



1 SCL: Solar Resilience Microgrid

Seattle City Light, with support from the Washington Clean Energy Fund and the City of Seattle, will deploy and operate a solar and storage microgrid at a community center that has been designated as an emergency shelter. The utility will own and operate the microgrid as part of its distribution system.

2 SnoPUD: Arlington Microgrid

Snohomish PUD is designing a Microgrid and Clean Energy Technology Center, located east of the Arlington Airport. It will include a 500 kW solar PV array, a 1 MW / 1MWh battery storage system, and vehicle-to-grid technology. The project is supported by a \$3.5 million grant from the Washington Clean Energy Fund.

3 ComEd: Bronzeville Microgrid Project

Commonwealth Edison is an investor-owned utility in northern Illinois that serves the greater Chicago metropolitan area. After evaluating multiple locations, ComEd identified the Bronzeville neighborhood as the location best suited to deploying a microgrid that could support critical services and provide broad community resilience benefits. The final project is expected to include 7 MW of DERs and will serve 1,060 residential, commercial, and small industrial customers, including 10 facilities that provide critical services to the community.

4 Eversource & National Grid: Community Microgrids

In 2014, the state of Massachusetts awarded funding to conduct feasibility assessments for 14 different potential community microgrid projects across the state. According to the program, the

projects are intended to lower customer energy costs, reduce greenhouse gas emissions, and improve energy resilience by providing on-site power for critical loads. The projects being evaluated include a rehabilitation hospital, a medical center, municipal police and fire stations, a supermarket, a wastewater treatment plant, and schools.

5 [PG&E: Humboldt County Airport Microgrid](#)

Pacific Gas & Electric is developing a 2.3 MW microgrid project at the California Redwood Coast-Humboldt County Airport. The project will include solar PV and storage systems, in addition to advanced controls and four electric vehicle charging stations. The microgrid system is designed to provide resilient back-up power to this critical regional infrastructure located in a geographically isolated part of the northern California coast.

6 [Duke Energy: National Guard Microgrid](#)

Duke Energy, one of the nation's largest electric utilities, is developing a solar and storage microgrid at Camp Atterbury in Indiana. The project will include 2 MW of solar and a 5 MW battery system. Duke is developing the system to provide grid benefits during routine conditions and to provide resilient back-up power for the National Guard facilities during a grid outage.

7 [Duke Energy: Montgomery County Microgrid](#)

Duke Energy, working with Schneider Electric, will develop and operate a microgrid project at the Montgomery County Public Safety Headquarters designed to "ensure the resiliency of critical public services during major electric distribution system outages." The project will incorporate 2 MW of solar mounted over the existing parking lot at the facility and upgrade the existing generator at the facility to provide thermal and electric power to the building.

8 [Pittsburgh Airport Microgrid](#)

The Allegheny County Airport Authority, which operates Pittsburgh International Airport, is evaluating whether to deploy a resilient microgrid comprised of on-site natural gas generators and solar. The project would be designed to lower energy costs for the airport while avoiding the potential for disruptions to the airport's operations in the event of a grid outage.

9 [City of Milford Microgrid](#)

The City of Milford, with grant support from the Connecticut Department of Energy and Environmental Protection and technical support from Schneider Electric, will deploy a microgrid designed to provide resilient back-up power during grid outages to critical facilities in its downtown core. The project is expected to include combined heat and power systems, solar, and battery storage. The microgrid is being designed to maintain resilient power during grid outages caused by severe storms for the city's government center, senior center, and several school buildings.

10 [Marine Corps Air Station: Miramar Microgrid](#)

The U.S. Department of Defense, in coordination with Schneider Electric and engineering firm Black & Veatch, has deployed a microgrid at the Marine Corps Air Station in Miramar, California. The microgrid is designed to provide resilient back-up power for mission critical facilities at the Air Station in the event of a grid outage. The project includes 1.6 MW of solar PV capacity; a 3.2 MW landfill gas generator; a 6.45 MW diesel and natural gas power plant; and an advanced microgrid control system and operations center.

11 **CCMUA: Critical Infrastructure Microgrid**

The Camden County Municipal Utilities Authority, a water and wastewater utility, is developing a microgrid project with Covanta, an independent power producer that operates a nearby 21 MW waste-to-energy power plant. The project is designed to provide resilient back-up power for CCMUA's water and wastewater operations in the event of a grid outage. The authority is funding the project through an innovative use of Environmental Impact Bonds.

12 **MEA: Resiliency Hub Funding**

The Maryland Energy Administration has announced a \$5 million grant program to develop community resiliency hubs. Applications were due in March 2019 for projects that would serve low- and-moderate income communities with solar and storage microgrids that could provide free heating, cooling, and electricity during a grid emergency.

13 **Fort Collins Microgrid**

The Fort Collins Microgrid is a small municipally-owned utility project that serves the City of Fort Collins, Colorado State University, InterGrid Lab, Larimer County, and the New Belgium Brewery. The project includes approximately 4 MW of distributed generating capacity, including 2.7 MW of diesel generators, 700 kW of CHP, 345 kW of solar PV, in addition to smaller microturbine and fuel cell resources. Combined these resources can deliver approximately 10-15% of the power needed to meet the peak load of Fort Collins Utilities' distribution system.

14 **Minnesota Power and Camp Ripley National Guard Microgrid**

The Minnesota National Guard and Minnesota Power partnered to develop a solar microgrid project at Camp Ripley Airbase in northern Minnesota. The project is anchored by a 10 MW solar PV installation that will be used to serve customers of Minnesota Power during routine conditions, but can be islanded to support back-up emergency power functions at the National Guard airbase during a power outage or emergency. The project also includes a previously installed geothermal energy project.

15 **Hot Springs Microgrid**

Duke Energy partnered with the town of Hot Springs, NC to deploy a solar plus storage microgrid. The project will include a 2 MW solar PV system combined with a 4 MW lithium ion battery. During routine conditions, the project will be utilized by Duke Energy to provide grid services (e.g., frequency response and voltage regulation), while providing back-up power for the town during outages or other emergencies. The project was approved by regulators as a non-wires alternative to upgrading distribution infrastructure.

16 **Chattanooga Electric Power Board Microgrid**

The Chattanooga Electric Power Board—the city's municipal utility—has partnered with the local airport and several other entities to develop a solar plus storage microgrid project. The project includes 2.1 MW of solar PV and a 560 kW battery system. The project has been designed with a dynamic microgrid controller that can use automated switches to segment the distribution grid to establish the boundaries of the microgrid.

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Joint Base San Antonio Microgrid

Ameresco—an energy services supplier—was awarded \$133 million from the Defense Logistics Agency to develop a 20 MW microgrid project at Joint Base San Antonio (JBSA). The project will include 11.7 MW of ground-mounted solar PV, 5 MW of rooftop PV, 4 MW of natural gas, 4 MW of battery, and 585 kW of CHP. The project will also make investments in energy efficiency and other energy upgrades at 900 buildings across the five military installations within JBSA.

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SunSmart Emergency Shelters Program

The University of Central Florida partnered with the Florida Office of Energy to develop the SunSmart E-Shelter Program which has equipped more than 100 public schools across the state with small solar PV systems and on-site batteries. These systems are designed as microgrids that can provide resilient back-up power to the schools following a grid disruption or other emergency. They are also designed to provide emergency shelter for several hundred people from the surrounding community. During non-emergency situations, the projects sell energy back to the grid and provide additional grid services.



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This Deep Dive is part of the [Oregon Guidebook for Local Energy Resilience: For Small and Medium Utilities](#), first published in June 2019.

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