

OD-ORDER, 58 FERC ¶62,093, Pacific Gas and Electric Company, Project No. 803-014 - California, (Jan. 31, 1992)

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Pacific Gas and Electric Company, Project No. 803-014 - California

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Pacific Gas and Electric Company, Project No. 803-014 - California

Order Amending License (Major Project)

(Issued January 31, 1992)

Fred E. Springer, Director, Office of Hydropower Licensing.

Pacific Gas and Electric Company (PG&E), licensee for the DeSabra-Centerville Water Power Project, filed an application under Part I of the Federal Power Act (Act) to amend its license to modify the project's Centerville Development.

PG&E also asked that its term of license be extended to a full 50 years. PG&E's license, issued by the Commission on June 12, 1980, expires October 11, 2009.

The project is located on Butte Creek and the West Branch Feather River, in Butte County, California.

PG&E proposes to modify the Centerville Development by: (1) replacing the existing Centerville powerhouse with a new underground powerhouse; (2) replacing the existing generating unit with a new generating unit with an installed capacity of 8.5 megawatts (MW); (3) replacing the two penstocks with a single 66-inch-diameter, 2,600-foot-long penstock; and (4) constructing a tailrace structure.

PG&E's changes would increase Centerville's total installed capacity from 6.4 MW to 8.5 MW and the project's annual generation from 148,260 megawatthours (MWh) to 204,560 MWh.

The Commission published a public notice of the application. No agency objected to issuance of this amendment of license. In determining whether to issue this amendment of license, the staff fully considered comments from the California Department of Fish and Game (DFG), the Department of the

Interior (DOI), and the California Sportfishing Protection Alliance (CSPA).

In a timely motion to intervene, CSPA says approving this amendment of license would allow the deficient fishery protection conditions of the existing license to continue to affect the

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fisheries of Butte Creek and the West Branch Feather River Basin.

DFG's late motion to intervene was granted. DFG says: (1) under the existing license, the project is having significant adverse impacts on fish and wildlife resources and these impacts would continue under the proposed new operation; (2) PG&E hasn't agreed to measures needed to maintain fish and wildlife; (3) PG&E's failure to implement these measures will cause a decline in fish and wildlife; and (4) if the Commission holds hearings in this matter, DFG would like to present testimony.

DFG's and CSPA's concerns about the effects of the existing licensed project are being handled under a separate proceeding. DFG's and CSPA's concerns about this amendment of license -- the Centerville powerhouse tailrace to avoid the attraction of salmon into the tailrace and turbines and releasing additional flows from the Lower Centerville Dam to decrease stream temperatures in the bypass reach -- are addressed in section H of staff's attached environmental assessment (EA) and in the section of this order entitled "Recommendations of Federal and State Fish and Wildlife Agencies."

Comprehensive Development

Section 4(e) of the Act states that in deciding whether to issue a license, the Commission, in addition to considering the power and development purposes of the project, shall give equal consideration to the purposes of: (1) energy conservation; (2) the protection, mitigation of damage to, and enhancement of fish and wildlife; (3) the protection of recreational opportunities; and (4) the preservation of other of our EA for this license amendment.

Further, the Act in section 10(a) states that the project adopted shall be such that in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway

related spawning grounds and habitat); and (4) other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes discussed in section 4(e).

Section 10(a)(2) of the Act requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Under section 10(a)(2), federal and state agencies filed 29 comprehensive plans that address various

resources in California. Of these, the staff identified and reviewed four plans relevant to this amendment. They found no conflicts.

In the EA, the staff: (1) evaluates the effects of construction and operation of the proposed powerhouse on the environmental resources of the project area; (2) discusses measures that should be implemented to protect, mitigate damage to, and enhance these resources; (3) evaluates the need for additional power; and (4) determines that a need for more power is expected during the 1990s.

In the EA, the staff fully considered the terms and conditions provided by DFG and DOI under section 10(j) of the Act and the comments and recommendations of CSPA and evaluated the effects of project area.

The staff analyzed the environmental effects and the economic consequences of the proposed amendment and the no-action alternative and concluded that the amendment of license would give the public the greatest benefits from the waterway, for the following reasons: (1) replacing the Centerville powerhouse would have significant power benefits; and (2) the environmental effects of building and operating the new powerhouse wouldn't be significant. By removing and displaying the 1907 Francis turbine, PG&E can preserve the turbine's historic value, at a small cost, and by raising the instream flow in the bypass reach, PG&E can enhance salmon habitat, at an annual cost of \$229,000.

Because of the moderate risk of extinction of spring-run chinook salmon, I conclude that the value of the added salmon habitat outweighs the power cost.

Based on the staff's review under sections 10(a) and 10(j) and on their independent analysis, I find that the amended DeSabra-Centerville Water Power Project is best adapted to a

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comprehensive plan for Butte Creek and the West Branch of the North Fork Feather River.

Section 10 (a)(2) (C): Conservation Efforts

Section 10(a)(2)(C) of the Act, as amended by the Electric Consumers Protection Act (ECPA), engaged in the generation or sale of electric power, consider the applicant's electricity consumption efficiency improvement programs -- including the plans, performance, and capabilities for encouraging or assisting its customers to conserve electricity cost effectively -- taking into account the requirements of state regulatory authorities.

Because PG&E is primarily engaged in the generation and sale of electric power, its application to amend its license comes within the scope of section 10(a)(2)(C).

PG&E's efforts to conserve electric energy and to reduce peak demand for capacity in its se
1985, entitled "1986 Energy Management and Conservation Activities," detailing its efforts to
conservation by the customers within its power supply system. PG&E's load-
substantially reduced capacity demand peaks and its education programs for customers and employees
have contributed to the success of the program.

California Public Utilities Commission (PUC), in a memorandum dated May 15, 1986, evaluates the
efforts of the largest California energy utilities to meet the issues enumerated in section 10(A)(2)(C) of
the Act. PUC says PG&E "has in fact been a nationally recognized utility leader in implementing
effective energy conservation programs."

The staff concludes, and I agree that PG&E has: (1) made a successful, good-faith effort to comply
with section 10(a)(2)(C) of the Act; and (2) effectively implemented the cost-effective parts of its
programs for conserving electrical energy and reducing peak demand.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j)(1) of the Act, 16 U.S.C. §803(j)(1), requires the Commission to include license
conditions based on recommendations of federal and state fish and wildlife agencies submitted pursuant
to the Fish and Wildlife Coordination Act for the protection, mitigation, and enhancement of fish and
wildlife. In the EA, the staff did not recommend adopting DFG's recommendation that PG&E release a
temperature-based flow in the bypassed reach, so that "when water temperature, as measured in Butte
Creek at the Helltown Bridge, is greater than 19
than 16 C during the period September 15 to May 14, licensee shall release additional water at
Centerville Diversion Dam, up to the entire inflow into Butte Diversion Dam, to prevent water
temperatures from exceeding the aforementioned criteria." Since DFG's proposal would not provide the
intended protection for anadromous fish in Butte Creek, the staff found that the recommendation was
inconsistent with the substantial evidence standard of section 313(b) of the Act. Under current project
operating conditions, the small volume of cooler, natural Butte Creek inflow is diluted with a large
volume of warmer, diverted water from DeSabra forebay. As a result, increasing flows in the bypass
reach as recommended by DFG would not in itself guarantee reduced water temperatures in the bypass
reach.

Under section 10(j)(2) of the Act, whenever the Commission believes that any recommendations of
federal and state fish and wildlife agencies may be inconsistent with the Act or other applicable law, the
Commission shall attempt to resolve such inconsistencies.

By letter dated October 24, 1991, the staff asked DFG to consider other options that would be
of the date of the letter (by December 9, 1991).

DFG responded by letter dated December 10, 1991, and stated that "We generally agree with your position that there may not be sufficient water temperature data to fully determine the proper operation procedure...."

DFG concurred that additional studies should be required to determine if operational changes are necessary to achieve the state water quality standard of maximum water temperature of 19 C. DFG recommended that a detailed plan be developed with consensus of DFG, FWS, and the National Marine Fisheries Service. Article 402 requires such a plan.

DFG also concurred with the requirement specified in article 403, which requires PG&E to monitor tailrace conditions to assess migrational delays and/or salmon mortality as a result of project operations.

I conclude that the fish and wildlife measures required in this license are consistent with the recommendations of the fish and wildlife agencies.

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Economic Evaluation

If the projected levelized cost of a project is less than the long-term, levelized cost of alternative beneficial.

Staff estimates the levelized annual cost of alternative power, equal to the power that would be produced by the new powerhouse over the remaining existing license term, would be about \$7.86 million and that the levelized annual cost of the new powerhouse would be about \$2.72 million.

Replacing the Centerville powerhouse therefore would produce benefits of about \$5.14 million annually over the remaining existing license term.

With an additional 10 years added to the term of the license, the levelized annual cost of the new powerhouse would be about \$2.6 million and the benefits would be about \$5.25 million annually.

