Incubating Innovation

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ABSTRACT

The U.S. Department of Energy (DOE) invested $508 million to develop and incubate community-based programs, seeking to spur demand for upgrading the energy efficiency of buildings through the ARRA-funded Better Buildings Neighborhood Program (BBP). DOE sought applications to target innovative, "game changing" ideas for a comprehensive framework for building retrofits. The Southeast Energy Efficiency Alliance (SEEA) created a consortium with 13 partner cities in eight states and in one U.S. territory, intending to dramatically increase the effectiveness of building retrofits across the Southeast region. Historically, states and utilities in this region have spent only one-fifth of the national average, per capita, on energy-efficiency programs. Each city program's leadership designed and implemented a program based on its unique market context, experience, and partnerships in their respective cities, thus no two programs were alike. Despite SEEA's and DOE's ambitious attempts to provide support, a variety of unexpected challenges arose. Eighteen months after launch, five of the 13 programs had been shut down or designated as programs to be discontinued. Others, however, were well on their way to achieving or even surpassing their goals. The survivors did deliver innovative ideas, but only after conquering the challenges of the program start-up phase. The pressure to demonstrate the value provided and to report results quickly did not allow for taking risks with radically new or different ideas when launching programs. Over time innovative ideas did emerge, particularly in outreach and marketing tactics, as core operations stabilized and program teams learned more about their local markets.

Introduction

The U.S. National Action Plan for Energy Efficiency described energy efficiency as remaining "critically underutilized in the nation's energy portfolio," despite its known benefits and the success of many energy-efficiency focused programs. DOE is certainly not the first organization to seek innovative ideas to market, deliver, and finance energy efficiency. Many utilities also seek innovative new strategies to reach customer segments that have yet to respond as their energy-efficiency programs mature. Innovation, however, cannot simply be turned on or unleashed. Given this, how can organizations ignite and incubate effective new ideas to increase responses to energy-efficient opportunities?

The programs launched as part of the DOE Better Buildings Neighborhood Program offer an opportunity to learn more about fostering innovation in energy-efficiency programs. In particular, the diversity of the program models and organizations involved in the SEEA consortium represents an opportunity to investigate how innovation and other factors contributed to program success.

One Consortium with Thirteen Experiments

Among BBP grantees, SEEA put forth a unique proposal. Most BBP grantees were large cities or metropolitan regions that proposed using the funds to develop local energy-efficiency programs,

offering a single menu of incentives and a single financing program. A few larger programs proposed working in multiple cities within one state. SEEA, however, proposed spreading the funding across its region, involving 13 communities, ranging in size from Atlanta, GA, to Carrboro, NC, (with a population below 20,000), and spread across eight states and one U.S. Territory. SEEA intended to develop a collection of smaller programs, each with its own locally-crafted program design, and operating as experiments in community-based energy efficiency. These programs would be supported by financing and data collections systems that operated at a regional level, allowing for efficiencies of scale and easing barriers to long-term growth and the addition of future programs.

Individual programs focused on residential, multifamily, commercial, or a combination of building sectors, with some programs changing or adding other sectors midstream. Program administrators included nonprofit and for-profit organizations, local government staff, and a utility. Some programs partnered with or added to utility programs; others operated independently. Most offered incentives, but one offered grants. The programs deployed a variety of local partnerships, contractor engagement, and market outreach strategies. Launched with a previous grant, one program had been fully designed, while others functioned with varying levels of program design and staffing when awarded the BBP grant. Most had identified an entity to receive the funding, but had little else in place.

The Laboratory: A Region Not Known for a Strong Conservation Ethic

With 36% of the U.S. population, the South consumes 44% of the nation's electricity. Though homeowners and businesses may not be as motivated to reduce energy costs in a region with historically lower electricity rates than other parts of the U.S., public polls and sales data also suggest a relatively weak energy conservation ethic. A 2009 Public Agenda poll asked Americans if U.S. energy policy should favor conserving and regulating energy use or emphasize drilling and construction of new plants. As shown in Figure 1, support for conservation in the South fell well below other regions (with the nationwide average at 56% in favor of conservation, but support in the South at 48%). The South also experienced the lowest market penetration rates for ENERGY STAR appliances, per sales data tracked by the U.S. Environmental Protection Agency (EPA) (McNary 2009).

