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Energy Efficiency Financing: Barriers and Opportunities in the Small Utility Market

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Executive Summary

High upfront costs and a lack of easily accessible financing are commonly cited as the key barriers to investments in energy efficiency (EE). If designed and implemented optimally, EE financing can be an important tool for catalyzing EE market transformation.

This barriers and opportunities assessment relied on extensive interviews and research related to current EE financing efforts in the Northwest. Interviews were also conducted with the administrators of EE financing programs and other EE financing experts outside of the Northwest that are piloting innovative program models or financing mechanisms.

While there are a significant number of utility-run EE financing programs currently in operation in the Northwest, many of these programs face key challenges: lack of staff time to administer programs, barriers to accessing low-cost capital, and inability to serve those most in need of financing.

Research into EE financing program models outside of the Northwest suggest that there are a range of potential solutions that small utilities could pursue to make EE financing programs more scalable, sustainable, and equitable.

This report highlights a range of possible solutions that could be pursued by small utilities and other organizations that support small utilities. A key solution includes the need for more collaboration among small utilities; collaborating on an EE financing program can provide cost benefits by leveraging economies of scale and centralized program management. Better utilization of third-party EE financing expertise is also a proposed solution; there are a range of organizations—including several non-profits and mission-driven lenders—that focus specifically on helping small utilities deliver effective EE financing products to their customers. Another proposed solution is to explore alternative financial mechanisms. Although all EE financing programs in the Northwest currently utilize conventional loans, a growing number of programs across the country are offering an alternative financing mechanism called *meter-attached financing*.

Case studies beginning on page 12 highlight how these solutions—and others—are being utilized to overcome the significant barrier that first costs pose to investments in EE.

Introduction

The Northwest Energy Efficiency Alliance (NEEA) hired Collaborative Efficiency (CE) in 2015 to assess barriers and opportunities related to energy efficiency (EE) financing in the Northwest, with a specific focus on small utilities. EE financing encompasses a broad range of financial instruments and programs that utilities can offer their consumers to help pay for EE improvements over time.

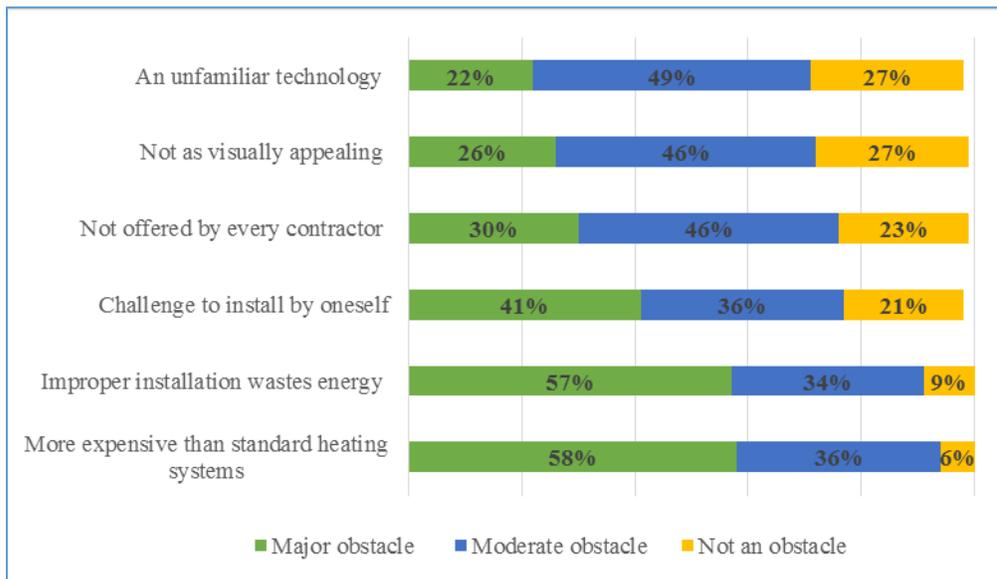
For the purposes of this effort, small utilities are defined as electric cooperatives, municipal utilities, or public utility districts with fewer than 200,000 customers. Small utilities currently serve approximately 1.9 million Northwest energy customers, or roughly 30 percent of customer accounts in the four-state region (Idaho, Montana, Oregon, and Washington). Small utilities were selected as the focus for this research effort because they face unique challenges and opportunities compared to their larger municipal and investor-owned utility counterparts.

Energy Efficiency (EE) Financing is a Tool for Market Transformation

There are four primary reasons why EE financing, if designed and implemented optimally, could be an important tool for increasing the demand for EE in the small utility market:

1. **EE financing programs can help overcome the primary barrier to investment in EE:** High upfront costs are the primary barrier to the adoption of many EE measures (Kapur et al., 2011). For example, a 2015 NEEA report exploring consumer perceptions related to the adoption of ductless heat pumps (DHP) and heat pump water heaters (HPWH) found that “the primary barrier described by both DHP and HPWH survey respondents was the upfront costs of purchase (NEEA, 2015).” As Figure 1 below shows, 94% of respondents reported that the cost of a DHP was either a major or a moderate obstacle to purchase.

FIGURE 1: OBSTACLES TO PURCHASING DUCTLESS HEAT PUMPS



Source: NEEA, 2015

Financing is a bigger barrier for whole house, multiple measure projects that cost even more than a DHP or HPWH.