Extension of License Term

PG&E asked that the term of the license for Project No. 803 be extended to a full 50 years, commensurate with the additional investment undertaken with the development of the Toadtown Powerhouse, authorized by the Commission in 1983, – and the present proposal to replace the Centerville Development powerhouse.

PG&E did not propose any new construction as part of its application for new license filed in 1976:

therefore, the DeSabra-Centerville Project No. 803 was issued a 30-year license in 1980. This action was in line with the Commission policy at the time and is consistent with requirements of section 15 of Act, as amended by ECPA, which establishes 30-year terms for those projects which propose no new construction or capacity, 40-year terms for those projects that propose a moderate amount of new development, and 50-year terms for those projects that propose substantial new development.

The staff reviewed PG&E's request to extend the term of the license to 50 years. The installed capacity in the new license was 24.85 MW. The Toadtown development and the Centerville redevelopment would add a total of 3.76 MW to the installed capacity, a 15.13-percent increase, at a total cost of over \$13 million. The staff believes that this additional construction and increase in installed capacity would qualify as a moderate redevelopment.

I concur. Therefore, I extend the term of the license to 40 years.

Effects on True's Manzanita

The rare True's manzanita (*Arctostaphylos trueii*) grows in the area that the construction will disturb. In the application, PG&E proposed to take cuttings of True's manzanita for propagation and subsequent other shrubs and trees native to California. In the EA, the staff recommends that PG&E develop a detailed plan to make sure the loss of True's manzanita is adequately mitigated.

Commenting on the EA, PG&E says that True's manzanita is now considered an invalid species. Therefore, PG&E says special consideration, including mitigation and monitoring, is unwarranted.

The California Native Plant Society (CNPS) currently puts the plant in List 3 -- plants about which CNPS needs more information -- of its "Inventory of Rare and Endangered Vascular Plants of California." The plant is not protected under the Endangered Species Act or the California State Environmental Quality Act (SEQA).

True's manzanita will be reclassified as *A. mewukka* ssp. *trueii* this year (personal communication, Mark Skinner, California Native Plant Society, Sacramento, California, January 13, 1992). The taxonomic change will not affect the plant's eligibility for future protection. The new edition of the CNPS inventory will place the plant in List 4 -- plants of limited distribution. List 4 plants have the potential of being moved to List 1 and receiving protection under SEQA.

The staff believes that PG&E's original proposals are appropriate. Implementing these measures will ensure revegetation of the roughly 2 acres of foothill woodland that PG&E will clear, and mitigate the loss of True's manzanita.

Summary of Findings

Our EA has background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment. Issuing this amendment is not a major federal action

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significantly affecting the quality of the human environment.

PG&E does not propose to build or modify any water retention structures. The amended project will be safe if constructed, operated, and maintained in accordance with the requirements of the license as amended by this order.

Based on the staff's analysis, I conclude that the DeSabla-Centerville Project, as amended by this order, does not conflict with any planned or authorized development, and is best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) The term of the license for the DeSabla-Centerville Project is extended to October 11, 2019.

(B) The license for the DeSabla-Centerville Project No. 803 is further amended as provided by this order, effective the first day of the month in which this order is issued.

(C) Items 23 through 24 in Ordering Paragraph (B)(ii) of the license are replaced by the following:

.....(23) a 66-inch-diameter, 2,600-foot-long penstock; (24) the Centerville powerhouse, located on Butte Creek, about 1 mile below Helltown Ravine, containing one generating unit rated at 8,500 kW;.....

(D) The following exhibits conform to the Commission's rules and regulations and are approved and made a part of the license to the extent that they show the general nature and location of the project. The superseded exhibits are deleted from the license.

Exhibit A--pages A-7 through A-11--description of the new Centerville powerhouse facilities, excluding the Lower Centerville Canal improvements (item 1.G)

(E) Article 39 of the license is amended as follows:

releases from the 250-acre-feet minimum pool are necessary to maintain minimum flows downstream of Philbrook Reservoir. Further, licensee shall discharge from the DeSabra-Centerville Project facilities the following minimum instantaneous flows or inflow at points of diversion, whichever is less.

Note: Only the flows and the release schedule at Lower Centerville Diversion Dam are modified in this order.

Philbrook Reservoir	2.0	8	
Hendricks Head Dam	15	7	
Butte Creek Head Dam	16	7	
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Lower Centerville Diversion Dam	40	10	9/15-10/31 and 12/15-5/31

	30	10	11/1-12/14
	40	40	6/1-9/14
Inskip Creek	0.25	0.10	
Kelsey Creek	0.25	0.10	
Stevens Creek	0.25	0.10	
Emme Ravine	0.25	0.10	
Coal Claim Ravine	0.25	0.10	
Oro Fina Ravine	0.25	0.10	
Little West Fork	0.25	0.10	
Cunningham Ravine	0.5	0.25	
Long Ravine	0.5	0.25	

These flows may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the California Department of Fish and Game.

(F) Article 45 of the license is amended as follows:

For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations

in effect from time to time. The authorized installed capacity for that purpose is 38,100 horsepower.

(G) This amendment of license is also subject to the following additional articles.

Article 301. The licensee shall commence construction of the New Centerville powerhouse facilities within 2 years from the issuance date of this order and shall complete construction of the facilities within 4 years from the issuance date of this order.

Article 302.

of the Division of Dam Safety and Inspections of the final contract drawings and specifications for the new facilities. The Director of the Division of Dam Safety and Inspections may require changes in the plans and specifications to assure a safe and adequate project.

Article 303. Before starting construction of the new Centerville powerhouse facilities, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations and shall make sure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensee shall submit one copy to the Commission's Regional Director and two copies to the Director of the Division of Dam Safety and Inspections of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 304. No later than 90 days after completing construction of the new Centerville powerhouse facilities, the licensee shall file for Commission approval revised exhibits A, F, and G to describe and show the amended project as-built.

Article 401. The licensee shall implement the erosion control plan dated March 24, 1989, consisting of 6 pages. This plan consists of: (1) site preparation (vegetation clearing and topsoil stripping and stockpiling); (2) measures to include silt fences, hay bales and water bars to control erosion and protect water quality; (3) site rehabilitation and seeding, and (4) follow up maintenance.

Article 402. Within 6 months from the issuance date of this order, the licensee shall file with the Commission for approval a plan for conducting a study that addresses ongoing streamflow and water temperature impacts. The study should provide water temperature data for the entire DeSabra-Centerville project. The results of the study should be adequate to determine any necessary minimum maintaining water temperature at or below 20 C in the bypassed reach below the Lower Centerville Diversion Dam.

The plan shall include, at a minimum, a schedule for: (a) implementation and completion of the study within 2 years from the date of issuance of this order; (b) consultation with the appropriate federal and

state agencies concerning the results of the study; and (c) filing the results, agency comments, and licensee's

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response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. The licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

If the results of the streamflow and temperature study indicate that changes in project structures or operations are necessary to adequately protect downstream fisheries habitat, the Commission may direct the licensee to modify project structures or operations.

Article 403. At least 90 days before the start of land-disturbing or land-clearing activities, the licensee shall file with the Commission for approval a plan for monitoring tailrace conditions and assessing any migrational delays to anadromous fish and potential salmon mortality as a result of operations of the new Centerville powerhouse. The monitoring plan shall include, at a minimum, a schedule for: (a) implementation of the program; (b) consultation with the appropriate federal and state agencies concerning the results of the monitoring; and (c) filing the results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. The licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project operation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

If the results of the monitoring indicate that changes in project structures or operations are necessary to prevent undesirable attraction, delay or injury of anadromous fish, the Commission may direct the licensee to modify project structures or operations.

Article 404. At least 90 days before the start of any land-disturbing or land-clearing activities, the licensee shall file with the Commission for approval, a riparian vegetation mitigation plan to replace riparian habitat lost as a result of the construction of the new Centerville penstock and powerhouse.

The plan shall include at a minimum: (1) maps showing the location of physical and habitat features; (2) a description of planting methods, fertilization and irrigation requirements, and a planting schedule; (3) a description of the soil and substrate conditions at the replacement sites; (4) a monitoring program that includes goals and criteria for successful establishment of riparian vegetation, sampling procedures, and reporting requirements; (5) a proposal to provide recommendations to the agencies and the Commission for alternative riparian vegetation mitigation due to construction of the new Centerville penstock and powerhouse, if monitoring indicates that the implemented riparian vegetation establishment or enhancement is not successful; and (6) schedules for the proposed establishing or enhancing of riparian vegetation, for filing the results of the monitoring program, and for filing recommendations for alternative riparian mitigation.

The licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The licensee shall include with the plan documentation of consultation with the agencies before preparing the plan, copies of agency comments or recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how all the agency comments were accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing plans with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is acceptable. Upon Commission approval, the licensee shall implement the

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plan, including any changes required by the Commission.

