



# Journal

September 2016

## Putting BPA's newest asset to the test

How do you perform under pressure? Unless you're tested, you'll never know for sure.

In the electricity industry, the Bonneville Power Administration plays in the big leagues. And in the bulk power marketing game, there's no halftime, no TV timeouts, no rainouts, no off days. BPA's transmission system has to play at the highest level night and day, through windstorms, snow, ice, heat waves, plagues of grasshoppers — come what may, the lights stay on.

Early this fiscal year, BPA needed to learn whether its \$370 million prime-time player was ready to perform the feats it was designed for. In the high-voltage direct-current arena, that means herding electrons, straightening and rebraiding the huge waves of electricity moving along the West Coast. Much of that volume is the carbon-free power generated by the 31 federal dams of the Columbia River system.

Not far from the river, in The Dalles, Oregon, a highly technical construction project to refurbish the Celilo Converter Station wrapped up last fall. That's when a crack team of engineers and operators began a series of more than 100 challenges calculated to push the new, interdependent components through their paces to test their strength, responsiveness and reliability.

BPA, which pioneered the art of long-distance high-voltage direct-current transmission in the 1960s, has an illustrious history of transmission engineering and testing prowess.

"It would be a fair statement to say that Bonneville is well known in the national power community for being a technology leader," says Alan Courts, retired BPA vice president who wrote the business case for the massive upgrade to the Celilo Converter Station.

The largest turn-key project in the agency's 79-year history, the Celilo upgrade represents the latest example of BPA's contributions to grid modernization. For transmission customers and the West Coast, there was a lot on the line.

"If you'd invested \$370 million, you'd want to be sure everything worked correctly too," said Jeff Hildreth, senior electrical engineer at BPA's Carey High Voltage Lab.



*BPA staged-fault tested at the Celilo Converter Station.*

That's why BPA test engineer Steve Lowder was poised on the edge of his chair, phone to ear, in the brand-new digital control room at the converter station. On this January morning, the air was charged with anticipation. The Pacific Direct Current Intertie, which runs between Celilo and Southern California, is the largest high-voltage DC line in the United States. Everyone in the crowded room knew that a transmission system capable of powering three cities the size of Seattle was going to receive a jolt.

"I get a huge adrenaline rush about 15 minutes before we do it because I know what's coming," said Lowder, a veteran of hundreds of similar tests since joining BPA in the 1980s. "It's like playing in the Super Bowl — everyone's watching what you're doing and everyone knows you have to do it right."

Hildreth added, "Like a NASA space launch, it comes down to those last minutes or seconds, but there's been months or years of planning and preparation that went into that one little moment."

Among the moving parts, a crew of linemen 846 miles away at the Los Angeles Department of Water and Power was preparing a carefully choreographed insult to the system. Using a rope carrying a fuse wire on the end, the foreman reported by phone that they were setting up a pendular



fault. In laymen's terms, they were about to intentionally short out some very big wires — carrying 500 kilovolts — under tightly controlled conditions to ensure safety. BPA line crews performed similar tests near Celilo as well as 265 miles south, where the DC intertie crosses the Nevada-Oregon border.

The goal of the exercise was to see how Celilo would handle the electrical interruption and subsequent surge on the high-voltage lines. Would its tens of millions of dollars of new gear — from the tiniest computer chip to new transformers that outweigh a Boeing 747 — show the instantaneous agility to absorb the shock and return to regular service?

“All that protection and control should happen in less than a half second,” Lowder explained.

With the help of Celilo Chief Operator Dave Potter, his crew and their counterparts at the Los Angeles-area converter station anchoring the southern end of the intertie, Lowder began the testing ritual: “One minute --” “30 seconds --” “20 seconds --” .... “Ten. Nine. Eight. Seven. Six. Five. Four. Three. Two. One ... Go!”

As many in the room held their breath, the foreman in L.A. triggered the fault. Those assembled at Celilo watched the control screen as the system registered the shock, rose to the occasion and then settled back into its ordinary pattern of operations. The Celilo project wound up passing the arduous battery of tests with flying colors, reflecting the strong engineering partnership between BPA and contractor ABB dating back to the 1960s, when Celilo was designed and constructed.

“It really surprised me how well all of it went,” Celilo project manager Karl Mitsch said. “The amount of punch-list items (fixes) we had to address was quite low. Most of them were not really showstoppers, more like refinements. There were routine, fairly benign, yet important things that we discovered and that were corrected.”