2. **EE financing programs can help encourage broader participation in EE rebate programs:** Nearly all utility customers help fund EE rebate programs through the rates they pay—but many customers are unable to participate in rebate programs. For example, installation of a single-headed DHP can cost more than \$5,000 in the Northwest—and more for a multi-headed system. However, small utilities in the Northwest generally offer DHP rebates of between only \$500 and \$1,200 (NEEA, 2015b). While a rebate helps address part of the upfront costs, for a low-income customer, the remaining cost may still be too much for the customer to take advantage of the program, even if the measure provides significant energy savings and a short payback. An effective EE financing program enables participation in rebate programs from customers that do not have the cash or credit to afford the difference between the cost of a measure and the rebate offered by the utility. Financing makes EE programs more equitable.
3. **Financing can encourage multiple measure projects and whole building upgrades:** Rebate programs alone tend to produce many single-measure projects, which creates lost opportunities. EE financing could create a viable pathway for more residential customers to pursue multiple measure and whole house upgrades that would capture more savings per home.
4. **EE financing can be a sustainable alternative to rebates:** Rebate programs are vulnerable to annual budget cycles, which can create a host of challenges for small utilities, ranging from the hassle of needing to redesign EE marketing materials to damaged trade ally relationships. EE financing can be a more sustainable mechanism for EE programs, making them less vulnerable to the negative impacts of rebate budget fluctuations.

Despite the market transformative potential of EE financing, many EE financing programs in the Northwest face challenges that limit their ability to catalyze substantial investments in EE. They are often staff intensive, have limited access to capital, are in ambiguous legal compliance, have a limited pool of eligible applicants, and are not easily scalable. Many of these challenges are captured in Section 2 of this report, which summarizes current small utility experiences with EE financing in the Northwest.

Sections 3 and 4 highlight solutions and examples of ways that EE financing programs in the Northwest could be transformed to:

- Require less utility staff time,
- Have access to abundant and sustainable capital,
- Be confident of legal compliance,
- Have more eligible customer applicants, and
- Be scalable to serve many customers.

Section 1: Research Methodology

CE assessed current EE financing efforts among small utilities in the Northwest and analyzed a range of EE financing mechanisms and programs offered by utilities and other organizations outside of the Northwest. This research effort relied heavily on interviews with the administrators of EE financing programs, as well as a literature review. The goals of these research and assessment efforts included:

- Understanding the market conditions in local small utility territories as they relate to offering financing and EE in general.
- Identifying promising EE financing models from outside of the Northwest
- Exploring possibilities for advancing EE financing in the Northwest among small utilities.

Twenty-eight Northwest utilities and three state energy offices were interviewed for this project about their EE financing programs or perceptions of EE financing in general:

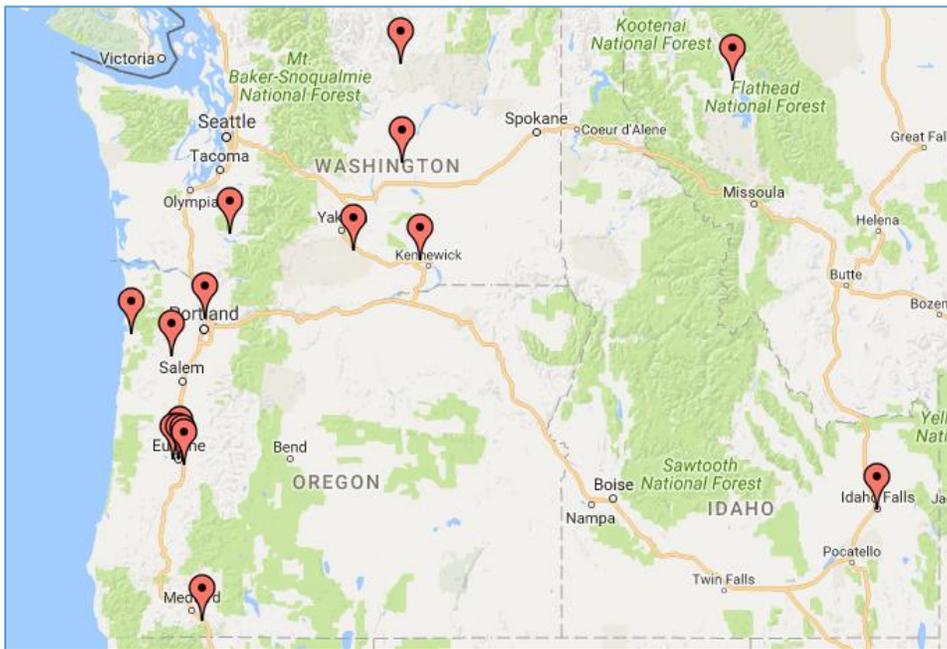
- 16 small utilities with active EE loan programs.
- 2 small utilities that are actively considering/designing launching an EE loan program.
- 4 small utilities with recently discontinued EE loan programs.
- 6 utilities—of varying sizes—without EE loan programs.
- 3 state energy offices with active EE/energy improvement loan programs.

CE also conducted interviews with organizations that provide support or guidance to utilities on energy efficiency financing and with utilities (or organizations representing groups of utilities) outside of the Northwest offering innovative EE financing programs. These utilities and organizations are listed in Acknowledgements section on Page 15

Section 2: Characterizing Northwest Small Utility EE Financing

Currently, 16 small utilities located throughout the Northwest lend approximately \$5 - \$6 million per year to their customers for energy-related improvements.

