



LEAD BATTERIES: ENERGY STORAGE CASE STUDY



Convergent / C&D Technologies

Trailblazing Energy Storage Facility in North America

Boothbay, Maine, US

Located in a small coastal town with a population of 2,000 people is the first non-wires alternative (NWA) application of battery-based storage for utility infrastructure in the US, using advanced lead batteries.

Since 2015, Boothbay's electricity grid, which experiences increased peak load during the summer's major tourism surge, has been reliably supplied by a 0.5 MW energy storage NWA solution.

"By utilizing advanced lead batteries and a versatile design, Convergent Energy and C&D Technologies were able to provide the people of Boothbay Harbor with a more cost-effective, reliable and safer energy storage solution than alternative technologies. The modular solution allows for scalability in the future without costly infrastructure conversions."

Ken Sigman, Chief Commercial Officer, C&D Technologies

Technical Specification

Working with GridSolar, Convergent designed and engineered a 0.5 MW / 3 MWh energy storage facility, located adjacent to the radial 34.5 KW sub-transmission line that feeds the Boothbay peninsula.

The facility is connected to a local substation that serves the peninsula's load pocket, allowing Convergent to alleviate 500 kW of strain on the upstream feeder during summer peak loads.

With a project specification of 0.5 MW for 6 hours, C&D Technologies' advanced lead batteries were used for the project, a cost-effective, reliable and robust technology.

The NWA system is on-call to provide voltage support to the region from 9am-9pm during peak summer months, with a guaranteed response time of under five minutes.



System:

- **C&D Technologies:** 1,800 VRLA batteries
- **Lockheed Martin:** Modular system consisting of three 40' energy storage modules:
 - Each contains 600 batteries
 - Capable of providing 1 MWh of energy at 600V DC
- One 20' power control system module
- Each module is equipped with robust heating and cooling, fire suppression, isolation breakers and remote monitoring and responding systems.
- **Princeton Power:**
 - Bi-directional power inverters
 - Five grid-tied inverters
 - Capable of inverting/rectifying 100 kW
 - Fully synchronized with the grid power supply, allowing the system to rapidly charge or discharge power onto the grid

The system maintains 100% uptime during peak summer months, demonstrating the reliability and responsiveness of energy storage as a utility resource.

About Convergent

Convergent Energy + Power is the leading independent developer of energy storage solutions in North America. Convergent deploys state-of-the-art technology to significantly lower commercial and industrial customers' electricity bills and provide utilities with cost-effective grid solutions.

About C&D Technologies

C&D Technologies, Inc. is a technology company that produces and markets systems for the power conversion and storage of electrical power, including industrial batteries and electronics. This specialized focus has established the company as a leading and valued supplier of products in reserve power systems and electronic power supplies.

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