SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

FOR SURRENDER OF HYDROPOWER LICENSE

Kilarc-Cow Creek Hydroelectric Project—FERC Project No. 606-027

California

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
888 First Street, NE
Washington, D.C. 20426

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ACRONYMS AND ABBREVIATIONS

AA	Action Alternative
Abbott Users	Abbott Ditch Users
Advisory Council	Advisory Council on Historic Preservation
BIA	Bureau of Indian Affairs
BO	Biological Opinion
CEQA	California Environmental Quality Act
C.F.R.	Code of Federal Regulations
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
California DFW	California Department of Fish and Wildlife
EA	Environmental Assessment
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	evolutionary significant unit
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
Forest Service	U.S. Department of Agriculture, Forest Service
FPA	Federal Power Act
FWS	U.S. Department of the Interior, Fish and Wildlife Service
Interior	U.S. Department of the Interior
MOA	memorandum of agreement
msl	above mean sea level
MW	megawatt
National Register	National Register of Historic Places
NPS	National Park Service
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMFS	U.S. Department of Commerce, National Oceanic and Atmospheric Administration's National Marine Fisheries Service
PG&E	Pacific Gas and Electric Company
PM10	respirable particulate matter with an aerodynamic diameter of 10 microns or less
RTE	rare, threatened, or endangered species
SCCDA	South Cow Creek Ditch Association
SWRCB	California State Water Resources Control Board

Supplemental EA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Officer
TU	Trout Unlimited
VELB	valley elderberry longhorn beetle
WQC	water quality certification

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1.0 INTRODUCTION

1.	Application:	Surrender of License
2.	Date Filed:	March 13, 2009
3.	Applicant:	Pacific Gas & Electric Company
4.	Water body:	Old Cow Creek and South Cow Creek
5.	County and State:	Shasta County, California
6.	Federal Lands:	The Kilarc-Cow Creek Project occupies 1.87 acres of lands administered by the U.S. Bureau of Indian Affairs.

1.1 BACKGROUND

On March 13, 2009, Pacific Gas and Electric Company (PG&E or licensee) filed an application to surrender its project license and to decommission and remove or modify several project features for the Kilarc-Cow Creek Hydroelectric Project (project). The project was licensed on February 8, 1980, with an expiration date of March 27, 2007, and currently operates under an annual license. The project is located on Old Cow Creek, South Cow Creek, and tributaries in Shasta County, California (figure 1).

Prior to filing a surrender application, PG&E began the process for relicensing the project in 2002. After performing the relicensing studies, the resource agencies identified several measures that could be recommended for implementation to protect, mitigate, or enhance the area's resources, including: (1) increased minimum flows in bypassed reaches; (2) an upgraded fish ladder at South Cow Creek diversion dam; and (3) installation of new fish passage facilities on Old Cow Creek at the Kilarc main diversion dam. PG&E concluded in early 2004 that the cost of providing the protection, mitigation, and enhancement (PM&E) measures for the resources affected by the project would outweigh the economic benefit of generation at the project over the life of a new license.

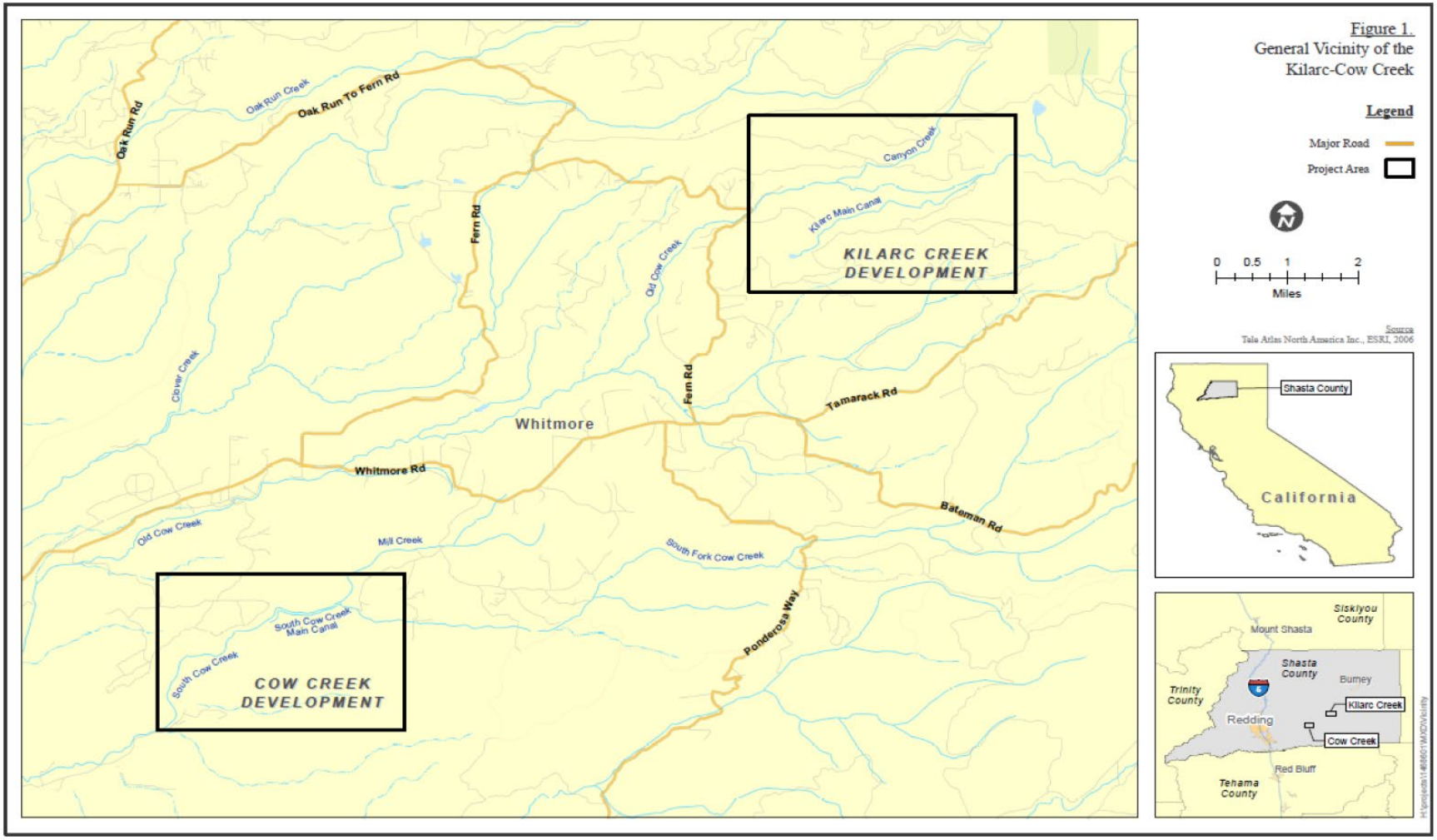

Figure 1: Location of Kilarc-Cow Creek Hydroelectric Project (Source: PG&E 2009)

On March 30, 2005, PG&E signed an agreement (Agreement) with the U.S. Department of Commerce, National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), California Department of Fish and Wildlife (California DFW),[1] National Park Service (NPS), California State Water Resources Control Board (California SWRCB), Trout Unlimited (TU), and Friends of the River (FR). Under the Agreement, PG&E would not seek a new license for the project, but would instead surrender the project under the terms and conditions of the Agreement. PG&E would operate the project under an annual license until the project was either acquired or decommissioned.

Commission staff issued a Final Environmental Impact Statement (Final EIS) on August 16, 2011, pursuant to the National Environmental Policy Act (NEPA) as part of its review of the proposed surrender. PG&E applied to the California SWRCB for water quality certification on August 18, 2009; it simultaneously withdrew and refiled its application on July 30, 2010. Since California SWRCB did not act on its application within the 1 year processing timeline, PG&E continued to withdraw and refile its application annually through April 9, 2018. On May 15, 2019, PG&E filed a request for declaratory order, asking the Commission to declare that the California SWRCB had waived its certification authority for the surrender of the project. On November 27, 2019, the California SWRCB issued a Final Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) and a final Water Quality Certificate (WQC) for the project surrender. On March 19, 2020, the Commission issued a Declaratory Order determining that the California SWRCB waived its water quality certification authority under section 401 of the Clean Water Act (CWA) regarding the surrender of PG&E's license for the project.[2]

Because the Final EIS was issued in August 2011, this Supplemental Environmental Assessment (EA) was prepared to address changes that have occurred at the project since that time. On May 2, 2019, PG&E discovered a leak and erosion damage to a section of the main Kilarc canal and the canal was taken out of service. Currently, no flows are being diverted at the Kilarc main diversion dam into the Kilarc canal. Instead, all flows are remaining in the natural channels of North Canyon Creek, South Canyon Creek, and Old Cow Creek. The Kilarc powerhouse is not operating. Because the Kilarc canal is no longer providing flows to the Kilarc forebay, the licensee

[1] The California Department of Fish and Game was renamed the California Department of Fish and Wildlife on January 1, 2013, and we use the current name throughout this document.

[2] *Pacific Gas and Electric Co.*, 170 FERC ¶ 61,232 (2020) and 172 FERC ¶ 61,065 (2020).

has closed the forebay and day use area to the public.[3] As a result of the current drought in California, the Kilarc Reservoir has dried up like many of the lakes in this region. However, this could change if there is a significant rainfall event in the area. This is the only significant change that has occurred at the project since the Final EIS was issued.

1.2 PROJECT DESCRIPTION

The project consists of two developments, Kilarc and Cow Creek. The two developments operate independently and are located in two different sub-watersheds. The Kilarc Development has an installed capacity of 3.23 megawatts (MW) and the Cow Creek Development has an installed capacity of 1.44 MW. The project consists of two forebays and associated dams; five diversion dams; 20 canal sections, flumes, tunnels, and associated spillways; one siphon; two penstocks; and two powerhouses with associated tailraces, switchyards, and transmission facilities. A total of 184.32 acres are located within the project boundary. Of this total, 1.87 acres are held in trust by the United States under the jurisdiction of the Bureau of Indian Affairs (BIA) for which PG&E has acquired rights for project purposes.

The Kilarc and Cow Creek developments were constructed between 1903 and 1907. The developments are presented separately below since they operate independently and are located in two different sub-watersheds.

Kilarc Development

As licensed, flows diverted into the Kilarc forebay at the Kilarc diversion dam for generation at the Kilarc powerhouse come from three sources: North Canyon Creek, South Canyon Creek, and Old Cow Creek. Water is diverted from North Canyon Creek into the North Canyon Creek canal at the North Canyon Creek diversion dam (Figure 2) and is conveyed to South Canyon Creek. Water is diverted from South Canyon Creek into the South Canyon Creek canal at the South Canyon Creek diversion dam. Water from South Canyon Creek canal flows into the South Canyon Creek siphon, which conveys water into the Kilarc main canal. Water is diverted from Old Cow Creek into the Kilarc main canal at the Kilarc diversion dam. Water from the Kilarc main canal flows to the Kilarc forebay and through the penstock to the Kilarc powerhouse; water is returned to Old Cow Creek near the powerhouse about 4 miles downstream from the Kilarc diversion dam. The current minimum flow requirement at the Kilarc diversion dam is 3.0 cubic feet per second (cfs).

[3] See PG&E's November 14, 2019 and June 18, 2019 filings with the Commission.

The 13-foot-high, earth-filled Kilarc diversion dam impounds the Kilarc forebay which has a gross and useable storage capacity of 30.4 acre-feet (ac-ft) and surface area of 4.5 acres at 3,779 feet above mean sea level (msl). The Kilarc penstock is 4,801 feet (ft) long and has a maximum flow capacity of 43 cfs. The spillway at the Kilarc forebay is rated for 50 cfs, which is the Kilarc main canal's approximate capacity. Water level fluctuation in the forebay during normal operation is about 1 ft. The Kilarc powerhouse, located at 2,580 ft msl, is designed for semi-automatic operation with forebay level control. The powerhouse operates unattended with alarms connected to PG&E's Pit 3 powerhouse (which is part of FERC Project No. 233). The Kilarc powerhouse is a 65-foot-wide by 40-foot-long steel frame structure composed of rubble masonry walls and a corrugated iron roof.

The Kilarc development operates as a run-of-river facility, which uses the natural flow and elevation drop of Old Cow Creek to generate electricity. The Old Cow Creek watershed encompasses about 80 square miles (sq mi), including 25 sq mi located upstream from the Kilarc diversion dam. Average yearly runoff at the dam is 48,900 ac-ft, about 55 percent of which is diverted to the Kilarc powerhouse.

However, since the main canal failure in May 2019, flows remain in the natural channels of North and South Canyon Creeks and Old Cow Creek. Flows are no longer entering the Kilarc forebay. Because of the current drought in California, the Kilarc Forebay has drained. This has led to the closure of the only recreational facilities found at the project, i.e., the Kilarc day use area.

Cow Creek Development

Water is diverted into the Cow Creek forebay at the Cow Creek diversion dam for generation at the Cow Creek powerhouse come from two sources: Mill Creek and South Cow Creek. Flows from Mill Creek is diverted into the Mill Creek-South Cow Creek canal at the Mill Creek diversion dam (Figure 2). Water is diverted from South Cow Creek into the South Cow Creek main canal at the South Cow Creek diversion dam and flows to the Cow Creek forebay. From the forebay, water flows through the penstock to Cow Creek powerhouse and is discharged into Hooten Gulch,[4] and back into South Cow Creek about 4 miles downstream from the South Cow Creek diversion dam. The current minimum flow requirement at the South Cow Creek diversion dam is 4.0 cfs under normal water year criteria and 2.0 cfs under dry water year criteria.

[4] Hooten Gulch is an existing area that receives augmentation flows from the Cow Creek powerhouse.

