

Cold-climate co-op heats up with smart grid

This is one story in a series BPA is producing to capture the successes and lessons learned during the Pacific Northwest Smart Grid Demonstration Project.

Lower Valley Energy provides electricity to one of the biggest resort towns in one of the coldest climates in the West, Jackson Hole, Wyo. At the southern base of Grand Teton and Yellowstone national parks, out-of-town visitors and residents alike rely on the home-grown electric co-op for heat, hot water and light — especially during cold snaps when the demand for power is highest.

That's one reason Director of Engineering Rick Knori wanted to complete the utility's deployment of its smart grid metering system and help its more than 26,000 electric customers better understand their energy use. That opportunity surfaced with the Pacific Northwest Smart Grid Demonstration Project, in which participants received matching funds from the Department of Energy through the American Recovery and Reinvestment Act of 2009.

With a focus on exceptional customer service, reliability and low rates, Lower Valley Energy jumped on the chance to improve the way it provides services. Eleven utilities were chosen from among 40 applicants to participate

in the demonstration. Since the project's launch, utilities in five Northwest states have advanced proven tools and tested emerging technologies.

Before the project, more than 12,000 — nearly half — of Lower Valley's members had smart meters that allow for two-way communication between the utility and end user. As of March 2014, 100 percent of its members had smart meters installed in their homes. This technology is a necessary component of many smart grid technologies, including water-heater demand response, which allows a utility to cycle off participants' water heaters during times of peak demand to reduce energy consumption.

Lower Valley offered a \$15 per month incentive to participate in its demand response program. The co-op deployed more than 500 demand response units and used them to temporarily turn off customers' water heaters during periods of high demand, when energy prices are highest, thereby reducing energy consumption.

"They worked excellently," said Knori. "These are going to be long-term assets that we keep and control."

Lower Valley has also had success with adaptive voltage control, which can reduce a customer's overall voltage during brief high-demand periods and result in short-term demand reduction.



Lower Valley Energy serves more than 26,000 customers in Idaho and Wyoming. The utility is testing a variety of technologies in the Pacific Northwest Smart Grid Demonstration Project.



Using regular feedback from its customers' meters, Lower Valley reduced voltage — and therefore demand — during peak load periods at the utility's East Jackson Substation. This technology provided the greatest benefit for the least investment of time and money.

To find out more about Lower Valley Energy's project, read the full story at www.bpa.gov/go/news.

BPA explores capacity market

In recent months, BPA established an elaborate — yet efficient — cross-agency process to reduce the occasions on which BPA has to curtail wind generation. The new procedure addresses occasional constraints that can diminish the federal hydropower system's capacity to balance supply and demand for power. The process allowed BPA to explore an untested capacity market this spring to acquire balancing reserves from third-party — or nonfederal — sources.

BPA's goal was to determine if excess preschedule (day-ahead) capacity exists in the Northwest; whether suppliers are willing to sell it in 24- to 48-hour blocks (and at what price); and whether BPA can rely on that third-party capacity when federal balancing resources are unavailable.

"Establishing the ability to acquire nonfederal balancing reserves is an important strategic objective for BPA," said BPA Administrator Elliot Mainzer. "This has been a very successful initiative built on effective teamwork and collaboration with external partners. I applaud the work that's been done and look forward to seeing where we can take it from here."

BPA used the new process for the first time in April and continued to purchase preschedule capacity through May. A wet spring had translated into a large supply of hydropower fuel, stored in the form of snowpack in the Canadian Rockies and mountains of Montana and Idaho. As the snowpack began to melt and run downstream, BPA had to pull out all the stops to avoid power oversupply this spring.

Under normal conditions, BPA carries 900 megawatts of balancing capacity to increase federal hydropower

production. But as stream flows picked up in early May, BPA found itself limiting the balancing supply by as much as 500 MW on almost a daily basis.

With its new process in place, BPA was able to go to the market to replace the shortfall in federal capacity.

"This is an entirely new type of capacity product and process for BPA," says account specialist Matt Schroettnig. "Everything about it is brand new."

For one, BPA's Power Services — which seeks to acquire the capacity on Transmission's behalf — only has a couple days' notice that the hydro system will be constrained. This means BPA has to purchase the capacity in the pre-schedule time frame — an anomaly in the world of transmission operations.

"Typically, transmission providers will attempt to purchase capacity months, or sometimes even years in advance," says Andy Meyers, manager of Power Prescheduling, the group at BPA responsible for much of the implementation. "We didn't know if anybody would have excess capacity they were willing to sell in that time frame, especially during the spring."

So far, the findings are mixed. BPA's process worked well and the agency was able to acquire reserves on a number of days to make up for the shortfall in federal capacity, reducing the amount of curtailments imposed on variable generators. But there usually wasn't sufficient response from suppliers, and BPA couldn't always replace the full amount of the shortfall. And with prices that were higher than expected, BPA expended its \$2 million budget in a matter of weeks.

