Microgrid
Resiliency Project

PROJECT OVERVIEW

Seattle City Light is partnering with Seattle Parks and Recreation to implement a microgrid project at Miller Community Center, located in the Capitol Hill neighborhood. The project will include the installation of a battery energy storage system, 48-kilowatt (kW) sized solar panels and microgrid controls.

The microgrid will provide backup power storage for the community center during emergency events such as a windstorm or unplanned power outage. When the electric grid is down, the microgrid will generate and provide power to the community center to keep the center's services and communications operational.

In August 2016, Governor Jay Inslee announced $12.6 million in Clean Energy Fund grants to five utilities in the state of Washington. Seattle City Light's microgrid resiliency project was chosen by the Washington State Department of Commerce for a $1.5 million grant. This grant will provide a portion of the funds for the project. The additional $1.8 million in project costs will be funded by Seattle City Light.

The City of Seattle is partnering with the University of Washington to perform analytics on the microgrid's community and utility benefits.

HOW WILL THE PROJECT OPERATE?

During normal operations, the solar panels will charge the batteries for the microgrid. When the solar panels are not generating, the batteries can back up the delivery of electricity from City Light's distribution grid.

USE CASE ONE

Grid Support and Ancillary Services
*Frequency Regulation

USE CASE TWO

Improving Distribution Systems Efficiency
*Renewable Integration
*Deferment of Distribution System Upgrade

USE CASE THREE

Islanded Microgrid Operations

Miller Community Center - Seattle, WA

ESTIMATED MAJOR COMPONENTS

- A 200 kW / 800 kilowatt-hour (kWh) battery energy storage system
- A 50 kW rooftop photovoltaic (PV) array
- A microgrid control system providing functionality of islanding and grid-reconnection, grid management during islanded operations
    - **Islanded Mode** - In the event of an outage on the grid, the microgrid will disconnect from the grid and operate in islanded mode. The microgrid will have the ability to disconnect and reconnect to the grid in a controlled manner.
    - **Grid-Connected Mode** - The microgrid is electrically interconnected with the grid and generating power to fully or partially supply the loads at the community center. The microgrid may inject power into the grid.

PROJECT BENEFITS

The City of Seattle will empower a community to recover quickly from unplanned emergency events and gain technical knowledge on the installation and operation of a microgrid system.

Analytics from the microgrid resiliency project will allow the City of Seattle to research and develop similar technologies.

PARTNERS

Owner's Engineer: DNV GL was hired for their microgrid expertise. They evaluated sites for the microgrid and will oversee the project through design, construction, commissioning and testing.

Analytics Team: The University of Washington will gather data and perform quantitative and qualitative analysis of the microgrid's community and system benefits.

Building Engineered Systems Contractor: Worley was selected to design, build, test and commission the microgrid.

PROJECT TIMELINE

The construction for the new microgrid is scheduled to occur in early 2021. Analytics on the project will be completed after the microgrid has been installed.

MORE INFORMATION

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