

# ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT (EECBG) - BETTER BUILDINGS NEIGHBORHOOD PROGRAM

## FINAL REPORT



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## Executive Summary

With \$10 million in funding from the U.S. Department of Energy's (DOE) Better Buildings Neighborhood Program, the NH Better Buildings program was established as an initiative that initially empowered the three “Beacon Communities” of Berlin, Nashua and Plymouth to achieve transformative energy savings and reductions in fossil fuel use and greenhouse gases through deep energy retrofits and complementary sustainable energy solutions. The program also enabled those Communities to provide leadership to other communities around the state as “beacons” of energy efficiency. The goal of the program was to reduce energy use by a minimum of 15% through energy efficiency upgrades in residential and commercial buildings in the communities. The program expanded statewide in April 2012 by issuing a competitive solicitation for additional commercial projects non-profit, and municipal energy efficiency projects from any community in the state, and a partnership with the state’s utility-run, ratepayer-funded residential Home Performance with ENERGY STAR® (HPwES) program.

The NH Better Buildings program was administered by the New Hampshire Office of Energy and Planning (OEP) and managed by the NH Community Development Finance Authority (CDFA). The program started in July 2010 and the last projects funded with American Reinvestment and Recovery Act (ARRA) funds were completed in August 2013. The program will continue after the American Recovery and Reinvestment Act program period as a Revolving Loan Fund, enabling low-interest financing for deep energy retrofits into the future.

During the initial three-year period, the \$10.8 million (private and public funds) spent directly on retrofits generated 72 direct full-time equivalent jobs and 72 indirect and induced full-time equivalent jobs in the NH economy—for a total of 144 jobs. The project activity resulted in \$7.6 million in labor income in NH and \$10.3 million in economic value to the NH economy. The program significantly impacted the NH commercial and residential construction sector accounting for over 50% of the jobs and wages generated.<sup>1</sup>

### ***Beacon Communities - Outreach and Technical Assistance***

The three Beacon Communities were selected from more than 30 applicants based on their mix of geography, economic status, building types, and other demographics. The NH Better Buildings program established a local office in each of these forward-thinking towns to coordinate outreach and walk businesses and homeowners through the energy efficiency improvement process. Each office employed a community manager who generated support for the program by hosting outreach events and making presentations at local meetings, maintaining lists of qualified energy professionals, and assisting in identifying financial opportunities for efficiency upgrades. In addition, a technical

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<sup>1</sup> From “An Evaluation of the NH Better Buildings Program”, by Seacoast Economics, LLC, September 2013

advisor was on hand to address specific energy efficiency questions, facilitate energy assessments (energy audits) and timely completion of projects, and help owners interpret energy evaluation findings and recommendations from energy professionals.

When the program expanded statewide, the established utility efficiency programs provided residential outreach and technical assistance. Commercial outreach and technical assistance was provided by CDFA staff. Although this model was successful in the Beacon Communities, a challenge for the continuation of NH Better Buildings will be how to provide this hands-on outreach, management and personal assistance in a cost effective manner.

### ***Consistency Means Quality***

The program created jobs for New Hampshire small businesses and continued to build workforce capacity for energy efficiency improvements. Working through local community colleges, NH Better Buildings provided BPI curriculum and training to help develop more qualified workers and foster employment. In addition to classroom training sessions, NH Better Buildings and Lakes Region Community College offered a mentoring opportunity for workers who had completed classroom trainings but needed more experience in the field before working on their own. In total, over 40 workers were trained through these classes and mentorships.

By collecting before and after data from energy professionals and local utilities, NH Better Buildings determined best practices to implement in later phases of the program. Energy professionals were required to use the same software to ensure that the measured savings from an energy upgrade in a home in Nashua would be the same for a similar home in Berlin or Plymouth. This approach not only helped maintain quality performance of energy efficiency upgrades across the program, but also ensured consistency among savings data for comparison purposes. The program used Targeted Retrofit Energy Analysis Tool (TREAT) software for residential properties, which captured and analyzed energy efficiency data. For commercial properties, a set of evaluation guidelines helped to provide consistent information while recognizing that a variety of approaches to analysis can work well, depending on the building type, size, and use.

### ***Financing and Grant Options to Spur Participation***

Better Buildings' funds were used to leverage private investment from banks and credit unions throughout the state to create attractive financing terms that encouraged program participation. For residential and small commercial projects (up to \$20,000) in Berlin, Nashua and Plymouth, the program bought down interest rates to allow for an attractive 1% interest rate loan product with terms up to ten years. NH Better Buildings also provided a 50% loan loss reserve to help reduce risk for banks and credit unions.

Funding was also used to address existing barriers in the private market such as building owner concerns about upfront costs and bank concerns about loan defaults. For medium and large commercial projects, the program created a co-lending loan product with financial institutions. Better Buildings' funds provided one-half the capital at 0% interest while the bank provided the other half of the capital at an interest rate negotiated with the borrower, usually 5-7%, which resulted in a lower-than-market blended rate for the borrower.

To stimulate demand, increase customer return on investment, and further off-set up-front implementation costs, NH Better Buildings provided additional incentives in the form of grants and rebates. All NH Better Buildings commercial projects were offered a grant of 25% of the total project cost up to \$150,000. Residential customers were offered rebates. Residential customers residing in a Beacon Community were offered a rebate of \$250 to \$1,000 depending on the total projected energy savings. These customers could combine the NH Better Buildings rebate with HPwES rebates provided by utilities. HPwES rebates equaled 50% of total project cost up to \$4,000. Statewide residential customers were only eligible for the HPwES rebates. During the collaboration between NH Better Buildings and HPwES, each entity funded one-half of the rebates.

### ***A Cooperative Approach for Low-Income Manufactured Homes***

NH Better Buildings partnered with the New Hampshire Community Loan Fund, the Tri-County Community Action Program, New Hampshire Electric Co-op, and Lakes Region Community College to implement a series of projects in Whip-O-Will Hill Village, a resident-owned community of manufactured homes in Plymouth. Through cooperation with the community's Board of Directors, a door-to-door education campaign was implemented to increase homeowner interest in energy efficiency. Homes qualifying for low-income programs were served by Tri-County Community Action Program and the New Hampshire Community Loan Fund. Other homes in the community were served by the New Hampshire Electric Co-op's HPwES program and NH Better Buildings. Contractors were also trained specifically on implementing energy efficiency projects in mobile home units, conducting energy upgrades in three mobile homes as a hands-on learning experience.

### ***Program Expansion and Innovative Developments***

In April 2012, NH Better Buildings opened an application period for additional commercial, non-profit, and municipal energy efficiency projects from any community in the state. The program sought to implement several additional energy efficiency projects, as funding allowed. Ten projects were selected, based on scoring criteria that included

prioritizing project applications that had either already completed an energy evaluation or were looking for substantial implementation loans.

