ARRA We There Yet?

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ABSTRACT

The American Recovery and Reinvestment Act of 2009 (ARRA) offered a rare opportunity to test new energy-efficiency financing models. This paper compares three ARRA-funded financing projects from across the United States and highlights the lessons that current and future programs can draw from them.

The three programs reviewed here, which competed for and received ARRA funds to pilot energy-efficiency financing programs, are the Southeast Energy Efficiency Alliance WISE Program, the Vermont NeighborWorks H.E.A.T Squad Program, and the Windsor Efficiency PAYS® Program. Each of the programs faced its own challenges, and all three faced certain shared challenges. Each also found a degree of success from which other programs can learn useful lessons. Among other things, the SEEA WISE Program offers insights into program sustainability; the Vermont NeighborWorks Program provides a model for successful marketing; and the Windsor Efficiency PAYS Program illustrates how program design can help reach the elusive residential renter population.

As a group, the programs succeeded when they built on existing structures and resources: existing energy-efficiency programs, community identities and resources, and lending practices. They struggled when they tried, by choice or by necessity, to create things entirely new. Current and future financing programs should carefully consider the lessons of these patterns of success and struggle.

Introduction

The American Recovery and Reinvestment Act of 2009 (ARRA) offered a rare opportunity to test new energy-efficiency financing models. Utility customers, both residents and businesses, often cite lack of capital as the primary obstacle to completing energy-efficiency projects in their homes and workplaces. Financing programs specifically designed to support energy-efficiency upgrades theoretically offer solution to this challenge. By providing funds for states and localities to pilot innovative and untested financing approaches, ARRA created, in effect, an energy-efficiency finance laboratory.

The U.S Department of Energy (DOE) created the framework for these experiments in efficiency finance through its Better Buildings Neighborhood Program (BBNP). “Using funds from the American Recovery and Reinvestment Act (Recovery Act) and annual appropriations, the Better Buildings Neighborhood Program provided $508 million in one-time grants to states and localities in 2010. These entities work with nonprofits, building energy efficiency experts, financial institutions, utilities, and other organizations to develop and incubate community-based programs and incentives to spur demand for building energy upgrades. This demand is being met by private sector energy efficiency experts and financial institutions, creating jobs and improving local economies.” (EERE 2012)

This paper examines three programs that competed for and received ARRA funds to pilot energy-efficiency financing programs: the Southeast Energy Efficiency Alliance WISE Program, the Vermont NeighborWorks H.E.A.T Squad Program, and the Windsor Efficiency PAYS®
Program. Each of the programs faced its own challenges, and all three faced certain shared challenges. Each also found a degree of success from which other programs can learn useful lessons. The SEEA WISE Program offers insights into program sustainability; the Vermont NeighborWorks Program provides a model for successful marketing; and the Windsor Efficiency PAYS Program illustrates how program design can help reach the elusive residential renter population.

Southeast Energy Efficiency Alliance Worthwhile Investments Save Energy Program

The Southeast Energy Efficiency Alliance (SEEA) used its BBNP funding to create the Worthwhile Investments Save Energy (WISE) group of programs. Twelve cities in the Southeast created programs under the WISE umbrella offering energy-efficiency retrofit assistance to residents and businesses in 13 cities across the Southeast. Each participating city chose its own program design, often including assistance such as energy audits and free equipment installation. Seven of the 13 participant cities included financing mechanisms in their pilot programs. These cities established three types of financing options to help fund energy-efficiency improvements: loan loss reserves, revolving loan funds, and interest rate buydowns. (EERE Sept 2013)

Program Context

According to SEEA, the Southeast region faces five major regional energy challenges:

- The regional population had increased nearly 20% since 2002
- Per capita energy use had grown faster than the national average since 1990
- Georgia, North Carolina, Florida, Alabama, and Tennessee ranked among the ten most coal-dependent states
- High poverty levels
- Pollution concerns

Based on these challenges, the DOE awarded SEEA $20 million in BBNP funding to promote energy efficiency in the Southeast. (SEEA 2013)

Program Offering

SEEA originally hoped to develop a regional financing option, but was unable to convince a lender to develop a finance program. Therefore, SEEA worked to attract lenders to work with individual city programs. (SEEA 2013) The seven cities that chose to offer financing options took a variety of approaches toward program eligibility and financing type.

