

# RESIDENTIAL PROGRAM EVALUATION

2014

## INTRODUCTION

**E**nergyWorks was developed and funded as one of forty state and local governments competitively awarded a one-time, four-year grant from the U.S. Department of Energy's Better Buildings Neighborhood Program (BBNP). The funding supported a residential program and a commercial loan program, administered separately from the residential program. The EnergyWorks residential program focused on the following goals during the 2010-2014 implementation period:

1. Grow the market for energy efficiency in the Greater Philadelphia region
2. Stabilize the strong, regional contractor network during the down economy by generating and completing at least 2,000 residential retrofits
3. Expand the number of contractors in the private energy efficiency industry
4. Gain new insights into what drives demand for energy efficiency in this region

The residential program was led by the City of Philadelphia Mayor's Office of Sustainability (MOS) in partnership with Pennsylvania Treasury's Keystone HELP Program, administered by AFC First Financial (AFC), and the Energy Coordinating Agency (ECA). In total, 311 contractors and 54 auditors participated in the program from the 5-county region of Bucks, Chester, Delaware, Montgomery and Philadelphia.

**311 contractors and 54 auditors participated in the residential EnergyWorks program.**

This report spans the period from program kick-off in November 2010 to October 31, 2013, except where otherwise noted. Therefore, totals are not final and only represent figures as of the report cut-off date.

## ABOUT THIS REPORT

*The purpose of this report, prepared by sustainability consulting firm iSpring, is to provide the results of the EnergyWorks program to the contractors and auditors who participated, along with information on lessons learned over the course of the program that might prove helpful in their future work. The contents of the report are drawn from a much larger evaluation of the EnergyWorks program prepared in January 2014 by iSpring. Additional data and information not included here are available by contacting Katherine Gajewski, Director, Mayor's Office of Sustainability.*

## PROGRAM DESIGN

The core intent behind the program design of EnergyWorks was to provide the regional homeowner with a one-stop-shop where s/he could find all the services necessary to complete a project of home energy efficiency improvements. Those services included a cost-underwritten audit and subsequent report of recommended improvements, a roster of qualified contractors from which to choose, below-market-cost project financing and a quality assurance test-out at project end. To accomplish that, the EnergyWorks program brought together a team of project partners.

The Philadelphia Mayor's Office of Sustainability (MOS) received and administered the Department of Energy grant funds and provided overall program management and coordination among the partners. Program Director Katherine Gajewski and Reporting and Compliance Manager Xenio Yearwood served as the point persons with the Department of Energy. All communications with DOE from any of the project partners were handled by them through MOS.

Energy Coordinating Agency (ECA) was responsible for implementing and executing the day-to-day operation of the EnergyWorks program. They interacted with customers, auditors and contractors to assure that program requirements were met and served as the primary outward-facing customer contact point and customer guide through the process. ECA personnel also performed the quality assurance test-outs on gold-level financed projects.

AFC First Financial (AFC) provided the financing for EnergyWorks loans through the adaptation

and administration of the Pennsylvania Treasury's Keystone HELP Program. They were responsible for the processing of loan applications and made the decisions on loan funding for each applicant. AFC also provided the interface with the pool of contractors approved for the Keystone HELP program.

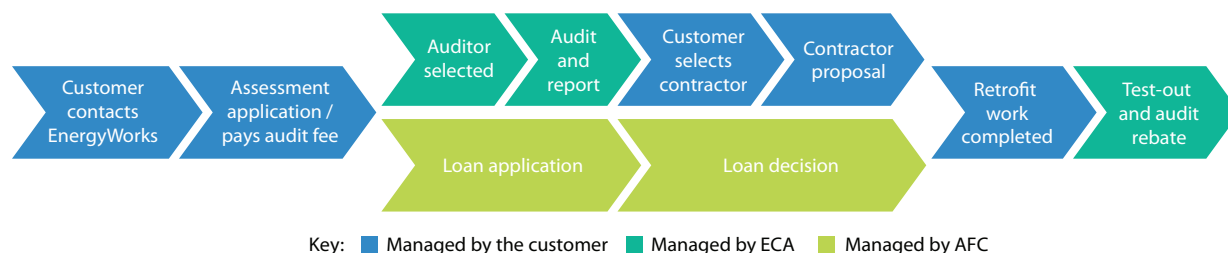
Beginning in 2013, LevLane executed the marketing tactics based on the strategies developed by the MOS' Director of Marketing, Communications and Outreach. Prior to that, Neiman Group was responsible for execution of marketing plans.

