185 FERC ¶ 61,003

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Willie L. Phillips, Acting Chairman;

James P. Danly, Allison Clements,

and Mark C. Christie.

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| Pacific Gas and Electric Company | Project No. | 77-313 |

ORDER APPROVING TEMPORARY VARIANCE OF FLOW REQUIREMENTS UNDER LICENSE ARTICLE 52

(Issued October 2, 2023)

1. On May 23, 2023, Pacific Gas and Electric Company (PG&E), licensee for the 9.4-megawatt (MW) Potter Valley Hydroelectric Project No. 77,[[1]](#footnote-2) requested that the Commission approve a temporary variance of the flow and irrigation release requirements set forth in license Article 52. PG&E states that the temporary variance would allow it to address the project’s increased risk of seismic instability identified through a recent seismic analysis, while ensuring it has adequate water storage capacity to provide flows necessary for the protection of threatened species. The project is located on the East Branch Russian River and Eel River in Lake and Mendocino Counties, California. For the reasons discussed below, we grant the temporary variance.

# **Background**

1. On October 4, 1983, the Commission issued a new license for the continued operation and maintenance of the Potter Valley Hydroelectric Project. The uppermost project work is Scott Dam, which impounds Lake Pillsbury on the Eel River. Scott Dam has no fish passage. Below Scott Dam, the Eel River flows 12 miles into Van Arsdale Reservoir, impounded by Cape Horn Dam, also a project work. Cape Horn Dam has upstream and downstream fish passage facilities, enabling salmonid species to use the reach between Cape Horn and Scott Dams.
2. At the Van Arsdale Reservoir, water is either released from or spilled over Cape Horn Dam, from which it then flows northwest in the Eel River, or is conveyed south by tunnel and penstock to the Potter Valley Powerhouse. Water discharged from the powerhouse is released into the East Branch Russian River, which flows into the mainstem Russian River. Both the Eel River and Russian River flow to the Pacific Ocean. The project’s watershed is the source of most of the water in the East Branch Russian River. Approximately 15 miles downstream of the Potter Valley Powerhouse on the Russian River is the U.S. Army Corps of Engineers’ (Corps) Coyote Dam and its impoundment, Lake Mendocino, which provides water for municipal, irrigation, and recreational uses.
3. The California coastal distinct population segment Chinook salmon (*Oncorhynchus tshawytscha*) and northern California distinct population segment steelhead trout (*O. mykiss*) migrate the length of the Eel River and spawn in the mainstem and tributaries up to the reach between Cape Horn and Scott Dams. Both species are federally listed as threatened[[2]](#footnote-3) under the Endangered Species Act (ESA).[[3]](#footnote-4) In addition, irrigated agriculture, including orchard crops and vineyards, has been an important component of the East Branch Russian River’s upper basin economy since water diversions began in 1912. Surface and subsurface water sources are used extensively for irrigation, and some of the water discharged from the Potter Valley Powerhouse into the East Branch Russian River satisfies a contract between PG&E and the Potter Valley Irrigation District (Irrigation District).
4. **License Article 52**
5. After PG&E completed a 10-year study of flow-release effects on the salmonid fishery in the Eel River and East Branch Russian River and monitored water temperature downstream of Scott Dam, it sought and, on January 28, 2004, the Commission approved, a license amendment adding Article 52 to the license.[[4]](#footnote-5) Article 52 requires PG&E to comply with the reasonable and prudent alternative (RPA)[[5]](#footnote-6) provided in the U.S. Department of Commerce’s National Marine Fisheries Service’s (NMFS) Biological Opinion[[6]](#footnote-7) to prevent jeopardy to the threatened salmonids. The RPA requires PG&E to release minimum flows into the East Branch Russian River, based on water-year classifications,[[7]](#footnote-8) for the protection of aquatic resources as follows:

(i) during a normal water-year, PG&E must provide a minimum flow of 75 cubic feet per second (cfs) in the East Branch Russian River from May 15 through September 15 and 35 cfs from September 16 through May 14;

(ii) during a dry water-year, PG&E must provide a minimum flow of 25 cfs in the East Branch Russian River from April 15 through September 15 and 35 cfs from September 16 through April 14; and

(iii) during a critical water-year, PG&E must provide a minimum flow of five cfs in the East Branch Russian River all year.[[8]](#footnote-9)