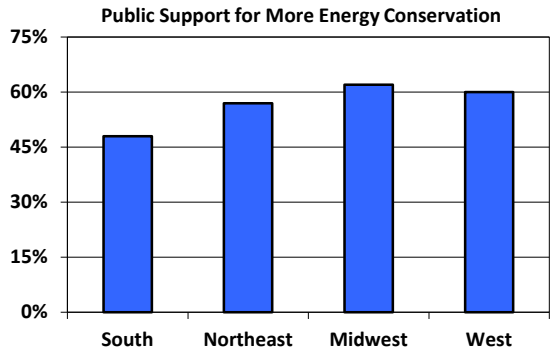

Figure 1. 2009 Public Agenda Poll Results

Energy policy assessments have noted that per-capita spending on electric utility energy-efficiency programs in the South stands at just one-fifth of the national average (Elliott and Shipley 2005). Thus, a 2009 McKinsey Global Energy and Markets study unsurprisingly concluded the South offered the largest energy-efficiency resource in the country, with the potential to save 2,600 trillion

BTUs by 2020. Although some utilities now actively offer energy-efficiency programs in the region, the South remains a relatively untapped opportunity.

Essentials for Incubating Innovation

Although innovative thinking cannot be directly procured or turned on at will, much has been learned about creating environments fostering innovation. Rosabeth Moss Kanter, author and professor at the Harvard Business School, recently blogged about elements stifling innovation and actions allowing innovation to flourish. She finds innovation requires: providing people with time and resources, an openness to unexpected idea sources and unplanned opportunities, and a nurturing environment that encourages collaboration and accepts that some efforts will not work. For the BBP programs, DOE and SEEA adopted a number of actions to create such an environment.

Professor Kanter also finds innovation stifled by stressing predictability and counting "everything that can be counted," along with insisting all procedures must be followed. These elements present a greater challenge in an era where government agencies and recipients of public funding must comply with many requirements and demonstrate accountability.

Actions Taken to Assist Local BBP Programs

Both DOE and SEEA offered support for the community programs. At the national level, DOE developed a handbook and templates for grantees, and offered workshops, case studies, guidance documents, and tools and calculators. DOE encouraged program interactions, sharing ideas via a blog, peer exchange calls, and Webinars. The Better Buildings Neighborhood Website and the DOE Technical Assistance Program Solution provided access to these and other resources.

SEEA provided regional support for subgrantees through a more personal, side-by-side approach. SEEA contracted with a consultant to aid program management and hired several program managers to work with local program leaders and staff. The program managers essentially served as account managers with assigned city programs, assisting the programs as well as managing compliance with SEEA and DOE requirements. SEEA regularly communicated with the cities, and created opportunities for program staff to share ideas and to discuss challenges via conference calls and in-person summits. These efforts established closer relationships between subgrantees and focused on issues common across the Southern region. Program leaders later reported they first looked to other SEEA subgrantees when seeking outside help, particularly for program design and marketing questions.

SEEA also conducted program oversight, managing DOE funding allocations and accounting, and submitting required reports. Prior to acceptance into the coalition, each subgrantee submitted a proposal to SEEA, and SEEA then worked with each candidate to finalize program targets and program designs in compliance with DOE's direction. This included creating templates and procedures for reporting and developing a database to capture program data. SEEA also provided some assistance in the development and negotiations of partnership agreements with utilities, government agencies, and other organizations.

Good Intentions—Unintended Challenges

Despite DOE's and SEEA's ambitions in trying to provide support for the many dimensions required in creating and delivering retrofit programs, providing all the help needed at the right time proved difficult if not impossible. The varying degrees of experience, resources available, and capabilities of administrators for each local program further complicated developing effective support activities. For example, many SEEA subgrantees found DOE Webinars too general to be helpful. In

some cases, support proved insufficient or unavailable when needed, and some support did not materialize as planned.

Guidance. Although the BBP grant award was finalized in May 2010, DOE had yet to finish defining many program requirements. Throughout the start-up phase, subgrantees sought detail and clarification on federal rules related to reporting, program design, fees, Davis Bacon regulations, and other issues. SEEA encouraged subgrantees to launch program operations as quickly as possible, and most had launched or functioned at an advanced design stage when DOE issued its first guidance document, five months after grants were awarded. As of January 2013, DOE has issued 21 formal guidance documents. While the documents establish DOE positions on issues affecting program design and operations (such as how to track commercial and multifamily buildings, allowable costs, and fees for services), SEEA and subgrantees expressed frustration with DOE setting the rules so late in the grant period. New guidance often required program administrators to change program designs or alter programs' financial sustainability plans.