The program also developed a formal collaboration with the HPwES program run by the state's regulated utilities. This collaboration provided an integrated approach for residential projects, allowing residential customers to work both with HPwES and NH Better Buildings. Key elements of this program included on-bill financing and program implementation through an existing utility contractor network. Through the Better Buildings partnership with three utility companies that run the state's HPwES program, the utilities were able to expand their loan offerings when using Better Buildings' funds as capital. The maximum residential loan was increased to \$20,000 with a maximum term of ten years. Customers taking loans from through this collaboration were also allowed to finance "deep dive" measures that are not typically available through the utility programs.

### ***The Future Sustainability of NH Better Buildings***

Throughout the grant period, the NH Better Buildings Program was focused on overcoming key market barriers including demand for energy efficiency services, bank participation and understanding of the energy efficiency marketplace, availability of funding for energy efficiency, and the public's understanding of audit and upgrade processes. The program was successful in transforming the market by increasing demand, providing funding, and increasing the public's understanding of energy efficiency – leading to the completion of over 1,200 energy audits and 1,000 energy upgrades of 15% energy savings or more.

In general, NH Better Building project characteristics were:

- The "typical" commercial or residential energy efficiency project had an 8 to 11 year payback without incentives; with incentives the payback was in the range of 4 to 5 years.
- The "typical" residential project cost \$5,500 with an estimated annual energy savings of \$650.
- The "typical" commercial customer could be described as a "main street" type business. The "typical" commercial energy efficiency project cost \$40,000 and had an estimated annual savings of \$3,000.
- In general, projects that took loans were associated with projects that had higher costs, slightly higher savings, slightly higher incentives, and longer paybacks.

The key lessons learned from the initial phase of NH Better Buildings program are listed below. These lessons will assist in further defining the target customer and financing options implemented with the revolving loan fund.

- The program should be well integrated with other energy efficiency programs offered in the state. Program characteristics should include: consistency, stability, and longevity.
- The program should place emphasis on project cost reduction. This includes developing business processes that take advantage of economies of scale, contractor performance monitoring, stream-lined integration with existing energy efficiency programs, and centralized project information management systems.
- Significant customer education is an important part of any program. Explanations of energy audits, energy efficiency measures, paybacks, and financing options are key elements to getting customers to make efficiency investments.
- Incentives may still need to be part of the financing mix. A potential option could be an incentive based on payback that is capped at a certain amount. Payback could be determined at a project or efficiency measure scope.
- Loans (even at conventional interest rates) are an attractive financing option as they can significantly reduce the upfront expenditure for a customer even if there is a slight reduction in the rate of return of the investment.
- Programs benefit by offering both project management and technical assistance.

# Final Technical Report

## Institutional Design and Business Model

NH Better Buildings took a collaborative approach with regard to Institutional Design and Business Model that enabled the Program to leverage funds and take advantageous of efficiency programs already established in the state. Two best practices to highlight are financing programs with local banks and credit unions, and contracts with utility run efficiency programs.

### **1. Financing Programs**

The design element most unique to NH was the effort to work closely with a suite of local banks and credit unions to develop attractive financing programs. This approach complemented the community-centered focus of the NH Better Buildings program. In total, ten local banks and credit unions made 152 loans through their partnership with NH Better Buildings. Customers were able to work with banks in their communities, and in some cases contractors formed lasting connections with these banks, a development that creates positive opportunities for future project financing in the state.

#### **• Residential and Small Commercial Financing Programs**

Similar to other Better Buildings programs, NH created a residential loan product using Interest Rate Buy-downs (IRB) and Loan Loss Reserves (LLR). A LLR of 50% offered banks a very low-risk entry into the market of energy efficiency loans. The LLR was also a way to ensure a sustainable expenditure of funds such that the LLR will return to the program's revolving loan fund as the original loans are paid off. An IRB to 1% created a low interest product that was attractive to consumers during an economic downturn. This loan product was also available to small commercial projects financing \$20,000 or less. Under this program, local banks and credit unions made 134 loans through their partnership with NH Better Buildings.

#### **• Commercial Financing Programs (Participatory Lending)**

In addition to a LLR/IRB model, NH developed a participatory lending product with local banks for commercial loans over \$20,000. This scenario had Better Buildings providing one-half of the loan capital at 0% interest and the bank providing the other half at their fair-market rate. The participatory lending arrangement allowed NH Better Buildings to expand the amount of capital available for loans. It also ensured that underwriting and loan administration was done by experts at the banks. Better Buildings' capital lent out is returned to the revolving fund as the loans are repaid. Better Buildings' funds took second place in the event of a default, which offered the banks new loans at a lower risk. It also

allowed these banks a way to strengthen ties with existing business clients and attract new ones. Administratively, the bank handled all underwriting and loan servicing while Better Buildings provided project oversight and inspections. The commercial building owners received the benefit of large loan amounts available at lower than market rates. Under this program, local banks and credit unions made 18 loans through their partnership with NH Better Buildings. In the future, a participatory model could create similar benefits to all groups, and support a small interest rate on the federal funds that could be used to run lending programs.

## **2. Utility Partnerships**

As the NH Better Buildings program evolved, partnership with the residential Home Performance with ENERGY STAR® (HPwES) programs run by the State's utility companies became an integral part of the program design. The HPwES programs had been operating in the state for several years before Better Buildings started. The HPwES programs offer significant rebates toward energy efficiency retrofit project costs and some utilities have a complementing on-bill financing program. Contracts and partnership with these existing programs made sense for Better Buildings on a variety of levels.

A single program, and process, made the most sense for residential customers, who were more likely to move forward with a project if they did not have multiple programs and processes to figure out. Marketing and messaging around the state also made more sense with a combined program. Customers also benefitted from the combined program by being able to take advantage of the rebates offered by HPwES, which were greater than rebates originally offered by Better Buildings before the partnership.

Combining programs also made sense for Better Buildings. The utility programs had an existing queue of projects. They also had a well-developed procedure for audits and implementation, and a robust database for collecting information about projects.

Participating contractors appreciated that the combined programs meant they did not have to fill out multiple sets of paperwork or submit invoices to more than one program office. They also found it simpler to explain program options and process to potential customers. They were able to continue using the auditing software and project database that they had become used to with the utility programs over the preceding years.

The utility companies benefitted from the partnership because the additional funds from Better Buildings allowed them to expand their program. Though three utilities had existing on-bill financing programs, they did not have enough capital to meet demand and were starting to develop wait lists for loans.

A unique element to the combined program is that the Better Buildings funds were also used to expand the existing HPwES offerings, by allowing “Deep Dive” measures to be included in homeowner’s retrofit projects. These were energy efficiency measures that were not eligible for rebates under the current cost-effectiveness test for HPwES. With the Better Buildings funds available for loan capital, customers were able to add “Deep Dive” elements to their loans and complete them as one project within the HPwES program.

Combining efforts and utilizing each program’s strengths lead to consistent marketing/messaging, more efficient processes for contractors, one-stop shopping for customers, and a streamlined approach to financing (on-bill). In total, 193 loans were written with a total value of \$1,276,164.

