

Journal

June 2013

Energy storage study 'rocks' industry

Enough Northwest wind energy to power about 85,000 homes each month could be stored for later use in porous rocks deep underground, according to a new, comprehensive study. Researchers at the Department of Energy's Pacific Northwest National Laboratory and BPA identified two unique methods for this energy storage approach and two eastern Washington locations to potentially put them into practice.

All compressed air energy-storage plants work under the same premise. When power is abundant, it's drawn from the electric grid and used to run a large compressor, which pushes pressurized air into an underground geologic storage structure. Later, when power demand is high, the stored air is released up to the surface, where it is heated and rushes through turbines to generate power. Compressed air energy-storage plants can regenerate as much as 80 percent of the energy they take in.

The world's two existing compressed air energy-storage plants — one in Alabama, the other in Germany — store energy in man-made salt caverns. The PNNL-BPA study examined a different approach: using natural, porous rock reservoirs deep underground to store renewable energy.

The analysis identified two promising locations in eastern Washington. One, dubbed the Columbia Hills site, is just north of Boardman, Ore., on the Washington side of the Columbia River. The second, called the Yakima Minerals site, is about 10 miles north of Selah, Wash., in an area called the Yakima Canyon.

Working with the Northwest Power and Conservation Council, BPA will now use the performance and economic data from the study to analyze the net benefits compressed air energy storage could bring to the Pacific Northwest. The results could be used by regional utilities to develop a commercial compressed air energy-storage demonstration project.

For details about the study and findings, read the news release at www.bpa.gov/go/news.

Rate settlement bolsters collaboration

BPA and its customers agreed to settle the portion of the agency's 2014–2015 rate case that defines charges for variable resource integration, including services to balance the energy produced and consumed.

"BPA and the parties involved in this portion of the rate case admirably collaborated and compromised to reach this settlement agreement," said BPA Administrator Bill Drummond. "We have a challenge ahead of us, but I am confident we can work together to find innovative and less costly energy balancing solutions."

The agreement calls for BPA and rate case parties to set aside new legal and regulatory action until Sept. 30, 2015, the end of the upcoming rate period. The settlement provides time for the region to develop energy scheduling options and other tools expected to significantly reduce renewable resource integration costs.

Among the settlement highlights, BPA committed to implementing two 15-minute scheduling options as soon as feasible. The agreement also includes a \$2 million annual budget to augment the balancing services supplied by the federal hydroelectric system when operational constraints cause BPA to lower the balancing reserves it maintains.

RATES HEARING ROOM RELOCATED

The Rates Hearing Room has moved. It is now one block east of BPA headquarters, at

1201 Lloyd Blvd., Suite 200, Portland, Ore.

The layout of the new space is much more efficient, and the room features five projector screens as well as improved lighting and acoustics. Additionally, visitors will not need to pass through security to attend meetings.



All of the settlement rates applicable to variable energy resources are lower than the rates BPA originally proposed. Three of the four variable energy rates are lower than today's equivalent rates.

The BP-14 rate case, which began in November 2012, will conclude in late July when BPA files the final rate proposal with the Federal Energy Regulatory Commission for the rates to be effective Oct. 1, 2013.

Estuary island to be restored

BPA recently partnered with the Columbia Land Trust to purchase the 109-acre Kerry Island in Westport Slough to provide habitat for fish and wildlife in the estuary. The island, about four miles from Westport, Ore., lies along an 11-mile side channel of the Columbia River.

"Kerry Island is a great example where we can reconnect some of the lowlands to tidal flows," said Jason Karnezis, a project manager for BPA's Fish and Wildlife Program. "This would not only increase potential food resources for salmon and steelhead, but also provide a variety of environment complexity that means areas for fish to hide or rest in."

Once restored, Kerry Island will provide permanent refuge to numerous wildlife species, including all 13 species of salmon and steelhead listed under the Endangered Species Act as well as the federally endangered Columbia River population of Columbian white-tailed deer.

"The Columbia River estuary is a particularly vital nursery for young salmon," said Glenn Lamb, Columbia Land Trust executive director. "In the last 10 years, we have worked collaboratively with many landowners to conserve nearly 10,000 acres of estuarine and tributary spawning and rearing habitat."

Kerry Island had been owned by the Jenks family since 1946. Chester Jenks and his wife, Cleo, raised their six children on the land and ran a cattle and hay farm there until they retired in the early 2000s. In 2010, the family contacted Columbia Land Trust with an interest in selling the land for conservation.

