



Hawai'i
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NEWS RELEASE

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Grid-Scale Vanadium Flow Energy Storage System to be Installed at NELHA

KAILUA-KONA – The Natural Energy Laboratory of Hawai'i Authority (NELHA), Hawaii Electric Light Company (HELCO), Ulupono Initiative and UniEnergy Technologies (UET) announced today their intent to install a 100kW/500kWh advanced vanadium energy storage system later this year at the Hawai'i Ocean Science and Technology Park (HOST Park) administered by NELHA.

UET's modular ReFlex™ energy storage system (ESS) is planned to be in operation at the NELHA Gateway Center early next year. The ESS utilizes advanced vanadium flow battery technology and was developed by DOE's Pacific Northwest National Laboratory. Vanadium flow batteries have a longer life cycle than common lead acid or lithium-ion batteries. With regular maintenance, they can last more than 20 years and operate in very warm weather without much need for cooling to optimize performance.

"This effort builds upon the various initiatives by the County of Hawaii, Hawaii Electric Light Company, U.S. Department of Energy's Office of Electricity, Sandia National Laboratories and NELHA to partner, share resources, and attract companies interested in testing and evaluating energy storage systems on the Island of Hawaii," said Gregory Barbour, NELHA Executive Director. "NELHA is very grateful to Dr. Imre Gyuk, Director of the U.S. DOE energy storage program, for his very strong support and guidance to formulate this project."

“Long duration flow batteries are particularly suitable for island systems to serve as a buffer between the load, variable renewable generation, and expensive fossil fuel generation, allowing for more effective asset utilization”, said Dr. Gyuk.

In 2017, more than 56 percent of the electricity generated on Hawaii Island comes from renewable resources like solar, wind, hydroelectric, and geothermal. Integrating increasing amounts of renewable energy to an island grid is challenging.

“Electricity from renewable resources is produced when the resource is available and not necessarily when it’s needed. To maintain grid stability and prevent an oversupply situation, it’s critical that we have the tools to control and balance the energy supply with customer demand,” said Jay Ignacio, Hawaii Electric Light president. “Energy storage is one of several solutions we’re considering. This partnership allows us to test a variety of applications for current and future renewable energy interconnections while maintaining high standards of safety and reliability.”

“The UET advanced vanadium ESS can provide many benefits such as improved grid stability through frequency, voltage and reactive power control as well as dispatch capability of distributed renewable energy,” said Gary Yang, UET CEO. “This battery technology is long-lasting, safe, recyclable, and cost effective.”

The ESS installation is funded in part by Ulupono Initiative, the U.S. Department of Energy Office of Electricity, and Hawaii Electric Light. NELHA is providing the land and will connect the ESS to its data acquisition system.

“Ulupono is pleased to participate in this project,” said Kyle Datta, Ulupono Initiative’s general partner. “Installing adequate grid-scale storage is an important step in furthering Hawaii’s energy resiliency and increasing the amount of highly variable solar energy that can be integrated into the Hawaii island grid.”

Sandia National Laboratories will provide technical consulting and conduct research to analyze how a flow battery performs in an island climate and on an island grid. “The more installations we have of various energy storage technologies, the more we learn and disseminate,” said Dan Borneo, Sandia National Laboratories’ ESS demonstration program lead. “This will help the energy storage industry proliferate.”

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About Natural Energy Laboratory of Hawaii Authority

NELHA administers the world's premier energy and ocean technology park. This unique master-permitted park is located on 870 acres of prime coastal property in Kailua-Kona, Hawaii and offers research support facilities for the development of renewable energy and other demonstration projects that utilize the unique resources found at the park. It is the world's largest facility that continually brings ashore high quality, pristine supplies of both warm surface and cold deep seawater 24 hours a day with views to reap economic potentials from the dual temperature seawater delivery system and high solar insolation. Tenants located in HOST Park work at the pre-commercial, commercial, research and educational levels. It is the largest diversified economic development project in the State and is solely focused on developing green economic projects. More information on NELHA can be found at nelha.hawaii.gov.

About Hawaii Electric Light Company

For more than 100 years, Hawaiian Electric Company has provided the energy that has fueled the islands' development from a Hawaiian kingdom to a modern state. Hawaiian Electric Company and its subsidiaries, Hawaii Electric Light Company and Maui Electric Company, serve 450,000 customers on the islands of O'ahu, Hawaii, Maui, Lanai and Molokai, home to 95 percent of Hawaii's 1.4 million people. Hawaiian Electric Company is a subsidiary of Hawaiian Electric Industries (NYSE: HE). For more information, visit www.hawaiielectriclight.com.

About Ulupono Initiative

Ulupono Initiative is a Hawaii-focused impact investing firm that uses for-profit and non-profit investments to improve the quality of life for island residents in three areas – locally produced food; clean, renewable energy; and waste reduction. To learn more, please visit www.ulupono.com or follow @ulupono on Twitter.

About UniEnergy Technologies

UET provides turn-key, megawatt-scale energy storage solutions for utility, commercial and industrial and microgrid applications. UET's patented advanced vanadium flow battery technology is unique in its ability to provide both short- and long-duration energy storage, concurrently, with unlimited 100 percent depth-of-discharge cycling capability over its entire 20+ year life. Its high-energy density, non-flammability, zero reactivity when exposed to air or water, and near 100% recyclability provide significant added value. UET has won more than 175 MWh of product awards since its founding in 2012, and expects to fill orders of more than 100 MWh annually by 2019 from its Mukilteo, Washington manufacturing facility. www.uettechnologies.com

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