



**KILARC-COW CREEK HYDROELECTRIC PROJECT  
 FERC PROJECT NO. 606  
 LICENSE SURRENDER APPLICATION**

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**Acronyms and Abbreviations**

<b>Term</b>	<b>Definition</b>
<b>A</b>	
AbD	Aiken stony loam
ac ft	acre-feet
A.D.	<i>Anno Domini</i>
Agreement	Kilarc-Cow Creek Project Agreement
APE	area of potential effect
<b>B</b>	
BA	Biological Assessment
Basin Plan	Water Quality Control Plan
B.C.	Before Christianity
BLM	Bureau of Land Management
BMPs	best management practices
BO	Biological Opinion
B.P.	Before Present
<b>C</b>	
°C	degrees Celsius
CID	Cohasset loam
CA	California
CAL FIRE	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CED	California Energy Demand
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CmE	Cohasset stony loam
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society



<b>Term</b>	<b>Definition</b>
CoE	Cohasset very stony loam
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CWA	Clean Water Act
CwF	Cone very stony loam
<b>D</b>	
DPR	Department of Parks and Recreation
DPS	distinct population segment
DWR	California Department of Water Resources
<b>E</b>	
EA	Environmental Assessment
endangered	A plant or animal species which is in danger of extinction throughout all or a significant portion of its range because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors; Federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the <i>Federal Register</i>
entrainment	The drawing of fish and other aquatic organisms into tubes or tunnels carrying water for cooling purposes into thermal plants, or for power generating purposes into hydroelectric plants. Entrainment increases mortality rates for those organisms
EPA	Environmental Protection Agency
ephemeral	Lasting a very short time
ESA	Endangered Species Act (federal)
<b>F</b>	
°F	degrees Fahrenheit
FERC	Federal Energy Regulatory Commission
fish ladder	Structures on or around artificial barriers (such as dams and weirs) to facilitate fish migration. Also known as fishways or fish passes.
fish screen	A barrier designed to prevent fish from swimming or being drawn into an aqueduct, cooling water intake, dam, or other diversion on a waterway where water is taken for human use
flume	An artificial channel or trough for conducting water, as one used to transport logs or provide water power
forebay	The portion of the reservoir at a hydroelectric plant which is immediately upstream of the generating station
FPA	Federal Power Act
FSCD	First State Consultation Document



<b>Term</b>	<b>Definition</b>
<b>G</b>	
generation	An act or process of producing electric energy from other forms of energy. Also refers to the amount of electric energy so produced.
geologic	Pertaining to the origin, history, and structure of the earth
geomorphology	The study of the characteristics, origin, and development of landforms
geotextile	Any permeable textile material used to increase soil stability, provide erosion control or aid in drainage
GIS	Geographical Information System
GPS	Global Positioning System
GsD	Guenoc very stony loam
GuD	Guenoc very rocky loam
GWh	gigawatt-hour
<b>H</b>	
HP	Horsepower
<b>I</b>	
ISQG	Interim Sediment Quality Guideline
<b>J</b>	
<b>K</b>	
KIE	The Kilarc unit
KID	Kilarc soil unit
KOPs	Key Observation Points
kVA	kilovolt-ampere
kW	kilowatt
kWh	kilowatt-hour
<b>L</b>	
LgE	Lyonsville-Jiggs complex
lithic	Consisting of stone



<b>Term</b>	<b>Definition</b>
lithic scatter	A surface scatter of cultural artifacts and debris that consists entirely of lithic (i.e., stone) tools and chipped stone debris
loam	A kind of soil; a fertile mixture of clay, silt, sand and organic matter
LSA	License Surrender Application
<b>M</b>	
MPR	Market Price Referent
MCL	maximum contaminant levels
MDB&M	Mount Diablo Baseline and Meridian
Megawatt	One million watts
MMP	Mitigation and Monitoring Plan
MPN	most probable number
MSL	mean sea level
MW	megawatt
<b>N</b>	
NAHC	Native American Heritage Commission
NAL	numeric action level
NCPC	Northern California Power Company
NEIC	Northeast Information Center
NELs	numeric effluent limitations
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLPC	Northern Light and Power Company
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPV	net-present value
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	North State Resources, Inc.
NTU	Nephelometric Turbidity Units