"In retirement, Dad and Mom loved to fish for salmon," said Steve Jenks, the youngest of the children. "Converting the island back to perpetual salmon and wildlife habitat seems a fitting way to honor both our parents."

Historically, Kerry Island consisted of tidally influenced scrub-shrub and forested wetlands and channels in the Columbia River floodplain. Scrub-shrub wetlands provide ideal nesting habitat for local and migrating neotropical birds, critical breeding and egg-laying

habitat for amphibians, as well as cover and shade for rearing salmonids.

Columbia Land Trust completed the purchase of Kerry Island with \$320,000 of funding from BPA ratepayers. The funding was provided as partial mitigation for the impacts of federal dams on the Columbia and Snake river ecosystems.

Over the next year, Columbia Land Trust will develop a management plan for Kerry Island, drawing on input from the public with final approval from BPA.

Seeing the writing on the wire

How synchrophasors are giving BPA a glimpse of the future of the grid.

Vigilant engineers crowd around a string of laptops set up on folding tables inside the cavernous Bonneville Dam. At the center of their makeshift office above the Columbia River is a homemade device they call "the black box," crafted to collect measurements from one of the dam's generators and send the data to their computers.

The engineers are alert because they are intentionally subjecting a 30-year-old generator to staged disturbances — sudden changes in voltage and frequency — to see how it responds. The tests sound invasive, but the engineers, working in partnership

The next 75 years: Let the Journey begin



IN A NEW BPA-PRODUCED VIDEO, agency executives reflect on the speed of change in the electric power industry and the challenges the agency faces as it deals with new technology, consumer demand for clean, reliable energy and the speedy flow of information. To watch the video, go to www.bpa.gov/goto/Next75.

with the U.S. Army Corps of Engineers, know exactly how far to push the hydroelectric envelope.

“We’ll try not to make it too exciting — we don’t want any sparks to fly,” says BPA electrical engineer Dmitry Kosterev.

This is how engineers develop a baseline model of a generator’s behavior. The models help BPA understand the power system’s response to natural disturbances, such as lightning striking a transmission line, and set safe transmission operating limits. Inaccurate power plant models have contributed to catastrophic results, including the 1996 West Coast blackout that left millions of people in the dark.

Testing like this has allowed models to improve over the years, deepening BPA’s understanding of how the generators and the transmission system operate under unforeseen conditions. And now BPA engineers have found a way to make their models even more accurate and identify problems on the grid before they occur. The new method is cheaper, safer, more efficient and more accurate — and it can be done at any time in BPA’s synchrophasor lab, without taking the generator offline.

To create the innovative application, BPA coupled data from baseline tests, like the one at Bonneville Dam, with synchronized, high-speed measurements of the transmission system. The measurements come from synchrophasors — shoe-box-sized devices at substations that take precise snapshots of the grid’s behavior 60 times a second.

To find out how engineers are using the data to predict and prevent trouble on the grid, read the full story at www.bpa.gov/go/news.

Get paid to fish for pikeminnow

The annual Pikeminnow Sport-Reward Program opened May 1. Early reports indicate that Northern Pikeminnow are striking hard and early in the lower Columbia and Snake rivers, signaling a potential banner year for the program and payouts for participating anglers.

Pikeminnow consume millions of young salmon and steelhead each year in the Columbia and Snake river systems. Although pikeminnow are native to the Northwest, the construction of dams created conditions that increased their numbers and allowed them to prey more on fish headed downstream. The predator accounts for roughly 80 percent of all fish that kill young salmon.

“Reducing the number of pikeminnow is an important tool in our effort to reduce predation on juvenile salmon and steelhead headed to the ocean,” said John Skidmore, BPA policy analyst. “That’s where the Pikeminnow Sport-Reward Program and the public come in.”

Anglers can earn \$4 to \$8 per pikeminnow. Special tagged fish are worth \$500. The tagged fish help biologists measure the harvest rate and gather data on growth, movement and other factors.

“Money is a motivating factor for some anglers,” said Eric Winther of the Washington Department of Fish and Wildlife. “A lot of them, though, are interested in feeling like they’re giving back and helping Northwest salmon and steelhead runs. Anglers are pretty invested in the river.”

Last year, 3,302 program participants caught 157,846 pikeminnow. Since 1990, more than 4 million pikeminnow have been caught through the program, cutting predation on juvenile salmon and steelhead by an estimated 40 percent.

The program runs through the end of September. Participants must have a current fishing license and sign up each day they fish at a registration station before dropping a line in the water.

BPA funds the program that is administered by the Pacific States Marine Fisheries Commission with assistance from the Oregon and Washington departments of fish and wildlife.