Participant Eligibility

Each participating city made different decisions about eligibility criteria in their financing programs. As Table shows, all but one of the cities targeted single-family residential homeowners. Five programs extended financing to business owners, and one city included multifamily residential property owners.
Table 1. SEEA energy efficiency financing program target markets

<table>
<thead>
<tr>
<th>Program</th>
<th>City, State</th>
<th>Target Market</th>
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<td></td>
<td></td>
<td>Single-Family</td>
<td>Multifamily</td>
<td>Commercial</td>
</tr>
<tr>
<td>Local Energy Alliance Program</td>
<td>Charlottesville, VA</td>
<td>Y</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>CarrboroWISE</td>
<td>Carrboro, NC</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Chapel Hill WISE</td>
<td>Chapel Hill, NC</td>
<td>Y</td>
<td></td>
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<tr>
<td>Charleston WISE</td>
<td>Charleston, SC</td>
<td>Y</td>
<td></td>
<td>Y*</td>
</tr>
<tr>
<td>ShopSmart/InvestSmart with JEA</td>
<td>Jacksonville, FL</td>
<td>Y</td>
<td></td>
<td>Y</td>
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<tr>
<td>Nashville Energy Works</td>
<td>Nashville, TN</td>
<td>Y</td>
<td></td>
<td></td>
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<tr>
<td>NOLA WISE</td>
<td>New Orleans, LA</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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</tbody>
</table>

*Small businesses only.


Financing Type

The SEEA participant cities used three types of financing offerings: Federal Housing Administration-backed PowerSaver loans, a program-administered revolving loan fund, and energy-efficiency loans offered by local lending partners. Table 1 shows the financing type each program employed.

Table 1. SEEA program financing offerings

<table>
<thead>
<tr>
<th>Program</th>
<th>City, State</th>
<th>Financing Offering</th>
</tr>
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<tbody>
<tr>
<td>Local Energy Alliance Program</td>
<td>Charlottesville, VA</td>
<td>PowerSaver Loan</td>
</tr>
<tr>
<td>CarrboroWISE</td>
<td>Carrboro, NC</td>
<td>Energy Efficiency Revolving Loan Fund (commercial only)</td>
</tr>
<tr>
<td>Chapel Hill WISE</td>
<td>Chapel Hill, NC</td>
<td>PowerSaver Loan</td>
</tr>
<tr>
<td>Charleston WISE</td>
<td>Charleston, SC</td>
<td>PowerSaver Loan</td>
</tr>
<tr>
<td>ShopSmart/InvestSmart with JEA</td>
<td>Jacksonville, FL</td>
<td>Non-branded loans (local lenders)</td>
</tr>
<tr>
<td>Nashville Energy Works</td>
<td>Nashville, TN</td>
<td>Nashville Homeowner Financing (local lenders)</td>
</tr>
<tr>
<td>NOLA WISE</td>
<td>New Orleans, LA</td>
<td>Energy Efficiency Loan (local lenders)</td>
</tr>
</tbody>
</table>

Source: SEEA website, http://www.seeawise.org/; individual program websites (see references)

The PowerSaver loan is a nationally available energy-efficiency loan program for homeowners. (Multifamily properties are ineligible.) The SEEA cities partnered with lender Sun West to offer PowerSaver loans in their programs. The PowerSaver loan has a fixed amortization term of 15 years (20 years for renewable energy improvements). (Sun West 2014)

