, logs, burrows, caves, or rocky crevices. Relicensing Study BR-1 identified potentially suitable foraging and denning habitat within or adjacent to the FERC boundary. The species has been documented in upper-elevation portions of the FERC Project Boundary, including near Courtright Lake, Wishon Reservoir, and the upper Helms-Gregg 230 kV Transmission Lines.

Fisher, Southern Sierra Nevada DPS

Fisher are associated with dense, advanced-successional mixed conifer, mixed hardwood, and ponderosa pine forests with complex structure. Reproductive dens occur in tree cavities, hollow logs, and snags. Resting sites may include stick nests, mistletoe brooms, large branches, rock piles, and underground burrows. Proposed critical habitat occurs within the FERC Project Boundary (PG&E 2025b: Attachment 4). Relicensing studies identified suitable breeding habitat in the eastern portion of the FERC Project Boundary. Fisher has been documented near the FERC Project Boundary, including near Wishon Reservoir and the upper Helms-Gregg 230 kV Transmission Lines. A potential fisher was observed during relicensing studies. Suitable fisher habitat was field-verified north of the Helms Picnic Area (SA-6).

Table 2-10 Special-status terrestrial species with potential to occur near the Project Area

Common Name	Scientific Name	Status Federal/State	Potential to Occur within Project Area
Birds			
Golden eagle	*Aquila chrysaetos*	BGEPA, SFP, BLMS	Potential to occur
Northern goshawk	*Accipiter gentilis*	SSC, SCC, BLMS	Known to occur
Bald eagle	*Haliaeetus leucocephalus*	BGEPA, SE, SFP, SCC, BLMS	Known to occur
California spotted owl, Sierra Nevada DPS	*Strix occidentalis occidentalis*	FPT, SSC, BLMS	Known to occur
Great gray owl	*Strix nebulosa*	SE, SCC	Potential to occur
American peregrine falcon	*Falco peregrinus anatum*	SCC	Known to occur
Willow flycatcher	*Empidonax traillii brewsteri* *Empidonax traillii adastus*	SE, SCC	Potential to occur
Yellow warbler	*Setophaga petechia*	SSC	Known to occur
Mammals			
Western mastiff bat	*Eumops perotis*	SSC, BLMS	Known to occur
Western small-footed bat	*Myotis ciliolabrum*	BLMS	Known to occur
Long-eared myotis	*Myotis evotis*	BLMS	Known to occur
Fringed myotis	*Myotis thysanodes*	SCC, BLMS	Known to occur
Yuma myotis	*Myotis yumanensis*	BLMS	Known to occur
Pallid bat	*Antrozous pallidus*	SSC, BLMS	Known to occur
Western red bat	*Lasiurus frantzii*	SSC	Known to occur

Common Name	Scientific Name	Status Federal/State	Potential to Occur within Project Area
Townsend's big-eared bat	*Corynorhinus townsendii*	SCC, SSC, BLMS	Known to occur
Spotted bat	*Euderma maculatum*	SSC, BLMS	Known to occur
Sierra marten	*Martes caurina sierrae*	SCC	Known to occur
Fisher, Southern Sierra Nevada DPS	*Pekania pennanti*	FE, ST, SSC, BLMS	Potential to occur

2.4.2 Findings

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

2.4.2.1 Special status plants and critical habitat

The Project is primarily limited to areas that are developed and does not include suitable habitat for any special-status plant species except for SA-7, which was previously part of the Wishon Quarry and has since been filled in. No special status plants were observed in SA-7 and no critical habitat is present within or near SA-7. Robust populations of Bolander's clover were detected in the meadow adjacent to SA-9. SA-9 is paved under existing conditions and will only be used for temporary staging and equipment storage if needed, which would not result in any effects to the surrounding habitat and meadow where Bolander's clover exists. Based on no detection of special-status plant species or critical habitat near SA-7 and the current paved condition of SA-9 paired with limited activity in that staging area, impacts to special status plants and critical habitat would be less than significant.

2.4.2.2 Fish

There are no special-status fish species within or near the project area, therefore, there would be no impact.

2.4.2.3 Special status amphibians

The Project would not have a substantial adverse effect on special-status amphibians. Meadows near the Project Area are unoccupied by Yosemite toad, and no meadows would be accessed or affected by Project activities. The nearest known breeding habitat is unoccupied, more than 1.75 miles from the Helms Support Facility and approximately 1.9 miles from Powerhouse Road, which is beyond the species' maximum known dispersal distance of 0.78 miles (Liang 2013). No designated critical habitat for Yosemite toad occurs within the Project Area.

Potential suitable upland habitat for Yosemite toad occurs within the Project Area, including areas that may provide underground refugia such as small mammal burrows, root tangles, and rock crevices (Brown et al. 2015). Construction at laydown area SA-7 would result in the removal of approximately 4 acres of potentially suitable upland habitat. Grading, trenching, and equipment use could also result in injury or mortality of individuals, if present, through crushing. However, the likelihood of Yosemite toad

occurrence within SA-7 and the existing utility line and access road to the northwest is low because breeding habitat in the surrounding area is unoccupied. While potentially suitable upland habitat occurs within the Project Area, abundant high-quality upland habitat is available elsewhere in the surrounding landscape. The removal of habitat in SA-7 would not significantly reduce the amount of upland habitat available for Yosemite toad. Trenching and paving along the existing utility line and access road would not remove or substantially alter Yosemite toad habitat because the road is an existing disturbed feature and does not provide suitable habitat for the species. Implementation of PG&E's general and Yosemite toad-specific avoidance and minimization measures (YOTO-1 – YOTO-3) as part of the Project, including pre-construction surveys, vehicle and equipment checks, and procedures for wildlife encounters, would avoid and minimize potential impacts on Yosemite toad. As a result, impacts to Yosemite toad would be less than significant.

Although potentially suitable habitat for Kings River slender salamander was identified in the broader vicinity, no suitable habitat was identified within the Project Area, and surveys indicated the species is unlikely to occur north of Ross Crossing Road (PG&E 2025b: Attachment 4). Project activities would not access or affect suitable habitat for this species. Therefore, there would be no impact to Kings River slender salamander or its habitat.

2.4.2.4 Special status terrestrial wildlife and critical habitat

Suitable habitat for several special-status terrestrial wildlife species occurs within the Project Area, including golden eagle, northern goshawk, bald eagle, great gray owl, American peregrine falcon, willow flycatcher, yellow warbler, special-status bats, Sierra marten, and fisher. However, Project activities are not expected to result in substantial adverse effects on these species or their habitats.

Suitable nesting habitat for raptors and other special-status birds may occur in or near SA-7; however, trees within SA-7 are generally small and are unlikely to support nesting by larger raptors such as golden eagle, bald eagle, northern goshawk, or American peregrine falcon. Limited suitable nesting habitat for willow flycatcher, great gray owl, and yellow warbler may be affected by tree removal at SA-7, but additional suitable habitat is available in the surrounding area. Implementation of PG&E's AVIAN-1 and AVIAN-2 avoidance and minimization measures as part of the Project, including pre-construction surveys and establishment of no-disturbance buffers around active nests until young have fledged, would avoid or reduce impacts to nesting birds. Noise generated from construction activities may affect nesting birds in the surrounding area. The no-disturbance buffer specified in AVIAN-2 would reduce impacts associated with construction noise. Therefore, impacts to special-status birds would be less than significant.

No California spotted owl protected activity centers (PACs) overlap with the Project Area. The nearest PAC is approximately 1 mile from SA-7, approximately 0.4-miles from McKinley Grove Road; Project activities near this PAC would be limited to vehicle travel along that road, which would not substantially increase noise above existing levels. No vegetation removal would occur within or adjacent to PACs or Home Range Core Areas, and no critical habitat has been designated or proposed for California spotted owl. Therefore, the Project would not adversely affect California spotted owl.

Special-status bats, including western mastiff bat, western small-footed bat, long-eared myotis, fringed myotis, Yuma myotis, pallid bat, western red bat, Townsend's big-eared bat, and spotted bat, are not expected to be substantially affected by the Project. With the exception of tree removal at SA-7, no structures or trees would be modified or removed. Implementation of PG&E's BAT-1 avoidance and minimization measure as part of the Project, including precautions prior to large tree removal, would minimize potential impacts to roosting bats and impacts to special-status bats would be less than significant.

Although suitable habitat for Sierra marten occurs in the broader Project Area, construction effects would be temporary and primarily limited to equipment movement and associated noise. Tree removal would occur only at SA-7, where trees are generally smaller and unlikely to provide suitable denning habitat. Pre-removal disturbance measures implemented for bats would also cause martens to vacate trees, reducing the potential for harm. Therefore, with incorporation of PG&E's BAT-1 avoidance and minimization measure as part of the Project, impacts to Sierra marten would be less than significant.

Suitable fisher habitat is generally absent from the Project Area. Field-verified habitat points near staging areas were determined to be unlikely or unsuitable, with the exception of a point near SA-6, where suitable habitat was identified adjacent to, but not within, the Project Area. A reproductive habitat suitability model developed to support the Southern Sierra Nevada Fisher Conservation Strategy (Thompson et al. 2021) identifies a foraging and denning 0.25-mile noise buffer that overlaps with SA-9, this area would only be used for temporary equipment laydown and staging when needed, would not involve vegetation removal and therefore would not generate noise substantially above existing levels. Fisher could move through SA-7, the existing utility line, or access road during construction. However, implementation of PG&E's FISHER-1 as part of the Project, which includes fisher avoidance measure to cease work if a fisher is observed within the Project Area, would avoid direct impacts. Therefore, impacts to fisher would be less than significant.

Overall, Project activities could result in localized and temporary direct or indirect effects on some special-status terrestrial wildlife species and habitats, primarily from temporary construction noise, vehicle use, and equipment staging. However, with implementation of PG&E's general and species-specific avoidance and minimization measures, the Project would have a less than significant impact on special-status terrestrial wildlife species or critical habitat.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

All staging areas have been previously disturbed. Aboveground activities would be limited to the use of existing laydown and staging areas and construction activities would be confined to SA-7 and the existing utility line and access road to the northwest. Construction activities would be confined to upland habitats that do not host any riparian habitat or sensitive natural communities. The only sensitive natural community mapped near the Project Area is Montane Chaparral, which does not exist within the Project Area. Replacement of the turbines would occur underground in the existing powerhouse and would not impact riparian habitats. The operation of the turbines would not result in any changes to water diversion or water surface elevation in the reservoirs, but instead increase the conveyance between the reservoirs

under the existing water rights (PG&E 2025b: Attachment 4). Therefore, there would be no impact to riparian habitat or other sensitive natural communities during construction, turbine replacement, or turbine operation.

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Construction activities under the Proposed Project would be confined to upland habitats and would not impact any wetlands. Replacement of the turbines would occur underground within the existing powerhouse and would not impact any wetlands. The operation of the turbines would not result in any changes to water diversion or water surface elevation in the reservoirs, nor would it result in additional diversion/depletion of water from source streams; but would instead increase the conveyance between the reservoirs under the existing water rights (PG&E 2025b: Attachment 4). Therefore, there would be no impact to state or federally protected wetlands during construction, turbine replacement, or turbine operation.

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Construction activities would be confined to upland habitats, primarily SA-7 and the existing utility line and access road to the northwest, and would not occur in aquatic habitat. All other SAs have been previously developed. Therefore, the Project would not interfere with the movement of native resident or migratory fish.

Yosemite toad is the only special-status amphibian with potentially suitable habitat in the Project Area. Although construction at SA-7 and the existing utility line and access road would affect upland habitat, the nearest known breeding habitat is unoccupied and located beyond the species' maximum known dispersal distance. Therefore, the Project Area is unlikely to function as a movement or dispersal corridor for Yosemite toad.

The Project Area may support resident or migratory birds; however, it is unlikely that SA-7 represents an established wildlife corridor or nursery site. Trees within SA-7 are generally too small to support nesting by larger raptors such as golden eagle, bald eagle, northern goshawk, or American peregrine falcon. Limited nesting habitat for willow flycatcher, great gray owl, and yellow warbler may be present, but other suitable habitat is abundant in the surrounding area. No trees would be removed or modified along the existing utility line or access road northwest of SA-7. Implementation of PG&E's AVIAN-1 and AVIAN-2 avoidance and minimization measures as part of the Project, including pre-construction surveys and no-disturbance buffers around active nests until young have fledged, would avoid or minimize impacts to nesting birds.

No California spotted owl protected activity centers (PACs) overlap the Project Area or the immediate vicinity. Therefore, the Project would not impact California spotted owl.

The Project Area supports resident and potential bat migratory corridors, in addition to several roosting sites that may be used as nursery sites. Special-status bats may potentially use trees within SA-7, the existing utility line, or along the access road, specifically, as a nursery site for roosting or as a wildlife corridor. Implementation of PG&E's BAT-1 avoidance and minimization measure as part of the Project prior to tree removal would minimize potential impacts to roosting bats. Abundant suitable roosting and migratory habitat is available in both the remainder of the Project Area and the immediate vicinity if resident bats within SA-7 or along the existing utility line or access road are disturbed during construction. With implementation of PG&E's BAT-1 avoidance and minimization measure as part of the Project, impacts to bats would be less than significant.

Suitable habitat for Sierra marten that occurs in the broader Project Area likely supports migratory corridors and denning habitat used as nursery sites. However, due to the abundance of suitable habitat in the surrounding area, it is unlikely that SA-7, the existing utility line, or the access road is used for these activities. Tree removal would occur only at SA-7, where trees are generally smaller and unlikely to provide suitable denning habitat. Pre-removal disturbance measures implemented for bats would also cause martens to vacate trees, reducing the potential for harm. Therefore, with incorporation of PG&E's BAT-1 avoidance and minimization measure as part of the Project, impacts to Sierra marten would be less than significant.

Suitable fisher habitat is generally absent from the Project Area. Field-verified habitat points near staging areas were determined to be unlikely or unsuitable, with the exception of a point near SA-6, where suitable habitat was identified adjacent to, but not within, the Project Area. Although the reproductive habitat suitability model (Thompson et al. 2021) identifies a foraging and denning 0.25-mile noise buffer that overlaps with SA-9, this area would only be used for equipment laydown and staging, would not involve vegetation removal and therefore would not generate noise substantially above existing levels. Fisher could move through SA-7, the existing utility line, or the access road during construction; however, implementation of PG&E's FISHER-1 avoidance measure to cease work if a fisher is observed within the Project Area, would avoid direct impacts. Therefore, impacts to fisher would be less than significant.

Turbine replacement would occur underground and would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or affect established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The operation of the turbines would not result in any changes to water diversion or water surface elevation in the reservoirs, nor would it result in additional diversion/depletion of water from source streams; but would instead increase the conveyance between the reservoirs under the existing water rights (PG&E 2025a). Intake structures would not change. Therefore, there would be no change in movement of any native resident fish present within Courtright Lake or Wishon Reservoir.

Overall, Project activities could result in minor, temporary effects on wildlife movement for nesting birds, bats, Sierra marten, and fisher from construction activities associated with SA-7, the existing utility line, and the access road. However, the Project would not substantially interfere with native resident or migratory fish or wildlife movement, affect an established wildlife corridor, or impede the use of native

wildlife nursery sites. With implementation of PG&E's general and species-specific avoidance and minimization measures as part of the Project, impacts would be less than significant.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservation policies or ordinances. Fresno County does not have a tree preservation ordinance applicable to unincorporated areas, including the Project Area (Fresno County 2026). Construction activities would be limited to SA-7, the existing utility line, and the access road to the northwest, which are located on land owned and managed by PG&E, and would not conflict with applicable Sierra National Forest land management policies related to the protection of biological resources. Aboveground activities would be limited to the use of previously disturbed laydown and staging areas for temporary equipment storage. Turbine replacement would occur entirely underground. Therefore, no impact would occur.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Project is not located within the boundaries of a planned or implemented Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (CDFW 2026b). Therefore, the Project would not conflict with the provisions a plan and no impact would occur.

2.5 Cultural Resources

Issues	Potentially Significant Impact	Less Than Significant with mitigation incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	✓	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	✓	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	✓	☐

2.5.1 Environmental setting

Information regarding the environmental setting is summarized from the relicensing study conducted for the Helms Final License Application (FLA) (PG&E 2024b: Exhibit E, Attachment E3: *Study Data Summaries for Study CR-1*).

Archaeological evidence suggests that the earliest use of the central and southern Sierra Nevada region occurred during the late Pleistocene and early Holocene epochs. Previously recorded cultural resources in the vicinity include prehistoric lithic scatters, bedrock milling features, habitation sites, petroglyphs, house pits, and rock shelters. Historic-era (i.e., 1848 to present) resources documented in the region include mining, ranching, timber harvesting, transportation, recreation, and hydroelectric development associated with settlement and use of the San Joaquin and Kings River watersheds (PG&E 2024).

Ground disturbance would occur during SA-7 grading and preparation, and during the excavation of approximately 1,030 feet along the existing utility line and access road northwest of SA-7 to extend water and electrical services to the facilities proposed within SA-7. The alternative method to expand water and electrical services is to install new poles along the roadway shoulder of Powerhouse Road and a new water tank, both within the larger portion of SA-7. SA-7 is located entirely within the historical Wishon Quarry, which was mined to construct the Wishon Dam prior to issuance of the existing FERC license (FERC Project Number 2735) (see Section 1.4.1.1). Spoils generated during construction of the underground powerhouse facility (i.e., 900,000 cubic yards) were placed within the historical quarry, where vegetation has since become established. The site was also partially filled with spoils from tunnel excavation, graded, and landscaped. The Uprate Project would involve grading these existing spoils and removing approximately 140 trees that have grown within SA-7. Ground disturbance related to the Project (see Section 1.4.1.1) within SA-7 and would be limited to the depth of the previously placed spoils and to areas that have previously been surveyed for tribal cultural resources. The trench would be excavated within the footprint of the existing PG&E-owned and maintained utility line and asphalt-paved roadway connecting the PG&E facility to Powerhouse Road. Ground disturbance along the access road would be limited to a depth of approximately 40 to 48 inches, a width of 36 to 40 inches, and areas that have been previously surveyed for tribal cultural resources. The Uprate Project would involve grading these existing spoils and removing approximately 140 trees that have grown within SA-7. Additionally, the top 4-6" will be stripped to remove the organics/topsoil, and the next 12" will be scarified and recompacted.

2.5.1.1 Methods

To identify cultural resources within the Project Area, Stillwater Sciences conducted archival research at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System (CHRIS).

A search of the NAHC's Sacred Lands File and outreach to Native American Tribes and individuals identified on the NAHC contact list were also completed (see Section 2.18.1.2).