## **Program Design and Customer Experience**

NH Better Buildings developed best practices for customer experiences in several ways.

### **1. Community Offices in Berlin, Nashua and Plymouth**

The heart of the customer experience for NH Better Buildings was the community office. The program opened offices in three NH communities: Nashua, Plymouth and Berlin. These were the “Beacon” communities and the effort was intended to drive as much energy efficiency work as possible within each of these communities, and then roll the program out to additional communities. Each community office was staffed by one Community Manager and one Technical Advisor. These staff members served as the main points of contacts for customers, contractors and others in the community.

Located on Main Street in each community, customers could come in to the office for information, contractors could come for meetings, and the location was a home base for staff to partner with other local organizations such as local non-profits, businesses, and community groups.

The community staff focused on grassroots outreach, customer service and partnerships. Even when NH Better Buildings executed contracts with the HPwES program and expanded beyond the original three communities, the community offices still served as main hubs for driving residential projects. For commercial projects, the community staff played a vital role in helping building owners understand and navigate the myriad of available programs in the state.

### **2. Streamlining for Contractors Leads to a Better Experience for Customers**

Contractors were some of the most important partners for NH Better Buildings. They had the most direct contact with every customer, and the way in which they presented the program, sold jobs and implemented projects had a tremendous

impact on the program's success or failure. Early on, NH Better Buildings learned that streamlining the administrative process for contractors would positively impact the overall customer experience.

At the beginning of the program, NH Better Buildings asked contractors to learn and use new energy auditing software, and fill out a rather extensive set of paperwork for each of their Better Buildings jobs. Some of this work was necessary due to DOE reporting and program requirements and other items were put into place based on initial program preference. While contractors were willing to meet these Better Buildings requirements in order to get jobs, the process had a negative impact on their business model and thus a potentially negative impact on the program overall. Contractors were spending more time than usual on audits because they were new users of the selected audit software. This learning curve provided no benefit to the client and frustrated contractors. In addition, filling out redundant information on paperwork in the field was leading to errors and increasing administrative time. With the initial program design, contractors also had to explain multiple efficiency programs and incentives to their customers (i.e. utility rebates, Better Buildings' rebates, state commercial efficiency programs, and financing).

The partnership with the HPwES program solved many of these issues, as contractors were able to use the existing audit software and processes established by the utility program and drop the additional requirements and paperwork for Better Buildings. For some of the contractors, one negative impact of the utility partnership is that while the original Better Buildings program let them name their own prices for work, the utility program had a defined pricing agreement for all the measures eligible for rebates.

### **3. Customers: Choice versus Convenience**

One element the NH Better Buildings program was able to explore in an interesting way was customer preference regarding how to choose contractors. NH Better Buildings developed a qualified list of contractors and customers were able to get quotes and choose to work with any contractor on the list. While many customers and contractors appreciated this model, it did not work as well for others.

Customer feedback indicated that a significant number of people felt they did not have the time or knowledge to find and evaluate quotes from multiple contractors; therefore, "choice" actually became a barrier to getting interested homeowners to move forward with audits and retrofits. Customers would receive the qualified list, but be too busy and delay projects because they did not know who to choose. Some even asked for a contractor to be assigned to them.

Partnering with HPwES removed this barrier. Customers who wanted to choose their own contractor from the utility qualified list could do so when they signed

up for the program. If they did not have a particular preference, the utility would assign a contractor based on the customer's location and contractors' current workloads.

#### **4. Coordination between Efficiency Programs and Ease of Financing**

NH Better Buildings' collaboration with the utilities HPwES programs was very successful from a client perspective. Because the maximum loan amount increased, deep dive retrofits were implemented, resulting in significant energy savings. The average loan size increased indicating a consumer desire to implement deep dive measures and the need for financing to off-set the out-of-pocket expenditure needed to implement such measures. Clients appreciated the ease of on-bill financing from both an application and payment perspective.

The administrative mechanics of collaboration were challenging in that the combining of programs with different reporting criteria lead to increased time requirements for utility staff. The utilities are also interested in future models that move from on-bill financing and instead partner with private banks to execute and manage the loan process and payments.

The program was less successful in making transformative change with banks. Although the program developed partnership with banks, it is still unclear whether the industry is willing to enter the marketplace without loan loss reserve and co-lending agreements. A new pilot program being tested by the utilities is evidence that banks are in fact now more willing to enter the efficiency marketplace. Please refer to the "Program Sustainability Plans" section for further details regarding this pilot program.

### **Driving Demand**

#### **1. Cooperative Marketing with Contractors**

Contractors were an important partner for NH Better Buildings in driving demand. In Nashua especially, contractors seemed to bring in the majority of projects. Two contractors in particular used the availability of the Better Buildings program as a business development tool and did extensive outreach to bring their customers to the Better Buildings program. In addition to business development, the program offered two incentives that encouraged contractors to drive demand for Better Buildings.

In each of the three beacon communities we offered a contractor incentive. If a contractor referred a project to Better Buildings and the customer moved to

completion, the program provided a \$300 incentive to the contractor. Forty of these incentives for residential and commercial projects were available in each community on a “first finished – first served” basis.

NH Better Buildings also offered a co-marketing incentive, where if a contractor wanted to do a marketing campaign, NH Better Buildings would pay a portion of the marketing cost. The program’s logos and contact information had to be included in the marketing materials. Program staff participated with contractors in several mailings, flyers and home shows, and even a set of YouTube videos highlighting retrofit projects.

## **2. Partnerships Build on Existing Community Networks**

NH Better Buildings worked to leverage existing networks and relationships within the communities where it operated. A good example comes from the town of Plymouth. Building on the success of work done by Plymouth State University, the Plymouth Area Renewable Energy Initiative and a Select Board appointed Local Energy Commission, as well as many other individuals in the community, NH Better Buildings formed the Plymouth Energy Reduction Council (PERC). This group provided a place where all voices could be heard in the common, community-wide effort to reduce energy use. PERC met monthly from August 2010 to August 2011 and participated significantly in the initial design of how NH Better Buildings would work in Plymouth.

## **3. Community Events**

NH Better Buildings also participated in community events as a way to drive program demand. One of the most successful examples comes from Berlin where participation in the weekly farmers market and a monthly series of “Lunch and Learn” events were significant drivers for program participation. As a small and relatively isolated city in NH’s north country, downtown Berlin is the major center of social and civic life for the area. The weekly farmers market had high attendance and was located just down the street from the Berlin Better Buildings community office. Community staff set up a booth at the market every week and got to know residents and the other participating businesses through these events.

The Berlin office also created a series of very well attended “Lunch and Learn” sessions. A different topic related to energy efficiency, renewable energy and green building was presented each month. Regular attendance at the events created a well-educated core of citizens who not only participated in the Better Buildings program, completing energy audits and energy efficiency retrofits projects themselves, but were able to spread the word to their family and friends.

