Sterling Municipal Light Department (SMLD)

Community Clean Energy Resiliency Initiative

PROJECT FACT SHEET

PROJECT DESCRIPTION

A new clean energy storage project is providing vital resiliency and economic benefits to the town of Sterling, MA. This 2-megawatt/3.9 megawatt-hour battery storage system can isolate from the main grid in the event of a power outage and provide emergency backup power to the Sterling police station and dispatch center, a critical facility providing first responder services. The Sterling Municipal Light Department, which owns and operates the battery storage system, has connected the batteries to an existing 2.4 MW solar array to provide its ratepayers with energy cost savings and community resilient power. This project is the first utility-scale energy storage facility in the state of Massachusetts, and is one of the largest battery installations of its kind in New England. Construction began in the fall of 2016 and the project was completed and commissioned in December 2016.

Project Highlights

- 2 megawatts of batteries for energy storage are installed at the substation.
- The 3.9 megawatt-hour energy storage system supports critical emergency response functions by providing up to 12 days of backup power to the Sterling police station and dispatch center during grid outages.
- The battery storage system supports the utility’s distribution system on a daily basis, resulting in approximately $400,000/year in savings to the utility and ratepayers.

Projected Financial Benefit

- Projected revenues from utilizing the batteries for grid services are expected to result in a payback of installed costs in 2.5 years. Without grant funding, the system would still achieve a payback period of fewer than 7 years.
- A 2017 economic analysis by Sandia National Labs indicates that the economic benefit of the batteries is approximately $400,000/year to utility’s ratepayers. The project is on track to deliver these savings.

Project Implementation

- Reynolds Engineering managed the project engineering.
- NEC Energy Solutions supplied, installed, and commissioned the batteries. The energy storage system was assembled at NEC Energy Solutions headquarters in Westborough, MA.
- Construction began in the fall of 2016, and the project was completed and commissioned in December 2016.

Project Support

The total cost of the project is approximately $2.7 million. The project was funded in part by a $1.46M grant from the Massachusetts Department of Energy Resources (DOER), under the leadership of Commissioner Judith Judson, with additional financial and technical assistance from the U.S. Department of Energy Office of Electricity (DOE-OE) under the direction of Dr. Imre Gyuk, and Sandia National Laboratories under the leadership of Dan Borneo. Additional technical support was provided by the Clean Energy States Alliance through the Energy Storage Technology Advancement Partnership (ESTAP), and by Clean Energy Group’s Resilient Power Project through a generous grant from Barr Foundation.
• $1,463,194 in grant funds was awarded to the town of Sterling by DOER as part of the Community Clean Energy Resiliency Initiative
• $250,000 in grant funds was provided by U.S. DOE-OE
• Technical assistance, including economic analysis, was conducted by Sandia, U.S.DOE-OE, Clean Energy States Alliance, and Clean Energy Group.

Project Partners
• Sterling Municipal Light Department (SMLD) (www.energysterling.com)
• Town of Sterling Board of Selectman (www.sterling-ma.gov/board-of-selectmen)
• Massachusetts Department of Energy Resources (www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/)
• Sandia National Laboratories (www.sandia.gov)
• Clean Energy States Alliance (www.cesa.org)
• Clean Energy Group (www.cleanegroup.org)
• Barr Foundation (www.barrfoundation.org)
• NEC Energy Solutions (https://neces.com/)
• Reynolds Engineering

Learn More About this Project
Project updates and resources are posted at www.cleanegroup.org/ceg-projects/resilient-power-project/featured-installations/sterling.

For general project information, contact SMLD General Manager Sean Hamilton at shamilton@energysterling.com or visit www.energysterling.com.

To learn more about DOER’s Community Clean Energy Resiliency Initiative, visit www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html.

To learn more about how resilient power systems can benefit your community, contact Energy Storage Technology Advancement Partnership (ESTAP) Project Director Todd Olinsky-Paul at todd@cleanegroup.org, or visit http://bit.ly/ESTAP.


Clean Energy Group and the Clean Energy States Alliance produced a 10-minute video on the Sterling energy storage project. Watch it here: https://youtu.be/w3It2IwLcm4

The video includes a 2-minute animation segment explaining the economics of energy storage. Watch it here: https://youtu.be/8tB6UJK_12g