1. The RPA also provides that PG&E must not release supplementary flows for the Irrigation District through the Potter Valley Powerhouse that exceed 50 cfs from April 15 to October 15.[[9]](#footnote-10) However, if the cumulative inflow into Lake Pillsbury is less than 25,000 acre-feet on April 1 or less than 40,000 acre-feet on May 1, which the RPA defines as exceptionally low inflow,[[10]](#footnote-11) then PG&E must not release supplementary flows for the Irrigation District that exceed 25 cfs between April 15 through October 15.[[11]](#footnote-12) In addition, PG&E must reserve 2,500 acre-feet of water (block water) for release to the Eel River for fishery resources at the discretion of resource agencies, such as NMFS and the U.S. Fish and Wildlife Service (FWS), each water year.[[12]](#footnote-13)
2. The 2023 water-year is classified as normal, so that PG&E is required to release 100 cfs into the Eel River below Scott Dam from May 1 through May 31 and 60 cfs from June 1 through September 30 (at gage E-2). PG&E must release 35 cfs into the East Branch Russian River from May 1 through May 14, 75 cfs from May 15 through September 14, and 35 cfs from September 15 through September 30.

## **Lake Pillsbury Coldwater Pool**

1. PG&E states that its operational experience demonstrates that drawing cooler water from the coldwater pool at the bottom of Lake Pillsbury and releasing it into the Eel River downstream of Scott Dam improves the aquatic habitat for listed Chinook salmonids.[[13]](#footnote-14) As the cooler water is removed and the storage level decreases, the upper, warmer water increasingly mixes with the cooler water, further diminishing the coldwater pool.[[14]](#footnote-15) If the coldwater pool is depleted, it cannot be restored until the following winter or spring.
2. PG&E explains that maintaining the coldwater pool in Lake Pillsbury helps ensure that the released flows do not become dangerously warm.[[15]](#footnote-16) Water temperature monitoring from the past decade demonstrates that maintaining Lake Pillsbury above 36,000 acre-feet through September 15 limits the depletion of the cold-water pool.[[16]](#footnote-17) Below 36,000 acre-feet, the increased temperatures of flow releases risk adverse effects to salmonids downstream.

## **Seismic Risk**

1. PG&E is currently undertaking a multiyear engineering reevaluation of Scott Dam to assess its condition and expected performance under seismic and flood loading conditions.[[17]](#footnote-18) The results of a preliminary, simplified seismic stability analysis[[18]](#footnote-19) suggested that the dam may become structurally unstable when subjected to updated seismic loading conditions[[19]](#footnote-20) and that the potential for seismic instability is lower when the water level in Lake Pillsbury is at or below the spillway crest elevation.[[20]](#footnote-21) The Commission’s Division of Dam Safety and Inspections (D2SI)[[21]](#footnote-22) and the California Department of Water Resources, Division of Safety of Dams (California DSOD)[[22]](#footnote-23) agreed with PG&E’s finding .
2. Based on the results of the seismic risk analysis, PG&E identified two interim risk-reduction measures to implement until more detailed studies are complete: (1) establish a ten-foot restriction on the maximum reservoir operating level; and (2) leave Scott Dam’s spillway gates open year-round to maintain the water level in Lake Pillsbury at or below spillway crest elevation. PG&E states that these interim measures would reduce the maximum available storage reservoir volume by approximately 20,000 acre-feet, which would reduce the storage pressure behind the dam and, in turn, reduce the potential seismic risk.[[23]](#footnote-24)