Some of the programs included credit enhancements, such as loan loss reserves and interest rate buydowns, to make the financing offerings more appealing to borrowers. In New Orleans, NOLA WISE created a $1.2 million loan loss reserve for residential financing. The loan loss reserve covers up to 10% of lenders’ losses on loans to local residents. In Jacksonville, Florida, the program partnered with a local credit union to provide an interest rate buydown. This
form of credit enhancement provides lenders upfront payments in exchange for reducing the borrowers’ interest rates. SEEA also created an overarching $2 million loan loss reserve fund. (DOE 2014) These enhancements lowered the lenders’ risk, allowing them to offer interest rates as low as 3.99 to 6%. (Weiss 2013)

Program Results

The SEEA WISE programs overall surpassed their energy savings goals. In the single-family residential sector, the programs achieved energy savings of approximately 8.4 million kilowatt hours (kWh) and approximately 303 thousand therms. The programs also documented 2.1 million kWh and 11 thousand therms saved for multifamily participants and 2 million kWh and 35 thousand therms saved from commercial participants. (SEEA 2013)

Approximately 3,800 homeowners completed energy upgrades through the SEEA pilot programs. 122 of those participants (3%) used the programs’ financing options, for a total loan volume of $1.2 million – an average of about $10,000 per loan (EERE 2014). An impact assessment found that, for surveyed participants who had received a loan, 78% said the loan had been “very important” in their decision to invest in energy-efficiency upgrades. The remaining 22% said it was “somewhat important.” (SEEA 2013).

Challenges / Lessons Learned

Although SEEA’s WISE programs met their overall energy savings goals, the financing offerings achieved relatively little uptake: only 3% of participants used them. (SEEA 2013) The financing programs faced challenges related to program design, marketing, and funding sustainability. The lessons they learned provide useful insights to current and future financing programs.

Program Design

SEEA initially hoped to offer a common financing option in all the participant cities, but determined that the prospective loan volume was not sufficient to attract a qualified lender (SEEA 2013). Therefore, program design varied from city to city. A 2013 study identified the following factors in the most successful programs:

- Dedicated loan loss reserve funds
- Established lenders with experience in energy-efficiency funding or related programs
- Strong relationship between the program staff and the lending institution
- An energy-efficiency-friendly state regulatory environment

Marketing

Many of the WISE programs initially struggled to deliver effective marketing to local residents. Some programs reformulated their marketing approaches to align with local community identities and a regional affinity for hospitality. For example, the NOLA WISE program helped participants host open houses to show off their energy-efficient improvements to their neighbors, and sponsored neighborhood challenges to harness friendly local rivalries. The Jacksonville program identified local libraries as a community gathering spot where residents could check out do-it-yourself energy evaluation kits (SEEA 2013).
Sustainability

Many of the SEEA WISE programs closed down after exhausting their ARRA funds. However, a few were able to create sustainable models to carry them forward. For example, the three cities who partnered with local lenders (Jacksonville, Nashville, and New Orleans) continue to have financing programs in place. Two of the three communities that piloted PowerSaver loans (Charlottesville and Charleston) continue as well (Individual program websites; see references). Finally, SEEA announced on May 13, 2014, that it had secured a $1 million grant from DOE to launch the Southeast Energy Efficiency Finance Network. The purpose of this network, according to SEEA, is to provide “the support system needed to build a profitable region-wide base of energy efficiency financing programs” (SEEA 2014).

Vermont NeighborWorks Loan Program

The NeighborWorks ® Alliance of Vermont (NeighborWorks) is an umbrella nonprofit offering affordable housing services statewide through sub-organizations covering each of five geographic regions. In 2010, one NeighborWorks regional organization, NeighborWorks of Western Vermont (NWWVT), received $4.5 million in BBNP funding to fund a pilot energy-efficiency program in Rutland County. Called the Home Efficiency Assistance Team (H.E.A.T.) Squad, this pilot offered homeowners technical assistance, program management, and low-cost financing for energy-efficiency projects. (NWWVT 2014)

Program Context

Vermont experiences long winters and has a large stock of older homes. Therefore, Vermont residents often face expensive energy bills and uncomfortable indoor environments due to wasted energy. (EERE Dec 2013). Although NeighborWorks and its regional organizations, including NWWVT, are primarily focused on affordable housing, their mission also includes sustainability, local job creation, and preventing greenhouse gas pollution. (NWWVT 2014)

