

## Case Study — Clean Energy Works Portland

### In Brief

<i>Location:</i>	City of Portland, Oregon
<i>Policy type:</i>	Local and Community Initiatives, Retrofits, Low-Income Programs, Financial Incentives for Energy Efficiency, Energy Efficiency Financing, Utility Regulation & Policy, Energy Efficiency Workforce, Behavior and the Human Dimensions of Energy Use
<i>Sector:</i>	Residential
<i>Start Date:</i>	2009
<i>Summary:</i>	The program gives guidance and bundled services to drastically simplify the process of energy efficiency improvements and provides long-term, low-interest financing to homeowners for whole-home energy upgrades designed to reduce energy consumption between 10 and 30 percent.
<i>Impact:</i>	Sixty-six percent of homes that received a home energy assessment installed at least one energy efficiency measure. Ninety-three percent of participants indicated that they would recommend the program to family or friends. Over 344 workers have drawn a paycheck from working on projects related to the program. Annual energy bill savings for the 500 homes in the pilot is expected to total \$312,000.

### Overview

Clean Energy Works Portland (CEWP) provides long-term, low-interest financing to homeowners for whole-home energy upgrades designed to reduce energy consumption between 10 and 30 percent.



CEWP logo

CEWP launched as a pilot program in June 2009, with the goal of upgrading 500 homes by the autumn of 2010. The intent of the pilot was to test whether consumers could be convinced to make deeper energy retrofits in a much shorter timeframe by systematically reducing many of the well-known barriers to residential energy efficiency adoption — upfront costs, project complexity, and consumer hesitation in selecting contractors.

To address these barriers, CEWP program design included:

- Attractive financing;
- A trusted third-party building science expert to assist homeowners and contractors called the Energy Advocate;
- A fully vetted, pre-selected pool of highly qualified Building Performance Institute-certified Home Performance with Energy Star contractors; and
- Convenience of paying back the loan obligation on a monthly utility bill.

As of February 2011, 500 loans had been signed, representing a 66% conversion rate from participants receiving a home energy assessment to implementing energy efficiency measures.

The pilot was successful because it offered a fully guided, bundled service. Upfront costs were eliminated and confusion with contractors was greatly reduced. Participants received intensive handholding from Energy Advocates with credible technical expertise. CEWP placed a strong focus on being consumer friendly and strived to provide excellent service by using the highest quality vetted contractors.

Because of its innovation and early successes, Clean Energy Works Portland attracted \$20 million from U.S. Department of Energy (DOE) under the competitive Energy Efficiency and Conservation Block Grant (EECBG) program to scale up the pilot into a statewide effort. In June 2010, the city spun off Clean Energy Works Oregon (CEWO), a new nonprofit organization to expand the pilot throughout the Portland metro area and to select rural jurisdictions in Oregon. CEWO aims to complete 6,000 homes over three years.

## Management and Funding

Clean Energy Works Portland was a sizable public-private partnership led by the City of Portland Bureau of Planning and Sustainability (BPS). Critical partners included Energy Trust of Oregon, Enterprise Cascadia, the three investor-owned utilities that serve Portland residents, Portland Development Commission, Portland Housing Bureau, Home Performance contractors, the local public workforce system, labor unions, community-based organizations, and many other stakeholders. These organizations each played specific and essential roles:

- The *City of Portland Bureau of Planning and Sustainability* served as the leader and convener for the effort, and provided the initial funding for the pilot program.
- *Enterprise Cascadia* (formerly Shorebank Enterprise Cascadia) EC is a nonprofit certified community development financial institution (CDFI) with expertise lending to less traditional ventures. In collaboration with BPS, EC established the loan fund, underwriting criteria, and operating guidelines.
- *Energy Trust of Oregon* is the state's energy efficiency and renewable energy fund administrator. Energy Trust provided cash incentives and critical operational support through its program management contractor, Conservation Services Group (CSG). All of the Energy Advocates are employees of CSG representing Energy Trust. Energy Trust also managed the contractor relationships in the pilot program through its existing network of BPI/Home Performance trade allies.
- The *local utilities*, including NW Natural, Pacific Power and Portland General Electric, established mechanisms to collect funds through heating bills in close collaboration with Energy Trust and EC,
- *Multnomah County*, the administrator of Portland's local Community Action Program, helped integrate the pilot with the federally-funded Weatherization Assistance Program.
- *Green For All*, a national nonprofit organization active in the conversation regarding how to create an equitable green economy, assisted with the development of the pilot's high-road standards for contracting, hiring, and training. The resulting Community Workforce Agreement (CWA) was the first of its kind in the nation. The CWA set community standards and benefits to ensure that economic opportunity from the pilot program flowed to those Portlanders most in need — low-income people, people of color, and women.