Article 405. At least 90 days before the start of any land-disturbing or land-clearing activities, the licensee shall file with the Commission for approval, a mitigation plan to replace True's manzanita lost as a result of the construction of the new Centerville penstock and powerhouse.

of each plot, and physical features; (2) a description of planting methods, fertilization and irrigation requirements, and a planting schedule; (3) a description of the soil and substrate conditions at the test

plots; (4) a monitoring program that includes goals and criteria for successful establishment of True's manzanita and other woody shrubs and trees, sampling procedures, and reporting requirements; (5) a proposal to provide recommendations to the agencies and the Commission for alternative riparian vegetation mitigation due to construction of the new Centerville penstock and powerhouse, if monitoring indicates that the implemented True's manzanita establishment or enhancement is not successful; and (6) schedules for the proposed establishing or enhancing of True's manzanita, for filing the results of the monitoring program, and for filing recommendations for alternative mitigation.

The licensee shall prepare the plan after consultation with the California Department of Fish and consultation with the agencies before preparing the plan, copies of agency comments or recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how all the agency comments were accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing plans with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is acceptable. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 406. At least 90 days before the start of any land-disturbing or land-clearing activities, the licensee shall file with the Commission for approval a plan to avoid or minimize disturbances to the quality of the existing visual resources of the project area.

The plan, at a minimum, shall include: (a) the licensee's strategy for blending the project works into the existing landscape character; revegetating, stabilizing, and landscaping new construction areas and the visual resources of the surrounding area; grading, planting grasses, repairing slopes damaged by erosion, and preventing future erosion; (b) an implementation schedule; (c) monitoring and maintenance programs for project construction and operation; and (d) provisions for periodic review and revision.

The licensee shall prepare the plan after consultation with the California Department of Parks and Recreation, California Department of Fish and Game, Forest Service, Bureau of Land Management, and Butte County Planning Office. The licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a at the site.

The Commission reserves the right to require changes to the plan. No land-clearing or land-disturbing activities shall begin until the licensee is notified that the plan is approved. Upon Commission approval,

the licensee shall implement the plan, including any changes required by the Commission.

Article 407. The licensee after consultation with the California Department of Parks and Recreation, California Department of Fish and Game, Forest Service, Bureau of Land Management, and Butte County Planning Office, shall monitor recreational use of the project area to determine whether existing recreational facilities are meeting recreational needs. Monitoring studies shall begin within 5 years of the issuance date of this order. At a minimum, monitoring studies shall consist of collection of annual recreational-use data.

Every 5 years during the term of the license, the licensee shall file a report with the Commission on the monitoring results. The report shall include: (1) the annual recreation-use figures; (2) a discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand; (3) a description of the methodology used to collect all study data;

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(4) if there is a need for additional facilities, a recreation plan proposed by the licensee to accommodate on the report after it has been prepared and provided to the agencies, and specific descriptions of how for the agencies to comment and to make recommendations prior to filing the report with the Commission.

Article 408. The licensee, before starting any land-disturbing or land-clearing activities or other work in the vicinity of the Centerville powerhouse and penstock, shall implement the cultural resources management plan to mitigate impacts to the 1907 Francis turbine, as described in the licensee's letter dated March 4, 1991. The plan shall be implemented in accordance with the Secretary of the Interior's Standards for Archeology and Historic Preservation.

Within 2 years after the date of this order, the licensee shall file with the Commission for approval a copy of the documentation of the turbine according to the standards of the Historic American Engineering Record, as described in the plan, and copies of letters from the California State Historic Preservation Officer (SHPO) and the National Park Service (NPS) commenting on the adequacy of the documentation. Within 3 years after the date of this order, the licensee shall file (1) a report for Commission approval on how and where the turbine will be exhibited and (2) a copy of a letter from the SHPO commenting on the adequacy of the exhibit in accordance with the requirements of the plan. The licensee shall make funds available in a reasonable amount for implementation of the plan. If the licensee, the SHPO, and the NPS cannot agree on the amount of money to be spent for implementation of the plan, the Commission reserves the right to require the licensee to conduct the necessary work at the licensee's own expense.

(H) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(I) This order is issued under authority delegated to the Director and constitutes final agency action. Under 18 C.F.R., section 385.713, requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order.

Environmental Assessment

Federal Energy Regulatory Commission

Office of Hydropower Licensing

Division of Project Review

Date: October 15, 1991

Project name: DeSabra-Centerville

FERC Project No. 803-014

A. Application

1. Application type: Amendment
2. Date filed with the Commission: 12/24/85, amended 9/14/88
3. Applicant: Pacific Gas and Electric Company (PG&E)
4. Water body: Butte Creek/West Branch Feather River; River basin: Lower Sacramento River/Upper Feather River
5. Nearest city or town: Red Bluff, Sacramento (*see figure 1.*)
6. County: Butte; State: CA

B. Summary

PG&E proposes to replace the existing Centerville powerhouse and penstock with a new powerhouse and penstock next to the existing facilities. The existing powerhouse would be removed; the existing penstock would be left in place. Annually, the new powerhouse would generate about 56,000 megawatthours (MWh), and would have a net economic benefit of about \$5.14 million.

In addition to PG&E's proposal, we consider two alternative actions: (1) PG&E's proposal with the staff's environmental recommendations, or (2) no action.

Under our alternative, we consider two tradeoffs: (1) reducing the existing power value of the project to protect spring run chinook salmon -- a resource with a moderate risk of extinction -- and (2) using project revenue to preserve the historic value of the powerhouse's existing Francis turbine (built in 1907).

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Under the no-action alternative, PG&E would continue to operate the existing powerhouse and penstock. There would be no change or enhancement to the existing environment.

Based on our review of the proposed action and the alternatives under sections 4(e) and 10(a) of the Federal Power Act (Act), we recommend the proposed action with our environmental measures, including measures that would protect the salmon and preserve the turbine. These measures reduce the annual net economic benefit of the amended project to about \$4.9 million. We conclude that the proposed action, with the environmental measures we recommend, would best adapt the project to a comprehensive plan for the Lower Sacramento and Upper Feather River Basins.

Based on our independent environmental analysis, issuance of an order approving the proposed action with our recommendations is not a major federal action significantly affecting the quality of the human environment.

C. Purpose and Need for Action

1. Purpose

In its original amendment application, PG&E proposed to modify both the Centerville and DeSabra developments by improving canals and expanding installed capacities. Since filing the application, PG&E has modified its plans: the only proposal currently before the Commission is PG&E's proposal to abandon the existing Centerville powerhouse, which has a rated capacity of 6.4 megawatts (MW), and to construct a new Centerville powerhouse with an installed capacity of 8.5 MW.

The original powerhouse was built in 1899 and the units were replaced in 1904 and 1907; the powerhouse has exceeded its expected life and would require a large investment to remain useful for the remaining term of the license, which will expire in 2009. PG&E's proposal would ensure the continued production of approximately 56,000 MWh of energy from the new Centerville powerhouse. The new powerhouse would be more efficient than the old one, producing approximately 11,000 MWh more energy, 2.1 MW more installed capacity, and 1 MW more dependable capacity.

The total electric power generation of the new powerhouse would be the equivalent of energy produced by the annual consumption of 96,000 barrels of oil or 540 million cubic feet of natural gas in PG&E's fossil-fueled, electric-power generating plants.

2. Need for Power

Building a new Centerville powerhouse is essential to the continued operation of the Centerville development of the DeSabra-Centerville project.

The additional capacity and energy resulting from PG&E's proposal wouldn't be needed to meet a generating resource deficit in the Northern California service area until about 1996. But the additional output would be immediately useful in displacing more expensive fossil-fueled generation, thus conserving nonrenewable primary energy resources and reducing atmospheric pollution.

The Resource Planning Department of the California Energy Commission (CEC) recognizes the increased capacity PG&E's proposal would produce. CEC, in its 1986 Electricity Report, on table A-23, at page A-61, tabulates the utility-owned, "likely to be available" resources for the Northern California Planning Area: CEC includes the contribution anticipated from upgrading the DeSabra-Centerville Project in the totals for the 1991 and 1992 in-service dates. CEC also views the fact that the proposed capacity increase is under PG&E's dispatch control as complying with the CEC's usefulness conformance policy.

Based on these facts, we find that PG&E's proposal would be useful and in general conformance with CEC's criteria for adding generating resources in the Northern California area.

D. *Proposed Project and Alternatives*

1. Description of the proposed action (*see* figures 2 and 3).

PG&E proposes to: (1) construct a new underground 8.5-MW Centerville powerhouse and tailrace structure to replace the existing 6.4-MW powerhouse and tailrace structure, which would be removed; (2) install a new 2,600-foot-long, 66-inch-diameter penstock to deliver water from the Lower Centerville Canal to the new powerhouse, replacing the existing double-barreled penstock which would be left in place; (3) modify the header box on Lower Centerville Canal to accept the new penstock; (4) construct

an access road adjacent to the new penstock for construction purposes; and (5) modify the existing Centerville switchyard to accommodate a new transformer, breaker, and other associated equipment for the new Centerville powerhouse. The new powerhouse would be located approximately 60 feet north of the existing powerhouse and would be operated in a run-of-river mode. No new transmission line facilities would be required (Pacific Gas and Electric Company, 1985, exhibit A; letter from R. J. Strub, Manager, Hydro Generation, Pacific Gas and Electric Company, San Francisco, California, September 12, 1988, filed September 14, 1988).