FIGURE 2: LOCATION OF SMALL UTILITIES WITH ACTIVE EE LOAN PROGRAMS



The metrics below, which are based on publically available information and estimates provided by utilities during phone interviews, characterize current EE financing programs in the Northwest. Appendix A provides a summary matrix of all currently active small utility EE financing programs in the Northwest.

TABLE 1. KEY CHARACTERISTICS OF NORTHWEST SMALL UTILITY EE FINANCING PROGRAMS

Financing mechanism	All current EE financing programs offer conventional loans, rather than meter-attached financing
Program launch date	Oldest program – 1985 Newest program – 2012
Sector	The majority of programs serve only residential customers
Common measures financed	Air source and ductless heat pumps, whole house weatherization, ENERGY STAR appliances, programmable thermostats, commercial lighting
Interest rates	Range from 0% to 6.5% Average interest rate is 2%
Loan terms	12 months to 10 years
Loan default rates	0% to 1.5% Average default rate of 0.24%
On- or off-bill repayment	Nearly equal split
Loan capital sources	Utility ratepayer funds, municipal bonds, private capital from financial institutions
Average size of loan	\$5,000 - \$6,000
Median annual loan volume	40 loans per year
Transferability of loan	To our knowledge, all loan programs require loans to be paid in full upon sale of the property

Based on these metrics and other insights gathered during utility interviews, we can draw several conclusions about the current state of small utility EE financing in the Northwest:

- **A small percentage of small utilities in the Northwest are willing to act as lenders:** Roughly one out of every seven small utilities in the Northwest currently offers an EE financing program.
- **Programs are low risk:** Nearly all utility interviewees characterized their EE loan programs as very low risk. Northwest EE loan programs that provided statistics reported loan default rates of 0% to 1.5%, with an average default rate of 0.24%. This rate is substantially lower than typical unsecured consumer loans, which currently have a default rate of 2% or more (FRB, 2016). This low default rate for utility EE financing is consistent with the rate of uncollectible bills at many small utilities; for example, electric cooperatives have a national average of less than 0.4% uncollectible bills (ACEEE, 2011).
- **Most loan programs cannot help those most in need of financing:** Most current EE loan programs have annual customer participation rates well below 1%, meaning that the current programs are not capturing significant energy savings or filling the needs of a wide range of customers. Low participation rates are partially due to program eligibility criteria. To qualify for nearly all small utility EE loans in the Northwest, consumers need to be in good standing with the utility, have a satisfactory credit score, and own the home being upgraded. As over a third of American households rent, this requirement eliminates a large market from being eligible for these programs (JCHS, 2013). In addition, stringent credit requirements may prevent those with the most pressing EE financing needs from being served by these programs.

- **Many utilities expressed a desire to better meet the needs of near low-income customers:** Near low-income customers are defined as customers who are not able to take advantage of low-income weatherization programs, but still do not have enough cash or credit to participate in rebate programs. These customers often have tarnished credit or are renters—and therefore are unable to participate in EE financing programs, as mentioned above. Northwest utility representatives interviewed for this assessment reported that near low-income households frequently have the most pressing comfort or high bill challenges (and are a significant source of high bill complaints), but most interviewees expressed that they lack tools to help this segment of their customer base.
- **Minimal collaboration is occurring between small utilities on financing efforts:** Although a handful of utilities reported sharing information with one another about the structure of their programs, each utility appeared to go through a discrete program design process and there was no uniform program model used as a guide. Program staff from small utilities in the Northwest seem to know each other quite well and communicate with each other about programs, but the financing programs in the region appear to be quite autonomous and self-made.
- **Small utilities are successfully meeting their EE targets, but are cautious about exceeding those targets:** The small utilities interviewed that are subject to state conservation mandates are meeting their EE targets. Small utilities that do not have legal mandates strive to match energy efficiency investments to the energy efficiency incentive (EEI) allocation they receive from the Bonneville Power Administration (BPA) under the terms of their energy conservation agreement. Small utilities work hard to protect the financial best interests of their customers and can be reluctant to pursue EE so aggressively that it will incur additional costs or rate increases on their customers.
- **Utilities have minimal staff time to launch and administer EE financing programs:** Most small utilities in the Northwest have dedicated staff working on EE, but sometimes it is just one person who is responsible for all commercial, industrial, agricultural, and residential EE programs—as well as managing implementation and reporting requirements from BPA. Small utilities also reported that launching an EE financing program requires significant staffing resources, which is a barrier to more utilities starting new programs.
- **Utilities lack integrated online tools for financing program administration:** The staff resource challenge is exacerbated because most small utilities in the Northwest are not able to invest in software solutions to streamline program administration functions. For example, some programs require potential program participants to print loan applications, fill them out by hand, and mail them to the utility for processing. Such a manual process requires more staff time and produces more errors. It is also in sharp contrast to most other consumer loans that utilize online applications and offer rapid processing times. A lack of integrated online tools can deter and frustrate potential program participants. Experience from multiple finance programs shows that an easy application process can be even more important to customers than a low interest rate—customers like easy and fast access to capital (SWEET, 2011). This is especially true for customers seeking to replace a failing space or water heating system.

