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ESS' ALL-IRON FLOW BATTERY OPERATIONAL AT STONE EDGE FARM MICROGRID

System to provide a variety of value streams at California Winery in net-zero microgrid

PORTLAND, OR – May 11, 2016 – ESS Inc., the leading manufacturer of a safe, low cost and long cycle-life battery for renewable energy storage, today announces that it is operating a customized All-Iron Flow Battery (IFB) system at Stone Edge Farm winery in Sonoma, California to demonstrate how energy storage can enable net zero, with intermittent renewables, in an advanced microgrid application. The iron, salt, and water electrolyte was hydrated on-site as part of a simple two day installation and commissioning. The 60 kWh IFB system provides multiple services that will maximize the microgrid's use of renewables.

The Stone Edge Farm microgrid integrates new energy storage technologies into an island-capable microgrid that can drive the 16-acre facility's carbon footprint below net-zero, even exporting net zero energy benefits to the adjacent community. A combination of multiple energy generation, storage, and control technologies enables the daily smooth operation of the microgrid. The ESS Iron Flow Battery is one of the advanced systems that are enabling this grid-edge flexibility.

"Adding storage to distributed PV enables more solar to be installed behind the meter, where it has more value by reducing demand charges and arbitrating TOU rates, while enabling a better than net-zero footprint for the winery," said Craig Wooster, Microgrid Project Manager at Stone Edge Farm. "Our investment in this project is to demonstrate the variety of services energy storage can provide such as daytime smoothing of PV, shifting energy to higher demand periods, and eventually offering energy services to the larger external grid."

The Iron Flow Battery system installed at Stone Edge Farm has a 60 kWh energy capacity with a 10 kW, 480 VAC, 3-phase interface. Self-contained in a 20' ISO shipping container, the IFB was easily sited in an environmentally sensitive area, given its small footprint and non-toxic, non-flammable chemistry. Microgrid controls at Stone Edge are provided by DC Systems, Inc. and connect to the IFB through a MODBUS communication link. The Iron Flow Battery will receive commands from DC System's controller responding to specific needs on the microgrid

to supply power at night, for irrigation or hydrogen generation, or during the day to smooth out the intermittencies of solar on the microgrid.

“ESS understands that each of our customer’s projects are different so we were pleased to develop a customized solution for this winery” said Craig Evans, CEO of ESS. “Our focus for future applications is on a larger 800 kWh Iron Flow Battery system, that will address both behind-the-meter, as well as utility scale multi-MWh applications with intermittent renewable energy generation”

ESS’ IFB utilizes earth abundant iron, dissolved in salt water as its energy storage medium. By combining this low cost electrolyte with ESS’ proprietary battery design, ESS’ IFB technology has demonstrated thousands of deep charge/discharge cycles at 70% AC/AC round trip efficiency without performance degradation.

About ESS Inc.
Established in 2011, ESS Inc. manufacturers a low cost, long duration All-Iron Redox Flow Battery for commercial and utility-scale energy storage applications requiring 6+ hours of energy capacity and 20+ years of lifetime. By utilizing earth-abundant iron, salt, and water for the electrolyte, the Iron Flow Battery delivers an environmentally safe, low cost, and long life energy storage solution for the world’s renewable energy infrastructure. ESS Inc. is headquartered in Portland, OR. For more information visit www.essinc.com.

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