For information, go to www.pikeminnow.org/.

Public Involvement [updates & Notices]

AGENCY PROJECTS

Columbia River Treaty 2014/2024 review [Regionwide]

BPA and the U.S. Army Corps of Engineers hosted a series of 14 open-house-style public meetings designed to give interested parties a meaningful opportunity to collaborate in the evaluation of

the future of the Columbia River Treaty between the U.S. and Canada. Although the Treaty has no specific end date, it contains provisions that will change in 2024. Either Canada or the U.S. may unilaterally terminate most provisions of the Treaty as early as 2024, with a minimum of 10 years’ advance notice. The Treaty calls for two “entities” to implement the agreement, one for the U.S. and one for Canada. The U.S. Entity consists of the BPA administrator and the

Northwestern Division commanding officer of the Corps of Engineers. The Canadian Entity is the British Columbia Hydro and Power Authority. The U.S. Entity is studying the current and potential future operations under the Treaty. The goal is to recommend to the U.S. Department of State by the end of 2013 which elements to pursue in negotiations with Canada. To view the Treaty 101 presentation given at each open house or to review public comments received to date, go to www.crt2014-2024review.gov, email treatyreview@bpa.gov, or call BPA at 800-622-4519 or the Corps at 503-808-4510.

BP-14 and OS-14 Rate Cases [Regionwide]

BPA is holding proceedings to set rates for the 2014-2015 fiscal years. Power and transmission rates will be set in one docket, BP-14. In May, rate case parties settled part of the BP-14 rate case — the portion that establishes costs for generation inputs and sets rates for Transmission Ancillary and Control Area rates. In a separate docket, OS-14, BPA proposes rates to recover the costs incurred under the Oversupply Management Protocol. For information, go to www.bpa.gov/goto/RateCase.

FISH AND WILDLIFE

Kootenai River White Sturgeon and Burbot Hatchery Program [Boundary County, Idaho]

BPA recently released a Finding of No Significant Impact for the environmental assessment of the Kootenai Tribe of Idaho's proposed hatchery program. BPA decided to proceed with the project. Construction will begin this summer. For information, go to www.bpa.gov/goto/kootenaiaquaculture.

Lolo Creek Permanent Weir Fish Trapping Facility [Clearwater County, Idaho]

This project has been delayed until a biological opinion is issued from the National Marine Fisheries Service. The biological opinion is tied to the Steelhead Hatchery Genetic Management Plan, which will not be completed until early 2015. For information, go to www.bpa.gov/goto/LoloCreek.

TRANSMISSION

Kalispell-Kerr Transmission Line Rebuild Project [Flathead and Lake counties, Mont.]

BPA will hold public meetings in Montana and accept comments this month on the agency's proposal to rebuild 41 miles of the existing 115-kV transmission lines between Kalispell and Polson, Mont. For information, go to www.bpa.gov/goto/kalispellkerr. [SEE CALENDAR]

Boyer-Tillamook Access Road Improvement Project [Tillamook and Yamhill counties, Ore.]

BPA expects to release a preliminary EA this spring on a project to improve a 13-mile portion of the access road system for the 115-kV Boyer-Tillamook No. 1 transmission line. For information, go to www.bpa.gov/goto/BoyerTillamookAccessRoads.

Keeler-to-Tillamook Transmission Line Rebuild Project [Washington and Tillamook counties, Ore.]

BPA plans to release an EA in July on its proposal to rebuild 58 miles of the existing 115-kV transmission lines between Hillsboro and Tillamook, Ore. For information, go to www.bpa.gov/goto/KeelerTillamook.

I-5 Corridor Reinforcement Project [Cowlitz and Clark counties, Wash., and Multnomah County, Ore.]

All comments that BPA accepted on the draft EIS through March 25 are posted online. BPA will respond to comments in the final EIS, expected in 2014. As we prepare the final EIS, we will review the comments and continue to work with cooperating agencies and landowners to refine the project location and design. For information, go to www.bpa.gov/goto/i-5 or call 800-230-6593.

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.

CALENDAR OF EVENTS

Kalispell-Kerr Transmission Line Rebuild Project public meetings

- **June 17**, 4 to 7 p.m., North Lake County Public Library, 2 First Ave. E., Polson, Mont.
- **June 18**, 4 to 7 p.m., Edgerton Elementary School, 1400 Whitefish Stage, Kalispell, Mont.

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.

CLOSE OF COMMENT

Submit comments to www.bpa.gov/comment.

- **June 2**, Kalispell-Kerr Transmission Line Rebuild

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.