- **Utilities are uncertain about their compliance with consumer lending regulations:** There are a number of federal and state laws, regulations, and regulatory bodies that govern consumer credit. There have also been many changes to consumer lending laws since the economic crisis of 2008, and many EE loan programs in the Northwest were launched prior to 2008. Some small utilities have expressed uncertainty about whether their existing programs are in compliance with all current state and federal consumer lending laws.
- **There are administrative hurdles to accessing sustainable, scalable sources of capital:** Private capital is typically expensive and most small utilities are limited in the amount of ratepayer funds that can be authorized for an EE loan program. While there are significant public sources of capital for EE financing programs offered by rural co-ops and utilities (see page 9 for more information about USDA capital sources), these public funds have administrative hurdles associated with accessing them (e.g., utilities/co-ops need to submit an operations and business plan, meet certain federal reporting requirements).

Section 3: Potential Solutions for Small Utilities Seeking to Offer or Improve their EE Financing Programs

Section 2 highlights many challenges and barriers associated with small utility EE financing offerings in the Northwest. However, there are many opportunities that could make programs more scalable, efficient, and likely to positively influence customer satisfaction. Interviews with small utilities underscored that possible solutions to increase the reach and impact of EE financing should meet these requirements:

- **Sensitive to staff time constraints:** Small utility staff members working on EE are already time constrained. Potential solutions should be sensitive to, or alleviate, those constraints.
- **Low risk:** Solutions should not expose the utilities to higher levels of financial risk.
- **Maintain or increase customer satisfaction:** Utilities do not want a financing program to put them in a position that could jeopardize their relationships with customers.
- **Help utilities be more equitable to all of their customers:** Utilities expressed a desire to offer a financing product that would attract a wider range of customers, such as renters or the near low-income.

The following solutions fit some or all of these requirements and would help achieve the vision for market transformative EE financing laid out in Section 1. Small utilities in the Northwest have a range of experiences with financing—a small fraction are already offering EE financing, others have offered EE financing in the past, and most have never offered an EE financing product. The solutions below are applicable to utilities at a range of stages of exploring, designing, or implementing EE financing programs.

Solution 1: Access EE Financing Design and Implementation Support Resources

- *Applicable to: Utilities that already offer EE financing but need more implementation support. Utilities considering launching an EE financing program.*

There are many third party organizations that are currently working with small utilities to help offer EE financing to their customers:

- **Non-profits:** There are several non-profits that focus on implementing EE financing programs and work on a fee for service basis—or can sometimes offer free support services. Working with a non-profit can be an affordable way to run certain aspects of an EE financing program.
 - Examples:
 - *The Environmental and Energy Study Institute (EESI):* EESI is a non-profit that works nationally to promote environmentally sustainable societies. EESI recently launched a national EE financing initiative to help improve the EE of homes served by public utilities and electric cooperatives.
 - *Enhabit:* Enhabit is a non-profit that helps design and implement EE upgrade programs by helping connect consumers to affordable financing. Enhabit has helped upgrade more than 4,500 homes across Oregon and Washington.
- **Private firms:** There are many private firms with experience implementing successful EE financing programs. Utilities may find that working with third parties is a more efficient use of staffing and programmatic resources due to the experience and past work on which these partners can draw. Third party firms can also bring specific expertise in a subject area (e.g., consumer lending laws) that the utility or co-op may not need in-house expertise in over the long-term.
 - Examples: Harcourt Brown & Carey, WECC, Collaborative Efficiency

Solution 2: Enlist a Financial Partner

- *Applicable to: Utilities that already offer EE financing and no longer want to administer a program in-house. Utilities considering launching an EE financing program.*

A financial partner can offer a number of potential benefits to small utilities:

- Assist with securing capital
- Help reduce financial risks by setting up effective underwriting procedures and loan loss reserves
- Provide loan tracking and amortization software
- Provide an online loan application and approval tool
- Track loan performance in a manner that will facilitate capital acquisition
- Purchase loans already issued from a current utility-run EE financing program, provide cash to small utilities
- Help apply utility rebates as interest buy-downs or use them as a credit enhancements
- Ensure compliance with consumer lending laws and regulations

There are three primary financial partners that small utilities may choose to partner with:

- **Private financial partners:** These companies provide turnkey or customized finance program assistance or administration.
 - Examples: The National Rural Utilities Cooperative Finance Corporation (CFC), Renew Financial, WECC
- **Community development financial institutions (CDFIs):** CDFIs are private mission-driven institutions that help finance underserved markets, such as rural communities or low-income

markets. In the Northwest, there are several CDFIs that are working with small utilities to help administer their EE financing programs.

- Examples: Craft3, Montana & Idaho Community Development Corporation
- **Local credit unions/banks:** Credit unions are member-owned financial cooperatives that function similarly to banks. Many credit unions have missions intended to support economic and community development. Credit unions and private banks are sometimes willing to help administer an EE financing program.
 - Examples: Puget Sound Cooperative Credit Union, Advantis Credit Union, Selco Community Credit Union

A case study on page 12 describes Tennessee Valley Authority's EE financing program that relies on partnerships with two local financial institutions.

Solution 3: Pursue Small Utility-Specific Funding Opportunities

- *Applicable to: Utilities that already offer EE financing and are looking for a new source of program capital. Utilities considering launching an EE financing program.*

Rural small utilities can apply for several loan and grant programs from the U.S. Department of Agriculture's Rural Utilities Service (RUS). These programs are a good source of low-cost funding, but have significant application processes and reporting requirements. A case study about Roanoke Electric Cooperative in Section 4 provides more details about accessing RUS funding.

