



Department of Commerce

Clean Energy Fund Grid Modernization

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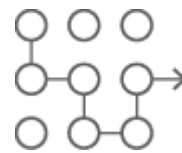
October 18, 2019
WA Solar Summit

We strengthen communities

The Department of Commerce touches every aspect of community and economic development. We work with local governments, businesses and civic leaders to strengthen communities so all residents may thrive and prosper.



Energy



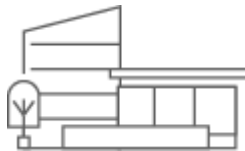
Planning



Infrastructure



Business Assistance



Community Facilities



Housing



Safety /
Crime Victims



Clean Energy Fund (CEF) Programs

Working to transform and modernize the energy sector. We're opening new markets for clean energy and low-carbon technology.



CEF Grid Modernization Grants

Projects Objectives

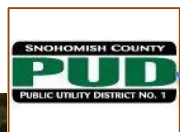
- Integrated intermittent renewables through energy storage and information technology
- Dispatched energy storage resources from utility control rooms
- Improved the reliability and reduce the costs of intermittent or distributed energy
- *Use thermal properties of buildings and/or district energy systems to store energy (not used)*



CEF Energy Storage Systems



2MW / 1 MWh Li-ion system
2MW, 8.8 MWh UET vanadium-flow – Everett, WA



2 MW / 4.4 MWh lithium-ion/phosphate battery – Glacier, WA

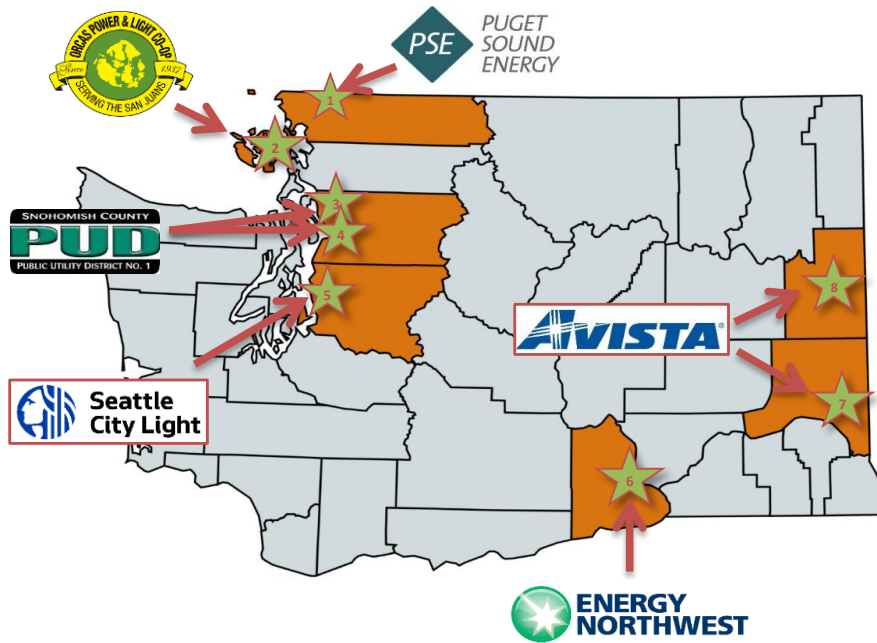


1 MW / 3.2 MWh UET vanadium-flow battery – Pullman, WA

Total – 7 MW / 15 MWh; \$14.3 million state investment / \$43 million total investment for energy storage systems

