

DESCHUTES RIVER, OR

PELTON ROUND BUTTE HYDROELECTRIC PROJECT (P – 2030, P – 2030 - 258)



Photo courtesy of Hydropower Reform Coalition

This summary was produced by the

Hydropower Reform Coalition

and

River Management Society

DESCHUTES RIVER, OR

PELTON ROUND BUTTE HYDROELECTRIC PROJECT

(P – 2030, P – 2030 - 258)

DESCRIPTION:

The Pelton Round Butte Hydroelectric project is owned by Portland General Electric Company (PGE) and the Confederated (Wasco, Warm Springs and Paiute) Tribes of the Warm Springs Reservation of Oregon (Tribes), and consists of three developments located on the Deschutes River, Crooked River, and Metolius River.

In addition to the licensees, twenty organizations signed the relicensing agreement: American Rivers, Avion Water Company, Cities of Bend, Madras and Redmond (OR), Deschutes and Jefferson Counties (OR), National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Parks and Recreation Department, Oregon Trout, Oregon Water Resources Department, The Native Fish Society, Trout Unlimited, U.S. Department of the Interior, Bureau of Indian Affairs, U.S. Department of the Interior, Bureau of Land Management, U.S. Department of the Interior, Fish and Wildlife Service, U.S. Department of Agriculture, Forest Service, and Water Watch of Oregon.

A. SUMMARY

1. License application filed: December 16 and 17, 1999 by PGE and Tribes, respectively. June 29, 2001, the entities jointly filed an amendment to combine their license applications and become co-applicants for a new license.
2. License Issued: August 4, 2004.
3. Amending License Issued: May 26, 2015
4. License expiration: August 4, 2054
5. Capacity: Original License - 366.82 MW (247.12 MW - Round Butte, 100.8 MW - Pelton, 18.9 MW – Reregulating). The authorized installed capacity effective June 23, 2014 is 409,650 kilowatts.
6. Waterways: Deschutes River, Crooked River and Metolius River
7. County: Jefferson County, Oregon
8. Licensee: Portland General Electric, two-thirds ownership; and Confederated Tribes of the Warm Springs Reservation of Oregon, one third ownership
9. Licensee Contact: Steve Corson
Portland General Electric
P.O. Box 4404
Portland, OR 97208
Tel: 503-464-8444
Email: Steven.Corson@pgn.com

Jim Manion
Warm Springs Power Enterprises
1233 Veterans St.
Warm Springs, OR 97761
Tel: 541-553-1046
Email: info@warmsprings.com

10. Project Websites: [Portland General Electric](#), [Warm Springs Power Enterprise](#)

11. Project area: The project occupies 3503.74 acres of federal and tribal lands administered by the U.S. Forest Service (Forest Service), U.S. Bureau of Land Management (BLM), and U.S. Bureau of Indian Affairs (BIA)

12. Project Facilities: The Pelton Round Butte Project consists of three developments. Their powerhouses are integral with each of the three project dams.

P – 2030 – 258: On August 7, 2012 the Commission issued orders amending the total installed capacity to reflect the rewinding of the Unit 1 generator at the Round Butte Development powerhouse as well as the deletion of the 70-kilowatt (kW) turbine generating unit at the Round Butte dam, which was never installed. In a March 2015 order, the Commission revised the total installed capacity to reflect the rewinding of the Unit 2 and Unit 3 generators

a. The 247.12 MW Round Butte Development is the uppermost development of the three. It includes 4,000-acre Lake Billy Chinook, the project's largest storage reservoir, located on the Deschutes, Metolius, and Crooked Rivers. The principal features of the Round Butte Development are:

