

Hydropower Project License Summary

KERN RIVER, CA

KERN CANYON HYDROELECTRIC PROJECT (P-178)



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Hydropower Reform Coalition

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KERN CANYON HYDROELECTRIC PROJECT (P-178)

DESCRIPTION:

The Kern Canyon Hydroelectric Project (P-178) is located in Kern County, CA on the main stem of the Kern River, approximately 10 miles northeast of the city of Bakersfield. Owned and operated by Pacific Gas and Electric Company (PG&E), the project has installed capacity of 11.48 megawatts (MW) and occupies approximately 11.26 acres of federal land within the Sequoia National Forest.

Well-known for its abundant recreation opportunities, the Kern River is a popular year-round destination for fly-fishing and whitewater kayaking. In addition to its recreational value, the Kern watershed is the native range of California's State Fish, the California Golden Trout. The headwaters of the Kern River originate within the Northeast corner of Sequoia National Park and flow south through Inyo and Sequoia national forests before emptying into Lake Isabella, a reservoir impounded by Isabella Dam (P-8377). After leaving Lake Isabella, the river winds through the high-gradient Kern Canyon for approximately 20 miles, before entering Bakersfield proper where the river is heavily diked and irrigated to provide water for the municipality.

A. SUMMARY

1. License application filed: April 14, 2003
2. License issued: February 25, 2009
3. License expiration: January 31, 2039
4. Capacity: 11.48 megawatts (MW)
5. Waterway: Kern River, CA
6. Counties: Kern County, CA
7. Licensee: Pacific Gas & Electric (PG&E)
8. Licensee contact: Pacific Gas and Electric Company
P.O. Box 997300
Sacramento, CA 95899-7300
9. Project Website:
http://www.pgecorp.com/corp_responsibility/reports/2009/en06_hydro.jsp
10. Project area: The project is located approximately ten river-miles below Lake Isabella (P-8377), and roughly ten miles northeast of the city of Bakersfield.
11. Project Facilities: Operated in a run-of-river mode, flows enter a concrete tunnel through an intake structure on the river-right side of the dam. Water then flows through the tunnel, into the surge chamber, and into the penstock. The penstock feeds the water into turbines positioned in the powerhouse. Flows then exit the

powerhouse via the tailrace, and empty into the Kern River. A total of 1.7 miles of river are bypassed. The following list summarized the project’s developments:

- a. 150-foot-long and 23-foot-high dam which impounds a 3-acre reservoir;
- b. 35-foot-high, 40-foot-long intake structure located at the right abutment of the dam;
- c. 1.58-mile-long horseshoe shaped concrete tunnel leading to an underground 55-foot high surge chamber;
- d. 520-foot-long steel penstock;
- e. powerhouse containing one 11.48 MW turbine;
- f. 2.3-mile-long powerhouse access road;
- g. 1.7-mile-long telephone and control line;
- h. 8.3-mile-long transmission line

B. IMPORTANT PROVISIONS AND REQUIREMENTS IN THE LICENSE

Approximately five miles below the project site, the majority of the river’s flow is heavily irrigated and diverted to provide water for neighboring municipalities. As such, the majority of the Kern River’s fish, wildlife, recreation, and aesthetic resources are found upstream of the Kern Canyon development. That said, the license nevertheless contains requirements to protect resources that are impacted by the project. The following pages contain brief summaries of the most notable conditions, articles, and requirements subjected to PG&E by the California State Water Board, US Forest Service, and FERC (the Commission).

1. *Instream Flows* [Reference: CA State Water Board Conditions (Appendix A, “*Minimum Flow Conditions*”)]

PG&E shall, by May 1, 2009, maintain minimum instream flows in the bypassed reach according to the following schedule:

Period	Water Year Type	Flow
January 1 - December 31	All	Minimum flow of 25 cfs over a 7 day period, with a minimum instantaneous flow of 20 cfs.
June 1 - August 31	Wet/Above Normal, when daily mean flows are less	Minimum flow of 60 cfs over a 7 day period, with a

	<p>than 60 cfs for 10 cumulative days</p>	<p>minimum instantaneous flow of 50 cfs during the remainder of that period for that year</p>
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In the event that the incoming stream flow above the project is less than the minimum stream flow set forth in the table above, PG&E shall bypass the incoming stream flow. PG&E shall notify the State Water Board Deputy Director for Water Rights (Deputy Director for Water Rights) immediately, but no later than 48 hours from the time that the minimum stream flows are reduced to the incoming stream flows.

Generally, PG&E shall provide immediate written notification to the Deputy Director for Water Rights whenever temporary modifications of the flow requirements are needed for maintenance, repair, law enforcement activity, or any other emergencies outside of PG&E’s control.

2. *Freshet Flow Conditions* [Reference: CA State Water Board Conditions (Appendix A, “*Freshet Flow Conditions*”)]

Natural freshet flows are needed to maintain channel conditions and the riparian community in the bypassed reach. For the purposes of this project, a natural freshet flow event must meet the following conditions:

- Occur at least once in the two year period before March 1 of each year;
- Occur between December 1 and July 31
- Have a cumulative volume of at least 12.00 af;
- Have a cumulative duration of at least 14 days; and
- Have at least two average daily flows exceeding 750 cfs.

PG&E shall create a freshet flow event (may be made up of natural and released flows), into the bypassed reach if, as of March 1 of each year, there has been no naturally occurring freshet flow event, as defined above.