"There just didn't seem to be a lot of excess capacity out there," says John Wellschlager, Power account executive. "One reason might be the timing. Thermal generators tend to schedule maintenance shutdowns during the spring, when there's usually a lot of hydropower and energy prices are low."

Wellschlager says it's also possible that generators don't want to risk selling capacity that they might end up needing themselves during that same time period.

Watch us work

WASTEWATER PLANT TAKES PLUNGE INTO DEMAND RESPONSE: Energy-intensive wastewater treatment plants offer significant potential as demand response assets. In a recent pilot project, BPA worked with the Eugene Water & Electric Board and the Metropolitan Wastewater Management Commission to test demand response at the Eugene-Springfield Water Pollution Control Facility in Eugene, Ore. The plant treats up to 38 million gallons of wastewater every day. The project tested whether the plant could quickly reduce energy load during periods of high demand and keep it at a minimum level for an hour or longer. The project was sponsored by BPA's Technology Innovation Office.

TO WATCH a video about the pilot, go to www.bpa.gov/go/news.

In ongoing workshops to prepare for the BP-16 rate case, BPA and its stakeholders are discussing these findings and will work together to refine the acquisition process. For example, some customers have suggested giving suppliers more notice. But the timing is tricky — BPA can't seek the third-party capacity until it is certain that the federal capacity will be limited.

BPA is interested in working with potential suppliers on ideas to make this process more effective.

“Ultimately, we want to provide our customers the best service at the best rate,” says Schroettig. “The experience we’ve gained from testing this market will help us get there.”

EE playhouse teaches kids to conserve

According to some 4-year-olds who represent the Northwest ratepayers of tomorrow, the Bonneville Dam produces “a gazillion power.” In their estimation, that should be enough to turn on 100 light bulbs.

If that calculation is any indication, it's especially important to teach children about energy efficiency.

That's what BPA and the U.S. Army Corps of Engineers are doing with the newest addition to the Washington Shore Visitor Center at Bonneville Dam. The federal partners installed a new energy-saving playhouse, replacing an outdated structure that had been at the site more than 15 years.

“In the same interactive room where curious youngsters learn how power is generated, they can also explore how to make the most of our limited resources,” says Pat Barry, Bonneville Dam's head ranger.

The play structure is complete with thermal-pane windows, child-size Energy Star “appliances,” a ductless heat pump and a barrel for collecting rainwater. Signs display simple messages about how kids can save energy and resources.

The hands-on exhibit elicits question, after question, after question...

Fortunately for the grown-ups in tow, the playhouse designers have provided some of the answers. “We placed a lot of information around the outside of the playhouse, so both children and adults find value,” says Summer Goodwin of BPA's Energy Efficiency Program Marketing group.

And the education doesn't have to stop when the tour is over. A coloring book, featuring BPA's signature education characters, Zippie, Splash and Sam N, is available to



The EE playhouse at Bonneville Dam teaches kids the benefits of efficient building materials and appliances, as well as actions they can take at home to conserve resources.

everyone who visits, so kids can take the messages home with them.

“The visitor center gets 100,000 visitors each year, so it's a natural spot to focus BPA's education efforts,” says Christy Adams, BPA education coordinator.

And, in addition to the playhouse visitors, another group of kids is benefiting from this project: The students at a local school, where the original playhouse now resides. BPA and the Corps donated the previous little home to Mount Pleasant Elementary in Skamania County.

This project followed the successful renovation of the kids' playhouse at the visitor center on the Oregon side of Bonneville Dam, which BPA updated in 2012 for its 75th anniversary celebration. The project was completed by BPA's Energy Efficiency and Education programs, in partnership with the Corps.

AGENCY PROJECTS

Quarterly Business Review [Regionwide]

On Aug. 5, BPA will host its Quarterly Business Review, which is an updated forecast of expected financial results for the current fiscal year, to discuss third-quarter results. The end-of-year adjusted net revenue forecast is \$289 million, a \$31 million increase from second quarter, a \$172 million increase from the start-of-year forecast and a \$151 million increase from the rate case. www.bpa.gov/Finance

BP-16 Rate Case workshops [Regionwide]

BPA will hold a series of workshops through August in preparation for the BP-16 rate proceeding to set power, transmission and ancillary service rates for fiscal years 2016–2017. www.bpa.gov/goto/BP16

POWER

Energy Efficiency Post-2011 Policy Review [Regionwide]

BPA released proposed revisions to its energy efficiency policy framework and associated implementation elements that were put into place on Oct. 1, 2011. The proposed revisions are based on recommendations from five work groups that met over the winter and spring of 2014. BPA accepted comments on the proposed revisions through July 19 and will consider suggestions before making a decision. www.bpa.gov/Energy/N/post-2011/