BPS seeded the pilot loan fund using \$1.1 million from federal formula EECBG funds and \$1.4 million in other city resources. The seed funding attracted another \$5.5 million in other resources, such

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*Investing in Portland's Future*



*The long list of partners working on the program. Source: CEWP Web site.*

as foundation program related investment (PRI), grants, and urban renewal funding from the Portland Development Commission, Portland’s economic development agency. The city’s \$2.5 million investment and the additional leveraged funds resulted in a pilot loan portfolio of nearly \$8 million. On Earth Day 2010, the City of Portland Bureau of Planning and Sustainability received an additional award of \$20 million from DOE under the competitive EECBG program, also known as BetterBuildings, which would be used to expand the program to include other areas of the state.

## Program Design

A major aim of CEWP was to streamline the entire home upgrade process from energy assessment through financing and installation. Interested Portland homeowners were encouraged to apply online. Applicants were required to meet certain screening requirements (including age of home, energy savings potential, etc.), as well as underwriting requirements. After passing through the screening, Energy Trust called the homeowner to schedule a home energy assessment, a 3–4 hour comprehensive Building Performance Institute diagnostic audit. The assigned Energy Advocate always accompanied the contractor at test-in to explain the process, answer participant questions, and review the contractor’s work to ensure quality and consistency of data collection.

Using the assessment information, the contractor would then develop a bid proposal for a scope of work. The bid was screened by the Energy Advocate to ensure it met established criteria for cost-effective energy savings and that it fit within program guidelines. Once the homeowner agreed to complete the scope of work, the Energy Advocate sent documentation to the lender for loan processing. Once the work was completed and “tested out” as achieving projected performance, the contractor would receive payment from Enterprise Cascadia. One or two months later, the loan obligation would appear on the homeowner’s utility bill.



*A CEWP contractor installs attic ventilation in accordance with Building Performance Institute standards. Courtesy of CEWP.*

One reason for the project’s high conversion rate from test-in to loan signing is that potential participants were pre-screened to find homes likely to achieve the requisite energy savings and to find those customers most willing to act quickly. The loan qualification process aims to be as inclusive as possible, and is based mostly on utility bill payment history and a minimum credit score. To date, average loan size has stayed consistent at \$12,500, with monthly payments around \$70. Under the current structure, loans are due at time of sale, but the program could change so that the loan stays with the meter. Loans are structured within one of four categories:

<b>Package</b>	<b>Eligible Measures</b>	<b>Rate</b>	<b>Term</b>
Basic Weatherization	Attic insulation, air sealing, duct sealing	5.99%	20 years
Extended Weatherization	Above + wall and floor insulation	5.99%	20 years
Extended + space heat or hot water	Above + furnace/heat pump and/or hot water system (not solar)	3.99%	20 years
Near-low income (200–250% of federal poverty level)	Any weatherization service	3.99%	20 years

The loan product was developed based on modeled savings, historic measure costs, and assumptions regarding how many projects would be completed in each category. In this way, the program managers were able to roughly estimate the savings associated with different levels of investment.

CEWP is the first efficiency retrofit program in United States to include a Community Workforce Agreement. The CWA lays out clear job-quality and access including establishing qualifications and requirements for

all participating contractors, creating a diverse pool of participating contractors by using a best-value system based on several variables, providing support to disadvantaged businesses, and providing support to training programs targeting disadvantaged populations. The contractors associated with CEWP have been pre-screened for quality and related experience. In order to participate, they must also sign contracts in which they agree to abide by labor standards and targeted hiring agreements. Under this agreement, contractors must provide high quality jobs in terms of wages and benefits, hire 80% of their employees locally, partner with designated training programs, and ensure that 30% of project hours are performed by employees from historically underrepresented groups. CEWP assisted contractors in attaining qualification by answering questions and providing business support, training, and data evaluation assistance. In exchange for adjusting their business models, contractors are prequalified to receive leads.

CEWP has also conducted intensive program outreach through both traditional and community-based means. Marketing efforts have included utility mailers, targeted emails, radio, and print ads. CEWP led with messages related to comfort, such as, "Cold in the winter, hot in the summer? We can help!" and economics, such as "lower your home energy use with no upfront costs." Homes are also being recruited through social marketing targeted to neighborhoods through open houses, door hangers, and tabling at local events. Of note, almost 20% of the pilot participants heard about the program through word of mouth.

