



Premium Power Distributed Energy Storage System

Project Description

Premium Power and its partners will demonstrate a multi-hour, zinc bromide battery-based energy storage system (ESS) for load shifting, peak shaving, and renewable system integration. The project is based on Premium Power's modular 500 kW, multi-hour energy storage system, providing capacity on demand. The ESS is a fully integrated system that comprises energy storage, power conditioning, system control, and thermal management subsystems. National Grid will be demonstrating this technology.

Two ESSs are to be demonstrated with National Grid at locations in Massachusetts. One ESS will be integrated into a single 500kW multi-hour system installed next to a 605 kW photovoltaic (PV) array in Everett, MA and the other ESS will be interfaced with a 600 kW wind turbine at the Holy Name High School feeder in Worcester, MA. National Grid will deploy, operate, and monitor the aggregated 1MW ESS's in their respective locations for two years.

Goals/Objectives

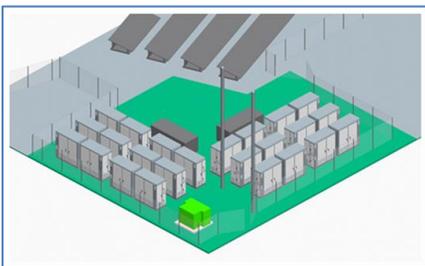
- Demonstrate competitively priced, multi-megawatt, long-duration batteries for utility grid applications
- Validate the potential of zinc bromide flow batteries
- Demonstrate multiple approaches to battery integration with intermittent renewable energy systems with aggregated sites, on a customer site, and at a substation
- Develop and verify creative control algorithms to manage fleet operation of energy storage systems that are not co-located

Key Milestones

- Detailed engineering design complete (April 2014)
- Completion and delivery of ESS unit 1 (March 2015)
- Installation and integration of all units complete (June 2015)
- Test operations complete (June 2017)

Benefits

- Jobs created
- Power quality improved
- Cost of electricity reduced
- Electricity reliability improved



CONTACTS

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PARTNERS

National Grid USA Service Company Inc
Worcester Polytechnic Institute
Science Applications International Corp

PROJECT DURATION

8/13/2010–8/4/2017

BUDGET

Total Project Value
\$12,514,660

DOE/Non-DOE Share
\$6,062,552/\$6,452,108

EQUIPMENT

Zinc-Bromide Flow Batteries
Advanced Metering Equipment and
Sensors
Transformers
Switchgear
Circuit Breaker/Protective Relays

DEMONSTRATION STATES

Massachusetts

CID: OE0000224

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