Rate Period High Water Mark public process [Regionwide]

BPA is beginning the formal process for establishing Rate Period High Water Marks that will be used to set power rates for fiscal years 2016 and 2017. The RHW is the amount of energy a customer is eligible to purchase at BPA's lowest-cost Tier 1 rates in the upcoming rate period. BPA will hold a formal comment period in August and host a meeting Aug. 5 to gather input. During this meeting, BPA staff will discuss the inputs to the RHW calculations, including customer load forecasts, the Tier 1 system firm critical output and RHW augmentation amounts. Staff will also be prepared to discuss initial RHW calculations, per the Tiered Rates Methodology. Information will be posted before the meeting at www.bpa.gov/goto/RHWM

TRANSMISSION

Hooper Springs Transmission Line Project [Caribou County, Idaho]

BPA released a supplemental draft environmental impact statement that includes a preferred alternative for the proposed transmission line. BPA will accept comments on the supplemental draft through Aug. 7. www.bpa.gov/goto/hoopersprings

Hot Springs-Anaconda Transmission Line Rebuild [Sanders, Lake, Missoula, Granite, Powell and Deer Lodge counties, Mont.]

BPA proposes to rebuild about 120 miles of 230-kilovolt wood-pole transmission line in Montana. BPA is seeking comments through Aug. 12 to help shape the draft environmental impact statement. www.bpa.gov/goto/HotSpringsAnaconda

Salem-Albany Transmission Line Rebuild [Polk, Benton, Marion and Linn counties, Ore.]

BPA is seeking comments through Aug. 6 on the draft environmental assessment for the proposed rebuild of the 24-mile Salem-Albany No. 1 and the 28-mile Salem-Albany No. 2 wood-pole transmission lines. The draft EA includes information about changes to the proposed transmission line design. www.bpa.gov/goto/SalemAlbanyRebuild

Pacific Direct Current Intertie Upgrade Project [Lake, Jefferson, Crook, Deschutes and Wasco counties, Ore.]

BPA expects to issue the final environmental assessment this month. The project includes proposed upgrades on the DC transmission line from Celilo Substation south to the Nevada-Oregon border. www.bpa.gov/goto/PDCIUpgrade

Spar Canyon-Round Valley Access Road Improvement Project [Custer County, Idaho]

BPA proposes to improve the access road system for its existing Spar Canyon-Round Valley transmission line on Bureau of Land Management land in Custer County, Idaho. Access roads are critical for continued safe and reliable operation and maintenance of the power transmission system. Improvements would involve constructing four to six miles of new road, reinforcing road crossings at drainages with rock, and acquiring access rights from BLM for new road use. BPA and BLM will prepare an environmental assessment and are seeking scoping comments through Sept. 1. www.bpa.gov/goto/SparCanyon

CLOSE OF COMMENT

Submit comments to www.bpa.gov/comment.

Aug. 6 – Salem-Albany Transmission Line Rebuild Project

Aug. 7 – Hooper Springs Transmission Line Project

Aug. 12 – Hot Springs-Anaconda Transmission Line Rebuild Project

Sept. 1 – Spar Canyon-Round Valley Access Road Improvement Project

CALENDAR OF EVENTS

Quarterly Business Review

- **Aug. 5**, 9 a.m. to noon, BPA Rates Hearing Room
1201 Lloyd Blvd., Suite 200, Portland, Ore.

Rate Period High Water Mark public meeting

- **Aug. 5**, 1 to 5 p.m., BPA Rates Hearing Room
1201 Lloyd Blvd., Suite 200, Portland, Ore.

To view BPA's public involvement calendar, go to www.bpa.gov/goto/calendar. For Americans with Disabilities Act accommodations, call toll free 800-622-4519.

FOR MORE INFORMATION

Information on other projects under environmental review is available at www.bpa.gov/goto/NEPA.

For information about the National Environmental Policy Act in general, go to www.bpa.gov/goto/environmentalplanning.

The Journal is a monthly publication of the Bonneville Power Administration. If you have questions or comments, or you want to be added to the mailing list for any project, call toll free 800-622-4519.

To order copies of documents, call: 800-622-4520 or 503-230-7334. Written comments may be sent to: BPA, P.O. Box 14428, Portland, OR 97293-4428. Email address: comment@bpa.gov. BPA home page: www.bpa.gov. For details on BPA environmental reviews listed above, including site maps and documents issued to date, see www.efw.bpa.gov/environmental_services/nepadocs.aspx. Process Abbreviations: EA-Environmental Assessment, EIS-Environmental Impact Statement, ESA-Endangered Species Act, FONSI-Finding of No Significant Impact, NOI-Notice of Intent, ROD-Record of Decision.

