

STATE OF OREGON  
COUNTY OF LANE  
LICENSE FOR A MAJOR HYDROELECTRIC PROJECT

THIS HYDROELECTRIC LICENSE ISSUED TO:

DORENA HYDRO, LLC (Licensee)  
55 University Avenue, Suite 201  
Toronto, ON M5J 2H7

for the right to use the waters of DORENA RESERVOIR, A TRIBUTARY TO ROW RIVER, for development of 7871 THEORETICAL HORSEPOWER for HYDROELECTRIC POWER GENERATION. The Dorena Lake Hydroelectric Project is more fully described in Exhibit A, which is attached and incorporated into this license.

This hydroelectric project is to be developed according to the plans and specifications filed under application HE 559. The date of priority is JULY 26, 2004. The amount of water to be diverted is 812 CUBIC FEET PER SECOND (cfs).

The point of diversion is located in the SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  Section 32, Township 20 South, Range 2 West, W.M.

The place of use and location of powerhouse is as follows:

NW  $\frac{1}{4}$  SE  $\frac{1}{4}$   
SECTION 32  
TOWNSHIP 20 SOUTH, RANGE 2 WEST, W.M.

This water right is expressly made inferior in right and subsequent in time to any past or future authorized appropriations of water from this source for domestic, municipal, irrigation or any other beneficial consumptive use.

The right to the use of the water for the above purpose is restricted to beneficial use on the lands or place of use described.

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## CONDITIONS AND LIMITATIONS

Use of water under this License shall be subject to the following conditions:

1. That the Licensee shall construct and build the project according to the maps, plans and specifications filed with and approved by the commission, and within the time fixed by the license or by any lawful extension thereof. [ORS 543.300(2)]
2. The Licensee shall commence the construction of the project works within two years of the effective date of the license, and shall in good faith and with due diligence prosecute such construction, and complete and put the Project into operation. For good cause shown the Commission may order and allow an extension of time for beginning of construction or completion of the construction works. The Licensee shall furnish progress reports of construction of the Project as may be requested by the Department. (ORS 543.410).
3. The operations of the Licensee so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules as the commission may prescribe for the protection of life, health and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes. The Licensee shall release water from the project reservoir at such a rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the commission may prescribe. [ORS 543.300(3)]
4. That the Licensee will maintain the project, and each part thereof, in good order and repair and in efficient operation, for the development and transmission of electricity to its reasonable capacity; shall make all necessary renewals and replacements as required; and shall maintain and operate the project, and all parts thereof, conformably to the rules of the commission not inconsistent with ORS 543.010 to 543.610. [ORS 543.300(4)]
5. The Licensee shall pay to OWRD in accordance with the provisions of ORS 543.300(5) and 543A.415 (or subsequent statute) an annual fee. The fee is calculated for 812 cfs \* 85.3 feet of head / 8.8 or 7871 theoretical horsepower. An annual license fee of \$ 0.28 per theoretical horsepower (\$2,203.88) shall be paid on or before January 1 of each calendar year beginning 2014. [ORS 543.300(5) and ORS 543A.415]
6. No voluntary transfer of any license or any rights under a license or of any property acquired, constructed or operated pursuant to license issued under OR 543.010 to 543.610 shall be made without written approval of the Water Resources Commission. Any successor or assignee of any licensee under any project acquired, constructed or operated by licensee, whether by voluntary transfer approved by the commission or sale upon foreclosure, execution or otherwise, shall be subject to all the terms and conditions of the license and of the provisions of ORS 543.010 to 543.610 to the same extent as though the successor or assignee was the original licensee thereunder. Any mortgage, deed of trust, or other lien suffered or created upon any such project shall be subject and subordinate to all the terms and conditions of ORS 543.1010 to 543.610. However, the

provisions of this section shall not apply to any transfer, voluntary or involuntary, to the state or any municipal corporation thereof, and upon such transfer the license shall terminate. (ORS 543.440)