- 440-foot-high, 1,382-foot- long rockfill, embankment dam;
- 4,000 acre reservoir (Lake Billy Chinook) with a gross storage capacity of 535,000-acre-feet and a maximum useable storage volume of 274,000 acre-feet (limited by this license to 76,000 acre-feet with a maximum drawdown of 20 feet) at a normal pool elevation at 1,945.0 feet mean sea level;
- concrete spillway intake structure topped with a 30-foot-high,
- 36-foot-wide radial gate;
- 1,800-foot-long, 21-foot-diameter spillway tunnel;
- 85-foot-long, varying in height and width, concrete, powerhouse intake structure;
- 1,425-foot-long, 23-foot-diameter power tunnel;
- 170-foot- long, 116-foot-wide, concrete powerhouse containing

three Francis-type, turbine generating units *rated at 86.25 MW, 101.85 MW and 101.85 MW, connected to three generator units rated at 112.5 MW, 130 MW and 130 MW, for a total capacity of 289.95 MW;*(8) *a 10.5-mile- long, 12.5-kV line that runs from the switchyard to the Reregulating Dam (per P – 2030 -258);* and

- related facilities

b. The dam for the 100.8-MW Pelton Development is located on the Deschutes River about 7 miles downstream from the Round Butte Dam. The 540-acre Pelton reservoir, known as Lake Simtustus, begins at the base of the Round Butte Dam. The principal features of the Pelton Development are:

- 636-foot-long, 204-foot-high, concrete arch dam with a crest elevation of 1,585 feet mean sea level;
- a 7-mile-long, 540 acre reservoir (Lake Simtustus) with 31,000 acre-feet gross storage capacity and useable storage volume of 3,700 acre-feet at normal maximum water surface elevation of 1,580 feet mean sea level;
- a concrete spillway equipped with two, 34-foot-wide, 22-foot-high steel Tainter gates;
- a turbine intake system built into the upstream face of the dam and consisting of three 16-foot-diameter, approximately 100-foot-long, penstocks, equipped with trash racks and inlet gates;
- a 76-foot-long, 168-foot- wide, semi-outdoor type powerhouse containing three, Francis-type turbine generating units *rated at 36 MW, each unit, connected to three generator units rated at 36 MW, 32.4 MW and 32.4 MW (per P – 2030 - 258)* for a total installed capacity of 100.8 MW;
- a 7.9-mile-long, 230-kV primary transmission line from the Pelton powerhouse to the Round Butte Switchyard; and
- related facilities.

c. The 18.9-MW Reregulating Development is the most downstream development; its 190-acre reservoir on the Deschutes River extends from the tailwater of the Pelton Dam 2.5 miles downstream to the Reregulating Dam. The principal features of the Reregulating Development are:

- a 1,067-foot-long, 88-foot- high rockfill dam with a crest elevation of 1,402 feet mean sea level;
- a 2.5-mile-long, 190 acre reservoir with 3,500 acre-feet gross storage capacity and useable storage volume of 3,270 acre-feet at normal maximum water surface elevation of 1,435 feet mean sea level;
- a concrete spillway equipped with four, 20-foot- wide, 14-foot-high steel gates;

- a turbine intake on the upstream face of the dam, equipped with a 55-foot-high, 34-foot-wide trash rack;
- a 159-foot-long, 44-foot-wide concrete powerhouse containing a single, 18.9-MW bulb-type turbine generator;
- a 10.5-mile-long, 12.5 kV line that runs from the Re-regulating Development to the Round Butte Switchyard (*added per P – 2030-258*);
- related facilities.

B. IMPORTANT PROVISIONS AND REQUIREMENTS IN LICENSE

Round Butte Dam and Pelton Dam will continue to be run as “peak power” operations, ensuring PGE’s ability to promptly respond to consumer demand, but the furthest downstream part of the project, the Reregulating Dam, will continue to manage steady flows below the project +/- 10% of the inflow under most conditions to meet flow and environmental needs.

The license requires licensees to file the following plans for Commission approval, including agency coordination provisions:

- Operating Compliance Plan
- Fish Passage Plan
- Fish Health Management Program
- Native Fish Monitoring Program
- Terrestrial Resources Management Plan
- Recreational Resources Implementation Plan and Aesthetic Resources Management Plan
- Interpretation and Education Plan
- Shoreline Management and Shoreline Erosion Plan
- Historic Properties
- Lower River Gravel Study Plan
- Lower River Wood Management Plan
- Trout Creek Habitat Enhancement Plan Implementation
- Pelton Round Butte Fund
- Water Quality Monitoring Plan

The license includes the following conditions and provisions:

1. Operation [License Articles 409 - 415]

The license requires the licensees (PGE and Tribes) to file an Operation Compliance Plan to explain how they will comply with the license requirements by February 4, 2005. The plan is to insure compliance with:

- stage change limit requirements (409);

- gaging requirements specified (410);
- inflow estimation requirements (411);
- minimum flow and reservoir refill requirements (412);
- implementation of long-term flow triggers (413); and
- lake level requirements (414).

