



SOLAR-PLUS-BATTERY BACKUP

PROJECT

Oregon Military Department
Nesmith Readiness Center

LOCATION

Dallas, Oregon

APPLICATION

Microgrid System

PRODUCT

Blue Planet Energy
Blue Ion LX

Increasing Sustainability, Energy Security and Savings for U.S. Army

The U.S. Army's Net Zero Initiative was established in 2010 to develop more sustainable practices as well as increase energy security and operational flexibility. In line with this initiative, the Oregon Military Department (OMD) installed a solar energy system to power its 40,000 sq. ft. Nesmith Readiness Center. However, the OMD sought more reliable, non-fuel-based backup power that uses on-site solar during a grid outage plus reduce time and resources spent maintaining a diesel generator.

BATTERY SYSTEM

(1) Blue Ion LX,
128 kWh capacity total

POWER CONVERSION

(7) SolarEdge
33 kW Inverters

SOLAR

255 kW PV Array

GENERATOR

150 kW diesel generator



Without a reliable energy storage system, the solar array at Nesmith Readiness Center (NRC) would completely shut down during a power outage, forcing OMD to expend human and financial resources to purchase and deliver fuel for its 150 kW diesel generator.

OMD enlisted Sunlight Solar Energy (SSE), a reputable solar-plus-storage installation company, and Mayfield Renewables, a leading engineering and technical services firm, to provide a feasibility study for its prospective energy storage project.

“With Blue Ion LX, we are able to exceed our financial resiliency and sustainability goals.”

—Kenneth Safe

Construction & Facility Management Officer
Oregon Military Department



“Beyond Blue Ion’s exceptional warranty and performance, we support Blue Planet Energy’s mission to enable a clean energy future for all.”

—Robert Johnson
General Supervising
Electrician
Sunlight Solar Energy

Reliability and Resiliency for Critical Operations

After months of data collection and analyses by SSE and Mayfield Renewables, it was determined that to meet OMD’s goals of resiliency, sustainability and cost savings, Blue Planet Energy’s Blue Ion LX was one of the top ranked energy storage systems for the project. Ultimately it was selected for its 15-year warranty and inherently safe, environmentally benign, lithium iron phosphate chemistry. It was also chosen for its custom built, programmed and integrated microgrid controller, and because Blue Planet Energy provides logistics and commissioning services to ensure the Blue Ion LX is properly integrated with the facility’s generator and solar system. Also, the Blue Ion LX did not have limitations in terms of the ratio of solar power to energy storage power like competing solutions, which allows the full 255 kW solar array to be used during an outage.

Specifically, OMD sought an emergency backup power system that could sustain loads during a utility outage for fourteen days or longer. According to Mayfield Renewables and SSE’s extensive modeling, pairing Blue Ion LX energy storage system with OMD’s pre-existing solar array and generator would enable OMD to sustain backed up loads without utility power for five months.

Sustainability Model for Public Institutions

In addition to providing reliable and long-lasting energy during a prolonged power outage, this microgrid also met the OMD’s goal of significantly reducing diesel fuel consumption and related costs to align more closely with the U.S. Army’s Net Zero Initiative.

In a power outage, this microgrid is projected to save the OMD between \$2,100 and \$3,700 per month on diesel fuel, excluding any costs associated with fuel delivery. Although the OMD was primarily focused on energy resilience and fuel savings during an outage, the OMD is also now able to benefit from this microgrid year-round through reduced utility demand charges. Under the current utility rate tariff structure, this microgrid saves the OMD about \$2,000 per year. The OMD also received a \$2,500 rebate through Energy Trust of Oregon’s Solar-plus-Storage Rebate Program.

The Nesmith Readiness Center is now one of seventeen installations that the U.S. Army has implemented as part of its Net Zero Initiative, and contributes to the more than 130 MW of solar power installed by the U.S. Navy, Army & Air Force across 31 states and the District of Columbia. The OMD is now able to both operate with net zero emissions for months at a time as well as store and use solar energy any time of day now that the Blue Ion LX energy storage system is in place. Additionally, the OMD now anticipates using less than 600 gallons of diesel fuel during a two-week power outage, compared to the 1,215 gallons it previously used.

As a result of SSE and Mayfield Renewables’ expertise, solar power and the reliable, long-lasting Blue Ion LX, the OMD has been able to significantly reduce operational costs and build greater long-term energy resiliency and security. The OMD’s Nesmith Readiness Center also now serves as a reference point for other U.S. Army facilities looking to better integrate its Net Zero Initiative principles, as well as a prime sustainability model for all public institutions.