## [Updates & Notices] Public Involvement

### BPA PROJECTS

#### **Integrated Program Review and Capital Investment Review [Regionwide]**

BPA kicked off the Integrated Program Review and Capital Investment Review on June 16. The IPR/CIR process allows interested parties to see all relevant FCRPS expense and capital spending-level estimates in one forum. The IPR/CIR is conducted every two years, before each rate case, and provides participants with an opportunity to review and comment on BPA's program-level estimates, draft asset strategies and capital spending levels before their inclusion in the rate case. The comment period closed Aug. 12. A final publication is expected in the fall. For information, go to [www.bpa.gov/goto/ipr](http://www.bpa.gov/goto/ipr).

#### **Rate Period High Water Mark public process [Regionwide]**

BPA began the process for establishing Rate Period High Water Marks that will be used to set power rates for fiscal years 2018 and 2019. The RHWM is the amount of energy a customer is eligible to purchase at BPA's lowest-cost Tier 1 rates in the upcoming rate period. Initial RHWMs were published in August and a comment period ended on Aug. 23. Final numbers will be posted by Sept. 30. For information, go to [www.bpa.gov/Finance/RateCases/BP-18/Pages/Rate-Period-High-Water-Mark-Process.aspx](http://www.bpa.gov/Finance/RateCases/BP-18/Pages/Rate-Period-High-Water-Mark-Process.aspx).

#### **BP-18 Rate Case workshops [Regionwide]**

BPA is holding a series of workshops over the summer in preparation for the BP-18 rate proceeding to set power, transmission and ancillary services rates for fiscal years 2018–2019. For information, go to [www.bpa.gov/goto/ratecase](http://www.bpa.gov/goto/ratecase).

### POWER

#### **Energy efficiency proposed commercial sector program design [Regionwide]**

Utilities and stakeholders were invited to provide feedback on the proposed commercial sector program design through July 5. BPA will consider all comments as part of the final program design. If a majority of utility comments inform BPA that the proposed design is not satisfactory and requires modifications, the commercial program sector lead will hold an additional brown bag to address the public comments and explain how the program design will be changed to better meet utility needs. For information, go to [www.bpa.gov/EE/Sectors/Commercial/Pages/New-Commercial-Program-Development.aspx](http://www.bpa.gov/EE/Sectors/Commercial/Pages/New-Commercial-Program-Development.aspx).

### TRANSMISSION

#### **Midway-Moxee rebuild and Midway-Grandview Upgrade Transmission Line Project [Benton and Yakima counties, Wash.]**

BPA released a final environmental assessment in March and decided to rebuild its Midway-Moxee transmission lines and upgrade the Midway-Grandview transmission line. The final environmental assessment addresses comments received on the draft environmental assessment. Construction is expected to begin in September. The Bureau of Land Management is a cooperating agency with BPA for

# Public Involvement continued [Updates & Notices]

the environmental assessment. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Midway-Moxee.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Midway-Moxee.aspx).

## **Hills Creek-Lookout Point Transmission Line Rebuild Project [Lane County, Ore.]**

BPA proposes to rebuild the 26-mile Hills Creek-Lookout Point 115-kilovolt wood-pole transmission line between the cities of Oakridge and Lowell, Ore. Improvements would involve replacing all wood-pole structures (including poles and other hardware), replacing conductors and ground wires, realigning the line to avoid a rockfall and landslide, and improving access roads. BPA published the draft environmental assessment in August. The U.S. Forest Service is a cooperating agency with BPA for the EA. A comment period is open through Sept. 19. If BPA decides to proceed with the project, construction would begin in the summer of 2018. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Hills-Creek-Lookout-Point.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Hills-Creek-Lookout-Point.aspx).

## **Kalispell-Kerr Transmission Line Rebuild Project [Flathead and Lake Counties, Mont.]**

BPA proposes to rebuild the 41-mile Kalispell-Kerr 115-kV wood-pole transmission line between the cities of Kalispell and Polson, Mont. Improvements would involve replacing all wood-pole structures (including poles and other hardware), replacing conductors and ground wires, and improving access roads. BPA expects to publish the final environmental assessment in September. If BPA decides to proceed with the project, construction would begin in the spring of 2017. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Kalispell-Kerr.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Kalispell-Kerr.aspx).

## **Marys Peak BPA Communication Site Project [Benton County, Ore.]**

BPA needs to maintain and upgrade its existing communication site on the summit of Marys Peak, 12 miles southwest of Corvallis, Ore. The BPA communication network is essential for the safety and reliability of BPA's power transmission system. This communication network allows for critical information exchange during emergencies, safe and timely power restoration during outages, and supports control of the larger regional BPA power transmission network in the Pacific Northwest. BPA is preparing an environmental assessment for the proposed project and will invite public comment. Information to be updated in late September, go to [www.bpa.gov/efw/analysis/NEPADocuments/](http://www.bpa.gov/efw/analysis/NEPADocuments/).