# **Licensee’s Request**

1. PG&E requests a temporary variance to reduce certain releases below the minimum flow and maximum diversion release requirements for a normal/wet water year under Article 52 of its license.[[24]](#footnote-25) Specifically, the temporary variance would: reduce minimum flow releases to Eel River below Scott Dam from 60 cfs to approximately 20 cfs, the floor set by the minimum opening of the low-level outlet; and, initially reduce minimum flow releases to the East Branch Russian River from 75 cfs to 25 cfs with ability to further decrease these flows as low as 5 cfs if daily average Lake Pillsbury release water temperatures exceed 16 degrees Celsius (°C) or as needed to maintain the reservoir elevation for facility safety. PG&E states that the proposed variance would reduce the storage level in Lake Pillsbury and its potential seismic risk while ensuring the reservoir remains above the critical storage level of 12,000 acre-feet and maintaining cooler release water temperatures to protect threatened salmonids in the Eel River.
2. PG&E proposes to adopt a flexible management approach to adjust reservoir releases to provide adequate flows and cooler water temperatures in the Eel River downstream of Scott Dam for ESA-listed salmonids. PG&E will manage releases from Lake Pillsbury in consultation with NMFS, California Department of Fish and Wildlife (California DFW), Round Valley Indian Tribes, and FWS (collectively, the agencies). PG&E proposes to monitor water temperatures, and if temperatures exceed 16°C, it would notify the agencies and begin meeting with them weekly to determine if diversions to the East Branch Russian River should be reduced.
3. The total storage in Lake Pillsbury, as of May 16, 2023, was 57,215 acre-feet,[[25]](#footnote-26) which is significantly below the reservoir’s total storage capacity of 75,000 acre-feet. PG&E states that the limited storage is comparable to that during drought conditions experienced in 2020 and 2021. Accordingly, the licensee’s request is intended to provide conditions like those approved by the Commission in 2020 and 2021.[[26]](#footnote-27) The licensee notes that, during these years, spring flows did not fill Lake Pillsbury to the spillway crest elevation (i.e., to the spillway gates). PG&E’s forecasts project that Lake Pillsbury would not be drawn down to critically low storage levels under the proposed variance, even under very dry summer conditions.[[27]](#footnote-28) If the variance is not approved, PG&E’s forecasts show Lake Pillsbury reaching critically low levels in late November or early December 2023.[[28]](#footnote-29)
4. As part of its request, PG&E proposes to continue engagement with the previously established Drought Working Group.[[29]](#footnote-30) PG&E would meet with the group monthly during the variance period to discuss storage levels, release flow rates, water temperature profiles, release temperatures, and estimated temperature projections. PG&E would provide the group with Lake Pillsbury temperature profiles at Scott Dam from May 1 through September 30, 2023, prior to each meeting. PG&E would also collect bi-weekly temperature measurements near Benmore Creek and near Trout Creek on the Eel River between Scott Dam and Cape Horn Dam, to determine flow and habitat suitability for salmonids.
5. PG&E additionally requests that compliance with flow requirements to the Eel River below Cape Horn Dam be measured as a 48-hour average versus instantaneously.[[30]](#footnote-31) The request includes provisions for water temperature monitoring, profiling, and modeling, as well as for providing funding for adult salmonid Dual-Frequency Identification Sonar (DIDSON) monitoring to be conducted by California DFW and the Round Valley Indian Tribes from October 1, 2023 through January 31, 2024.
6. PG&E states that it will submit monthly storage reports to the Commission during the variance period. It proposes that the variance end when Lake Pillsbury storage exceeds 36,000 acre-feet following October 1, 2023, or when the variance is superseded by another variance. PG&E states that the 36,000 acre-feet storage threshold would allow it to meet minimum flow obligations through January 2024 in the event of extremely low inflow in early winter.

# **Pre-Filing Consultation**

1. PG&E developed its proposal in consultation with NMFS, California DFW, FWS, the Round Valley Indian Tribes, and the Drought Working Group. California DFW and the Round Valley Indian Tribes support the proposed variance.[[31]](#footnote-32) NMFS also supports the proposed variance, stating that it is necessary to conserve water storage within Lake Pillsbury, which ensures suitable flow and water temperature conditions for federally listed salmonids in the Eel River downstream of Scott Dam, and notes that the flow components of the proposed variance are consistent with the intent of NMFS’s 2002 Biological Opinion for the project and some of its proposed interim protective measures.[[32]](#footnote-33)

# **Public Notice, Interventions, and Comments**

1. On July 5, 2023, the Commission issued public notice of PG&E’s application, establishing August 4, 2023, as the deadline for filing comments, interventions, and protests.[[33]](#footnote-34) The California Water Board and the U.S. Department of the Interior filed timely notices of intervention.[[34]](#footnote-35) Timely, unopposed motions to intervene were filed by: the Irrigation District; the Mendocino County Inland Water and Power Commission (Mendocino County); Lake County, California; and the Friends of the Eel River, Pacific Coast Federation of Fishermen’s Associations, Institute for Fisheries Resources, California Trout, and Trout Unlimited (collectively, Environmental Intervenors).[[35]](#footnote-36)
2. Additionally, the Commission received comments from: the Environmental Intervenors; the Irrigation District; the Sonoma County Water Agency (Sonoma Water); Lilly Armstrong; and, jointly, the Environmental Intervenors, California Sportfishing Protection Alliance, Redwood Chapter of the Sierra Club, Native Fish Society, Save California Salmon, American Whitewater, Conservation Angler, Northern California Council Fly Fishers International, Wiyot Tribe Natural Resource Department, and North Coast Native Protectors (collectively, Environmental Commenters).
3. Many commenters express support for the proposed variance and the reduction of Lake Pillsbury storage levels in light of the greater potential seismic risk.[[36]](#footnote-37) Environmental Commenters emphasize the need to preserve the coldwater pool for the protection of ESA-listed species downstream of Scott Dam.[[37]](#footnote-38) Environmental Intervenors note warm water releases from Lake Pillsbury in the past have reduced steelhead trout survival and production below Scott Dam.[[38]](#footnote-39) Sonoma Water, the water manager in the Russian River watershed, states that the amount of water the project releases into East Branch Russian River affects the amount of flow and storage levels in Lake Mendocino, and that storage levels in Lake Mendocino are also managed for the protection of listed species.[[39]](#footnote-40) Sonoma Water supports PG&E’s proposal to release 25 cfs into the East Branch Russian River, but asserts that those flows should only be further reduced if necessary to maintain the coldwater pool and to prevent bank sloughing.[[40]](#footnote-41)
4. The Irrigation District expresses concern over the proposed variance’s reduction in flows to the East Branch Russian River and the resulting impacts on downstream users of the East Branch and mainstem Russian River.[[41]](#footnote-42) As a result, the Irrigation District requests that the Commission deny the variance and recommends that PG&E reduce flows to the East Branch Russian River only as warranted in response to changing conditions affecting Lake Pillsbury’s storage levels, rather than preemptively as proposed.

