

Quarterly Update



Summer 2011

Smart grid success



Perhaps one of the objectives for the Pacific Northwest Smart Grid Demonstration Project should simply be “help keep the lights on” because that’s exactly what the project did for a small island in the Pacific Northwest this winter. Without the quick deployment of Peninsula Light Company’s Power Sharing

program, Fox Island residents in Washington’s Puget Sound faced the distinct possibility of rolling brown-outs.

Although “keeping the lights on” is actually captured under the Operational Objectives in the box to the right, it is nice to see what that means in human terms when our efforts start to make a difference to the people who live and work in our region. That’s what I call success. Success can also come in the form of deliverables and milestones, such as completing a major meter installation, like Avista has done.

The Pacific Northwest Smart Grid Demonstration Project is destined to brim with success stories and many of them are starting to come in now.

This issue of the Quarterly Update is dedicated to two such stories; one from a small community served by a consumer-owned utility, and another from one of the region’s largest investor-owned utilities.

RON

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Project Director

What’s inside

Success stories: Peninsula Light Company and Avista make great strides	2-3
Outreach calendar	3
Project description	4

Project Objectives and Attributes

Primary Objectives:

- Develop and validate an interoperable distributed communication and control infrastructure using transactive control signals;
- Measure and validate smart grid costs and benefits;
- Contribute to the development of standards and transactive control; and
- Apply smart grid capabilities to support the integration of renewable resources.

Operational Objectives:

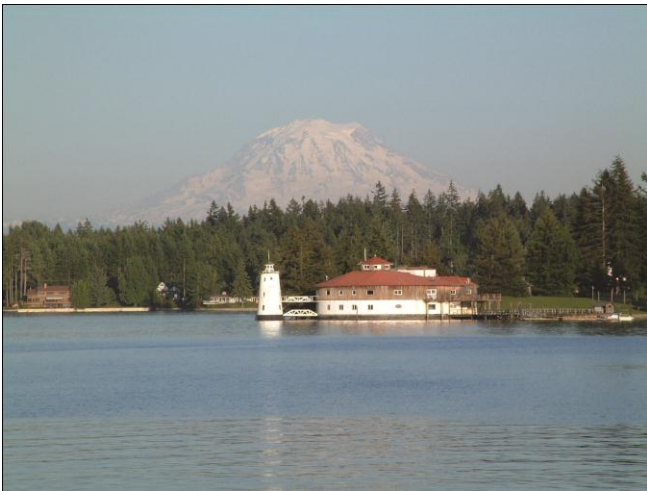
- Manage peak demand;
- Facilitate wind integration;
- Address constrained resources;
- Improve system reliability;
- Improve system efficiency; and
- Select economical resources.

Key Attributes:

- Leave an installed operational base of smart grid assets and successful operational strategies for the region.
- Stimulate the regional and national economy by creating jobs and a vibrant smart grid industry.

Smart like a Fox

It sounds like the description of a terrific movie...An idyllic community located on a Pacific Northwest Island braces for a cold, wet winter. One of only two power sources is an aging, crippled underwater cable. Adding to the drama; if the temperature goes below 20 degrees Fahrenheit, the cable could fail and the lights will go out. But through the quick-thinking use of cutting-edge technology and heroic teamwork of the townsfolk, residents made it through the darkest hours with gleaming light and cozy warmth.



Truth is stranger than fiction in this remarkable tale. Fox Island, which is located in Washington's Puget Sound and hosts a population of about 3,000, has received electricity from Peninsula Light Company since 1931.

"The trouble started last July when the submarine transmission cable, which was installed in 1970, lost one of its electrical phases," says Penlight's Jonathan White. "We were able to provide a quick, temporary fix but the cable was no longer reliable."

Ironically, Penlight had already been discussing a load control program to help alleviate stress on the system and the need to build additional distribution lines. In fact, they had obtained funding from the Pacific

Northwest Smart Grid Demonstration Project for 400 water heater control devices.

But they were still in the planning phases; implementation was a long way off. Now it was time to put the program into high gear.

They sent a letter to every electricity customer on the island and held town hall meetings with an urgent message to participate in their load control program for water heaters called Power Sharing. The idea was to reduce energy consumption during peak periods of use, or as needed, by shutting off water heaters through the co-op's two-way advanced infrastructure meter (AMI) system. This would help lessen the impact of the lost cable, and as a bonus, provide a five-dollar per month incentive for volunteers.

"The program is so subtle that residents would never even know their water heater had been dispatched," White says. "Community response was overwhelming."

By November, the program was up and running a year ahead of schedule and by February, they had 400 water heaters tied to the AMI system to provide dispatchable load control.

In addition to the Power Sharing program, the co-op used their Interactive Voice Response system to reach all island residents. They were able to get voluntary curtailment of electricity during peak periods of use when inclement weather dropped the temperature into the "danger zone" that would otherwise cause the fragile cable to fail.

It worked, and they avoided blackouts. That's thanks, in part, to the Pacific Northwest Demonstration Project, in addition to the fast actions and community spirit of Fox Island residents and Peninsula Light Company.

Low-tech door hangers help advance hi-tech project

Avista completed the advanced meter installation phase of the Pullman Smart Grid Demonstration Project on schedule, wrapping up residential meter installations in May and commercial meter installations in June. More than 13,000 Itron Openway electric meters and 5,000 gas modules were successfully installed for a total of over 18,000 meter upgrades in Albion and Pullman, Wash.