2.5.1.2 Results

The CHRIS records search, completed on June 23, 2026 (File No. 26-318), identified 10 previously recorded cultural resources within a 0.5-mile radius of the Project Area, including prehistoric era lithics and bedrock milling stations as well as historic era trash scatters, buildings, a transmission line, and the reservoir. None of the resources are located within the Project Area.

Grading and improvements to SA-7 would involve limited subsurface excavation that is expected to occur completely within previously placed spoils and disturbed soils (see Section 2.5.1). Excavation of the existing utility line and access road would be limited to the previously disturbed footprint of the existing road. As a result, the potential for the Project to encounter intact cultural resources or undisturbed native soil contexts of cultural significance is very low.

2.5.2 Findings

a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

As indicated above, the CHRIS records search identified 10 historical or archaeological resources within a 0.5 mile radius of the Project Area. None of these resources are located within the Project Area. In addition, SA-7, the existing utility line, and the access road are located entirely within disturbed areas that have previously been surveyed for historical resources. Also, the granitic rocks of the Sierra Nevada, particularly at high elevation, predate the presence of humans in the Americas by millions of years, and soil development tends to be both minimal and shallow outside of very specific settings (such as meadows). As a result, the potential for buried resources that might be uncovered during construction is virtually nonexistent. However, PG&E would comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project in the extremely unlikely event that an unknown cultural resource is discovered. Therefore, it is not reasonably foreseeable that the Project would cause a substantial adverse change in the significance of a historical resource and effects would be less than significant.

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

The CHRIS records search did not identify any unique archaeological resources within the Project Area, and the sensitivity of the area for buried archaeological resources is considered low. Ground-disturbing Project activities would completely occur in SA-7 where spoils were previously placed within the Wishon Quarry, or within the footprint of the existing utility line and access road. Also, the granitic rocks of the Sierra Nevada, particularly at high elevation, predate the presence of humans in the Americas by millions of years, and soil development tends to be both minimal and shallow outside of very specific settings (such as meadows). However, PG&E would comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project in the extremely unlikely event that a unknown cultural resource is discovered. Therefore, it is not reasonably foreseeable that the Project would cause a substantial adverse change in archaeological resources and effects would be less than significant.

c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

A search of the NAHC's Sacred Lands File returned negative results for the Project Area. Ground-disturbing Project activities would completely occur in SA-7 where spoils were previously placed within the Wishon Quarry, or within the footprint of the existing utility line and access road. Replacement of the turbines would occur underground in the existing powerhouse and would not involve any ground

disturbance. Also, the granitic rocks of the Sierra Nevada, particularly at high elevation, predate the presence of humans in the Americas by millions of years, and soil development tends to be both minimal and shallow outside of very specific settings (such as meadows). As a result, the potential for buried resources that might be uncovered during construction is virtually nonexistent. However, PG&E would comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project in the extremely unlikely event of inadvertent discovery of human remains. Therefore, it is not reasonably foreseeable that the Project would disturb any human remains and effects would be less than significant.

2.6 Energy

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	☐	☐	✓	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	✓

2.6.1 Environmental setting

Energy sources are either renewable (e.g., solar, wind) or nonrenewable (e.g., fossil fuels) and can be combusted to power vehicles and equipment or converted to electricity as a secondary energy source.

In 2023, California consumed more energy than all other states except Texas, but its per capita consumption of 173.9 million British thermal units (Btu) was the third lowest in the nation (EIA 2026). The California Energy Commission (CEC), established by the Warren-Alquist Act in 1975, has been instrumental in limiting California's energy consumption, particularly via energy efficiency standards that are updated every three years in Title 24 (CEC 2020).

2.6.2 Findings

a) Would the Project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Project construction equipment would use fossil fuels for power. The use of such equipment is necessary for material transport and for replacement of the turbines. Construction equipment would be used as efficiently as feasible (e.g., by reducing idling).

The Project involves replacing all three generating pump-turbines with more efficient, higher-capacity turbines. With the new turbines, the Helms Pump Storage Project's normal operating capacity would

increase by 180,000 kW. As a result, operation of the Project would generate a beneficial increase in renewable energy production.

Overall, potential impacts due to wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The Proposed Project would not conflict with or obstruct a local or state plan for renewable energy or energy efficiency. The Proposed Project aligns with the state's goal that 60% of electricity retail sales come from renewable sources by 2030, and 100% by 2045 (State of California 2018). The upgraded generating units would increase renewable energy production by 180,000 kW under normal operating capacity. Therefore, no impact would occur.

2.7 Geology and Soils

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	✓
ii) Strong seismic ground shaking?	☐	☐	☐	✓
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	✓
iv) Landslides?	☐	☐	✓	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	✓	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	✓	☐

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	✓
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✓
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	✓

2.7.1 Environmental setting

The Project Area lies within the Sierra Nevada geomorphic province, which is part of the Cascade–Sierra Mountains Physiographic Province (PRI 2022), and is located along the western slope of the Sierra Nevada mountain range within the southern portion of the Cascade–Sierra Province. Regional geology is characteristic of the high Sierra and consists primarily of Mesozoic granitic rocks, predominantly granodiorite, with localized remnants of older metamorphic rocks and overlying Pleistocene to Holocene continental glacial deposits (PG&E 2021).

Although the Project Area is situated in the interior of the Sierra Nevada geomorphic province, most active deformation is concentrated along the province's eastern margin. The Sierra Nevada forms a tilted fault block nearly 400 mi long, with a high, rugged fault scarp along its eastern face that contrasts sharply with its gentle western slope (CGS and California DOC 2015). The closest active faults designated by the California Geological Survey are associated with the Sierra Nevada Frontal Fault Zone, which forms the tectonic boundary between the relatively undeformed Sierra Nevada block and the Walker Lane Belt along the western margin of the Great Basin (CGS 2007). In the central to eastern Sierra Nevada, the Sierra Nevada Frontal Fault Zone consists of a series of left-stepping, fault-bounded basins produced by normal or oblique-slip faulting (CGS 2007).

The Project is also located within the southern Sierran microplate, a relatively rigid crustal block that moves northwest at an estimated rate of approximately 12 to 14 mm per year relative to the North American Plate (PG&E 2021, Unruh and Humphrey 2017). The Project Area is located within an area of low seismic activity, and no Alquist-Priolo Earthquake Fault Zones have been identified within the Project vicinity (Stantec 2025, California DOC 2026c). In addition, the Project Area is underlain by granitic and metamorphic bedrock, including Lithic Xeropsamments rock outcrop; therefore, there is no potential for liquefaction (PG&E 2021, UC Davis and NRCS 2026). Deep-seated landslide susceptibility in the Project Area is considered moderate to high (CGS 2026).

Two geological areas within the Sierra National Forest and within the Project vicinity are designated as Special Interest Management Areas by the USFS. The Courtright Intrusive Contact Zone Geological Area is an approximately 11-acre area located along the crest of a barren ridge near the south end of Courtright Lake on Helms Creek, about 5 mi northeast of SA-7. This area contains a variety of exposed bedrock features characteristic of intrusive granite contact zones in the Sierra Nevada Range. The Kings Cavern Geological Area, located approximately 6 mi south of SA-7, consists of a network of caverns and karst features within a marble unit of the Lower Kings River Roof Pendant. The area encompasses approximately 388 ac, is accessible by trail, and is located south of Wishon Reservoir along the North Fork Kings River (PG&E 2021, USFS 2019).

2.7.2 Findings

a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The Project Area is not located within an Alquist-Priolo Earthquake Fault Zone (CGS 2026) or a California Earthquake Hazards Zone (California DOC 2026c). The Project would not result in operational or land use changes that would cause substantial adverse impacts due to potential rupture of an earthquake fault. Therefore, the Project would not impact any known earthquake fault. Therefore, no impact would occur.

b) Strong seismic ground shaking?

The Project Area is located at least 30 mi away from the nearest active faults and lies in a zone with low potential for strong seismic ground shaking (CalOES 2026, California DOC 2026c). The Project would not introduce new risks associated with strong seismic ground shaking. Therefore, the Project would not increase the potential for direct or indirect adverse effects related to seismic ground shaking. Therefore, no impact would occur.

i) Seismic-related ground failure, including liquefaction?

The Project Area is underlain by granitic and metamorphic bedrock; therefore, there is no potential for liquefaction (PG&E 2021). The Project would not increase the potential for direct or indirect adverse impacts due to seismic-related ground failure, including liquefaction. Therefore, no impact would occur.

ii) Landslides?

Deep-seated landslide susceptibility in the Project Area is considered moderate to high; landslides therefore have potential to occur within the Project Area (PG&E 2021, CGS 2026). However, construction activities would be limited to improvements in a previously disturbed area that was formerly part of the Wishon Quarry. In addition, ground-disturbing activities (i.e., removal of approximately 140 trees, regrading and paving, installation of a 5-foot-high chain link security fence around the perimeter of SA-7, and installation of water and power connections to the facility) would occur within an area of relatively low relief and would not increase the risk of landslides. The turbine replacement will occur completely

within the existing underground powerhouse. Therefore, the Project would not increase the potential for direct or indirect adverse impacts related to landslides. Impacts would be less than significant.

c) Would the Project result in substantial soil erosion or the loss of topsoil?

No ground disturbing activities would occur during construction except for the preparation of SA-7. The Project would remove topsoil during ground-disturbing activities in SA-7. During these activities, there would be a minor and temporary increase in the potential for stormwater-related erosion due to exposed surficial soil. To minimize the risk of soil erosion, the Project would implement AMM-8 (erosion and sediment control, hazardous waste, and petroleum product BMPs; Section 1.4.7). These activities would stabilize the disturbed soil in SA-7 and reduce the potential for soil erosion; therefore, Project impacts on soil erosion and loss of topsoil would be less than significant.

d) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

All construction activities would occur within previously disturbed and developed areas. The Project would not involve construction of new buildings or structures that could be affected by unstable geologic units or soils. Turbine replacement would occur entirely within the existing underground powerhouse. Therefore, no impact would occur.

e) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Expansive soils have the potential to swell or shrink under changing moisture conditions. The Project Area is atop granitic and metamorphic bedrock which are not known to have the potential to shrink or swell due to moisture. Prior to construction of the warehouse, tool storage buildings, and office trailers, PG&E will perform site-specific studies to determine whether expansive soils are present within the proposed building footprints. If expansive soils are identified, PG&E will implement appropriate engineering measures and obtain all required permits to ensure the structures are designed and constructed safely, without posing a risk to life or property. All construction activities would occur within previously disturbed areas and developed sites. As a result, the Project would not increase long-term deformation or pose additional risks to life or property compared to existing conditions. Therefore, no impact would occur.

f) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The Project does not include construction of new septic tanks or alternative wastewater disposal systems. Impacts related to soil adequately supporting septic tanks or alternative wastewater disposal systems would not occur.

g) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Two geological areas within the Sierra National Forest and within the Project vicinity are designated as Special Interest Management Areas by the USFS (see Section 2.7.1). No ground disturbing activities would occur during construction except for the preparation of SA-7. SA-7 is outside of the special area boundaries, is located on a previously disturbed area that was formerly part of the Wishon Quarry and does not include any known paleontological resources. Project construction will occur within previously disturbed areas and does not include significant excavation or activities that could substantially impact paleontological resources or sites nor unique geologic features. Therefore, no impact would occur.

2.8 Greenhouse Gas Emissions

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✓	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	✓

2.8.1 Environmental setting

2.8.1.1 State regulatory setting

Greenhouse gases (GHGs) can absorb and emit infrared radiation, trapping energy in the atmosphere and causing it to warm. Impacts from GHGs are more global than regional and are different from air pollutants that impact only the general area near where they are released. GHGs can occur naturally or as a direct result of human activities. California law defines GHGs as including the following emissions: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride (Health and Safety Code, § 38505(g)). The most common GHG resulting from human activity is carbon dioxide, followed by methane and nitrous oxide.

AB 32, the Global Warming Solutions Act of 2006, went into effect in January 2008 (refer also to Section 6.2). This bill required a statewide GHG emissions limit, equal to the 1990 level of 431 million metric tons of carbon dioxide equivalent ($MMTCO_2e$), to be achieved by December 31, 2020.

California's GHG emissions have generally decreased after peaking in 2004, remaining below the AB 32 2020 GHG emissions limit since 2014 (CARB 2026c). California's current climate targets include meeting both the Senate Bill 32 emissions target, which includes reducing emissions by 40% below 1990 levels by 2030 (refer also to Section 6.2), and the AB 1279 emissions target, which expanded upon AB 32 by aiming to reduce anthropogenic emissions 85% below 1990 levels by 2045 and achieve carbon neutrality (refer also to Section 6.2) (CalEPA 2026).

In 2023, California's statewide GHG emissions were 360.4 $MMTCO_2e$,[1] which is 11.2 $MMTCO_2e$ (3.0%) lower than 2022 levels (CARB 2025). This continued the long-term trend of declining GHG emissions in California, except for anomalous trends during 2019 to 2021 due to the COVID-19 pandemic, with emissions in 2023 being the lowest of any point during the CARB inventory time series (2000–2023). From 2000 to 2023, the carbon intensity of California's economy (carbon pollution per million dollars of gross state product) decreased by 56.6%, while emissions per gross state product declined by 5.0% from 2022 to 2023 (CARB 2025). The transportation sector consistently emits more GHG than any other sector, accounting for 37.1% of state GHG emissions in 2023. When upstream emissions from oil extraction, petroleum refining, and oil pipelines in California are included in this metric, transportation is responsible for 46.4% of statewide emissions in 2023 (CARB 2025).

2.8.1.2 Local regulatory setting

SJVAPCD has developed guidance for performance-based standards, or Best Performance Standards, to assess the significance of GHG emission totals for stationary sources and land use development projects. For these types of projects, adherence to Best Performance Standards or a demonstration of a 29% reduction from business-as-usual emissions would be required to demonstrate less-than-significant GHG emission impacts (SJVAPCD 2009). For construction projects, SJVAPCD has not established such guidance or quantitative significance thresholds for GHG emissions.

The Fresno County General Plan aims to reduce GHG emissions primarily through reduction of vehicle miles traveled (Fresno County 2024).

2.8.2 Findings

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Project construction is expected to generate approximately 771 metric tons of carbon dioxide equivalent (CO_2e) during each year of construction as indicated by the CalEEMod results in Appendix A. Conversely, the Project would increase renewable energy capacity of the facility, providing a potential reduction in long-term GHG emissions. Therefore, short-term impacts involving the generation of GHG emissions during Project construction would be less than significant.

b) Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Emissions associated with Project construction would be temporary and would not inhibit attainment of the statewide GHG emissions limit established by AB 1279, as described in Section 6.2. SJVAPCD has not established GHG emissions guidance or quantitative significance thresholds for GHG emissions from construction projects, and construction projects are not a mechanism by which the Fresno County General Plan aims to reduce GHG emissions (Section 2.8.1.2). The Project would increase renewable energy

[1] A metric measure used to compare the emissions from various GHGs based on their global warming potential. Carbon dioxide equivalents are commonly expressed as million metric tons of carbon dioxide equivalents (MMTCO2e). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated global warming potential (USEPA 2012).

capacity of the facility, providing a potential reduction in long-term GHG emissions. For these reasons, the Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, no impact would occur.

2.9 Hazards and Hazardous Materials

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✓	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	✓	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	✓
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	✓	☐
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	✓
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	✓	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	✓	☐

2.9.1 Environmental setting

Land uses surrounding the Project Area are predominantly open space, used for hydropower generation and recreation. A review of the State Water Resources Control Board's (State Water Board) GeoTracker database, California Department of Toxic Substances Control's (DTSC) EnviroStor database, and the USEPA Superfund's National Priorities List (NPL) and Superfund Alternative Approach (SAA) Sites

databases identified one known site within the Project Area with a history of leaking underground storage tank (LUST) cleanup (DTSC 2026, USEPA 2026a, USEPA 2026b, SWRCB 2026a).

The LUST cleanup occurred at the Helms Support Facility, in SA-9, where releases from two diesel and one gasoline underground storage tanks were detected in 2004. The associated infrastructure was removed, and the contaminated soils were excavated. Subsequent testing indicated no gasoline in the soil, while diesel was detected at concentrations ranging from 13 mg/kg and 1.9 mg/kg. No petroleum products were detected in the groundwater at the site or nearby. The Central Valley Regional Water Quality Control Board (CVRWQCB) deemed the leakage as non-threatening to human health or the environment (CVRWQCB 2011).

Emergency planning and hazard response in the Project Area are addressed through the Fresno County General Plan and the Fresno County Multi-Jurisdictional Hazard Mitigation Plan, which include multiple goals and policies to ensure adequate emergency access and response capabilities (Fresno County 2024, Fresno County 2018). In addition, the Fresno County Operational Area Master Emergency Services Plan provides a guide for emergency and disaster response in unincorporated areas of Fresno County, and for coordination within and outside of the Fresno County Operational Area (Fresno County 2024b).

In addition, the Fresno County Office of Emergency Services maintains Emergency Action Plans (EAPs) for Courtright and Wishon Dams, developed by PG&E (Fresno County 2024b). These include the operational information necessary to evacuate all potentially flooded areas and inundation maps indicating which areas could flood, timing for specific locations and estimates of when the water will recede (Fresno County 2024b).

2.9.2 Findings

a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

During preparation of SA-7, excavation of the existing utility line and access road, and turbine replacement, there is a risk of inadvertent spills when using diesel fuel or other hazardous material with construction equipment. To minimize this risk, the Project would implement hazardous materials BMPs as outlined in AMM-1 (refueling setbacks), AMM-2 (spill containment and cleanup), and AMM-8 (erosion and sediment control, hazardous waste, and petroleum product BMPs) (Section 1.4.7). All fuels and other hazardous materials would be handled and stored according to the manufacturer's specifications. A containment area would be established for construction equipment staging, and the ground would be protected from potential contamination within the containment area. In the event of a spill, crew personnel would stop the spillage at its source, contain the spilled material, and notify Project supervisors and appropriate agency representatives. With implementation of AMM-1, AMM-2, and AMM-8 as part of the Project, potential impacts related to the transport, use, or disposal of hazardous materials would therefore be less than significant.

b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous materials management BMPs as outlined in AMM-1 (refueling setbacks) and AMM-2 (spill containment and cleanup)), and AMM-8 (erosion and sediment control, hazardous waste, and petroleum product BMPs) (Section 1.4.7) would be implemented during construction, minimizing the release of hazardous materials into the environment. Therefore, potential impacts related to creation of a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment would be less than significant.

c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

There are no schools within one-quarter mile of the Project Area. The closest school is the Alternative Education Center, located approximately 46 mi west. There is no potential for the Project to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, no impact would occur.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

One LUST Cleanup Site was identified within SA-9 (DTSC 2026). The source of contamination was removed in 2004, and the amount of petroleum products were detected in low quantities at that time. The site and staging area are inaccessible to the public, on land privately owned by PG&E behind a locked gate. Given that the Central Valley Regional Water Quality Control Board (CVRWQCB) deemed the LUST Cleanup Site leakage as non-threatening to human health or the environment (CVRWQCB 2011) and no other hazardous materials sites are located within the Project Area, the Project would not create a significant hazard to the public or the environment and impacts would be less than significant.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within 2 mi of a public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the project area?