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The existing DeSabra-Centerville Project consists of (1) Round Valley Reservoir and Dam, (2) Philbrook Reservoir and Dam, (3) Hendricks, Butte Creek, and Centerville diversion dams, (4) DeSabra forebay, (6) penstocks, (7) three powerhouses with a total rated capacity of 26.5 MW, (8) a 10-mile long 60-kilovolt transmission line, and related facilities.

Water is diverted from the West Branch Feather River and several small tributaries into Hendricks Canal for use at PG&E's Toadtown powerhouse. This water plus water diverted from Butte Creek and tributaries is then diverted into DeSabra forebay for use at the DeSabra powerhouse. After flowing through the DeSabra powerhouse, water is discharged into Butte Creek. Water is then diverted via the Lower Centerville Canal to the headworks of the Centerville powerhouse penstock. Additional water for water users and excess water in DeSabra forebay is also routed through the Upper Centerville Canal and Helltown Ravine to the Lower Centerville Canal. After leaving Centerville powerhouse, water is returned to Butte Creek (Federal Energy Regulatory Commission, 1980, 1983).

2. Applicant's proposed mitigative measures.

a. *Construction.* PG&E would erect a temporary cofferdam and use an existing laydown area to limit sediment-induced turbidity increases that could affect trout and salmon habitat downstream.

To mitigate losses of northern riparian woodland habitat during construction of the tailrace and cofferdam, PG&E proposes a revegetation plan that focuses on (1) the enhancement of the remaining riparian habitat adjacent to the tailrace structure and (2) rehabilitation of areas temporarily impacted by the construction of the cofferdam. PG&E would consult with the California Department of Fish and Game (DFG) in preparing the plan. PG&E would take cuttings of willows for propagation and transplant them in suitable habitat along the shoreline, rehabilitating other disturbed communities in a similar manner.

The rare True's manzanita grows in the area that the proposed construction would disturb (see section G.2.e). PG&E would take cuttings of True's manzanita for propagation and later use in revegetating the construction sites. PG&E would establish test plots in the construction sites to monitor the success of revegetation with the species and other woody shrubs and trees native to California.

b. *Operation.* PG&E proposes to construct a tailrace to provide exit velocities and tailrace flows similar to those at the existing Centerville powerhouse. If required, PG&E would also install a graduated field fish barrier (GFFB) (see section H.3) at the tailrace.

PG&E also proposes to develop a study plan (1) to address the effects of project operation on migratory delay and (2) to determine if salmon are being killed or injured by swimming into the tailrace and draft tube.

3. Federal lands affected. No.

4. Alternatives to the proposed project.

a. Staff alternative: proposed action with our recommended environmental recommendations.

PG&E's proposal to replace the Centerville powerhouse and penstock with our recommended measures would enhance the existing environmental resources of the project area. These measures include:

- Increased flows in the bypass reach to enhance salmon habitat;
- Monitoring of recreational use and development of a plan or providing recreational facilities if needed;
- Designing new facilities so as not to affect the visual quality of the area.

b. Alternative of no action.

No action, denial of the license amendment, would preclude PG&E from upgrading the Centerville powerhouse and making associated modifications they propose in their September 14, 1988 filing. The no-action alternative would require PG&E to propose costly modifications of the existing powerhouse or

stop operating the facility. Many of the powerhouse components are more than 80 years old and have exceeded their expected life. PG&E's modifications would probably be temporary and would extend the life of the powerhouse only several years. Further modifications would likely be necessary to extend the life of the powerhouse to the license expiration date of 2009.

E. *Consultation and Compliance*

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish & Wildlife Service (FWS): Yes.

b. State(s): Yes.

c. National Marine Fisheries Service (NMFS): Yes.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: None.

b. Consultation: Not required.

Remarks: No federally listed, proposed or candidate species are known to be located in the project area (letter from Patricia Port, Regional Environmental Officer, Department

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of the Interior, San Francisco, California, March 3, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 7/24/84.

Waived; section 401 certification is waived if not acted upon by the certifying agency within 1 year from the date of the certifying agency's receipt of the request (*see* Commission Order No. 464, issued February 11, 1987 [*FERC Statutes and Regulations, Regulations Preambles 1986-1990* ¶30,730]).

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer (SHPO): Yes.

b. National Park Service (NPS): Yes.

c. *National Register* status: Eligible or listed.

d. Council:

e. Further consultation: Required.

Remarks: The 1907 Francis turbine in the existing Centerville powerhouse is eligible for inclusion in the *National Register of Historic Places*. PG&E prepared a cultural resources management plan for preserving the turbine in a museum or educational display. The SHPO, the NPS, and the Advisory Council on Historic Preservation accepted the plan (letter from R. J. Strub, Manager, Hydro Generation, Pacific Gas and Electric Company, San Francisco, California, March 4, 1991).

PG&E has prepared a memorandum of agreement concerning implementation of the plan, and will file the agreement with the Commission once the SHPO signs the document. We intend to sign the agreement and forward it to the Council for signature. We intend to require implementation of the plan as a condition of any order issued authorizing the proposed action.

5. Recreational consultation (Federal Power Act).

a. U.S. Owners: Not applicable.

b. NPS: Yes.

c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None.

F. *Comments*

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 1/11/89.

Commenting agencies *Date of letter*
and other entities

The Resources Agency of

California ... 2/17/89

Department of the

Interior ... 1/19/89,

3/3/89

Motions to intervene *Date of motion*

California Sportfishing

Protection Alliance ... 2/7/89

California Department

of Fish and Game ... 2/22/89

2. The applicant responded to the comments or motions to intervene by letters dated 4/14/89 and 4/25/89.

G. *Affected Environment*

1. General description of the locale.

a. Description of the *Lower Sacramento/Upper Feather* River Basins.

There are two drainage basins in the project area: the Lower Sacramento River and the Upper Feather

River. Within these two basins, the project is located in the sub-basins of Butte Creek and the West Branch Feather River, respectively. The Butte Creek sub-basin drains into the Sacramento River near the town of Colusa and has no major lakes or reservoirs. Elevations range from 7,100 feet above mean sea level (m.s.l.) to 475 feet at Centerville powerhouse. The facilities modified as a result of the proposed action are located in the Butte Creek sub-basin at lower elevations. Most project facilities, including all three powerhouses, are located in this sub-basin (figures 1 and 2).

The West Branch Feather River sub-basin drains into Lake Oroville and ranges in elevation from 7,000 feet m.s.l. to 3,200 feet at the diversion to Hendricks Canal. There are two reservoirs located in the sub-basin's headwaters: Round Valley and Philbrook. The reservoirs are formed by dams on the West Branch Feather River and Philbrook Creek, and have surface areas of 98 and 117 acres, respectively.

Precipitation averages from 60 to 80 inches annually. Over 95 percent of the precipitation occurs during the period from October through May, with maximum intensities during December through March. Winter precipitation at high elevations usually occurs as snow.

Rainfall and snowmelt are the major sources of water in the watershed. Runoff from snowmelt produces the largest portion of the total seasonal water supply. Snowmelt occurs in late spring and early summer months. As a result, large streamflows are observed during

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spring. By late summer, the flows in the streams are at their lowest.

The basin terrain in the project vicinity is rugged and has areas of flat-topped buttes, steep canyons, and mountains that comprise the western slopes of the Sierra Nevada range. Vegetative cover is heavy for the most part, ranging from dense forests of mixed conifers and woodland trees to mixed chaparral and riparian vegetation along streams. The mountainous terrain and conifer forests occur in the upper portion of the project in the West Branch Feather River sub-basin; the woodland, chaparral, buttes, and steep canyons dominate the Butte Creek sub-basin.

The steep-sided canyon along Butte Creek has limited development and is reached by an unimproved road used primarily by PG&E personnel. Access is further limited because most land is held privately, although hunters, fishermen, and inner-tube users on Butte Creek do visit the area. The canals cut a horizontal band along the eastern side of the canyon. The canals and the Centerville and DeSabra powerhouses at the bottom of the canyon are dominant elements of the landscape. Because of limited accessibility of the canyon and surrounding area, few people see the canals, powerhouses, or other facilities.

Population density in the sub-basins is low. There are two rural and retirement residential communities, about 5 to 7 miles east of the Centerville powerhouse, at Paradise Pines and Paradise. Land-use consists mainly of timber harvesting, grazing, recreation, rural-retirement residential developments, and hydroelectric developments. There are several cattle ranches in the project vicinity. Most ranching is in the lower elevation southern region of the project area (Pacific Gas and Electric

Company, 1985).

b. Existing licensed projects and exempted projects (indicated by an "*" after the FERC Project No.) in the Butte Creek sub-basin, as of 9/30/91 (figure 1).

Project No.	Project Name	Water body
6274 *	Paradise C Forks of	Irrigation ditch
6896	Butte	Butte Creek
7466 *	Hamon Canyon	Hamlin Canyon Creek

The Paradise C and Hamon Canyon Projects are small, generating 60 and 5 kilowatts respectively, and located approximately 5 to 7 miles southeast of the Centerville powerhouse area. Both projects are constructed and operating.