- *Energy Efficiency and Conservation Loan Program (EECLP):* This loan program is available to organizations providing retail electric services to rural consumers (generally, serving an area with fewer than 20,000 people). The loans can be re-lent for the purposes of improving energy efficiency, reducing overall system demand, and/or encouraging renewable energy or demand side management. Loans are limited to 15 years, unless measures funded have a longer life than 15 years (e.g., ground source loop investments). EECLP does not have a specified limit, and applications are accepted on an on-going basis. RUS provides the loans out of a fund that is typically authorized to lend several billions of dollars per year (RUS, 2016). The Resources section on page 15 provides more resources for utilities interested in applying for EECLP funding.
- *Rural Energy Savings Program (RESP):* The RESP program provides rural entities, such as utilities, with zero-percent interest loans to implement EE measures, with terms of up to 20 years. Utilities can then re-lend to consumers at up to a three percent interest rate for up to ten years. Funding for RESP depends on a Congressional appropriation: for fiscal year 2016, Congress appropriated \$8 million, which RUS can use to buy down the interest rate for over \$50 million in zero-interest loans. The deadline for applications for 2016 was August 5, 2016 (RUS, 2016b).
- *Rural Economic Development Loan & Grant Program (REDLG):* This is a loan and grant program for non-profit utilities that develop projects with economic development benefits in a rural area or town with a population of up to 50,000. Applicants can request up to \$1 million in loans and \$300,000 in grants to establish a revolving loan fund. Co-ops in South Carolina and Kansas have received REDLG funds that they have re-lent to their members for EE projects. Applications are accepted on an on-going basis (RUS, 2016c).

State energy programs across the Northwest have also invested resources in supporting EE financing efforts. For example:

- *Washington State Energy Office (within the Department of Commerce):* The Washington State Clean Energy Fund has provided grants to support EE loan programs.
- *Oregon Department of Energy:* Offers a state energy loan program and other resources for utilities seeking funding for clean energy programs.

Solution 4: Collaborate with Other Small Utilities on Implementing EE Financing Solutions

- *Applicable to: Utilities that already offer EE financing and are looking for ways to streamline program administration. Utilities considering launching an EE financing program.*

Collaborating on an EE financing program can provide cost benefits by leveraging economies of scale and centralized program management. Small utilities could collaborate with other small utilities—or collaboration could be fostered via a statewide co-op/utility association or with a state/regional non-profit. Implementing EE financing is likely to be more effective if utilities work together or pool their resources. For example:

- Small utilities working together are in a better position to hire a financial partner, as a larger contract can attract interest from a wider variety of qualified firms. Financial partners that are large enough to provide affordable financial services will only be interested in working with a small utility if the business volume is large enough to cover transaction costs and produce profits.
- Several small utilities working together could pool their resources to develop a marketing platform for a financing program or conduct a regional market analysis to target the building owners who are the best candidates for financing.
- Program management and loan tracking software typically reduces the administrative burden of a program and improves program quality (see Solution 6), but it may take several small utilities working together to justify the upfront cost of the software.

Solution 5: Use Meter-Attached Financing as an Alternative to Conventional Loans

- *Applicable to: Utilities that already offer EE financing but want to better serve renters or near low-income customers. Utilities considering launching an EE financing program.*

Although loan programs are the most common financial mechanism used for EE financing programs, a growing number of programs across the country are offering an alternative to consumer debt: meter-attached financing.¹

Meter-attached financing enables building owners to purchase and install money-saving measures with no up-front payment and no new debt obligation. Those who benefit from the savings pay for these products through a charge on their utility bills, but only for as long as they occupy the location where the

¹ Examples of meter-attached financing programs include: Midwest Energy's How\$mart program, the How\$martKY program offered through the Mountain Association for Community Economic Development, Roanoke Electric Cooperative's Upgrade to \$ave program, and Habersham Electric Membership Corporation's How\$mart program.

products are installed. When they vacate the premises, the payment obligation is transferred to the next owner or occupant who benefits from the energy savings and takes over the payments. Transfer of ownership/occupancy requires disclosure to next customer by the owner/landlord and the utility. Because new homeowners/home occupants are obligated to begin paying the meter-attached financing charge, bad debt resulting from meter-attached financing programs is very low. According to a 2011 report, six meter-attached financing programs that helped customers of all types purchase \$10 million in measures reported total bad debt of less than \$100, or one-one thousandth of one percent (EEI, 2011). Most existing programs require that the monthly charge for the energy improvement be less than the projected monthly energy cost savings (this concept is often referred to as *bill neutrality*). For example, some programs require that energy investments generate estimated savings that are 25 percent higher than the fixed charge calculated to recover costs.

This debt-free, meter-attached structure can be beneficial for renters. Landlords commonly do not want to finance energy improvements because they will not realize the benefit if their tenants are paying the energy bills. When the payment is attached to the meter, the cost and the benefit stay with the residents. Financing programs that use this approach to financing upgrades typically only use utility bill payment history to qualify participants—and therefore can attract underserved consumers who may have tarnished credit. As a result, many meter-attached financing programs are seeing high audit to retrofit conversion rates. The How\$martKY program (described in more detail on page 13 has performed 538 audits through 2015 and completed 289 retrofits (53% conversion rate), and Midwest’s How\$mart® has performed 2,200 audits and retrofitted 1,411 of these homes (64%). Typical audit-to-retrofit conversion rates for whole house EE programs range from 30-50% (EnergySavvy, 2010).