The 16-foot-high, earth-filled Cow Creek forebay dam impounds the forebay which has a surface area of 1 acre and gross and useable storage capacity of 5.4 ac-ft at 1,555 ft msl. Water surface elevation varies by about one ft during normal project operations. The Cow Creek penstock is 4,487 ft long. The spillway at Cow Creek forebay is rated for 50 cfs, which is the South Cow Creek main canal's approximate capacity. The Cow Creek powerhouse is located at 856 ft msl and is a steel truss structure that is about 53.5 ft long by 35 ft wide. The Cow Creek powerhouse is designed for semi-automatic operation, with forebay level control. It operates unattended, with alarms connected to the Pit 3 powerhouse.

The Cow Creek development operates as a run-of-river facility. The South Cow Creek watershed encompasses about 78 sq mi, including 53 sq mi located upstream from the south Cow Creek diversion dam. Average annual runoff at the dam is 79,500 ac-ft, about 37 percent of which is diverted to the Cow Creek powerhouse.

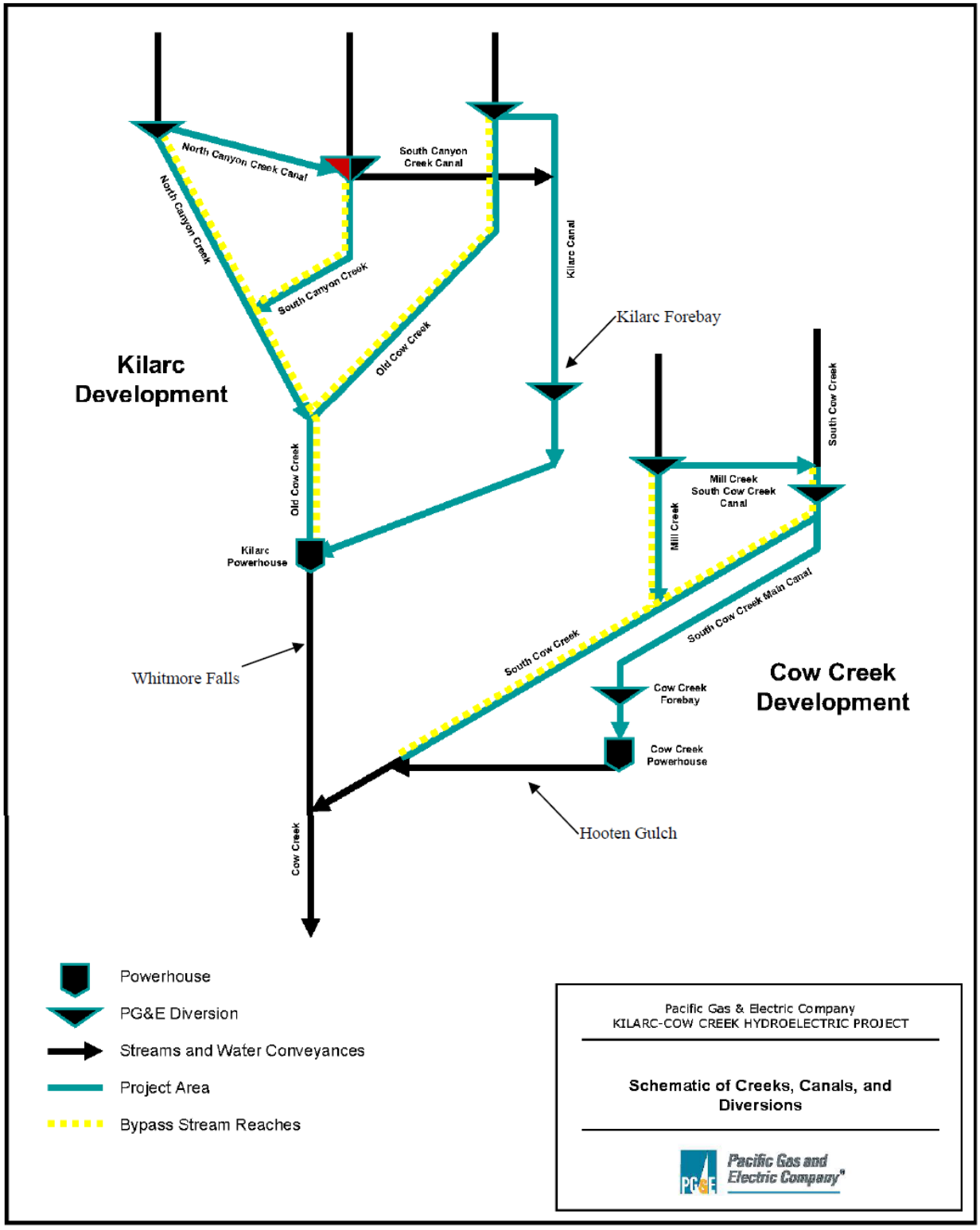

Figure 2: Location of existing facilities (Source: PG&E 2009)

2.0 PURPOSE AND NEED FOR ACTION

The Commission must decide what conditions should be included in any surrender order issued. In addition to power and development under the Federal Power Act (FPA), the Commission must give equal consideration to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. In accordance with NEPA[5] and the Commission's regulations (18 C.F.R. Part 380), this Supplemental EA assesses the effects associated with the proposed surrender and decommissioning of the project, evaluates alternatives to PG&E's proposed action, and makes recommendations to the Commission on whether to approve PG&E's application, and if approved, recommends conditions to become part of any surrender order issued.

Since the Final EIS was issued in 2011, we reassess the environmental and economic effects of the proposed action, the No-Action Alternative (today's status quo), and two Action Alternatives: Action Alternative 1 (AA1) and Action Alternative 2 (AA2), both developed by Commission staff to address comments during scoping and comments on the Final EIS. Important issues that are addressed include: fish passage; effects to rare, threatened, or endangered (RTE) species; change in water quantity; protection of water quality; changes to wildlife habitat and wetlands; access to recreation; land use; and effects to socioeconomics and cultural resources.

3.0 PROPOSED ACTION AND ALTERNATIVES

Section 2.0 *Proposed Action and Alternatives* of the Final EIS provides greater details of the licensee's proposed actions and the alternatives considered. A schematic of the existing facilities is provided in Figure 2.

3.1 APPLICANT'S PROPOSED ACTION

In its application, PG&E proposes to surrender the license and to decommission and remove or modify several project features, including: (1) remove all forebay and diversion dams to allow for free passage of fish and sediment; (2) leave in place some diversion dam abutments and foundations on North Canyon Creek and South Cow Creek and the spillway at the Cow Creek Forebay Dam to protect stream banks and provide grade control; (3) leave in place and secure powerhouse structures with an

[5] On July 16, 2020, the Council on Environmental Quality issued a final rule, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act* (Final Rule, 85 Fed. Reg. 43,304), which was effective as of September 14, 2020; however, the NEPA review of this project was in process at that time and was prepared pursuant to the 1978 regulations.

option for preservation of powerhouse structures for future reuse; (4) remove electric generators, turbines, and other equipment; (5) grade and fill both forebays; (6) in consultation with affected landowners, leave in place, breach, or fill canal segments and remove metal and wood flume structures; and (6) remove access roads to the project where possible. Under PG&E's proposal (proposed action), the removal of the project facilities would take three years, followed by at least two years of maintenance and monitoring of the proposed site restoration work.

3.1.1 PG&E's Proposed Environmental Mitigation Measures

In its application, PG&E proposes to implement a series of environmental mitigation measures and plans, which we have summarized in the Final EIS. No additional protection measures have been proposed by PG&E since the issuance of the Final EIS.

3.1.2 Discussion of Water Rights

The proposed action and Action Alternatives would change the distribution of flows in Old Cow Creek and South Cow Creek. Based on the information provided, the proposed action would change the distribution of flow to the Hooten Gulch below the Cow Creek powerhouse which would adversely affect the existing Abbot Ditch Users (Abbot Users) diversion[6] and the Tetrick Hydroelectric Project No. 6594 (Tetrick Project).[7] Under the proposed action, the Hooten Gulch would not have sufficient flows to fulfill the Abbott User's water right at the current point of diversion. In addition, the Tetrick Project would not be able to continue to generate. Various parties interpret the adjudicated location and history of the Abbott Ditch diversion differently. This has led to a dispute over water rights and a disagreement regarding appropriate mitigation for the adverse effects to Abbot Users and nearby landowner, Tetrick Ranch.

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[6] The Abbot diversion directs a portion of flows from Hooten Gulch into Abbott Ditch for domestic, livestock, crops, and flood irrigation on 312 acres of agricultural lands.

[7] The Tetrick Project is a privately owned mini-hydroelectric facility with a generating capacity of 110 kilowatts located just downstream of the Cow Creek tailrace. This facility operates pursuant to a conduit exemption issued by the Commission in 1982. *W.R. Poulton*, 21 FERC ¶ 62,446 (1982). The Tetrick Project currently obtains water from the Cow Creek powerhouse flows released to Hooten Gulch. This project is referred to as "Wild Oak Development" in the PG&E surrender application and the "Poulton Hydroelectric Project" in comments from Tetrick Ranch/Abbott Users.

The issues regarding the Abbott Users water rights are currently still in dispute. The states have authority to interpret and adjudicate water rights. In addition, section 27 of the FPA reserves to the states the authority to enforce alleged violations of state water rights.[8] Whether the proposed action would violate the water rights of others is a matter to be determined by the State of California, not the Commission.

The California SWRCB, in its November 27, 2019 Final EIR, appears to agree with PG&E's interpretation of water rights at the project. PG&E argued that the adjudication allows for the Abbot Users to divert their water right from South Cow Creek – not Hooten Gulch. However, they point out that the Shasta County Superior Court has ongoing jurisdiction to administer the water rights under the Decree. [9] Currently, there is no watermaster service[10] for the adjudication.

On December 27, 2019, Tetrick Ranch filed a copy of its petition with the Abbot Users for reconsideration of the WQC issued by the California SWRCB on November 27, 2019 and its Final EIR. Tetrick Ranch and the Abbot Users object to California SWRCB's interpretation of water rights.

3.2 ALTERNATIVES CONSIDERED

In the Final EIS, we analyzed the effects of project decommissioning and recommended conditions for surrender of the project license. In addition to PG&E's proposal, we considered three other alternatives: (1) AA1 ─ surrender the Cow Creek Development as proposed by PG&E, and retain sufficient infrastructure at the Kilarc Development to maintain the Kilarc forebay for recreation; (2) AA2 ─ surrender the Kilarc Development as proposed by PG&E, and retain sufficient infrastructure at the Cow Creek Development to maintain flow in Hooten Gulch so that Abbott Users can

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[8] *See City of Tacoma*, 71 FERC ¶ 61,381 at 62,489 (1995) and *Skokomish Indian Tribe v. FERC*, No. 95-70656 (9th Cir. Jan. 29, 1996).

[9] The water rights for both Old Cow Creek and South Cow Creek were adjudicated in 1969. (*In the Matter of the Determination of the Rights of the Various Claimants to the Water of Cow Creek Stream System, Excepting Clover Creek, Oak Run Creek, and North Cow Creek, in Shasta County, California* [Super. Ct. Shasta County, 1969, Decree No. 38577] [Decree].)

[10] The Watermaster is responsible for overseeing the day-to-day administration of water rights, and, when necessary, for taking enforcement action, related to water diversions within a watershed.

continue to access its water right at the current point of diversion; and (3) No-Action — continued project operation with no changes.

3.2.1 Action Alternative 1—Surrendering the Cow Creek Development and Retaining Kilarc Forebay

The purpose of AA1 is to ensure continued recreational access at the 4.5 acre Kilarc forebay. Those facilities of the Kilarc Development required to maintain the forebay, i.e., the Kilarc Main Diversion Dam on Old Cow Creek and the Kilarc Main canal, would remain. The Kilarc Main Diversion Dam would be upgraded to provide fish passage to the upper reaches of Old Cow Creek. Further, the Kilarc Main canal would be screened to preclude fish in Old Cow Creek from entering the canal and moving downstream to the Kilarc forebay. Minimum flow in the bypassed reach of Old Cow Creek would be reevaluated in consultation with resource agencies to optimize habitat and water quality conditions in Old Cow Creek. The remainder of the Kilarc Development and the entire Cow Creek Development would be decommissioned as described in PG&E's proposed action detailed in Section 2.0 *Proposed Action and Alternatives* of the Final EIS. For AA1, we analyzed: the effects of the surrender and removal of the Cow Creek diversion dam, the continued maintenance of the Kilarc forebay and related infrastructure, and the installation of a new fish passage facility at the Kilarc main canal diversion dam and a fish screen at the entrance to the Kilarc main canal. Because of the May 2019 failure of the main canal, this alternative would require that the canal be repaired in order to ensure fresh flows to the forebay. This alternative does not include electric generation. This alternative assumes that upon surrender an interested entity with adequate financial resources can be immediately identified to take over operation and maintenance of the remaining Kilarc facilities and monitoring required by resource agencies.

Under AA1, PG&E would be responsible for decommissioning the Cow Creek Development and those portions of the Kilarc Development not required to maintain the Kilarc forebay. PG&E would also be responsible for repairing the Kilarc Main Canal. These facilities would be decommissioned as described in the proposed action. PG&E would not be responsible for the implementation of the upgrades to project facilities, or the design and installation of fish passage facilities. Final Commission approval of the surrender of license would be dependent upon the licensee's compliance with all the conditions the Commission may require in any order accepting surrender of the Kilarc-Cow Creek license.

3.2.2 Action Alternative 2-- Surrendering the Kilarc Development and Retaining Sufficient Infrastructure to Provide Flows to Abbot Users

In the Final EIS, Commission staff examined the possibility of retaining flows in Hooten Gulch for the purpose of providing flows to the Abbott Users. In its Final EIR,

the California SWRCB analyzed three additional artificial means of providing flows to the Abbot Users, based on public comments when preparing the Final EIR. These alternatives contain recommendations that the Commission cannot require the licensee to perform, so they are only included for informational purposes. Since, the effects of these three additional alternatives are similar to AA 2, they are summarized here.