The Plan will also identify

- specific locations and procedural requirements for relevant measuring devices,
- protocol for communicating with agencies regarding real time operational issues;
- provision for maintaining a project operation log, Annual Operations Report, annual project review and an operations compliance staff.

2. Fish Passage [License Appendix D, Articles 17 - 33]

The Licensees shall implement the Fish Passage Plan to establish self-sustaining harvestable anadromous fish runs of Chinook, steelhead and sockeye above the Project at target self-sustaining population sizes and harvestable runs of each species. The license requires the licensees to follow a three-phase fish passage program:

- The Experimental Passage Phase is the current stage of fish passage at the Project
- The Interim Passage Phase shall include investigations of fish passage methods and construction of selective water withdrawal (SWW) facilities and temporary and permanent downstream passage facilities at Round Butte Dam.
- The Final Passage Phase shall include actions and adaptive management studies for feasibility determination, development and construction of permanent upstream fish passage facilities, contingent on the achievement of successful downstream passage at the Project.

3. Fish Health Management [License Article 419]

The licensees shall file a plan to monitor disease incidence in Deschutes River fish populations and potential changes in the distribution of fish disease agents by February 4, 2006. The plan shall include:

- provisions for fish health services and supplies associated with production of salmon and steelhead eggs and fry at Round Butte Hatchery as part of the Reintroduction Plan;
- diagnosis of disease in mortalities at fish facilities; and
- monitoring of disease agents in wild fish populations; and
- provisions for fish pathogen procedures

4. Native Fish Monitoring [License Article 421]

The licensees shall file for Commission approval a native fish monitoring plan to evaluate effects of reintroducing anadromous fish on resident fish populations by August 4, 2005, after consultation with the Fish Committee, one of the Implementation Committees. The plan shall include the following biological and habitat components.

5. Terrestrial Resources [License Articles 422, 423]

The licensees shall file a Terrestrial Resources Management Plan (TRMP) to implement terrestrial resource protection, mitigation, and related enhancement measures with the Commission for approval by August 4, 2005. TRMP shall be the principal instrument for management of, implementation, monitoring and adaptation of PME measures for terrestrial resources affected by or related to the project, prepared after consultation with the Terrestrial Resources Working Group.

6. Recreation and Aesthetic Resources [License Articles 424, 430]

The licensees shall file a Recreation Resources Implementation Plan (RRIP - 424) to enhance recreation resources and Aesthetic Resources Protection Plan (ARPP - 430) to protect and enhance aesthetic resources at the Project with the Commission by August 4, 2005, after consultation with the Recreation Resources Working Group.

RRIP objectives shall include:

- providing adequate and safe public access to the project lands and waters;
- avoiding or minimizing recreation related impacts on sensitive resources; and
- describing feasible and desirable recreation opportunities reported through the FERC Form 80.

The licensees shall

- implement measures designed to mitigate for project-related recreation authorized or implemented by entities other than the licensees, in consultation with the Recreation Resources Working Group;
- convene a meeting of the Recreation Resources Working Group every 10 years to discuss unforeseen impacts of recreation patterns in the project area (if any) and to agree upon appropriate management actions or mitigation measures; and
- file an annual report documenting RRIP implementation.

ARPP shall include provisions for the fish ladder, switchyard, parks, dam and powerhouse areas.

7. Interpretation and Education [License Article 427]

The licensees shall file for Commission approval an Integrated Interpretation and Education Plan (I & E Plan) for the Project to inform the public about resource and project features in the project area by August 4, 2009. The I & E Plan shall be developed in consultation with the Recreation Resources Working Group and the Oregon State Historic Preservation Officer at a total expense of no more than \$75,000 in then-current dollars (unless otherwise directed by the Commission under Article 438). This Plan shall address fishery and aquatic resources, terrestrial and wildlife resources, cultural

resources, tribal culture and history, project history, and energy production at an annual cost of not more than \$20,000.