There are no public-use airports within 2 mi of the Project Area nor is the Project Area within an airport land use plan. The replacement turbines would also be underground and would not generate noise greater than the existing turbines; therefore, the turbines would not result in a safety hazard or excessive noise. Therefore, no impact would occur.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

All Staging Areas will be used temporarily for laydown and staging only, except for SA-7, which will also be used post construction for equipment storage and long-term support for routine operations and maintenance.

Roads may be temporarily closed for up to a few hours during construction of the Project. Traffic control personnel and all roadway traffic supporting construction would adhere to applicable laws for motor vehicles and comply with Fresno County Office of Emergency Services.

The Project would be part of an existing hydroelectric facility, on previously developed land. Continued operations would not impair implementation of or interfere with the Operational Area Master Emergency Services Plan (Fresno County 2024b) or Fresno County Multi-Jurisdictional Hazard Mitigation Plan (Fresno County 2024c). Operations staff of the existing hydroelectric facility would continue to comply with local fire, policy, and medical responders during any emergency.

Overall, impacts to an emergency response plan or emergency evacuation plan would be less than significant.

g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The Project is located in lands classified as very high fire hazard severity zones (CALFIRE 2026a). A portion of SA-9 and the Sierra National Forest lands surrounding the Proposed Project Area are classified as a Federal Responsibility Area (FRA) (CALFIRE 2026a). The Sierra National Forest has a Fire and Aviation Management program that manages all aspects of fire operations (USFS 2025). The Project would be part of an existing hydroelectric facility, on previously developed land.

A large number of personnel would be lodging, driving vehicles, and operating heavy machinery within a very high fire hazard severity zone. PG&E will implement its Wildfire Mitigation Plan (PG&E 2020), which includes measures to reduce wildfire ignition risk and the potential for wildfire spread. With the implementation of PG&E's Wildfire Mitigation Plan (PG&E 2020), potential impacts related to exposing people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

2.10 Hydrology/Water Quality

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	✓	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☐	✓
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) result in substantial erosion or siltation on- or off-site;	☐	☐	✓	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☐	✓
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	✓
(iv) impede or redirect flood flows?	☐	☐	☐	✓
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	✓	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	✓

2.10.1 Environmental setting

The majority of the Project Area (i.e., SA-1 through SA-8) are within the Wishon Reservoir-North Fork Kings River watershed (Hydrologic Unit Code 180300100604), while SA-9 is within the Rancheria Creek-North Fork Kings River watershed (HUC 180300100605) (USGS and USDA-NCRS 2026). Under typical operations, the Helms Pumped Storage Project generates power during periods of high electricity demand by releasing water from Courtright Lake to Wishon Reservoir for approximately 6 hours per day, although generation can range from 4 to 12 hours throughout the week (Stantec 2025). During periods of low electricity demand, typically midday to late at night or on weekends, water is pumped from Wishon Reservoir back to Courtright Lake.

Wishon Reservoir, at its normal maximum water surface elevation (NMWSE) of 6,550.0 ft above mean sea level (MSL), has a maximum storage capacity of 129,118 acres-ft (ac-ft) and a surface area of approximately 1,025 ac (Stantec 2025). It primarily receives inflow from the North Fork Kings River, as well as from two tributaries, Short Hair and Woodchuck Creeks. Courtright Lake, at its NMWSE of 8,184.0 ft above MSL, has a maximum storage capacity of 123,286 ac-ft and a surface area of approximately 1,632 ac (Stantec 2025). It primarily receives inflow from Helms and Dusy Creeks, and its primary outflow is Helms Creek, a tributary to the North Fork Kings River. During power generation operations, Courtright Lake's water surface elevation (WSE) decreases by approximately 1.25 ft per day, while Wishon Reservoir's WSE increases by approximately 1.6 ft per day (PG&E 2021). During pumpback operations, Courtright Lake's WSE increases by approximately 1.2 ft per day, and Wishon Reservoir's WSE decreases by approximately 1.5 ft per day. Following a cycle of generation and pumpback, Wishon

Reservoir is typically maintained at a slightly lower WSE due to downstream release requirements (PG&E 2021). PG&E is the licensee and owner of the Helms Pumped Storage Project.

Water quality objectives and beneficial uses for surface water and groundwater are provided in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) (CVRWQCB 2018). The water quality objectives apply to surface waters in the San Joaquin Valley south of the San Joaquin River, including the waterways associated with the Project (i.e., Wishon Reservoir and Courtright Lake). Existing beneficial uses for the North Fork Kings River include hydropower generation; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; rare, threatened, or endangered species; spawning, reproduction, and/or early development; and freshwater replenishment.

Wishon Reservoir and Courtright Lake are not listed as impaired by the State Water Resources Control Board pursuant to Section 303(d) of the Clean Water Act; however, the North Fork Kings River is listed for Alkalinity as $CaCO_3$ (SWRCB 2026b). Under the Basin Plan, this designation applies to waterbodies that do not meet established water quality objectives or where beneficial uses are not adequately protected. Placement of a waterbody on the Section 303(d) list requires development of a pollution control plan, called a Total Maximum Daily Load, which establishes pollutant load limits necessary to attain and maintain applicable water quality standards. No tsunami risks are present within the Project Area or vicinity according to the State of California's tsunami hazard area map (California DOC 2026d).

Project activities would increase the facility's operating capacity by replacing existing turbine units with more efficient units with marginally higher capacity. The upgrades would include: (a) three pump-turbine motor-generator units, and (b) associated generators. The existing unit ratings are as follows: Unit 1 = 403,650 kilowatts (kW), Unit 2 = 405,000 kW, and Unit 3 = 403,650 kW. The current maximum combined hydraulic capacity of the three units is approximately 10,500 cubic feet per second (cfs) in generating mode. In pumping mode, each unit has a rated hydraulic capacity of 2,400 cfs at an effective head of 1,500 feet. When all three units operate in pumping mode, the combined rated capacity is 7,200 cfs, with a maximum capacity of approximately 7,530 cfs (PG&E 2021). No in-water excavation or construction would occur as part of the Project. Each turbine would be taken offline while they are being replaced.

The Project would have minimal effects on existing facility operations and would not result in additional diversion or reduction of water from source streams. Instead, the Project would increase the rate at which water is conveyed between the two reservoirs by increasing flow capacity by up to 500 cfs per unit. When all three units operate at or near full capacity, the total combined hydraulic capacity would increase by approximately 1,550 cfs. This increased capacity allows water within existing water storage rights, to be moved more rapidly between reservoirs, potentially resulting in shorter pumping and generating operation times required to meet energy demands. The Project would not modify any FERC license conditions related to minimum instream flows or water deliveries, and no FERC license variances have been requested by PG&E. Accordingly, the Project would continue to operate within the constraints of existing water rights.

2.10.2 Findings

a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

There will be no in-water work associated with the Project**.** Project-related ground disturbance, however, could temporarily increase the potential for localized erosion and sediment-laden stormwater runoff, including during the upgrade of the existing culvert and ditch for stormwater drainage. To minimize the risk of soil erosion and stormwater runoff during construction, the Project will implement AMM-8 (erosion and sediment control, hazardous waste, and petroleum product BMPs; Section 1.4.7). The Project will also implement hazardous materials BMPs AMM-1 (refueling setbacks), AMM-2 (spill containment and cleanup), and AMM-6 (trash and waste handling) (Section 1.4.7).

Also, PG&E will comply with the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, State Water Board Order WQ 2022-0057-DWQ (Construction General Permit). Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation. With inclusion of the AMMs and compliance with the Construction General Permit as part of the Project, surface and groundwater quality impacts would be less than significant.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

The Project would not substantially alter existing groundwater pumping rates or natural recharge potential in a manner that would impede sustainable groundwater management of the basin. Additionally, the Project would continue to operate within the constraints of existing water rights. Therefore, no impact would occur.

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in a substantial erosion or siltation on- or off-site?

Movement of earth-and-fill material would temporarily disturb soils and may alter runoff patterns during preparation of SA-7 and during the excavation of approximately 1,030 feet along the existing utility line and access road northwest of SA-7 to extend water and electrical services to the facilities proposed within SA-7. The approximately 4-acre site would be graded to a generally level surface, with 4 to 8 inches of aggregate base, road base, or decomposed granite placed on top. In addition, the upper portion of the site on the western side would be terraced and graded to accommodate a warehouse, tool sheds, office trailers, and parking facilities. The trench would be excavated within the footprint of the existing PG&E-owned and maintained utility line and access road connecting the PG&E facility to Powerhouse Road. The existing line extending from the water storage tank to the upper end of the asphalt-paved roadway would be upsized and replaced within the existing trench alignment. Beginning at the upper end of the paved roadway, a new joint utility trench would be installed within the existing footprint of the roadway. While these activities would alter existing surface conditions, they would not

substantially alter existing drainage patterns, change the course of any stream or river, or introduce substantial new impermeable surfaces that would change runoff characteristics in a manner that would result in erosion or siltation.

The increase in hydraulic capacity associated with the turbine uprate would not substantially alter reservoir water levels or operations in a manner that would result in erosion or siltation. The Uprate would have minimal effects on reservoir elevations, resulting in elevation differences ranging from -0.25 to 0.14 feet for Courtright Lake and from -0.22 to 0.31 feet for Wishon Reservoir; PG&E 2025b) and would not result in the exposure of new shoreline or previously inundated areas. Intakes were specifically placed in locations where project operations would not disturb bottom sediments (PG&E 2024d). The maximum increase in intake velocity resulting from the Uprate would be modest, increasing from approximately 1.9 fps to 2.3 fps (PG&E 2025b). Furthermore, it is unlikely that appreciable sediment has accumulated near the intakes given 42 years of Project operations, which would be expected to limit sediment deposition in the immediate intake areas. Therefore, the minor increase in intake velocity associated with the Uprate is not expected to result in significant sediment disturbance or entrainment.

Tree removal and grading activities could temporarily expose soils; however, these activities would be short-term. Once constructed, the stabilized surface materials and relatively flat grading would reduce susceptibility to erosion. Appropriate BMPs included in the Project are AMM-4 (disturbance minimization) and AMM-8 (erosion and sediment control, hazardous waste, and petroleum product BPMs) (Section 1.4.7). Therefore, no substantial long-term change in erosion or siltation would occur onsite or offsite. The impact would be less than significant.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The Project would not substantially alter drainage patterns following construction. Earth-moving activities during construction have the potential to cause minor and temporary alterations to the Project Area's existing drainage patterns but would not result in an increased risk of flooding. The Project would not result in flooding impacts to locations within the Project Area or to offsite areas. Therefore, no impact would occur.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The Project would not create or contribute runoff water or provide additional sources of polluted runoff. Therefore, no impact would occur.

iv) impede or redirect flood flows?

Project construction would be completed between March and November, when precipitation and flood risk are low to moderate. Project implementation would not impede or redirect flows or result in long-term changes to flood flow patterns. Therefore, no impact would occur.

d) In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to Project inundation?

The Project Area is not at risk of tsunamis. Though flood and seiches are unlikely, there is a potential for pollutants to be transported into Wishon Reservoir if inundation were to occur in SA's where vehicles, equipment, fuel, or other potential pollutants are stored. Implementation of hazardous material BMPs (AMM-1 (refueling setbacks), AMM-2 (spill containment and cleanup), and AMM-6 (trash and waste handling) (Section 1.4.7) would minimize the risk of a pollutant release. The Project would not risk release of pollutants following Project construction. The impact would be less than significant.

e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Project would not conflict with or obstruct the implementation of the Basin Plan (CVRWQCB 2018) because it incorporates measures to protect water quality and maintain identified beneficial uses. The Project Area is not part of a sustainable groundwater management plan. Therefore, no impact would occur.

2.11 Land Use and Planning

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Physically divide an established community?	☐	☐	☐	✓
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	✓

2.11.1 Environmental setting

The zone designation for the Project Area under the Fresno County General Plan (Fresno County General Plan 2024) is R-C (Resource and Conservation). The Resource and Conservation designation is intended to conserve and protect essentially undeveloped natural resources and natural habitats involving land and water areas, with no more than one primary dwelling unit per parcel (Fresno County Zoning Ordinance 2024). The Fresno County Zoning Ordinance states that the R-C zone is consistent with the Open Space and Public Lands and Open Space land use designations of the Fresno County General Plan, which include the protection and preservation of natural resources, open space areas, cultural resources, management of commodity resources, and provision of recreational opportunities (Fresno County General Plan 2024).

Land uses around the Proposed Project Area are primarily hydropower generation and recreation. These lands are managed in accordance with the Fresno County ordinances.

2.11.2 Findings

a) Would the Project physically divide an established community?

The Proposed Project would be part of an existing hydroelectric facility, on previously developed land. Residential land uses are not located in the vicinity of the Project Area. However, there is an RV Park that allows temporary stays, Wishon Village RV Park. The RV Park is located along McKinley Grove Road, approximately 1 mi west of SA-8 and 2 mi east of SA-9. The Proposed Project would not physically divide Wishon Village RV Park or any other nearby residences or communities. Therefore, no impact would occur.

b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The Proposed Project involves replacement of turbines to an existing hydroelectric facility, on previously developed land. The replacement of turbines would occur within the existing hydroelectric and would not conflict with the existing license conditions and land use. The Proposed Project would also not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, no impact would occur.

2.12 Mineral Resources

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✓
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	✓

2.12.1 Environmental setting

Fresno County has historically been a leading producer of minerals due to the abundance and diversity of mineral resources within the County. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone). Aggregate and petroleum are considered the county's most significant extractive mineral resources (Fresno County 2024).

Ground disturbance would only occur during SA-7 grading and preparation, and during the excavation of approximately 1,030 feet along the existing utility line and access road northwest of SA-7 to extend

water and electrical services to the facilities proposed within SA-7. The alternative method to expand water and electrical services is to install new poles along the roadway shoulder of Powerhouse Road and a new water tank, both within the larger portion of SA-7. SA-7 is a previously disturbed area that was formerly part of the Wishon Quarry, which was excavated during construction of Wishon Dam. The site was later backfilled with spoils and subsequently landscaped. However, the Project Area, including SA-7, has not been classified within a mineral resource zone pursuant to the California Surface Mining and Reclamation Act of 1975 (Section 6.2) (CGS 2026).

2.12.2 Findings

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No known mineral resources that would be of value to the region are present within the Project Area and there are no new areas of ground disturbance included in the Project. Therefore, no impact would occur.

b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

There are no identified locally important mineral resource recovery sites in the Project Area (CGS 2026b) and there are no new areas of ground disturbance included in the Project. Therefore, no impact would occur.

2.13 Noise

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	✓
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✓	☐
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 mi of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✓

2.13.1 Environmental setting

2.13.1.1 Noise

Noise can be defined as unwanted or disruptive sound. Pressure waves traveling through air exert a force that is perceived by the human ear as sound, measured in decibels (dB) using monitoring instruments. For context, a whisper measures approximately 30 dB, normal speaking is about 60 dB, and a chain saw is around 110 dB (CDC 2015). Prolonged exposure to noises above 70 dB can lead to adverse impacts, such as hearing loss. Noise levels from localized (i.e., point) sources attenuate with distance at a rate of approximately 6 dB per doubling of distance (FTA 2018). Construction noise levels are often expressed in A-weighted decibels (or dBA), a unit that incorporates frequency adjustments to model the human ear's varying sensitivity to different sound frequencies.

Ambient noise levels near the Project Area are primarily influenced by campgrounds, trails, and other similar recreational uses. The underground powerhouse is located at a depth of approximately 1,000 ft below the surface (PG&E 2024d). As a result, existing noise and groundborne vibration are highly attenuated before reaching the surface and imperceptible at surrounding land uses. Noise is primarily produced by vehicles accessing recreational areas, and ambient noise related to use of those areas. The nearest noise-sensitive receptors to the Project Area include seasonal residents of the Wishon Village RV Park, located approximately 0.7 mi from SA-7, as well as users of nearby day-use and overnight recreational areas, such as Helms Picnic Area and Lily Pad Campground, located approximately 150 feet and 0.4 mi from SA-7, respectively. Any substantial noise associated with the Project would originate from construction activities within SA-7, the existing utility line, and the existing access road, rather than from the other laydown areas or the underground turbine replacement.

Fresno County Noise Control Ordinance (Chapter 8.40) provides an exemption for construction activities from standard noise level restrictions, provided that such activities occur between 6:00 a.m. and 9:00 p.m. on Monday through Friday, or between 7:00 a.m. and 5:00 p.m. on Saturday and Sunday. The Fresno County General Plan includes additional goals and policies related to noise exposure.

2.13.1.2 Vibration

Vibrations are periodic oscillations of a medium, including groundborne vibrations generated by machinery or construction equipment. These vibrations can lead to groundborne noise, which occurs when objects such as room surfaces resonate in response to ground vibrations. Vibrations are typically measured by their root mean squared velocity, expressed in vibration decibels (VdB). Vibrations become perceptible at approximately 65 VdB, distinctly perceptible around 75 VdB, and bothersome around 85 VdB (FTA 2018).

Existing vibration levels are low near the Project Area. Vibrations in the Project vicinity are primarily produced by occasional vehicles accessing recreational areas. Fresno County does not have quantitative vibration thresholds for construction projects.