## **Workforce Development**

### **1. Scholarships and Trainings**

A number of training opportunities for the energy efficiency workforce exist in New Hampshire, and Better Buildings was able to offer training scholarships as well as work with the Community College System to develop new trainings. Scholarships allowed Better Buildings' Qualified Contractors to enhance their skills and offer training opportunities to new hires. When Better Buildings decided to use the TREAT energy auditing software for the program, the program worked with the Lakes Region Community College (LRCC) to offer in-depth, hands-on, training classes for contractors to learn how to use the software. Because use of the software was a program requirement, NH Better Buildings paid for course development and covered class fees for Qualified Contractors.

Additional contractor trainings that the program sponsored included a mentoring program for contractors needing additional field hours to qualify for the approved list, BPI certified Building Analyst and Building Installer classes, Introduction to How Buildings Work, and an installation workshop focused on manufactured homes. NH Better Buildings also provided scholarships to several other BPI, infrared and heating system classes offered by the Community College System.

NH Better Buildings also helped to sponsor the development of a new training to educate realtors about energy efficiency. The curriculum received approval from the NH Real Estate Board to be used for continuing education credits. The course is still being offered by co-developers Sustainable Energy Resource Group and LRCC.

### **2. Unique Partnership at Whip-O-Will Manufactured Housing Park**

Plymouth Better Buildings, Lakes Region Community College (LRCC), NH Electric Co-op and NH Community Loan Fund partnered for a unique training at the Whip-O-Will Manufactured Housing Park in Plymouth. The NH Community Loan Fund was awarded federal dollars to perform energy efficiency upgrades in low-income manufactured homes. They were able to reach a number of the homes in Whip-O-Will through their program, but other homes in the park did not meet the income qualifications. These manufactured homes also needed efficiency upgrades, and their residents were in financial difficulty, even though they were just above the qualification for low-income.

At the same time there was a recognition in the state that manufactured housing has unique aspects when it comes to installing efficiency measures, and many contractors are not trained to treat these homes differently from other jobs. LRCC put together a hands-on training class that taught contractors the unique challenges of manufactured housing and specifically how to complete work on manufactured homes. The training was done on-site at Whip-o-Will.

Homes chosen for the training needed weatherization but had not qualified for the low-income program. These owners were able to receive free services by having their manufactured homes serve as demonstrations for the training. Better Buildings and NH Electric Coop jointly covered material and project costs, and sponsored the training.

This event showed how multiple organizations and programs can work together to achieve multiple community and workforce development goals.

### **3. Mentoring**

NH Better Buildings required relevant previous work experience for a contractor to be listed on the program's Qualified Contractor list. A few applicants had passed their BPI exams but did not have work experience. In order to create a path for qualification, NH Better Buildings worked with Lakes Region Community College to modify an existing mentoring opportunity that they offered. Contractors were able to participate on several energy audits with an experienced mentor in order to gain more practice and ensure they were going about the work correctly. NH Better Buildings only sponsored two contractors in this process, but both found the experience to be helpful.

## **Financing and incentives**

### **1. Demand Exists for Higher Loan Amounts – Utility Loan Experience**

An interesting result of the partnership with utility on-bill financing was that the loan amounts were on average much higher than anticipated. When program staff developed the budget for the utility partnership with Public Service of New Hampshire (PSNH), staff used the average loan amount from their previous program experience of \$2,500.

However, the Better Buildings partnership allowed the utilities to offer larger loans than they had been able to through their existing HPwES program and to let customers take out loans for deep-dive measures that had previously not been allowed. At the end of the program the average on-bill loan for PSHN was \$6,612.

This experience reveals that when loan funds are available and customers are able to undertake more extensive measures as part of their project, there is consumer demand for higher spending. The rebates available through the utility HPwES program did not increase with the partnership, only the loan amounts and allowable measures increased. So the higher average was entirely loan funds that consumers have to repay. In other words, "their" money went into retrofit projects rather than "free" money (rebates) from the program. Given the right

conditions, consumers are willing to invest at higher levels than originally anticipated.

## **2. Co-lending**

The co-lending/participatory lending model (described previously) was very popular with bank partners. On commercial projects banks still want to see “bricks and mortar” collateral. They are not yet ready to use energy savings as collateral. Neither the banks nor the customers are quite ready to use the estimated savings as collateral for a loan.

The participatory lending, or co-lending, program offered a solution to collateral concerns. With the federal dollars in a subordinated position, the risk to the bank was halved. Many of the banks also got a personal guarantee from the borrower. Others backed their half with a Small Business Administration (SBA) guarantee.

## **3. In NH Market, Rebates and Grants Still Needed**

NH Better Buildings found that in New Hampshire’s market, rebates and grants are still needed to move projects forward. On the residential side, utility HPwES programs offer significant rebates of 50% of the total project cost up to \$4,000, and it did not make sense to run a competing program with lesser rebates.

For commercial projects, the program initially offered only a low-interest loan without a grant. Uptake was very, very slow. Once a grant (rebate) was added to the offering (25% of total project cost up to \$150,000), clients proceeded with projects much more quickly. Grants were offered in part due to time pressures to spend all ARRA funds within the grant period. It is unclear whether a lower rebate or no-rebate program could have eventually flourished. It would have taken more time to develop in the marketplace than the original grant period offered. Anecdotally, business owners did seem to indicate that they wanted rebates, or at least wanted the fairly short term paybacks that rebates make possible, or they would not move forward.

# **Data and Evaluation**

## **1. Collection of Good Data is Difficult**

NH Better Buildings learned that collection of accurate, useful data is a difficult and time consuming process. One of the biggest keys to success is that contractors need to be willing and easily able to submit required information (data). Streamlining forms with other programs was one way NH Better Buildings tried to help in this arena. The requirement to use TREAT software provided good modeled savings data per household, but it was a more time intensive effort for many contractors, and not all of them found it to be worthwhile. Program-wide

fuel use data also proved difficult to collect, especially since many in NH use delivered fuels for heating and supplement with wood. Metered fuel utilities often have significant privacy rules and administrative difficulties in sharing large groups of customer data.

## **2. Undertaking Data Analysis**

NH Better Buildings has undertaken an economic and financial impact analysis using data collected from the program's projects. That report, created by Seacoast Economics, LLC focused on three main objectives; quantify the economic impact of energy efficiency projects completed by the NH Better Buildings program, investigate the role of finance mechanisms in driving project adoption for residential and commercial energy efficiency projects, and summarize lessons learned from the program that may be useful in the design of future statewide energy efficiency programs. A copy of the Seacoast Economics report can be reviewed through this link:

## Accomplishments

### **SOP0 Task 1: Develop and Enhance Financial Mechanisms**

NH Better Buildings identified four different financial mechanisms to develop during the course of the grant period. The program experienced success with all four approaches.