Regional auditors and contractors self-selected to participate in the EnergyWorks program and provided the audits and energy efficiency improvement services to homeowners. All Keystone HELP-approved contractors were eligible to execute silver loan projects. Contractors who chose to complete an additional certification process through ECA were eligible to also execute gold projects.

As the program progressed, changes were made based on the feedback of the various program partners to improve program implementation. However, the program structure and partner roles remained largely the same.

## THE CUSTOMER PROCESS

The basic customer interaction followed the process outlined below. Although there were changes during the program, the basic process remained the same.



## PROGRAM TIMELINE AND CHANGES

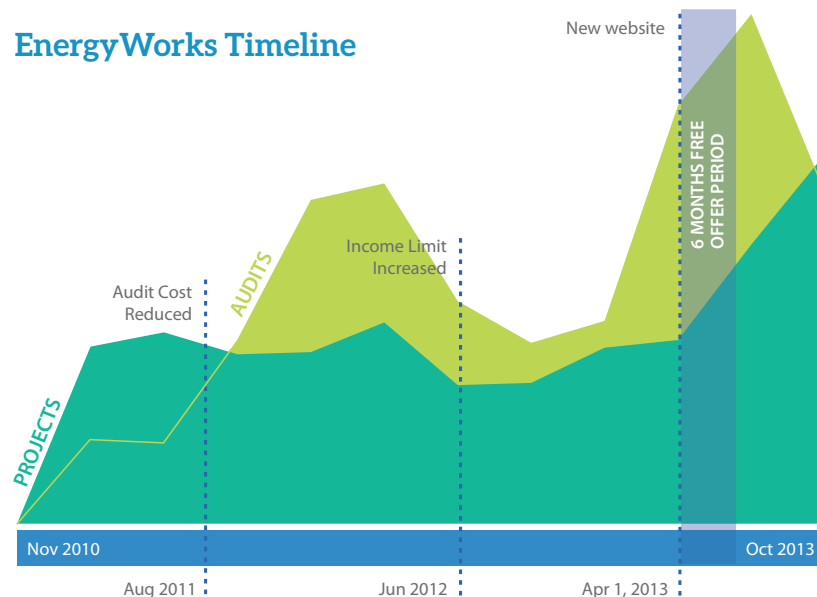
As the EnergyWorks program evolved, several substantive changes were made based on customer and partner feedback.

### Audit Cost Reduced and ECMs Discontinued – August 2011

At its inception, EnergyWorks required a \$400 audit cost of which \$300 was eligible for rebate upon completion of retrofit work and the project financing interest rate was dependent on the number of Energy Conservation Measures (ECMs) to be implemented. In August 2011, the requirement for ECMs was

discontinued and the audit cost reduced to \$150 of which \$50 was eligible for rebate. *This resulted in an immediate increase in audit requests.*

### EnergyWorks Timeline



### Income Limit Increased – June 2012

At the end of June 2012, the \$150,000 family income limit was increased to \$250,000 to more appropriately target the middle income market, particularly for two-income-earner families. *By 1st quarter 2013, audits had increased more than 230% from third quarter 2012.*

### Web Redesign – April 1, 2013

A major web redesign that launched April 1, 2013, made the customer process much easier to navigate. The website became truly a “one-stop-shop” rather than redirecting customers to non-EnergyWorks sites, and the addition of PayPal capability streamlined customer payment of the audit fees, eliminating the need to mail in payment. *As a result, audits increased 22% between 1st quarter 2013 and 2nd quarter 2013.*

### “6 Months Free” Promotion – 2nd Quarter 2013

As the program neared its end, EnergyWorks created a “6 months free” promotion that dramatically increased the requests for audits and retrofits. *Job volume jumped 235% from the first quarter of 2013 to the second quarter and then an additional 113% in the third quarter.* This offer came with a cost but proved to be an effective tool in driving volume by creating a sense of urgency among customers.

