



G2: 1.2.a and 2.1.a Supplemental Report Clean Technology Sector

Clean Technology

Industry Impact



- Over 57,000 direct employees
- \$17.1 billion in economic activity across WA
- In 2014, Gross Business Income grew 6% to over \$17B.
- There is at least one firm involved in the Clean Tech sector in every county in Washington State.

Clean Technology



What have I done:

1. Visited companies, institutions and stakeholder groups in 13 of 39 WA counties.
2. Worked with Clean Tech Alliance (CTA) and clean tech companies to help secure funding for the Clean Energy Fund.
3. Continually working to bring the disparate industries and stakeholder groups together to help foster the notion of a clean tech sector in this state.
4. Presented at numerous conferences, industry events and stakeholder gatherings:
 - 10th Annual Energy and Construction Best Practices Summit
 - Clean Tech Alliance multiple events
 - DOE Accelerating Energy Productivity Conference
 - WSU Energy Systems Innovation Center's annual conference
 - Testimony in front of house and senate committees
 - Many more



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Smart Grid Grants to Utilities – CEF1 (\$15M)

Avista was awarded a \$3.2-million grant from the state to field test a 1-MW, 3.2-MWhr UniEnergy vanadium-flow battery assembly in a three-year demonstration project at a substation in Pullman, Wash. Total project cost, as proposed, exceeds \$7.6 million.

Puget Sound Energy was awarded a \$3.8 million grant from the state to help deploy a 2-MW, 4.4-MWhr lithium-ion/phosphate battery assembly at a substation in Glacier, WA. Total project cost, as proposed, exceeds \$12 million.

Snohomish PUD was awarded \$7.3 million in state grants for multiple demonstration projects. The PUD has been working with Seattle-based 1Energy Systems for the past two years to implement Modular Energy Storage Architecture, a set of nonproprietary design and connectivity standards that provide a scalable approach for energy storage control system integration and optimization. Total project cost, as proposed, exceeds \$23.4 million.

- The MESA 1 project will deploy two 1-MW, 500-MWhr lithium-ion battery based systems within one substation. These two large-scale lithium-ion battery assemblies, one built by LG Chem and a second by Mitsubishi-GS Yuasa, will each use a Parker Hannifin Power Conversion System. The battery assemblies were dedicated on January 15, 2015.
- The MESA 2 project, at a different substation, will deploy multiple advanced vanadium-flow battery assemblies, built by UniEnergy Technologies, having total combined ratings of 2MW/6.4MWhr.

Smart Grid Grants to Utilities - \$13M

- Integration of renewables through energy storage and information technology
- Improve reliability
- Reduce the costs of intermittent renewable or distributed energy



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Energy Revolving Loan Fund – \$10M

- Finance proven efficiency and renewable technologies that currently lack access to capital.
- Residential and commercial sectors.
- Must be granted to non-profit lending institutions.



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Energy Revolving Loan Fund – CEF1 (\$15M)

Craft3 - \$8.7M for commercial lending and \$2.9M for residential lending

Craft3 is a nonprofit CDFI lender serving the rural and urban low-income communities of Oregon and Washington. Craft3 is administering two clean energy loan programs: a commercial and a residential lending program. www.craft3.org/cpw

Puget Sound Cooperative Credit Union - \$2.9 for residential lending

Puget Sound Cooperative Credit Union has offered financial services to the Puget Sound region since 1934. They are a not-for-profit banking alternative, owned by their members. PSCCU is administering a residential clean energy lending program.

<http://www.pscu.org/about.php>.

Anticipate leverage of more than \$100 million for residential loans, and \$60 million on the commercial loans. To date, more than \$3 million in residential loans have been made and 1,185 job hours have been created. The projects completed with the loans include residential and commercial energy retrofits, residential- and commercial-scale solar installations, anaerobic digesters to treat dairy and organic waste, and combined heat and power projects using woody biomass as a fuel source.



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Manufacturing Credit Enhancement – \$6.6M

- New for FY15/17 Clean Energy Fund.
- Provide credit enhancement facilities to private lenders in order to incentivize manufacturing of clean energy technologies in the state.
- Focused on advanced solar and other renewable energy technologies.



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