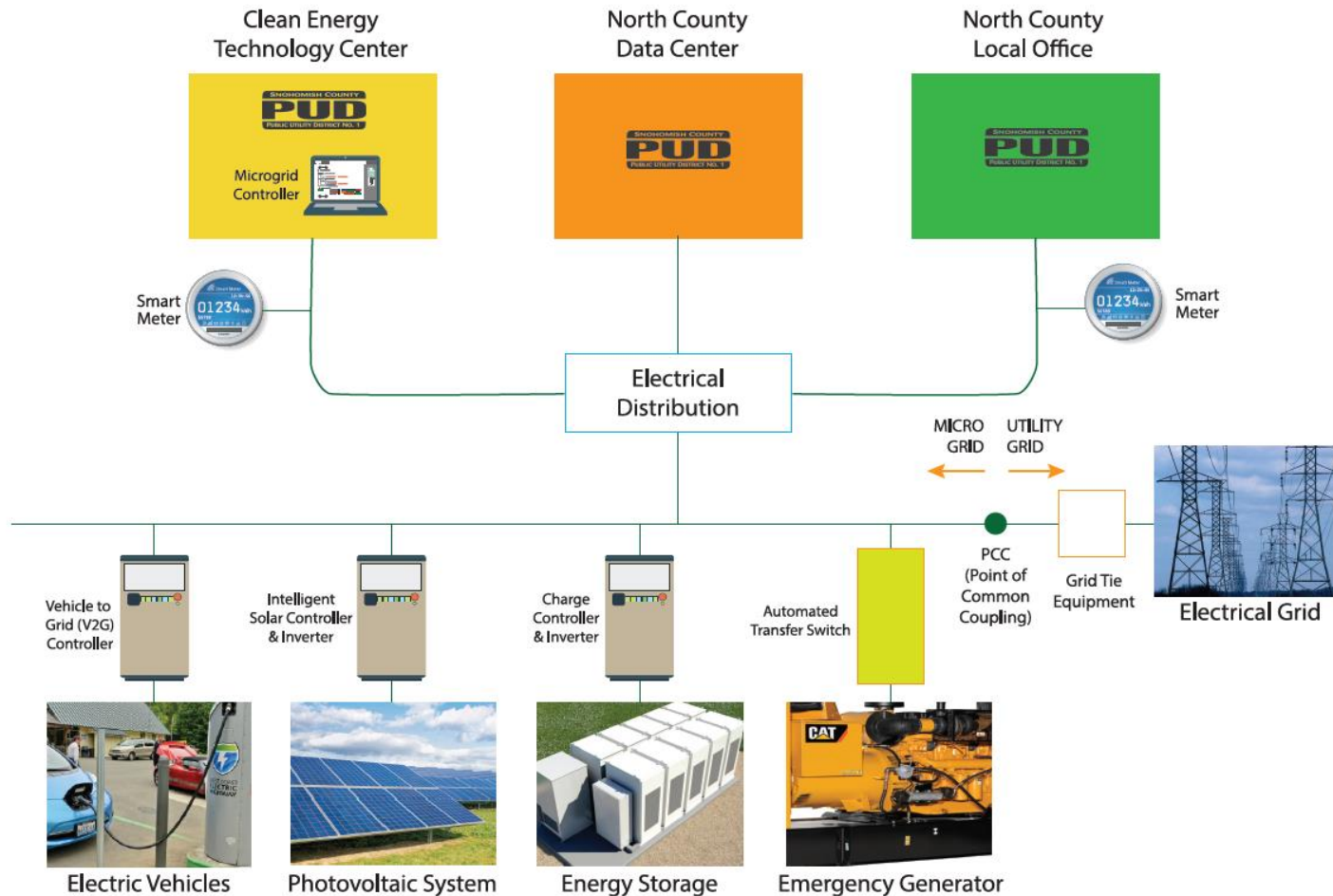


CEF 1 & 2 Grid Modernization



- Puget Sound Energy Glacier Energy Storage Project
- Orcas Power & Light Co-Op Community Solar and Energy Storage Project
- Snohomish Public Utility District MESA 1 & MESA 2 Energy Storage Project
- Snohomish Public Utility District MESA 3 Energy Storage Project
- Seattle City Light Microgrid
- Energy Northwest Battery and Solar Training Facility
- Avista Turner Energy Storage Project
- Avista Shared Energy Economy Model Project

Arlington One-line



Arlington Project Use Cases

- Grid Resilience and Disaster Recovery – Project sized to provide back-up power to Clean Energy Technology Center (CETC) and new Arlington Local Office to be used as a back-up office site in the event of a regional disaster.
- Renewable Energy Integration - During normal operation, battery will be used to demonstrate improved integration of an intermittent renewable energy resource with the PUD's distribution system (solar smoothing).
- Grid Support and Ancillary Services –System will connect to the PUD's other two energy storage systems via the DERO (Distributed Energy Resource Optimizer), allowing battery to provide grid support when not being used for other two uses.
- The V2G (Vehicle-to-Grid) – Will help demonstrate the rapidly growing interest in electric vehicle battery storage systems to assist with actively contributing to distribution system.

Arlington PV On-Line - April 2019



OPALCO Projects



Decatur Island Microgrid

- 375 kW Community Solar
- 0.5 MW/2 MWh Energy Storage

Lopez Island Microgrid

- 400 kW Community Solar
- 0.5 MW/2 MWh Energy Storage
- Lopez School Bus V2G



CEF3 – Grid Modernization



Observations/Trends

- More diverse range of energy storage technologies being combined with increased customer interest in Distributed Energy Resources (DERs)
- Three additional microgrids designed for resilience and transactive energy
- More focused use cases

Clean Energy Fund – Next Steps

- Program Development of Clean Energy Fund 4
 - Grid Modernization
 - New - prioritizing projects that benefit vulnerable populations, including tribes and communities with high environmental or energy burden; and projects that have a partner that is a tribe or nonprofit organization that serves community eligible entities.
 - Grants to Non Profit Lenders
 - New - support the widespread use of proven energy efficiency and renewable energy technologies by households with high energy burden or environmental health risk now inhibited by lack of access to capital
 - Research, Development and Demonstration
 - New – set aside for competitive grants focused on dairy digester bioenergy projects, energy efficiency, and resource recovery to demonstrate advanced nutrient recovery systems . Must include at least one project east of the Cascades and one project west of the Cascades.





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