

STATE OF OREGON  
COUNTY OF MULTNOMAH  
CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO:

LUCID ENERGY, INC., GREGG SEMLER, PRESIDENT/CEO  
2420 NE SANDY BLVD, SUITE 203  
PORTLAND, OR 97232

confirms the right to use up to 94 CUBIC FEET PER SECOND (cfs) of the waters of the Powell Butte Reservoirs for the HYDROELECTRIC PRODUCTION of up to 67 THEORETICAL HORSEPOWER (thp).

This right was filed under application HE 601. The date of priority is APRIL 2, 2013. The maximum amount of water to be diverted is 94 CUBIC FEET PER SECOND (cfs).

The points of diversion (Powell Butte Reservoirs) are located: SW $\frac{1}{4}$  SE $\frac{1}{4}$  and SE $\frac{1}{4}$  SE $\frac{1}{4}$ , SECTION 12; and NE $\frac{1}{4}$  NE $\frac{1}{4}$  and NW $\frac{1}{4}$  NE $\frac{1}{4}$ , SECTION 13; TOWNSHIP 1 SOUTH, RANGE 2 EAST, W.M.

The authorized place of use is located: Tax Lot 1000 of the SW  $\frac{1}{4}$  NW  $\frac{1}{4}$ , SECTION 12, TOWNSHIP 1 SOUTH, RANGE 2 EAST, W.M.

The use of water is limited to the amount that the generation facilities can utilize efficiently and shall not exceed the specifications noted in the water right. This right is inferior in right and subsequent in time to any future appropriation of water for beneficial consumptive use.

**Appeal Rights**

**This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.**

**This statement of judicial review rights does not create a right to judicial review of this order, if judicial review is otherwise precluded by law.**

## Project Description

The project will be sited within a section of pipeline near the intersection of Powell Boulevard and S.E. 147<sup>th</sup> Avenue in Portland, Oregon. The source of water for the project is stored water from Powell Butte reservoirs as authorized by the City of Portland's exclusive right to the use of municipal water from Bull Run River under Oregon Revised Statute (ORS) 538.420 and by multiple ground water rights within the Columbia South Shore Well Field for municipal use. This is the same water that the Portland Water Bureau currently delivers to its municipal customers. The water that would be used is not considered a new allocation.

The output from the Powell Butte reservoirs travels through a 90 inch diameter pipeline. The output of this gravity-fed pipeline feeds three conduits. One of these conduits (Conduit 3) is a 50 inch diameter pipe located under Powell Boulevard. This pipe is then rerouted into S.E. 147<sup>th</sup> Avenue and back out, from the intersection of Powell Boulevard and S.E. 147<sup>th</sup> Avenue. Lucid Energy's Conduit 3 Hydroelectric Project is to be located in this rerouted section at S.E. 147<sup>th</sup> Avenue, all within a right-of-way granted to the City of Portland for utilities as part of the process of approval of the Flora Meadows Subdivision.

The proposed project entails replacing an existing section of pipeline with a customized section having a length of 13 feet, and a diameter of 42 inches (Unit #1). The type of pipe used is Lucid Energy welded steel with an NSF-61 approved Carboline Carboguard interior lining. The pipe contains a sealed, vertical crossflow turbine unit (LucidPipe™ Power system). The 50 kW capacity turbine is lift-based, has five blades and connects to a vertical shaft. Dynamic seals are used to prevent water leakage. External generators (Siemens permanent magnet) will be mounted on the turbine shafts. In combination with hydroelectric applications HE 602, 603 and 604 (for Units #2, #3 and #4, respectively), there are proposed a total of 4 such customized pipe sections in the Conduit 3 Project that will be installed in a series at the same location.

Unit #1 will generate approximately 50Kw of electricity from the use of the energy associated with the difference in pressures between the high pressure water supply zone above the Conduit 3 Project and the lower pressure zone below it. Power generation will be continuous with only a slight variation in output. The system will be operated and controlled automatically using Programmable Logic Controllers.

A new below-ground concrete vault will be constructed within the right-of-way to enclose the area needed for the four customized pipe sections and related facilities including the operational electrical controls and ancillary equipment, and to provide access for maintenance.

The project will be interconnected with the PGE transmission system at the vault. The system provides 480 VAC (Voltage in Alternating Current), three phase power, and will connect to PGE's grid through a 480V to 12kV transformer.



After the water generates electricity it will continue in the pipeline to the municipal customers.

