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A New Model for Energy Storage

Snohomish PUD Nets $7.3 Million from State Clean Energy Fund

Everett, WA – Snohomish County Public Utility District (PUD) will receive $7.3 million in matching funds from the Washington Clean Energy Fund. Using the funding, announced this week by Washington Governor Jay Inslee, the PUD will implement a comprehensive program of energy storage and controls integration.

The PUD and its principal partner, 1Energy Systems, a Seattle-based company, are building the energy storage systems based on the Modular Energy Storage Architecture (MESA), which provides a standard, non-proprietary and scalable approach to energy storage. The PUD's energy storage program, which forges partnerships with major U.S. and international business partners, will include two large-scale lithium ion batteries, one built by LG Chem and a second by Mitsubishi-GS Yuasa. Both lithium ion batteries will utilize a Parker Hannifin Power Conversion System. Additionally, the PUD will deploy multiple advanced vanadium flow batteries, which will be built by UniEnergy Technologies, based in Mukilteo, Wash.

Building on these elements, the PUD will deploy an integrated, scalable, optimized control system to manage the energy storage systems (ESS) in an automated fashion. Within each ESS, safe, secure monitoring and control will be provided by the 1Energy Intelligent Controller™ (1E-IC), state-of-the-art software which also securely connects each ESS with utility control, scheduling and optimization platforms. This control system infrastructure is the next critical technology for utilities and the energy storage industry, advancing from merely demonstrating individual energy storage projects to creating an easily deployable, scalable solution that is integrated with other electrical grid assets.

"With this funding, we're able to significantly ramp up our efforts to develop standardized and scalable energy storage systems," said Snohomish County PUD CEO Steve Klein. "Working with several public and private partners, it's our goal to transform the marketplace and make energy storage economically and operationally viable within the energy industry."

The collaboration will produce state-of-the-art systems, bringing together major equipment and software companies to establish the appropriate industry standards and interfaces. The approach is much different than other energy storage projects in the past and is expected to result in the expanded application of plug-and-play type energy storage systems to help solve the expanding needs of today's electric grid, which depends more on intermittent resources such as wind and solar.

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SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Since wind and solar power generation is irregular, and not always available during peak energy demand hours, energy storage can make clean energy available wherever and whenever it is needed. While clean energy generation costs continue to decline, energy storage is the critical element needed to foster renewable energy growth.

MESA Project Goals

Key goals of the MESA project include:

- Developing standard electrical and communication interfaces to connect batteries, power converters and software components into modular energy storage systems
- Helping to foster a robust industry ecosystem of modular energy storage component suppliers. By sharing their learning with other electric utilities and technology suppliers, MESA Project partners are advancing a new, component-based approach to energy storage that gives electric utilities more choice, and enables battery, power converter and software manufacturers to reach more customers while focusing on their core competencies.
- For more information on the MESA Alliance, see www.mesastandards.org

Project Partners

- 1Energy Systems, principal partner and architect of MESA and the 1Energy Intelligent Controller™ (1E-IC) to manage the energy storage systems in an automated fashion
- Alstom Grid, supplier of the PUD's EMS, SCADA & DMS platforms
- LG Chem, supplier of lithium ion battery
- Mitsubishi-GS Yuasa, supplier of lithium ion battery
- UniEnergy Technologies, supplier of vanadium flow battery
- Parker Hannifin, provider of the MESA-compliant power conversion system
- University of Washington, research expertise in power systems and computer science
- Pacific Northwest National Laboratory, research expertise in power systems

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