The purpose of AA2 is to maintain flow in Hooten Gulch to ensure continued flow to Abbott Ditch (Abbott Users would continue to access water at the current point of diversion). Those facilities of the Cow Creek Development required to maintain flow to Hooten Gulch would be improved to provide fish passage and to increase flow to the bypassed reach, upon consultation with the resource agencies. The remainder of the Cow Creek Development, including the filling of the Cow Creek forebay, and the entire Kilarc Development would be decommissioned as described in PG&E's proposed action. For AA2, we analyzed the effects of the surrender and removal of the Kilarc Development, the maintenance of the South Cow Creek main canal, and the installation of an upgraded fish passage facility at the South Cow Creek diversion dam. This alternative does not include electric generation. This alternative assumes that upon surrender, an interested entity with adequate financial resources can be immediately identified to take over operation and maintenance, as well as monitoring of the remaining facilities as required by the resource agencies. Final Commission approval of the surrender of license would be dependent upon the licensee's compliance with all the conditions the Commission may require in any order accepting surrender of the Kilarc-Cow Creek license.

One alternative identified in the Final EIR is a technical solution based on recommendations from Tetrick Ranch and the Abbott Users which requires: (1) constructing a rock weir to deliver water from the existing channel of South Cow Creek into a restored historic east channel; (2) restoring the aquatic and riparian habitat and adjacent floodplain within the historic channel to optimize fish habitat value and create wetland habitat; (3) constructing and designing the boulder weir, to allow fish passage, with a failsafe diversion that allows peak flows to continue to the main stem of South Cow Creek should they exceed the capacity of the restored channel; (4) stabilizing the newly restored channel banks with on-site rock and planting with native riparian vegetation; (5) maintaining existing aquatic habitat in the lower quarter mile of Hooten Gulch by reestablishing historic flow from the restored east channel of South Cow Creek; and (6) installing a fish screen and ladder at the currently unscreened and un-laddered Abbott Ditch diversion dam. According to PG&E, the technical solution would cost an estimated $2.5 million to complete and would require that a funding source for these costs as well as parties responsible for construction and operation be identified. Both the Kilarc and Cow Creek developments would be decommissioned as described under the proposed action.

The second alternative identified in the Final EIR is a pumping method for providing flows. This method would retain flow to Abbot Ditch via a new pump in South Cow Creek near the current Abbott Ditch diversion location. Implementation of this alternative would involve installation of a new pump in South Cow Creek below the Cow Creek powerhouse tailrace, resulting in a continued water supply to the Abbott Users. The Kilarc Development and the Cow Creek Development would be decommissioned as described in the proposed action. Access and maintenance agreements would need to be developed with private landowners as necessary to maintain access to the creek at the location of the new pump. Costs involved with this alternative include: purchase of new materials (i.e., new pump and associated equipment), installation of the pump; and operation of the installed pump (i.e., power source and routine maintenance). This alternative would also require that a funding source as well as parties responsible for construction and operation be identified.

The third alternative identified in the Final EIR would retain flow to Abbott Ditch via a new conveyance from South Cow Creek to the Hooten Gulch. Implementation of this alternative would involve installation of a new gravity fed pipe along the natural contours between South Cow Creek and the head of Abbott Ditch. Hooten Gulch would receive less water, but the flow would be continuous. Abbott Users would continue to access water at the current point of diversion, but the water would be supplied to Hooten Gulch via the new pipeline instead of via the Cow Creek Development facilities. The Kilarc Development and the Cow Creek Development would be decommissioned as described in the proposed action. Access and maintenance agreements would need to be developed with private landowners, as necessary. Costs involved with this alternative include purchase of new materials, and construction activities to install and operate the new flowline. This alternative would also require that a funding source for these costs be identified, and the parties responsible for construction and operation be identified.

3.2.3 No-Action Alternative

Under the No-Action Alternative considered in the Final EIS, the Kilarc-Cow Creek Project would be required to operate under the terms and conditions of the existing annual license. However, in May 2019, the Kilarc main canal was damaged, flow diversions ceased, and the Kilarc powerhouse ceased operations. Because the canal is no longer providing fresh flows to the Kilarc forebay, water quality conditions cannot be maintained. The only water currently sustaining the forebay is from rain and snow melt. The day use area has been closed, and the California DFW is no longer

stocking non-native brown trout.[11] To restore the project operation to the condition that existed when the surrender application was filed, the Kilarc Canal would need to be repaired. This would result in minor ground disturbing activities associated with the repair of the canal. However, there would be no new environmental protection, mitigation, or enhancement measures included as conditions of license. As a result, the current existing environment is slightly different than what was analyzed during the Final EIS, but not significant enough to result in changes to the analysis.

3.3 PROPOSED ACTION AS MODIFIED BY STAFF

Under the proposed action as modified by staff, the project would be decommissioned as proposed by PG&E with the inclusion of all its proposed mitigation measures. In the Final EIS, staff recommended that: (1) PG&E file with the Commission documentation of providing the well owners,[12] located downgradient of the Kilarc forebay, ample notice before commencement of draining the Kilarc forebay; (2) PG&E include requirements from Sierra Pacific Industries to maintain its access roads to its minimum specifications[13] when used during the proposed action within the project boundary; (3) PG&E file documentation with the Commission of its cooperation with Tetrick Ranch and Abbott Users regarding the date at which water delivery to the Hooten Gulch will cease; (4) any order issued include the terms and conditions found in the Biological Opinion (BO) from NMFS, filed with the Commission on March 1, 2011; and (5) PG&E purchase or remove the Cow Creek penstock route that occupies 1.87 acres held in trust by BIA, and the land restored to pre-permit conditions to avoid deterioration of trust assets.

In addition to those recommendations made in the final EIS, Commission staff is also recommending the inclusion of Conditions 1, 8, 9, 15, 17, and 21-47 of the California SWRCB's WQC issued November 27, 2019 and Conditions 10, 11, 12, 18, and 20 as modified by Commission staff (See Section 4.2.4 Federal Power Act Section 10(a)).

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[11] Letters from PG&E to Commission's Division of Dam Safety and Inspections' San Francisco Region Office filed January 22, 2021; May 13, 2020; November 14, 2019; August 1, 2019; June 18, 2019; and May 30, 2019.

[12] Final EIS at 68.

[13] Final EIS at 183.

4.0 COMMENTS AND STATUTORY COMPLIANCE

On May 12, 2009, the Commission issued a "notice of application accepted for filing, soliciting motions to intervene and protests, ready for environmental analysis, and soliciting comments, recommendations, and terms and conditions." In response to the notice, the Commission received 14 motions to intervene and 12 protests to the proposed action. On September 15, 2009, the Commission issued public notice of scoping meetings and environmental site review. A notice of intent to prepare an EIS was issued on February 2, 2011. The notice of the availability of the Draft EIS was issued June 22, 2010. Commission staff held the public comment meeting on August 17, 2010 in Whitmore, California. The Final EIS was issued on August 16, 2011.

4.1 Comments Filed Since Issuance of Final EIS

Comments were filed on the Final EIS by Save Kilarc[14] on September 10, 2011; the Environmental Protection Agency (EPA) on September 13, 2011; the Department of the Interior (Interior) on behalf of BIA on September 13, 2011; Tetrick Ranch on October 14, 2011; KC LLC on November 21, 2011; Senator Dianne Feinstein on December 13, 2011; and Heidi Strand on January 30, 2012 and July 30, 2012.

Save Kilarc

Save Kilarc submitted a petition with 66 signatures on September 10, 2011, stating that PG&E should restart action on applying for a WQC; renounce and withdraw all presumed benefits of the proposed action that are not substantiated beyond all doubt; and admit potential benefits of retaining some facilities that could be used by another party.

As for potential benefits of the retained facilities, Commission staff recognize the opinions of the signatories to the petition, but at this time, there is no entity in place to immediately take over the project and if someone does decide to apply for a license, it could take several years before the project could be licensed. Although, the powerhouse structures would remain in place, the generating equipment would be removed. Generally leaving abandoned mechanical equipment in place can result in hazards to the general public. In addition to general safety concerns, because we recognize that this equipment would be unused for years, they could start leaking oils or other hazardous materials into the environment. Furthermore, there is also no guarantee that a future licensee would want or need the existing equipment and then the removal of these features would just be passed onto someone else.

[14] A group of residents who want to protect the Kilarc forebay.

Environmental Protection Agency

EPA requested that the Commission: address the applicability of the Clean Air Act General Conformity Regulations, discuss additional mitigation for water quantity and related effectss, and include a discussion on climate change effects. Specifically, EPA requested the Commission discuss alternative points of diversion to replace lost flows to Hooten Gulch; and describe opportunities to consolidate diversions, implement water conservation measures, provide for a new diversion, or develop other water supply sources. EPA also requested: information including flows in South Cow Creek, water efficiency of the Abbot Diversion, and fish use of Hooten Gulch; a description and evaluation of mitigation measures to minimize effects of reintroduced anadromous fish on timber operations; and implementation of a validated monitoring program to verify assumed and calculated flow information.

A discussion on air quality and greenhouse gasses was added as *Section 5.1.13* of this Supplemental EA. Commission staff did not consider the construction of an alternative point of diversion because the Commission would have no authority to require installation of new facilities or their operation and maintenance once the license is surrendered.[15] Also as discussed in *Section 3.1.2* of this Supplemental EA, the location of the diversion of these flows is the subject of a water rights dispute. We reiterate here that the Commission does not have jurisdiction over water rights issues. As for EPA's request for additional information by developing additional studies on flows, water quality, and fish use of Hooten Gulch, Commission staff have used all the best available data to analyze the environmental effects in the Final EIS. Additional studies are not necessary for the Commission to analyze the effects of the surrender application.

EPA also recommended that the Commission consider measures to help minimize potential effects to anadromous fish from Sierra Pacific Industries timber operations. As discussed in the Final EIS, Sierra Pacific Industries owns much of the land around the Kilarc Development.[16] The Final EIS also noted that regulations in California have increased the size of riparian buffer zones and significantly restricted activities, such as timber harvest adjacent to streams designated as habitat for listed

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[15] See Project Decommissioning at Relicensing; Policy Statement, 60 Fed. Reg. 339 at 346 (Dec. 14, 1995) FERC Stats. & Regs. ¶ 31,011 (1995) (cross-referenced at 69 FERC ¶ 61,336) 60 Fed. Reg. 339 at 346 (1995) ("The Commission does not believe that, at [decommissioning], it has the authority to require the existing licensee to install new facilities").

[16] Final EIS at 46.

species.[17] These regulations could off-set impacts from the timber industry. However, the Commission cannot require the licensee to mitigate for effectss caused by another landowner outside of the project boundary.

Due to the absence of flow data in the project reaches, EPA suggested that the licensee implement a monitoring program to verify flow assumptions, flow calculations, and conclusions regarding potential heavy metal contamination from released sediment. We respectfully disagree. As we mentioned above, conclusions reached in our Final EIS and in this Supplemental EA were based on the best available data. As discussed in *Section 3.3.2.2* of our Final EIS, we do not believe that additional monitoring is necessary because the studies conducted in 2003 only showed one sample where copper levels exceeded the threshold effect level for copper, and water column concentrations of copper in the creek do not exceed state water quality objectives, indicating no significant release of copper from the sediment to the water column. In addition, PG&E's proposal to manage and direct the natural mobilization and redistribution of sediment trapped upstream of the diversion dams will further minimize the risk of copper being released into the water column.

Interior and Bureau of Indian Affairs

Interior, on behalf of BIA, expressed concern that PG&E's plan to abandon the Cow Creek penstock could likely cause the penstock to erode and fail. The Cow Creek penstock route occupies 1.87 acres held in trust by BIA. BIA notified the licensee, in a letter dated March 21, 2008, that it must either purchase the land easement or remove the penstock and restore the land to pre-permit conditions to avoid deterioration of trust assets. BIA also expressed concern that PG&E has made no efforts to resolve this matter and requested that the Commission delay action on the surrender until consultation with BIA has been completed. As discussed in *Section 1.3.1.2 Restoration of Federal Lands* of the Final EIS, section 6.2 of the Commission's regulations (18 C.F.R. 6.2) requires a licensee with a project located on Federal lands to restore the lands to a condition satisfactory to the Department having supervision over such lands and annual charges will continue until such restoration has been satisfactorily completed. Commission staff agrees that PG&E must either purchase this site or restore the area to the satisfaction of BIA. However, delaying the surrender until this action is completed is not necessary and will be addressed in any final order issued.

Tetrick Ranch

Tetrick Ranch provided comments stating that: (1) Commission staff misunderstood its task in preparing the Final EIS under both NEPA and the FPA because it was conclusory rather than informative, did not comply with the standards set

[17] Final EIS at 236.

out for Commission action in the license surrender provisions of the FPA, and failed to provide a coherent framework for weighing costs and benefits; (2) the Final EIS contained factual errors and unsupported conclusions specifically: the assumptions made for anadromous fish were incorrect, the movement of gravel should be reevaluated, the Tetrick Project would only be able to operate under rare storm conditions, and Commission staff should not assume that a new license would require additional minimum flows and that these minimum flows would make potential new projects uneconomical; (3) Table 28 of the Final EIS[18] illustrates the contradictions and lack of discernable and equitable comparisons of the alternatives as developed by staff; and (4) the Final EIS ignored the realities of the water rights at issue. Tetrick Ranch further stated that the Final EIS did not provide mitigation for unavoidable impacts to recreation, socioeconomics, water rights, wildlife habitat, and fire suppression.

Many of Tetrick Ranch's comments on the Final EIS repeat those made on the draft EIS.[19] NEPA requires federal agencies to consider the environmental effects of a proposed action as part of its decision-making process. The guidelines also state that "for purposes of complying with the Act, agencies need not display the weighing of the merits and drawbacks of the various alternatives in a monetary cost-benefit analysis and should not do so when there are important qualitative considerations." In addition, NEPA does not require that the Commission evaluate all possible scenarios or mitigate every possible adverse impact. We understand that Tetrick Ranch may disagree with the qualitative summary of effects in Table 28 of the Final EIS. However, that table provides a broad summary of the environmental effects of each major resource category and was not intended to be used as a stand-alone analysis tool. Table 28 was not used for making a final determination for the project and no changes to the table are warranted. As discussed above, Commission staff has consistently reiterated that it does not have jurisdiction over water rights.

