

by Neil Neroutsos

# Heralding new hydro

## SnoPUD develops latest Northwest projects

**T**here's no doubt that Snohomish PUD understands the value of hydropower. With more than 80 percent of its energy supply already coming from this renewable resource, the utility is taking steps to add even more local hydropower to its energy portfolio.

In 2011, it brought online its Youngs Creek Project, a 7.5-megawatt facility located south of Sultan, Wash. This year, the utility moved forward on construction of two additional projects — rated at six megawatts each — at Hancock and Calligan creeks, both located above Snoqualmie Falls, about 30 miles east of Seattle. These three facilities are the only new utility-scale hydropower projects built in Washington state in the past 20 years. The utility expects to spend about \$53 million on the two new projects.

“One of the benefits of these new projects is that their output can be maximized in the winter when we need it the most, limiting our exposure to higher-priced market purchases,” said PUD Manager of Generation Engineering Scott Spahr. “We're also interested in renewable resources we can site in Western Washington and that complement intermittent resources such as wind and solar.”

The two sites above Snoqualmie Falls were considered

for development by area utilities as early as the 1950s. Hydro West, a subsidiary of Puget Sound Energy, obtained a FERC license in the 1990s; however, it never broke ground on the project and the license expired in 2004.

For Snohomish PUD, adding more hydropower is consistent with its climate change policy, adopted in 2007, which directs the utility to meet growth needs through cost-effective conservation and a diverse mix of renewable energy resources.

### Construction and challenges

This summer, the utility started work on the intake structures, as well as the two powerhouses. The two penstocks will be installed throughout the fall. Once completed, each penstock will drop about 1,100 feet in elevation over a mile-long route. By changing the design of how the penstock is aligned, compared to the previously proposed project, the PUD will significantly reduce the amount of excavation work needed.

Building two facilities simultaneously has added another layer of complexity to a project that already is on a fast track for completion by 2017. Fortunately, weather has

*Both Hancock Creek (shown here) and Calligan Creek hydropower projects are above Snoqualmie Falls, east of Seattle, which provides a natural barrier for salmon and minimizes any potential fish impacts. Photos provided by Snohomish PUD.*



been near ideal. Had construction started in summer 2015, extremely dry conditions would have been problematic with fire levels at critical stages and limits on construction by the Department of Natural Resources.

Despite extensive geotechnical testing throughout the project sites, there are always a few surprises according to Spahr. For example, you often encounter more rock in places than the tests reveal, which can add work to the excavation process and penstock installation.

### Protecting the natural environment

Consistent with other PUD hydropower projects, the Hancock and Calligan projects are guided by a resource plan that, among other things, ensures protections for fish and wildlife. Since both projects are above Snoqualmie Falls, there are no salmon present at the sites. The PUD will, however, build a fish ladder at the intake areas so resident trout can travel upstream to Hancock and Calligan lakes. Stream flows will be adjusted, as necessary, if surveys indicate any declines in fish populations. Similar to work at other hydropower projects, PUD environmental staff will conduct additional monitoring of wildlife and terrestrial areas to protect sensitive areas.

The PUD has proven success operating its hydropower projects in a way to balance energy production with a range of community needs. Its largest facility, the Jackson Hydropower Project, was relicensed in 2011. It's a key resource for the community, providing not only 4 percent of the utility's energy supply, but 80 percent of the public water in Snohomish County. The project also offers many recreational benefits to the public, such as hiking, boating, and picnicking.

As it develops its energy projects, Snohomish PUD carefully assesses them to ensure they're economically, technically, and environmentally viable — and that they're consistent with the values of the communities it serves. **NWPPA**

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## Praise for SnoPUD hydropower

### Jackson Project

- Puget Sound Regional Council Vision 2040 Award
- Low Impact Hydropower Institute Certification

### Youngs Creek

- Renewable Energy World Project of the Year
- American Society of Civil Engineers Outstanding Achievement Award **NWPPA**



The PUD's two powerhouses at Hancock and Calligan creeks will be similar to its Youngs Creek Project, shown here in 2011.

## Project partners

- General contractor: Tapani (Battle Ground, Wash.)
- Subcontractor: Sturgeon Electrical (Seattle, Wash.)
- Penstock: NW Pipe (Portland, Ore.)
- Turbine and generator: Gilkes (Kendal, England) **NWPPA**



Penstocks for the PUD hydropower projects are being installed this fall.