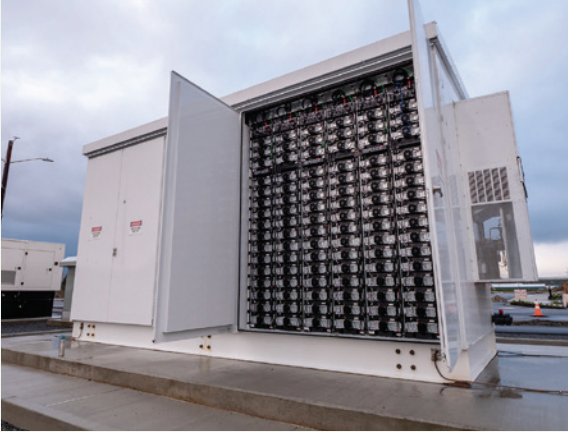


The PUD's Arlington Microgrid demonstrates three styles of battery energy storage: utility-scale battery energy storage, residential battery energy storage and vehicle-to-grid chargers.



Utility-Scale Battery Energy Storage

1 MW/1.4 MWH Lithium-ion Battery Energy Storage System

The PUD's second lithium-ion BESS demonstrates how energy storage can provide grid resiliency and renewable energy integration in a micro-grid format. The lithium-ion battery energy storage system is connected to a 500-kilowatt community solar array on-site and can be connected or disconnected from the grid so the system can support the grid when not providing back-up power to the critical facilities. One megawatt of power is enough to power approximately 750 average homes.

Residential Battery Energy Storage

Outback Power Lithium-ion Battery Energy Storage System

Coupled with a solar tree structure built in the courtyard of the Clean Energy Center, this small battery energy storage system demonstrates how customers can couple a rooftop solar array with battery energy storage on their home or business. Like the Arlington Microgrid, the solar tree and Outback Power battery energy system can be tied to the grid or islanded.



Vehicle-to-Grid (V2G) System

Two Mitsubishi Vehicle-to-Grid Chargers

The V2G system connects a pair of PUD Nissan LEAF vehicles and batteries to the grid using a bidirectional system. This allows the energy stored in the EV to flow back to the grid and provide support during an outage. The PUD's V2G system, one of the only systems in the U.S. to be more than a demonstration project, will give researchers the data to understand the feasibility of using V2G technology in homes and businesses.

For more information, visit snopud.com/microgrid



The PUD's North County location is ideal for battery energy storage due to its proximity to existing and pending infrastructure.

PUD Battery Energy Storage

Since building its first battery energy storage system (BESS) at its Hardeson Substation in 2016, Snohomish County PUD has been on the forefront of energy storage technology. The PUD has built two lithium-ion battery energy storage systems and a vanadium flow battery energy storage system since then. In investing in battery energy storage, the PUD has also championed MESA – or Modular Energy Storage Architecture – to bring standards-based systems, interfaces and software in hopes of lowering costs and complexity.

Why is battery energy storage so important?

As the grid moves to more renewable energy sources like wind and solar, battery energy storage is key to making that power available wherever and whenever it's needed. The most significant drawback of wind and solar is that it is intermittent and may not be available when utilities need power during times of peak energy demand. Battery energy storage allows utilities to integrate renewable energy sources while keeping power reliable.

How is the PUD addressing safety?

The PUD worked with Pacific Northwest National Laboratories to employ a new safety technology called IntelliVent in its Arlington Microgrid battery energy storage system. The IntelliVent system responds to smoke, heat or gas alarms in the battery cabinet and automatically opens enclosure doors to prevent buildup of flammable gases and a possible explosion. The PUD worked with local firefighters and first responders to educate them on the battery energy system.

What's next?

The PUD recently entered into an Energy Services Agreement with clean-tech leader Ameresco to build a 25-megawatt/100 megawatt-hour lithium-ion battery energy storage system on the PUD's North County site in Arlington. The project is scheduled to be operational in 2026.