# **Discussion**

1. PG&E determined, and D2SI and California DSOD concur, that the seismic instability of Scott Dam may be greater than previously understood. Granting the requested temporary variance would permit PG&E to leave the gates at Scott Dam open to mitigate the increased risk until PG&E develops a more accurate assessment of the seismic risk and long-term seismic risk reduction measures.
2. Further, the temporary variance would reduce the likelihood of harm to ESA-listed salmonids in the Eel River by maintaining a coldwater pool and sufficient storage levels in Lake Pillsbury. By initially reducing flows to the East Branch Russian River to 25 cfs and only adjusting downward as needed, the temporary variance would minimize any potential impacts to ESA-listed salmonid species in the East Branch Russian River. Downstream users of the East Branch Russian River water may experience a reduction in flows and contracted water deliveries under the variance; however, we find the variance appropriately balances the protection of threatened species and the interests of downstream water users. We discuss commenters’ concerns below.

## **Federally Listed Species**

1. As explained above, the Eel River, from the mainstem and tributaries up to the reach between Cape Horn and Scott Dams, is home to two species listed as threatened under the ESA—the Chinook salmon and the California steelhead trout. Both spring-run Chinook salmon[[42]](#footnote-43) and steelhead trout[[43]](#footnote-44) are likely to occur in the affected area during the proposed variance implementation period.
2. NMFS’s November 26, 2002 Biological Opinion explains that the number of Chinook salmon in the Upper Eel River has declined from an estimated 13,000 in 1964 to fewer than 1,000 in 1999. Steelhead trout counts have similarly declined from an estimated 10,000 in 1964 to fewer than 1,000 in 1999.[[44]](#footnote-45) PG&E counted a total of 277 adult Chinook salmon at the Van Arsdale Fisheries Station at Cape Horn Dam during the 2022 passage season, and 145 adult steelhead trout at the Van Arsdale Fisheries Station during the 2023 spring run.[[45]](#footnote-46)
3. Environmental Commenters support the proposed variance, stating it will protect these federally listed species by conserving water storage in Lake Pillsbury to later aid in maintaining suitable flow and water temperature conditions. They assert that the current flow rates have resulted in a sharp drawdown of Lake Pillsbury, and that the longer it continues, the fewer management options will be available in the future.
4. Sonoma Water notes that the reduction in flows to the East Branch Russian River could impact storage levels in Lake Mendocino, which in turn would impact listed species in the Russian River.[[46]](#footnote-47) It expresses support for the proposed variance, and in particular, supports PG&E’s proposal to maintain an initial target flow of 25 cfs into the East Branch Russian River and reduce downward only if necessary to maintain sufficient storage in Lake Pillsbury. Sonoma Water states that maintaining adequate flows into the East Branch Russian River will benefit listed species in the Russian River.
5. The reduced flows in the East Branch Russian River under the proposed variance would reduce aquatic habitat and increase water temperatures, which could become increasingly severe in the warmer summer months. This has the potential to cause elevated stress and possible salmonid mortality. However, the temporary variance would minimize these impacts by only reducing flows below 25 cfs if necessary to protect listed species in the Eel River. Moreover, storms in December 2022 through January 2023 largely replenished Lake Mendocino, which should further mitigate the impacts of reduced flows on protected salmonids in the East Branch Russian River.[[47]](#footnote-48)
6. NMFS has stated that the proposed variance is necessary to minimize and avoid adverse effects to ESA-listed salmonids and their designated critical habitat and is consistent with the intent of its 2002 Biological Opinion and some of the interim measures proposed in its March 16, 2022 letter.[[48]](#footnote-49) We agree. The proposed variance would allow PG&E to operate Lake Pillsbury at a lower storage level necessary to reduce its seismic risk potential while ensuring that the water storage level is sufficient to maintain the coldwater pool in the reservoir and release cooler flows into the Eel River for the protection of listed salmonids. By only reducing flows to the East Branch Russian River below 25 cfs as needed, the proposed variance would also minimize impacts on listed salmonids in the Russian River.

