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To advance environmental and economic well-being by providing unmatched energy services, products, education, and information based on world-class research.

About Us

Our staff of energy engineers, energy specialists, technical experts, software developers, and energy research librarians work out of our Olympia, Spokane, and satellite offices.

Operating similar to a consulting firm, the WSU Energy Program is a self-supported department within the University.

Within WSU

As a part of the College of Agricultural, Human, and Natural Resource Sciences, we report directly to the Dean of the College.

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Energy Program
WSUEEP17-001 • January 2017

January 2017 Update:

Community Energy Efficiency Program in Washington State

The Washington State University (WSU) Energy Program executes and manages the Community Energy Efficiency Program (CEEP). Designated by the Washington State Legislature in 2009, CEEP provides support to homeowners and small businesses across the state so they can make energy efficiency upgrades to existing residences and commercial buildings.

CEEP focuses on households and businesses that existing energy efficiency enhancement programs have had a harder time serving, including:

- Low- to moderate-income households (below 80 percent of the state median income of \$45,000 and above 125 percent of the federal poverty level of about \$20,000);
- Rental housing;
- Manufactured housing;
- Homes heated with oil, propane, and wood; and
- Small businesses.

To improve the quality and affordability of homes and small businesses in Washington, CEEP partners provide consumer education and financial support to help homeowners and small business owners move forward with energy efficiency upgrades by:

- Providing CEEP incentives for upgrades,
- Helping participants qualify for utility energy efficiency funds,
- Connecting to available financing for energy efficiency upgrades, and
- Encouraging participants to work with a trained and certified contractor workforce.

Delivering value to communities across the state

The CEEP Pilot was created by the Washington State Legislature in 2009, and was initially funded by the U.S. Department of Energy's State Energy Program and the American Recovery and Reinvestment Act. The eight community-based projects were charged with bringing value to their communities by testing innovative approaches to deliver energy efficiency upgrades to targeted residences and businesses.



Energy Program

WASHINGTON STATE UNIVERSITY

Building on the momentum of the pilot, CEEP has developed into a mature program, with support from the Washington State Capital Budget.

In consultation with partners and stakeholders, CEEP strengthened its focus on serving hard-to-reach and underserved markets, and on leveraging utility and other community funds to fill gaps and extend existing energy efficiency offerings.



CEEP contractor insulating a residential attic.

Assisting homeowners and renters

Since 2009, the efforts of CEEP partners have resulted in:

- Over 39,000 residential energy efficiency assessments, and
- Energy efficiency upgrades to over 32,000 homes.

For instance, Clark Public Utilities focused on fixed-income neighborhoods with their Aging in Place program. This program upgraded the insulation level and replaced inefficient heating/cooling systems to make homes more comfortable and more affordable to maintain. The Aging in Place program used conservation funds from the utility paired with CEEP incentives to substantially reduce the cost burden for fixed-income residents.

In the 2015-2017 cycle, 80 percent of residential upgrades met one or more of the criteria for hard-to-reach populations:

- 14 percent were in manufactured or multi-family housing.
- 42 percent were moderate income (between 125 and 250 percent of Federal Poverty Level).
- 9 percent were in rural or remote communities.
- 37 percent were in homes with oil, propane, or wood heat.
- 8 percent were renters.

Assisting small businesses

Over 2,200 businesses have been assessed and 1,321 upgrades have been completed. CEEP partners have

tested building performance and prescriptive measure packages. In both models, CEEP funds are used to match utility incentives to bring down costs.

CEEP 2015-17 initiatives

CEEP partners developed customized approaches to serve harder to reach clients in their communities. A few programs highlighted below.

Maximizing funding leverage in northern Puget Sound

The Community Energy Challenge (CEC) in Whatcom County leverages the current \$1 million CEEP investment with over \$1.3 million from the Northwest Clean Air Agency and funding from utilities and other community partners. This funding leverage enabled CEC to expand beyond their pilot territory and increase customer participation. The CEC now serves Skagit, Island, and San Juan counties. Homeowner and small business investments in energy efficiency upgrades continue to multiply. CEC provides each participating household and business with a full energy assessment and a customized energy action plan that details cost-effective measures, assistance with utility rebates, financing referrals, targeted matching incentives, reliable contractors, and quality assurance standards.

Avista Corporation's Alternative Fuel Conversion Program

Through a unique funding opportunity with CEEP and with the expertise of Spokane Neighborhood Action Partners (SNAP), Avista is converting qualifying single-family home space and water heating equipment to natural gas. This collaboration provides a more efficient

Common Residential Energy Efficiency Upgrades

Building Performance or whole-house upgrades:

Assessments and comprehensive support services drive comprehensive upgrades, which may include air sealing, duct sealing, insulation, heating and hot water system upgrades, and whole-house ventilation system improvements.

Prescriptive upgrades: Install a small number of pre-selected measures for which most or all installation costs are paid by CEEP or utility funds. Prescriptive programs in the 2015-2017 cycle focus on heating system upgrades.

and sustainable heating source for alternative fuel customers. It builds on a legacy of converting low-income Avista electric heat customers to natural gas. Each entity handles a portion of the program that makes implementation effective. The Alternative Fuel Conversion Program helps reduce operating costs for space and water heat, and improves indoor air quality.



Avista Corp. partners with SNAP contractors to convert single-family homes to natural gas.