Information Technology Infrastructure. Though SEEA initially planned to develop a regional IT solution, the contractor engaged failed to deliver a functional system. Each local program needed to develop processes for managing and tracking data, processing applications, issuing rebates, and providing information on Websites. This required reallocating staff resources, and delayed efficient operations and online support for outreach activities.

Financing Options. SEEA invested a great deal of time and energy in developing a regional financing option, but found, as did many other BBPs around the country, it difficult to convince lenders to become involved. After a Request for Information attracted limited response, and following discussions with other potential lending partners, SEEA determined the program's prospective loan volume insufficient to attract high-quality proposals from lenders large enough to offer the necessary geographic footprint for regional service.

SEEA changed tactics and began approaching lenders about more localized programs. Currently, SEEA works with different types of lenders to provide loan loss reserves in three cities, and helps others access loans through institutions awarded PowerSaver[1] grants. SEEA also partners with grant awardees to provide an interest rate buydown for PowerSaver loans.

Local Bumps in the Road

Local program administrators encountered unanticipated challenges, which consumed time and resources they hoped to use for more creative activities and program outreach. Program stakeholders interviewed in late 2012 characterized "staying afloat" as their primary concern. Starting up and operating their programs required so much effort that little time remained to consider innovative new approaches. Some had to acquire additional staffing just to comply with reporting requirements. Most became fast-followers rather than first-movers, adopting approaches previously used by others or sharing ideas that emerged as they began to network with other SEEA and Better Buildings Neighborhood programs.

Program Startup. Although DOE hoped to inspire innovation in programs, grantees and subgrantees felt pressure to deliver results quickly. Finalizing agreements consumed time as SEEA

[1] The U.S. Department of Housing and Urban Development launched the PowerSaver grant program in 2011, offering loan guarantees to reimburse lenders for all or a portion of their loss if borrowers default.

worked with each program to establish a solid foundation for program development, performance goals, and reporting requirements.

Few programs had the infrastructure or processes in place to process audit and retrofit data and paperwork, rebate applications, check payment, and other program needs. Even where program administrators assumed existing systems could be used (for example, in programs run by city departments), complications emerged that prevented efficient operations. In several cases, cities changed plans and contracted with a third-party administrator to operate their program. Meanwhile, SEEA faced requirements from DOE to collect data about audit and retrofit results. Program administrators had little time to innovate or create new approaches during their initial program designs and deliveries.

Staffing. Program administrators often underestimated program staffing needs. Subgrantees frequently mentioned reporting and processing applications and rebates as activities that took more time than anticipated. In some programs, understaffing contributed to delays in processing rebates for contractors and participants, and limited program staff time to develop community partnerships. Five of the 13 city programs largely became the responsibility of one full-time equivalent employee, with some assistance from other partners. Two of these programs ceased operations early.

Changing the System. Bigger did not necessarily mean better for programs operated by governmental divisions. While some program managers viewed a city "endorsement" as adding credibility to a program, it also often was accompanied by the proverbial red tape. Some program managers could not maintain a program Website as part of a city's Website. Larger city program managers particularly grappled with bureaucracy in trying to get decisions made and new processes implemented to enable program operations. In one large city, for example, the accounting system could not issue a rebate check unless the homeowner enrolled as a vendor to the city. Working around this process required substantial time, and resulted in homeowner complaints to the city and to SEEA.

Utility Partnerships. Some programs successfully leveraged existing utility rebate programs, intending to launch quickly and increase participation by working with the utilities through marketing and grassroots outreach efforts. Other efforts faced stonewalling from the start, or began but proved unable to develop a collaborative relationship. Program managers reported resistance, with utilities telling them their audits and testing had no value, or telegraphing a message that, in essence, said: "We've been doing this for a long time and know what we're doing, and you don't."

From Challenges, Innovation Emerges

As local programs encountered challenges or disappointing results, some leaders and staff resourcefully sought alternative approaches, drawing upon partners, the experiences of other subgrantees, or SEEA's assistance. In some cases, SEEA redirected program activities to improve program performance, and some of the more innovative ideas emerged from these program reinventions.

Grassroots Marketing. A New Orleans program originally placed greater emphasis on professional marketing and public relations support, including television advertising with a celebrity spokesperson in New Orleans. After a low initial response, SEEA encouraged a shift to more community-based outreach efforts, recognizing New Orleans as a parish-based community, where residents identified with their local neighborhoods.