2.13.2 Findings

a) Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Fresno County Ordinance Code (Chapter 8.40) provides an exemption for construction activities from standard noise level restrictions, provided that such activities occur between 6:00 a.m. and 9:00 p.m. on Monday through Friday, or between 7:00 a.m. and 5:00 p.m. on Saturday and Sunday. Outside construction activities would take place between these hours, and no outside night work is expected. Ambient noise levels would temporarily increase at these times due to trucks, equipment, and additional personnel in the Project Area, but would not be in excess of standards established in the noise ordinance. Night work may occur in the underground powerhouse during uprate construction, which would generate some groundborne vibration and noise. However, these activities would occur at a depth of approximately 1,000 ft below ground (PG&E 2024d) and as a result, any groundborne noise would be highly attenuated before reaching the surface and likely imperceptible at surrounding land uses. The Project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance. Therefore, no impact would occur.

b) Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Vibration levels for heavy equipment and loaded haul trucks to be used during Project construction are not expected to exceed 71 VdB at 150 ft from the source (i.e., the distance to the nearest noise-sensitive receptor), or 49 VdB at 0.4 mi from the source (FTA 2018). The Helms Picnic Area is separated from SA-7 and the existing utility line and access road by trees, rocky outcroppings, and sloping terrain. These physical barriers would contribute to the attenuation of construction-related vibration and noise, reducing the effects on sensitive receptors in the nearest area. While construction activities associated with turbine installation would generate some groundborne vibration and noise, these activities would occur in the underground powerhouse at a depth of approximately 1,000 ft below the surface (PG&E 2024d). As a result, any groundborne vibration or noise would be highly attenuated before reaching the surface and likely imperceptible at surrounding land uses. Vibration and noise produced by Project construction activities during daytime hours are also exempt from Fresno County regulations, and operational vibration or noise levels would not increase following Project construction. No long-term increase in groundborne vibration generation would occur following Project construction. For these reasons, the Project would not result in generation of excessive groundborne vibration; therefore, the Project would have less than significant impacts resulting from groundborne vibrations or groundborne noise levels.

c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 mi of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?

The Project is not located within the vicinity of a private airstrip or within 2 mi from a public airport or public use airport. Therefore, no impact would occur.

2.14 Population and Housing

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	✓
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	✓

2.14.1 Environmental setting

The Proposed Project is located within a rural area of Fresno County with a low population density. Residential uses are not located within the vicinity of the Project. However, a temporary RV park is located within 2 mi of the Project. Lands surrounding the Project Area are predominantly open space, used for hydropower generation and recreation.

2.14.2 Findings

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Proposed Project would be part of an existing hydroelectric facility, on previously developed land. The Proposed Project does not include new homes, businesses, roads, or other major infrastructure that would induce population growth in the area. Because existing operations staff are not expected to increase, the Proposed Project would not result in population growth. Therefore, no impact would occur.

a) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The Proposed Project would be part of an existing hydroelectric facility, on previously developed land with no housing on site. No existing housing would be displaced. Therefore, no impact would occur.

2.15 Public Services

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	☐	☐	✓	☐
Fire protection?	☐	☐	✓	☐
Police protection?	☐	☐	✓	☐
Schools?	☐	☐	☐	✓
Parks?	☐	☐	✓	☐
Other public facilities?	☐	☐	☐	✓

2.15.1 Environmental setting

The Proposed Project is located beyond the jurisdiction of the Fresno County Fire Protection District and is instead located within the California Department of Forestry and Fire Protection (CAL FIRE) Fresno-Kings Unit (FCFPD 2026, CAL FIRE 2026b).

The Project Area is located within the jurisdiction of the Fresno County Sheriff's Department, within Area 4. The Auberry Substation (approximately 47 mi from the Project Area) and Telen Substation (approximately 88 mi from the Project Area on Highway 180) are only occasionally used due to budget constraints (Fresno County Sheriff's Office 2026). This unit offers Search and Rescue, Boating/Dive, and Off-Highway Vehicle (snowmobiles/ATV/dirt bikes) services (Fresno County Sheriff's Office 2026).

The Project Area is within the Sierra Unified School District but there are no schools within the vicinity of the Proposed Project.

SA-3, SA-4, and SA-5 are all located within Sierra National Forest, managed by the USDA Forest Service (part of the Federal government). SA-4 and SA-5 are located along Powerhouse Road, while SA-3 is at the turnoff for the Short Hair Creek Fishing Area. The Sierra National Forest encompasses 1.3 million ac of land across Fresno, Madera, and Mariposa counties, providing resources for recreation, timber, conservation, and fire management (USFS 2026a). There are four Forest Service Offices, the closest being the High Sierra Ranger District office, roughly 46 mi from the Project Area (USFS 2026b). SA-6 is located

within the Helms Picnic Area parking area off of Powerhouse Road, which provides recreation opportunities and is owned by PG&E. The picnic area offers 10 sites that are available for day use, each accommodating 6 people, for a total of 60 potential visitors at a given time (USFS 2026c). SA-8 is located within the parking lot of the Wishon Village Marina, which provides recreation opportunities and is owned by Wishon Village RV Park. Visitors dock their own boats or rent pontoon boats that launch for a fee (Wishon Village RV Park 2026). SA-1, SA-2, and SA-9 are behind locked PG&E gates and are inaccessible to the public.

2.15.2 Findings

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?
Police protection?
Schools?
Parks?
Other public facilities?

All Staging Areas will be used temporarily for laydown and staging, and SA-7 will be used as a permanent area for equipment storage and long-term support for routine operations and maintenance. The Proposed Project would be accessed by contractors, haul trucks and equipment delivery trucks via McKinley Grove Road, which is the only main road to the Project Area. Roads may be temporarily closed for up to a few hours each day during construction of the Proposed Project. Construction haul routes and traffic control measures would be coordinated with the Forest Service and emergency services. Impacts to fire and police protection would be less than significant, as response vehicles would be able to access all areas with little-to-no delay.

Parking at some day-use and recreation sites along Powerhouse Road may be temporarily disrupted during construction for laydown or staging. SA-3, SA-4, and SA-5 are all located within Sierra National Forest, managed by the USDA Forest Service, part of the Federal government. All three sites are on the publicly accessible route to the Short Hair Creek Fishing Area. Staging equipment in these areas will be visible to the public but would not prevent utilization or access, because the entrance will not be blocked during construction. Construction activities and potential impacts to parking areas will be coordinated with the Forest Service ahead of time. SA-6 is located within the Helms Picnic Area parking area, off of Powerhouse Road. SA-6 comprises roughly half of the parking lot area, reducing the number of visitors who could use the picnic site when it is being used occasionally for large vehicle and truck turnarounds. However, the site would still be accessible because the entrance will not be blocked during construction. Staged equipment would be visible to the public.

SA-8 is located within the parking lot of the Wishon Village Marina, owned by Wishon Village RV Park. Although staging equipment in this area will be visible to the public and reduce the number of visitors

able to use the marina, use of this SA-8 would not prevent utilization or access, because the entrance will not be blocked during construction. Given the above, impacts to park uses would be temporary and less than significant.

Because there are no schools in the vicinity of the Project Area, there would be no impact on schools.

The replacement of the turbines and their operation would not result in any changes to water diversion or water surface elevation in the reservoirs, instead increasing the conveyance between the reservoirs under the existing water rights (PG&E 2025a). Therefore, no impact would occur.

2.16 Recreation

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	✓	☐
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	✓	☐

2.16.1 Environmental setting

The Wishon Reservoir and surrounding area are recreational resources for camping, fishing, boating, and picnicking.

The Wishon Village RV Park is the main recreational facility in the vicinity of the Project, on land owned by Sierra National Forest. The Project Area is within 2 mi of Wishon Village RV Park, which provides seasonal camping and other recreational resources. The RV Park is accessible from McKinley Grove Road. Dinkey Creek Campground has accommodations nearby, which will be used to house Uprate construction personnel if housing capacity at Helms Headquarters is full. Dinkey Creek Campground is located approximately 18 miles northwest of Helms Powerhouse, accessible from McKinley Grove Road and Dinkey Creek Road. If housing capacity at Helms Headquarters and the accommodations near Dinkey Creek campground is not sufficient to accommodate all Uprate construction personnel at a given time, Wishon RV Village may be used for lodging.

Powerhouse Road runs along Wishon Reservoir and is used mainly by PG&E Powerhouse employees and for the public to access recreational sites. SA-3, SA-4, and SA-5 are all located within Sierra National Forest. SA-4 and SA-5 are located along Powerhouse Road, while SA-3 is at the turnoff for the Short Hair Creek Fishing Area. Moving equipment to and from SA-3 may require short-term disruptions to fishing area access, but will not prevent public use during these disruptions. SA-6 is located within the Helms Picnic Area parking lot, off of Powerhouse Road. SA-7 is located across the road from the Helms Picnic

Area and includes a small portion between the northwestern edge of the Helms Picnic Area and Powerhouse Road. The existing utility line and access road is located just northwest of the larger portion of SA-7. For the Proposed Project, PG&E will use a portion of the Helms Picnic Area parking lot to facilitate the turnaround of large trucks and trailers, which will result in temporary road closures and partial parking lot closures. In the area between the northwestern edge of the Helms Picnic Area and Powerhouse Road, improvements including tree removal, grading, placement of 4 to 8 inches of road base, and asphalt paving will be made. These permanent improvements will enhance future public access to the existing Helms Picnic Area.

SA-8 is located within the parking lot of the Wishon Village Marina, owned by Wishon Village RV Park. Visitors dock their own boats or rent pontoon boats that launch for a fee (Wishon Village RV Park 2026).

SA-1, SA-2, and SA-9 are behind locked PG&E gates and are inaccessible to the public.

2.16.2 Findings

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The Proposed Project would be part of an existing hydroelectric facility, on previously developed land. Replacement of turbines would temporarily increase the number of construction and support personnel to the area and would potentially increase the use of Wishon Village RV Park and potentially Dinkey Creek campground. However, the increased use of these recreational facilities would not result in physical deterioration of the facility to occur or be accelerated. Therefore, the impact would be less than significant.

b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Proposed Project would be part of an existing hydroelectric facility, on previously developed land. PG&E will use a portion of the Helms Picnic Area parking lot to facilitate the turnaround of large trucks and trailers, resulting in occasional, short-term disruptions of a few hours to public access and use of that area. This picnic area will still be available for public use during these disruptions. Additionally, improvements in the area between the northwestern edge of the Helms Picnic Area and Powerhouse Road (tree removal, grading, placement of 4 to 8 inches of road base, and asphalt paving) will enhance future public access to the existing Helms Picnic Area. Equipment staging and movement from SA-3 would result in short-term disruptions to fishing area access, but will not prevent public use during these disruptions. Additionally, temporary short-term road closures may disrupt but not prevent public use of recreation facilities along Powerhouse Road.

The replacement of turbines would result in an increase in staff, potentially requiring lodging near recreation areas. However, this would not necessitate the construction or expansion of recreational facilities. Therefore, the impact would be less than significant.

2.17 Transportation

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	✓
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	✓	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✓	☐
d) Result in inadequate emergency access?	☐	☐	✓	☐

2.17.1 Environmental setting

The Project Area is accessible from City of Fresno from Highway 168 via McKinley Grove Road. SA-9 is accessible by Hall Meadow Lane. SA-1 through SA-8 are accessible by McKinley Grove Road and Powerhouse Road. SA-6 and a portion of SA-7 are located within the Helms Picnic Site parking area, off of Powerhouse Road, and will be used to turn around large trucks and trailers (PG&E 2025a). The roadways that provide access to the Project Area are also used by the public to access recreational areas and facilities, or by PG&E employees to access facilities for maintenance and operations.

During construction, Project personnel would remain either on site or in the surrounding area at either Helms Headquarters, accommodations near Dinkey Creek Campground, or at Wishon RV Village. Project personnel would access the work site primarily via Highway 168, McKinley Grove Road, Powerhouse Road and Hall Meadow Lane using vans or cars. Construction activities would temporarily increase traffic in the Project vicinity and along McKinley Grove Road. However, the Project would not result in long-term changes to local or regional traffic or transportation circulation systems. The Fresno County General Plan Policy TRA-A.25 sets the threshold for vehicle miles travelled (VMT) at 110 truck trips per day (Fresno County 2024).

2.17.2 Findings

a) Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The replacement of the turbines and their operation would not conflict with or impact a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Therefore, no impact would occur.

b) Would the Project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

There would be a temporary and localized increase in vehicle trips from haul trucks and equipment deliveries to and from the Project Area during construction. Haul routes would be selected to avoid schools, parks, and high pedestrian use areas, which is feasible since the Project Area is in a rural, low-population-density area. Local automobile vehicle miles traveled are not expected to change due to the Proposed Project since no detours would be implemented during construction and no transportation systems would change permanently. Therefore, impacts would be less than significant.

c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project would be part of an existing hydroelectric facility, located on previously developed land. A portion of the Helms Picnic Site parking area will be modified to accommodate the turnaround of large trucks and trailers. The presence and activity of large vehicles in a public recreational area could temporarily increase hazards but the impacts would not be substantial. The Project would not involve changes to the existing roads. Therefore, impacts would be less than significant.

d) Would the Project result in inadequate emergency access?

The Project does not involve any construction activities or staging of equipment that would result in inadequate emergency access in the area. Project personnel, including haul truck drivers and equipment operators, would comply with local fire, police, and medical responders during any emergency. Therefore, the impact on emergency access would be less than significant.

2.18 Tribal Cultural Resources

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	☐	☐	✓	☐
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or	☐	☐	✓	☐

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	✓	☐

2.18.1 Environmental setting

Ground disturbance would only occur during SA-7 grading and preparation, and during the excavation of approximately 1,030 feet along the existing utility line and access road northwest of SA-7 to extend water and electrical services to the facilities proposed within SA-7. The alternative method to expand water and electrical services is to install new poles along the roadway shoulder of Powerhouse Road and a new water tank, both within the larger portion of SA-7. SA-7 is located entirely within the historical Wishon Quarry, which was mined to construct the Wishon Dam prior to issuance of the existing FERC license (FERC Project Number 2735) (see Section 1.4.1.1). Spoils generated during construction of the underground powerhouse facility (i.e., 900,000 cubic yards) were placed within the historical quarry, where vegetation has since become established (see Section 1.4.1.1). The site was also partially filled with spoils from tunnel excavation, graded, and landscaped. The Uprate Project would involve grading these existing spoils and removing approximately 140 trees that have grown within SA-7. Ground disturbance related to the Project (see Section 1.4.1.1) would occur within SA-7 and would be limited to the depth of the previously placed spoils and to areas that have previously been surveyed for tribal cultural resources. The trench would be excavated within the footprint of the existing PG&E-owned and maintained utility line and asphalt-paved roadway connecting the PG&E facility to Powerhouse Road. Ground disturbance along the access road would be limited to a depth of approximately 40 to 48 inches, a width of 36 to 40 inches, and areas that have been previously surveyed for tribal cultural resources.

Ethnographic sources associate the Wishon Reservoir area primarily with Western Mono groups, including the Holkoma and Wobonuch, and Foothill Yokuts groups; the Western Mono and Owens Valley Paiute-Shoshone speak languages within the Uto-Aztecan language family, whereas the Foothill Yokuts speak languages within the Penutian language family (PG&E 2024a, NAHC 2026). While the elevation of Wishon Reservoir places it above areas typically associated with year-round occupation, the surrounding landscape contains numerous plant resources important to Native American lifeways, including California black oak, which produces acorns, as well as elderberry, gooseberry, sourberry, turkey mullein, and soaproot (PG&E 2024a).

Many Tribes, regardless of federal recognition status, maintain enduring traditional and cultural affiliations with the Project Area and its surrounding lands. These communities have deep spiritual, cultural, and physical connections to their ancestral lands and continue to serve as contemporary

stewards of their heritage and landscapes. Tribal presence remains rooted in these homelands, embodying the resilience and continuity of their ancestors through sustained relationships with sacred sites, cultural practices, and history. Each Tribe is committed to preserving and revitalizing its cultural legacy for present and future generations. The Owens Valley Paiute-Shoshone and the Western Mono (Monache) peoples continue to live and thrive throughout the Sierra Nevada Mountains and Central California, affirming their presence and cultural vitality in the region today.

2.18.1.1 Methods

To identify cultural resources within the Project Area, Stillwater Sciences conducted archival research at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System (CHRIS).

A search of the NAHC's Sacred Lands File and outreach to Native American Tribes and individuals identified on the NAHC contact list were also completed (see Section 2.18.1.2).

2.18.1.2 Results of Tribal Resources investigation

The CHRIS records search, which was completed on June 23, 2026 (File No. 26-318), identified 10 previously recorded cultural resources within a 0.5 mile radius of the Project Area, including prehistoric era lithics and bedrock milling stations that are of tribal origin as well as historic-era resources that are not tribal in origin (see Section 2.5.2). However, none of the resources are located within the Project Area. The NAHC's formal response to the Sacred Lands File search request indicated negative results for sensitive Native American cultural resources within the Project Area.

The State Water Board sent outreach letters to the following Native American individuals and groups: Big Sandy Rancheria of Western Mono Indians, and the Wuksachi Indian Tribe/Eshom Valley Band. No responses to the request for consultation letters have been received at the time this Initial Study was prepared. Any additional communications with Native American groups will be conducted in accordance with AB 52, which provides a method for incorporation of Native American Tribal knowledge into the CEQA review process via formal consultation (Section 6.1).

Ground disturbance would only occur during SA-7 grading and preparation, and during the excavation of approximately 1,030 feet along the existing utility line and access road northwest of SA-7 to extend water and electrical services to the facilities proposed within SA-7. Excavation of the access road would be limited to the previously disturbed footprint of the existing road. SA-7 and the access road have a low probability of containing buried cultural deposits due to occurring completely within disturbed soils. As a result, the potential for the Project to encounter intact tribal cultural resources or undisturbed native soil contexts of tribal cultural significance is considered low.

2.18.2 Findings

a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or?

A search of the NAHC's Sacred Lands File returned negative results for the Project Area. Additionally, no responses to the request for consultation have been received from Tribes identified on the AB 52 consultation list. No evidence of archaeological significance or characteristics was found within the Project Area that would meet the criteria for listing in the California Register of Historical Resources or a local register as defined in Public Resources Code § 5020.1(k). Additionally, the Project will involve only limited subsurface excavation that is expected to occur completely within previously placed spoils and disturbed soils. Also, the granitic rocks of the Sierra Nevada, particularly at high elevation, predate the presence of humans in the Americas by millions of years, and soil development tends to be both minimal and shallow outside of very specific settings (such as meadows). As a result, the potential for buried resources that might be uncovered during construction is virtually nonexistent. However, PG&E would comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project in the extremely unlikely event of inadvertent discovery of new tribal cultural resources. Therefore, it is not reasonably foreseeable that the Project would disturb any human remains and effects would be less than significant.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.

As described above, the search of the NAHC's Sacred Lands File yielded negative results for the Project Area. No Tribes have requested consultation under AB 52 and the State Water Board has not determined any resources within the Project Area to be significant pursuant to Public Resources Code § 5024.1, considering their significance to a California Native American Tribe. Additionally, the Project will involve only limited subsurface excavation that is expected to occur completely within previously placed spoils and disturbed soils. Also, the granitic rocks of the Sierra Nevada, particularly at high elevation, predate the presence of humans in the Americas by millions of years, and soil development tends to be both minimal and shallow outside of very specific settings (such as meadows). As a result, the potential for buried resources that might be uncovered during construction is virtually nonexistent. However, PG&E would comply with the post-review discovery requirements of 36 CFR 800.13(b) Post-Review Discoveries during construction of the Uprate Project in the extremely unlikely event of inadvertent discovery of new tribal cultural resources. Therefore, it is not reasonably foreseeable that the Project would disturb any human remains and effects would be less than significant.