“The dedication, cooperation and professionalism demonstrated by the Avista, Itron and SCOPE Services teams is nothing short of remarkable and is the foundation for the project’s successes to date,” said AMI Project Manager, Larry Jones.

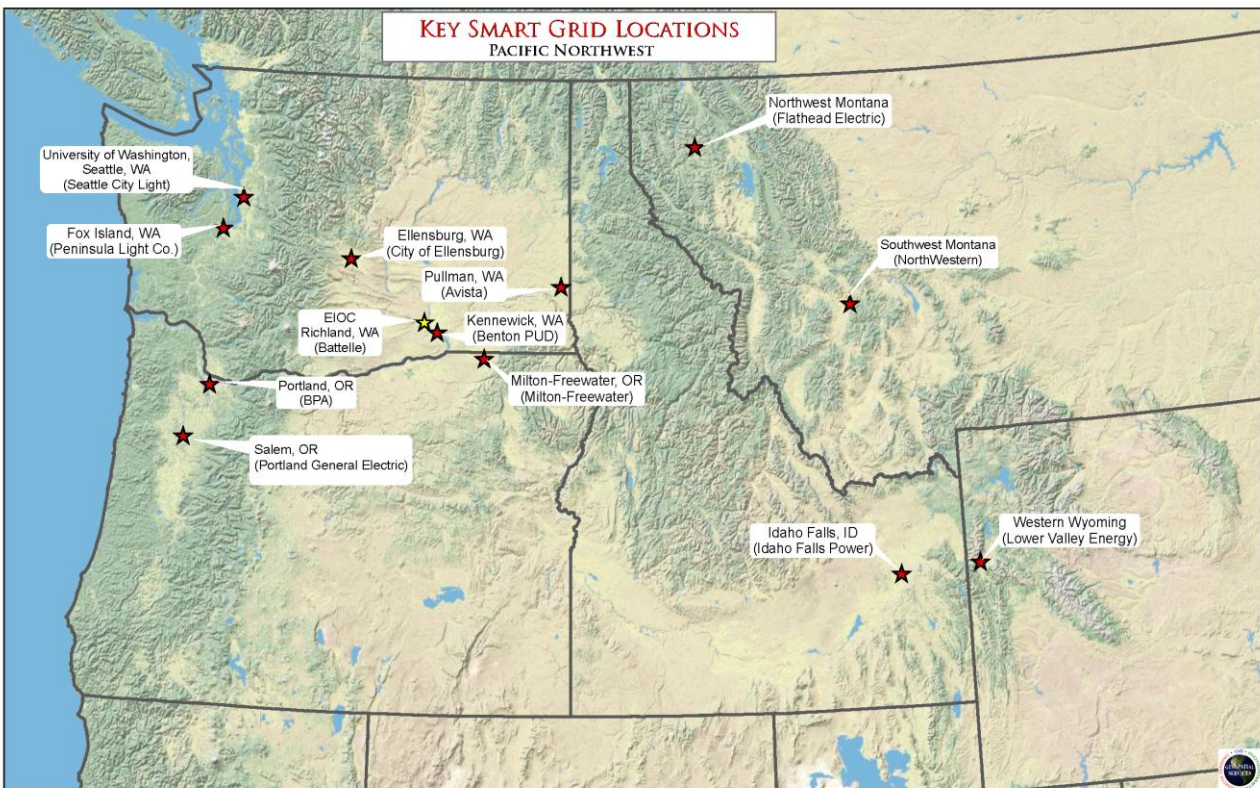
“The process ran smoothly and our customers were very receptive to the change outs,” said Heather Cummins, who directs the demonstration project for Avista. “Avista’s proactive approach to customer service and communication has proven a successful tactic in helping our customers understand the project, as well as addressing their questions and concerns in a consistent manner.”



Door hangers helped communicate the status of the meter change outs with customers. It is one of many tools Avista used to help educate customers during the meter installation.

Outreach calendar:

- Sept. 12 – Battelle presenting PNW-SGDP at GridWeek 2011 in Wash., D.C.
- Oct. 3 – BPA and Milton Freewater presenting PNW-SGDP case study at the Association of Electric Service Professionals in Dallas, Texas.
- Oct. 23 – Battelle presenting PNW-SGDP at Information on Demand Conference in Las Vegas, Nev.



Project description

The Pacific Northwest Smart Grid Demonstration project is a regional endeavor funded by the Department of Energy under the American Recovery and Reinvestment Act of 2009. The goal is to verify the viability of smart grid technology and quantify smart grid costs and benefits. This information will help validate new smart grid business models at a scale that can be adapted and replicated nationally.

With the 50 percent DOE matching funds, this project has a \$178 million budget.

Smart grid can help meet increasing power demands, reduce greenhouse gas emissions, promote energy independence, enhance reliability and help improve national security. It is a system that uses technology to enhance power delivery and use through intelligent two-way communication. Power generators, suppliers and users are all part of the equation.

With increased communication and information, smart grid can monitor activities in real time, exchange data about supply and demand and adjust power use to changing load requirements. Smart grid technology includes everything from interactive appliances in homes to substation automation and sensors on transmission lines.

The regional project, the largest smart grid demonstration project in the nation, is led by Battelle Memorial Institute, Pacific Northwest Division. Participants include the Bonneville Power Administration, utilities, universities and infrastructure partners. It includes 112 megawatts of responsive resources and will last for five years.