#### **Utility On-Bill Financing**

NH Better Buildings executed contracts with three utilities that run the state's rate-payer funded HPwES programs. Two of these utilities, Public Service of New Hampshire (PSNH) and Unitil, use on-bill financing. As part of the contract, these two utilities used Better Buildings' funds as additional capital for their on-bill lending. This innovation from their previous programs involved going to the NH Public Utilities Commission (PUC) for a change in their tariff in order to allow the utilities to expand their loan offerings when using Better Buildings' funds as capital. The maximum residential loan available increased from \$7,500 to \$20,000 and the maximum term increased from five years to ten years. Customers taking loans from the joint program were also allowed to finance "deep dive" measures that are not typically available through the utility HPwES programs. These "deep dive" measures included installation of pellet boilers, solar thermal hot water, geothermal systems, exterior insulation and ENERGY STAR® rated windows and doors. Customers adding these items were required to implement a base efficiency project achieving a minimum 5% savings first.

The utility partnership resulted in 193 on-bill loans totaling \$1,276,164. Prior to the partnership, the utility companies estimated their average on-bill loan amount was \$2,500. The average loan during the partnership was \$6,612.

#### **Financing Program - Private Loans**

NH Better Buildings created two private loan financing programs with local banks and credit unions. A residential and small commercial loan product offered customers a 1% interest rate and terms up to 10 years for loans under \$20,000. NH Better Buildings provided partner banks with a 50% loan loss reserve (LLR) and used an interest rate buy down (IRB) to achieve the 1% rate. Local banks and credit unions wrote 134 loans through this partnership. Total loans made with the residential product were \$1,197,138 leveraging \$870,731 in Better Buildings' funds in the form of LLR and IRB. Specifically, \$597,775 funded the LLR and \$272,957 was paid in IRB. The unspent LLR funds will return to the revolving loan fund. Thus far there have been no defaults.

NH Better Buildings also developed a commercial loan product. This was achieved as a participatory lending (co-lending) agreement with local banks and credit unions. NH Better Buildings provided one-half the capital at 0% interest, the bank provided the other half at a fair market rate negotiated with the borrower. The NH Better Buildings capital was in second place in case of default. The result was a lower-than-market blended

interest rate for the borrower. Banks used their own underwriting criteria. The NH Better Buildings portion of each repayment is returned to the revolving loan fund. In total, banks made 18 loans with this product. Total loans were \$2,596,724 leveraging \$1,298,362 in Better Buildings' funds.

### **Low Income**

NH Better Buildings created partnerships with local Community Action Agencies to achieve retrofits in low-income homes in Berlin, Plymouth and Nashua. Contracts with Southern New Hampshire Services (SNHS) for \$491,385 retrofitted 89 units and a contract with Tri-County Community Action Program (TCCAP) for \$438,365 retrofitted 74 units. Both SNHS and TCCAP also participate in the federal Weatherization Assistance Program (WAP) administered through the NH Office of Energy and Planning, and used the Better Buildings funds in concert with their existing low-income program. In addition, Better Buildings' funds were used to address low-income homes that were above the current income limit of 200% of the Federal Poverty Guideline, but still below 363%. In Plymouth, a partnership with the NH Electric Coop and a local non-profit, the Plymouth Area Renewable Energy Initiative, achieved retrofits on 8 low-income homes for a cost to Better Buildings of \$35,618. All funds for low-income partnerships were grants to upgrade the homes of low-income NH citizens.

### **Revolving Loan Fund**

NH Better Buildings is putting returned funds from loan repayments, interest, and loan loss reserves into a revolving loan fund. This fund will serve as the basis for future program efforts described in more detail in section 7 of this report.

<b>Financing Products</b>	<b>Amount</b>	<b>Number of Loans</b>
Loan Loss Reserves	\$597,774.85	134
Co-Lending with Banks	\$1,298,362.25	18
Co-Lending with Utilities	\$1,276,163.91	193
<b>Total</b>	<b>\$3,172,301.01</b>	<b>345</b>

## **SOPO Task 2: Design Marketing and Outreach Program**

NH Better Buildings opened three community offices in the beacon communities of Berlin, Nashua and Plymouth. A Community Manager and Technical Advisor staffed each office and served as the main points of contact for customer interaction and outreach in their respective communities. The Community Development Finance Authority (CDFA) and the community offices embarked on numerous marketing efforts, both grassroots and traditional, during the course of the project.

Staff attended community events such as fairs, farmers markets, and Chamber of Commerce meetings. In Berlin, a series of monthly "Lunch and Learn" sessions provided

the foundation to create an ever growing group of interested and informed citizens. In Plymouth, door to door business visits in partnership with the NH Retail Merchants Association and NH Division of Economic Development recruited participants for the Better Buildings' commercial program. In Nashua, an incentive structure for contractors had the implementers selling the program to their customers and bringing them to us. A marketing surge in the fall of 2011 spread coordinated messaging about the program through the three communities through newspaper, radio and online advertisements.

## **SOP0 Task 3: Implement Program**

### **Subtask 3.1 Cultivate Participation in Energy Program**

NH Better Buildings was able to exceed program goals for both Residential Units and Commercial Square Footage retrofitted. The program had goals of retrofitting 808 residential units and 685,000 square feet of commercial space. The program achieved 810 residential units, 365 residential multi-family units (29 buildings; 366,837 square feet) and 66 commercial buildings (909,979 square feet).

Critical to the success in achieving the program goals was the statewide expansion of NH Better Buildings work outside the three original beacon communities in 2012, to partnerships with three utilities throughout their service territories and an RFP for commercial projects anywhere in the state. Lessons learned about outreach and project management in the three communities enabled successful expansion of the program statewide.

### **Subtask 3.2 Build Workforce Capacity**

NH Better Buildings worked with a list of qualified contractors and auditors throughout the program. Contractors presented bids and quotes to their customers and the customers had the ultimate decision on which contractor they chose to work with and which measures they chose to implement. A total of 43 contractors and auditors were listed on the NH Better Buildings website by the end of the program.

NH Better Buildings also partnered with the Community College System to offer training programs for contractors. Trainings that were sponsored included TREAT auditing software training, a mentoring program for contractors needing additional field hours to qualify for the qualified contractor list, BPI certified Building Analyst and Building Installer classes, Introduction to How Buildings Work, a Realtor Workshop, and an installation workshop focused on manufactured homes. NH Better Buildings also provided scholarships to several other BPI, infrared and heating system classes offered by the Community College System.

## **SOPO Task 4: Develop Mentorship Program and Implement Phase II**

NH Better Buildings ended up expanding to a statewide program during the course of the initial grant period. Thus the idea of establishing three new NH Better Buildings' communities after the initial grant period does not have the same basis that it did when the initial grant application was written. However, lessons learned through working with Berlin, Nashua and Plymouth were captured so that they can be used during the implementation of Phase II with the Revolving Loan Fund.

NH Better Buildings produced a series of case studies that can be used for future customers and programs to illustrate different efficiency projects done in the three communities and around the state. One of the most important lessons learned, the need for closer coordination and streamlining of efficiency programs in the state, has been highlighted by Better Buildings staff in several venues, such as meetings of the State's Energy Efficiency and Sustainable Energy Board, the National ACI conference, in energy policy discussions with other stakeholders, in discussion with utility programs and in planning for use of the revolving loan fund.