## **Reduced Releases to the Russian River**

1. The Irrigation District expresses concern regarding the proposed variance’s reduction in flows to the East Branch Russian River and resulting impacts on downstream users.[[49]](#footnote-50) The Irrigation District comments that the appropriative water rights[[50]](#footnote-51) held by hundreds of downstream users in the Russian River watershed are predicated, in part, on the expected annual diversions from the Eel River under Article 52 of the Potter Valley Project license. It generally asserts that the temporary variance would cause widespread impacts to agricultural and domestic water users throughout Mendocino, Sonoma, and Marin Counties. The Irrigation District argues that, rather than preemptively reducing flows to 25 cfs, PG&E should take a more reactive approach and only reduce flows as warranted, noting that PG&E’s forecasts do not show Lake Pillsbury reaching critically low levels until late November or early December 2023 without the proposed variance.[[51]](#footnote-52)
2. Authorizing PG&E to limit minimum flows as proposed would allow it to maintain Lake Pillsbury’s storage level above the 12,000-acre-feet critical storage level and to maintain the coldwater pool level through the dry season (i.e., summer and fall) and minimize the risk of reaching these levels after the variance terminates. Should Lake Pillsbury level reach 12,000 acre-feet, its critical storage level, the project risks operational impacts associated with bank sloughing and impairment of outlet works, which would prevent the licensee from meeting the minimum flow requirements in the Eel River.[[52]](#footnote-53) In addition, maintaining the coldwater pool would help ensure that that the released flows do not become dangerously warm for threatened salmonids in the Eel River.[[53]](#footnote-54) Under the proposed variance, PG&E would adjust its flow releases based on data collected during prior years’ outcomes in order to maximize releases while preserving the coldwater pool.[[54]](#footnote-55)
3. In order to maintain the coldwater pool in Lake Pillsbury, PG&E may not be able to both allocate additional water to the East Branch Russian River and maintain current flow requirements in the Eel River. While the proposed curtailment may reduce water available to downstream water users in the Russian River watershed, as previously noted,[[55]](#footnote-56) storms in December 2022 and January 2023 largely replenished Lake Mendocino, which should buffer any impact the temporary variance would have on those users. Further, the temporary variance would ensure that water from Lake Pillsbury remains usable, both for aquatic species and downstream water users, and would ensure that more extreme emergency curtailments do not become necessary. PG&E’s approach would ensure reliable deliveries of a limited amount of water while maintaining flows within the bounds of the RPA. We are satisfied that PG&E’s proposal adequately minimizes impacts to East Branch Russian River water users.
4. PG&E also proposes several best management practices to monitor and offset the potential effects of variance implementation. PG&E would convene the Drought Working Group monthly throughout the variance period to discuss storage levels, release flow rates, water temperature profiles, release temperatures, and estimated temperature projections in the Eel River below Scott Dam. The Drought Working Group would use this data to inform flow modifications within the bounds of the proposed variance using Lake Pillsbury’s early fall storage target as guidance.

# **Conclusion**

1. We find that approval of PG&E’s temporary variance request will allow it to address the potential seismic risk at the project while ensuring it has adequate water storage capacity to provide flows necessary for the protection of threatened species. The proposed variance also conserves limited water resources, minimizes the risk of operational and dam safety impacts at Lake Pillsbury, and maintains flows within the bounds of Article 52 of the license. While the Russian River watershed would receive reduced flow allocations, the proposed variance would appropriately balance competing interests by only reducing flows to the Russian River below 25 cfs as necessary for the protection of Eel River salmonids or dam safety. Finally, the proposed variance would avoid new impacts to Eel River environmental resources while minimizing any impacts to aquatic resources in the East Branch Russian River. Therefore, we approve the temporary variance from the minimum flow and maximum release requirements in Article 52, subject to conditions.
2. Although the proposed temporary minimum flow reductions in the East Branch Russian River would be compliant with the critical water flow regime of the RPA, PG&E should monitor for and alert the resource agencies and the Commission to any adverse effects to aquatic resources during the temporary variance. If such effects occur, the licensee must report them to NMFS, FWS, California DFW, the Round Valley Indian Tribe, and the Commission as soon as possible, but not later than two business days after the effects are discovered.
3. Given the dynamic watershed conditions in the Eel River and East Branch Russian River, in Ordering Paragraph (D) below the Commission reserves its authority to modify this order based on any new information received or as conditions may warrant.