The Worthwhile Investments Save Energy (WISE) program developed a comprehensive grassroots strategy, working with local farmers' markets, neighborhood associations, and civic groups. Part of this effort led to innovative Homeowner Showcase events, inviting neighborhoods to an open

house tour of upgraded homes belonging to satisfied retrofit clients. Signage placed throughout the homes highlighted the completed work and associated energy savings. Contractors completing the work were invited to attend, explaining the upgrades and networking with new leads (and some contractors even provided wine and cheese). Such events delivered additional requests for Home Performance Evaluations. The program later introduced a Neighborhood Energy Challenge, where the neighborhood team with the most homes completing a home performance evaluation would receive $5,000 toward a proposed neighborhood greening project.

Overcoming the Minimum Savings Hurdle. The Better Buildings Neighborhood program initially required an individual building retrofit to achieve at least 15% energy savings. This created problems for programs where identified energy-efficiency opportunities could not achieve this savings level, or if owners could not support the investment level required to achieve the energy-savings goals.

In October 2012, DOE provided new guidance, allowing grantees to use a portfolio approach to meet the targeted 15% energy savings. This allowed programs to support retrofits not meeting the minimum threshold, balancing these projects with those surpassing the threshold.

The revised guidance did not, however, solve the investment constraint problem. The Charlottesville, VA, Local Energy Alliance Program (LEAP) program chose to implement a staged retrofit program, allowing customers to set their own timelines and budgets. An in-home evaluation and consultation established the baseline and provided guidance to owners. LEAP tracked customer actions and awarded a Home Performance with ENERGY STAR certificate (shown in Figure 2) when cumulative energy savings achieved a 20% reduction in energy use.

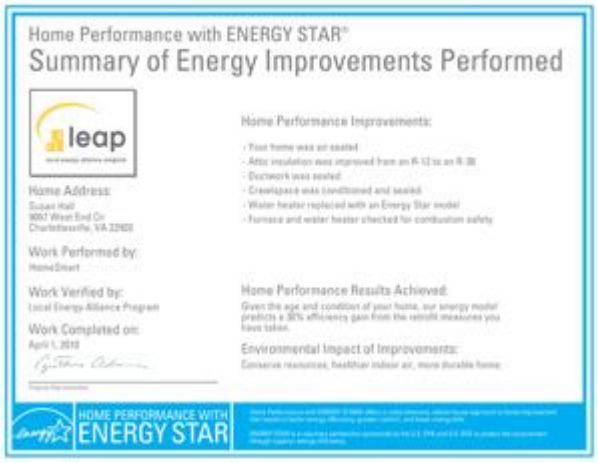

Figure 2. Home Performance with ENERGY STAR Certificate

Seeing is Believing. Customer surveys for the SEEA Better Buildings Neighborhood programs across the South also identified another barrier: distrust of contractors or recommendations resulting from home audits. JEA, Jacksonville's community-owned utility, developed an innovative solution to put meters and tools in homeowners' hands, enabling them to conduct their own energy evaluations. The do-it-yourself Home Energy Evaluation Kits (shown in Figure 3) included: an audit guide and worksheet, an infrared thermometer, Kill A Watt meters, a hygro-thermometer, and a compact disc containing energy and water fact sheets. JEA made the kits available in reclaimed billboard vinyl backpacks, offered through local library branches. In the program's first six months, 828 people checked the kits out for use in their homes.

Figure 3. JEA's Home Energy Evaluation Kit

Time Changes Everything

After some time passed, most programs developed new innovations and survived the start-up phase. Many of the organizations involved, being new to energy efficiency, could not be expected to anticipate how all program facets would (or should) work. As they began to work with contractors and customers, they learned and responded with program changes and additions.

Developing Trust. In some communities, the contractor trust barrier particularly proved to be a challenge. Some found few qualified home energy audit and retrofit contractors in their local areas. The New Orleans program particularly faced challenges due to distrust of local contractors following widespread perceptions of fraudulent contractor behaviors following Hurricane Katrina. New Orleans WISE provided Building Performance Institute (BPI) certification to a select number of contractors, pre-certifying them as service providers who can deliver to a national quality standard of work. Before the program, Louisiana had no BPI-certified contractors.

The U.S. Virgin Islands, despite very high energy costs, evidenced low energy-efficiency awareness. Program staff learned that their constituents perceived contractors making energy-efficiency recommendations as "snake-oil salesmen." SEEA helped to bring in mainland contractors, working closely with the selected local contractor to add credibility and to assure quality.