Specifically, Tetrick Ranch expressed concern over Commission staff's assumptions about gravel movement in the project reaches and purported benefits to anadromous salmon. In the Final EIS, we found that the impoundments were filled with sediments and gravel transport over the dams was likely occurring.[20] However, we

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[18] Table 28 is a summary and comparison of effects from the proposed action with staff's proposed mitigation, action alternatives, two alternatives suggested in comments on the draft EIS, a leave-in-place alternative, and the no-action alternative.

[19] *See* Tetrick Ranch's August 25, 2010 Comment Letter, and Commission staff's response in Appendix A of Final EIS.

[20] Final EIS at 49.

affirm our findings in the Final EIS, as discussed in *Section 3.3.3.2*,[21] that removal of project features would return the bypassed reaches to more natural conditions of flow and sediment transport. This is expected to result in improved conditions in the project reaches, i.e., reduced water temperatures, increased amount of wetted habitat, and potentially increased amounts of spawning gravel. Gravel movement is but just one aspect. This is especially important to consider, given the natural obstructions to passage particularly in the project reaches of Old Cow Creek.

In its comments, Tetrick Ranch pointed out inconsistencies in the Final EIS for the operation of the Tetrick Project. Tetrick Ranch explained that the project would only be able to operate during significant storm events that would need to occur over several consecutive days, which would be extremely rare. We agree that the discussion of the effects to the Tetrick Project were inconsistent. We've modified and address this issue in *Section 5.1.11.1 Socioeconomics: Environmental Impacts of Proposed Action*.

Senator Dianne Feinstein and KC LLC

KC LLC provided comments on the Draft and Final EIS expressing concerns that the effects of the proposed action with staff modifications, as shown in Table 28, were worse, i.e., there are adverse impacts to most environmental resources, than most of the other alternatives; and questions how minor beneficial long-term effects on water quality could result from both the proposed action and the leave-in-place alternative. KC LLC stated that if there was not enough information to reach a definitive conclusion, then the Commission should have required the licensee to collect the information. KC LLC wanted the Commission to revisit a March 2005 agreement for establishing a framework for the decommissioning and restoration scenario because the local community was not involved in developing the proposed decommissioning plan that was developed with the resource agencies. KC LLC also expressed dissatisfaction with the actions of NMFS in that agreement. As discussed above, Table 28 is a broad summary of effects and was not intended to be used as a stand-alone tool for making a final determination. KC LLC objected to the Commission using the 2005 Agreement that was signed by representatives of NMFS, FWS, the Bureau of Land Management, California DFW, California SWRCB, Shasta County, Trout Unlimited, and Friends of the River. These agencies and non-governmental organizations are considered the experts in their fields and we take their recommendations seriously. How a specific agency reached its determinations is not relevant to our discussion in this Supplemental EA. However, Commission staff did consider other alternatives in preparation of the Final EIS that were different from the one proposed by the licensee and resource agencies.

[21] Final EIS at 95.

PG&E concurred with the Commission's recommendations made in the Final EIS. PG&E also requested that any modifications to the exact language of its proposed protection, mitigation, and enhancement measures be prepared in consultation with it and the resource agencies to preserve the intent of these proposed measures. Senator Diane Feinstein filed copies of letters she had received from her constituents, these letters had previously been filed with the Commission, including Earl and Joan Wetmore (the Wetmores) who objected to the destruction of the Kilarc Development when other groups have proposed to restore it. The Wetmores also believed that preserving the existing environment was less harmful than removing the project as recommended by NMFS and other agencies. Senator Feinstein's letter also included a copy of KC LLC's November 21, 2011 letter listed above; as well as, a letter dated March 9, 2007 from the Save Kilarc Campaign (addressed in the Draft EIS); and an April 21, 2010 letter from the Wetmores (addressed in the Final EIS).

Heidi Strand

Heidi Strand filed a letter expressing concern with PG&E's intention to abandon its 1.44 cubic feet per second (cfs) water right on the German Ditch instead of transferring those rights to the South Cow Creek Ditch Association (SCCDA) as originally proposed in 2002. Pursuant to this concern, Ms. Strand stated that her community of Whitmore (located in Shasta County) was federally recognized as an environmental justice community and thus FERC had the duty and authority to intervene on SCCDA's behalf pertaining to water rights on the German Ditch.[22] The term "environmental justice community" could encompass: (i) populations of color; (ii) communities of color; (iii) Native communities; and (iv) and low-income rural and urban communities who are exposed to a disproportionate burden of the negative human health and environmental effects of pollution or other environmental hazards.[23] We note, however, that there are no federal recognitions for environmental justice communities. There is a federal recognition that has strictly been applied to Tribes who are required to meet criteria pursuant to 25 C.F.R § 83.11. Even if Whitmore, California was found to be an underserved and overburdened community or a community bearing a disproportionate share of effects, Section 27 of the FPA expressly

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[22] Heidi Strand's January 20, 2012 letter ("Whitmore (located in Shasta County) has been federally recognized as an [e]nvironmental [j]ustice community ...." Heidi Strand's July 17, 2012 letter ("We have been federally recognized as an [e]nvironmental [j]ustice [c]ommunity" and the "EJ Executive Order was to prevent the overburden, manipulation and disenfranchisement of poor and/or minority communities.").

[23] *Cf.* Exec. Order No. 14008, § 219, 86 FR 7619, at 7629 (2021); *see also* EPA, *EJ 2020 Glossary* (Aug. 2, 2019), https://www.epa.gov/environmentaljustice/ej-2020-glossary.

prohibits the Commission from adjudicating water rights or interfering with the state laws "relating to the control, appropriation, use, or distribution of water used in irrigation or for municipal or other uses, or any vested right acquired therein."[24]

In her letter, Ms. Strand further stated that PG&E preferred to abandon its rights because transferring those rights to a third party would require court approval and other time-consuming and resource-consuming procedural actions. In its application, PG&E proposed to abandon its water rights to ensure those rights were used to enhance aquatic resources because PG&E concluded that it is highly unlikely that the abandoned water could be diverted by other claimants.

In a follow-up letter filed July 30, 2012, Ms. Strand reiterated her comments and stated that if PG&E's flows were not delivered to SCCDA, a new water filtration and pumping system would be needed to continue irrigating her property which would be prohibitively expensive and would make her property worthless.

As stated above, the Commission has no authority in the determination or disposition of water rights. This is an issue that is adjudicated by the State of California. The possible allocation of PG&E's abandoned water rights in the future would be purely speculative and is outside of the Commissions jurisdiction.

4.2 STATUTORY COMPLIANCE

4.2.1 Federal Power Act Section 18

Section 18 of the FPA states that the Commission is to require construction, operation, and maintenance by a licensee of such fishways as may be prescribed by the Secretaries of Commerce or Interior. Interior reserved its authority for fishway prescriptions in a letter dated July 10, 2009. Decommissioning of project facilities as proposed by PG&E would eliminate the existing project facilities that currently may obstruct fish passage (See *Section 3.3.3. Fisheries and Aquatic Resources in Final EIS*).

4.2.2 Restoration of Federal Lands

The project contains 1.87 acres held in trust by the United States under the jurisdiction of BIA, and for which PG&E has acquired rights for project purposes. Section 6.2 of the Commission's regulations (18 C.F.R. 6.2) requires a licensee for a project located on federal lands to restore the lands to a condition satisfactory to the Department having supervision over such lands and annual charges will continue until such restoration has been satisfactory completed. Implementation of the decommissioning plan and additional staff recommended measures would ensure that

[24] 16 U.S.C. § 821.

federal lands are adequately restored. See *Section 4.1 Comments Filed Since Issuance of Final EIS - Interior and Bureau of Indian Affairs* of this Supplemental EA.

4.2.3 Clean Water Act Section 401

Section 401(a)(1) of the CWA requires that an applicant for a federal license or permit to conduct activities that may result in a discharge into the navigable waters of the United States, must provide the licensing or permitting agency a water quality certification. If the state "fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request," then certification is waived.[25] PG&E originally applied to California SWRCB for water quality certification on August 18, 2009; it simultaneously withdrew and refiled its application on July 30, 2010. PG&E continued to withdraw and refile its application annually through April 9, 2018.

On April 5, 2019, the California SWRCB denied without prejudice PG&E's request for water quality certification, indicating that the CEQA process had not been completed, and requested PG&E to submit a new formal request for certification. PG&E did not file a new request. On May 1, 2019, the California SWRCB filed a notice of availability for a draft CEQA EIR for public comment regarding the surrender of the Kilarc-Cow Creek Project.

On May 15, 2019, PG&E filed a request for declaratory order, asking the Commission to declare that the California SWRCB had waived its certification authority for the surrender of the project. On November 27, 2019, the California SWRCB issued a Final EIR pursuant to CEQA and a final WQC for the project surrender.

On March 19, 2020, the Commission issued a Declaratory Order determining that the California SWRCB waived its water quality certification authority under section 401 of the CWA regarding the surrender of PG&E's license for the project.[26] Although the certification is deemed waived for the purposes of this license surrender, Commission staff will consider the conditions of the certification that have a nexus to the proposed surrender as recommendations made under section 10(a)(1) of the FPA and address them later in this Supplemental EA. We have also evaluated the California SWRCB's Final EIR and have included some of its conclusions if they differ from the conclusions reached in our Final EIS. These differences generally occur in the

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[25] 33 U.S.C. § 1341(a)(1).

[26] *Pacific Gas and Electric Co.*, 170 FERC ¶ 61,232 (2020) and 172 FERC ¶ 61,065 (2020).

evaluations of the effects surrounding the reduced flows that would be entering Abbott Ditch, a non-project feature outside of the Commission's jurisdiction.

4.2.4 Federal Power Act Section 10(a)

Section 10(a) of the FPA[27] requires that any project for which the Commission issues a license be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

As stated in *Section 4.3.3*, although the WQC is deemed waived, we will consider the conditions filed on November 27, 2019 under section 10(a)(1). The WQC issued by California SWRCB contains 47 Conditions.

- Condition 1: *Minimum Instream Flows*. Until diversions cease, the licensee must release 2 cfs or inflow into Old Cow Creek. Except in a dry year, the licensee must release 4 cfs or inflow into South Cow Creek.
- Condition 2: *Foothill Yellow-Legged Frogs and California Red-Legged* Frogs. Licensee must conduct pre-construction surveys and at least biweekly monitoring during construction for foothill yellow-legged frogs and California red-legged frogs.
- Condition 3: *Western Pond Turtles*. Licensee must conduct pre-construction surveys and at least biweekly monitoring during construction for western pond turtles.
- Condition 4: *Kilarc Development Fish Management.* Consult with California DFW to develop a fish management plan to reduce the number of fish in Kilarc forebay and main Kilarc Canal prior to and during decommissioning activities.
- Condition 5: *Cow Creek Development Fish Rescue.* Maintain and operate the fish screen in South Cow Creek Canal until completion of any fish rescues and diversions into the canal have ceased. Develop a fish rescue plan if determined necessary after consultation with the resource agencies.
- Condition 6: *Instream Work Period Requirement.* The licensee shall only conduct instream work in South Cow Creek between July 1 and September 30 to avoid impacts to spawning and migrating salmonids.
- Condition 7. *Cow Creek Powerhouse Operations.* The licensee shall discontinue Cow Creek powerhouse operations between March 1 and May 31,

[27] 16 U.S.C. § 803(a)(1).

and after determining there is sufficient natural flow present upstream of the Cow Creek powerhouse to avoid stranding or trapping fish.

- Condition 8. *Turbidity Monitoring.* The licensee shall implement all reasonable best management practices to reduce turbidity discharges associated with project decommissioning.
- Condition 9. *Dewatering and Diversion.* Dewatering and diversion activities should be conducted in a manner that protects water quality, beneficial uses, and aquatic species.
- Condition 10. *Hooten Gulch Concrete Channel Removal and Stabilization.* Within one year of surrender issuance, licensee shall submit a removal and stabilization plan to the Deputy Director for Water Rights for review and approval. The plan shall include removal of all concrete within Hooten Gulch to promote a more natural channel.
- Condition 11. *Hazardous Materials and Waste Management.* Within one year of surrender issuance, the licensee shall submit a hazardous materials and waste management plan to the Deputy Director for Water Rights for review and approval.
- Condition 12. *Roads.* Within one year of surrender issuance, the licensee shall submit a roads plan to the Deputy Director for Water Rights for review and approval. The plan shall detail the maintenance, construction, and decommissioning of all roads associated with the project.
- Condition 13. *Canal and Forebay Decommissioning.* Within one year of surrender issuance, the licensee shall submit a canal and forebay decommissioning plan to the Deputy Director for Water Rights for review and approval. The plan shall detail the maintenance, construction, and decommissioning of all roads associated with the project. Decommissioning of canals, forebays, and associated structures shall be completed within five years following issuance of license surrender order.
- Condition 14. *Dam and Diversion Structure Decommissioning.* Within one year of surrender issuance, the licensee shall submit a dam and diversion structure decommissioning plan to the Deputy Director for Water Rights for review and approval. The plan shall detail the maintenance, construction, and decommissioning of all roads associated with the project. Decommissioning of dams and diversion structures shall be completed within five years following issuance of license surrender order.
- Condition 15. *Stored Sediment Management.* The licensee shall manage the sediment stored behind Kilarc Main Diversion Dam and South Cow Creek Diversion Dam to ensure restricted fish movement once project operations cease and the diversion dams have been removed.

