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BPA, electric co-op and irrigation district testing aquifer recharge

Dispatching recharge pumping could save money and relieve electricity oversupply

Portland, Ore. – The Bonneville Power Administration, United Electric Co-op and the Southwest Irrigation District will test a small-scale aquifer recharge procedure that could provide operational savings for UEC and SWID and determine if the technology used in this project could provide future relief for springtime oversupply of electricity.

The pilot project specifically will assess whether aquifer recharge projects can be dispatched to either increase pumping in the early morning or other hours of light electricity use or decrease pumping during the daytime or other hours of heavier electricity use.

The incremental pumping during periods of lighter electricity use benefits SWID by reducing operational costs. Such practices are incentivized in BPA's new tiered rate structure passed through to the irrigation district by the electric co-op. BPA benefits by learning if expanding the practice of modifying irrigation pumping load is operationally feasible and can be done at a reasonable cost to provide relief during future incidents of springtime electricity oversupply.

The pilot allows SWID to pump water from the Snake River for a longer period in the shoulder months of March and November. SWID typically recharges the aquifer between mid-April and mid-October each year. Additional recharge during periods of lighter electricity use should reduce SWID's operational costs for deep well pumping. "This important test could provide benefits to utilities and irrigation districts across the Northwest," said Lee Hall, BPA Smart Grid Program manager.

"This practice could save utilities and irrigation districts money, and use pumps that recharge aquifers as a repository for excess electricity created at times by high wind and high river flows."

The demonstration project, located in Cassia County, Idaho, is assessing the feasibility and suitability of adjusting irrigation pumping loads in response to regional needs. If the pilot is successful, BPA estimates there could be 50 to 100 megawatts or more of pumping load in the region that could help with multiple regional needs, including relieving future electricity oversupply events and balancing variable renewable energy generation.

"The Idaho Water Resource Board supports BPA's smart-grid pilot project where surplus federal power during periods of overgeneration is used through UEC at the SWID Pumping Plant for the purpose of pumping water for managed aquifer recharge," said Terry T. Uhling, chairman, Idaho

Water Resource Board. “The Board hopes this can become a permanent program, and that it might be expanded in the future as there are other existing and planned managed aquifer recharge projects.”

The pilot is relatively small-scale, a 1.8 megawatt proof-of-concept field test. It will help determine if the technology, communications and commercial arrangements with the utility will work. This project may prove the potential of using this kind of electricity demand to help integrate wind in the Pacific Northwest. If so, much larger loads could be captured and dispatched.

BPA is a nonprofit federal agency that markets renewable hydropower from federal Columbia River dams, operates three-quarters of high-voltage transmission lines in the Northwest and funds one of the largest wildlife protection and restoration programs in the world. BPA and its partners have also saved enough electricity through energy efficiency projects to power four large American cities. For more information, contact us at 503-230-5131 or visit our website at www.bpa.gov.

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