<b>Term</b>	<b>Definition</b>
<b>O</b>	
<b>P</b>	
PAOT	people-at-one-time
PCBs	polychlorinated biphenyls
PDP	Proposed Decommissioning Plan
PEL	Probable Effect Level
PG&E	Pacific Gas and Electric Company
PM&E	Protection, Mitigation, and Enhancement (measure)
PPDP	Preliminary Proposed Decommissioning Plan
Project	Kilarc-Cow Creek Hydroelectric Project, FERC No. 606
<b>Q</b>	
<b>R</b>	
RM	river mile
rpm	revolutions per minute
RPS	Renewables Portfolio Standard
RS	river station
RWQCB	Regional Water Quality Control Board
RWQCB-CVR	Regional Water Quality Control Board-Central Valley Region
RxF	Rockland unit
<b>S</b>	
SCO	Shasta County Ordinance
SdD2	Sehorn very stony silty clay
Stewardship Council	Pacific Forest and Watershed Lands Stewardship Council
SWDU	Statements of Water Diversion and Use
SWPPP	Stormwater Pollution Prevention Plan





<b>Term</b>	<b>Definition</b>
SWRCB	State Water Resources Control Board
Synergics	Synergics Energy Developments, Inc
<b>T</b>	
TcE	Toomes very rocky loam
TEL	Threshold Effects Level
<b>U</b>	
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
<b>V</b>	
VAOT	vehicles-at-one-time
VELB	Valley Elderberry Longhorn Beetle
<b>W</b>	
WfG	Windy and McCarthy very stony sandy loams
<b>X</b>	
<b>Y</b>	
<b>Z</b>	



**Glossary of Terms**

<b>Term</b>	<b>Definition</b>
404 Permit	404 Permit is Issued by USACE and is required for discharge of fill material into waters of the U.S., including wetlands.
<b>A</b>	
abutment	A mass or structure for resisting the pressure of water on a dam.
Affected Environment	Refers to existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action. Also, the chapter in an environmental document statement describing current environmental conditions.
alluvial	Pertaining to alluvium; the deposits made by flowing water; washed away from one place and deposited in another as soil or mud
ampere	A unit of electric current that measures the amount of electric charge that passes a point per unit of time. Around $6.242 \times 10^{18}$ electrons passing a given point each second constitutes one ampere.
anadromous salmonids	Refers to salmon that divide their lives between freshwater and the ocean.
anchor bolts	Bolts used to secure a structure.
andesitic	A dark-colored volcanic rock composed essentially of plagioclase feldspar and one or more mafic minerals, as hornblende or biotite
appurtenant structures	A structure that furnishes added support; e.g., an ancillary pump.
aquatic	Operating, living, or growing in water
aquatic macrophytes	Aquatic vegetation that is larger than microscopic
<b>B</b>	
backfill	Material used to refill an excavated area.
baffle	A device that regulates the flow of water.
basaltic	Containing basalt; a dark, dense igneous rock of a lava flow or minor intrusion, composed essentially of labradorite and pyroxene and often displaying a columnar structure
baseload	A load that varies only slightly over a specified time period; a plant that operates most efficiently at a relatively constant level of generation
bedrock	Solid unweathered rock lying beneath surface deposits of soil
beneficial use	A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. Examples include drinking, swimming, industrial and agricultural water supply, and the support of fresh and saline aquatic habitats.
berm	A mound or bank of earth, used especially as a barrier.