- Condition 16. *Fish Passage Monitoring.* The licensee shall monitor Kilarc Main Diversion Dam and South Cow Creek Diversion Dam sites for a minimum of two years after decommissioning to evaluate fish passage conditions and identify areas where additional corrective measures are necessary to provide fish passage.
- Condition 17. *Post Decommissioning Monitoring.* The licensee shall monitor each decommissioning site for a minimum of two years after decommissioning to ensure measures implemented to protect water quality and beneficial uses remain effective.
- Condition 18. *Riparian Vegetation and Wetlands Protection and Restoration.* Within one year of surrender issuance, the licensee shall submit a riparian and wetland restoration plan to the Deputy Director for Water Rights for review and approval. The plan shall address impacts to riparian vegetation and wetlands associated with project decommissioning activities, including concrete removal in Hooten Gulch.
- Condition 19. *Abbott Ditch Wetlands and Aquatic Habitat.* The licensee shall delineate areas impacted by changes to the amount of water in Abbott Ditch and submit a Compensatory Mitigation Plan for the impacted wetlands and riparian habitat to the Deputy Director for Water Rights for review and approval.
- Condition 20. *Remaining Facilities.* Within one year of surrender issuance, the licensee shall submit a remaining facilities plan to the Deputy Director for Water Rights for review and approval. The plan shall detail all project facilities and structures that would not be removed during project decommissioning and measures to ensure that they do not contribute to water quality impairments.
- Conditions 21-47 are general conditions to ensure project decommissioning meets water quality standards as anticipated.

In a pleading filed January 30, 2020, PG&E reiterated its request for the Commission to reject the WQC and all conditions contained therein, but also acknowledged that the Commission could consider the requirements in the WQC as recommendations. PG&E objected to several conditions that were inconsistent with conditions filed by fish and wildlife management agencies. Specifically, PG&E contends that Conditions 4-7 and 16 of the WQC are inconsistent with the conditions of the NMFS's BO, and Conditions 2-6 and 16 are inconsistent with measures recommended by FWS and California DFW. PG&E also stated that Conditions 13 and 14 are beyond the scope of the Commission's authority for surrender proceedings pursuant to section 6 of the FPA because it gives California DFW the authority to approve plans that are under the purview of the Commission. Similarly, PG&E argues that Condition 19 is for the protection of wetlands associated with the Abbot Ditch Diversion, a non-project feature and not under Commission's jurisdiction. The final objection expressed by PG&E is that Conditions 1, 4-6, 10-18, and 20 require California

SWRCB's approval. PG&E requested that the Commission reject these conditions or modify them to remove California SWRCB's veto authority over plans required by the Commission.

Commission staff agrees with PG&E's arguments opposing certain conditions in the WQC, and we are not recommending that they be incorporated into the surrender order. WQC Conditions 2-7 and 16 that relate to the protection of certain terrestrial and aquatic species are already addressed appropriately by the conditions recommended by the FWS, NMFS, and California DFW. Conditions 13 and 14 allow the California SWRCB to assume timing and construction authority over decommissioning activities that are the responsibility of the Commission's Division of Dam Safety and Inspections. Commission staff does not recommend the addition of Condition 19 that relates to the protection of wetlands associated with Abbott Ditch, which is not a project feature over which the Commission has jurisdiction.

Commission staff further agrees that the remaining conditions would help improve water quality at the project during decommissioning activities. However, the requirements that the California SWRCB must approve certain plans would be modified so that these plans are developed in consultation with the California SWRCB, prior to filing for Commission approval.

4.2.5 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or adverse modification of the critical habitat of such species. PG&E was designated our non-federal representative for the purposes of consultation under ESA by letter issued June 16, 2008.

The Commission issued a biological assessment (BA) to FWS and NMFS on May 6, 2010, requesting formal consultation regarding the federally-threatened Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*Oncorhynchus mykiss*). On March 1, 2011, the NMFS filed its BO on the proposed action and its effects on the federally-listed threatened spring-run Chinook salmon, threatened Central Valley steelhead, and their designated critical habitat.

On July 8, 2009, PG&E submitted a letter[28] to FWS requesting concurrence with the determination of not likely to adversely affect the federally threatened California

[28] PG&E's letter was filed with the Commission on October 7, 2009.

red-legged frog (*Rana aurora draytonii*), federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and the fisher (*Martes pennanti*), a candidate species. FWS submitted a letter dated September 10, 2009, concurring with the determination, provided PG&E's proposed conservation measures for the California red-legged frog are implemented. We determined that the proposed action would not adversely affect California red-legged frog, valley elderberry longhorn beetle, and the fisher and concluded informal consultation with FWS.

On March 1, 2011, the NMFS filed its BO on the proposed action and its effects on the federally-listed threatened spring-run Chinook salmon, threatened Central Valley steelhead, and their designated critical habitat. In the BO, NMFS concluded that the proposed action was not likely to jeopardize the above species or adversely modify their critical habitats. NMFS also included an incidental take statement with reasonable and prudent measures and non-discretionary terms and conditions that are necessary and appropriate to minimize incidental take associated with the proposed action.

In a letter filed May 4, 2019, NMFS provided comments to the Commission on the California SWRCB's Draft EIR. In its letter, NMFS states that the proposed action analyzed in the Draft EIR was consistent with the 2005 Settlement Agreement and its March 1, 2011 BO. The letter further stated that the Commission would only need to reinitiate consultation with NMFS if the proposed action is substantially revised in a way that might adversely affect essential fish habitat or if new information becomes available that affects the basis for NMFS' conservation recommendations.

The occurrence of federally-listed species at the Kilarc-Cow Creek Project is described in *Section 5.1.7 Rare, Threatened, and Endangered Species* of this Supplemental EA.

4.2.6 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires federal agencies to consult with NMFS on all actions that may adversely affect essential fish habitat (EFH). EFH in Cow Creek and its tributaries has been designated for the Central Valley steelhead but not for the federally threatened Central Valley spring-run Chinook salmon. NMFS filed recommendations pursuant to the Magnuson-Stevens Act on July 7, 2009. In this letter, NMFS stated that the protection, mitigation, and enhancement measures proposed by PG&E would satisfy the requirements of the Magnuson-Stevens Act.

4.2.7 National Historic Preservation Act

Under section 106 of the NHPA,[29] and its implementing regulations,[30] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (National Register), which are defined as historic properties, and afford the Advisory Council on Historic Preservation (Advisory Council) a reasonable opportunity to comment on the undertaking. By letter dated September 17, 2008, PG&E[31] requested concurrence from the California State Historic Preservation Officer (California SHPO) on the following items: (1) the Kilarc and Cow Creek powerhouses, which are eligible for listing in the National Register; (2) the Kilarc and Cow Creek hydroelectric systems (canals, bridges, dams, flumes, siphons, tunnels, spillways, berms, forebays, and penstocks) which are not eligible individually or as components of historic districts due to their lack of integrity; and (3) avoidance of the five unevaluated prehistoric sites needed for the purposes of decommissioning the systems.

By letter dated November 4, 2008, the California SHPO replied with concurrence on the determination of eligibility and finding of effect and concurred with the findings and conclusions of the section 106 technical report prepared for the project. On May 1, 2014, a memorandum of agreement (MOA) was executed between the California SHPO and the Commission to mitigate for unavoidable adverse effects to sites eligible for listing in the National Register caused by surrender activities. As mitigation, the licensee would prepare a Historic American Engineering Record for the Kilarc and Cow Creek powerhouses. Effects of the proposed action on cultural resources are discussed in *Section 3.3.11, Cultural Resources* of the Final EIS.

5.0 ENVIRONMENTAL ANALYSIS

The Final EIS was issued in August 2011. This Supplemental EA was prepared to address changes that have occurred at the project since that time. On May 2, 2019, PG&E discovered a leak and erosion damage to a section of the Kilarc main canal. After completing repairs, the canal was refilled during the week of September 3, 2019. PG&E observed additional leakage and immediately took the canal back out of service. Currently, diversions to the Kilarc main canal have ceased and flows are being released at the point of diversion in North Canyon Creek, South Canyon Creek, and Old Cow Creek. The Kilarc powerhouse is not operating. Because the canals are no longer

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[29] 54 U.S.C. § 306108 (2018).

[30] 36 C.F.R. Part 800 (2020).

[31] By letter issued June 16, 2008, PG&E was designated our non-federal representative for the purposes of consultation under section 106 of the NHPA.

providing fresh flows into the Kilarc forebay, the licensee has closed the forebay and day use area to the public. The Cow Creek Development continues to operate.

Descriptions of the affected environment in the resource sections below are from the 2011 Final EIS and the California SWRCB's Final EIR filed on November 29, 2019.

5.1 GENERAL DESCRIPTION OF KILARC-COW CREEK PROJECT AREA

The general description of the areas surrounding the Kilarc-Cow Creek Project is provided in the Final EIS (*Section 3.1 General Setting*). However, as stated above in *Section 3.2.3 No-Action Alternative*, in May 2019, the main Kilarc Canal was damaged, flow diversions ceased, and the Kilarc powerhouse is no longer operating. Because the canal is no longer providing fresh flows to the Kilarc forebay, water quality conditions cannot be maintained. The only water currently sustaining the forebay is from rain and snow melt. The Day Use Area has been closed, and the California DFW is no longer stocking non-native brown trout. As a result, the current existing environment is slightly different than what was analyzed during the Final EIS, but not significant enough to result in changes to the analysis. Proposed action and alternatives are summarized below in Table 1.

5.1.1 Geologic and Soil Resources

Commission staff in the 2011 Final EIS (*Section 3.3.1 Geologic and Soil Resources*) reviewed effects on geology and soil resources associated with the proposed action and the action alternatives. The description of the affected environment pertaining to geology and soils provided in the Final EIS remains unchanged.

The two primary effects of the proposed action on soil and sediment resources are associated with: potential, short-term erosion during deconstruction activities and filling of project infrastructure (e.g., canals, flumes, forebays, intake structures); and longer term mobilization and redistribution of sediment accumulated upstream of the project diversion dams following removal of those structures. No additional changes to the environmental effects section are necessary.

The effects to geology and soils for the three alternative methods for providing artificial flows to the Abbott Users, described in *Section 3.2.2.* of this Supplemental EA, would be similar to those expected under the proposed action since the Kilarc and Cow Creek developments would be removed in all three alternatives.

Table 1. Summary of Proposed Action and Alternatives (Source: Staff).

No-Action

KILARC DEVELOPMENT	COW CREEK DEVELOPMENT
Operate under existing annual license	Operate under existing annual license
Repair Kilarc Main Canal	

Proposed Action

KILARC DEVELOPMENT	COW CREEK DEVELOPMENT
Remove North Canyon Creek Diversion dam, abutments and foundation left in place	Remove Mill Creek Diversion Dam
Remove South Canyon Diversion Dam and flume	Fill-in Mill Creek-South Cow Creek Canal
Remove above ground portions of South Canyon Creek Siphon	Remove South Cow Creek Diversion Dam but leave in place abutments and foundations
Remove Kilarc Main Diversion Dam, flume, and flume support structures	Abandon in place South Cow Creek Main Canal and Cat Bridge, remove flume, plug tunnel and abandon in place
Remove Intake structure at Kilarc Forebay Dam and the rest of the structure would be buried	Remove outlet structure and trash rack, abandon spillway in place, and backfill Cow Creek Forebay
Fill in and regrade Kilarc Forebay	Seal upper and lower ends of Cow Creek Penstock, buried penstock would remain in place
Remove recreational facilities	Leave in place powerhouse structures, removing all turbines/generators
Seal upper and lower ends of Kilarc Penstock, buried penstock would remain in place, remove surge tower and seal opening with metal plate	Remove switchyard equipment and structures but leave transmission tap line
Leave in place powerhouse structures, removing all turbines/generators	Remove shotcrete armor in Hooten Gulch for a more natural stream bed

Leave, breach, or fill canals (North Canyon Creek Canal, South Creek Canal, and Kilarc Main Canal)	Access roads would remain in place or rehabilitate by seeding
Remove metal and wood flumes	
Leave switchyard in place	
Access roads would remain in place or rehabilitated by seeding	

AA1

KILARC DEVELOPMENT	COW CREEK DEVELOPMENT
Retain Kilarc forebay and related structures	See Proposed Action
Install new fish passage at Kilarc Main Canal Dam	
Install fish screen at entrance to Kilarc Main Canal	
Remove above ground portions of South Canyon Creek Siphon	

AA2

KILARC DEVELOPMENT	COW CREEK DEVELOPMENT
See Proposed Action	Maintain South Cow Creek Main Canal
	Upgrade fish passage facility at South Cow Creek Diversion Dam
	Modify South Cow Creek Diversion Dam and canal intake to provide 13.13 cfs of flow into main canal and divert remaining flow into South Cow Creek bypass reach below diversion dam
	Fill and grade Cow Creek Forebay
	Extend Cow Creek Main Canal through former forebay
	Maintain penstock and tailrace

	Leave in place powerhouse structures, removing all turbines/generators
	Remove switchyard equipment and structures but leave transmission tap line
	Access roads would remain in place or rehabilitate by seeding

Staff's Proposal

KILARC DEVELOPMENT	COW CREEK DEVELOPMENT
See Proposed Action	See Proposed Action
Include all administrative measures	Purchase or remove Cow Creek penstock route
Include all BO and specified WQC conditions	Include all administrative measures
Maintain Sierra Pacific Industries' access roads to its minimum specifications	Include all BO and specified WQC conditions

5.1.2 Water Quantity

Commission staff in the 2011 Final EIS (*Section 3.3.2.1 Water Quantity*) reviewed effects on water quantity associated with the proposed action and the action alternatives.

5.1.2.1 Environmental Effects of Proposed Action

The Kilarc and Cow Creek forebays would be permanently lost. Enhancement of stream flows in the bypassed reaches would result from an increase in the average monthly flows and by restoration of natural seasonal flows. Annual peak stream flows would increase slightly.

The proposed action would eliminate the 4.5-acre Kilarc forebay and associated flows. Removal of the Kilarc diversion dam and main canal would terminate the source of water to the forebay, and the forebay would be drained, filled in, and graded. The forebay would no longer provide a source of water for local forest fire suppression, aquatic species, nor would the forebay be restocked with brown trout for recreational fishing. Flows downstream of the Kilarc powerhouse would remain the same as under existing conditions.