There are currently no meter-attached financing programs in the Northwest, but there is a strong regulatory precedent for this mechanism based on programs in other regions of the country. For example:

- Four states—Hawaii, Kansas, Kentucky, and New Hampshire—have authorized meter-attached financing for EE.
- A non-regulated North Carolina electric co-op is currently running a meter-attached financing program (see Page 13 for a case study).
- There are two municipally-approved meter-attached energy and water conservation programs in California.
- An Arkansas electric co-op is expecting approval of proposed meter-attached financing language imminently and several other utilities around the country are leading explorations into the regulatory approval requirements needed to launch similar programs.

Solution 6: Procure Program Management and Loan Tracking Software

- *Applicable to: Utilities that already offer EE financing but need a better way to track projects. Utilities considering launching an EE financing program.*

Loan processing software can greatly reduce loan processing turnaround times and reduce the burden on staff. Loan tracking software is now common with different types of consumer loans. Some features of the software include:

- Online loan application
- Rapid approval

- Easy for borrowers and utilities to track status
- Calculates amortization for on-bill repayment
- Allow for interoperability between current software programs used at utilities

Solution 7: “Tune-Up” an Existing EE Financing Program

- *Applicable to: Utilities that already offer EE financing or have recently discontinued their EE financing program.*

Many of the solutions above can be utilized to “tune-up” an existing EE financing program or a program that has been recently discontinued. However, it may take some strategic planning to identify what aspects of a program should be prioritized in terms of investing resources or making modifications. In many cases, engaging a third party EE organization (such as those listed in Solution 1) can help bring a fresh perspective and offer suggestions to most efficiently meet program goals. If your utility is conducting this “tune-up” in-house, you may want to begin by considering these questions:

- What are the primary goals of your EE financing program? Are you meeting those goals?
- If not, what are some of the key barriers to meeting program goals?
- What changes could be made internally to overcome those barriers?
- What outside support do you need to overcome those barriers?
- What aspects of your program are working well?

Section 4: EE Financing Case Studies from Outside of the Northwest

Below are three examples of successful financing programs for EE from other parts of the United States that leverage many of the solutions described above to offer market-transformative EE financing programs.

Tennessee Valley Authority’s Financing Offerings

Working with a financial partner can increase loan volume and reduce administration costs

The Tennessee Valley Authority (TVA) is a federal power marketing agency that works with more than 150 local power companies (LPCs) throughout a seven-state territory in the Southeast, who in turn serve nine million electricity consumers. As part of its eScore program, TVA has offered on-bill financing for over thirty years that its LPCs can make available to their customers. For many years, the financing offering focused solely on heat pumps, but since 2009, the program has also financed home weatherization improvements recommended during an energy assessment.



In the beginning, TVA funded and managed the loans that its LPCs made to their customers. However, in 1997, TVA developed a partnership with Regions Bank, an Alabama-based bank and financial services company. Under this partnership with a financial institution, TVA lends the money to LPCs, who then loan the funds to their customers and Regions Bank purchases the loan receivables and provides loan origination and servicing administration. TVA guarantees the loans—in the event of a loan default, TVA re-purchases the bad receivables back from Regions. There is no limit on the size of the TVA guarantee or the amount of loan funding available.

This partnered program allowed the financing program to increase the volume of projects financed, while reducing the effort and resource commitment required by TVA's LPCs. Since 1997, the on-bill financing program has financed more than \$630 million in EE improvements, with a default rate of less than three percent.

In 2015, TVA created an off-bill financing program in conjunction with Vanderbilt Mortgage, a Tennessee-based financial services company. Creating the off-bill option was in response to LPC demand: some LPCs were encountering shrinking staff and an increased volume of loans, which made it difficult for the LPC to effectively manage the on-bill program, even in partnership with Regions. Under the off-bill option, TVA does not guarantee the loans and Vanderbilt takes on most of the loan origination and servicing functions, which results in a higher interest rate for program participants, but otherwise similar terms. The off-bill program option has so far proven popular with LPCs—75 LPCs now offer their customers off-bill financing through Vanderbilt. Providing this option has also helped give more customers access to financing for EE: 22 LPCs that did not previously offer any TVA-sponsored financing now offer their customers access to the off-bill financing program (TVA, 2016).

MACED's How\$martKY

Meter-attached financing can help reach underserved markets

In 2010, the Mountain Association for Community Economic Development (MACED), a community development organization, launched a pilot for How\$martKY, a whole house EE financing program for members of five electric cooperatives in Kentucky. The pilot was made permanent in 2013.



The program is based on the How\$mart® program developed by the Kansas electric and gas cooperative, Midwest Energy, and on the Pay As You Save® (PAYS®) system, developed by the Energy Efficiency Institute (EEI). A key feature of these programs is that they offer meter-attached financing, which allows them to reach consumers who may not be interested in or eligible for traditional loan programs, such as tenants or consumers without sufficient credit.