Helping Contractors Make the Sales Pitch. Contractors interviewed as part of the SEEA program evaluation identified a need for sales training. The Chapel Hill and Carrboro, NC, programs added a sales component to their contractor training as a pilot program. This proved so successful that SEEA plans to replicate it in additional areas. The third-party firm delivering the sales training also performed BPI certification training and quality assurance services for the programs.

Teaming to Make a Difference. For several of the most successful SEEA programs, partnerships played a role in meeting retrofit targets. Nashville Energy Works (NEW) formed a collaborative community partnership with the Nashville's mayor's office, the Tennessee Valley Authority, Go Green Nashville, The Housing Fund, Tennessee Alliance for Progress, and Nashville Electric Service. These groups formed an informal stakeholder advisory council, which provided valuable insights about their target market and outreach assistance. As with New Orleans, strong neighborhood affiliations characterized Nashville, particularly in areas previously affected by floods. In collaboration with its partners, NEW developed neighborhood activities to "take it to the hood" with

programs such as the Green is Alive in District 5 Energy Efficiency Demonstration Project. The successful community outreach activities proved effective, with more than 3,000 home energy audits conducted, and over one-third of participants completing some work to improve their energy efficiency. Nearly 500 reached the 15% threshold required for the NEW rebates.

Experience and Continuous Improvement. The Charlottesville, VA, LEAP program—the SEEA Consortium's most successful program—completed over 1,000 residential retrofits, with nearly a one-year lead on the other programs. Launched in advance of the SEEA grant, the program used funding from an earlier SEEA Green Cities Program. Consequently, this program could report retrofits completed in its first month. The ramp-up time required in cities without preexisting programs proved more challenging than most expected. Figure 4 summarizes the time between finalization of a contract with SEEA and the first retrofit date for programs in the consortium. Both with established energy programs, Charlottesville and Atlanta reported retrofits completed in the first month. Atlanta offered additional incentives for energy-efficient equipment as an add-on to an established utility program.

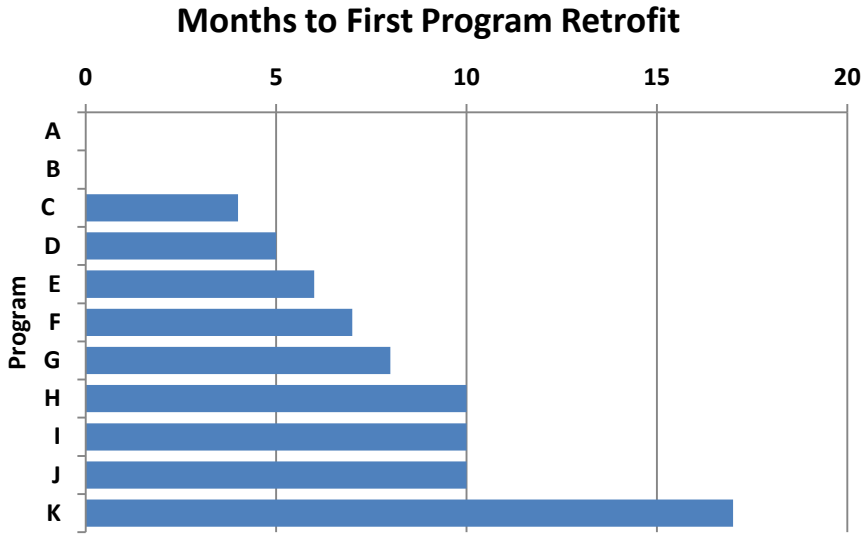

Figure 4. Lead Time from Contract Signing to First Retrofit Reported

Conclusions

Conditions imposed by public funding can inhibit innovative thinking, particularly in a start-up environment. The need for accountability and compliance, combined with the pressure for success, can limit the degree of experimentation or risk an organization will be willing to undertake. DOE sought to counter this by creating opportunities for exchanging ideas and resources to capture best practices. This support grew, improving as programs matured, but little was in place during the program's early phases, when it was most needed. For a few of the Better Buildings Neighborhood programs in the Southeast, challenges encountered in the start-up phase could not be overcome and they were discontinued. Some succeeded in meeting energy-efficiency retrofit targets, but still failed to achieve a sustainable operating model. However the smaller regional network and greater personal support helped some programs thrive. Partnerships with other organizations helped bring market knowledge and generate new ideas for outreach and marketing. Innovative ideas did emerge as core operations stabilized and program teams learned more about their markets.

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