<b>Term</b>	<b>Definition</b>
Biological Opinion (BO)	Document stating the USFWS and NMFS opinion as to whether a federal action is likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction or adverse modification of critical habitat.
breaching	To make a hole or gap in; to break through.
breccia	A coarse grained clastic rock, composed of angular broken rock fragments held together by a mineral cement of fine-grained matrix
<b>C</b>	
canal	An artificial waterway or artificially improved river
capacity	The maximum sustainable amount of power that can be produced by a generator or carried by a transmission facility.
capped	Protectively covered or sealed.
cat bridge	A narrow elevated walkway. Also known as a catwalk.
cobble	Pieces of rock larger than a pebble and smaller than a boulder
coffer dam	An enclosure beneath the water constructed to allow water to be displaced by air for the purpose of creating a dry work environment.
conduit	A pipe, tube, or the like, for conveying water
confluence	The junction where two rivers, streams, etc. flow together.
corrugated	Shaped into alternating parallel grooves and ridges.
crest	The highest point or level.
cubic feet per second (csf)	A unit of measurement pertaining to flow or discharge of water. One cfs is equal to 449 gallons per minute.
cultural resources	The nonrenewable evidence of human occupation or activity as seen in any district, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature that was important in human history at the national, state, or local level.
culvert	A sewer or drain crossing under a road or embankment.
<b>D</b>	
dacitic	Igneous, volcanic rock with a high iron content
decommission	To deactivate; to shut down.
demand	The rate at which electric energy is used, whether at a given instant or averaged over any designated period of time.
Desired Conditions	Under NEPA, refers to the social, economic, and ecological attributes toward which management of the land and resources of a plan area are to be directed. Desired Conditions are long-term in nature, but are neither commitments nor final decisions approving projects and activities.
discharge	The volume of water flowing at a given time, usually expressed in cubic feet per second.



<b>Term</b>	<b>Definition</b>
dissolved gas concentrations	The amount of chemicals normally occurring as gases, such as nitrogen and oxygen, which are held in solution in water, expressed in units such as milligrams of the gas per liter of liquid.
Desired Conditions	Under NEPA, refers to the social, economic, and ecological attributes toward which management of the land and resources of a plan area are to be directed. Desired Conditions are long-term in nature, but are neither commitments nor final decisions approving projects and activities.
diversion dam	A dam that diverts all or a portion of a river's flow from its natural course.
<b>E</b>	
endangered	A plant or animal species which is in danger of extinction throughout all or a significant portion of its range because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors; Federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the <i>Federal Register</i> .
entrainment	The drawing of fish and other aquatic organisms into tubes or tunnels carrying water for cooling purposes into thermal plants, or for power generating purposes into hydroelectric plants. Entrainment increases mortality rates for those organisms.
Environmental Assessment (EA)	A NEPA compliance document used to determine if an action would have a significant effect on the human environment. If not, a finding of no significant impact (FONSI) is written. If so, an environmental impact statement (EIS) is written.
ephemeral	Lasting a very short time
estimated dependable capacity	Dependable capacity is based on the Project's ability to meet demand during periods of lowest flow (e.g., the 1977 drought) at the time of PG&E's peak electric system demand in July or August.
exceedance	The amount by which something, especially a pollutant, exceeds a standard or permissible measurement.
<b>F</b>	
fecal coliform	Bacteria originating from feces
fish ladder	A structure on or around an artificial barrier (such as a dam or weir) to facilitate fish migration. Also known as a fishway or fish pass.
fish screen	A barrier designed to prevent fish from swimming or being drawn into an aqueduct, cooling water intake, dam, or other diversion on a waterway where water is taken for human use.
flood frequency curve	A graph that shows the frequency with which discharges of different magnitudes are equaled or exceeded.
flume	An artificial channel or trough for conducting water, as one used to transport logs or provide water power