7. The Licensee shall comply with all terms and conditions established in the Clean Water Act Section 401 water quality certificate (401 certificate) issued by the Oregon Department of Environmental Quality (ODEQ). The Licensee shall also comply with all statutes and rules applicable to the resources impacted by the project.
8. All fish and wildlife mitigation features shall be properly maintained for the project duration.
9. The Licensee will release flows on a daily basis according to the directives of the USACE. Ramping rates of 1 inch per hour shall be maintained from March 1 through September 30, and no more than 2 inches per hour from October 1 through February 28/29 unless modified by US Army Corp of Engineers (USACE) and the Federal Energy Regulatory Commission (FERC).
10. The Licensee shall provide a total of \$523,413.00 (2007 dollars escalated to the year of payment into the account) for a fish habitat restoration and enhancement fund. The Licensee will establish a segregated interest-bearing account dedicated to the funding of mitigation and enhancement projects.
11. The Licensee shall notify the Oregon Department of Fish and Wildlife of any unanticipated or emergency situation at the project where fish and wildlife or their habitats are being harmed as soon as possible but not later than 24 hours after becoming aware of such harm.
12. The Licensee shall install a gaging station and monitor streamflows at 15-minute intervals at a location approximately 300 feet downstream of the dam; correlate the stage-discharge relationship of the gaging station with that of U.S. Geological Survey gage no. 14155500; and install radio, telephone, or other telemetry systems to provide recording and transmission of 15-minute streamflow data to the project control room and the public via the internet.
13. In consideration of this license and of the benefits and advantages accruing hereunder to the Licensee, it is expressly agreed by the Licensee that the project, project area, and project works located within the State of Oregon as hereinafter designated and described whether or not upon the lands of the United States, shall be subject to all provisions, terms and conditions of this license. Should the Licensee be prevented from compliance with any provisions of this license or of the Hydroelectric Act by the operation of any valid Federal law, or the lawful order, rule or regulation of any federal governmental agency exercising exclusive jurisdiction in the premises, it shall not be deemed to be in default or under liability to the Oregon Water Resources Department for failure to perform the same during the period of such disability.
14. This license is effective as of the date of its issuance and will terminate simultaneously with the FERC license for the Project, September 30, 2058.
15. If the Licensee fails to use or operate the project facilities for any period of five consecutive years, the Director shall, after due notice, terminate this license by written order.

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16. Subject to the applicable provisions of the Oregon Public Records Law, the License shall allow the OWRD Director and authorized agents and employees free and unrestricted access in, through, and across the project in the performance of their official duties, and shall allow free access to all reports, accounts, records, and other data relating to said project.
17. Failure to comply with any of the provisions of this license may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the license.
18. This license is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.
19. By law, the land use associated with this water use must be in compliance with statewide and-use goals and any local acknowledged land-use plan.
20. The project facilities are more particularly described and shown on the Exhibits F and G filed to accompany the application and attached hereto. These exhibits are hereby approved by the Director and made a part of this license. No substantial change shall be made unless approved by the Director and incorporated into this license by appropriate amendment or special order.
21. The Licensee shall construct any additions or modifications to the Project according to maps, plans, and specifications filed with and approved by the Water Resources Commission.
22. Before entering upon the construction of this project the Licensee shall execute to the state a bond, with good and sufficient sureties or an irrevocable letter of credit issued by an insured institution, as defined in ORS 706.008, to the effect that the licensee shall promptly make payment to all persons supplying labor, services, material, machinery or equipment for the prosecution of the work, and all amounts due the State Industrial Accident Fund. [ORS 543.560]

The Director finds that the proposed use of water described by this license as conditioned, will not impair or be detrimental to the public interest and is well adapted to the development and utilization of the water power involved.


IN TESTIMONY OF ACCEPTANCE of all the terms and conditions of this license, ORS 543.010 to 543.610, ORS 543.990, ORS 543A.415, and the rules and regulations of the Commission pursuant thereto, the Licensee has affixed its legal name to be signed by Alina Osorio, President of ICP US Hydro Holdings Inc., its manager, as further attested to by Peter Clermont, Vice President and Secretary of ICP US Hydro Holdings Inc., on the 20th day of MARCH, 2014.

DORENA HYDRO, LLC

By:


  
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Alina Osorio, President of ICP US Hydro Holdings, Inc., its Manager

Attest:

  
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Peter Clermont, Vice-President and Secretary of ICP US Hydro Holdings, Inc.

WITNESS the signature of the Water Resources Director,

affixed March 28, 2014

  
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Dwight W. French,  
Administrator Water Right Services, for  
Phillip C. Ward, Director  
Oregon Water Resources Department

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## Exhibit A

### PROJECT DESCRIPTION

The word "Project" as used in this document means the complete unit, improvement and development including the dams and appurtenant works and structures, storage reservoirs, and miscellaneous works, powerlines, and structures used in connection with the unit or any part thereof, rights of way, lands, flowage rights and all other properties, rights and structures necessary or appropriate in the use, operations and maintenance of the project.

The hydroelectric Project would be added to the existing Dorena Lake Dam owned by the U. S. Army Corps of Engineers (USACE). The dam was constructed in 1949, under water right permit number R-1625. The earthfill dam is 145 feet in height, with a crest length of 2600 feet and a hydraulic head of 85 feet. Dorena Lake has a surface area of 1749 acres, with a storage capacity of 77,600 acre-feet at full pool surface elevation of 835 feet above mean sea level (m.s.l.). No changes are proposed to the area or capacity of the reservoir, the existing spillway, or the existing outlet works. There are no upstream or downstream fish passage facilities at the dam.