2.19 Utilities and Service Systems

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	✓	☐
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✓	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	✓
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	✓	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	✓

2.19.1 Environmental setting

The Project Area is outside of any domestic water provider, sewer maintenance districts, and County Service areas. Water in the Proposed Project Area is provided by private wells and water supplies. Many of the other facilities (campgrounds and picnic areas) do not provide potable water.

The Project Area is in a low-population area that does not have a public wastewater treatment system. The majority of facilities in the vicinity of the Project Area are serviced by vault restrooms.

Solid waste collection in areas of Fresno County above 4,000 feet is provided by Mid Valley Disposal (Mid Valley Disposal 2026a).

Shaver Lake Transfer Station, located at 42089 Dinkey Creek Road in Shaver Lake, is the nearest waste disposal site to the Project Area. This transfer station takes hauler waste as well as self-haul and transfers to the American Avenue Disposal Site for disposal, located at 18950 West American Avenue, Kerman. The American Avenue Disposal Site has a permitted capacity of 361 acres, a maximum capacity of

24,877,456 tons, and is permitted to operate through 2043 (County of Fresno 2004, County of Fresno 2026b).

Assembly Bill 939 (AB 939), known as the California Integrated Waste Management Act, required California cities and counties to reduce the amount of waste going to landfills by 50% by the year 2000. Mid Valley Disposal has implemented a variety of programs to increase waste recycling, including edible food donations, composting of organic waste for use in agriculture, voluntary curbside recycling, community drop-off recycling, buy-back recycling, and disposal site recycling programs available to residents, schools, and businesses within their service area (Mid Valley Disposal 2026b).
PG&E is the provider of electricity and natural gas in the Project Area.

2.19.2 Findings

a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The Project would not require or result in the relocation or construction of wastewater treatment, natural gas, or telecommunications facilities. Improvements within SA-7 would result in new connections for water facilities and new connections for electric power for an anticipated trailer, and upgrading of the existing culvert and ditch for stormwater drainage. The water and energy demand and wastewater generated from one trailer would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage or electric power. In addition, the replacement of turbines would increase the capacity for electric power being generated, while remaining within the existing license capacities. The existing substation has capacity for this additional electricity and would not require any changes to the existing electrical facilities. Therefore, impacts would be less than significant.

b) Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?

During construction, the Proposed Project would require a minimal amount of water for dust abatement, regrading, and paving. Sufficient water supplies are available to serve the Project operation and reasonably foreseeable future development during normal, dry, and multiple dry years. The Helms Pumped Storage Facility generates power through the turbines by pumping water between Courtright and Wishon Reservoirs as reservoir levels on both waterbodies are gradually drawn down over the course of the year. In dry years, there has been no impact on the ability to generate power from the facility. Although water year 2021 was the second driest on record since 1984, this was ranked as the fifth-highest power generation year in Helms' operation history (PG&E 2024e). The increase in cfs used to power the turbines (from 10,500 to 12,050) would be marginal and water use will not increase dramatically from the current conditions. Therefore, impacts associated with sufficient water supplies would be less than significant.

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

The Proposed Project would be part of an existing hydroelectric facility and is served using portable toilets near the staging areas. Turbine replacement would not increase the number of staff at the facility. Therefore, the Project would not result in an increase in the generation of wastewater and would not affect the wastewater treatment provider's capacity to serve the existing hydroelectric facility. Therefore, no impact would occur.

d) Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

The construction and turbine replacement activities would temporarily increase the generation of solid waste. These debris would be disposed of at the Shaver Lake Transfer Station. The transfer station takes hauler and self-haul waste, ultimately transferring the waste to the American Avenue Disposal Site. As indicated in Section 2.19.1 *Environmental Setting*, the American Avenue Disposal Site is permitted to operate through 2043 (County of Fresno 2004, County of Fresno 2026b). The Proposed Project would be part of an existing hydroelectric facility and would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, impacts would be less than significant.

e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

In accordance with the FERC license conditions, PG&E will consult and cooperate with the California Department of Public Health in complying with state and local regulations related to solid waste. Construction of the Proposed Project would comply with federal, state, and local management and reduction statutes and regulations to solid waste. Therefore, no impact would occur.

2.20 Wildfire

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	✓	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	✓	☐

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	✓	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	✓	☐

2.20.1 Environmental setting

Fresno County is classified as having a very high wildfire risk, ranking higher than approximately 91% of counties in the US (USDA and USFS 2026). The Project Area is located within both a State Responsibility Area that is classified as a very high fire hazard severity zone, as well as a Federal Responsibility Area (CAL FIRE 2026a). Fire Hazard Severity Zone designations do not apply to federal lands. The U.S. Forest Service is the responsible agency for fire protection within the Sierra National Forest, which surrounds the Project Area, while CAL FIRE is the responsible agency within the State Responsibility Area.

The upper portion of SA-7 on the west side would be graded and terraced to accommodate a warehouse, tool sheds, office trailers, and parking areas. Approximately 120 trees would be removed within the western portion of the area. Additionally, a new entrance ramp would be constructed on the southern side of SA-7. The existing utility line and access road northwest of SA-7 will be trenched within the existing footprint to expand and extend the existing water and electrical power lines from the water tower to the facilities that will be installed in SA-7. The alternative method to expand water and electrical services is to install new poles along the roadway shoulder of Powerhouse Road and a new water tank, both within the larger portion of SA-7. The eastern portion of this road would be used as an exit ramp from SA-7, along with improvements to the northwestern edge of the adjacent Helms Picnic Area. These permanent improvements would include removal of approximately 20 additional trees, as well as regrading and paving. The improvements would allow PG&E to use a portion of the adjacent parking lot for turning large trucks and trailers.

2.20.2 Findings

a) If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

The Project Area is located in a State Responsibility Area classified as a very high fire hazard severity zone. Construction would occur within existing developed and previously disturbed areas and would not result in changes that could impede emergency access or evacuation. The Project would not interfere with emergency response or evacuation plans, including the Fresno County General Plan and the Fresno

County Multi-Jurisdictional Hazard Mitigation Plan, which include policies related to emergency response and evacuation (Fresno County 2018, 2024). Therefore, the Project would not impair or physically interfere with an adopted emergency response or emergency evacuation plan. As a result, impacts would be less than significant.

b) If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the Project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The Project Area is located within a State Responsibility Area classified as a very high fire hazard severity zone. The Project would result in removal of approximately 140 trees and increased development within SA-7 (see Section 1.4.1.1), which could potentially increase ignition potential associated with construction and operational activities due to loss of wind resistance and decreased shade cover. However, the Project would also reduce vegetative fuel loads and improve site access. These changes would enhance emergency response and evacuation capacity and may reduce wildfire spread potential within the Project Area. The Project would not increase fuel loads or alter site conditions in a manner that would contribute to the uncontrolled spread of wildfire. Up to 70 personnel would be lodging, driving vehicles, and operating heavy machinery within a very high fire hazard severity zone, which is a larger number of people than under existing conditions. PG&E will implement its Wildfire Mitigation Plan (PG&E 2020), which includes measures to reduce wildfire ignition risk, the potential for wildfire spread, and the risk of people and structures to loss, injury, or death involving wildland fires. With the implementation of PG&E's Wildfire Mitigation Plan (PG&E 2020), the Project would not exacerbate wildfire risks or expose Project occupants to wildfire hazards. As a result, impacts would be less than significant.

c) If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The Project Area is located within a State Responsibility Area classified as a very high fire hazard severity zone. The Project would require installation and maintenance of associated infrastructure, including site access improvements and electrical service to support new facilities at SA-7 (see Section 1.4.1.1). While the addition of electrical facilities could incrementally increase wildfire ignition potential, the new entrance ramp proposed on the southern side of SA-7 may facilitate emergency access and could reduce wildfire spread potential within the Project Area. PG&E will implement its Wildfire Mitigation Plan (PG&E 2020), which includes measures to reduce wildfire ignition risk and the potential for wildfire spread. Therefore, impacts would be less than significant.

d) If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The modifications to SA-7 and the existing utility line and access road to the northwest of SA-7 would not involve new construction or expansion that would substantially increase risks related to runoff, post-fire slope instability, or drainage changes. Modifications associated with SA-7 would improve drainage and runoff with upgrades to the existing culvert. Modifications to the existing utility line and access road would not change drainage and runoff from existing conditions. Activities would occur within existing developed and previously disturbed areas and would not alter site conditions in a manner that would increase the risk of post-fire downslope or downstream flooding or landslides. Therefore, the Project would not expose people or structures to an increased risk of post-fire flooding or landslides. As a result, impacts would be less than significant.

2.21 Mandatory Findings of Significance

Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	✓	☐
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	✓	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✓	☐

a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As discussed in Sections 2.3, 2.4, 2.7, 2.9, 2.10, 2.15, 2.18, and 2.20, the Project has the potential to affect environmental resources, including air quality, biological resources, geology and soils, hazards and

hazardous materials, public services, cultural resources, tribal cultural resources, and wildfire. Potential impacts associated with these resources would be reduced to less-than-significant levels through implementation of applicable avoidance and minimization measures, including AMM-1, AMM-2, AMM-4, AMM-6, AMM-8, as well as biological resource protection measures YOTO-1, YOTO-2, YOTO-3, AVIAN-1, and AVIAN-2.

With implementation of these measures, the Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten the continued existence of a plant or animal community; substantially reduce the number or restrict the range of a rare, threatened, or endangered plant or animal species; or eliminate important examples of major periods of California history or prehistory.

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)

The Project has been determined to have no impact on agriculture, land use and planning, mineral resources, population and housing. As such, there is no potential for cumulatively considerable impacts to these resources.

The Project has been determined to have the potential for less-than-significant impacts to aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

The nearest reasonably foreseeable related project is the relicensing of the Helms Pumped Storage Project, which is located within the same general area as the Proposed Project within the surrounding FERC boundary. The relicensing effort includes continued operation and maintenance of the existing hydroelectric facilities and phased improvements to existing recreation facilities, including the Helms Picnic Area and other recreation sites around Wishon Reservoir. These improvements would generally occur within previously disturbed areas and would be implemented over the term of the new license. If the construction periods for the Proposed Project and the recreation improvements associated with the relicensing project overlap, temporary cumulative effects could include increased construction traffic, haul truck activity, construction noise, and localized visual and access disturbances in recreation areas. However, such effects would be temporary and localized. As a result, if the construction periods overlap, the Proposed Project's incremental contribution to cumulative transportation, noise, public services, recreation, and aesthetic impacts would not be cumulatively considerable, and cumulative impacts would be less than significant.

Potential cumulative impacts to biological resources would be minimized through implementation of the Project's avoidance and minimization measures, including species-specific measures for Yosemite toad, nesting birds, bats, and other special-status wildlife. In addition, upland habitat affected by the Uprate Project is limited to previously disturbed areas and does not overlap with known occupied habitat for

special-status species. Therefore, cumulative impacts to biological resources would be less than significant

Potential cumulative impacts to cultural and tribal cultural resources would be minimized through compliance with existing laws, which require work stoppage, resource evaluation, and consultation procedures in the event of inadvertent discoveries. Ground-disturbing activities associated with the Uprate Project would occur within previously disturbed areas, reducing the potential for cumulative impacts to these resources.

Construction-related air quality and greenhouse gas emissions associated with the Uprate Project and the Helms relicensing project would remain below San Joaquin Valley Air Pollution Control District thresholds of significance. Because these thresholds were developed to address cumulative air quality conditions in the region, emissions below the thresholds would not be cumulatively considerable. In addition, both the Uprate Project and the Helms relicensing effort support continued production of renewable hydroelectric energy.

The potential for cumulative hydrology and water quality impacts would be minimized through implementation of an SWPPP during construction and AMM-8 (erosion and sediment control BMPs). Any nearby projects with the potential to impact surrounding waterways would also implement a SWPPP, as required by Clean Water Act Section 402.

The Project would not substantially increase the demand for utilities, public services, or service systems. Improvements associated with both the Uprate Project and the relicensing effort would expand or maintain existing infrastructure and services rather than remove or reduce service capacity.

The Proposed Project would continue to operate as part of the existing hydroelectric facility and would not require additional long-term operations staff or changes in water rights, reservoir operations, or land use.

For these reasons, the Project would not have a cumulatively considerable impact on aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

c) Does the Project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?

As discussed in this IS/ND, the Project, with the incorporation of avoidance and minimization measures into its design, would have no impact or a less-than-significant impact on aesthetics, agriculture, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards or hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and services, and wildfire. As such, the Project's environmental impacts would not cause substantial, adverse impacts to humans, either directly or indirectly; impacts would be less than significant.

3 DETERMINATION

On the basis of this evaluation, the State Water Resources Control Board finds:

That the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	✓
That although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☐
That the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
That the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
That although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.	☐

4 LIST OF PREPARERS

Table 4-1 lists the preparers of this IS/ND and participants in the related planning, data gathering, and analytical tasks.

Table 4-1 List of preparers

Name	Title	Affiliation	Project role
Jessica Dyke	Environmental Scientist	State Water Resources Control Board	Lead Agency Project Manager
Katherine Ayres	Senior Director	Stillwater Sciences	Consultant Project Manager
Imani Russell	Wildlife Biologist	Stillwater Sciences	Deputy Project Manager, Environmental analysis
Lucy Barraza	Senior Regulatory Specialist	Stillwater Sciences	Environmental analysis
Kayla Fitzpatrick	Environmental Scientist	Stillwater Sciences	Environmental analysis
Coreen Johnson	Senior Technical Editor	Stillwater Sciences	Technical Editor
Kelli Wheat Dawson	Document Production	Stillwater Sciences	Formatting

5 CONSULTATION AND COORDINATION

The Draft IS/ND was circulated to agencies, individuals, and/or organizations known to have a special interest in the proposed Project and was made available to the public for a 30-day review period. The public was notified as follows:

- A Notice of Intent (NOI) to adopt an ND was posted for publication in a local newspaper and filed with the Fresno County Clerk's office.
- The proposed IS/ND, NOI, and Notice of Completion, were electronically submitted to the State Clearinghouse via the CEQAnet Web Portal for distribution.
- The proposed IS/ND was distributed electronically by the State Clearinghouse to interested parties.
- Copies of the proposed IS/ND were made available for public review on the State Water Resources Control Board website.

6 COMPLIANCE WITH FEDERAL AND STATE ENVIRONMENTAL LAWS AND REGULATIONS

6.1 Federal

Clean Air Act. Section 176(c) of this act prohibits federal action or support of activities that do not conform to a State Implementation Plan. The Project is not expected to violate any air quality standard, increase air quality violations in the Project region, exceed USEPA's general conformity de minimis threshold, or hinder the attainment of air quality objectives in the local air basin. The Project would have no adverse effect on the future air quality of the Project Area and is compliant with this act.

Clean Water Act (Sections 401 and 404). Section 404 of this act requires that prior to Project implementation, a permit be obtained from the USACE for fill of Waters of the U.S., including wetlands. In compliance with Section 401 of the act, a water quality certification or a waiver of water quality certification needs to be obtained from the Central Valley Regional Water Quality Control Board. Due to the required fill within Waters of the U.S. (as footings for the pipe replacements), Section 404 and 401 permits would be secured prior to Project implementation, in compliance with this act.

Endangered Species Act. The ESA prohibits unauthorized take of species listed or proposed for listing as threatened or endangered. The ESA also ensures that the actions of federal agencies do not jeopardize the continued existence of threatened and endangered species. The project description has been developed to avoid take of endangered species. Also, the incidental take statement for the FERC license and avoidance and minimization measures incorporated into the Project would ensure compliance with the ESA.

Migratory Bird Treaty Act. Protection of migratory birds, their occupied nests, and their eggs is required under the MBTA (16 United States Code 703 et seq.), Title 50 CFR Part 10. The full list of the species protected under the MBTA appears in Title 50 CFR Section 10.13 and includes federally listed and state-listed migratory birds and other non-listed migratory birds. The avoidance and minimization measures incorporated into the Project would ensure compliance with the MBTA.

6.2 State

Assembly Bill 32. AB 32 (i.e., the California Global Warming Solutions Act of 2006) required the California Air Resources Board to develop regulations to address global climate change due to GHG emissions. The bill also required attainment of a statewide GHG emissions limit, equal to the 1990 level, by December 31, 2020. As of 2023, California's statewide GHG emissions of 360.4 $MMTCO_2e$ (CARB 2025) were below the 2020 GHG emissions limit of 431 $MMTCO_2e$ (CARB 2026c). The bill has since been expanded by subsequent state legislation, including AB 1279 and Senate Bill (SB) 32.

Assembly Bill 1279. Signed into law in 2022, AB 1279 expanded upon AB 32 by specifying an emissions limit that further requires California to reduce statewide GHG emissions to 85% below the 1990s level by 2045. Emissions associated with Project construction would be temporary and would not inhibit attainment of the statewide GHG emissions limits established by AB 1279.

Assembly Bill 52. AB 52 provides a method for incorporation of Native American Tribal knowledge into the CEQA review process via formal consultation. In compliance with AB 52, Tribal members or organizations, provided by the NAHC, were contacted for information on the potential for indigenous resources within or near the Project Area. Results of Tribal outreach efforts undertaken in support of the Project gave no indication that tribal cultural resources are present within the Project Area.

Assembly Bill 341. AB 341 established regulations requiring commercial business and multi-family residences to implement recycling programs. AB 341 also updated the statewide goal from AB 939 (see Integrated Waste Management Act below) from a 50% reduction in solid waste disposal to a 75% reduction by 2020. The Project would reuse or recycle materials where feasible and would only generate solid waste in the short-term during Project construction, so it would not impair the attainment of solid waste reduction goals.

Assembly Bill 454. The MBTA provides for the protection of migratory birds and authorizes states and territories of the United States to make and enforce laws or regulations that give further protection to migratory birds and their nests and eggs. Existing law, as of January 1, 2026, repeals this provision. This bill would instead extend the California Migratory Bird Protection Act indefinitely in the state of California, ensuring protections for migratory birds.

California Endangered Species Act. Generally, CDFW administers the state laws providing protection of fish and wildlife resources, including the California ESA. The California ESA parallels the federal ESA and was written to protect state endangered and threatened species. Avoidance and minimization measures incorporated into the Project would ensure compliance with the California ESA.

California Environmental Quality Act. This IS/ND has been prepared to comply with CEQA.

California Fish and Game Code Section 1600 et seq. California Fish and Game Code Section 1600 et seq. gives authority to CDFW to regulate activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Because the Project would not include in-water work, the State Water Resources Control Board is not required to notify CDFW. The Project would therefore comply with this Fish and Game Code section.