The Forks of Butte Project is located immediately north of the DeSabra powerhouse on Butte Creek, and has an installed capacity of 1.7 MW. The project is currently under construction.

c. Pending license applications and exemption applications (indicated by an "*" after the FERC Project No.) in the river basin, as of 9/30/91.

Project No.	Project Name	Water body
None.		

d. Target resource (an important resource that may be cumulatively affected by multiple hydropower development within the basin).

We selected target resources on the basis of regional significance and geographic distribution of the resource within the river basin.

Target resources

Resident trout and spring-run chinook salmon

The target resources are described below in section G(2). Impacts to target resources are discussed in section H.

e. Cumulative impacts

The Council on Environmental Quality defines cumulative impacts as impacts on the environment that result from adding the impact of an action to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. The Council says cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7). The geographical area included in this cumulative impact analysis is limited to the Butte Creek sub-basin of the Lower Sacramento Basin.

The proposed modifications to the DeSabra-Centerville project, with our recommendations, would not cause cumulative adverse impacts to the target resource. On the contrary, the modifications would enhance the existing situation. We discuss the enhancement in detail in sections G.2 and 3.

2. Descriptions of the resources in the project impact area (Source: Pacific Gas and Electric Company, 1985, application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* The Centerville powerhouse and penstock areas are underlaid by metamorphic and marine sedimentary rocks with silty to clayey stream gravels deposited on massive marine sandstone bedrock. No evidence of soil erosion or sedimentation are present.

b. *Streamflow:* The existing Centerville powerhouse operates as a base load plant, typically diverting 170 to 180 cubic feet per second (cfs). Streamflow in the bypass reach of Butte Creek is maintained according to a December 16, 1983 agreement between PG&E and the California Department of Fish and Game (DFG),

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which became a condition of the license as revised exhibit S on March 15, 1984. The minimum flow schedule is divided into normal and dry water year conditions (table 1).

Table 1. Minimum flow; release required at Lower Centerville dam during normal water years, under the existing license (Source: the staff). ¹

Month	Required Release (cfs)
December 15 -- May 15	40
May 16 -- June 30	10
July 1 -- September 14	10 > 40 ²
September 15 -- October 31	40

November 1 -- December 14

10

¹ During dry water years, as specified in the license, minimum flow releases at Lower Centerville Dam are maintained at 10 cfs at all times.

² Flow release required up to 40 cfs to maintain water temperature ≤ 20 degrees centigrade (°C).

Maintenance of the required release and additional spill is controlled by releases from the DeSabra powerhouse, and is composed of natural upper Butte Creek streamflow and impounded water released from DeSabra forebay (figure 2).

c. *Water Quality*: Water temperature measured in June through September by routine PG&E monitoring indicates that temperatures in the bypass reach and at the Lower Centerville Diversion Dam commonly exceed 20°C, even when PG&E releases up to 40 cfs as required. Because project operation flows travel downstream faster through the canal than through the natural streambed, water temperature in the Centerville canal typically warms up 1°C or less during diversion to generate power, while natural channel streamflow temperature can increase by 3 to 4°C. During dry year conditions water temperature regularly exceeds 20°C during June to September, and instream temperatures can reach 27°C, rendering bypass reach habitat unsuitable for anadromous salmon returning to spawn.

d. *Fisheries*: Anadromous: Spring-run chinook salmon are seasonally abundant in Butte Creek below the existing Centerville powerhouse, and also upstream of the powerhouse in the lowest 2 to 3 miles of the bypass reach where adequate flows and water temperatures exist. These salmon enter Butte Creek from April through May and hold over in deep pools until they spawn in September and October (Hallock and Van Woert, 1959).

Returns are variable from year to year, as noted in table 2, with no direct relationship between total salmon returns and wet or dry year conditions. Higher numbers of salmon occur upstream of the powerhouse in wet years when higher flows exist in the bypass reach. Spring-run chinook salmon in the Sacramento River basin have been classified as being at a moderate risk of extinction in a recent report by the American Fisheries Society (Nehlsen *et al.*, 1991).

Table 2. Annual spring-run chinook salmon return estimates above and below the existing Centerville powerhouse. (Source: Pacific Gas and Electric Company, 1991).

Year	Below Powerhouse ¹	Below Powerhouse ²	Total Estimated Return Above PH	Percent

1975*	650	NA	-	-
1976	46	NA	-	-
1977	100	NA	-	-
1978*	128	NA	-	-
1979*	10	NA	-	-
1980*	226	NA	-	-
1981*	190	62	252	25
1982*	534	55	589	10
1983*	<100	1	<101	>1
1984	<100	20	<120	>16
1985	>254	8	>262	<3
1986	1272	475	1747	27
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1987	<100	0	<100	0

1988	1300	140	1440	10
1989*	1300	1100	2400	46
1990	250	83	333	25

¹ DFG estimates based on carcass, redd, and live salmon count in October.

² PG&E estimates based on snorkel surveys conducted in July and August.

* Denotes wet-year conditions as defined by article 39.

Anadromous fish resources of the Sacramento River basin are adversely affected by: (1) loss of habitat due to impassable dams, unfavorable flows and water temperature regimes, and construction of reservoirs, (2) over harvest of stocks, and (3) negative interactions with hatchery fish (Nehlsen, et al., 1991). In the past 10 years the Sacramento River has supported average adult returns of 272,000 chinook salmon per year. Approximately 20% of the north coast California and Oregon salmon landings originate in the Upper Sacramento River (California Department of Fish and Game, 1990).

Resident: Butte Creek supports a good population and a potential sport fishery for resident salmonids, but access is difficult. Sampling conducted by DFG in 1977 below the Lower Centerville dam resulted in 22 rainbow trout and 2 brown trout. Earlier studies showed 20 trout per river mile in this reach. Subsequent improvement in flow releases has resulted in recent increases in abundance. Better trout habitat is considered to exist below this site, midway between the diversion dam and the powerhouse.

Significant populations of nongame fish occur in the upper sections of the bypass reach, with larger individuals associated with pool habitat. These species include: hardhead, Sacramento squawfish, Sacramento sucker, California roach and Tule perch.

e. *Vegetation:*

Cover type--Dominant species

Foothill woodland--digger pine, ponderosa pine, live oak, California black oak, blue oak, California bay

Mixed chaparral--digger pine, poison oak, toyon, whiteleaf manzanita, California coffeeberry, mountain mahogany

Northern riparian woodland--white alder, black cottonwood, Oregon ash, big-leaf maple, arroyo willow, sandbar willow

Remarks: The dominant habitat is foothill woodland. It is best developed on the west-facing slope along the route of the proposed new penstock. Mixed chaparral occurs in scattered pockets of the foothill woodland habitat in this area. Northern riparian woodland occurs along the banks of Butte Creek. The powerhouse yard is characterized by disturbed bare ground with little plant cover except weeds.

PG&E surveyed the proposed impact area for rare plants. Several specimens of True's manzanita grow next to and north of the ephemeral drainages in the vicinity of the Centerville powerhouse yard. This species is listed by the California Native Plant Society (CNPS) as a potential rare species; CNPS needs more information on geographic distribution before it can make a listing determination. True's manzanita appears to be common in several different habitat types in the project area. PG&E identified no other rare plants.

f. *Wildlife*: Big game in the project area are mule deer, mountain lion, and black bear. Smaller mammals include coyote, bobcat, raccoon, mink, river otter, striped skunk, and western gray squirrel. Game birds are band-tailed pigeon, mourning dove, California quail, and mountain quail.

The most significant wildlife population in the project area is the Eastern Tehama Deer Herd. This herd, the largest migratory deer herd in California, was estimated in the early 1980's to contain nearly 60,000 animals. Lower Centerville Canal and Centerville powerhouse occupy portions of critical winter range below the canyon rim on the east side of Butte Creek. For the most part, deer from the herd are found in the project area from late October to late April or early May.

g. *Cultural*: There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the area of the project's potential environmental impact.

Description: The 1907 Francis turbine in the existing Centerville powerhouse is eligible for inclusion in the *National Register of Historic Places*. The turbine is significant primarily because it was the earliest high-head turbine located on the Pacific Coast, and its successful operation encouraged further high-head installations in California and other areas of the west.

h. *Visual quality*: The project landscape is made up of contrasting topography, a variety of vegetation, and clear mountain reservoirs and lakes. There are lava and granite formations, stands of mixed conifers, open meadows, and in some areas, brush. The visual character of the land has been altered because of timber

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harvests and gold mining activities. The visual quality and environmental setting are of high quality for an outdoor recreation experience in natural surroundings.

i. *Recreation*: Fishing and day use of undesignated trails are the present uses of the Centerville project area. The Butte Creek Hiking Trail, administered by the Bureau of Land Management (BLM) in cooperation with PG&E, provides angler access to Butte Creek. The Lassen National Forest and the Plumas National Forest are located approximately 6 miles southeast and 16 miles east, respectively, of the Centerville project site. Both forests offer a diversity of recreational activities such as camping, fishing, hiking, and boating.

j. *Land use*: Land in the project area is used primarily for recreation, rural and retirement purposes, as well as for supporting hydroelectric projects. The Centerville project site is located approximately 7 miles northeast of Paradise, California.