### **WATER RIGHT CONDITIONS**

1. The Owner shall comply with all statutes and rules applicable to the Project.
2. The certificate is effective from the date of issuance through December 31, 2034. It is to be exercised consistent with the conditions contained in the water right certificate and Oregon Revised Statute 540.610. This may be reauthorized under laws existing at that time.
3. The Owner shall construct and build the Project according to the maps, plans and specifications filed with and approved by the Oregon Water Resources Department (OWRD) within two years of issuance of the water right or within any lawful extension thereof.
4. The Owner 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 (Water Resources Commission) WRC not inconsistent with Oregon Revised Statutes (ORS) 543.010 to 543.610.
5. No voluntary transfer of the water right or of any property acquired, constructed or operated pursuant to the water right issued under ORS 543.010 to 543.610 shall be made without written approval of the WRC. Any successor or assignee of any water right under any project acquired, constructed or operated by the Owner, whether by voluntary transfer approved by the WRC or sale upon foreclosure, execution or otherwise, shall be subject to all the terms and conditions of the water right and of the provisions of ORS 543.010 to 543.610 to the same extent as though the successor or assignee was the original Owner. 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 543.010 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 water right shall terminate.
6. The Project must meet the water quality standards stated in OAR Chapter 340, Division 41, ORS 468B.048, and Section 303 of the Clean Water Act. The Project must meet water quality requirements including numeric and narrative standards, protect beneficial uses, and not degrade existing water quality. Since this hydroelectric Project will be integrated into the existing municipal conveyance system used for drinking water the following conditions as set forth the ODEQ in

cooperation with the Oregon Department of Human Services Drinking Water Program will apply to this certificate:

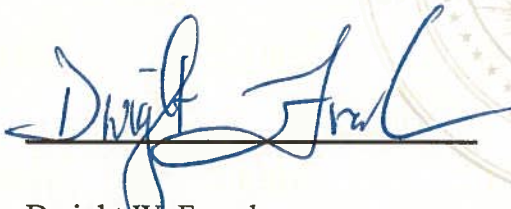
- A. Any materials in contact with potable water must be certified under the National Sanitation Foundation Standard 61 or equivalent;
  - B. Any lubricants used in the turbine must be made of materials that are safe for human and animal consumption, or are food-grade.
  - C. Plans for modification to the public water supply system must be reviewed and approved by the Oregon Department of Human Services Drinking Water Program.
  - D. The Project must comply with noise ordinances.
  - E. The Project will be housed almost entirely in a subsurface vault in an urban setting, so it is unlikely to disturb fragile or unstable soils or to cause erosion that would impair other water uses. If this were to occur during operation after construction is complete, the Owner is responsible for remedying the situation in consultation with, and to the satisfaction of the City of Portland Bureau of Development Services and ODEQ. The Owner must obtain and comply with all necessary construction permits.
7. The Project shall be designed to minimize visual, aesthetic and noise impacts.
8. If any cultural material is discovered during Project construction, all activities should stop and an archaeologist contacted to assess the discovery. It is a Class B misdemeanor to impact an archaeological site (ORS 358.905-955) and a Class C felony to impact Indian Burials (ORS 97-740-990).
9. If at any time an unanticipated situation arises in which the owner observes or suspects that fish, wildlife, or their habitat may be harmed by any of the project facilities or as the result of project operation, the operator shall immediately notify and consult with the nearest office of the ODFW; in no case shall such contact occur later than the next business day. The owner shall subsequently restore any damaged fish and wildlife protection features of the project consistent with direction provided by ODFW (ORS Chapter 543.017).
10. The Owner shall allow the OWRD Director and authorized agents and employees of the of the Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, and OWRD 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.



11. Issuance of the certificate does not absolve the Owner from compliance with the requirements and enforcement of the requirements under other applicable local, state, and federal laws.
12. The Owner shall be liable for all damages occasioned to the persons or property of others by the construction, operation, or maintenance of the Project facilities, and in no event will the State of Oregon be liable therefore.
13. Use of water is governed by this certificate. However, the operations of the Project by the Owner, so far as those operations affect the use, storage and discharge from storage of waters affected by the Owner, shall at all times be controlled by such reasonable rules as the WRC 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.
14. The Owner shall pay, upon receiving an invoice from OWRD, an annual fee to OWRD in the amount of \$33.40. (OAR 690-051-0400(6) and ORS 543A.415.) This amount shall be due by the date specified on the invoice.
15. If, after completing construction of the Project, the Owner fails to use or operate the Project facilities for any period of five consecutive years, the water right shall be subject to termination by OWRD. Upon a decision to terminate the hydroelectric use, the Owner shall comply with any decommissioning statutes and rules in effect at that time. (OAR 690-052).

Upon review of the application and input received from state and federal agencies and private citizens, OWRD finds that the Project, with the conditions set forth below, will not violate the standards expressed in Oregon Administrative Rules (OAR) 690-051-0160 through -0270, and is consistent with the public interest. The Project is well adapted to the development and utilization of the water power involved.

Issued March 17, 2014



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