The Commission orders:

1. Pacific Gas and Electric Company’s (PG&E’s) request for a temporary variance of the minimum flow and maximum irrigation release requirements set forth in license Article 52 for the Potter Valley Hydroelectric Project No. 77 is approved, subject to paragraphs (B) through (D) below.
2. PG&E must file a report notifying the Commission that the temporary variance is terminated no later than 15 days after Lake Pillsbury storage exceeds 36,000 acre-feet following October 1, 2023.
3. PG&E must notify the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, the Round Valley Indian Tribes, and the Commission of any adverse effects to aquatic resources observed or reported during the temporary variance as soon as possible, but no later than two business days after the discovery.
4. The Commission reserves its authority to modify this order based on any new information received and as conditions may warrant.
5. This order constitutes final agency action. Any party may file a request

for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l*, and the Commission’s regulations at 18 C.F.R. § 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. PG&E’s failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

( S E A L )

Kimberly Bose,

Secretary.

1. *Pac. Gas & Elec. Co.*, 25 FERC ¶ 61,010 (1983). The license expired on April 14, 2022, and PG&E continues to operate the project under an annual license. Notice of April 21, 2022 Authorization for Continued Project Operation. PG&E filed a plan and schedule for filing an application to surrender the project on July 8, 2022. PG&E July 8, 2022 Filing. [↑](#footnote-ref-2)
2. 65 Fed. Reg. 36,074 (June 7, 2000), listing the California distinct population segment steelhead trout as a threatened species; 64 Fed. Reg. 50,394 (Sept. 16, 1999), listing the California distinct population segment Chinook salmon as a threatened species. [↑](#footnote-ref-3)
3. 16 U.S.C. §§ 1531 *et seq*. [↑](#footnote-ref-4)
4. *Pac. Gas & Elec. Co.*, 106 FERC ¶ 61,065, *reh’g denied*, 107 FERC   
   ¶ 61,232 (2004). [↑](#footnote-ref-5)
5. *See* *Pac. Gas & Elec. Co.*, 106 FERC ¶ 61,065 at PP 102-103 & ordering para. (E). *See id.*, app. A (attaching the RPA). [↑](#footnote-ref-6)
6. *See* NMFS Nov. 29, 2002 Final Biological Opinion in Docket No. P-77-100. [↑](#footnote-ref-7)
7. A water year begins on October 1 and ends on September 30 the following year. To determine the water-year classification for a given river basin, the estimated total unimpaired runoff for the water year is compared to historical data and then classified as very dry, normal/average, wet, or very wet. The total estimated unimpaired runoff includes the prior year’s water year index, current runoff, and forecasted runoff in the watershed. Water-year classifications in California are based on data prepared by the California Department of Water Resources. *See* *California Data Exchange Center – River Forecasts*, California Department of Water Resources, https://cdec.water.ca.gov/rivforecasts.html (last accessed September 14, 2023). [↑](#footnote-ref-8)
8. RPA Condition C.1. [↑](#footnote-ref-9)
9. RPA Condition E.4. [↑](#footnote-ref-10)
10. RPA Condition A.10. [↑](#footnote-ref-11)
11. RPA Condition E.4. [↑](#footnote-ref-12)
12. RPA Condition D.1. [↑](#footnote-ref-13)
13. Because surface water warms significantly faster than deeper water, as the upper water layer warms, a thermal gradient is created and a coldwater pool forms at the bottom of the Lake Pillsbury reservoir. PG&E draws water from the coldwater pool via a lower-level outlet below full pool. [↑](#footnote-ref-14)
14. PG&E May 23, 2023 Request at 7. [↑](#footnote-ref-15)
15. *Id*. [↑](#footnote-ref-16)
16. *Pac. Gas & Elec. Co.*, 180 FERC ¶ 61,041, at P 10 (2022). [↑](#footnote-ref-17)
17. The engineering reevaluation is intended to address multiple recommendations from the two most recent five-year Part 12D safety inspections of Scott Dam. PG&E plans to complete and submit the results of the reevaluation to the Commission by December 1, 2024. PG&E March 17, 2023 Filing. The proceeding is ongoing under the subdocket P-77-318. [↑](#footnote-ref-18)
18. PG&E performed the simplified seismic stability analysis at the outset of its engineering reevaluation to gain an initial understanding of the expected performance of the dam and a preview of possible conclusions for the later, more sophisticated analyses that will be completed at the end of the engineering reevaluation. [↑](#footnote-ref-19)
19. These updated seismic loading conditions were developed as part of PG&E’s recent deterministic seismic hazard study. *See* PG&E December 20, 2021 Deterministic Seismic Hazard and Regional Seismicity Reports. [↑](#footnote-ref-20)