H. *Environmental Issues and Proposed Resolutions*

1. There are 10 issues addressed below.

a. *Control of erosion and sedimentation during construction of the new Centerville powerhouse and penstock*: Construction of the new Centerville penstock and powerhouse would require the clearing of approximately 2 acres of foothill woodland habitat and about 0.1 acre of riparian habitat along Butte Creek. PG&E's erosion control plan outlines the methods and techniques that they would follow to control erosion and sedimentation with guidance from the Forest Service and the Soil Conservation Service (letter from R. J. Strub, Manager, Hydro Generation, Pacific Gas and Electric Company, San Francisco, California, March 24, 1989). The plan would adequately control erosion and sedimentation and should be implemented.

b. *Streamflow and water temperature*: According to the conditions of article 39 of the existing license, PG&E maintains a minimum flow release schedule based on wet vs. dry year conditions and bypass reach temperatures (table 1). PG&E proposes to continue these releases after construction of the new powerhouse. PG&E states that their monitoring data shows that existing flow releases have not precluded salmon migration above the powerhouse, and maintains that adequate water quality exists, even during low flow conditions, to support salmon holding over.

PG&E cites annual salmon return numbers in support of maintaining the existing flow schedule. Snorkeling and visual surveys show that total salmon numbers do not significantly change during wet and dry years. PG&E operates the Centerville powerhouse as a base load operation. As a result, any fluctuation in terms of total flow is shunted to the bypass reach, and rarely affects project operations, since powerhouse flows during peak migration do not change significantly from wet to dry years.

The project, as currently operated, releases similar total flows to the downstream reach regardless of

wet and dry year stipulations on bypass reach flows. Since bypass flows are often much less than powerhouse flows, salmon that are migrating upstream are not exposed to flow reductions until they reach the powerhouse area and upstream bypass. Evidence of reduced numbers of salmon in the bypass reach during dry years supports this, though some salmon are still able to migrate to these pools even in dry years.

Although DFG, FWS, NMFS, the Forest Service (FS), and PG&E cooperated in determining and/or mitigating effects of the project on fish resources, article 39 has failed to adequately maintain suitable spawning habitat and to reduce fishery related impacts. As such, the application for amendment of license for the DeSabra-Centerville project (Lower Centerville powerhouse) provides a means to correct the ongoing impacts.

Existing bypass reach flows can result in insufficient attraction flows necessary to draw migrating spring-run chinook salmon above the existing Centerville powerhouse, effectively reducing habitat available for spawning. Additionally, low bypass flows can result in elevated temperatures in the bypass reach, making the habitat unsuitable for salmon. Bell (1986) stated that for migrating salmon temperatures of receiving waters should not exceed 20°C.

Increases higher than 20°C can have sublethal or lethal effects on migration and spawning. Sublethal effects of water temperatures deter use of the habitat upstream of the powerhouse. Lethal effects can and have occurred. DFG documented one such event during the summer of 1988 when water temperatures reached 27°C. In that instance, thermal stress resulted in mortality of an estimated 50% of salmon in a reach of Butte Creek (letter from Gordon Snow, Assistant Secretary for Resources, California Resources Agency, Sacramento, California, February 17, 1989).

Studies by PG&E show a decreasing rate of effectiveness between increasing flow releases in the bypass reach and resulting decreases in instream temperatures. PG&E agrees that maintaining releases of 40 cfs does not guarantee that water temperatures in the bypass reach would remain below 20°C, but has stated that any subsequent required release beyond this would not significantly reduce the instream temperature, and would be an undue

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burden on the project. Additionally, PG&E maintains that providing cooler water to a smaller habitat area downstream via the Centerville canal and powerhouse is preferable to providing larger, but marginal habitat area in the bypass reach.

DFG recommends an adjusted minimum release schedule from Lower Centerville dam to maintain a temperature-based criteria within the bypass reach of Butte Creek (table 2) (letter from Gordon Snow, Assistant Secretary for Resources, California Resources Agency, Sacramento, California, February 17, 1989). In addition, the California Sportfishing Protection Alliance (CSPA), an intervenor, supports DFG's flow recommendations (letter from Robert Baiocchi, Executive Director, California Sportfishing Protection Alliance, Quincy, California, August 24, 1990), and has requested that the existing dry year flow release conditions be revoked. FWS contends that the 10 cfs required flow has resulted in a net loss of habitat in Butte Creek for some years (letter from Wayne White, Field Supervisor, Fish and Wildlife

Enhancement, U.S. Fish and Wildlife Service, Sacramento, California, April 19, 1991), and has requested operational changes to mitigate this.

Under present operation of the DeSabra-Centerville project, water temperatures can exceed 20°C. This water subsequently becomes inflow to the Lower Centerville dam. During normal runoff (wet year) conditions, PG&E typically releases near 40 cfs at all times in an attempt to maintain the 20°C criteria in the agreement. Even so, there remain considerable periods of time during June to September when bypass reach temperatures are greater than 20°C. The existing license only requires maintaining the temperature criteria from July 1 to September 14.

Increasing releases "up to the entire inflow to the Butte Creek diversion" under current project operating conditions would not serve the intended purpose of reducing bypass reach temperatures. The extensive canal diversion system and low flows that feed into DeSabra forebay under current project operations result in significant elevations in water temperature even though storage is minimal in the forebay.

Flow data from the DeSabra powerhouse suggests that the forebay's contribution to DeSabra powerhouse flows typically exceeds that which flows naturally in Butte Creek. The small volume of cooler, natural Butte Creek inflow is diluted with a large volume of warmer, diverted water from DeSabra forebay. As a result, increasing flows in the bypass reach as recommended by DFG would not in itself guarantee reduced water temperatures in the bypass reach.

Under current operating conditions, the temperature-based flow criteria cannot be adequately met by PG&E. Therefore we are recommending a flow schedule that would provide suitable flows for attraction and habitat, and additionally would provide some improvement in water temperature.

We believe that PG&E should modify their flow release schedule according to staff recommendations in table 3. During normal flow years, project operations would only be altered for the period from May 16 to June 30 when flows would be increased from the present level of 10 cfs to 40 cfs, without a temperature stipulation. Flows for the period from July 1 to September 14 would also be fixed at 40 cfs without a temperature stipulation. As stated earlier, existing data shows that PG&E now releases at or near this instream flow already in most normal (wet) years to comply with the license conditions. During dry year conditions, the flow schedule would change from June 1 to September 14, when flows would also be set at a fixed minimum of 40 cfs.

The 40 cfs minimum flow would adequately provide flows necessary to protect bypass reach salmon habitat while also maintaining sufficient flows to ensure attraction above the proposed powerhouse. It is apparent from the data supplied by PG&E that adequate flows exist upstream of the project to maintain the staff recommended bypass reach minimum flows. A decrease in generation at the proposed powerhouse might be required to comply with the required release, or additional flows could be bypassed at the upstream DeSabra powerhouse.

We conclude that there is sufficient evidence to show that the temperature goals for Butte Creek

below the Centerville diversion outlined in article 39 are not being met and that elevated water temperatures in that reach are adversely affecting salmon habitat. We also conclude that increasing flows over the Centerville diversion would provide small benefits to the salmon resource.

Any substantial changes in water temperatures in the bypass reach must involve facilities and operations outside the scope of the pending amendment of license application. At this time, however, there is insufficient information to determine what changes in project operation would be needed or what the technical, biological, and economic consequences of various operating scenarios would be. Our recommendation for operation of the Centerville diversion would provide minor benefits to the salmon resource until more detailed information is developed.

Therefore, we are requiring that within 1 year from issuance of the license, PG&E conduct additional studies, if necessary, and furnish

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to the Commission sufficiently detailed flow and water temperature data from the entire DeSabra-Centerville project. This will allow the Commission to address agency recommendations and to determine if operational changes in the upper portions of the project might enhance downstream habitat for anadromous fish. The additional detailed data would allow the staff to assess whether instream flow modifications throughout the DeSabra-Centerville project are warranted.

Table 3. Proposed and recommended flow release for normal and dry year conditions of DeSabra-Centerville project: releases to be made to Butte Creek from Lower Centerville dam (Source: the staff).

Month	Existing		DFG		Staff

Required release from Lower Centerville dam					

	Normal	Dry	Normal	Dry	Normal

January	40	10	Releases up to		40
February	40	10	entire inflow to		40
March	40	10	maintain bypass		40
April	40	10	reach temperature		40
May 1 to 15	40	10	below 16°		
C	40	10			

May 16 to 31	10	10	Releases up to	40 *
June 1 to 30	10	10	entire inflow to	40 *
July 1 to 31	10-			
40 ¹ 10	maintain bypass	40	40 *	
August 1 to 31	10-			
40 ¹ 10	reach temperature	40	40 *	
September 1 to 14	10-40 ¹	10	below 19°	
C	40	40 *		

September 15 to 30	40	10	Releases up to	40
October 1 to 31	40	10	entire inflow to	40
November 1 to 30	30	10	maintain bypass	30
December 1 to 14	30	10	reach temperature	30
December 15 to 31	40	10	below 16°	
C	40	10		

¹ 1983 agreement between PG&E and DFG requires release of up to 40 cfs to maintain bypass reach water temperatures below 20°C.