<b>Term</b>	<b>Definition</b>
footers	Cutoff walls.
foreplay	A reservoir or canal from which water is taken to run equipment (as a waterwheel or turbine). The forebay is the portion of a reservoir at a hydroelectric plant that is immediately upstream of the generating station and feeds directly into the penstocks of the plant.
foundation pier	A base built on posts upon which some structure rests.
fritillary	Any of various bulbous plants of the genus <i>Fritillaria</i> , having nodding, variously colored, often spotted or checkered flowers.
<b>G</b>	
generator	A machine that converts one form of energy into another, especially mechanical energy (e.g. from falling water) into electrical energy
geologic	Pertaining to the origin, history, and structure of the earth.
geomorphic	Pertaining to the form of the earth or the forms of its surface.
geotextile	Any permeable textile material used to increase soil stability, provide erosion control or aid in drainage.
grading	Reducing to a smooth horizontal or gently sloping surface.
grate	A framework of parallel or crossed bars, used as a partition, guard or cover.
grizzly	A device for screening ore, consisting of a row of iron or steel bars.
gross	Without deductions; total.
gross head	The true vertical distance from intake to turbine.
gunite	Commonly used term for substance applied via pressure hoses. Also known as shotcrete.
<b>H</b>	
hauler	A vehicle used to pull or drag forcibly.
hydraulic	Of, involving, moved by, or operated by water under pressure
hydroelectric	Producing electric power through use of falling water's gravitational force.
hydrology	The science dealing with the properties of the waters of the earth and its atmosphere
<b>I</b>	
inflow	Water that flows into a reservoir or forebay during a specified period
inlet	A narrow passage of water.
intake	The entrance to a conduit through a dam or water facility
<i>In situ</i>	Meaning to be situated in the original, natural, or existing place or position.



<b>Term</b>	<b>Definition</b>
Interested Parties	Indian tribes, non-governmental organizations, members of the public, and others likely to be interested in the license surrender proceedings.
<b>K</b>	
<b>L</b>	
levelized 2009 “Market Price Referent”	The present value of the total cost of building and operating a generating plant over its economic life, converted to equal annual payments. Costs are levelized in real dollars (i.e., adjusted to remove the impact of inflation).
Licensee	Pacific Gas and Electric Company (PG&E)
License Surrender Application	An application required by FERC when the holder of a license to operate a hydroelectric generating facility intends to give up its license rather than renew it when the license expires.
lithic	Consisting of stone
lithic scatter	Refers to surface scatter of cultural artifacts and debris that consists entirely of lithic tools and chipped stone fragments.
loam	A rich, friable soil containing a relatively equal mixture of sand and silt and a somewhat smaller proportion of clay.
<b>M</b>	
mainstem	The principal river in a basin, as opposed to the tributary streams and smaller rivers that feed into it
megawatt	One million watts, a measure of electrical power
morphological	Pertaining to the form or structure of anything.
<b>N</b>	
nickpoint	In surface hydrology, refers to the location along the profile of a stream at which a sudden gradient change occurs. The most easily recognized example is the crest of a waterfall. In geologic evolution, the nickpoint of a watercourse often migrates upstream as bedrock cutting gradually takes place.
<b>O</b>	
Order	A ruling issued by FERC granting or denying an application in whole or in part. The order explains the basis for the decision, noting any dispute with the factual assertions of the applicant.
outlet	A way or passage outwards, or for releasing.
overstory	The uppermost layer of foliage in a forest, forming the canopy
<b>P</b>	
penstock	A conduit for conveying water to a power plant
perennial	Lasting or continuing throughout the entire year



