


Department of Commerce


Clean Energy Funds: 2013-18

Grid Modernization Programs
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October 30, 2018
Energy Leadership 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.



Planning Infrastructure Community Facilities Housing Safety / Crime Victims Business Assistance



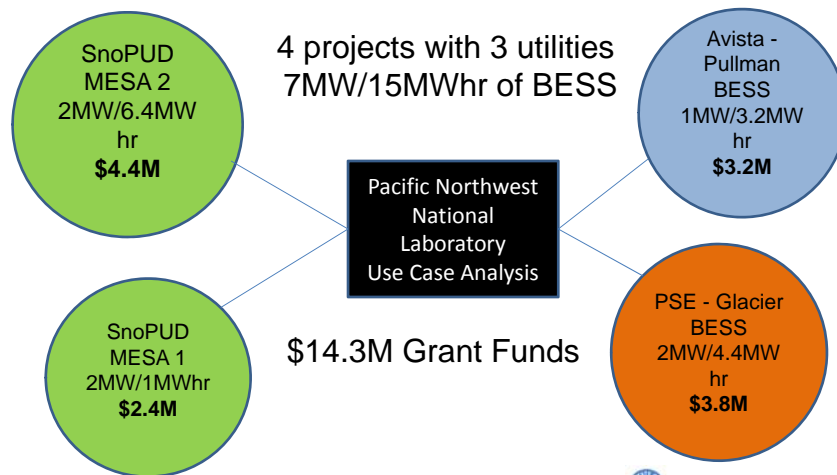
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CEF1 Smart Grid Grants to Utilities

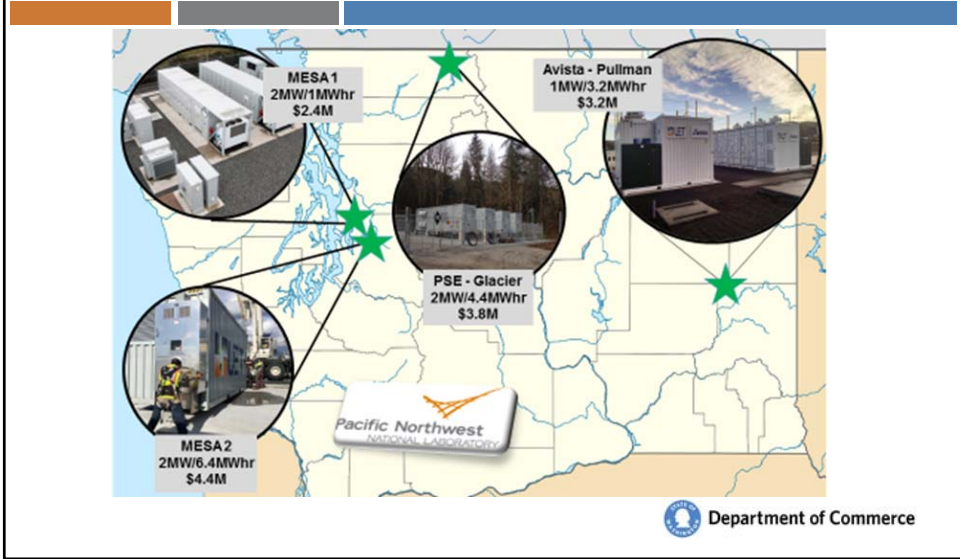
- Grants to competitively selected consortium of utilities, utility vendors and researchers
- Consortium must match \$15 million state investment
- Consortium projects will:
 - Integrate intermittent renewables through energy storage and information technology
 - Dispatch energy storage resources from utility control rooms
 - Use thermal properties of buildings and/or district energy systems to store energy
 - Improve the reliability and reduce the costs of intermittent or distributed energy
- Form Advisory Panel