20. PG&E performed this analysis using existing engineering data at the outset of its reevaluation process to develop an initial understanding of the expected performance of the dam under updated seismic loading conditions. After it completes its engineering reevaluation of Scott Dam, PG&E will reassess the project’s seismic risk using updated engineering data. PG&E March 17, 2023 Filing. [↑](#footnote-ref-21)
21. D2SI April 28, 2023 Letter. D2SI generally agreed with PG&E’s finding of greater potential seismic instability and requested that PG&E perform some additional analysis to refine the estimated risk potential and clarify aspects of the proposed interim risk reduction measures. [↑](#footnote-ref-22)
22. *See* PG&E July 31, 2023 Long-Term Amendment Request at 1 (noting California DSOD concurred with PG&E’s finding). [↑](#footnote-ref-23)
23. PG&E March 17, 2023 Filing. In response to Commission staff’s March 28, 2023 directive that PG&E request to amend its license if it seeks to incorporate the interim seismic risk reduction measures on a more permanent basis, on July 31, 2023, PG&E filed a long-term request to amend the minimum flow requirements in its license to enable it to leave the Scott Dam gates open indefinitely, beginning in spring 2024, and maintain the reduced storage capacity in Lake Pillsbury. The Commission is processing that request in subdocket P-77-318. [↑](#footnote-ref-24)
24. The water-year classification for the Eel and Russian Rivers are wet/normal. PG&E does not propose to amend the minimum flow requirements into the Eel River below the Cape Horn dam. Consistent with a wet water-year classification, minimum flows into the Eel River below Cape Horn Dam would remain at 15 cfs under the proposed variance. [↑](#footnote-ref-25)
25. *See* California Department of Water Resources, California Data Exchange Center - Lake Pillsbury storage, https://cdec.water.ca.gov/dynamicapp/QueryDaily?s=LPY (last accessed September 7, 2023). As of September 6, 2023, the total storage in Lake Pillsbury was 40,761 acre-feet. [↑](#footnote-ref-26)
26. *Pac. Gas & Elec. Co.*, 175 FERC ¶ 62,068 (2021); *Pac. Gas & Elec. Co.*, 174 FERC ¶ 62,158 (2021); *Pac. Gas & Elec. Co.*, 171 FERC ¶ 62,074 (2020). [↑](#footnote-ref-27)
27. Critically low levels occur when the storage level is below 12,000 acre-feet,   
    at which point there is a high potential of bank sloughing, the severity of which is affected by the rate of drawdown. Bank sloughing is the vertical or angled collapse of a  
    riverbank, in which the face of the bank slides or rotates away, often leaving a concave scar or scarp in the bank and a clump of sediment at the base. [↑](#footnote-ref-28)
28. PG&E March 17, 2023 Filing. [↑](#footnote-ref-29)
29. PG&E established the Drought Working Group in connection to its request for   
    a temporary flow variance in 2015. *See* *Pac. Gas & Elec. Co.*, 151 FERC ¶ 62,116,   
    at P 4 (2015). PG&E filed a letter with the Commission on August 25, 2022, defining the members of the group as California DFW, FWS, California Trout, Friends of the Eel River, NMFS, Irrigation District, the Round Valley Indian Tribes, Sonoma County Water Agency, Russian River Flood Control District, and California Water Board. [↑](#footnote-ref-30)
30. Using an average to determine compliance allows the operator to forego releasing an additional buffer flow to maintain minimum flow compliance in the event of short flow interruptions. This approach is intended to conserve limited water resources by not releasing additional flows above the absolute minimum. [↑](#footnote-ref-31)
31. PG&E May 23, 2023 Flow Variance Request at Enclosure 1. [↑](#footnote-ref-32)
32. *Id*. NMFS also recommends full implementation of interim protective measures it previously proposed that are intended to avoid and minimize take of ESA-listed species while the Commission, PG&E, and interested parties work through a final determination as to the future of the project. These interim measures are outlined in NMFS’s March 16, 2022 letter to the Commission filed in subdocket P-77-314. Commission staff has initiated a proceeding to consider whether to reopen the license to incorporate NMFS’s proposed measures. That proceeding is ongoing. Given that PG&E filed a protest in that proceeding, should there be a determination that the license will be reopened, it will be by Commission order instead of by delegated authority. [↑](#footnote-ref-33)
33. 88 Fed. Reg. 44,124 (July 11, 2023). [↑](#footnote-ref-34)