MACED and the electric cooperatives worked with the Kentucky Public Service Commission to receive approval to use the meter-attached financing mechanism—which is called the KY Energy Retrofit Rider. Through the How\$martKY program, an electric cooperative member undergoes an energy assessment and receives recommendations for cost-effective energy upgrades, which the cooperative coordinates with its contractors. The KY Energy Retrofit Rider then allows the electric cooperative to place a fixed monthly charge on a member's electric bill for up to 15 years—the charge is calculated to not exceed the projected savings per month. To participate in the program, a cooperative member needs to be current on utility bill payments and submit a copy of the deed and proof of insurance.

Since How\$martKY started in 2010, 538 homes have undergone energy assessments and 289 energy upgrades have been completed, with an average project size of just over \$7,500. Approximately 55% of upgrades were in the homes of members classified as low or moderate income and about a quarter were in manufactured homes.

Roanoke Electric Cooperative's Upgrade to Save

Federal funding can provide substantial capitalization for financing programs

Roanoke Electric Cooperative serves more than 14,000 members in northeastern North Carolina, a rural, economically distressed area of the state with a high number of low-income members, tenants, and/or residents of manufactured homes. Much of the building stock in the utility's service area, especially the manufactured housing, is highly energy inefficient and, as a result, many members have higher bills than the national or state averages.



Roanoke Electric had offered a whole house EE conventional loan program, but only a handful of members were willing or able to take on new debt from the loan. Other avenues for EE upgrades were also insufficient to address the need: the federal weatherization assistance program in the area had a waiting list at least two years long, and rebates did not overcome the initial upfront investment cost. In June 2015, Roanoke launched a meter-attached on-bill financing program, Upgrade to \$ave, to allow more members to have access to financing for EE measures. Roanoke is not subject to public utility commission oversight, but modeled its program on previously approved meter-attached financing programs in other states and on the PAYS® system developed by EEI. Roanoke capitalized the program with \$6 million from the Energy Efficiency & Conservation Loan Program (EECLP) offered by the USDA Rural Utilities Service (RUS), which provides access to low-interest capital for electric utilities that serve rural communities.

Through the program, Roanoke works with interested members to identify EE upgrades that are sufficiently cost effective to provide participants with immediate net savings. The upgrades in which Roanoke invests must have savings sufficient for the utility to recover its investment within ten years through a tariff on the utility bill capped at 75 percent of the estimated savings. The program is open to all Roanoke members, even if the member has had disconnections within the last twelve months, as the co-op considers that a sign that the program could help that member lower their electric bills.

As of August 2016, the program has completed EE upgrades at over 160 homes and has more than 20 additional homes qualified and awaiting upgrades. The upgrade typically includes insulation, air sealing, and an efficient electric heat pump, averaging about \$6,500 of investment per home. The average participant pays \$60 in a monthly tariff surcharge, but saves \$120 per month in electricity costs, netting a monthly savings of \$60. Through 2019, Roanoke Electric anticipates upgrading 200 homes per year.

Additional Resources

Other Publications Related to Utility-Provided EE Financing

- Financing Member Investments in Efficiency and Solar: A Solution for Cooperatives?: http://www.nreca.coop/wp-content/uploads/2013/06/ts_obf_for_ee_and_re_february_2016.pdf
- Overcoming the Barriers to Energy-Related Investments with an On-Bill Financing Program: A Primer for Municipal Utilities and Electric Cooperatives: <http://www.eesi.org/files/OBFprimer.pdf>
- Financing Energy Improvements on Utility Bills: Market Updates and Key Program Design Considerations for Policymakers and Administrators: https://www4.eere.energy.gov/seeaction/system/files/documents/onbill_financing.pdf

Resources for Applying for Energy Efficiency and Conservation Loan Program (EECLP) Funds

- USDA EECLP Webpage: <http://www.rd.usda.gov/programs-services/energy-efficiency-and-conservation-loan-program>
- Presentation by USDA on the EECLP Program: http://www.rd.usda.gov/files/UEP_EE_Final_PowerPoint.pdf
- Roanoke Electric Cooperative Experiences with EECLP: <http://www.roanokeelectric.com/usda-eeclp>
- Roanoke Electric has resources on their experience for other utilities interested in accessing EECLP funding: <http://roanokeelectric.com/content/PAYS>
- The Environmental and Energy Study Institute (EESI)'s On-Bill Financing Project supports small utilities and co-ops interested in applying for EECLP funds: <http://www.eesi.org/obf/main>

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- Energy Efficiency Finance Corporation
- Energy Efficiency Institute
- Enhabit
- Environment and Energy Study Institute
- Eugene Water & Electric Board
- Eversource Energy
- Flathead Electric
- Grant County PUD
- Grays Harbor PUD
- City of Hayward (CA)
- Home Energy Group
- Idaho Energy Authority
- Idaho Falls Power
- Idaho Office of Energy Resources
- Inland Power & Light
- Lane Electric Cooperative
- Lewis County PUD
- McMinnville Water & Light
- Midwest Energy
- Montana Department of Environmental Quality
- Mountain Association for Community Economic Development (MACED)
- New Hampshire Electric Cooperative
- Northern Lights Electric
- Okanogan County PUD
- Oregon Department of Energy
- Puget Sound Cooperative Credit Union
- Renew Financial
- City of Richland (WA)
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- Tillamook PUD
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Appendix A: Summary Matrix of Active Energy Efficiency Financing Programs in the Northwest Small Utility Market

