

A Facility for the Future

By Rodger Nichols

A proposed new project near the John Day Dam could offer the Columbia Gorge and beyond a tremendous long-term economic benefit and support renewable power production both directly and indirectly.

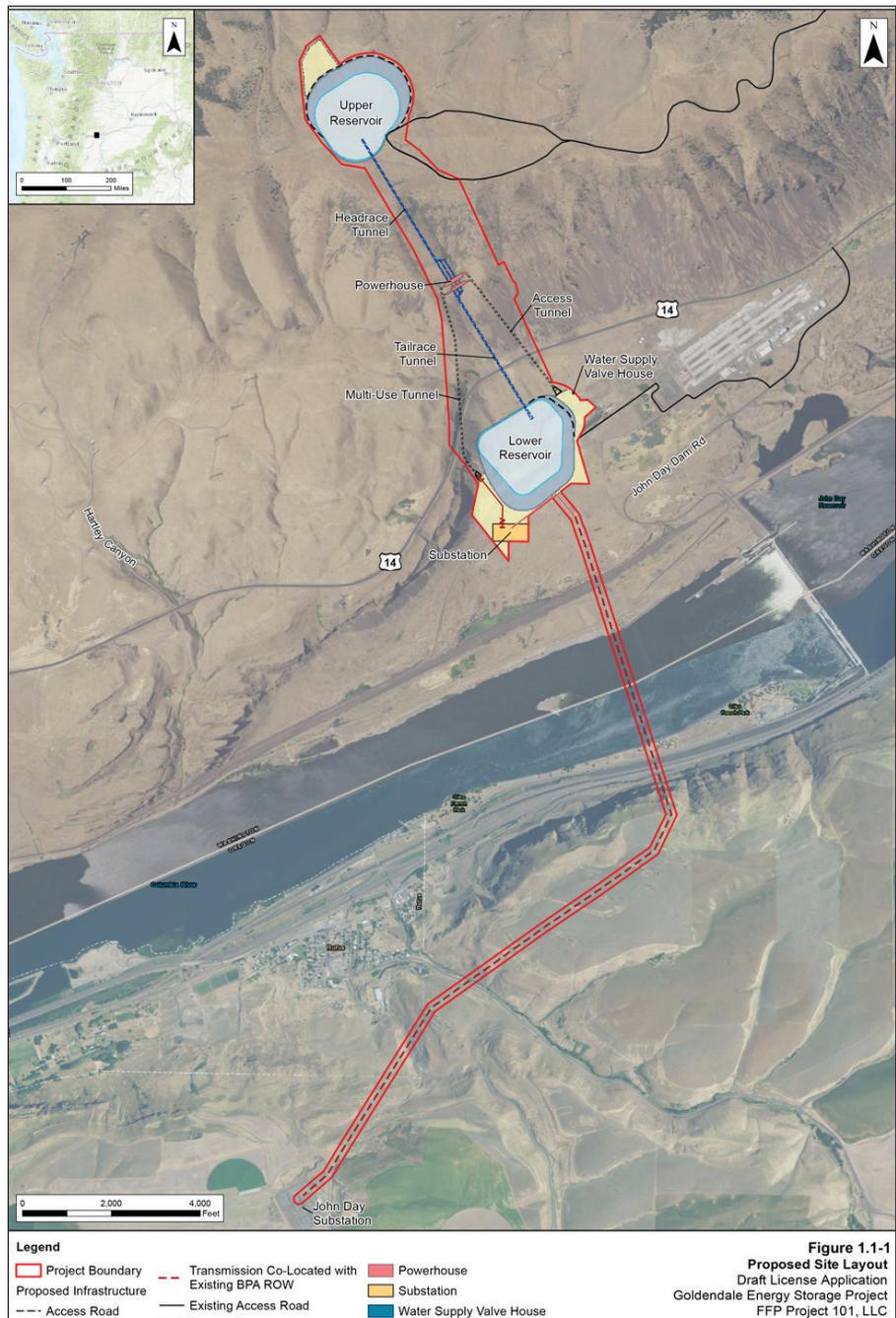
The project would create a hydroelectric pumped storage facility. The Federal Energy Regulatory Commission defines the concept as follows:

“Pumped storage projects move water between two reservoirs located at different elevations (i.e., an upper and lower reservoir) to store energy and generate electricity. Generally, when electricity demand is low (e.g., at night), excess electric generation capacity is used to pump water from the lower reservoir to the upper reservoir. When electricity demand is high, the stored water is released from the upper reservoir to the lower reservoir through a turbine to generate electricity.”