Implementation of Phase II will happen through the revolving loan fund. Through this fund, the program will have the opportunity to continue co-lending relationships developed with local banks and possibly expand coordination with utility programs that want to offer financing opportunities for their customers.

## **SOPO Task 5: Project Management and Reporting**

The NH Office of Energy and Planning and the Community Development Finance Authority developed a comprehensive billing and reporting structure to verify completion of projects and ensure that the program was on track to meet and exceed goals for unit and square footage completions. Gathering of project information for the DOE quarterly reports and the submission of those reports provided a wealth of information on projects, costs and estimated savings.

Efforts to collect data on deliverable fuels (oil, propane, wood) have been a challenge given time and staff constraints. Lacking the ability to create a mechanism for comprehensive data gathering on delivered fuels, staff chose to do in-depth post-construction interviews and fuel data collection directly with building owners for a subset of program projects. Due to staff relationships, a high percentage of oil usage, and willingness of building owners, a number of commercial program projects in Berlin were chosen for this effort. Billing data for metered fuels (electric and natural gas) was collected whenever possible and submitted to DOE.

## Challenges

### 1. Program Design Challenges

#### a. Level of Demand in Specific Geographic Areas (Beacon Communities)

During the original grant award process NH Better Buildings created estimates for the number of residential and commercial buildings that could be retrofit in each of the three Beacon Communities.

<b>BERLIN</b>	<b>Residential</b>	<b>Commercial</b>
Original Goal	145	21 (105,000 sq ft)
Actual Retrofits	204	19 (208,758 sq ft)

<b>NASHUA</b>	<b>Residential</b>	<b>Commercial</b>
Original Goal	310	70 (350,000 sq ft)
Actual Retrofits	216	20 (625,321 sq ft)

<b>PLYMOUTH</b>	<b>Residential</b>	<b>Commercial</b>
Original Goal	353	46 (230,000 sq ft)
Actual Retrofits	36	21 (210,520 sq ft)

Estimates for the original goals were based on retrofit goals from the state's Climate Action Plan and some general knowledge about the demographics of each community. However, as the program began to unfold, significant differences between the estimated number of projects and the actual level of demand was noticed. By fall of 2011, program administrators realized that not enough projects were coming in to meet program goals by the end of the grant period, and began planning for adjustments.

The first reason projections were likely off from actual projects is that the original estimates were based more on need than they were on existing demand, or the potential for demand, in the marketplace. Looking at the Climate Action Plan goals and making some simple assumptions based on knowledge of the three communities lead to a set of goals that were based on how many buildings the state *should* retrofit, not on an analysis of the existing market and potential for expansion. For example, in Plymouth, population included student population and many residential units were rental properties, both market segments that are less likely to proceed with energy efficiency projects. Also, many early adopters had already completed projects.

The original goals for each community were quite high. However, they were not completely out of reach. The biggest concern with meeting the original goals was having the time to build demand to the level needed in order to achieve the goal.

As with every program, there was a significant ramp-up period for NH Better Buildings. In order to achieve high numbers of retrofits in a single community, marketing messages need time to sink in and disseminate. A part of NH Better Buildings included an effort to try a variety of marketing tactics in the three communities to learn what was most effective. Because part of this process was learning what works and what does not, some tactics proved more successful than others. This type of learning by experience in a community is very valuable, and the experience gained will be used during the next phase.

Additionally, word of mouth marketing, an approach found to be very effective among neighbors in a community, becomes stronger as residents complete projects and see the results. The timeline of creating initial customer interest, getting an energy audit, determining which measures to implement, construction and then, for true results, experiencing a heating season with the improvements in place, adds up to almost a full year before a customer has experienced the entire process. With the timeframe of the Better Buildings funds, the true value of many satisfied customers driving demand in the marketplace did not have time to develop.

By the end of the program, the local NH Better Buildings offices had developed a strong presence in each community. However, given the timeframe, the program needed to expand to a wider customer base in order to meet program goals by May 2013.

In the fall of 2011, NH Better Buildings program administrators realized that the number of retrofits were not on track to meet goals by the end of the program. Staff developed and evaluated a number of approaches to increase completion numbers (units and square footage). In the end a suite of efforts, including increased marketing, addition of a grant opportunity for commercial projects and a statewide expansion for both residential and commercial, lead to success and NH ended the program exceeding both residential and commercial goals. While the three original communities did not meet the retrofit goals on their own, a significant number of projects did happen in these locations. They truly did become Beacon Communities.

**b. Coordinating with Other Programs**

One of the great benefits of NH Better Buildings projects was also one of the biggest challenges. At the time the Better Buildings program operated, there were numerous energy programs operating in the state, with a variety of funding sources including Weatherization Assistance Program (WAP), Systems Benefit Charge (SBC), American Reinvestment and Recovery Act (ARRA) and Regional Greenhouse Gas Initiative (RGGI) finds. These sources funded various programs which all operated essentially independently and were not coordinated by any single entity. For instance, on the residential side, there were the utility HPwES programs (run by four different utilities), Low-income Weatherization programs,

state rebates for solar thermal, solar electric and pellet boilers, and the Northern Forest Center Model Neighborhood program operating in Berlin, as well as the NH Better Buildings program. On the commercial side, there was a program run by the NH Retail Merchants Association, utility rebate programs (run by 4 different utilities), the Pay for Performance program, and the HUD funded Greener Homes program for large multi-family as well as the NH Better Buildings program. All of the programs mentioned had slightly different rules, requirements and paperwork.

Customers often became overwhelmed trying to determine which programs they qualified for, how to process all the required paperwork, which contractors they were able to work with, etc. As a result, one of the main roles of the NH Better Buildings community staff became to streamline coordination with all of these other programs. Staff was able to fill this role well, because of a program structure that had dedicated staff in three communities. However, the time spent doing this coordination work took away from time that staff originally thought would be spent on marketing, outreach and other efforts at building demand in the communities.

NH Better Buildings' staff was able to build good relationships with the program staff from other programs and tried to structure relationships in a way that left customers and contractors dealing with as few entities as possible. However, programs were not able to be completely combined. This was most often noticeable on the commercial projects when trying to determine rebate and energy savings levels (i.e. Should rebates be subtracted from other programs when determining project costs? Which rebate gets paid first? Who gets to count energy savings?). Each program wanted to cooperate, but also had to meet its own deadlines and goals in terms of spending funds and generating energy savings.

A lesson learned through this process is that new programs or funding sources need to take the time to fully understand other programs operating in the marketplace and to develop from the start in a way that builds on and coordinates with what already exists.

**c. Streamlining Processes and Reporting**

For NH Better Buildings, a relatively small program with limited funds and timeframe, development of a significant computer-based customer service and reporting database system did not seem to be the best use of time and funds. Thus NH Better Buildings relied on paper forms from customers and contractors to collect project information and used the DOE quarterly reporting spreadsheet and some internally created project spreadsheets to keep track of customers and projects. This process worked well when the program had a relatively small number of projects, but became unwieldy as the number of projects and customers grew. Given this insight, if a large number of projects are anticipated through the RLF, then a database tracking system should be employed.