The definition of a natural freshet flow bypassed reach may be only be modified by the Deputy Director for Water Rights, in consultation with the US Forest Service and the CA Department of Fish and Game.

3. *Instream Flow Measurement* [Reference: US Forest Service Conditions (Appendix B, *Condition 14B*)]

PG&E must measure and document all instream flow releases in publicly available and readily accessible formats. In order to measure and document compliance with the minimum flow requirements, PG&E shall prepare and file with the Commission an Instream Flow Measurement Plan that is approved by the Forest Service.

The plan must include a description of existing or proposed instream flow measurement gages or devices, including flow gages, spillway or reservoir outlet discharge measurement devices, etc., and a detailed proposal for measuring instream flow in each of the project reaches with existing or proposed devices. The plan must also describe existing or proposed provisions for making mean daily flow data available to the public, and for making hourly gage data available to the Forest Service

4. *Fish Monitoring* [Reference: US Forest Service Conditions (Appendix B, *Condition 14C*)]

PG&E must file a Fish Monitoring Plan with the Commission by Jan 31, 2010. The plan shall be developed in consultation with the Forest Service, and any other interested parties (CA DFG, CA State Water Board, etc.)

In order to provide information on the project's impact on fish populations during the period of the license, PG&E shall conduct fish population monitoring every ten years within the bypassed reach. Fish monitoring should occur at similar electrofishing sites and during the same time of year as the monitoring conducted by licensee in 2001. The monitoring must determine the fish species composition in the project area and estimate (for each species present) the abundance by life stage, and the size (length and weight) distribution.

In addition to the monitoring, a draft technical report providing the results of the fish population survey must be prepared within four months following completion of the fieldwork.

5. *Protection of Forest Service Special Status Species* [Reference: US Forest Service Conditions (Appendix B, *Condition 18*)]

Prior to the construction of any new project features on Forest Service land that may affect a listed Forest Service sensitive and/or management indicator species (or their critical habitat, PG&E shall prepare a biological evaluation that investigates the potential impact on the species and submit it for Forest Service approval. In coordination with the

Commission, the Forest Service may require mitigation measures for the protection of the species in question.

6. *Terrestrial Wildlife Mitigation & Monitoring Plan* [Reference: US Forest Service Conditions (Appendix B, *Condition 19A*)]

By January 31, 2010, PG&E shall prepare a wildlife mitigation and monitoring plan to monitor the impacts of the project's operation on Forest Service special status species. At a minimum, the plan must include the following element:

- Periodic monitoring throughout the period of the license to determine if special status bats utilize Project facilities.

7. *Vegetation and Invasive Weed Management Plan* [Reference: US Forest Service Conditions (Appendix B, *Condition 19B*)]

By January 31, 2011, PG&E shall file a Vegetation and Invasive Weed Management Plan developed in consultation with the Forest Service, the appropriate County Agricultural Commissioner and California Department of Food and Agriculture. Invasive weeds will be those weeds defined in the California Food and Agriculture code, and other species identified by the Forest Service.

The Invasive Weed Plan must address the following elements:

- Inventory and mapping of new populations of Invasive weeds using a Forest Service compatible database and GIS software;
- Strategies to prevent and control spread of known populations or introductions of new populations;
- Development of a schedule for control of all known A, B, Q and selected other rated invasive weed species, designated by resource agencies;
- Ongoing annual monitoring of known populations of Invasive weeds for the life of the license in locations tied to project actions or impacts; and
- An adaptive management element to implement methods for prevention of aquatic invasive weeds, as necessary. These actions may include, but may not be limited to:
 - Public education and signing of public boat access;
 - Preparation of an Aquatic Plant Management Plan approved by the Forest Service, and in consultation with other agencies; and
 - Boat cleaning stations at boat ramps for the removal of aquatic Invasive weeds.

The Vegetation Management plan shall include and/or address the following elements:

- Hazard tree removal and trimming;
- Powerline/transmission line clearing;
- Vegetation management for habitat improvement;
- Revegetation of disturbed sites;
- Soil protection and erosion control, including use of certified weed free straw;
- Establishment of and/or revegetation with culturally important plant populations; and
- Usage of clean, weed free seed with a preference for locally collected seed.

8. *Cultural Resources Management Plan* [Reference: US Forest Service Conditions (Appendix B, *Condition 21*)]

By January 31, 2010, PG&E must prepare a Cultural Resources Management Plan, approved by the Forest Service, for the purpose of protecting and interpreting heritage resources. The plan must be developed in consultation with various tribal and non-tribal entities, and provide measures to mitigate impacts on identified cultural sites, a patrolling program, and management protocols for the ongoing protection of archaeological properties.

The plan must also address protocols in the case of the discovery of possible cultural, historical, archaeological, or paleontological items during project operations or other ground-disturbing activities.

C. MAP

There are two convenient ways to become familiar with this project on the Hydropower Reform Coalition website, www.hydroreform.org.

- Go directly to the project page <http://www.hydroreform.org/projects/kern-canyon-p-178>
- To understand the geographical context of the project, visit the *On Your River* section of the site. This link (<http://www.hydroreform.org/on-your-river/California>) will take you to the section for rivers in the state of California. Zoom in until you can see the Bakersfield area. P-178 is the first marker east of Bakersfield.