The key word is “excess.” Yes, it takes more energy to pump water uphill than is gained by generation as it flows back down through the turbines—about 20% of the energy flowing into the system is lost. But the process can capture and store energy that would otherwise be wasted.

For example, many solar panel farms in California generate more energy than can be used during the day. That excess energy can be saved in the upper reservoir during the day. At night, when the solar panels can't operate, water can be let down through turbines to the lower reservoir and generate electricity into the system.

The concept has been used since the



A pump storage map outlines details of the proposed Klickitat County project.

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1890s in parts of Europe, and there are several working systems in the United States. The emphasis in recent years has been to support solar and wind power renewables subsidized by generous tax-credit benefits.

The problem with many renewable energy sources is that the sun doesn't always shine, and the wind doesn't always blow. Utilities that use those variable resources must balance them with

customer demands, which reach peak amounts in cold Northwest winters.

Customers depend on their electrical service to provide a steady supply of electricity, not a supply that varies with wind or sunlight. To keep that flow constant, utilities use power plants that provide a constant output. That category includes hydropower from dams, power plants that burn fossil fuels or biomass, nuclear plants, geothermal energy and

pumped storage. All can generate that steady flow, independent of the weather or time of day.

There are disadvantages for each. Plants that burn anything generate pollution and greenhouse gases and affect fish runs. Geothermal and pumped storage projects are expensive.

Klickitat PUD has identified a geographically ideal spot for the project and has been advocating the idea for more than a decade. Because of the cost—somewhere north of \$2 billion—the PUD does not have the resources to pursue the project itself. The PUD received preliminary approval for the concept and kept the idea alive until major investors could be found.

Contractor Rye Development and utility National Grid took an interest in the project in 2018. Both companies have deep pockets.

National Grid serves multiple states in the northeast United States and nearly all of England as well. In December, the companies filed a 500-plus page draft license application with FERC. A 90-day public comment period ends March 12, and the companies will respond. Once FERC determines the application is complete, the agency will evaluate the details and decide whether to issue a license.

Rye and National Grid are bearing the costs of construction and operation. Klickitat PUD customers will not have any rate increases due to the project. In fact, once the project is licensed, Rye and National Grid will reimburse KPUD for all costs related to keeping it alive all these years. The PUD has received a \$1 million grant for further studies from the state of Washington. Those funds will be passed through to consultants, and the PUD will be reimbursed for administrative costs.

The location has been identified as one of the best suited in the United States. The facility would be on part of the old Goldendale aluminum plant site, with two 60-acre ponds, each 170 to 180 feet deep. One pond would be on the plant site and another 2,400 feet on the bluff. Large



Washington Senator Maria Cantwell, flanked by Klickitat County Commissioner Dave Sauter, left, and Klickitat PUD General Manager Jim Smith, visits the 2,400-foot-high bluff at the proposed pumped storage site on a windy day in September 2019. PHOTO BY RODGER NICHOLS

tunnels will be drilled inside the bluff: one for water being pumped upward and one with turbines to generate electricity from the water being released from the upper pond. All the infrastructure would be underground. Only the ponds would be visible on the surface.

The site has many advantages. Geographically, it provides 2,400 feet of vertical change in a short horizontal distance. The property has a single owner. There are major electrical transmission lines already on the site from serving the aluminum company. There is a nearby source of water in the Columbia River for the initial fill. There are no problems with water rights, either, because Klickitat PUD gained significant water rights to the Columbia River when the aluminum plant shut down. That's important for the initial fill. Beyond that, the facility will only need to add a modest amount of water each year due to evaporation.

The proposed timeline for the project would be to have a permit by 2022. Main construction would take four years, and operational startup would be in 2028.

Goldendale Mayor Mike Canon calls the

FERC filing “an incredible achievement,” and cites those “who have worked so hard for so long to bring this about.”

Taxing districts in the county would have an estimated \$14 million in revenue, but the financial impact to the region goes far beyond Klickitat County.

Construction would bring 3,000 temporary jobs for several years and 30 permanent jobs upon completion. The hope is that most of those workers would find housing in Klickitat and Wasco counties.

The region would benefit directly from those well-paid jobs. Indirectly, the project would provide up to 1,200 megawatts for 12 hours of steady power production that could offset the fluctuations of new wind and solar projects. That, in turn, adds more jobs and more welcome tax revenue.

There are bills in both the state House and Senate that would designate Columbia River pumped storage projects as projects of statewide significance. Both bills have been moved out of their originating committees with a recommendation to the legislative bodies of passing the proposed bills. ■