<b>Term</b>	<b>Definition</b>
pool	Reservoir, a body of water impounded by a dam
pothole	A hole or pit, especially one in a road surface
powerhouse	An electricity generating station
Project Area	The geographic area defined in the license issued by FERC for the Project as needed for Project operations and maintenance; e.g., FERC boundary
Project Vicinity	The area extending to about five miles from the Project Boundary
protection, mitigation, and enhancement (PM&E) measures	In preparing NEPA documents, FERC is required to consider measures to protect, mitigate damages to, and enhance resources affected by the project. Issues relating to mitigation measures include: (1) clarifying the distinction between “protection,” “enhancement,” and “mitigation” measures, and the relevance of those distinctions to the NEPA analysis of mitigation measures; (2) whether the need for mitigation is adequately explained; and (3) the nexus between project effects and mitigation measures.
pyroclastic	Any rock consisting of unworked solid material of whatever size explosively or aerially ejected from a volcanic vent.
<b>Q</b>	
quitclaim	A quitclaim deed is a term used to describe a document by which an entity (the “grantor”) disclaims any interest the grantor may have in a piece of real property and passes that claim to another person (the grantee).
<b>R</b>	
reach	A level portion of a canal, between locks.
rebar	A steel bar or rod used to reinforce concrete
Renewables Portfolio Standard (RPS)	A state policy that requires electricity providers to obtain a minimum percentage of their power from renewable energy resources by a certain date. California requires that 20 percent of an electrical corporation’s retail sales be procured from eligible renewable energy resources no later than December 31, 2010.
reseed	Seed again or anew.
Richter Scale	The Richter magnitude scale, or local magnitude M <sub>L</sub> scale, assigns a single number from 1 to 10 to quantify the amount of seismic energy released by an earthquake.
riparian	Refers to the area on the banks of a river or stream
rip-rap	Loose stones and boulders used to control erosion of banks
roadbed	The material of which a road or railroad is composed
rubble	A loose mass of angular fragments of rock or masonry crumbled by natural or human forces
runoff	The occurrence of surplus water exceeding the limit or capacity



<b>Term</b>	<b>Definition</b>
run-of-river facilities	Facilities that support a type of hydroelectric generation whereby the natural flow and elevation drop of a river is used to produce electricity.
<b>S</b>	
salmonids	Of the salmon species.
saw cut	Cut with a saw.
scarify	To break up (a road surface) or loosen (soil).
sedimentation	The settling of material (such as dust or other particles) into water and eventual deposition on the bottoms of streams and rivers.
seismic	Subject to or caused by an earthquake or earth vibration.
shaft	A long, generally cylindrical bar that rotates and transmits power, as the drive shaft of an engine.
shotcrete	Concrete conveyed through a hose and pneumatically projected at high velocity onto a surface. Also known as gunite.
siphon	To convey or draw.
spawning gravel	Suitable gravel upon which fish lay their eggs and sperm.
spill	Water passed over a spillway without going through turbines to produce electricity. Spill can be forced, when there is no storage capability and flows exceed turbine capacity, or planned, for example, when water is spilled to enhance juvenile fish passage.
spillway	A passageway through which surplus water escapes from a reservoir, lake, or dam.
stakeholders	Resource agency personnel and anyone with an interest in the Project.
streamflow	The water that flows in a specific stream site, especially its volume and rate of flow.
study area	The study area includes all of the area within the Project Boundary and also extends beyond the Project boundary.
surge tower	The above ground, upright section of a penstock.
swale	A shallow trough like depression that carries water mainly during rainstorms or snow melts.
switchyard	A location where electrical current is moved from one conductor to another.
<b>T</b>	
tailrace	The channel for conducting tailings or refuse away in water.
tapered	Becoming gradually narrower or thinner toward one end.
telemetry	Automatic transmission and measurement of data from remote sources.
thalweg	Point of maximum depth in the channel.
thermal	Using, producing, or caused by heat.





<b>Term</b>	<b>Definition</b>
transformer	An electrical device by which alternating current of one voltage is changed to another voltage.
trash bars	Bars placed over the entrance to an enclosed waterway to catch trash.
tributary	A stream that flows to a larger stream or other body of water.
truss	A rigid framework of wooden beams or metal bars designed to support a structure.
turbidity	A measure of the optical clarity of water, which depends on the light scattering and absorption characteristics of suspended and dissolved material in the water
turbine	Machinery that converts kinetic energy of a moving fluid, such as falling water, to mechanical or electrical power.
<b>U</b>	
<b>V</b>	
velocity	The speed of linear motion in a given direction
<b>W</b>	
water conveyance system	Any structure that conveys water from one location to another.
water quality certification	A state-issued document that serves as legal evidence that an approved application has been physically developed and the water put to beneficial use. The certificate establishes priority date, type of beneficial use, and the maximum amount of water that can be used.
waterway	A conduit through which water flows.



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