This effort addresses three out of the five CEEP target markets: low- to moderate-income households, rental properties, and the replacement of alternative fuels with a more efficient and sustainable choice, such as natural gas.

Residents of these homes include homeowners, tenants, seniors, and first-time homebuyers.

Moderate-income program with enhanced incentives in Walla Walla, Columbia and Franklin counties

The Sustainable Living Center (SCL) focuses on attracting moderate-income customers to the program and provides enhanced incentives for those who are not eligible for utility rebates or are unable to fund projects without additional assistance. SCL has delivered weatherization services to their community since 2009, and has performed one or more upgrades for 1,260 customers.

City of Seattle, Community Power Works – Provides rebates for conversion to cleaner, healthier, and less expensive energy solutions, and reduces barriers for fuel conversion of oil-heated homes across all income levels.

Filling the gap in Clark County – CEEP fills the weatherization gap for customers above 125 percent of Federal Poverty Level. If a customer is above 150 percent of the Federal Poverty Level, CEEP is likely their only avenue forward. Without CEEP, insulation and ductless heat pump improvements would not be possible.

Thurston County Economic Development Council, Thurston Energy – Offers comprehensive energy evaluations and recommendations to make informed investment decisions and hire contractors to make energy improvements. Thurston Energy reaches out in a focused way to incentivize under-served customer groups, where the proportional expenditures on energy are the highest and improvements would have the greatest impacts.

Supporting the state workforce

CEEP is supported by the hard work and investment of over 65 contracting firms in Washington. CEEP supports family-wage jobs by driving business to local contractors and ensuring that workers are paid prevailing wages. In turn, the contractors refer customers to CEEP to help them access incentives to reduce out-of-pocket costs.



Amber Hall, Clark PUD Energy Counselor, conducting a residential home assessment.

Saving energy

CEEP delivers energy efficiency upgrades that save over \$5.1 million per year in energy costs,

reduce ongoing operating costs for homeowners and small business owners, enhance indoor air quality, and improve building durability.

CEEP upgrades since 2011 are estimated to save over 233,000 million Btu (MBtu) each year – equal to the amount of energy used by 2,400 typical single-family homes in Washington.

Estimating energy savings

The WSU Energy Program works with CEEP partners to capture detailed data to estimate energy savings for each building using deemed measure savings developed by the Regional Technical Forum of the Northwest Power Planning Council and state utilities adjusted for building characteristics. As shown in the **Energy Savings Per Home** table on page 4, CEEP upgrades are estimated to save 15.8 MBtu

CEEP Energy Savings Per Home 2015-2017			
Building Type	Original Energy Use	Energy Saved	Percentage Reduction
Single-family	88.3 MBtu	16.7 MBtu	18.9%
Manufactured	93.9 MBtu	15.3 MBtu	16.3%
Multi-family	33.9 MBtu	2.7 MBtu	8.0%
Total	88.4 MBtu	15.8 MBtu	17.9%

per upgrade and reduce energy use of a typical home by 17.9 percent.

An initial search for energy savings from similar programs in other states uncovered very few building-level energy savings analyses. Further direct comparisons are not



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meaningful because of differences in climate, buildings, and program design among states (and among CEEP grantees). Available data suggests Washington's CEEP results are comparable and consistent (especially given the conservative methods used to assess savings results). The 2015 National Better Buildings

Neighborhood Program evaluation reported savings for single-family homes receiving comprehensive whole house upgrades of 21.6 MBtu. CEEP projects delivering whole-house upgrades saved between 18 and 24 MBtu.

Looking ahead

In 2015, the Legislature renewed its investment in CEEP through June 2017, but reduced the biennial allocation from \$10 million to \$5 million. As a result, the CEEP scope narrowed and 2015-2017 work focused on:

- Targeting the highest-priority customers in moderate-income households heated with fuel oil, propane, and wood.
- Concentrating resources on core geographic service areas. The number of counties served by CEEP partners was adjusted from 30 to 11.
- Maintaining minimum capacity and infrastructure of existing CEEP partners or supporting orderly close-outs where reduced funding levels and available leverage funds were not sufficient to support viable programs.

To ensure that funds are available to CEEP partners, the WSU Energy Program reduced its program support services funding by 66 percent, and focused on the core tasks of fiscal management and meeting reporting requirements. The following services were discontinued or shifted to partners:

- Workforce training and development,
- On-site quality assurance monitoring,
- Technical assistance for program and incentive design,
- Monthly progress reviews, and
- Support for prevailing wage compliance.

CEEP has focused on maintaining partner capacity because the program has:

- Clearly demonstrated the need for energy efficiency services targeting hard-to-reach customers, and
- Shown that significant market potential exists throughout the state.

Advantages of a renewed investment

If the Legislature renews and expands its investment in CEEP's success – in the amount of \$12 million, for example – future work will:

- Restore the program to previous levels.
- Expand program access to low-moderate income households underserved by existing energy efficiency opportunities.
- Support innovation and adaptation in energy efficiency delivery models in diverse communities and market segments.
- Invite innovative approaches and expand services into areas not currently supported with CEEP resources.
- Help the people of Washington reduce their energy costs through programs tailored to their communities.
- Incentivize conversions away from fuel oil so near-low-income residents can benefit more from utility programs.
- Sustain momentum generated in local economies and contractor business volume.
- Continue work with utility, municipal, and community partners to increase energy efficiency investments in hard-to-reach markets.