Program Offering

The H.E.A.T Squad program offered low-cost energy-efficiency unsecured loans to Rutland County residents at the following terms:

- Maximum loan amount $15,000
- Fixed Rate 4.99%, APR 5.504%
- Maximum term of 10 years

To qualify, applicants had to have a minimum Fair, Isaac & CO. (FICO) credit score of 640; however, residents with lower scores could receive approval with additional documentation. Participants were permitted to use Efficiency Vermont rebates to reduce the loan amount. (NWWVT 2013).
Program Results

From 2010 through 2012, 526 Rutland County residents completed Home Performance with ENERGY STAR® (HPwES) projects through the H.E.A.T. Squad program. In 2012, 32% of the HPwES projects in the state of Vermont were located in Rutland County, which is home to only 10% of the state’s population. As of June 2013, the program had issued 152 loans for a total loan volume of $1.7 million – an average of $11,000 per loan (NWWVT 2014). According to June 2013 statistics, the average home realized $903 per year in savings, which was greater than most participants’ annual loan payments (EERE Dec 2013).

In 2013, the program received additional funding from Green Mountain Power to expand into four other Vermont counties. As of June 2014, the program is seeking additional funding to continue operations beyond 2014 and expand to the nine Vermont counties where it is currently unavailable. (NWWVT 2014)

Challenges / Lessons Learned

The H.E.A.T. Squad program experienced successes in program design and marketing, while facing challenges related to funding sustainability. The lessons they learned provide useful insights to current and future financing programs.

Program Design

When designing a program, sponsors must make many technical decisions when determining what measures to include, and how to verify they were properly completed. The H.E.A.T. Squad program managed to avoid many of these challenges by incorporating the existing Efficiency Vermont Home Performance with ENERGY STAR program. This decision apparently permitted the program staff to focus their attention on effective marketing and administration rather than on program design.

Marketing

In contrast to the SEEA programs, the NWWVT targeted its program marketing to align with local community identities from the beginning, utilizing low-cost community-based outreach methods very effectively. Program staff known as “Energy Advisers” engaged in house-to-house education initiatives, and program staff tapped local volunteers to act as “energy champions.” Other volunteer groups carried out “phone-a-thons,” calling each home in their communities to explain the program and sign up participants. The program gained exposure and credibility by securing endorsements from respected local personalities, such as Rusty Dewees, a popular Vermont comedian and motivational speaker (NWWVT 2013)

Sustainability

The program was successful in attracting additional funding to keep the program running once the initial ARRA-funded grant was exhausted. It was also successful in combining the financing with Efficiency Vermont’s incentives to maximize energy savings from the available loan funds (NWWVT 2014). Finally, it partnered with Green Mountain Power to provide participants the convenience of repaying the loan via their energy bills. However, in 2014, the
program must again find a new source of funding to maintain operations and achieve its goal of expanding statewide.

**Windsor Efficiency PAYS® Pilot Program**

The Town of Windsor, in Sonoma County, California, took an unusual approach to financing energy-efficiency upgrades: it allowed repayment via the resident’s water bill. Windsor’s water utility funded improvements to save both energy and water and allowed customers to repay the loans via the water bill.

**Program Context**

The Windsor Efficiency Pay-As-You-Save® (PAYS) Program began when the Sonoma County Regional Climate Protection Authority (RCPA) received a grant of $655,000 from BBNP. RCPA, the grant recipient, identified a niche that they wanted to fill. An existing program provided financing for projects over $2,500; thus, the PAYS targeted projects costing less than $2,500. (Cadmus 2013)

Windsor used the grant as start-up funds to set up a self-funding financing program, whereby customers of the Town of Windsor water district could fund energy- and water-saving measures and pay back the loan via an on-bill surcharge. The Town of Windsor provided the loan capital from its ample general fund. The town water utility managed trade allies, handled and allocated program funds, and collected surcharges. The town later set up a $250,000 loan loss reserve (LLR) fund, provided by the Sonoma County Water Agency, to cover any losses (defaults) sustained by the program. (Cadmus 2013)