The one-acre Cow Creek forebay and associated flows would be eliminated. Removal of the Cow Creek diversion dam and main canal would terminate the source of water to the forebay, and the forebay would be drained, filled in, and graded. The proposed action would have a long-term beneficial effect on water quantity in the Old Cow Creek bypassed reach by increasing average monthly flows, especially during low-flow conditions. In addition, annual peak stream flows in the bypassed reach of Old Cow Creek would increase slightly.

In its Final EIR, the California SWRCB determined that: modifications to routing and detention of surface water due to the removal of the diversion dams; decommissioning of the canal conveyance system; discontinuation of water storage in the forebay; and restoration of natural streamflow regimes to the bypassed reaches, would return the timing and location of opportunities for groundwater recharge to natural watershed conditions. Groundwater recharge opportunities along the bypassed reach would be improved and would increase support for stream base flow and valley bottom springs and seeps within the bypassed reach. Additionally, return of surface flows to the bypassed reach and elimination of potential upland water losses along the canals and forebay would improve the down valley delivery of surface and subsurface flows along Old Cow Creek to the regional groundwater basin. This would be a beneficial effect.

The Cow Creek powerhouse currently discharges water into Hooten Gulch, which flows into South Cow Creek. The Tetrick Project, an exempted mini-hydro facility, is located on Hooten Gulch downstream of the Cow Creek powerhouse. The facility relies on discharges from the South Cow Creek powerhouse to operate and releases all flows back into Hooten Gulch.

Abbott Ditch, an irrigation diversion downstream of the Tetrick Project, diverts water from Hooten Gulch for consumptive use. The diversion dam for Abbott Ditch is located a short distance upstream of the confluence of Hooten Gulch with South Cow Creek. The Abbott Users are entitled to divert 13.13 cfs from the natural flow of the east channel of South Cow Creek.

The proposed action would return flows in the Hooten Gulch to their natural, ephemeral condition as is currently observed upstream of the Cow Creek powerhouse. As a result, there would be a permanent loss of flow available in the Hooten Gulch that would negatively affect the ability of the Tetrick Project and Abbott Users to access its full water rights at the current points of diversion.

5.1.2.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Under AA1, the diversion of flow from Old Cow Creek would continue at the Kilarc diversion dam, in order to maintain the Kilarc forebay as a recreational and fire safety resource. Because of the current damage to the Kilarc main canal, the canal would need to be repaired to restore flow diversions from Old Cow Creek to the Kilarc forebay. Under this alternative, flow would continue to be divided between the bypassed reach and the Kilarc main canal at the Kilarc diversion dam. The amount of flow diverted to maintain the Kilarc forebay would be less than flows currently diverted for project operations, resulting in more flow in the bypassed reach. The actual amount of these flows would need to be determined in consultation with the resource agencies.

AA1 would have long-term beneficial effects on water quantity in Old Cow Creek by increasing flows (estimated between 17 and 150 percent) in the bypassed reach. In addition, annual peak stream flows in the bypassed reach of Old Cow Creek would increase slightly. Under AA1, the Kilarc forebay would be in a similar condition to that which currently exists. No additional flooding would occur and groundwater resources would not be negatively affected under this alternative.

Action Alternative 2

Under AA2, the diversion of flow from South Cow Creek would continue at the Cow Creek diversion dam in order to provide flow in the Hooten Gulch so that the

Abbott Users can continue to access its water right at the current point of diversion. Under this alternative, flow would continue to be divided between the bypassed reach of South Cow Creek and the Cow Creek main canal at the diversion dam. The amount of flow diverted to the Hooten Gulch would be less than that currently diverted for project operations, as determined in consultation with the resource agencies, resulting in more flow in the bypassed reach.

AA2 would have a long-term beneficial effect on water quantity in South Cow Creek by increasing flows (estimated between 17 and 180 percent) in the bypassed reach. In addition, annual peak stream flows in the bypassed reach of South Cow Creek would increase slightly. This alternative would maintain flows in Hooten Gulch to allow Abbott Users to continue to access its water right at the current point of diversion. In addition, the Tetrick Project could continue to operate, although with less generation than under the existing flow conditions. The environmental effects to water quantity at the Kilarc Development would be the same as described under the proposed action.

The Technical Solution and the new conveyance system alternatives for providing flows to the Abbott Users proposed in the Final EIR would result in increased flows in the bypassed reaches due to removal of the existing diversions at the Kilarc and Cow Creek developments. Unlike in the proposed alternative, however, flows would be maintained in the Hooten Gulch. However, the pumping alternative would not provide any flows to Hooten Gulch and would not provide any benefits to fish

No-Action Alternative

Under the No-Action Alternative, flows in Old Cow Creek and South Cow Creek drainages would continue to be diverted for project use. During periods of low flow, on average, up to 77 percent of flow would be diverted to the South Cow Creek main canal, with 23 percent remaining in the bypassed reach. There would be no negative effects to Abbott Users and the Tetrick Project because flows to Hooten Gulch would continue as they currently exist. The No-Action Alternative would not change any project structures or capacities; thus, water quantity conditions would be the same as historic (licensed) conditions given similar weather patterns.

5.1.3 Water Quality

Commission staff in the Final EIS reviewed effects to water quality associated with the surrender (*Section 3.3.2.2 Water Quality*).

5.1.3.1 Environmental Effects of Proposed Action

Under the proposed action, the Kilarc and Cow Creek forebays would be permanently lost. Enhancement of stream flows in the bypassed reaches would result

from an increase in the average monthly flows and by restoration of natural seasonal flows. Annual peak stream flows would increase slightly. The removal of project features and the cessation of diversions would return the bypassed reaches to more natural conditions of flow, which could affect the water temperature regime of the bypassed reaches and associated habitat conditions for aquatic resources. The proposed action would affect water quality at both developments similarly. Over the long-term, temperatures in the bypassed reach of Old Cow Creek and South Cow Creek would decrease slightly due to the increase in flows. The proposed action would not have any long-term, measurable effect on other water quality parameters.

The proposed action could affect water quality in the short-term in three principal ways: (1) increased turbidity during instream construction; (2) increased turbidity from stormwater runoff during construction; and (3) accidental release of oil or hazardous materials associated with construction activities. To minimize and mitigate for these potential effects, PG&E would implement best management practices for erosion and sedimentation, storm water pollution prevention, and to minimize the risk of accidental releases associated with construction equipment. PG&E also proposes to minimize turbidity during instream construction work by using coffer dams or similar barriers.

5.1.3.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

AA1 would split flows in Old Cow Creek upstream of the diversion dam between the canal and the bypassed reach in order to maintain the Kilarc forebay, and would provide higher flows to the bypassed reach than under the existing license, particularly during low flow periods, to enhance water quality and aquatic habitat. The main Kilarc Canal would also need to be repaired. The effects of AA1 on water quality would be similar to the proposed action for the Kilarc Development and identical to the proposed action at Cow Creek. However, because of the damage to the main canal, a continuous supply of fresh water has ceased and because of the current drought in California the Kilarc forebay has drained. It could take a while for the restored flows to significantly improve the aquatic habitat in Kilarc forebay to be able to support fish and other aquatic resources.

Action Alternative 2

Under AA2, construction activities would disturb sediments and would cause minor, short-term adverse effects to water quality. Over the long-term, temperatures in the bypassed reach of South Cow Creek would decrease slightly due to the increase in flows in the bypassed reach. In addition, AA2 would not have any long-term, measurable effect on other water quality parameters. The environmental effects to

water quantity at the Kilarc Development would be the same as described under the proposed action.

The artificial methods for providing flow to the Abbott Users proposed in the Final EIR would have similar effects on water quality except that more construction would be involved than in AA2. However, the environmental mitigation measures proposed by PG&E would reduce these effects to less than significant (*Section 4.6.4* of the Final EIS).

No-Action Alternative

Water quality under the No-Action Alternative would remain the same as observed under the existing license, as described in the Final EIS (*Section 3.3.2.2.1 Affected Environment*). During the long-term, there would be no change from current operating conditions, and temperature, DO, turbidity, and sediment chemical composition would remain the same as under current licensed conditions. However, short-term effects from restoring the main Kilarc Canal could result in minor increased erosion and turbidity.

5.1.4 Fisheries and Aquatic Resources

Commission staff in the Final EIS reviewed effects to fisheries and aquatic resources associated with the surrender (*Section 3.3.3 Fisheries and Aquatic Resources*).

5.1.4.1 Environmental Effects of Proposed Action

The removal of project features and the cessation of diversions would return the bypassed reaches to more natural flow conditions, and sediment transport and deposition, which is expected to result in long-term benefits for aquatic species. Short-term adverse effects on resident fish and habitat due to possible stranding during impoundment drawdowns would be mitigated by PG&E's proposed environmental measures as described in the Final EIS (*Section 2.3.3 Proposed Environmental Measures*).

Flows in Hooten Gulch below the Cow Creek powerhouse would revert to natural conditions similar to those in Hooten Gulch upstream of the powerhouse, resulting in a long-term adverse effect to fish and aquatic resources in that reach.

5.1.4.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Overall, AA1 the diversion of flow from Old Cow Creek would continue but at a reduced amount compared to the current license. The increase in flows in the bypassed reach would benefit habitat in the long-term for aquatic resources. Flows to the diversion canal would continue to sustain uses and resources of the Kilarc forebay but would likely be lower during dry periods. Cooler water temperatures in the bypassed reach would have a long-term beneficial effect on fish habitat. Sediment mobilization and transport in Old Cow Creek are not likely to change under AA1, and sediment accumulated behind the diversion dam would remain in place and would not contribute to spawning substrate downstream.

The environmental effects on aquatic resources at the Cow Creek Development would be the same as described for the proposed action. However, because of the damage to the canal and the drought in California the Kilarc forebay has drained. After the canal failure, the licensee contacted California DFW, who recommended against conducting fish rescue operations. It is anticipated that it could take a couple years after the canal is repaired for water quality to improve to the point that Kilarc forebay can support fish. The California DFW would need to determine if and when to restart stocking brown trout.

Action Alternative 2

Overall, AA2 could slightly increase flows in the bypassed reach compared to flows under the existing license. This would enhance aquatic habitat in the bypassed reach, thus providing a long-term benefit to aquatic species. Flows to the diversion canal would continue to sustain uses and resources of Hooten Gulch below the Cow Creek powerhouse, but likely would be lower during dry periods than under the current license. The environmental effects on aquatic resources at the Kilarc Development would be the same as described for the proposed action.

The artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, would have similar effects on water quantity as AA2, except for the pumping alternative. Although the pumping alternative would provide flows to the Abbott Users, no flows would be diverted into the bypass reach. The pumping alternative would have no benefits to fish (Final EIR *Section 4.6.4.2*).

No-Action Alternative

Maximum daily water temperatures in South Cow Creek would continue to frequently exceed the California SWRCB's criteria for cold water streams and the

optimum temperature range for anadromous and resident salmonids between May and September. Several potential barriers to fish passage in the Wagoner Canyon reach of the South Cow Creek bypassed reach exist at low flow conditions under the existing license. Sediment and spawning substrate for resident and migratory salmonids would not change compared to the existing license.

However, because of the damage to the canal and the current drought in California the Kilarc forebay has drained. It is anticipated that it could take a couple years after the canal is repaired for water quality to improve to the point that Kilarc forebay can support fish and other aquatic life.

5.1.5 Botanical Resources

Commission staff in the Final EIS reviewed effects to botanical resources associated with the surrender (*Section 3.3.4 Botanical Resources*).

5.1.5.1 Environmental Effects of Proposed Action

Minor adverse effects to about 21.5 acres of vegetated communities would occur as a result of the proposed action. These effects would be short-term, as vegetation is re-established through reseeding and restoration planting of native species. Implemented monitoring of restored areas would minimize effects from erosion and ensure that vegetative cover is successfully established. Over the long-term, these areas would go through natural successional processes and return to natural vegetation communities. Because of its location, the population of mountain lady's slipper (sensitive species in California) growing at the base of an above-ground reach of the main Kilarc Canal is expected to be unavoidably affected by removal activities.

Hooten Gulch would receive long-term, beneficial effects from the proposed action as it returns to a more natural system consistent with natural riparian and wetland systems. Over the long-term, Hooten Gulch would return to a system that is sustained by a natural, seasonal hydrologic cycle and the existing vegetation communities would return to native species of vegetation that are better adapted to the pre-project conditions.

In its Final EIR, the California SWRCB determined that the loss of flows to the Abbott Ditch could adversely affect wetlands that have been created through leakage from the ditch. Although PG&E has proposed mitigation measures that would protect wetland resources within the project boundary, no protection measures have been proposed for potential effects outside the project boundary, including Abbott Ditch. Overall, vegetation in Hooten Gulch downstream of the Cow Creek powerhouse would change from wetland dominated species to native species present upstream of the powerhouse.

Invasive, non-native and noxious plant species are well-established in the project area as noted by the identification of 12 species during the botanical surveys. Under the proposed action, it is likely that noxious species will spread, resulting in adverse effects. Restoration of disturbed or cleared areas by reseeding will hasten growth of vegetation cover and minimize soil erosion. PG&E's mitigation measures and recommendations by resource agencies are consistent with and in favor of using native seed in the restoration process, and the use of sterile cereal seed, or if not available, other sterile seed. Priority should be given to the use of native seed in all areas where reseeding would be conducted.

5.1.5.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Limited effects to vegetation within the Kilarc Development are likely because AA1 proposes limited removal activities at the Kilarc Development. Adverse effects would be short-term because long-term restoration of disturbed areas would occur. No adverse effects would occur to fringe wetlands surrounding the Kilarc forebay. The small population of mountain lady's slipper adjacent to the main Kilarc Canal should be unaffected. AA1 would therefore result in minor, limited adverse effects to vegetation communities in the Kilarc Development. AA1 would also result in the same effects to vegetation at the Cow Creek Development as those that would occur under the proposed action.

Action Alternative 2

AA2 proposes limited removal activities at the Cow Creek Development; therefore, limited effects to vegetation within the development are likely. Adverse effects would be short-term as long-term restoration of disturbed areas would occur. Hooten Gulch would continue to receive flow. Flow above that required in the main canal would be released to South Cow Creek. Long-term benefits to riparian and wetland habitats within Hooten Gulch and South Cow Creek would continue.