Administrator	Financing Program	Eligible Sectors	Measures Financed	Maximum Loan Amount	Loan Term	Interest Rate	Repayment
City of Ashland Municipal Electric Utility, OR	Residential Loan Program	Residential	Heat Pump, Weatherization	\$7,500	5 years	0%	On-bill
Benton Rural Electric Association, WA	Heat Pump Loans	Residential	Heat Pumps	\$15,000	5 years	Current fixed rate	On-bill
Blachly-Lane Electric Cooperative, OR	Energy Efficiency Loan Program – Appliances	Residential	Appliances, Electrical Safety Items	\$500	6 months	0%	On-bill
Blachly-Lane Electric Cooperative, OR	Energy Efficiency Loan Program	Residential, Agricultural	Energy Efficiency Improvements	\$3,000	3 years	Prime + 2%	On-bill
Clark Public Utilities, WA	Heat Pump Loan Program	Residential	Air-Source and Ductless Heat Pumps	\$20,000	5-7 years	3.5%	Off-bill
Clark Public Utilities, WA	Weatherization Loan Program	Residential	Air Sealing, Insulation, Windows	\$15,000	5-7 years	3.5%	Off-bill
Emerald People’s Utility District, OR	Energy Efficiency Loan Program	Residential	Heat Pumps, Weatherization	\$5,000	5 years	0%	Off-bill
Eugene Water & Electric Board, OR	Heat Pump Loan Program	Residential	Ducted and Ductless Heat Pumps	\$4,000-\$9,000	4-5 years	0%	On-bill
Eugene Water & Electric Board, OR	Weatherization Loan Program	Residential, Multi-Family	Insulation, Windows	\$4,000-\$6,000; up to \$20,000 for multi-family properties	4 years	0%	On-bill

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Administrator	Financing Program	Eligible Sectors	Measures Financed	Maximum Loan Amount	Loan Term	Interest Rate	Repayment
Flathead Electric Cooperative, MT	Residential Energy Fix Loan Program	Residential	Heat Pumps, Insulation, Windows	\$7,500	5 years	3%	On-bill
Grant County Public Utility District, WA	Residential Loan Program	Residential	Energy Efficiency Improvements, Heat Pumps	<i>None specified</i>	10 years	4%	On-bill
Idaho Falls Power, ID	Appliance Loan Program	Residential	Appliances, Lighting, Programmable Thermostats, Water Heaters	\$2,000 per measure, up to \$5,000	5 years	0%	On-bill
Idaho Falls Power, ID	Heat Pump Loan Program	Residential	Air-Source Heat Pumps, Ductless Heat Pumps, Geothermal Heat Pumps	\$5,000-\$7,500	5 years	0%	On-bill
Lane Electric, OR	Home Energy Loan Program	Residential	Heat Pumps, Energy Efficiency Improvements	\$9,000	<i>Not specified</i>	0%	Off-bill
Lewis County Public Utility District, WA	Loans for Energy Efficiency Program (LEEP)	Residential, Commercial	Conservation Measures, except appliances	\$7,500 (residential), \$15,000 (commercial)	5 years	5% for residential; 6% for commercial	Off-bill
McMinnville Water & Light, OR	Conservation Service Loan Program	Residential, Commercial	Air-Source Heat Pumps, Insulation, Lighting (Commercial), Windows	\$10,000	1-5 years	6.5%	On-bill

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Administrator	Financing Program	Eligible Sectors	Measures Financed	Maximum Loan Amount	Loan Term	Interest Rate	Repayment
Okanogan County Public Utility District, WA	Residential Conservation Loans	Residential	Energy Efficiency Improvements	\$10,000	5 years	0.2%	Off-bill
City of Richland Energy Services Department, WA	Low Interest Efficiency Loans	Residential	Doors, Duct Work, Insulation, Heat Pumps, Windows	\$10,000	10 years	3-4%	Off-bill
Springfield Utility Board, OR	Heat Pump Loan Program	Residential	Ducted and Ductless Heat Pumps	\$7,000	5 years	0%	Off-bill
Springfield Utility Board, OR	Weatherization Loan Program	Residential	Doors, Insulation, Windows	\$4,000 (for windows)	5 years	0%	Off-bill
Tillamook People's Utility District, OR	Appliance Loan Program	Residential	ENERGY STAR Appliances, Heat Pump Water Heaters	\$2,000	1 year	0%	On-bill
Tillamook People's Utility District, OR	Heat Pump Loan Program	Residential, Commercial	Heat Pumps, Weatherization	<i>None specified</i>	5 years	5%	On-bill
State Financing Programs							
Idaho Office of Energy Resources	State Energy Loan Program	Residential, Commercial	Energy Efficient Improvements, Renewable Energy Projects	\$15,000 (residential); \$100,000 (commercial)	5 years	4%	N/A
Montana Department of Environmental Quality	Alternative Energy Revolving Loan Program (AERLP)	Residential, Commercial, Government, Non-Profit	Energy Efficient Improvements, Renewable Energy Projects	\$40,000	10 years	3.25%	N/A
Oregon Department of Energy	State Energy Loan Program	Residential, Commercial, Government, Non-Profit	Energy Efficient Improvements, Renewable Energy Projects, Alternative Fuel Projects	<i>None specified</i>	15 years	Fixed, generally between 5.5-7%	N/A