**Program Offering**

All residents of the Town of Windsor were eligible to participate in Windsor Efficiency PAYS, including those who were renting their homes. The program offered loan terms of five to 15 years. The financing took the form of a tariff, meaning that the obligation to repay attached to the water meter, not the participating customer. When the initial participants move out, the repayment obligation (and attendant savings) carries forward to the next resident. (Cadmus 2013)

Windsor Efficiency PAYS offered three levels of eligible measures. The first two packages, Basic and Basic Plus, had no up-front costs, while the Copay option allowed customers to pursue more expensive updates by paying a portion of the upfront cost. Customers had to install all eligible measures included in the Basic package in order to be eligible for other upgrade measures. (Windsor 2012)

- **Basic Package Measures:**
  - High efficiency toilets
  - Low-flow showerheads
  - Low-flow faucet aerators

- **Basic Plus Package Measures:**
  - High-efficiency clothes washers
  - Compact fluorescent lamps
  - Drought-resistant landscaping
Copay Measures:
- High-efficiency refrigerators
- Hot water recirculation pumps
- High-efficiency clothes dryers
- Additional/decorative drought-resistant landscaping (RICAPS 2014)

For the Basic and Basic Plus packages, the program design required bill neutrality; the participant’s savings (water and energy) had to equal or exceed the participant’s loan payment. In order to provide a cushion for savings estimate errors and usage pattern changes, the town chose to include only upgrades that provided $1.00 of savings for every $0.75 of repayment surcharge. These requirements were relaxed for the Copay measures. (Windsor 2012)

Program Results

From October 2012 through January 2014, the program loaned a total of $332,400 for projects in 418 homes: 195 single-family homes (some of them renters) and 223 multifamily units in four buildings. The town estimated average resource savings of $30 per month per participant. These multifamily buildings represent four of the six eligible multifamily properties in the Town of Windsor. As of January 2014, the remaining two had begun the program process. (Piazza 2014) The multifamily projects constituted a major accomplishment for the town water utility, which had tried to engage multifamily owners in resource efficiency programs for several years without success (Cadmus 2013).

The Windsor Efficiency PAYS Pilot ended on June 30, 2013. Based on its success, the Windsor Town Council unanimously voted to extend the program through June of 2014 based on its success in achieving water efficiency and conservation. (Sonoma County Gazette 2013)

Challenges / Lessons Learned

The Windsor Efficiency PAYS program faced challenges related to program design, marketing, and funding sustainability. The lessons they learned provide useful insights to current and future financing programs.

Program Design

Windsor Efficiency PAYS offered an opportunity to test the tariff model of on-bill financing in two ways: first to assess its appeal to renters, and second, to watch for any problems in transferring the obligation from one resident to the next. It was clearly successful in reaching residential renters; both single-family home renters and multifamily property owners used the program. Since the program is still relatively new, it is too soon to conclude whether the tariff obligation will generally pass smoothly from account holder to account holder. However, the few transfers that had occurred as of mid-2013 were uneventful (Cadmus 2013).

The program did experience two challenges related to program design. First, it struggled to find measures with sufficiently high savings and sufficiently low cost to meet the 0.75 payment-to-savings ratio requirement. Prospective participants with newer homes, or who had already replaced some plumbing fixtures, could not participate because of a lack of savings opportunity. Additionally, the program struggled to recruit an outside capital provider. The town initially planned to use capital from a private lender, and issued requests for proposals (RFPs)
seeking one. None of the RFP responses were satisfactory, however, so the town used its own funds instead. Unlike many localities in California and beyond, Windsor had a well-capitalized municipal general fund it could tap for the loans. The town was able to further strengthen its financial position because the Windsor Efficiency PAYS loans offered a higher return than the town’s alternative investment options. (Cadmus 2013)