34. Under Rule 214(a)(2) of the Commission’s Rules of Practice and Procedure, the California Water Board and the U.S. Department of the Interior became parties to the proceeding upon the timely filing of the notice of intervention.  18 C.F.R. § 385.214(a)(2) (2022). [↑](#footnote-ref-35)
35. Timely, unopposed motions to intervene are granted by operation of Rule 214(c)(1) of the Commission’s Rules of Practice and Procedure.  18 C.F.R. § 385.214(c)(1). [↑](#footnote-ref-36)
36. *See, e.g.*, Environmental Intervenors July 28, 2023 Comments at 11. [↑](#footnote-ref-37)
37. Environmental Commenters August 28, 2023 Comments. [↑](#footnote-ref-38)
38. Environmental Intervenors July 28, 2023 Comments at 11. [↑](#footnote-ref-39)
39. *Id*. [↑](#footnote-ref-40)
40. Sonoma County Water Agency August 3, 2023 Comments. [↑](#footnote-ref-41)
41. Irrigation District July 31, 2023 Motion to Intervene and Comments. [↑](#footnote-ref-42)
42. Spring-run Chinook salmon spawning can begin as early as August and extend into February. Water temperatures suitable for spawning range between 57 degrees Fahrenheit (ºF) and 67ºF. Peak spawning typically occurs in November and December. Gravel nests (redds) are large (100 square feet), and incubating eggs require water temperatures between 42ºF and 57ºF. Young-of the-year emergence occurs in March and April, with fry spending three to six months in the river before outmigrating to the Pacific Ocean. [↑](#footnote-ref-43)
43. Both summer- and winter-run steelhead trout may be present, with the latter being predominant. Summer-run adults migrate into the river system between April and June and hold in cooler river sections until spawning starts in September. The winter   
    run begins in November and may extend into April, with spawning generally occurring between February and May (though spawning in June is also possible). Steelhead trout are typically smaller than Chinook salmon and therefore more likely to spawn in tributaries where flows are lower, although they will use the mainstem during low-flow years. Steelhead trout also require somewhat colder water than Chinook salmon   
    for spawning and successful egg incubation. Young steelhead may reside in the river for up to four years (although two is typical) before outmigrating to the ocean. Steelhead trout, unlike Chinook salmon, may not die after spawning and can return to spawn several times. [↑](#footnote-ref-44)
44. *See* NMFS November 29, 2002 Final Biological Opinion at 30 filed under P‑77‑110. [↑](#footnote-ref-45)
45. *See Eel River Fish Count Station at Van Arsdale Reservoir*, Friends of the Eel River,https://eelriver.org/the-eel-river/fish-count/ (last accessed August 31, 2023). [↑](#footnote-ref-46)
46. Sonoma Water is subject to a Biological Opinion for the Russian River issued by NMFS in September 2008. Sonoma Water states that water released from the Potter Valley Project into the East Branch Russian River significantly impacts the water levels in Lake Mendocino, and that water levels in Lake Mendocino are critically necessary to maintain adequate flows and water temperatures in the upper Russian River for the protection of the three salmonid species—Chinook salmon, Coho salmon, and the steelhead. If the water levels in Lake Mendocino reach very low levels, all three species could suffer significant harm. Sonoma Water August 4, 2023 Comments at 2. [↑](#footnote-ref-47)
47. *See* California Department of Water Resources, California Data Exchange Center – Coyote (Lake Mendocino) storage http://cdec4gov.water.ca.gov/dynamicapp/QueryDaily?s=COY (last accessed August 31, 2023). [↑](#footnote-ref-48)
48. PG&E May 23, 2023 Variance Request at Enclosure 1. In comments on PG&E’s similar 2022 variance request, NMFS indicated that the proposed variance would benefit the Eel River salmonids without endangering Russian River populations. PG&E May 22, 2022 Variance Request at Enclosure 1. [↑](#footnote-ref-49)
49. Irrigation District July 31, 2023 Comments. [↑](#footnote-ref-50)
50. An appropriative water right is the right to take water for use on non-riparian land or to use water on riparian land that would not be there under natural conditions. Permits and licenses granting appropriative water rights are administered by the California Water Board. [↑](#footnote-ref-51)
51. *Id*. [↑](#footnote-ref-52)
52. PG&E May 23, 2023 Variance Request at 2. *See also* PG&E April 3, 2017 Technical Memo on Lake Pillsbury Minimum Pool Operations. [↑](#footnote-ref-53)
53. PG&E May 23, 2023 Variance Request at 7. [↑](#footnote-ref-54)
54. Since 2014, PG&E used vertical temperature arrays in Lake Pillsbury to better understand the impacts of coldwater storage under various water-year classifications and flow release requirements. [↑](#footnote-ref-55)
55. *See supra* P 29. [↑](#footnote-ref-56)