California Fish and Game Code Sections 86, 3503, and 3513. California Fish and Game Code Section 86 defines take as hunting, pursuing, catching, capturing, or killing or attempting to hunt, pursue, catch, capture, or kill. Under Section 3503, it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided. Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests, and Section 3513 makes it unlawful to take or possess any migratory non-game bird designated under the MBTA. Avoidance and minimization measures incorporated into the Project would ensure compliance with these Fish and Game Code sections.

California Fish and Game Code Sections 3511, 4700, 5050, and 5515. California Fish and Game Code Sections 3511, 4700, 5050, and 5515 designated rare fish and wildlife species as Fully Protected in California. This designation provides additional protection to these species from unauthorized take or possession. Avoidance and minimization measures incorporated into the Project would ensure compliance with these Fish and Game Code sections.

Integrated Waste Management Act (Assembly Bill 939). The Integrated Waste Management Act made California cities and counties responsible for enacting plans to divert 25% of solid waste by 1995 and 50% by 2000. The Project would reuse or recycle materials where feasible and would only generate solid waste over the short-term during Project construction so would not impair the attainment of solid waste reduction goals.

Native Plant Protection Act. This act directed CDFW to preserve, protect, and enhance native plants. It gave CDFW the authority to designate native plants as endangered or rare and require that landowners who have been notified of state-listed species on their property, and who wish to destroy those plants and their habitat, to provide CDFW with notice to salvage the plants no less than 10 days before destruction occurs. Many of the species designated under the act were subsumed by the California ESA, but there is a subset of species, subspecies, and varieties of plants that were not and are protected as rare under the act. Avoidance and minimization measures that are incorporated into the Project would ensure compliance with this act.

Porter-Cologne Water Quality Control Act. This act was established to protect water quality and beneficial uses of water in California. It requires that National Pollutant Discharge Elimination System and Waste Discharge Requirement permits for point and nonpoint source discharges, respectively, be obtained from the Central Valley Regional Water Quality Control Board to protect water quality in surface waters, groundwater, and wetlands. If it were to be determined that the Project may impact Waters of the U.S., then National Pollutant Discharge Elimination System and Waste Discharge Requirement permits would be secured prior to Project implementation, in compliance with this act.

Senate Bill 32. Signed into law in 2016, SB 32 expanded upon the California Global Warming Solutions Act of 2006 (AB 32) by establishing a statewide GHG emissions reduction target of 40% below 1990 levels by 2030. The emissions reduction target established by SB 32 is codified in the California Health and Safety Code (§ 38566) and provides the foundation for California's post-2020 climate policies. Emissions associated with Project construction will be temporary and will not inhibit attainment of the statewide GHG emissions limits established by these bills.

Surface Mining and Reclamation Act. This act includes policies for the regulation of surface mining operations to balance production of state mineral resources with minimization of adverse environmental impacts associated with these activities. In support of these goals, state lands are classified into mineral resource zones based on known or inferred mineral resources. No land in the Project Area has been classified into mineral resource zones, so the Project would not conflict with the policies in this act.

Warren-Alquist Act. This act established the California Energy Commission, the state's primary energy policy and planning agency. The CEC works to advance state energy policy, encourage energy efficiency, and develop renewable energy. The Project would only use fossil fuels on a short-term basis during construction activities and would include BMPs for energy conservation (e.g., limiting idling time, properly maintaining equipment).

Williamson Act (also known as the California Land Conservation Act). This act allows for the formation of contracts between local governments and private landowners to restrict use of specific parcels to

agricultural or related open space land uses. The Project Area is not covered by a Williamson Act contract, and land use within the Project Area would not change over the long-term following Project construction.

7 REFERENCES

Brown, C., M.P. Hayes, G.A. Green, D.C. Macfarlane, and A.J. Lind. 2015. Yosemite toad conservation assessment. USDA Forest Service, California Department of Fish and Wildlife, National Park Service, U.S. Fish and Wildlife Service.

CARB. 2025. California Greenhouse Gas Emissions from 2000 to 2023: Trends of Emissions and Other Indicators. Sacramento, California. Available at: https://ww2.arb.ca.gov/sites/default/files/2025-11/nc-2000_2023_ghg_inventory_trends.pdf.

CARB (California Air Resources Board). 2026a. California Ambient Air Quality Standards. Website. https://ww2.arb.ca.gov/resources/background-air-quality-standards [Accessed March 2026].

CARB. 2026b. Current California GHG Emission Inventory Data. Website. https://ww2.arb.ca.gov/ghg-inventory-data [Accessed February 2026].

CARB. 2026c. State area designations describing summary statistics for pollutants. Website. https://www.arb.ca.gov/adam/trends/trends1.php [Accessed April 2026].

CARB. 2026d. GHG 1990 Emissions Level & 2020 Limit. Website. https://ww2.arb.ca.gov/ghg-2020-limit [Accessed March 2026].

California DOC (Department of Conservation). 2026a. California Important Farmland Finder. Website. https://maps.conservation.ca.gov/dlrp/ciff/app/ [Accessed April 2026].

California DOC. 2026b. Williamson Act Enrollment Finder. Website. https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/#data_s=id%3AdataSource_1-196837250e2-layer-6-196837251d1-layer-9%3A15110 [Accessed April 2026].

California DOC. 2026c. EQ Zapp: California earthquake hazards zone application. Website. https://www.conservation.ca.gov/cgs/geohazards/eq-zapp [Accessed May 2026].

California DOC. 2026d. Tsunami Hazard Area Map. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/ts_evacuation/ [Accessed May 2026].

CDC (Centers for Disease Control and Prevention). 2015. Noise levels by decibels. Available at: https://stacks.cdc.gov/view/cdc/78630.

CalEPA (California Environmental Protection Agency). 2026. California Climate Dashboard. Website. https://calepa.ca.gov/climate-dashboard/ [Accessed February 2026].

CDFW (California Department of Fish and Wildlife) California Interagency Wildlife Task Group. 2000. California Wildlife Habitat Relationships System: Yosemite toad (*Bufo canorus*) life history account. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1480.

CDFW California Interagency Wildlife Task Group. 2005. California Wildlife Habitat Relationships System: Kings River slender salamander (*Batrachoseps regius*) life history account. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1527.

CDFW. California Natural Diversity Database (CNDDB). 2023a. RareFind, Version 5. Electronic Database. Natural Heritage Division, CDFW, Sacramento, CA. Available at: https://www.wildlife.ca.gov/data/cnddb/maps-and-data. Accessed June 2023.

CDFW (California Department of Fish and Wildlife). 2021. Special vascular plants, bryophytes, and lichens list. Prepared by CDFW, Sacramento, California.

CDFW. 2023b. California Natural Diversity Database (CNDDB) Spotted Owl Viewer (SOV). BiosVersion 6. Electronic database. Natural Heritage Division, CDFW, Sacramento, California. Website, https://wildlife.ca.gov/data/cnddb/maps-and-data#43018408cnddb-in-bios [Accessed June 2023].

CDFW. 2026a. List of California Sensitive Natural Communities. Vegetation Classification and Mapping Program, California Department of Fish and Game, Sacramento, California. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline.

CDFW. 2026b. Habitat Conservation Plan and Natural Community Conservation Plan Boundaries. January 2026. Website. https://data-cdfw.opendata.arcgis.com/datasets/CDFW::conservation-plan-boundaries-hcp-and-nccp-ds760/explore?location=35.772920%2C-119.396869%2C6. [Accessed June 2026].

CAL FIRE (California Department of Forestry and Fire Protection). 2026a. Fire Hazard Severity Zones. Website. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones [Accessed May 2026].

CAL FIRE (California Department of Forestry and Fire Protection). 2026b. CAL FIRE Administrative Units. Website. https://hub-calfire-forestry.hub.arcgis.com/datasets/CALFIRE-Forestry::cal-fire-administrative-units-1/about [Accessed May 2026].

CEC (California Energy Commission). 2026. California Energy Commission: About. Website. https://www.energy.ca.gov/about [Accessed May 2026].

CNPS (California Native Plant Society). 2023. Rare Plant Inventory. Online Edition, v9.5. California Native Plant Society, Rare Plant Program, Sacramento, CA. Website http://www.rareplants.cnps.org/ [Accessed September 2023].

CGS. 2026a. MapService of the Alquist-Priolo Fault Zones defined under the Alquist-Priolo Earthquake Fault Zoning Act. Available at: https://maps-cnra-cadoc.opendata.arcgis.com/datasets/cadoc::cgs-seismic-hazards-program-alquist-priolo-fault-hazard-zones/explore?location=37.108749%2C-119.787889%2C6.60.

CGS. 2026b. Mineral Land Classification. Website. https://maps.conservation.ca.gov/cgs/minerals/?page=Mineral-Land-Classification [Accessed May 2026].

CGS and DOC. 2015. Geological Gems of California State Parks. Sierra Nevada Geomorphic Province. GeoGem Note 30. Available at: CGS_SR230_SierraNevada_GeomorphProvince_lr.pdf.

CVRWQCB (Central Valley Regional Water Quality Control Board). 2011. Case Closure, Underground Storage Tank Release, Pacific Gas & Electric Helms Support Facility, 65386 Hall Meadow Lane, Shaver Lake, Fresno County, RB Case No. 510000845. Website. PG&EHELMS_closureltr_memo_1107-1.pdf [Accessed May 2026].

CVRWQCB. 2018. Water Quality Control Plan for the Tulare Lake Basin Third Edition. Available at: https://www.waterboards.ca.gov/rwqcb5/water_issues/basin_plans/tularelakebp_201805.pdf.

County of Fresno. 2026a. Zoning. GIS Portal. Website. https://gisportal.co.fresno.ca.us/portal/apps/webappviewer/index.html?id=b921843d343d4df998b5b3c6a301756a [Accessed April 2026].

County of Fresno. 2026b. Waste Disposal Facilities in Fresno County and Surrounding Communities. Available at: https://cleanupfresnocounty.com/waste-disposal-facilities/.

County of Fresno Department of Agriculture. 2024. 2024 Ag Crop & Livestock Report. Available at: https://www.fresnocountyca.gov/files/sharedassets/county/v/1/agricultural-commissioner/ag-crop-reports/ag-crop-and-livestock-report_2024.pdf.

County of Fresno. 2004. Startup, Shutdown, and Malfunction Plan, Gas collection and Control System (GCCS), American Avenue Landfill. Prepared by SCS Engineers on behalf of the County of Fresno, Planning and Resource Department. Available at: https://www2.co.fresno.ca.us/0440/BidDocuments/928-4512/928-4512%20Attachment%20B.pdf.

DTSC (California Department of Toxic Substances Control). 2026. EnviroStor Database. Website. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=helms+powerhouse [Accessed May 2026].

eBird. 2023. eBird: An online database of bird distribution and abundance. Website. http://www.ebird.org/explore. [Accessed: June 2023]. Cornell Lab of Ornithology, Ithaca, New York.

EIA (U.S. Energy Information Administration). 2025. California Analysis. Website. https://www.eia.gov/states/ca/analysis [Accessed May 2026].

Fresno County. 2024. Fresno County General Plan. Website. fcgpr_general-plan_county_final_2024_02.pdf [Accessed May 2026].

Fresno County. 2024b. Fresno County Operational Area Master Emergency Services Plan. Website. 2024_fresno-eop_final.pdf [Accessed May 2026].

Fresno County. 2024c. Fresno County Multi-Jurisdictional Hazard Mitigation Plan. Website. fresno-county-hmp-final.pdf [Accessed May 2026].

Fresno County. 2026. Fresno County Code of Ordinances. Website. https://library.municode.com/ca/fresno_county/codes/code_of_ordinances [Accessed June 2026].

Fresno County Farm Bureau. 2026. Fresno County Agriculture. Website https://www.fcfb.org/fresno-county-agriculture [Accessed April 2026].

FCFPD (Fresno County Fire Protection District). 2026.Service Area and California Special Districts Association Mapping Program. Website https://www.fresnocountyfire.org/service-area-and-california-special-districts-association-mapping-program [Accessed May 2026].

Fresno County Sheriff's Office. 2026. Area 4. Website. https://www.fresnosheriff.org/area-4.html [Accessed May 2026].

Fresno County Zoning Ordinance. 2024. Website. The Ordinance Code of the County of Fresno (Fresno County Zoning Ordinance) [Accessed May 2026].

FTA (Federal Transit Administration). 2018. Transit noise and vibration impact assessment manual. FTA Report No. 0123. Prepared by John A. Volpe National Transportation Systems Center. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

Jackman, R. E., and J. M. Jenkins. 2004. Protocol for Evaluating Bald Eagle Habitat and Populations in California. Report prepared for USFWS. Sacramento, California.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final Report. Prepared by California Academy of Sciences, Department of Herpetology, San Francisco and Portland State University, Department of Biology, Portland, Oregon, for California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.

Karlstrom, E.L. 1962. The toad genus *Bufo* in the Sierra Nevada of California. Ecology and Systematic Relationships. University of California Publications in Zoology, Number 62, Berkeley, California.

Liang, C.T. 2013. Movements and habitat use of Yosemite toads (*Anaxyrus* (formerly *Bufo*) *canorus*) in the Sierra National Forest, California. Journal of Herpetology 47: 555564.

Mid-Valley Disposal. 2026a. Mid Valley Disposal Experts in Solid Waste & Recycling Collection. Available at: https://www.midvalleydisposal.com/.

Mid-Valley Disposal. 2026b. Mid Valley Disposal Sustainability. Available at: https://www.midvalleydisposal.com/sustainability/.

NAHC (Native American Heritage Commission). 2026. Digital Atlas of California Native Americans. Website. https://experience.arcgis.com/experience/88d47f08dc124f80a425534bbb761b72/ [Accessed June 2026].

NCGS (Northern California Geological Society). 2007. Sierra Nevada Frontal Fault Zone. Available at: https://ncgeolsoc.org/wp-content/uploads/2023/07/2007-3_sierra-nevada-frontal-fault.pdf

PG&E (Pacific Gas and Electric). 1976. 55 F.P.C. 2237, 1976 WL 15758. project no. 2735 and 1988. Order issuing major license and amending license for constructed project.

PG&E. 1984. "Fact Sheet: PG&E's Helms Pumped Storage Plant." Brochure provided by PG&E.

PG&E. 1986. "Helms Pumped Storage Power Plant: The Hidden Power Plant." Brochure provided by PG&E.

PG&E. 2020. Wildfire Mitigation Plan Report.

PG&E. 2021. Helms Pumped Storage Project FERC Project No. 2735 Pre-Application Document (PAD) Volume 1.

PG&E. 2024a. Helms Pumped Storage Project, FERC Project No. 2735. Application For New License.

PG&E. 2024b. Helms Pumped Storage Project, FERC Project No. 2735. Application For New License. Helms Pumped Storage Project FERC Project No. 2735 Application for New License, Major Project – Existing Dam Volume. Privileged. Exhibit E, Attachment E3: Study Data Summaries. Available at https://elibrary.ferc.gov/eLibrary/filelist?accession_Number=20240418-5302.

PG&E. 2024c. Helms Pumped Storage Project, FERC Project No. 2735. Application For New License. Helms Pumped Storage Project FERC Project No. 2735 Application for New License, Major Project – Existing Dam Volume. Privileged. Exhibit E: Environmental Report. Available at https://elibrary.ferc.gov/eLibrary/filelist?accession_Number=20240418-5302.

PG&E. 2024d. The History of Helms, PG&E's Underground Power Plant. Website. https://www.pge.com/en/newsroom/currents/future-of-energy/the-history-of-helms--pg-e-s-underground-power-plant.html [Accessed June 2026].

PG&E. 2024e. Helms Pumped Storage Project, FERC Project No. 2735. Application For New License. Helms Pumped Storage Project FERC Project No. 2735 Application for New License, Major Project – Existing Dam Volume. Privileged. Exhibit B: Project Operations and Resource Utilization. Available at https://elibrary.ferc.gov/eLibrary/filelist?accession_Number=20240418-5302.

PG&E. 2025a. Helms Pumped Storage Project FERC Project No. 2735 Application for Non-Capacity Amendment of License Helms Uprate Project Units 1, 2, and 3.

PG&E. 2025b. Helms Pumped Storage Project FERC Project No. 2735 Application for Non-Capacity Amendment of License Helms Uprate Project Units 1, 2, and 3. Attachment 4: Biological Resource Analysis. Available at https://elibrary.ferc.gov/eLibrary/filelist?accession_Number=20250530-5472.

PRI (Paleontological Research Institute). 2022. Topography of the Cascade-Sierra Mountains. Website. https://earthathome.org/hoe/w/topography-csm/ [Accessed May 2026].

San Joaquin County. 2016. San Joaquin County General Plan. Policy Document. Prepared by Mintier Harnish Planning Consultants.

SJVAPCD. 2009. Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act. Final Staff Report. December 17.

SJVAPCD. 2013. Ambient Air Quality Analysis Project Daily Emissions Assessment. https://archive.valleyair.org/transportation/CEQA%20Rules/GAMAQI_AAQA_05-24-2013.pdf.

SJVAPCD. 2015. Air Quality Thresholds of Significance-Criteria Pollutants. Available at: 1-cms-format-ceqa-air-quality-thresholds-of-significance-criteria-pollutants.pdf.

SJVAPCD. 2022. 2022 Plan for the 2015 8-Hour Ozone Standard. Available at: https://www.valleyair.org/media/q55posm0/0000-2022-plan-for-the-2015-8-hour-ozone-standard.pdf.

SJVAPCD. 2023. 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard. Available at: https://ww2.valleyair.org/media/itoegkch/03-adopted-2023-maintenance-plan-and-redesignation-request-for-the-revoked-1-hour-ozone-standard.pdf.

SJVAPCD. 2024a. 2024 Plan for the 2012 Annual PM2.5 Standard. Available at: https://ww2.valleyair.org/rules-and-planning/air-quality-plans/particulate-matter-plans/2024-plan-for-the-2012-pm25-standard/.

SJVAPCD. 2024b. Ozone Contingency Measure State Implementation Revision for the 2008 and 2015 8-hour Ozone Standards. Available at: https://www.valleyair.org/media/ovgo2gku/2_-ozone-contingency-sip-update_final-adopted.pdf.

SJVAPCD. 2024c. Carbon Monoxide Maintenance Plan. Available at: https://ww2.arb.ca.gov/resources/documents/2004-revisions-carbon-monoxide-maintenance-plan.

SJVAPCD. 2026a. Ambient Air Quality Standards & Attainment Status. Website. https://www.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainmnet-status/ [Accessed March 2026].