Marketing

The Windsor Efficiency PAYS program faced a series of challenges related to marketing. The PAYS model calls for trade allies (contractors, vendors, and installers) to conduct the vast majority of program marketing, and the town had a very clear vision for the implementation of this marketing effort. However, the RFP that the town issued to prospective trade allies was inexplicit about the marketing requirements. This ambiguity led to misunderstanding and disagreements between program staff and trade allies, to the degree that the initial lead contractor withdrew from the program mere days before the planned launch. (Cadmus 2013)

Sustainability

The Windsor efficiency PAYS program proved financially sustainable, due to the town’s strong financial position. In fact, its funding will likely outlive its mission, since the program is on track to achieve its program goal in 2014. While this accomplishment will constitute success for the program, it has a high price. The town and the water utility invested heavily with their own and the ARRA-provided funds to create the program’s infrastructure. The infrastructure-building efforts included:

- Legal review and approval
- Securing Town Council approval for changes to the rate structure
- Updating the water utility’s billing system

If the program hopes to continue to leverage this infrastructure, it must find ways to incorporate new measures into its offerings. As discussed above, the program’s current savings-to-surcharge will make such an effort challenging. (Cadmus 2013)

Program Comparison

The three ARRA-funded energy-efficiency financing pilots discussed here varied widely in goals, scope, design, and results. Nonetheless, analysis reveals some patterns of commonality and contrast across the programs. Although the programs are still too new to offer firm conclusions regarding important issues such as loan performance and transferability, these similarities and differences in the pilots to date offer insights for planning and designing future energy-efficiency financing programs.

Program Design

One pilot, the Vermont NeighborWorks H.E.A.T. Squad program, chose to incorporate an existing program, Efficiency Vermont. The H.E.A.T. Squad program thereby avoided the potentially time-consuming decision-making process and trial-and-error adjustment process that
often characterize new energy-efficiency programs. This decision created a risk factor for the pilot, reducing its control over program content. The risk appears to have paid off, however, allowing the program staff to rely on Efficiency Vermont’s technical foundation and market reputation and focus on marketing the new financing option.

The other two pilots, the portfolio of SEEA programs and Windsor Efficiency PAYS, developed their own designs. (The PAYS model offer a framework for program design, within which individual programs decide the details.) Both pilots experienced challenges in the program design process. For example, both experienced initial difficulty finding a lender willing to provide loan capital, eventually finding alternate sources. Also, Windsor Efficiency PAYS struggled to identify sufficient eligible measures to include in the program. However, Windsor Efficiency PAYS also achieved a major success in proving that a PAYS program could appeal to residential renters, a population that often eludes other types of energy-efficiency programs.

Marketing

The Vermont NeighborWorks H.E.A.T. Squad program offers a model for successful marketing, in both approach and implementation. The Vermont program effectively planned to leverage local community assets to support its reach and credibility. After initially attempting other approaches, the SEEA WISE programs successfully employed this approach as well. The Windsor PAYS program also planned to utilize community-based marketing, but its efforts faltered due to a lack of clearly defined expectations. The three pilots’ experiences show that leveraging community assets and clear communication among stakeholders are both required to create successful marketing efforts.

Program Sustainability

All three sets of programs were able to successfully secure funding to continue beyond their initial ARRA-funded pilot phases. The Vermont NeighborWorks program, which used its ARRA funds as lending capital, was able to secure additional cash infusions from another source. Windsor Efficiency PAYS received approval from the Windsor Town Council to devote more funds to the program. Both programs will need to obtain additional funding to continue beyond 2014. The SEEA programs, by contrast, helped local lenders incorporate energy-efficiency loans into their business plans. As long as the programs deliver sufficient loan volume to merit the lenders’ participation, these programs can continue indefinitely (as long as the lenders remain in business).

Conclusion

The three ARRA-funded pilots discussed in this paper varied widely in structure, design, and implementation. Each experienced successes as well as challenges. As a group, the programs succeeded when they built on existing structures and resources: existing energy-efficiency programs, community identities and resources, and lending practices. They struggled when they tried, by choice or by necessity, to create things entirely new. Current and future financing programs should carefully consider the lessons of these patterns of success and struggle.
References


