

Snohomish PUD, partners pioneer to develop modular storage architecture

—By Robert Marritz



February 20, 2013—Snohomish County Public Utility District, frustrated with the lack of progress in developing affordable, interoperable utility-scale electricity storage, is taking steps to do something about it.

Snohomish general manager Steven Klein and a team he has assembled told a symposium sponsored by the Northwest Power and Conservation Council last week that the cost of storage and its lack of standardization and modularity were seriously hurting its wider development.

Snohomish aims to improve on this unpromising landscape.

The PUD has teamed with Alstom, 1 Energy Systems, the University of Washington, and two battery partners to develop an approach called Modular Energy Storage Architecture (MESA).

MESA is meant to provide a bridge to a better storage market – one that focuses on an open-source approach and standardization, much like the one that transformed the computer industry from the “bad old days” when it was hard to hook up a new printer to your computer.

“MESA is a first-generation effort to transform the storage market,” Klein told Electricity Daily. Klein said Snohomish is looking for partners – utilities and vendors – interested in a market transformation approach.

Wind power in the Northwest has grown from a mere 250 MW in 2004 to 4,711 MW today, with more coming. Wind sometimes outstrips the ability of the multipurpose Federal Columbia River Power System, managed by the Bonneville Power Administration, to provide storage and to ramp up and down to adjust to wind’s variability. Snohomish itself has purchased over 200 MW of wind capacity, about 8% of its supply, Klein noted.

In addition to wind integration, storage is also useful for peak shaving, voltage and VAR support, and frequency regulation, among other services. But, with more storage needed to improve system efficiency and better integrate a growing share of renewables, no cost-effective storage is available, Klein said. The market for utility-scale storage is small and slow growing; costs are coming down, but not fast enough.

Tom Melling of 1Energy Systems, one of the MESA team, agreed that today's utility storage supply chain is almost solely proprietary, with limited modularity and interoperability.

Here is an interesting measure of the utility storage market's dysfunction: A 25 kWh lithium-ion battery for a community energy storage (CES) unit is pegged at about \$100,000. By contrast, a 24 kWh unit for a new Nissan Leaf costs just \$30,000 – and the technologically advanced Leaf comes with it!

Snohomish is looking for utilities and vendors who are interested in learning that will emerge from MESA. “We are reaching out to others who would serve on a Utility Advisory Board” for the project, Klein said. Focusing first on a 1 MW substation storage system, Snohomish's MESA project intends to develop a plug-and-play interface as well as a movement toward standardization, shared learning, and transformation to a market with multiple providers.

Snohomish PUD, with over 320,000 customers, is the second largest publicly owned utility in the Pacific Northwest and the 12th largest in the United States.