SJVAPCD. 2026b. San Joaquin Valley Air Quality Plans. Website. https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/san-joaquin-valley. [Accessed March 2026].

Stantec Consulting Services Inc. 2025. Initial Study. Helms Pumped Storage Project, FERC Project No. 2735.

State of California. 2018. SB-100 California Renewables Portfolio Standard Program: emissions of greenhouse gases. Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

SWRCB. 2011. Case closure, underground storage tank release, Pacific Gas & Electric Helms Support Facility, 65386 Hall Meadow Lane, Shaver Lake, Fresno County, RB case no. 5T10000845. Available at: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0601935318&enforcement_id=6099055.

SWRCB. 2022. National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, State Water Board Order WQ 2022-0057-DWQ (Construction General Permit). Available at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo_2022-0057-dwq.pdf.

SWRCB (State Water Resources Control Board). 2026a. GeoTracker. Website. https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=wishon+reservoir [Accessed May 2026].

SWRCB. 2026b. Proposed Final 2026 California Integrated Report Map. Website. https://gispublic.waterboards.ca.gov/portal/apps/experiencebuilder/experience/?id=fcc5c703f8ed4442b85e72fd94b757db [Accessed May 2026].

Thompson, C., H. Romsos, W. Spencer, S. Sawyer, J. Tucker, R. Green. 2021. Southern Sierra Nevada Fisher Conservation Strategy Supplemental Report - Fisher Reproductive Habitat Model Following Severe Drought. Unpublished report produced by the Conservation Biology Institute.

UC Davis and NRCS (Natural Resources Conservation Service). 2026. SoilWeb: An Online Soil Survey Browser. Website. https://casoilresource.lawr.ucdavis.edu/gmap/ [Accessed May 2026].

Unrah, J., and Humphrey, J. 2017. Seismogenic deformation between the Sierran microplate and Oregon Coast block, California, USA. Available at: https://pubs.geoscienceworld.org/gsa/geology/article/45/5/415/207903/Seismogenic-deformation-between-the-Sierran.

USDA and USFS (U.S. Department of Agriculture and U.S. Forest Service). 2026. Wildfire Risk to Communities. Fresno County, California. Website. https://apps.wildfirerisk.org/explore/overview/06/06019 [Accessed May 2026].

USEPA (U.S. Environmental Protection Agency). 2026a. Superfund: National Priorities List (NPL). Available at: https://www.epa.gov/superfund/superfund-national-priorities-list-npl [Accessed May 2026].

USEPA (U.S. Environmental Protection Agency). 2026b. Sites with Superfund Alternative Approach Agreements. Available at: https://www.epa.gov/enforcement/sites-superfund-alternative-approach-agreements [Accessed May 2026].

USFS (U.S. Forest Service). 2013 rev. 2021. Threatened, Endangered, and Sensitive Plants of the Sierra National Forest. As updated for the Sierra National Forest through 2021. December 16.

USFS. 2019. Sequoia & Sierra National Forests Special Interest Management Areas. Website. https://usfs.hub.arcgis.com/datasets/usfs::sequoia-sierra-national-forests-special-interest-management-areas/explore?location=37.056129%2C-118.989972%2C12 [Accessed May 2026].

USFS. 2021. CALVEG Zone 4: South Sierra. Available at: https://www.fs.usda.gov/r05/natural-resources/forest-management/inventory-classification-and-mapping.

USFS. 2023b. Natural Resource Information System (NRIS) Data. August update. Provided by Region 5, Vallejo, CA.

USFS. 2024. Natural Resource Information System (NRIS) Data. August update. Provided by Region 5, Vallejo, CA.

USFS. 2025. Management. Sierra National Forest: Fire. Available at: https://www.fs.usda.gov/r05/sierra/fire/management.

USFS. 2026a. Welcome to the Sierra National Forest. Website. https://www.fs.usda.gov/r05/sierra [Accessed May 2026].

USFS. 2026b. Offices. Website. https://www.fs.usda.gov/r05/sierra/offices [Accessed May 2026].

USFS. 2026c. Helms Picnic Site. Website. https://www.fs.usda.gov/r05/sierra/recreation/helms-picnic-site [Accessed May 2026].

USFWS (U.S. Fish and Wildlife Service). 2021. National Wetlands Inventory (NWI) wetlands and riparian polygon data. Geospatial wetlands data. USFWS, Arlington, Virginia. http://www.fws.gov/wetlands/.

USFWS. 2022. Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Whitebark Pine (*Pinus albicaulis*). Final Rule. 50 CFR Part 17. FR 87(240) 76882–76917. December 15, 2022.

USFWS. 2023. Information for Planning and Consultation (IPaC): Online project planning tool. Website. https://ipac.ecosphere.fws.gov/. [Accessed August 2023].

USFWS. 2025. Information for Planning and Consultation (IPaC): Online project planning tool. Website. https://ipac.ecosphere.fws.gov/. [Accessed April 2025].

USGS and USDA-NCRS. 2026. Hydrologic Unit (HU) polygon boundaries. Website. https://www.arcgis.com/home/item.html?id=3cc35c12cdea408a8e7926016d5da320 [Accessed May 2026].

Wishon Village RV Park. 2026. Wishon Village Marina. Website. Marina – Wishon Village RV Park [Accessed May 2026].

APPENDIX A

California Emissions Estimator Model Emissions Summary Sheets

Helms Uprate Project Summary Report

Table of Contents

1. Basic Project Information
   1.1. Basic Project Information
   1.2. Land Use Types
   1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
   2.1. Construction Emissions Compared Against Thresholds
6. Climate Risk Detailed Report
   6.2. Initial Climate Risk Scores
   6.3. Adjusted Climate Risk Scores
7. Health and Equity Details
   7.3. Overall Health & Equity Scores
   7.5. Evaluation Scorecard

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Helms Uprate Project
Construction Start Date	3/1/2027
Lead Agency	State Water Resources Control Board
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.70000
Precipitation (days)	39.6000
Location	37.012503712385325, -118.97424249090481
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2507
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.45

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
City Park	3.53000	Acre	3.53000	0.00000	0.00000	0.00000	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	54.4375	53.6015	82.8574	95.9690	0.40694	2.73686	120.781	123.518	2.55855	13.2898	15.8484	—	50,724.8	50,724.8	1.38710	4.11473	56.6562	52,042.3
Mit.	54.4375	53.6015	82.8574	95.9690	0.40694	2.73686	120.366	123.103	2.55855	13.2446	15.8031	—	50,724.8	50,724.8	1.38710	4.11473	56.6562	52,042.3

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
% Reduced	—	—	—	—	—	—	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.26130	1.88574	16.2037	20.3624	0.06415	0.50134	33.3323	33.6833	0.46123	3.65410	3.99035	—	7,854.70	7,854.70	0.16139	0.95423	0.31869	8,143.41
Mit.	2.26130	1.88574	16.2037	20.3624	0.06415	0.50134	33.3323	33.6833	0.46123	3.65410	3.99035	—	7,854.70	7,854.70	0.16139	0.95423	0.31869	8,143.41
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.89111	4.63062	9.22907	14.4264	0.03816	0.35236	17.7795	17.9883	0.31608	1.96589	2.16404	—	4,492.24	4,492.24	0.14459	0.53978	2.58678	4,658.07
Mit.	4.89111	4.63062	9.22907	14.4264	0.03816	0.35236	17.7795	17.9883	0.31608	1.96589	2.16404	—	4,492.24	4,492.24	0.14459	0.53978	2.58678	4,658.07
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.89263	0.84509	1.68430	2.63282	0.00696	0.06431	3.24476	3.28287	0.05768	0.35877	0.39494	—	743.742	743.742	0.02394	0.08937	0.42827	771.197
Mit.	0.89263	0.84509	1.68430	2.63282	0.00696	0.06431	3.24476	3.28287	0.05768	0.35877	0.39494	—	743.742	743.742	0.02394	0.08937	0.42827	771.197
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	4	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	0	0	0	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	4	1	1	4
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Snowpack Reduction	1	1	1	2
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	20.0000
Healthy Places Index Score for Project Location (b)	65.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

APPENDIX B

Biological Resources Database Query Results

Appendix B. Database query results from the Helms Uprate Biological Resources Assessment (Attachment 4).

Descriptions of habitat associations and occurrence potential for these species were compiled from relicensing studies (PG&E 2024b: Attachment E3) and the Biological Resources Assessment of the Helms Uprate Application for Amendment of License (PG&E 2025b: Attachment 4), unless otherwise noted. The information presented in table B-1 is reproduced from these sources for reference in this appendix.

Table B-1 Special-status species with the potential to occur within the Helms Uprate Project Area or vicinity

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Plants			
Bolander's clover *Trifolium bolanderi*	SCC, CRPR 1B.2	Mesic areas in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest (CNPS 2022)	**Known to occur**; Species was observed during 2022 relicensing studies at two sites. Helms Transmission Line High Elevation Forest Service site had approximately 5,000 individual plants and the Wildlife Habitat Management Area and Transmission Line site had an approximate total of 10,265 individual plants.
Whitebark pine *Pinus albicaulis*	FT, BLMS	Upper red-fir forest to timberline, and especially subalpine forest (CNPS 2022)	**Potential to occur**; the species was not observed during 2022 relicensing studies; however, potential habitat is present east of Lake Wishon. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
Amphibians			
Kings River slender salamander *Batrachoseps regius*	SCC	Suitable habitat for the species was identified during relicensing Study AR-2 (PG&E 2024: Attachment E3, Study Data Summary AR-2). Commonly found under rocks, logs, or leaf litter in shaded areas of mixed chaparral, oak, or pine woodlands.	**Potential to occur**; no documented occurrences within the FERC Project Boundary (CDFW 2023a; PG&E 2024: Attachment E3, Study Data Summary AR2). The nearest known occurrence is a specimen collected in 1981 near Ross Crossing Road, more than 2.6 mi north of the FERC Project Boundary (CDFW 2023a), and the next closest documented sightings are greater than 5 mi south of the FERC Project Boundary (CDFW 2023a).
Yosemite toad *Anaxyrus canorus*	FT, SSC	Suitable breeding habitat (e.g., wet mountain meadows) and associated upland habitat was identified near the FERC Project Boundary (near the eastern end of the Helms-Gregg Transmission Lines, Lake Wishon, and Courtright Lake) during relicensing Study AR-2 (PG&E 2024: Attachment E3, Study Data Summary AR-2). Critical habitat for the species is present within the FERC Project Boundary along the eastern end of the upper Helms-Gregg 230 kV Transmission Lines and nearby areas (USFWS 2023a).	**Potential to occur**; although surveys have concluded that all breeding habitat in the Project area is unoccupied, there is a small potential for Yosemite toad to use upland habitats for foraging or dispersal. No Yosemite toads were observed during 2022 or 2023 relicensing studies.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Sierra Nevada yellow-legged frog *Rana sierrae*	FE, ST	Suitable habitat (e.g., ponds and streams in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats) was identified near the eastern end of the FERC Project Boundary during relicensing Study AR-2 (PG&E 2024: Attachment E3, Study Data Summary AR-2). Critical habitat for the species is not present in the FERC Project Boundary (but is present approximately 10 mi east) (USFWS 2023b).	**Unlikely to occur**; relicensing Study AR2 determined that most suitable habitat within the FERC Project Boundary was unoccupied (PG&E 2024: Attachment E3, Study Data Summary AR-2). An occurrence was documented in 2012 near Snow Corral Creek, approximately 3 mi from the FERC Project Boundary (CDFW 2023a). No Sierra Nevada yellow-legged frogs were observed during 2022 or 2023 relicensing studies.
Northwestern pond turtle *Actinemys marmorata*	FPT, SSC, BLMS	Suitable aquatic habitat (e.g., permanent, slow moving, fresh water) and associated uplands were observed scattered throughout the FERC Project Boundary during relicensing Study AR2 (PG&E 2024: Attachment E3, Study Data Summary AR-2). Critical habitat has not been proposed or designated for this species (USFWS 2023b). The species is found from sea level to approximately 6,500 ft, though more likely to be found below 4,980 ft in elevation (USFWS 2023c; Stebbins 2003).	**Not expected to occur**; species was not observed in Lake Wishon or Courtright Lake; however, it was observed in aquatic habitats (e.g., ponds) near the FERC Project Boundary during relicensing Study AR-2 (PG&E 2024: Attachment E3, Study Data Summary AR-2) at lower elevations. Lake Wishon is at the upper elevation range and Courtright Lake is above the elevation range for this species. Additional occurrences were documented near the FERC Project Boundary on a reach of Rush Creek north of the Helms-Gregg 230 kV Transmission Lines and in a pond near Tollhouse Road (CDFW 2023a). Turtles were observed in the greater vicinity of the FERC Project Boundary during surveys on the North Fork Kings River downstream of Dinkey Creek in 2002, 2007, 2012, and 2017 (PG&E 2023), approximately 5 mi to the south of the FERC Project Boundary.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Invertebrates			
Monarch butterfly *Danaus plexippus*	PT	Species can be found in a variety of habitats, including wetland, grassland, coastal, mountain, rural, and urban habitats with suitable nectar plants or in blue gum eucalyptus (*Eucalyptus globulus*), Monterey pines (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*) tree groves for overwintering roosts (Griffiths and Villablanca 2015, as cited in USFWS 2024). Host plants for caterpillars are limited to milkweeds (*Asclepias spp.*). Milkweed species were observed along the upper and lower Helms-Gregg 230 kV Transmission Lines (PG&E 2024: Attachment E3, Study Data Summary BR-2). Critical habitat for the species has been designated, but it is limited to the coastal areas of California outside of the FERC Project Boundary (USFWS 2023b).	**Unlikely to occur**; no larval host species observed in the Uprate Project Area but observed in areas in the upper Helms-Gregg Transmission Lines during relicensing studies (PG&E 2024: Attachment E3, Study Data Summary BR-2). Observation of the species near Long Meadow Creek from 2013 (Western Monarch and Milkweed Occurrence Database 2018), outside of the Uprate Project Area. Monarch butterflies could occur within the vicinity (dispersing during migration and/or foraging on plants for nectar), but breeding requires larval host plants, which have not been observed in the Uprate Project Area.
Birds			
California condor *Gymnogyps californianus*	FE, SE, SFP	Suitable nesting habitat (e.g., cliffs, rock outcrops, or large trees in steep mountainous or canyon terrain) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (PG&E 2024: Attachment E3, Study Data Summary TR-3). Critical habitat is not present in the FERC Project Boundary (present in Tulare County approximately 40 mi south) (USFWS 2023b).	**Unlikely to occur**; telemetry data collected within and near the FERC Project Boundary (from 2003–2016) did not document the species in the area. These data indicated a low level of California condor activity near Pine Flat Lake (approximately 5 mi outside the FERC Project Boundary).
Golden eagle *Aquila chrysaetos*	BGEPA, SFP, BLMS	Open woodlands and oak savannahs, grasslands, chaparral, sagebrush flats; nests on steep cliffs or large, prominent trees near suitable foraging areas. Desktop analysis for relicensing Study TR-3 identified approximately 1,600 acre (ac) of potentially suitable nesting habitat within 0.25-mi of Project facilities. Field-verification surveys confirmed suitable nesting habitat in eight CWHR types containing steep cliffs or open, rocky habitat, primarily near Courtright Lake and Lake Wishon (PG&E 2024: Attachment E3, Study Data Summary TR-3).	**Potential to occur**; documented occurrences of golden eagle within and near the FERC Project Boundary, including at Courtright Lake and along the Helms-Gregg 230 kV Transmission Lines (eBird 2023). Species not observed incidentally during relicensing studies.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Northern goshawk *Accipiter gentilis*	SSC, SCC, BLMS	Breeds in mid-to late-successional stands of coniferous or mixed coniferous forest with dense overstory and relatively open understory or near an opening. Typically forages in younger forests or edge habitats (e.g., meadows, burns, powerline corridors, trails). Desktop analysis for relicensing Study TR-3 identified approximately 8,000 ac of potential suitable nesting habitat within 0.25-mi of Project facilities. Field-verification surveys confirmed suitable nesting habitat in five CWHR types (Jeffrey Pine, Lodgepole Pine, Montane Riparian, Red Fir, and Sierran Mixed Conifer), primarily near Courtright Lake and along the upper Helms-Gregg 230 kV Transmission Lines (PG&E 2024: Attachment E3, Study Data Summary TR-3).	**Known to occur**; documented occurrences within and near the FERC Project Boundary, including at Courtright Lake, Lake Wishon, and along the upper portion of the Helms-Gregg 230 kV Transmission Lines (eBird 2023, CDFW 2023a). Multiple incidental observations around Courtright Lake during relicensing studies (PG&E 2024: Attachment E3, Incidental Species Observations summary).
Bald eagle *Haliaeetus leucocephalus*	BGEPA, SE, SFP, SCC, BLMS	Nests in advanced-successional forest, often coniferous, with snags or other perches near large bodies of water or rivers with abundant fish for foraging. Desktop analysis for relicensing Study TR-3 identified approximately 3,500 ac of potentially suitable nesting habitat within 0.25-mi of Project facilities. Field verification surveys confirmed suitable nesting habitat in six CWHR types (Jeffrey Pine, Lodgepole Pine, Montane Riparian, Red Fir, Sierran Mixed Conifer, and Valley Foothill Riparian) located near Courtright Lake, Lake Wishon, and the lower Helms-Gregg 230 kV Transmission Lines near the San Joaquin River (PG&E 2024: Attachment E3, Study Data Summary TR-3).	**Known to occur**; documented occurrences in the FERC Project Boundary at Courtright Lake and Lake Wishon (eBird 2023, GANDA 2015), and incidentally observed on numerous occasions near these waterbodies during relicensing studies (PG&E 2024: Attachment E3, Incidental Species Observations summary). No bald eagle nests were incidentally observed during relicensing studies.
California spotted owl, Sierra Nevada DPS *Strix occidentalis occidentalis*	FPT, SSC, BLMS	Suitable nesting habitat (e.g., older forested habitats with complex stands, dominated by conifers) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (PG&E 2024: Attachment E3, Study Data Summary TR-3). Critical habitat has not been designated or proposed for the species (USFWS 2023b).	**Known to occur**; numerous known occurrences documented along the Helms-Gregg 230 kV Transmission Lines (above 1,000 ft in elevation) and near Lake Wishon (USFS 2023, CDFW 2023b). Areas designated as Protected Activity Centers (PACs) by the Forest Service overlap the FERC Project Boundary; however, no PACs or Home Ranges overlap the proposed laydown or staging areas.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Great gray owl *Strix nebulosa*	SE, SCC	Dense, montane coniferous and mixed hardwood coniferous forest, usually near a meadow for foraging; typically nests in large, broken-topped snags. Desktop analysis for Study TR-3 identified approximately 1,500 ac of potentially suitable nesting habitat within 0.25-mi of Project facilities. Field-verification surveys confirmed suitable nesting habitat in Lodgepole Pine, Red Fir, and Sierran Mixed Conifer habitats within 1,000 ft of a meadow, primarily along the upper Helms-Gregg 230 kV Transmission Lines (PG&E 2024: Attachment E3, Study Data Summary TR-3).	**Potential to occur**; documented occurrences in 2016 west of McKinley Grove Road approximately 0.5-mi north of the FERC Project Boundary (USFS 2023); additional occurrences were documented in 2002 and 2007 near Shaver Lake (CDFW 2023a).
American peregrine falcon *Falco peregrinus anatum*	SCC	Inhabits a variety of open habitats including wetlands, woodlands, and agricultural fields. Also found in urban areas. Typically nests along high cliffs, but also known to use human-made structures or predominant snags or trees. Riparian areas and wetlands are often used for foraging. Relicensing Study BR-1 mapped 21 CWHR habitat types (Annual Grassland, Barren, Blue Oak Woodland, Blue Oak-Foothill Pine, Fresh Emergent Wetland, Jeffrey Pine, Juniper, Lacustrine, Lodgepole Pine, Mixed Chaparral, Montane Chaparral, Montane Hardwood, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, Red Fir, Riverine, Sierran Mixed Conifer, Valley Foothill Riparian, Valley Oak Woodland, and Wet Meadow) in or adjacent to the FERC Project Boundary that are potentially suitable for foraging or nesting (PG&E 2024: Attachment E3, Study Data Summary BR-1).	**Known to occur**; documented within and near the FERC Project Boundary near Courtright Lake, Lake Wishon, and the upper portion of the Helms-Gregg 230 kV Transmission Lines (USFS 2023). Species incidentally observed east of Trapper Springs Campground on Courtright Lake during relicensing studies (PG&E 2024: Attachment E3, Incidental Species Observations summary).
Willow flycatcher *Empidonax traillii brewsteri* *Empidonax traillii adastus*	SE, SCC	Dense thickets near permanent standing water within riparian woodland often dominated by willows (*Salix spp*.) and/or alder (*Alnus spp*.). Desktop analysis for relicensing Study TR-2 identified 77 ac of potentially suitable nesting and foraging habitat within 500 ft of Project facilities (PG&E 2024: Attachment E3, Study Data Summary TR-2). Field-verification surveys identified suitable habitat in Montane Riparian and Wet Meadow habitats, primarily along the western shore of Lake Wishon.	**Potential to occur**; documented in 1986 along the western shore of Lake Wishon (CDFW 2023a, USFS 2023). No willow flycatchers were incidentally observed during 2022 or 2023 relicensing studies.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Yellow warbler *Setophaga petechia*	SSC	Deciduous riparian woodland close to water (e.g., streams, wet meadows). Relicensing Study BR-1 mapped nine CWHR habitat types (Blue Oak Woodland, Blue Oak-Foothill Pine, Montane Chaparral, Montane Hardwood, Montane Riparian, Ponderosa Pine, Sierran Mixed Conifer, Valley Foothill Riparian, and Valley Oak Woodland) in or adjacent to the FERC Project Boundary that are potentially suitable for yellow warbler foraging or nesting (PG&E 2024: Attachment E3, Study Data Summary BR-1).	**Known to occur**; incidentally observed at upper elevations along the Helms-Gregg 230 kV Transmission Lines during relicensing Study AR-2 in 2022 (PG&E 2024: Attachment E3, Incidental Species Observations summary).
Mammals			
Western mastiff bat *Eumops perotis*	SSC, BLMS	Crevice-roosting, primarily on cliffs. Found in rock features, often steep slopes or rock outcrops associated with river drainages, under slabs of exfoliating granite, or in basaltic columns. May be found in crevices in large boulders and tall buildings. Typical colony size usually less than 100 individuals, comprised of females and young (Ahlborn 2021). Relicensing Study TR-4 identified suitable roosting habitat at buildings and rocks with cracks and cavities (PG&E 2024: Attachment E3, Study Data SummaryTR-4).	**Known to occur**; documented acoustically near Lake Wishon and areas at Helms Headquarters and the Helms Employee Housing Area.
Western small-footed bat *Myotis ciliolabrum*	BLMS	Crevice-roosting, primarily in buildings, caves, mines, and occasionally under bridges and under bark. Maternity colonies are found in buildings, caves, and mines and usually contain 12–20 females and young (Harris 2023a). Relicensing Study TR-4 identified suitable roosting habitat at buildings, tunnels, bridges, and live trees and snags with peeling bark (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically near Courtright Lake, and at areas within or near Helms Pumped Storage Project Sewage Treatment Building, Helms Support Facility, Helms Employee Housing Area, within and along the edge of the Helms-Gregg 230 kV Transmission Lines, and possibly near Helms Headquarters.
Long-eared myotis *Myotis evotis*	BLMS	Crevice-roosting, primarily in buildings, snags, and under bark. Maternity colonies usually contain 12–30 individuals, comprised of females and young (Harris 2023b). Relicensing Study TR-4 identified suitable roosting habitat at buildings and live trees and snags with peeling bark (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically near Courtright Lake, Lake Wishon, Helms Pumped Storage Project Sewage Treatment Building, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Fringed myotis *Myotis thysanodes*	SCC, BLMS	Crevice, cavity, and foliage-roosting. Roosts in a wide variety of habitats including rock crevices, caves, mines, buildings, and bridges, and early to mid-stage large diameter snags. Maternity colonies up to 200 individuals, composed of females and young (Harris 2021a). Relicensing Study TR-4 identified suitable roosting habitat to include trees with foliage, buildings, tunnels, snags, and rocks with cracks and cavities (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically at areas within Helms Headquarters and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Yuma myotis *Myotis yumanensis*	BLMS	Crevice-roosting in buildings, mines, caves, and also documented in abandoned swallow nests and under bridges. Maternity colonies may include several thousand individuals, comprised of females and young (Harris 2023c). Relicensing Study TR-4 identified suitable roosting habitat to include buildings and tunnels (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically at areas near Courtright Lake, Lake Wishon, Helms Headquarters, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Pallid bat *Antrozous pallidus*	SSC, BLMS	Crevice-roosting in rocks, live or dead tree hollows, mines, caves, and a variety of vacant and occupied structures or buildings. Maternity colony size 20–200 individuals, including females and young, and male day roosts up to 60 individuals (Oregon Wildlife Institute 2016, Harris 2021b). Relicensing Study TR-4 identified suitable roosting habitat to include buildings, tunnels, rocks with cracks and cavities, and trees with goose pens (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically at an area adjacent to the Helms Pumped Storage Project Sewage Treatment Building and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Western red bat *Lasiurus frantzii*	SSC	Known to occur; documented acoustically at an area adjacent to the Helms Pumped Storage Project Sewage Treatment Building and along the edge of the Helms-Gregg 230 kV Transmission Lines.	**Known to occur**; documented acoustically at areas near Lake Wishon, Helms Headquarters, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Townsend's big-eared bat *Corynorhinus townsendii*	SCC, SSC, BLMS	Cavity-roosting, most often in tunnels, caves, mines, and buildings, but also rock shelters, preferentially close to water. Maternity colony size 35–300 individuals, comprised of females and young, and hibernacula 30–1,000+ individuals (Gruver and Keinath 2006, Harris 2021c). Relicensing Study TR-4 identified suitable roosting habitat to include buildings, tunnels, rocks with cracks and cavities, and trees with goose pens (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically along the edge of the Helms-Gregg 230 kV Transmission Lines.
Spotted bat *Euderma maculatum*	SSC, BLMS	Crevice-roosting, usually cliffs and rock (often steep slopes or rock outcrops associated with river drainages), although may occasionally use caves and buildings. Non-colonial (Harris 2021d). Relicensing Study TR-4 identified suitable roosting habitat to include rocks with cracks and cavities, buildings, and tunnels (PG&E 2024: Attachment E3, Study Data Summary TR-4).	**Known to occur**; documented acoustically near Lake Wishon.
Sierra Nevada red fox, Sierra Nevada DPS *Vulpes vulpes necator*	FE, ST	A total of 13 potentially suitable CWHR habitat types (Annual Grassland, Aspen, Barren, Eucalyptus, Jeffrey Pine, Lodgepole Pine, Mixed Chaparral, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, Red Fir, Sierran Mixed Conifer, and Wet Meadow) were identified in or adjacent to the FERC Project Boundary during relicensing Study BR-1 (PG&E 2024: Attachment E3, Study Data Summary BR-1). Suitable habitat for the species includes higher elevation conifer forests (species is typically found in areas above 7,000 ft in Sierra Nevada Mountains; Grinnell et al. 1937, as cited in SCAT 2022), sub-alpine woodlands, while requiring dense vegetation and rocky areas for den sites. Critical habitat has not been federally proposed or designated for this species (USFWS 2023b).	**Unlikely to occur**; occurrences from 1999 are documented in and near the FERC Project Boundary (CDFW 2023a). The FERC Project Boundary is in the historical range and the estimated population range of the species; however, more intensive, and focused studies are actively being conducted to better understand the species current distribution and range (SCAT 2022). Currently known populations are found in Lassen Volcanic National Park, the Sierra Nevada between Highway 88 and the Mono Creek Watershed, and the crest of the Oregon Cascades between Mount Hood and Crater Lake National Park (SCAT 2022).

