



## PROJECT OVERVIEW

Seattle City Light partnered with Seattle Parks and Recreation to implement a microgrid installation project at Miller Community Center, located in the Capitol Hill neighborhood. The project components include a battery energy storage system, 50-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. The Washington State Department of Commerce selected Seattle City Light's microgrid resiliency project for a \$1.5 million grant. This grant will provide a portion of the funds for the project. City Light is funding an additional \$1.8 million in project costs. Seattle Parks and Recreation provided the community center site for this project.

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: Resiliency

- \*From utility grid to microgrid islanding

### Use Case Two: Renewable & Storage Integration for Variable Generation

### Use Case Three: Distribution Upgrade Deferral

- \*As the microgrid assists with the site's load management

### Use Case Four: Utility Grid Support

- \*Frequency Regulation



Miller Community Center - Seattle, WA



City of Seattle

TECHNOLOGY INNOVATION

## 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 island operations
  - **Island Mode** - In the event of an outage on the grid, the microgrid will disconnect from the grid and operate in island 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

Construction occurred from January to June 2021. The utility will continue to perform system integration testing and analytics on the microgrid to objectively measure the effectiveness of the project's use cases and optimize the performance. City Light is working with the University of Washington to develop a report after analyzing the microgrid's runtime data.

## MORE INFORMATION

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