1. The Project would add one 120-inch steel penstock through the north abutment of the dam. The penstock would be pressured grouted and tested to insure the dam integrity has not been compromised. The upstream section, 150 feet in length, the end of which will be placed on the floor of the reservoir on support structures. The intake trash racks will be located slightly below minimum pool elevation (770.5 m.s.l.). The lower portion of the penstock will extend approximately 240 feet to the powerhouse.
2. A siphon house with a shutoff valve and siphon equipment will be located at the apex of the penstock on the downstream side of the dam to provide penstock isolation and starting (siphon) capability.
3. The powerhouse (approximately 67- by 94.6- feet) would contain one Francis turbine designed to operate under maximum head conditions of 110 feet with flows up to 200 cfs to produce up to 1.5 MW of power. A second turbine of Kaplan design would operate under lower head conditions up to 110 feet with flows up to 812 cfs to produce up to 6.8 MW of power. It is expected that only one turbine would operate at a time.
4. Ten-foot diameter butterfly isolation valves will be located just upstream of the powerhouse to the Kaplan turbine, and a 56 inch diameter butter fly isolation valve located in the powerhouse for the Francis turbine. Water would exit the powerhouse in a concrete-lined channel (tailrace) and be returned to the river immediately below the existing mixing basin from the outlet of Dorena Dam.
5. A tailrace barrier will be constructed to prevent fish in the river from swimming upstream into the turbines.
6. The Project will not operate as a peaking facility, but will follow the rule curves and daily directions for release of water as established by the USACE for filling and drawing down

the reservoir for ongoing flood protection, irrigation, water-based recreational needs, and improved navigation objectives downstream of the dam.

7. The Project also includes a switchyard and a 20.8 kV underground transmission line to connect to the existing utility power lines at the Village Green substation in Cottage Grove, Oregon<sup>1</sup>. The line transformer and switchgear will be located within a steel personnel fenced concrete pad, adjacent to the powerhouse. The Project would generate an estimated 16.7 GWh annually.
8. Existing roads would provide access to the Project.

## MITIGATION MEASURES

### Dam and Powerhouse Safety

1. USACE must review and approve all plans for construction and operation of the Project prior to the start of construction. The location of the penstock through the dam will be selected to avoid penetrating existing grouting tunnels, stairways, and ventilation shafts within the dam. The USACE must approve all anchorages to existing structures prior to construction.
2. The penstock shall be designed to incorporate a “slow-closing” valve to minimize over stressing the penstock associated with sudden shutdowns. It shall be designed to meet loading conditions resulting from a sudden shutdown.
3. The turbine and generator units shall be designed to operate at a “free-spin” or “runaway” speed in the event of a sudden shutdown until water can be transferred to the existing outlet works. The transfer process shall be fully automated. Backup power supplies shall be installed for all valves, gates, and other essential operating equipment. A flow measuring station shall be installed downstream of the powerhouse to monitor the flow in the river and the change in river elevations. Operation controls shall limit the increase or decrease in flows through the Project as prescribed in FERC License Article 406.
4. The License shall conform to USACE parameters for construction of the Project during the winter flood control season and the emergency notification plans for winter operations. The schedule would be implemented to avoid working upstream of the dam during times when the reservoir stage is high to minimize the effects on water quality and fisheries. Boring through the dam and installing the upstream bulkhead would be completed during low reservoir conditions, after October 1.
5. The Licensee shall conform to the in-water work period restrictions in the period from June 1 to October 31 of each year of construction unless otherwise authorized. No blasting work

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<sup>1</sup> The Federal Energy Regulatory Commission approved an amendment to its original license for this Project (docket p-11945) to accommodate an underground transmission line to the Village Green substation. [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20130326-3018](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20130326-3018) March 26, 2013.

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will be performed during the bald eagle nesting period from January 1 to August 31 of each year.

6. A soil erosion control plan as approved by the Oregon Department of Environmental Quality shall include guidelines for the use of cofferdams at excavation sites, isolating topsoil and spoil materials, installing sedimentation basins, replacing all topsoil following construction, and reseeded of all areas of disturbed soil with a native grass/forbs mix.
7. A water quality monitoring plan as approved by the Oregon Department of Environmental Quality shall be implemented during construction which will include measurements of water flows, temperatures, dissolved oxygen, turbidity, and mercury. A hazardous substances and spill prevention and clean up plan will be required to be in place during construction and operation of the Project.
8. A vegetation mitigation plan will be used to manage the 134,000 square feet of land used as staging areas. Revegetation in this area will be significantly larger than the small area of land displaced by the powerhouse and penstock. The plan will add contiguous habitat from the river to the woodlands which would benefit blacktailed deer and northwestern pond turtles. Management goals include: erosion control, habitat for native plants, wildlife habitat, and visual aesthetics. The Licensee will replant big leaf maple and black cottonwood trees to replace any removed during construction.
9. A weed management plan will be implemented to prevent transport of weeds to and from the Project area during construction, to prevent noxious weeds from becoming established on disturbed soils, and to provide long-term protection from weeds by establishing healthy native plant communities within the Project area.
10. The Licensee will comply with BLM guidelines for constructing the transmission lines within the Row River Trail right-of-way.



**Exhibit F**

[To be submitted by Licensee once final versions of documents are available.]

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**Exhibit G**

[To be submitted by Licensee once final versions of documents are available.]