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A New Model of Battery Architecture

Snohomish PUD & 1Energy Partner on Energy Storage Innovation

Everett, WA – Snohomish County Public Utility District (PUD) and 1Energy Systems will partner to develop and deploy an innovative approach to energy storage, aimed at helping electric utilities increase their use of renewable energy and improve overall reliability.

Under the partnership, 1Energy will provide a one-megawatt battery energy storage system, built on an innovative Modular Energy Storage Architecture (MESA). The system, based on commercially-available, advanced technology batteries, will be housed in a standard shipping container, which will be installed at a PUD substation.

Alstom Grid and faculty from the University of Washington will join the project to collaborate on research, analysis and design of technology interfaces. 1Energy will lead the selection of future MESA partners who will provide batteries, power conversion and balance-of-system components.

“This collaboration will produce a state-of-the-art energy storage unit for use by the PUD,” said Snohomish PUD General Manager Steve Klein. “It will bring major equipment and software companies together to establish the appropriate industry standards and interfaces to make storage more economically and operationally viable for the entire electric utility industry. This approach is much different than other energy storage projects in the past and should result in the expanded application of plug-n-play type energy storage systems to help solve the expanding needs of today’s electric grid that depends more and more on intermittent resources such as wind and solar.”

“We’re pleased to work with Snohomish PUD and our other partners to advance a new vision for utility-scale energy storage,” said David Kaplan, CEO of 1Energy Systems. “We commend the PUD for its industry leadership and value its support toward realizing the full potential of MESA.”

Alstom Grid will work with 1Energy to build MESA interfaces into its control center software platforms, used by Snohomish PUD.

“We are excited to work with Snohomish PUD and 1Energy to help advance a new generation of energy storage solutions using MESA standards,” said Karim El-Naggar, Alstom Grid Vice President of Network Management Solutions.

University of Washington faculty will provide electrical engineering, power systems and computer science research expertise to the MESA Project.

“The University of Washington is pleased to work with other MESA Project partners, to help analyze the benefits of large-scale deployment of energy storage technologies within the electric distribution grid,” said Daniel Kirschen, Close Professor of Electrical Engineering at the University of Washington.

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Unlike conventional energy storage systems, MESA provides a standard, scalable approach to energy storage in which electric utilities or grid operators can choose interoperable components – batteries, power converters and software – to meet their specific needs and use cases. The ability to exchange components also makes it easier and more cost effective for utilities or other customers to upgrade or replace components as new technologies emerge.

Because wind and solar power generation is intermittent, 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 aim to advance a new, component-based approach to energy storage that gives electric utilities more choice, and lets battery, power converter and software manufacturers reach more customers while focusing on their core competencies.

In support of these goals, MESA partners will work with industry standards organizations to publish MESA specifications, and make key MESA technologies available in the public domain.

About Snohomish PUD: Snohomish County PUD is the second largest publicly owned utility in Washington. The utility serves nearly 325,000 electric customers and 20,000 water customers. The service territory covers over 2,200 square miles, including all of Snohomish County and Camano Island.

About 1Energy Systems: 1Energy Systems provides software, communications and systems engineering for utility-grade energy storage systems (ESS) and other electric energy assets. The company's products and services deliver key benefits for electric utilities, including firming of wind and solar power, improved reliability, outage backup and system upgrade deferral.

About Alstom Grid: Alstom Grid has over 130 years of electrical grid expertise and is among the top 3 global leaders in electrical transmission. The company is at the heart of Smart Grid development and offers products, services and energy management solutions spanning power generation, transmission and distribution grids, and large end-users.

About the University of Washington, Founded in 1861, the University of Washington is one of the oldest state-supported institutions of higher education on the West Coast and is one of the preeminent research universities in the world. In particular, it is well known for the quality of its research in sustainable energy.

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