8. Shoreline Management [License Articles 428, 429]

After consultation with the Shoreline Management Working Group, the licensees shall file for Commission approval a Shoreline Management Plan (SMP) and Shoreline Erosion Plan by August 4, 2005. The SMP shall include standards and guidelines for new shoreline development, installation of new docks, and modification of existing docks. The objectives of the Shoreline Erosion Plan shall discuss conditions, probable causes of, and potential measures for and desired action related to shoreline erosion.

9. Historic Properties [License Article 432]

The licensees shall implement the Programmatic Agreement executed December 4, 2004 including the Cultural Resources Management Plan.

10. Lower River Gravel Study [License Article 433]

The licensees shall file for Commission approval a detailed Lower River Gravel Study Plan by August 4, 2005. The plan shall evaluate gravel mobility, supply, and use by spawning salmonids in the lower Deschutes River from the Reregulating Dam (RM 100) to the Trout Creek confluence (RM 87.3), and include a geomorphic component and a biological monitoring component.

11. Lower River Wood Management [License Article 434]

The licensees shall file for Commission approval a Large Wood Management Plan (LWMP), developed in consultation with the Fish Committee, by August 4, 2005. The purpose of the LWMP is to provide for (i) the management of floating wood greater than 8 inches in diameter (at the small end) by 10 feet long that enters Lake Billy Chinook and (ii) the placement of large wood along the project reservoir shorelines for the protection of riparian plantings. The LWMP shall include a monitoring plan for the evaluation of the effectiveness of placed wood, including river transport (for wood moved below the project), use by wildlife and fish, and as appropriate, erosion control for the establishment of shoreline riparian vegetation.

12. Trout Creek Habitat [License Article 435]

The licensees shall file for Commission approval a plan to implement the Trout Creek habitat enhancement project described in the Exhibit F to the Settlement Agreement, by August 4, 2005, developed in consultation with the Fish Committee established pursuant to Article 402 and Fish Agencies.

13. Pelton Round Butte Fund [License Article 436]

The licensees shall establish the Pelton Round Butte Fund (the "Fund") in the initial amount of a \$3.5 million credit (2003 dollars) to fund enhancement projects for fish and wildlife resources and habitats in the Deschutes River Basin, by February 6, 2005. The

funds are to be used for acquisition of water rights and for aquatic, riparian, and wetland habitat protection and enhancements in the basin both upstream and downstream of the project. Distribution and use of funds shall be decided by a Governing Board made up of PGE and the Tribes and various specified federal and state fish and wildlife agencies and non-governmental organizations. Four additional payments shall be made in 2007, 2011, 2013 and 2020 totaling \$21,500,000 (2003 dollars) The Fund shall be a tracking account held by licensees with all accrued interest being credited to the Fund.

14. Water Quality [See Appendix A of the license, Water Quality Management and Monitoring Plan (WQMMP)]

As part of its conditions for the water quality certification, Oregon Department of Environmental Quality (ODEQ) will submit for approval a revised WQMMP that will become part of the §401 certification for the Project. By August 4, 2009 the Joint Applicants shall construct, test, and commence operation of the Selective Water Withdrawal (SWW) facility described in the Joint Applicants' §401 application. The WQMMP includes a Temperature Management Plan, Dissolved Oxygen Management Plan, pH Management Plan, and Phytoplankton Growth Management Plan

C. MAP

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

- Go to the project <http://hydroreform.org/projects/pelton-round-butte-p-2030>
- To discover a sense for the location of this project, visit the *On Your River* section of the site. This link (<http://www.hydroreform.org/on-your-river/Northwest>) will take you to the section for rivers in the Northwest. Zoom in toward or click 'Oregon' or zoom in to see four markers located near the center of the state southeast of Portland and north of Bend. The Pelton Butte marker is located at the town of Warm Springs.