* Represents staff recommendations that would require increased releases to the Creek bypass reach.

c. *Tailrace design:* Tailrace flows could falsely attract upstream swimming adult salmon to the tailrace, delaying migration and return to spawning grounds. Additionally, these flows could attract salmon into the tailrace draft tubes where they could be killed by turbine blades. PG&E states that the existing tailrace configuration results in attraction of salmon to the tailrace area, but maintains that no delays to migration have been shown, and no mortality from turbine blade contact has been observed.

PG&E states that salmon near the discharge area are limited to only a few at any one time, and that they roam freely in and out of the tailrace area. PG&E also maintains that these salmon encounter shallow water with a lack of suitable cover, which makes the discharge area unsuitable as a summer holding area. No studies addressing length of any migratory delay have been conducted. DFG staff have frequently observed salmon schooled in the tailrace area, apparently attracted by either the exit velocities or the relatively cool water.

PG&E agrees to modify the tailrace configuration to produce exit velocities similar to those at the existing Centerville powerhouse (Pacific Gas and Electric Company, 1991) and proposes to work closely with agencies during the design process to provide similar discharge characteristics.

PG&E is opposed to the use of any physical barrier to prevent fish from entering the draft tubes, but has proposed to install a graduated field fish barrier (GFFB) if required. This device would create electrically charged fields in the tailrace that would discourage fish migration up the tailrace. Each electric field would be progressively stronger as the fish approach the discharge pipe, and avoidance would be accomplished by the fish laterally positioning its body to the field, and swimming away from the tailrace area. The cost to install the GFFB would be \$150,000.

Agencies (DFG, FWS, and NMFS) have proposed to relax their standards requiring physical tailrace barriers to prevent salmon from

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contacting powerhouse turbines, provided the proposed new powerhouse has exit velocities, water depth, and discharge configuration of flow that approximate existing powerhouse conditions. NMFS opposes the use of GFFB, either as an initial solution or possible retrofit, due to its unproven technology and poor performance in other situations.

FWS has also requested that PG&E conduct additional monitoring of fish behavior, potential injury and migration delay resulting from project operations. From these results FWS could recommend that PG&E implement structural and operational measures as necessary to prevent undesirable attraction, delay or injury of anadromous fish. Such measures would include (1) retrofit of the tailrace structure with a grating approved by the FWS and DFG, and/or (2) operational changes such as short-term reduction in tailrace discharge and increase in bypassed flow to stimulate upstream fish migration and provide favorable migration conditions upstream of the project powerhouse.

The current tailrace design releases water into Butte Creek parallel with existing flow. Tailrace exit velocities are currently approximately 5 feet per second (fps). The draft tube of the existing powerhouse exits to the tailrace as a 6 ft by 6 ft gallery. The crown of the draft tube is only inches below the water surface. Moving back toward the turbine, the draft tube transitions to a 5 ft diameter pipe that rises to meet the turbine.

The draft tube of the proposed powerhouse would exit into the tailrace 12.5 ft below the water surface. During low and high powerhouse operating flows, average cross-sectional draft tube exit velocities would range from 1.5 to 4.5 fps. Thirty-seven feet into the draft tube, before it turns vertical toward the turbine, velocities would range from 2.5 to 7.0 fps. Just before reaching the turbine, velocities would range from 12 to 36 fps.

We concur with agencies and PG&E's analysis that the relatively low approach velocities create a potential for attraction at the tailrace. It is unlikely that salmon would enter and traverse the 37 foot-long

draft tube to the turbine blades given the rapid increase in exit velocities. Additionally, lack of any observations of adult salmon mortality from existing project operations suggest that these conditions would not result in a significant impact to the fishery resource in Butte Creek. Therefore, PG&E should design the new tailrace to provide conditions similar to the existing tailrace. PG&E should consult with DFG, FWS, and NMFS in creating a detailed design plan for the proposed tailrace.

Spill releases under existing project operations rarely exceed powerhouse flows during periods of peak spring-run chinook salmon migration. As a result, salmon are attracted to the tailrace area, but any delay that may occur has not been quantified. Therefore, PG&E should also file with the Commission, after agency consultation, a detailed plan for monitoring and assessing any migrational delays to anadromous fish and potential salmon mortality as a result of project operations.

d. *Riparian areas*: Construction of the new Centerville penstock and powerhouse would require clearing approximately 0.1 acre of riparian woodland along Butte Creek. This vegetation provides valuable wildlife habitat for game and nongame species.

PG&E proposes enhancing the remaining riparian habitat adjacent to the tailrace structure and rehabilitating riparian areas temporarily impacted by construction.

While PG&E's riparian mitigation plan is generally appropriate for the area, PG&E does not provide enough details in the plan to show that the riparian vegetation removed would be adequately mitigated, restoring wildlife habitat value. The plan does not specify (1) how much riparian habitat PG&E would enhance, (2) how PG&E proposes to enhance the existing riparian habitat, (3) an appropriate monitoring period for the riparian habitat PG&E would enhance and for the riparian habitat PG&E would rehabilitate, or (4) vegetation sampling procedures--all criteria PG&E should use to decide if the habitat loss is mitigated--or (5) a schedule for reporting to the Commission.

PG&E should develop a detailed plan to make sure the habitat removed by the proposed construction is adequately mitigated.

The plan should include: (1) maps showing the location of the existing habitat PG&E would enhance, site boundaries, site size, and physical and habitat features; (2) a description of planting methods, fertilization and irrigation requirements, and a planting schedule; (3) a description of the soil and substrate conditions at the enhancement sites; (4) a monitoring program that would include goals and criteria for enhancement and rehabilitation of riparian vegetation, sampling procedures, and reporting requirements; (5) procedures to implement if monitoring reveals that enhancement and rehabilitation of vegetation is not successful; and (6) an implementation schedule. Agency comments should be included in the filing.

e. *Effects on True's manzanita*: The rare True's manzanita grows in the area that the proposed construction would disturb. PG&E would take cuttings of True's manzanita for propagation and subsequent use in revegetating the construction sites. PG&E would establish test plots in the construction sites to monitor the success of revegetation with the species and other woody shrubs and

trees native to California.

While PG&E's proposal is appropriate to mitigate any loss of True's manzanita, PG&E does not provide enough details to show that

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the loss of this rare shrub would be adequately mitigated. The proposal does not specify (1) planting density, (2) an appropriate monitoring period, (3) sampling procedures, or (4) a schedule for reporting to the Commission.

PG&E should develop a detailed plan to make sure the loss of True's manzanita is adequately mitigated. The plan should include the following: (1) maps showing the locations of test plots, plot boundaries and sizes, and physical features; (2) a description of planting methods, fertilization, and irrigation requirements; (3) a description of the soil and substrate conditions at the test plots; (4) a monitoring program that would include goals and criteria for successful establishment of True's manzanita and other woody shrubs and trees; (5) procedures to implement if monitoring reveals that establishment of True's manzanita and other vegetation is not successful; and (6) an implementation schedule. PG&E should include the comments of DFG and the California Native Plant Society in the filing.

f. *Visual quality:* The demolition activities, construction of the new Centerville powerhouse, the replacement and building of new penstocks on the existing penstock route, and the associated road work change the character of the visual resources of the immediate area.

CSPA states the amendment lacks the required review under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for visual quality. PG&E did not address measures to minimize changes in visual quality in the application.

We believe a plan should be developed before the start of construction to mitigate and enhance the visual quality of the area affected by the proposed action. PG&E should file a visual resources management plan that includes, but is not limited to, the use of construction techniques, materials, colors, and vegetation to blend the newly constructed features into the existing landscape character, and to minimize disturbance to, or enhance, the visual resources of the area.

g. *Recreation:* PG&E proposes no measures for recreational development associated with the proposed action. CSFA states that the amendment lacks the required review under the NEPA and the CEQA for recreation; CSFA had no recommendations for recreational development.

The proposed action will have little effect on recreational use during the construction period for the Centerville project. None of the commentors propose additional measures. Therefore, we believe that recreation development for the Centerville project area is not needed. Since outdoor recreational user capacity is high for the project area, however, PG&E should monitor recreational activities to identify

the demand and supply of recreational opportunities over time.

