

# 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](http://www.energysterling.com))
- Town of Sterling Board of Selectman ([www.sterling-ma.gov/board-of-selectmen](http://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/](http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/))
- U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability (<http://energy.gov/oe/office-electricity-delivery-and-energy-reliability>)
- Sandia National Laboratories ([www.sandia.gov](http://www.sandia.gov))
- Clean Energy States Alliance ([www.cesa.org](http://www.cesa.org))
- Clean Energy Group ([www.cleanegroup.org](http://www.cleanegroup.org))
- Barr Foundation ([www.barrfoundation.org](http://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](http://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](mailto:shamilton@energysterling.com) or visit [www.energysterling.com](http://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](http://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](mailto:todd@cleanegroup.org), or visit <http://bit.ly/ESTAP>.

A 2017 report by Sandia National Laboratories presents the economic case for the Sterling Municipal Light Department's energy storage system. The report, "The Value Proposition for Energy Storage at the Sterling Municipal Light Department," is available at: [www.cesa.org/resource-library/resource/the-value-proposition-for-energy-storage-at-the-sterling-municipal-light-department](http://www.cesa.org/resource-library/resource/the-value-proposition-for-energy-storage-at-the-sterling-municipal-light-department). A webinar discussion on this report is also available at that link.



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/w3lt2lwLCm4>

The video includes a 2-minute animation segment explaining the economics of energy storage. Watch it here: [https://youtu.be/8tB6UJK\\_l2g](https://youtu.be/8tB6UJK_l2g)