Project management and tracking relied heavily on the community staff knowing their customers, contractors, and where projects were in the process. Very capable staff provided project tracking which led to strong relationships between the staff and customers. However, because the process relied so heavily on knowledge of individual people it created some difficulties if a new person had to step in on a project and get up to speed quickly, and in scaling up to higher project numbers. Additionally, because staff was so involved in projects, customers began to assume they were the go-to people for almost everything, even other programs over which staff had no control.

One advantage to partnering with the utility HPwES programs for residential projects was that they had an existing customer and project database. Their HPwES program had been operating in the state for several years and had developed a database system that stores customer information, tracks projects, and integrates with auditing software and tracks measures, energy savings and project costs. In some respects, having the utilities use their existing program and process to service NH Better Buildings' residential customers solved a lot of the process and reporting concerns.

On the other hand, integrating the utility database with Better Buildings' reporting was an extremely time intensive and manual process. While the utility database did include most of the data points requested by Better Buildings' quarterly reports, it was not set up to match precisely with the reporting spreadsheet. Every quarterly report required utilities to run a query from their database and then spend hours manually reformatting the data to match the fields of the DOE spreadsheet. NH Better Buildings' staff would then spend additional hours adding more information and trying to re-format dropdown menus and other particulars from the Better Buildings reporting spreadsheet. The high degree of manual manipulation required meant an increased chance for errors. It was possible to do this work for the one year contract period between NH Better Buildings and the utilities, but it would not have been sustainable over a longer period of time.

For future programs it would probably work best to find a way to accept data and reports being produced by existing programs, rather than trying to create brand new processes or heavily manipulate the existing ones.

## 2. Challenges to Sustainability

### a. Market Desire for Rebates

One of the biggest challenges to sustainability is funding used for rebates (grants) that does not revolve back into the program. In NH, the need to use rebates and grants to drive customer action was high. There may be a number of factors

contributing to this customer mindset. NH Better Buildings happened during a time period where ARRA funds were being dispersed throughout the state through a wide variety of programs. The overall expectation that there should be grants or rebates available for projects was high. For commercial projects, the state had also been running RGGI funded grant programs for a few years before the start of Better Buildings. Residential customers had the HPwES Program, which during the NH Better Buildings time period offered a 50% rebate, but previously had offered an even higher 75% rebate. With the addition of the economic downturn, the market was primed to demand rebates, not just loans, and that is exactly what happened.

On the residential side, NH Better Buildings started offering a relatively modest rebate of \$250 to help cover the cost of an audit and a second rebate, scaled from \$250-\$750 based on estimated energy savings, for implementation. NH Better Buildings also offered a 1% residential loan. However, almost all Better Buildings customers also had access to the utility programs, which offered 50% rebates for eligible measures up to \$4,000 per home and some offered on-bill financing at 0%. Not surprisingly, the customers preferred the higher rebates and 0% financing. As discussed elsewhere in this report, NH Better Buildings was able to partner with these utility programs and came to an agreement where Better Buildings provided half the rebate dollars and all of the loan capital for projects done through the partnership. The arrangement allowed the program to meet its retrofit and spending goals and to loan out just under \$1.3 million dollars that would return to the revolving loan fund for program sustainability. However, the loans were at 0% so there was no program income and an average of \$1,288 of NH Better Buildings funds were spent on rebates per project.

For commercial projects, NH Better Buildings started out offering a low interest loan product, with no rebate. Initial commercial uptake was very slow, almost non-existent. With the program end looming and commercial dollars unspent, NH Better Buildings needed a plan to ensure that the program would meet the retrofit and spending goals by May 2013. That plan included covering the cost of the audit 50% up front and 50% if the project moved forward, and a 25% grant toward project implementation costs. The downside to this approach is that it likely over-incentivized the market. The upside was that staff was reasonably certain it would bring in enough projects to meet other goals, and it did.

As Better Buildings ends, the market in NH still seems to require grants and rebates to make projects move. The data analysis done for NH Better Buildings indicates that payback is one of the most important determinants of whether a project will move forward. Rebates and grants are still the surest way to reduce a project's payback period. When thinking about sustainable programing for future use of the federal revolving loan funds, CDFA and OEP need to look at partnering with other steady sources of funding in the state that provide the rebate dollars the market seems to require. State and program leaders need to think about an overall

plan for whether and how it makes sense to start lessening the overall market reliance on rebate and grant programs.

**b. Bank Interest in Lending**

NH Better Buildings created strong relationships with a number of local banks and credit unions. Using NH Better Buildings' interest rate buy-downs (IRB) and loan loss reserves (LLR), these institutions made numerous loans and have had no defaults to date. A series of conversations with banks at the end of the program led to the following insights. For all of the residential loans, banks felt the IRB was a key component in attracting customers. Their own loan products do not include a low-interest product, and there did not seem to be much desire for creating one. Some banks felt the residential loan loss reserve was critical, because energy loans are typically unsecured. Others felt that it was not so critical because they were maintaining high underwriting standards for the loans anyway.

On the commercial side, banks still want to see "bricks and mortar" collateral. They are not yet ready to use energy savings as collateral. Both the banks, and in some case the customers, indicated a skepticism of the estimated dollar savings for the projects. They agreed there should be dollar savings, but were not certain enough to include the savings when doing underwriting.

**c. Supporting a Program Income**

Because rebates or grants are still necessary to drive demand, and technical assistance is necessary to ensure customers move from audit to retrofit installation, program income will be a key factor in ensuring long term sustainability. Methods such as instituting a fee for technical assistance or implementing an interest rate to generate program income have been discussed. Given program deadlines, neither method was fully tested.

## Program Sustainability Plans

Several groups in NH have conducted surveys and research amongst citizens, municipal leaders and business owners. Overarching themes related to barriers, issues, and concerns in the energy efficiency marketplace often stated are:

- Program longevity – energy efficiency programs need to be sustainable and available long term. A program that starts and stops, changes eligibility requirements, and frequently modifies its benefits or runs out of funding further contributes to the uncertainty.
- Single source of information – information on energy programs is hard to find and there is no single, trustworthy source for such information
- Competing energy programs – multiple programs with varying eligibility requirements and lack of program coordination adds to market confusion and frustration. Further, sometimes multiple programs may result in combined benefits while other times consumers must determine which single program provides them the best value. This leads to lower participation rates because the effort to proceed may be high.
- Grants/rebates “needed” - continued need for rebates (at least for now) to reduce the payback period

For these reasons, the NH Better Buildings program must ensure it collaborates with other efficiency programs in the NH marketplace while controlling administrative costs and developing a method for earning income to insure the program’s future sustainability.