## **Bonneville-Hood River Rebuild Project [Multnomah and Hood River Counties, Ore.]**

BPA is proposing to rebuild portions of its 23-mile, 115-kV Bonneville-Hood River transmission line and an associated tap line running to Cascade Locks, Ore. BPA is proposing to replace the aged wood and steel lattice H-frame structures and other line components along the line and tap, and to improve its access road and trail system. BPA expects to publish the draft environmental assessment in September. If BPA decides to proceed with the project, access road work would begin in the summer of 2017 and structure work would begin in the summer of 2018. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Hood-River.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Hood-River.aspx).

## **ENVIRONMENT, FISH AND WILDLIFE**

### **Columbia Estuary Ecosystem Restoration Program [Oregon and Washington]**

BPA and the Corps of Engineers have prepared a final environmental assessment, finding of no significant impact and a mitigation action plan for the Columbia Estuary Ecosystem Restoration Program. The EA describes the estuary restoration program, discusses the environmental impacts of actions and projects under the program, and lists mitigation measures to help lessen impacts. Currently projects implemented under the estuary restoration program are reviewed individually under the National Environmental Policy Act. Through the development of this EA, BPA and the Corps have assessed the impacts of the program as a whole and plan to tie future environmental review for individual projects to this EA. The final analysis was released July 22, 2016. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/EstuaryRestorationProgram.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/EstuaryRestorationProgram.aspx).

### **Kerry Island Restoration Project [Columbia County, Ore.]**

BPA completed its analysis and has decided to fund the Kerry Island Restoration Project, proposed by the Columbia Land Trust and located along Westport Slough about 1 mile east of Westport, Ore. The project will benefit Endangered Species Act-listed Pacific salmonids and their habitat by removing a levee surrounding the island, restoring a tidal channel network and restoring connections between tidal wetlands and floodplains. BPA finalized a supplemental analysis to the Columbia Estuary Ecosystem Restoration programmatic environmental assessment for NEPA coverage; the supplemental analysis was published on June 26, 2016. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/KerryIslandEstuaryRestoration.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/KerryIslandEstuaryRestoration.aspx).

### **Wallacut River Confluence Restoration Project [Pacific County, Wash.]**

BPA completed its analysis and has decided to fund the Wallacut River Confluence Restoration Project, proposed by the Columbia Land Trust, along the Wallacut River at its confluence with the Columbia River about 1.5 miles northeast of Ilwaco, Wash. The project would benefit Endangered Species Act-listed Pacific salmonids and their habitat by removing a levee along the Wallacut River, restoring a tidal channel network and connections between wetlands and floodplains. Based on public input received during the scoping period, BPA conducted a public meeting in Ilwaco, Wash., on Aug. 4. BPA developed a supplemental analysis to the Columbia Estuary Ecosystem Restoration programmatic environmental assessment for NEPA coverage; the supplemental analysis was published on Aug. 11, 2016. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/WallacutRiverConfluenceEstuary.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/WallacutRiverConfluenceEstuary.aspx).

### **Middle Entiat River Restoration Project [Chelan County, Wash.]**

BPA is proposing to provide funding for the Middle Entiat River Habitat Restoration Project along a 4-mile section of the Entiat River, in Chelan County, Wash. The goal of the proposed project is to re-establish natural riverine processes and a properly functioning and self-sustaining riverine floodplain ecosystem that would provide critical spawning, rearing and off-channel refuge habitat for native fish and floodplain-associated wildlife in the Entiat River Basin. Target species would be

# Public Involvement continued [updates & Notices]

steelhead, bull trout and other resident fish. A draft environmental assessment is expected to be available for comment this year. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/MiddleEntiatRiverHabitat.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/MiddleEntiatRiverHabitat.aspx).

## **Eightmile Ranch Coho Acclimation Site [Okanogan County, Wash.]**

BPA and the U.S. Forest Service released the final environmental assessment for the Eightmile Ranch Coho Acclimation Site in March. BPA plans to release its finding of no significant impact, if warranted, later this year. For information, go to [www.bpa.gov/goto/Eightmile](http://www.bpa.gov/goto/Eightmile).