## **Performance**

As of February 2011, 500 loans had been signed and over 450 home retrofits had been completed. Sixty-six percent of homes that participated in the pilot project followed through by installing at least one energy efficiency measure, as compared to 25% under existing residential audit programs. The streamlined approach is helping people make decisions faster, convert at higher rate, and undertake more measures. Ninety-three percent of participants surveyed indicated that they would recommend the program to family or friends.

In terms of workforce development, none of original contractors were women or minority-owned businesses. As of February 2011, five of sixteen participating contractors are minority- or women-owned, and over half of the field workforce hours have been performed by individuals from historically disadvantaged populations. Contractors report hiring 27 entry-level weatherization workers from designated training pools and over 344 workers have drawn a paycheck from working on Clean Energy Works Portland projects.

The approximate annual energy and environmental impacts of the 500-home pilot include:

- Electricity savings of 700,000 kWh;
- Natural gas savings of 180,000 therms;
- Total household utility bill savings of \$312,000; and
- Avoided greenhouse gas emissions of 1,350 metric tons of CO<sub>2</sub> (about 2.7 metric tons per home).

With an expected combined measure life of 30 years for the energy improvements made under the program, participating households will see very similar savings each year for decades to come.

Using American Recovery and Reinvestment Act (ARRA) funding, CEWO, the statewide extension of the pilot, intends to serve 6,000 single-family owner-occupied homes over the next three years. While the current on-bill financing mechanism precludes renters from participating, CEWO intends to explore product and program design for multifamily, commercial, and institutional buildings during the three-year grant period.

## **Lessons Learned**

Describing the lessons learned from the pilot, staff working with CEWP had a few key takeaways about the elements that were essential to the success of the project:

- *Solid, trusting public-private partnerships* — The partner organizations convened weekly meetings of the key stakeholders that went on for over 18 months to address all the challenges to implementation. A lot of upfront time was required from each organization, without guarantee of results. But in retrospect the program went from concept to design to implementation in an extremely short amount of time.
- *Effective leadership* — This factor was essential to build trust and relationships that factored into creating a success partnership. In particular, Mayor Sam Adams, BPS Director Susan Anderson, the Portland City Council, the state of Oregon, and the Oregon Department of Energy were effective leaders and partners.
- *Customer-oriented program model* — Common focus and agreement among all the stakeholders that creating an impeccable customer experience should drive decision-making and problem-solving was critical.

They also discussed a few major challenges that had to be addressed, and which CEWP/CEWO are still struggling with to find effective solutions:

- *Complications of retrofitting older homes* — Very little is straightforward or redundant in these projects. Every one is different and brings new wrinkles. It's critical to find a way to finance pre-weatherization measures (e.g., outdated wiring, siding, asbestos, etc.) because without doing these things, many projects cannot proceed with retrofits.
- *Challenges of creating demand for energy improvements* — At the outset, the team thought that once they had financing in place, energy improvements would sell themselves. However, that was not the experience. Additionally, it required a sustained market presence and consistent messaging. Driving demand took more time and effort than originally anticipated.

As it goes to scale, Clean Energy Works Oregon is integrating all of the lessons learned from the pilot. The biggest changes to the expanded program will be the inclusion of greater choice, transparency, and flexibility for consumers — more choices of loan products; greater choice of contractor, if desired; and more automated and streamlined business process flow that will decrease the elapsed time from application to project completion. All hopefully will drive down costs, increase efficiencies, and prove that the financing product is reliable, predictable, and therefore a good investment for private capital. The ultimate goal is to attract private capital, as there is not nearly enough public subsidy to retrofit all the homes that need energy performance improvements in order to reach carbon reduction and economic development policy goals. CEWO hopes to attempt an initial sale of its loan portfolio into the secondary market toward the end of 2011. It hopes this will provide additional capital to finance more energy improvements and set them on the path towards financial self-sustainability.

## Related Resources

Clean Energy Works Portland Web site: <http://www.cleanenergyworksportland.org/>

Clean Energy Works Oregon Web site: <http://www.cleanenergyworksoregon.org/>

Detail on the program history and design of CEWP from Green For All:  
<http://www.greenforall.org/what-we-do/cities-initiative/portland/clean-energy-works-portland>

An article on the expansion of the CEWP pilot into CEWO:  
<http://www.sustainablebusinessoregon.com/articles/2010/12/clean-energy-works-expands-into-2011.html>

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