CEF1 Smart Grid Funding



CEF1 Grid Modernization Sites



Washington Clean Energy Fund (CEF) Energy Storage Analytics Program Synopsis


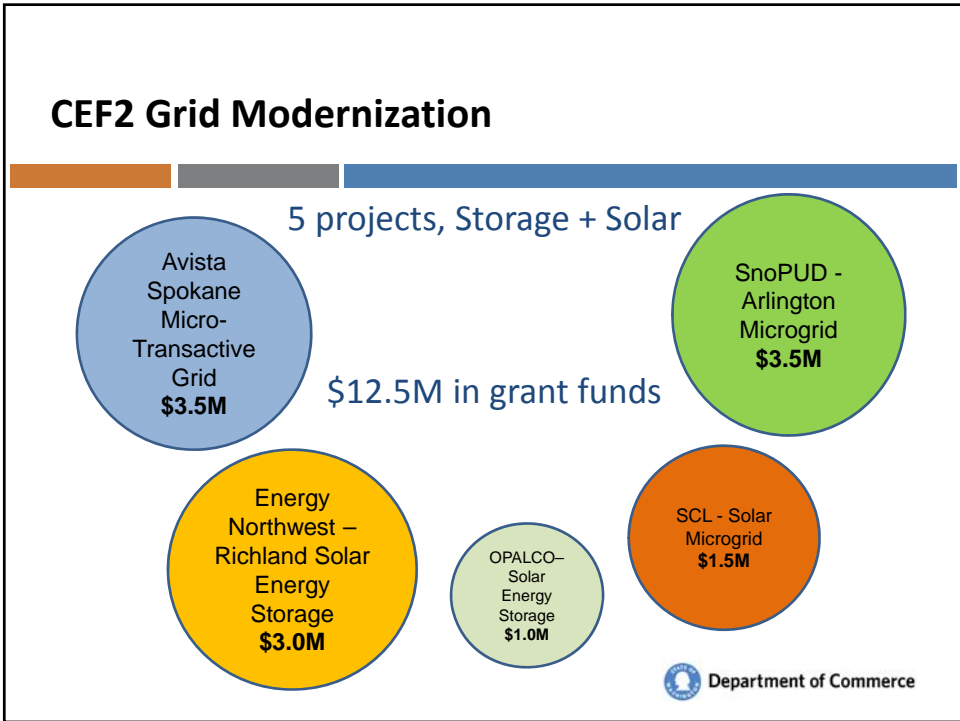
Objective	<ul style="list-style-type: none"> Provide a framework for evaluating the technical and financial benefits of energy storage, and exploring the value that energy storage can deliver to Washington utilities and the customers they serve. 	
Phases	<p><i>Phase 1:</i> Data and Data Systems</p> <p><i>Phase 2:</i> Use Cases / Performance Monitoring</p> <p><i>Phase 3:</i> Evaluation</p> <ol style="list-style-type: none"> 1) Develop Data Requirements and Data Systems 2) Install Energy Storage Systems (ESS), Run Use Cases, and Document Technical Performance 3) Evaluate Technical and Financial Performance 	
Team	<ul style="list-style-type: none"> PNNL: Brings expertise in energy/economics/environment system analysis and modeling PSE, SnoPUD, and Avista: Bring deep operational experience and required utility data / test sites Washington Dept. of Commerce: Program management 	



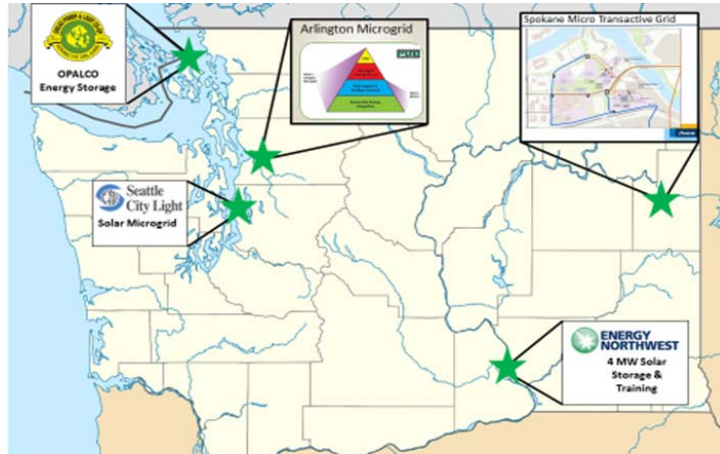
Electric Grid Energy Storage Services

Category	Services	Avista	PSE	SnoPUD
Bulk Energy Services	Electric Energy Time Shift (Arbitrage)	Y	Y	Y
	Electric Supply Capacity	Y	Y	Y
Transmission Infrastructure Services	Transmission Upgrade Deferral			
	Transmission Congestion Relief			
Distribution Infrastructure Services	Distribution Upgrade Deferral	Y	Y	
	Voltage Support	Y		Y
	Load Shaping Service	Y	Y	Y
Ancillary Services	Regulation Services	Y	Y	Y
	Load Following Services	Y	Y	Y
	Real-World Flexibility Operation	Y	Y	Y
	Black Start Capability	Y		
Customer Energy Management	Power Reliability	Y	Y	
	Demand Management			
	Retail Energy Time Shift			
	Power Quality			

Washington CEF Energy Storage Projects Represent the Most Extensive Modeling and Validation of Use Cases to Date

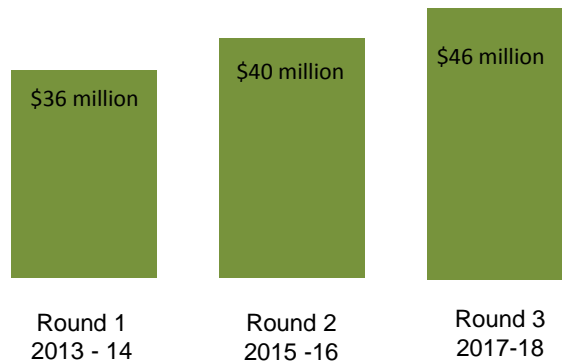



CEF2 Grid Modernization Sites



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CEF3 – Several Programs in Development



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CEF3 – Grid Modernization

- Phase 1 – 11 Concepts submitted two weeks ago.
- Applicants: Avista, Snohomish, PSE(3), Seattle(2), Tacoma, OPALCO, Clallam
- Phase 2 – NOW OPEN until December 28, 2018
- Review Panel in January 2019
- Selection & Notifications in February 2019
- Contract Negotiations – 1st & 2nd Quarter 2019



CEF3 – Grid Modernization

- **Observations/Trends**
 - More diverse range of energy storage technologies being combined with distributed generation assets
 - Increased customer interest in DERs
 - Several microgrids for resilience and transactive energy
 - Fewer use cases - more focused on longer duration ES
 - Combined ask of \$23M for \$10.5M of funding.





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