UET to deliver ReFlex Vanadium flow battery for utility grid modernization project

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UniEnergy Technologies (UET), the leading flow battery provider in North America and Europe, will supply a 100kW/400kWh ReFlex energy storage system for a collaborative project among the utility EPB of Chattanooga and three U.S. national laboratories. The project will identify and understand the benefits and challenges of energy storage integration with electric utilities. The UET ReFlex system will enable an islandable microgrid at the operations center of EPB, which serves the greater Chattanooga, Tennessee, area. The system will be integrated with EPB's 1 MW photovoltaic (PV) array and its advanced fiber communication network.

Researchers from Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), and Sandia National Laboratories (SNL) will provide analysis of the value streams, operational modes, and optimal utilization of the solar-plus-energy storage system. The three labs will also provide technical evaluation of ramping services, islanding support, and future sizing for an additional 2MW of planned PV.

The project is part of the U.S. Department of Energy's (DOE) Grid Modernization Initiative (GMI), a comprehensive effort led by DOE's Office of Electricity Delivery and Energy Reliability (OE) to help shape the future of our nation's grid, including utilizing storage to integrate renewable and conventional energy sources into the grid.

The EPB project is one of four energystorage projects awarded by the GMI. The $2.5 million effort will commence this summer and continue for at least two years. "Cost-effective, reliable, and longer-lived energy storage is necessary to truly modernize the grid," said Dr. Imre Gyuk, the DOE OE's energy storage program manager. "As third-generation vanadium flow batteries gain market share, it is essential to increase our understanding of storage value and optimization to accelerate adoption of integrated storage and renewable energy solutions among utilities."

UET's core technology is an advanced vanadium flow battery, with a breakthrough electrolyte first developed at Pacific Northwest National Laboratory (PNNL) with OE's support. UET has improved the electrolyte further and patented those improvements in addition to innovations in system integration and other technology. Globally only UET has megawatt-scale fully containerized flow battery systems deployed and operating in the field. UET now has almost 20MW/80MWh of energy storage systems deployed, ordered, or awarded by customers, including utility, military, microgrid, and commercial and industrial applications. "Our vanadium flow energy storage systems partner well with solar energy because of the long-life of the batteries and their ability to facilitate the integration of increasing renewable resources into the grid," said UET Senior Vice President of Global Sales Blake Frye. "By working together with a leading utility and national laboratories, we will develop metrics for evaluating renewable energy and storage integration and demonstrate the benefits of leading energy storage technology to our nation's grid modernization efforts."

"At EPB we are committed to building and growing a reliable, sustainable electric power network and enhancing our services with high-quality environmentally-friendly energy sources, like solar power," said David Wade, President of EPB. "We're excited to learn more about how energy storage, and specifically flow batteries, will contribute to the overall efficiency and reliability of our grid. We look forward to working with UET and the national labs to maximize the potential and value of renewables and storage on our system."

About UET : produces integrated advanced vanadium flow battery storage solutions for savings, stability, and security in utility, independent power producer, microgrid, and commercial and industrial applications. UET's breakthrough products the 500kW/2MWh Uni.System and the 100kW/400-500kWh ReFlex - are the result of U.S. innovation and close collaboration with affiliated companies in China for high-precision, volume manufacture. UET's customers consistently cite the value of fade-free performance, unrestricted duty cycle, and 20-year life as key deciders in selecting UET over competitors. Other considerations include rapid deployment, compact footprint, safety, and nearly 100 percent recyclability. UET headquarters and 60,000 square foot manufacturing facility are located in Mukilteo, Washington, in the Seattle metropolitan area.

About EPB : established as an independent board of the City of Chattanooga in 1935, EPB is a municipally-owned utility that provides electricity and fiber optic services as a means of promoting economic development and enhancing quality of life across the local area. In addition to being the first major utility to earn the USGBC's PEER certification for having a highly automated, modernized electric power grid, EPB's fiber optic communications network delivers the world's fastest Internet speeds (up to 10 Gigabits per second across the community-wide network). EPB serves more than 170,000 homes and businesses in a 600 square-mile area that includes greater Chattanooga, as well as parts of surrounding counties and areas of North Georgia.

About Oak Ridge National Laboratory : ORNL is managed by UT-Battelle for the DOE's Office of Science, the single largest supporter of basic research in the physical sciences in the United States. DOE's Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit science.energy.gov.

About Pacific Northwest National Laboratory : Interdisciplinary teams at Pacific Northwest National Laboratoryaddress many of America's most pressing issues in energy, the environment and national security through advances in basic and applied science. Founded in 1965, PNNL employs 4,400 staff and has an annual budget of nearly $1 billion. It is managed by Battelle for the U.S. Department of Energy's Office of Science. As the single largest supporter of basic research in the physical sciences in the United States, the Office of Science is working to address some of the most pressing challenges of our time. For more information visit www.pnnl.gov.

About Sandia National Laboratories : Sandia National Laboratories is a multi-program laboratory operated by Sandia Corporation, a wholly owned subsidiary of **Lockheed Martin Corp**., for the U.S. Department of Energy's National Nuclear Security Administration. With main facilities in Albuquerque, N.M., and Livermore, Calif., Sandia has major R&D responsibilities in national security, energy and environmental technologies and economic competitiveness.

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