We recommend that PG&E implement monitoring to determine any future need for recreation facilities. If monitoring indicates a demand for future recreational development, PG&E must prepare a recreation plan in consultation with the appropriate agencies to accommodate the need.

h. *Land use:* After demolition of the existing powerhouse, the new Centerville powerhouse would be built on the existing powerhouse site. The CSFA states the amendment lacks the required review under NEPA and CEQA for land use but makes no recommendation regarding land use. Because there would be no change in the existing land use for the Centerville project, we see no need for further analysis.

i. *Preservation of the 1907 Francis turbine:* The 1907 Francis turbine is historically significant, and would be removed with replacement of the existing Centerville powerhouse. The turbine should be preserved, and exhibited in a museum or public education display if possible. PG&E's cultural resources plan filed with the Commission on March 6, 1991, provides for such preservation and display (letter from R. J. Strub, Manager, Hydro Generation, Pacific Gas and Electric Company, San Francisco, California, March 4, 1991). The plan has been endorsed by the SHPO and the Advisory Council on Historic Preservation. The plan should be implemented as a condition of any order issued authorizing the proposed modifications to the existing Centerville powerhouse.

j. *Buried archeological or historic sites that may be affected by construction activities, or by any changes in the location of facilities:* Buried archeological or historic sites are sometimes not detected during cultural resources surveys. Further, changes in the location of project facilities are occasionally necessary for successful construction or operation of a project, and affect lands not included in the cultural resources survey of the project.

To protect any sites that may be discovered during construction or affected by changes in location of facilities, PG&E should consult with the SHPO concerning the measures necessary to inventory or mitigate or avoid impacts to such sites before continuing any land-disturbing work or making any changes in location. Article 51 of the existing project license provides for such protection (Federal Energy Regulatory Commission, 1983).

2. Impacts of the no-action alternative.

Under the no-action alternative, there would be no construction of project facilities or changes to the existing physical, biological, or cultural components of the area. The additional electrical power that would be generated by the proposed hydroelectric modification of the project would have to be generated from other available sources.

3. Recommended alternative (including proposed, required, and recommended mitigative measures):

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Staff's alternative.

4. Reason(s) for selecting the preferred alternative.

The proposed action with our environmental recommendations (our alternative) is preferred over the no-action alternative because (1) salmon habitat would be enhanced in Butte Creek, (2) more power would be produced, and (3) costs of environmental enhancement would be negligible given (a) the annual net economic benefits of the proposed action, and (b) the fact that the existing powerhouse would need to undergo costly renovations by 1994 if the proposal for a new powerhouse and penstock is denied.

I. Environmental Impacts

1. Assessment of impacts expected from PG&E's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major; A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource		Impact			Resource
		P	Ps	A	
a. Geology- Soils	1AS				f. Wildlife
b. Stream-Dry Yr. flow- Wet Yr.	0 2BL	0	1BL		g. Cultural: Archeological
c. Water quality: Dry Yr	0 2BL				2AL
	Temperature- Historical				
-Normal Year Dissolved oxygen		0	1BL		h. Visual quality

Turbidity and sedimentation	1AS		i. Recreation
d. Fisheries:			
Anadromous	0	1BL	j. Land use
Resident	0	2BL	k. Socioeconomics
e. Vegetation	1AL	1AS	

Remarks:

b, c, d. PG&E's proposed project operation would not result in incremental increases in impacts beyond currently existing impact levels. Our recommended measures would result in enhancement.

e. Our detailed mitigation plans for riparian habitat and True's manzanita would insure that impacts would be minor and short-term.

g. Although the 1907 turbine in the existing Centerville powerhouse would be preserved, removal of the turbine from its original historic context would constitute a long-term unavoidable adverse impact.

J. Unavoidable Adverse Impacts of the Recommended Alternative

Changes in visual quality and increased noise, dust, and vehicular traffic during construction would create a short-term, minor disturbance. Minor temporary localized erosion would be unavoidable during construction activities and until disturbed land surfaces are stabilized. A small amount of native vegetation and wildlife habitat in the vicinity of the new powerhouse and penstock would be temporarily disturbed by construction activities.

Removal of the 1907 Francis turbine, which is eligible for inclusion in the *National Register of Historic Places*, would be a permanent unavoidable adverse impact. The powerhouse in which the turbine currently operates would be demolished and removed.

K. Comprehensive Development

Section 4(e) of the Act states that in deciding whether to issue a license (or approve an amendment to an existing license), the Commission, in addition to considering the power and development purposes of the project, shall give equal consideration to (1) the purposes of energy conservation, (2) the protection

of, mitigation of damage to, and enhancement of fish and wildlife, (3) the protection of recreational opportunities, and (4) the preservation of other aspects of environmental quality.

In section 10(a), the Act further states that the project adopted shall be one that in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway for (1) the use or benefit of interstate or foreign commerce, (2) the improvement and utilization of water power development, (3) the adequate protection, utilization, and enhancement of fish and wildlife (including related spawning grounds and habitat), and (4) other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes discussed in section 4(e).

From our analysis of the environmental effects and the economic consequences of the

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proposed amendment and the no-action alternative, we conclude that the proposed project would give the public the greatest benefits from the waterway.

Our reasons:

1. Replacing the Centerville powerhouse would have significant power benefits: the Centerville powerhouse would produce benefits of about \$5.14 million annually over the remaining license term.
2. The environmental effects of building and operating the new powerhouse wouldn't be significant:

By removing and displaying the 1907 Francis turbine, PG&E can preserve the turbine's historic value, at a small cost.

By raising the instream flow in the bypass reach, PG&E can enhance salmon habitat, at an annual cost of \$229,000.

Because of the moderate risk of extinction of spring-run chinook salmon, we think the value of the added salmon habitat outweighs the power cost.

So, based on our review under sections 4(e) and 10(a) of the Act, the proposed modifications of the project, if authorized with our recommended enhancement measures, would be best adapted to a comprehensive plan for developing the Lower Sacramento and Upper Feather River Basins.

L.

Power Act and Applicable Law

Under the provisions of the Federal Power Act (Act), as amended by the Electric Consumers Protection Act of 1986, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of such resources affected by the project.

Section 10(j) of the Act states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the Act or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, given due weight to the recommendations, expertise, and statutory responsibilities of such agency.

Pursuant to section 10(j) of the Act, we are making a preliminary determination that certain of the recommendations of the federal and state fish and wildlife agencies are inconsistent with the purpose and requirements of Part 1 of the Act or other applicable law.

As we discussed in section G.2, we did not recommend adopting the DFG's recommendation. DFG requested that PG&E increase the flows in Butte Creek, up to the entire inflow, to maintain temperatures below 19 C in the bypass reach.

We believe that the recommendation is not based on substantial evidence as required by section 313 (b) of the Act. The proposal would not provide the intended protection for anadromous fish in Butte Creek. Although the proposed action would have no effect on the existing temperature problem, we believe that potential impacts to salmon need further evaluation. In order to develop substantial information, we are requiring PG&E to submit to the Commission, within 1 year, detailed streamflow and water quality data of the entire DeSabra-Centerville project necessary to adequately assess the ongoing impacts and to determine whether additional mitigative/ enhancement measures are required on a project-wide basis. In the interim, we recommend flow-based requirements that would provide minor benefits to the salmon resource.

M. Conclusion

Finding of No Significant Impact. Approval of the recommended alternative [I(3)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

N. Literature Cited

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Federal Energy Regulatory Commission. 1980. Pacific Gas and Electric Company, FERC Project No. 803, Order Issuing License (major). Issued June 12, 1980. Washington, D.C.

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Pacific Gas and Electric Company. 1985. Application for amendment of license for the DeSabra-Centerville Project, FERC Project No. 803, California, December 24, 1985. Prepared by Pacific Gas and Electric Company, San Francisco, California.

-----, 1991. Additional information on the DeSabra-Centerville Project, FERC Project No. 803, California, filed July 1, 1991. San Francisco, California.

O. List of Preparers

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-- Footnotes --

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11 FERC ¶62,207.

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– (1) Recreation Outlook in Planning District 2, 1983, California Department of Parks and Recreation; (2) The California Water Plan: Projected Use and Available Water Supplies to 2010, 1983, California Department of Water Resources; (3) California Water: Looking to the Future, 1987, California Department of Water Resources; and (4) Recreation Needs in California, 1983, California Department of Parks and Recreation.

See "The Affected Environment" pages 14 through 16 in the EA.

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– In applying for the Toadtown development, PG&E asked for an extension of their license term. The Commission authorized the Toadtown development (24 FERC ¶62,208), increasing the project's capacity by 5 percent, but denied an extension of the licw term, saying the construction work involved was not extensive. In denying appeal (26 FERC ¶61,420), however, the Commission said that if PG&E makes further requests to extend the license term, the staff would consider Toadtown in conjunction with future expansions of capacity.

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⁵ Discharge is in cubic feet per second (cfs)

⁶ A dry water year is any 12-month period beginning May 1 in which the natural runoff of the Feather River at Oroville for the April 1 to July 31 period, as forecast on April 1 by the State of California Department of Water Resources, and as may be adjusted by the state on May 1, will be 50 percent or less of the average for such period as computed by the state for the 50-year period used at that time. If during a designated dry year the February 1 or later water year prediction indicates that dry year conditions no longer prevail, licensee will resume normal year flow releases immediately upon notification by California Department of Fish and Game.

⁷ Unless otherwise noted, the time period is year-round.

⁸ When inflow to Philbrook Reservoir is less than 0.1 cfs, a minimum flow of at least 0.1 cfs shall be discharged.

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