Loss of the 1-acre Cow Creek forebay from dewatering and backfilling would result in the permanent loss of fringe wetland habitat; however, backfilling with existing bank material may result in a net increase of riparian habitat within the footprint of the forebay. Over the long-term, it is uncertain if moisture conditions within the soil filling the forebay would remain to sustain riparian habitat; the area may succeed into a more upland vegetation community structure

AA2 would result in the same effects to vegetation at the Kilarc Development as those that would occur under the proposed action.

Under the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, new features would be installed to continue flows to the Abbott Ditch, and therefore could result in construction-related effects on wetlands and riparian habitat. As with the proposed action, these areas would be surveyed for special status plant species prior to any construction activities. With implementation of PM&E measures, effects resulting from implementation of these alternatives would be less than significant (*Section 4.7.4*).

All of the Abbott Ditch alternatives would prevent the loss of wetlands and riparian habitat in the areas irrigated and thus under hydrological influence by Abbott Ditch, and the impact would be lessened to no impact under these alternatives (*Section 4.7.4*).

No-Action Alternative

Continued operation of the project under current conditions and operational requirements would have no effect on upland vegetation resources within the project boundary. Continued operation of the Cow Creek Development would continue to provide a long-term benefit to the riparian habitat and wetlands of Hooten Gulch and the project area.

5.1.6 Wildlife Resources

Commission staff in the Final EIS reviewed effects to wildlife resources associated with the surrender (*Section 3.3.5 Wildlife*).

5.1.6.1 Environmental Effects of Proposed Action

The proposed action would result in short-term, minor adverse effects to wildlife species inhabiting the Kilarc and Cow Creek developments and vicinity due to disturbance from construction activities, traffic, and human activities associated with the proposed removal processes. Mobile wildlife species would leave areas of activity and could return upon cessation of activity. Mortality of less mobile species of invertebrates, reptiles, and amphibians may occur during removal activities and would result in short-term, minor adverse effects. Loss of open-water habitat from the dewatering of the two forebays would result in the relocation of some species and direct or indirect mortality of other less mobile species as a result of the construction activity or loss of riparian/wetland habitat associated with the forebays. Proposed measures that implement pre-project surveys to avoid impacts to sensitive species and habitat to the extent practicable, and employee education and awareness, would minimize effects to species during removal activities. The loss of the Cow Creek forebay could provide a one-acre gain in vegetation that would result in a long-term terrestrial benefit to the project area by providing riparian habitat for wildlife.

Over the long-term, populations of wildlife species would be able to sustain their populations despite the potential for some mortality resulting from the proposed action. No significant effects to any wildlife species are expected from the implementation of the proposed action and associated protection and mitigation measures.

In its Final EIR, the California SWRCB notes that the area surrounding the Abbott Ditch has not been surveyed for birds, mammals, amphibians, turtles, and special status species; and no protective measures have been recommended for this site because it is outside of the project boundary. Wildlife species could be affected if the proposed action results in a loss of wetland habitat.

5.1.6.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

The effects expected at the Kilarc Development as a result of implementing AA1 would not be different from those expected under the proposed action. AA1 would minimize the extent of activity, limiting it to the North and South Canyon Creek facilities, so the effects on any wildlife would also be limited. Disturbance from noise, human activity, and construction activity, and some direct mortality to less mobile wildlife species would occur as short-term, minor adverse effects for areas where activity occurs. Because the Kilarc forebay would be left in place, wildlife species including sensitive species, such as osprey and bald eagle, would continue to have foraging habitat associated with the open water system and fringe wetlands along the shoreline. Maintaining the Kilarc forebay would provide long-term benefits to wildlife species that regularly use the open water habitat. The effects expected at the Cow Creek Development would be similar to the proposed action.

Action Alternative 2

No significant effects are expected from implementing AA2 at the Cow Creek Development. Environmental effects to wildlife resources would result in general short-term, minor disturbance to wildlife species and habitat as previously discussed. Over the long-term, reptile and amphibian species would benefit by continuation of flows to Hooten Gulch. The effects expected at the Kilarc Development would be similar to the proposed action.

Under the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, new features would be installed to continue flows to the Abbott Ditch, and therefore could maintain riparian and wetland habitat but result in other short-term effects on wildlife. As with the proposed action, these areas would be surveyed for sensitive species prior to any construction activities (*Section 4.7.4*).

No-Action Alternative

Continued operation of the Kilarc-Cow Creek Project would not adversely affect the existing wildlife resources, including special status species within the Old Cow Creek and South Cow Creek watersheds. Wildlife species would persist into the future, under the existing conditions, and would be affected only by natural processes and cycles of disease, predation, and other external forces.

5.1.7 Rare, Threatened, and Endangered Species

Commission staff in the Final EIS reviewed effects to rare, threatened, and endangered species associated with the surrender (*Section 3.3.6 Rare, Threatened, and Endangered Species*).

Three runs of anadromous salmonids that could occur within the project area are either listed or have been considered for listing under the ESA: (1) the threatened Central Valley steelhead distinct population segment; (2) the threatened Central Valley spring-run Chinook salmon evolutionarily significant unit (ESU); and (3) Central Valley fall- and late fall-run Chinook salmon ESU, a federal species of concern.

Whitmore Falls is 11 river miles upstream of the confluence of Old Cow Creek with South Cow Creek and 9.3 miles downstream of the Kilarc powerhouse. The 12- to 14-ft high falls were considered impassable to anadromous salmonids for many years. However, upon re-evaluation by California DFW and NMFS, Whitmore Falls was reclassified in 2003, and is no longer considered a barrier to upstream migration. Both resource agencies believe that salmon and steelhead may be able to pass above Whitmore Falls under high flow conditions, particularly during winter and wet years.

Three federally-listed as threatened terrestrial species that do occur or may potentially occur in appropriate habitats within the Kilarc and Cow Creek developments include: valley elderberry longhorn beetle (VELB), California red-legged frog, and the northern spotted owl. The only federal candidate species potentially occurring at the project is the Pacific fisher.

5.1.7.1 Environmental Effects of Proposed Action

The Kilarc Development does not affect flows downstream of the tailrace through the area of Whitmore Falls; therefore, the proposed action would have no effect on the ability of steelhead or Chinook salmon to pass upstream of this feature. If steelhead or Chinook are able to pass above Whitmore Falls, approximately 2.7 miles of additional habitat would be available before the fish reach the impassable barrier OC-

11.[32] The proposed action is not likely to have a significant effect on the amount of available habitat for either steelhead or fall-run Chinook salmon in the Old Cow Creek watershed upstream of the two barriers. However, short and long-term benefits would be associated with the release of native material stored behind the dam, which would enhance downstream spawning habitat.

At the Cow Creek Development, water temperatures would be slightly cooler through the bypassed reach; however, water temperature may continue to exceed maximum ideal temperatures for anadromous fish during low flow summer periods. Several barriers to migration have been identified in the Wagoner Canyon portion of the South Cow Creek bypassed reach. It was estimated that these features are passable at minimum flows of 20-25 cfs. Significant long-term benefits would be associated with the restoration of full natural flows, allowing steelhead and fall run Chinook salmon to migrate upstream through the bypassed reach during their respective spawning run. Under existing license conditions, steelhead use the fish ladder at the Cow Creek diversion dam to access aquatic habitat upstream of the Cow Creek Development. Removal of the diversion structures would enhance opportunities for both steelhead and Chinook salmon to access habitat in these upstream areas. Short- and long-term benefits would occur with the release of native material stored behind the dam, which would enhance downstream spawning habitat.

No direct adverse effects to listed terrestrial species are expected under the proposed action, though short-term adverse effects could occur to potential habitat. Potential summer habitat is available for the California red-legged frog in Hooten Gulch, and VELB habitat (elderberry shrubs) exists near the South Cow Creek main canal at the Cow Creek Development. However, no California red-legged frogs or VELB have been documented within the project area.

In its Final EIR, the California SWRCB notes that the area surrounding the Abbott Ditch has not been surveyed for rare, threatened, and endangered species and no protective measures have been recommended for this site because it is outside of the project boundary. If present, protected species could be affected if the proposed action results in a loss of wetland habitat.

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[32] OC-11 is an unnamed 12-foot falls that is 2.7 miles upstream of Kilarc powerhouse.

5.1.7.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

The flow increase would enhance nursery habitat available to migratory salmonid fry and juveniles in the bypassed reach of Old Cow Creek, although less so than the proposed action. AA1 would have a negligible effect on natural high flows from late fall through spring, similar to the proposed action and the No-Action Alternative. The frequency and duration of such flows would not be affected; therefore, this alternative would not affect access of steelhead and Chinook salmon to upstream spawning habitat, compared to existing conditions. The effects on aquatic listed species at the Cow Creek Development would be similar to the proposed action.

Short-term minor adverse effects to potential habitat for northern spotted owl and Pacific fisher may occur as a result of vegetation disturbance or removal necessary for implementing AA1 at both developments. Removal of the Cow Creek Development potentially results in the loss of VELB habitat and direct loss or degradation of potential summer habitat for the California red-legged frog.

Action Alternative 2

Flows at the diversion dam would be split between the canal and the bypassed reach to support the water rights for Abbott Users and the Tetrick Project, which draw their water rights from Hooten Gulch. Flows adequate to supply about 13 cfs to the Abbott Ditch would be diverted at the Cow Creek diversion dam and the remainder of flow would remain in the South Cow Creek bypassed reach. The flows would enhance nursery habitat available to migratory salmonid fry and juveniles. These flows would not support passage of migratory salmonids past several natural barriers in the Wagoner Canyon portion of the bypassed reach. Natural high flows would be relatively unaffected by AA2 during late fall through early spring when steelhead and late fall-run Chinook salmon are present.

Adult steelhead have been observed in Hooten Gulch under existing license conditions. Under the proposed action, the artificial permanent flows through Hooten Gulch downstream of the Cow Creek powerhouse would be terminated. AA2 would continue to provide permanent flows of at least 13 cfs through this reach of Hooten Gulch. Under AA2, it is uncertain that adult steelhead could negotiate the low flows in Hooten Gulch below the Abbott Ditch diversion dam without modification of the channel configuration and construction of a fish ladder. An unknown percentage of young steelhead hatched in Hooten Gulch would continue to be susceptible to entrainment into the Abbott Ditch diversion without construction of a fish screen at the entrance to the ditch.

The artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, would have similar effects on steelhead and salmon except for the pumping alternative. Although the pumping alternative would provide flows to the Abbott Users, no flows would be diverted into the bypass reach so this alternative would have no benefits to threatened or endangered fish (*Section 4.6.4*).

For terrestrial listed species, limited, short-term minor adverse effects to potential habitat for VELB, northern spotted owl, and Pacific fisher may occur. Similar effects would occur with the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR (*Section 4.7.4*).

No-Action Alternative

No direct or indirect adverse effects to fisheries and aquatic or terrestrial listed species would result from implementing the No-Action Alternative. Terrestrial species may benefit in the long-term from the continuation and protection of potential habitat within the project area.

5.1.8 Recreation Resources

Commission staff in the Final EIS reviewed effects to recreation associated with the surrender (*Section 3.3.7 Recreational Resources*).

5.1.8.1 Environmental Effects of Proposed Action

Many local residents, including some with disabilities, who have traditionally used the Kilarc forebay and the day use area for recreational activities, would be adversely affected over the long-term because access to the Kilarc forebay and the recreation facilities would no longer exist. However, since the canal failure, fresh water is no longer entering the forebay, fish stocking for recreational angling has ceased, and public access has been prohibited at Kilarc forebay and at the Public Use Area. Other comparable recreation areas that provide similar recreational opportunities exist within driving distance of the project, but those alternative areas are of lower quality and would be inconvenient for many local stakeholders to access. The Cow Creek Development is not currently accessible to the public and no public recreation facilities are currently provided at the development, so there would be no effects to recreation at the Cow Creek Development.

5.1.8.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Recreation under AA1 would be restored to the level that occurred prior to failure of the main canal. This alternative would require that the canal be repaired in order to ensure fresh flows to the forebay.

Action Alternative 2

The effects to recreation under AA2 would be identical to those discussed for the proposed action. Public access to South Cow Creek is limited, so any effects related to additional fishing restrictions that may be implemented by California DFW as a result of opening additional miles of South Cow Creek to anadromous fish would be expected to be minimal. Similar effects would occur with the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR (*Section 4.16.4*).

No-Action Alternative

Implementing the No-Action Alternative, once the Kilarc main canal is repaired, would not affect recreation resources at the Kilarc Development. Continued operation of the Kilarc Development and the Kilarc forebay recreation facilities under the No-Action Alternative would continue to provide recreational opportunities for the public.

5.1.9 Land Use

Commission staff in the Final EIS reviewed effects to land use associated with the surrender (*Section 3.3.8 Land Use*).

5.1.9.1 Environmental Effects of Proposed Action

PG&E's proposal would cause short-term minor adverse effects on land use at the project caused by the removal of project facilities at each development. Disturbance by equipment operation and the construction of new access roads would occur. Adverse effects on fire suppression from the removal of the Kilarc forebay would be long-term and moderate.

The proposed action would end the augmentation of flows to Hooten Gulch, downstream of the Cow Creek powerhouse. Hooten Gulch would not have sufficient flows to fulfill the Abbott Users' water right at the current point of diversion. In addition, the Tetrick Project would not be able to continue to generate if flows from the Cow Creek powerhouse are discontinued. Flows from the Abbot Diversion are used by area farming and ranching operations. The cessation of flows from the diversion would have a major long-term adverse effect on domestic uses and agricultural uses.

5.1.9.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

AA1 would have no effect overall in comparison to the current licensed condition at the Kilarc Development. The effects on Cow Creek-area land use would be the same as those described for the proposed action.