## **Early Winters 3 Coho acclimation site [Okanogan County, Wash.]**

BPA plans to release a supplemental analysis for the Early Winters 3 Coho acclimation site this year. This site is part of the Mid Columbia Coho Restoration Program, an effort to reintroduce self sustaining populations of coho salmon to the Wenatchee and Methow subbasins. BPA prepared an environmental impact statement for this program in 2012, and the Early Winters 3 site was later added to the program when other sites proved infeasible. An initial project scoping comment period closed in 2014. For information, go to [www.bpa.gov/goto/midcolumbiacoho](http://www.bpa.gov/goto/midcolumbiacoho).

## **Crystal Springs Hatchery Program [Bingham, Lemhi and Custer Counties, Idaho]**

BPA is proposing to fund the Shoshone-Bannock Tribes of the Fort Hall Reservation's Crystal Springs Hatchery Program. The program would involve the construction of a hatchery in Bingham County, Idaho, to rear Snake River spring/summer chinook salmon and Yellowstone cutthroat trout as well as the construction of two fish-trapping (weir) facilities in Custer and Lemhi counties. BPA, in cooperation with the U.S. Forest Service, National Marine Fisheries Service and the tribes, plans to release a draft environmental impact statement evaluating the potential impacts of the proposed Crystal Springs Hatchery Program this fall. The public comment period will be open for 45 days. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Crystal-Springs.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Crystal-Springs.aspx).

## **Bird Track Springs Fish Habitat Enhancement Project [Wallowa County, Ore.]**

BPA is proposing to fund the Bird Track Springs Enhancement Project, located in the Wallowa-Whitman National Forest and adjacent private lands in the Upper Grande Ronde River, Ore. The project is a partnership between BPA, the Confederated Tribes of the Umatilla Indian Reservation, U.S. Forest Service and the Bureau of Reclamation. The project goals are to benefit ESA-listed Pacific salmonids and their habitat through excavating channel meanders, removing artificial constraints, increasing off-channel connections and in-stream complexity through placement of large wood structures. Initial project scoping concluded in February 2016 and the initial draft of the EA is currently underway. For information, go to [www.bpa.gov/efw/Analysis/NEPADocuments/Pages/BirdTrackSprings.aspx](http://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/BirdTrackSprings.aspx).

## **Upper Columbia Spring Chinook and Steelhead Acclimation Project [Chelan and Okanogan counties, Wash.]**

BPA plans to release a draft environmental assessment for the Upper Columbia Spring Chinook and Steelhead Acclimation Project this fall. This project would be funded by BPA and implemented by the Confederated Tribes and Bands of the Yakama Nation to improve acclimation of hatchery-bred juvenile steelhead and chinook salmon released into the Methow and Wenatchee river basins in Okanogan and Chelan Counties, Wash. The initial scoping period closed May 4, 2015. For information, go to [www.bpa.gov/goto/ChinookSteelheadAcclimation](http://www.bpa.gov/goto/ChinookSteelheadAcclimation).

## **Kootenai River Lower Meander Project [Boundary County, Idaho]**

BPA is preparing an environmental assessment for a river restoration project proposed by the Kootenai Tribe of Idaho along the Kootenai River one-half mile upstream of Bonner's Ferry, Idaho. The project is designed to enhance islands and side channels and to restore stream-banks. The work would include pool excavation, island construction, bank grading, revegetation and large wood structure installation along banks and in channels. The initial scoping period is planned to begin on Sept. 7 and close Oct. 11, 2016. For information, go to [www.bpa.gov/goto/KootenaiMeander](http://www.bpa.gov/goto/KootenaiMeander).

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## **CLOSE OF COMMENT**

- **Sept. 19**, Hills Creek-Lookout Point Rebuild Project

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## **CALENDAR OF EVENTS**

For current meeting information, go to [www.bpa.gov/PublicInvolvement/Cal](http://www.bpa.gov/PublicInvolvement/Cal).

### **BP-18 Transmission Rates Workshop**

- **Sept. 14**, 9 a.m. to noon  
BPA Rates Hearing Room  
1201 N.E. Lloyd Blvd., Suite 200, Portland, Ore.

### **Quarterly Business Review**

- **Nov. 1**, 9 a.m. to noon  
BPA Rates Hearing Room  
1201 N.E. Lloyd Blvd., Suite 200, Portland, Ore.

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## **FOR MORE INFORMATION**

Information on other projects under environmental review is available at [www.bpa.gov/goto/NEPA](http://www.bpa.gov/goto/NEPA).

For information about the National Environmental Policy Act in general, go to [www.bpa.gov/goto/environmentalplanning](http://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](mailto:comment@bpa.gov). BPA home page: [www.bpa.gov](http://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](http://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.