All NH Better Buildings’ funds are currently under contract with commercial and residential clients. Residential loans have a maximum 10-year term and based on the amount lent, the program expects loan repayments of approximately \$240,000 annually for the next three to four years with the amount declining as smaller, shorter term, utility loans are fully paid. Because the majority of these loans were written through the NH Better Buildings and utility partnership, which offered interest-free loans, program income is minimal. Commercial loans have longer terms of 10 – 30 years and the estimated repayments are \$160,000 annually.

The “cash on hand” value of the commercial and residential revolving loan funds is approximately \$500,000 (as of November 1, 2014); therefore, NH Better Buildings will continue to build revolving fund capital during the remainder of 2014 and into 2015 through loan repayments and interest. Staff will use this time to further develop a loan program that has minimal administrative overhead and addresses the market concerns previously listed.

### **Commercial Program:**

Further development of a participatory lending (co-lending) model would continue to create similar economic and energy savings benefits realized during the program's ARRA phase. Based on recognized market transformation, a minimal interest rate may be charged on loans. The program income (interest and possibly a program fee) could be used to manage the lending program, supporting staff efforts including project oversight and inspections. The benefits of focusing on commercial projects are that these projects tend to request large loans, which in turn leads to fewer projects; however, the project management costs remain high due to Federal requirements such as the Davis Bacon Act and Buy American. These two regulations require significant staff time and reporting, which leads to increased overhead costs.

As part of the ARRA State Energy Program (ARRA-SEP), OEP and CDFA established an Enterprise Energy Fund (EEF). This revolving loan fund provides low interest loans to non-profit businesses and commercial businesses for energy efficiency and renewable energy projects. An observation stated in the introduction of this section highlighted a barrier that New Hampshire continues to face – having multiple programs serving the same or overlapping client base is confusing to the market, and leads to questions such as: Do the programs work together? Can a business combine incentives? So as to not perpetuate this market confusion by offering multiple programs to the same sector, NH Better Buildings may decide instead to only serve the residential sector through its revolving loan fund.

### **Residential Program:**

To build upon NH Better Buildings' successful collaboration with the utility HPwES programs, utilizing the revolving loan fund to support a residential efficiency program is a viable option. The HPwES program is a recognizable "brand" of which residential customers are aware and familiar. The utilities have established program requirements, processes, installer networks and implementation standards including the measurement and verification of results. All of which lead to program consistency and customer satisfaction. Marketing efforts could also be combined, resulting in reduced program administrative costs.

One obstacle the utility-run HPwES program currently faces is limited funding, as the program is primarily funded through the Systems Benefit Charge (SBC) and Regional Greenhouse Gas Initiative. Consumer demand for loans is high and in the past the program has run out of funds for retrofit rebates and financing prior to the end of each program year.

The NH Better Buildings program proved that access to easy, low-cost, financing is essential for market transformation and program success. Through the NH Better Buildings' partnership with the utilities, the HPwES on-bill financing option was very well received by residential customers. Understanding the need for "easy" financing, the

utilities are beginning to research other financing options, such as partnering with banks for additional capital and loan administration.

How can NH Better Buildings continue this successful partnership by leveraging the revolving loan fund with utility and private capital? One method involves a co-lending agreement between a private bank, the utility and NH Better Buildings where the bank provides 50% of the loan at an agreed upon rate and NH Better Buildings provides the balance at a below-market rate (0% - 3%), with a resulting blended rate that is below market. If the utility chooses, they could further buy down the interest rate. A second option is to provide the revolving loan fund as a loan loss reserve to increase the bank's lending ability to HPwES customers.

Two NH utilities are currently running a financing pilot whereby private banks provide loan capital at a negotiated interest rate and the utility then buys down the interest rate to 2%. The utilities recently proposed to the NH Public Utilities Commission a similar financing program that would be run statewide. Upon PUC approval, NH Better Buildings' revolving loan fund could be leveraged during the statewide implementation to further expand the program. NH Better Buildings could accomplish this in several ways: co-lending, loan loss reserve, or additional interest rate buy-downs. The co-lending option could be structured (include an interest rate) to cover administrative costs. Given the projected annual balance in the revolving loan fund, the number of loans written under the combined program would be limited to approximately 100 per year (based on projected annual fund balance and an average loan of \$2,500). Alternatively, to expand the HPwES program's overall lending capacity, NH Better Buildings' revolving loan fund could be used as a loan loss reserve to increase private investment in energy efficiency lending. Although not revolving, interest rate buy downs could be utilized in the short term to further expand the market and promote market transformation by gradually introducing financing "products" with interest rates.

### **Next Steps:**

Staff will monitor the utility pilot program and demand for energy efficiency loan products. We are in discussion with the utilities, local banks and credit unions to discuss the various options defined above. The State of New Hampshire, led by OEP, is also currently undertaking development of a new State Energy Strategy as well as an investigation of an Energy Efficiency Resource Standard. Overall goals for efficiency programs may be incorporated into planning efforts. Based on information gathered and market trends, a program for the revolving loan fund will be fully defined.

## **Verification of Data**

DOE will provide a summary of data for NH Better Buildings program in March 2013. The Dashboard summary report highlights program funding, design, financing and incentive products and results, workforce development, and upgrade and energy savings data.

In addition to the dashboard report, data collected during the NH Better Buildings program was analyzed by Seacoast Economics, LLC. This study provided data analysis in the following areas:

- Economic impact of energy efficiency projects completed by NH Better Buildings
- Role of finance mechanisms (loans, grants, and rebates) in driving project adoption for residential and commercial energy efficiency projects
- Summary of lessons learned that may be useful in the design of future energy efficiency programs

## **Developed Products**

No specific products were developed as part of the NH Better Buildings program; however, during the program period cases studies, economic analysis and presentations were created. Including:

- NH Better Buildings Case Studies
- An Economic Evaluation of NH Better Buildings Program by Seacoast Economics, LLC
- Blended Programs: A NH Better Buildings and Home Performance Case Study – Presentation at the ACI – Better Buildings Conference in Denver

In addition, a webpage devoted to the NH Better Buildings program is accessible from the State of New Hampshire's Office of Energy and Planning website. The webpage includes links to the aforementioned materials.

## **Submission**

In addition to the items requested above, any other addenda related to your Better Buildings Neighborhood Program award are also welcome.

DOE recommends that you submit a DRAFT of your final report to your Better Buildings Neighborhood Program account manager, project monitor, and project officer 30 days prior to final submission to ensure that the final submission will be accepted.

**Electronic Submission: The Final Technical report must be submitted electronically-via the DOE Energy Link system (E-link) accessed at <http://www.osti.gov/elink-2413>**

**Electronic Format:** Reports must be submitted in the Adobe Portable Document Format (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematic, graphs and charts. Materials such as prints, videos, and books that are essential to the report but cannot be submitted electronically should be sent to the Contracting Officer at the address listed in Block 12 of the Notice of Financial Assistance Award.

**Submittal Form:** The report must be accompanied by a completed version of DOE Form 241.3, “U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)”. You can complete, upload and submit the DOE F.241.3 online via E-Link.