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
North American wolverine *Gulo gulo luscus*	FT, ST, SFP	Species is considered extirpated from the FERC Project Boundary. Critical habitat has not been federally proposed or designated for this species (USFWS 2023b).	**Unlikely to occur**; documented occurrence from 1913 near Lake Wishon and the Helms-Gregg 230 kV Transmission Lines (CDFW 2023a). The species is thought to be extirpated from most of California, including the FERC Project Boundary, with only two individuals confirmed in California within the last 100 years (found in Tahoe National Forest and Inyo National Forest).
Sierra marten *Martes caurina sierrae*	SCC	Advanced successional or mature forest stands; species will den in cavities of large trees, snags, logs, burrows, or on occasion in caves or rocky crevices. Relicensing Study BR-1 identified 10 CWHR habitat types (Aspen, Barren, Jeffrey Pine, Lodgepole Pine, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, Red Fir, Sierran Mixed Conifer, and Wet Meadow) in or adjacent to the FERC Project Boundary that are potentially suitable for marten foraging or denning (PG&E 2024: Attachment E3, Study Data Summary BR-1).	**Known to occur**; documented throughout the upper elevation portions of the FERC Project Boundary (including Courtright Lake, Lake Wishon, and upper elevations of the Helms-Gregg 230 kV Transmission Lines; USFS 2023).
Fisher, Southern Sierra Nevada DPS *Pekania pennanti*	FE, ST, SSC, BLMS	Suitable breeding habitat (e.g., dense, complex conifer forests) was identified within the eastern portion of the FERC Project Boundary during relicensing Study TR-1 (PG&E 2024: Attachment E3, Study Data Summary TR-1). Federally proposed critical habitat for the species is found within the FERC Project Boundary (USFWS 2023a).	**Potential to occur**; occurrences documented near the FERC Project Boundary (upper elevation portions of the Helms-Gregg 230 kV Transmission Lines and near Lake Wishon) (USFS 2023, CDFW 2023a). A potential fisher (confident identification was unable to be made due to distance) was incidentally observed along the Helms-Gregg 230 kV Transmission Lines during relicensing studies (PG&E 2024: Attachment E3, Incidental Species Observations summary). Portions of the Project area are in modeled Denning and Denning Reproductive 0.25-mi Noise Buffer. Powerhouse Road is not in suitable fisher habitat.

Common Name Scientific Name	Status	Suitable Habitat in the Project Area	Potential Occurrence in Helms Uprate Project Area
Gray wolf *Canis lupus*	FE	Species is considered a habitat generalist within forests, tundra, grasslands, and deserts. Suitable habitat is considered to be areas with sufficient prey (e.g., wild ungulate populations like elk or deer), water, and a low risk of human conflict (e.g., low road density, low human density, escape cover opportunities) (CDFG 2011, USFWS 2023e). Critical habitat for this species is not present within the FERC Project Boundary (or in California) (USFWS 2023b).	**Unlikely to occur**; the nearest breeding pack is located east of Porterville in the Tule River Yokuts Reservation, over 65 miles from the Project Area (CDFW 2024, 2025). Packs have annual home range of 56–1000 square miles (Reid 2006), approximately 10–40% of the pack may disperse annually, between 40–96 miles and on rare occurrences over several hundred linear miles from their natal area (Boyd and Pletcher 1999 and Jimez et al 2017, as cited in USFWS 2023e; ODFW 2011). While the Uprate Project Area is within the species current range, gray wolves are sensitive to human contact and are unlikely to be within the Project Area; however, the species could disperse through the vicinity of the Project.

Source: CNPS (2023), unless otherwise cited

Notes: ac – acre
BLM – Bureau of Land Management
CDFW – California Department of Fish and Wildlife
CESA – California Endangered Species Act
CWHR – California Wildlife Habitat Relationships
DPS – distinct population segment
ESA – Endangered Species Act
FERC – Federal Energy Regulatory Commission
ft – feet
kV – kilovolt
mi – mile
PACs – Protected Activity Centers
PG&E – Pacific Gas and Electric Company

Status: BGEPA – Federally protected under the Bald and Golden Eagle Protection Act
BLMS – BLM Sensitive species on BLM-administered land
California Rare Plant Rank (CRPR) List 1B – plants rare, threatened, or endangered in California and elsewhere
CRPR 0.1 – seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat) CRPR 0.2 – moderately threatened in California (20–80% of occurrences threatened / moderate degree and immediacy of threat)
FE – listed as endangered under the federal ESA
FPT – proposed as threatened under the federal ESA
FT – listed as threatened under the federal ESA

SCC – Sierra National Forest Species of Conservation Concern on NFS lands
SE – listed as endangered under the CESA
SCC – Sierra National Forest Species of Conservation Concern on NFS lands
SFP – CDFW Fully Protected Species
SR – listed as rare under the Native Plant Protection Act
SSC – California Department of Fish and Wildlife Species of Special Concern
ST – listed as threatened under the CESA

References

Ahlborn, G. 2021. Life history account for western mastiff bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

CDFG (California Department of Fish and Game). 2011. Gray Wolves in California an Evaluation of Historical Information, Current Conditions, Potential Natural Recolonization and Management Implications. Sacramento, California.

CDFW (California Department of Fish and Wildlife). California Natural Diversity Database (CNDDB). 2023a. RareFind, Version 5. Electronic Database. Natural Heritage Division, CDFW, Sacramento, CA. Available at: https://www.wildlife.ca.gov/data/cnddb/maps-and-data. Accessed June 2023.

CDFW. 2025. Approximate Area of Gray Wolf Activity. February 2025. Sacramento, California. 6 pp.

CDFW. 2024. Wolf Management Update, October - December 2024. Sacramento, California. 6 pp.

CNPS (California Native Plant Society). 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.5). California Native Plant Society, Sacramento, CA. Available at: http://www.rareplants.cnps.org/.

eBird. 2023. eBird: An online database of bird distribution and abundance. Available at: http://www.ebird.org/explore. Cornell Lab of Ornithology, Ithaca, New York.

GANDA (Garcia and Associates). 2015. Courtright Dam Upstream Face Repair Project Sensitive Species Pre-activity Survey. Prepared for PG&E. Prepared by GANDA, San Anselmo, CA. August 26.

Gruver. C. and D. A. Keinath. 2006. Townsend's Big-eared Bat (*Corynorhinus townsendii*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region.

Harris, J. 2021a. Life history account for fringed myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

Harris, J. 2021b. Life history account for pallid bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

Harris, J. 2021c. Life history account for Townsend's big-eared bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/LifeHistory-and-Range.

Harris, J. 2021d. Life history account for spotted bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-Historyand-Range.

Harris, J. 2023a. Life history account for small-footed myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

Harris, J. 2023b. Life history account for long-eared myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

Harris, J. 2023c. Life history account for Yuma myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

ODFW (Oregon Department of Fish and Wildlife). 2011. Oregon Wolf Conservation and Management Plan 2011 Annual Report. Oregon Department of Fish and Wildlife. 4034 Fairview Industrial Drive SE, Salem, Oregon 97302. 32 pp.

Oregon Wildlife Institute. 2016. Conservation Assessment for the Pallid Bat (*Antrozous pallidus*) in Oregon and Washington. Interagency Special Status and Sensitive Species Program USDA Forest Service Region 6, Oregon and Washington USDI Bureau of Land Management, Oregon, and Washington.

PG&E (Pacific Gas and Electric). 2023. Fisheries monitoring report: 2022 Fish population, stream channel, western pond turtle, and foothill yellow-legged frog monitoring, Haas-Kings River Project, FERC Project No. 1988. Prepared by Kleinfelder.

Reid, F. 2006. A Field Guide to Mammals of North America. 4th ed. Houghton Mifflin Co.

SCAT (Sierra Nevada Red Fox Conservation Advisory Team). 2022. A conservation strategy for the Sierra Nevada Red Fox. California Department of Fish and Wildlife, Sacramento, CA. Available at: https://wildlife.ca.gov/Conservation/Mammals/Sierra-Nevada-RedFox/Strategy.

Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. Third Edition. HoughtonMifflin Company, Boston, MA.

USFS (U.S. Forest Service). 2023. Natural Resource Information System (NRIS) Data. August update. Provided by Region 5, Vallejo, CA.

USFWS (U.S> Fish and WIldlife Service). 2023a. Information for Planning and Consultation (IPaC): Online project planning tool. Available at: https://ipac.ecosphere.fws.gov/.

USFWS. 2023b. ECOS. Environmental Conservation Online System. Available at: https://ecos.fws.gov/ecp/.

USFWS. 2023c. Endangered and threatened wildlife and plants; threatened species status with Section 4(d) Rule for the northwestern pond turtle and southwestern pond turtle. Proposed rule. 50 CFR Part 17. FR 88(190) 683700–68399. October 3, 2023.

USFWS. 2023e. California spotted owl; endangered status for the Coastal Southern California Distinct Population Segment and threatened status with Section 4(d) Rule for the Sierra Nevada Distinct Population Segment. Proposed rule. FR 88(36) 116000–11639. February 23, 2023.

USFWS (U.S. Fish and Wildlife Service). 2024. Monarch Butterfly (*Danaus plexippus*) Species Status Assessment Report. Version 2.3. Midwest Regional Office.

Western Monarch and Milkweed Occurrence Database. 2018. Data accessed from the Western Monarch Milkweed Mapper, a project by the Xerces Society, U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife. Available: www.monarchmilkweedmapper.org.