Action Alternative 2

The effects on Kilarc-area land use would be the same as those described for the proposed action. AA2 would result in no adverse effect on land use at the Cow Creek Development by continuing current land uses. Flows would continue to reach Hooten Gulch for domestic and agricultural uses by surrounding landowners. Agricultural irrigation of ranch lands would continue. The disposition of facilities not associated with flows would have a minor short-term adverse effect, in comparison to the No-Action Alternative. Similar effects would occur with the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR (*Section 4.4.4*).

No-Action Alternative

The No-Action Alternative would maintain land use conditions identical to licensed conditions. There would be no disturbance of existing environmental conditions except during the restoration of the Kilarc main canal, and there would be no new environmental protection, mitigation, or enhancement measures. Existing project structures would remain in place and operational.

5.1.10 Aesthetics

Commission staff in the Final EIS reviewed effects to aesthetics associated with the surrender (*Section 3.3.9 Aesthetics*).

5.1.10.1 Environmental Effects of Proposed Action

The removal of the Kilarc forebay area as a visual resource, and termination of the public's right to access this area, represents a long-term adverse effect. However, this effect would be minor because sightseeing and scenic views are possible from other recreational areas in the general area. There would be a minor long-term adverse effect on aesthetic views of the riparian habitat supported by the Abbott Ditch irrigation at the Cow Creek Development. Any effects to aesthetic and visual resources at the Cow Creek Development would be minor because project facilities are located on private lands that are inaccessible to the general public.

5.1.10.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

AA1 would result in no adverse effects at the Kilarc Development on aesthetics. No change would occur at this site, and all existing views of the Kilarc forebay and other landscapes viewable from the site would be retained. The aesthetic effects to the Cow Creek Development would be the same as the proposed action.

Action Alternative 2

The effects on Kilarc area aesthetics would be the same as those described for the proposed action. There would no longer be license mandated requirements for public access to this area, thus making aesthetic views less available. At the Cow Creek Development, there would be no adverse effect on the aesthetic views associated with the riparian habitat on private lands. The effects would be identical to current conditions under the project license.

As with the proposed action, the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, would be located either on private property, away from public roadways, or are too remote to be seen by the viewing public. There would be no additional effects from these alternatives (*Section 4.3.4*).

No-Action Alternative

There would be no disturbance of existing environmental conditions, and there would be no new environmental protection, mitigation, or enhancement measures except for the repair work needed at the Kilarc main canal. Existing project structures would remain in place and operational.

5.1.11 Socioeconomics

Commission staff in the Final EIS reviewed effects to socioeconomics associated with the surrender (*Section 3.3.10 Socioeconomics*).

5.1.11.1 Environmental Effects of Proposed Action

Adverse effects to socioeconomics include: (1) reduced property taxes paid to Shasta County; (2) irrigation flow in Abbott Ditch would not exist for the 312 acres of crop and pasture lands that support, in part, Tetrick Ranch and Abbot Ditch Users farming and ranching operations; and (3) the Tetrick Project would likely shut down, which would represent a loss of a source of revenue for its current owner. These

adverse effects would be relatively minor effects to the overall region but major adverse effects to those entities directly affected.

The proposed action would cause a loss of renewable hydroelectric generation capacity, which would be a long-term, minor, adverse effect on power generation. This loss is relatively minor in terms of the overall total hydroelectric generation produced in California by governmental and utility-owned hydro-power generators.

5.1.11.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Socioeconomic effects at the Kilarc Development would be similar to the effects found under the No-Action Alternative. At the Cow Creek Development, the effects would be the same as discussed under the proposed action.

Action Alternative 2

Socioeconomic effects at the Kilarc Development would be similar to the effects found under the proposed action. At the Cow Creek Development, the effects would be the same as discussed under the No-Action Alternative. The artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, would have similar effects (*Section 5.4*),

No-Action Alternative

There would be no socioeconomic effects associated with the No-Action Alternative.

5.1.12 Cultural Resources

Commission staff in the Final EIS reviewed effects to cultural resources associated with the surrender (*Section 3.3.11 Cultural Resources*).

5.1.12.1 Environmental Effects of Proposed Action

There are 11 cultural or historic resources located at the project. The removal of federal protection over these resources is considered an adverse effect. By letter dated November 4, 2008, the California SHPO replied with concurrence on the determination of eligibility and finding of effect and concurred with the findings and conclusions of the Section 106 technical report prepared for the project. On May 1, 2014, an MOA was executed between the California SHPO and the Commission to mitigate for unavoidable adverse effects to sites eligible for the National Register caused by

surrender activities. As mitigation, the licensee would prepare a Historic American Engineering Record for the Kilarc and Cow Creek powerhouses.

5.1.12.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Anticipated adverse effects on archaeological and historic resources at both developments would be the same as those under the proposed action. The MOA, described above, would mitigate the major long-term adverse and other effects on historic resources created by implementation of the surrender.

Action Alternative 2

Anticipated adverse effects on archaeological and historic resources at both developments would be the same as those under the proposed action. The MOA, described above, would mitigate the major long-term adverse and other effects on historic resources created by implementation of the surrender.

Under the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, new features would be installed to continue flows to the Abbott Ditch, and therefore could result in adverse effects to cultural and paleontological resources due to ground disturbing activities. As with the proposed action, compliance with the 2014 MOA would be required regardless of whether any of these alternatives are implemented (*Section 4.8.4*).

No-Action Alternative

The No-Action Alternative would create no adverse effects on archaeological or historic resources at the Kilarc and Cow Creek developments. Operation of the project would continue as under current license conditions, with all requirements pertaining to cultural resources in place. The powerhouses would remain in-use and under federal jurisdiction with no alterations, therefore continuing to receive routine maintenance and up-keep.

5.1.13 Air Quality and Greenhouse Gases

Commission staff in the Final EIS did not review air quality and greenhouse gases as requested by EPA. However, these issues were addressed by the California SWRCB in *Sections 4.5 and 4.10* of its Final EIR. The Final EIR evaluated the proposed action's potential effects to air quality associated with emissions of criteria pollutants during construction activities (i.e., site preparation, road work, demolition,

removal, and restoration activities). Construction-related criteria pollutants (also greenhouse gases) would be emitted from the combustion of fossil fuels (i.e., gasoline and diesel) used to operate off-road equipment, portable equipment, and vehicles in the vicinity of the project. In addition, some fugitive dust (as particulate matter) may be generated by earthmoving activities, e.g., backfilling of canals, depending on soil moisture content when the work is performed.

The project is located in Shasta County and is within the jurisdiction of the Shasta County Air Quality Management District. Shasta County is a state "moderate" nonattainment area for ozone and a state nonattainment area for respirable particulate matter 10 microns or less in aerodynamic diameter (PM10). For all other California and National Ambient Air Quality Standards, Shasta County is in attainment or unclassified.

Operation of off-road equipment, on-road vehicles, and portable equipment would result in emissions of criteria pollutants in engine exhaust and fugitive dust from earthmoving tasks. The proposed action's anticipated construction-related criteria pollutant emissions associated with off-road equipment and on-road vehicle engine exhaust were quantified using the California Emissions Estimator Model Version 2016.3.1. The proposed action's specific location information, combined with the preliminary list of equipment and estimated usage established by PG&E, were used to generate emissions rates and quantify the maximum daily criteria pollutant emissions. The proposed action is expected to require about 40 weeks of planned work activities over the course of a year. Deviations from this schedule would not affect the air quality analysis because it is based on maximum daily emissions (pounds per day) and total emissions (tons), which would remain unchanged.

5.1.13.1 Environmental Effects of Proposed Action

The proposed action would not create a permanent stationary source of air contaminants and would not require a permit from the Shasta County Air Quality Management District. Temporary construction emissions of criteria pollutants would not exceed significance thresholds.

Due to the relatively small scale of construction activities and its remote upper-elevation mountain locations, construction would have a limited potential to contribute to existing violations of state air quality standards for ozone and PM10 in the lower-elevation Northern Sacramento Valley, primarily through diesel engine exhaust and fugitive dust generation. Incremental effects would be small, temporary, and would permanently cease upon completion of the proposed work. No applicable quantitative emissions thresholds would be exceeded. In addition, PG&E would impose speed limits to reduce fugitive dust. No significant effects to air quality would occur from the proposed activities.

In the short term, there would be a decrease in greenhouse gases associated with the cessation of workers commuting to and from the project area for operation and maintenance, along with a decrease due to filling of the two forebays. There would be an increase in greenhouse gases associated with vegetation loss and construction activities. As a result, there would be an insignificant total net increase in greenhouse gas emissions, compared with existing conditions.

PG&E has replaced the electric generating production of the project with other eligible renewable energy generation. In the long-term, therefore, there would be no net change in the equivalent greenhouse gas emissions from the lost generation potential of the project.

5.1.13.2 Environmental Effects of Action Alternatives and No-Action

Action Alternative 1

Air quality effects at the Kilarc Development would be similar to the effects found under the No-Action Alternative. At the Cow Creek Development, the effects would be the same as discussed under the proposed action. AA1 would result in no change in air quality at the Kilarc forebay site.

As a result of leaving the forebay in place, the beneficial effects of reduced greenhouse gas emissions would not occur. Construction-related emissions would be eliminated and effects from these alternatives would be less than significant. Although the Kilarc forebay would remain in place, it would not continue to generate electricity.

Action Alternative 2

Air quality and greenhouse gas effects at the Kilarc Development would be similar to the effects found under the proposed action. At the Cow Creek Development, the effects would be the same as discussed under the No-Action Alternative.

Under the artificial methods for providing flow to the Abbott Users, proposed in the Final EIR, new features would be installed to continue flows to the Abbott Ditch, and therefore construction activities would result in short-term and temporary greenhouse gas emissions. New equipment operation and maintenance would also require a limited amount of new commuting. As with the proposed action, the increased emissions are anticipated to be incremental when compared to existing emissions in Shasta County, and effects would be less than significant.

No-Action Alternative

There would be no air quality or greenhouse gas effects associated with the No-Action Alternative.

6.0 CUMULATIVE EFFECTS

The Council on Environmental Quality's regulations for implementing NEPA at 50 C.F.R. 1508.7 indicate that an action may cause cumulative effects on the environment if its effects overlap in space or time with the effects of other past, present, or reasonably foreseeable future actions, regardless of the agency, company, or person undertaking the action. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative effects were reviewed in *Section 3.4 Cumulative Effects Analysis* of the Final EIS.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our independent review and evaluation in this Supplemental EA, we recommend the proposed action, with staff additional recommendations, certain conditions from the WQC, and mandatory conditions from the BO as the preferred alternative. We recommend this because: (1) the environmental protection, mitigation and enhancement measures proposed by PG&E in its license surrender application, along with staff's additional recommendations, would adequately protect most environmental resources affected by the proposed action and should restore projects lands to a good condition; (2) there are no proponents currently in place to ensure the long-term maintenance or needed upgrades to facilities left in place or under AA1 or AA2; and (3) section 6 of the Commission's regulations allow licensees to surrender existing project licenses and cease project operation.

Under the proposed action, with staff additional recommendations, the Commission would authorize the decommissioning of the Kilarc and Cow Creek developments. However, the surrender of license would become effective only after all required plans have been approved by the Commission and after all decommissioning activities at both developments and all mitigation measures are adequately completed.

We do not recommend the No-Action Alternative because the project would be required to operate under its existing annual license. PG&E would also be required to make repairs to the main Kilarc Canal in order to comply with the annual license. However, over the long-term, an annual license is not intended to allow a licensee to continue project operation indefinitely. Nevertheless, NEPA procedures require staff to analyze the No-Action Alternative as all project works and operations currently exist and not analyze any possible ramifications of failing to adopt other alternatives.

Based on this independent analysis and issues previously discussed in *Sections 3 and 4* of the Final EIS, we recommend the following additional environmental measures (above those measures already proposed by PG&E) to be included in any order the Commission issues for the proposed surrender of the Kilarc-Cow Creek Project:

- PG&E must file with the Commission documentation of providing the well owners located downgradient of the Kilarc forebay ample notice before commencement of draining the Kilarc forebay in order to give them time to implement necessary measures to meet their water supply needs.
- PG&E must include Sierra Pacific Industries' requirement to maintain its access roads to minimum specifications when used during the proposed action within the project boundary.
- PG&E must file with the Commission documentation of its cooperation with Tetrick Ranch and Abbott Users regarding the date at which water delivery to the Hooten Gulch will cease.
- Any order issued must include the terms and conditions found in the BO from NMFS filed with the Commission on March 1, 2011.
- Any order issued should include Conditions 1, 8, 9, 15, 17, and 21-47 of the California SWRCB's WQC issued November 27, 2019; Conditions 10, 11, 12, 18, and 20, as modified by requiring that PG&E prepare these plans in consultation with the California SWRCB.
- The Cow Creek penstock route that occupies 1.87 acres held in trust by BIA must either be purchased or the penstock must be removed and the land restored to pre-permit conditions to avoid deterioration of trust assets.

In conclusion, Commission staff believes that any short-term and long-term environmental effects and loss of generation produced by the proposed action would be outweighed by the significant long-term environmental benefits gained from the project removal. The environmental and public benefits of the proposed action, with additional staff recommendations, would exceed those of the No-Action Alternative (status quo). Therefore, Commission staff recommends that PG&E's application for surrender of license be approved, as proposed, with the above stated additional staff recommendations.

8.0 FINDING OF NO SIGNIFICANT IMPACT

If the proposed surrender and decommissioning of the Kilarc-Cow Creek Hydroelectric Project is approved with PG&E's proposed protection measures, the project would return to a more natural environmental condition. The proposed action would not constitute a major federal action significantly affecting the quality of the human environment.

9.0 LITERATURE CITED

California State Water Resources Control Board. 2019. Final Environmental Impact Report for Kilarc-Cow Creek Hydroelectric Project License Surrender. Sacramento, CA. November 27, 2019.

Federal Energy Regulatory Commission. 2011. Final Environmental Impact Statement for the Surrender of License for the Kilarc-Cow Creek Hydropower Project No. 606 (Final EIS). August 16, 2011.

PG&E (Pacific Gas and Electric). 2009. Kilarc-Cow Creek Hydropower Project License Surrender Application. FERC Project No. 606. March 2009.

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