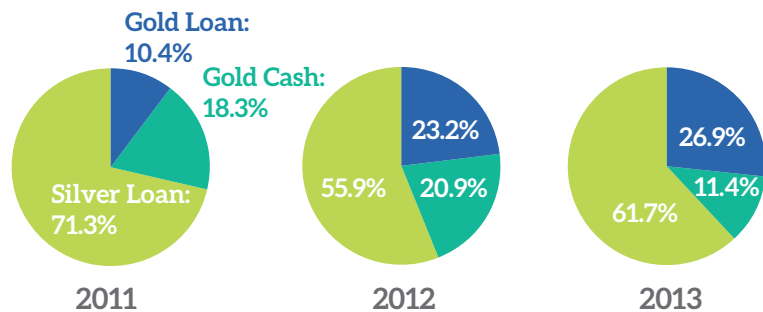
### Program Efficiency Improved Over Course of Program

Response times to customer inquiries and length of time from first inquiry to retrofit completion dropped dramatically. For gold projects, which had a required audit component, *the median time from customer application through audit completion to retrofit test-out decreased from 163 days in 2011 to 111 days in 2013, a 32% improvement.* For these projects, the overall conversion rate—that is, the

percentage of people who applied to the program and then followed through with both an audit and a completed retrofit—was 21%.

### Effects of Program Changes on Types of Projects and Financing

Over the course of the program there were changes observed in the proportion of gold loans to silver loans and in cash projects to funded projects.



In 2012, there was a clear uptick in the number of gold projects, followed by a bit of a drop-off in 2013. The average cost for a gold project was over \$2000 more than for a silver project which is not surprising since gold projects were, by definition, whole house retrofits, whereas silver projects usually were for less comprehensive projects. It is reasonable to assume that the increase in the income limit in mid-2012 drew more customers into the market with the means to pursue higher cost projects.

The cash vs. loan comparison is related. Cash projects increased slightly from 2011 to 2012, which could be attributable to the influx to the market of more affluent customers with access to ready cash. However, the dramatic drop in cash projects in 2013 suggests that the “six months free” offer attracted buyers with less-substantial supplies of cash for energy efficiency projects or those who had been considering a project but had not acted until the promotion compelled them to do so.

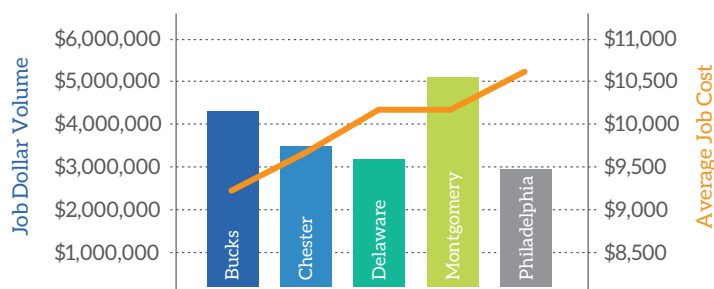


# IMPACTS AND OUTCOMES

## Economic Impact

The EnergyWorks program had a substantial impact on the regional energy efficiency economy. The 2,288 retrofits completed by December 31, 2013, represented a total job cost of more than \$22 million. This \$22 million represents new *consumer* spending that was channeled directly into the local economy because of EnergyWorks. The economic impact was spread through the five-county region.

Job \$ Volume and Average Job Cost by County



Data are through October 31, 2013.

To facilitate the more than \$22 million in new consumer spending on retrofits, EnergyWorks invested \$2.7 million of DOE funding in interest rate buy-downs, audit rebates, and underwriting to provide more attractive borrowing rates and audit costs for consumers. Of that \$2.7 million, \$2 million directly leveraged more than \$16 million in energy efficiency financing loans for program participants. Compared to other DOE BBNP programs, the EnergyWorks loan buy-down structure generated a much higher leverage rate based on a relatively small amount of DOE funds.

The residential EnergyWorks program returned \$22 million to the local economy.

## Auditors and Contractors Involved in EnergyWorks

311 contractors did at least one retrofit job for the EnergyWorks program. Of those 311 contractors, 113 executed at least one gold-level retrofit job. Six contractors completed 50 or more projects within the program. Of those six, four focused solely on gold (whole house) retrofits while the other two focused almost exclusively on silver (single measure) retrofits. The top two contractors as measured by total project dollar volume completed more than \$850,000 of work each. Interestingly, one of them focused on gold projects; one focused on silver.

Below is a view of the number of contractors who were actively engaged in EnergyWorks projects over the life of the program in comparison to the number of projects completed each quarter.

Number of Contractors Engaged in Projects





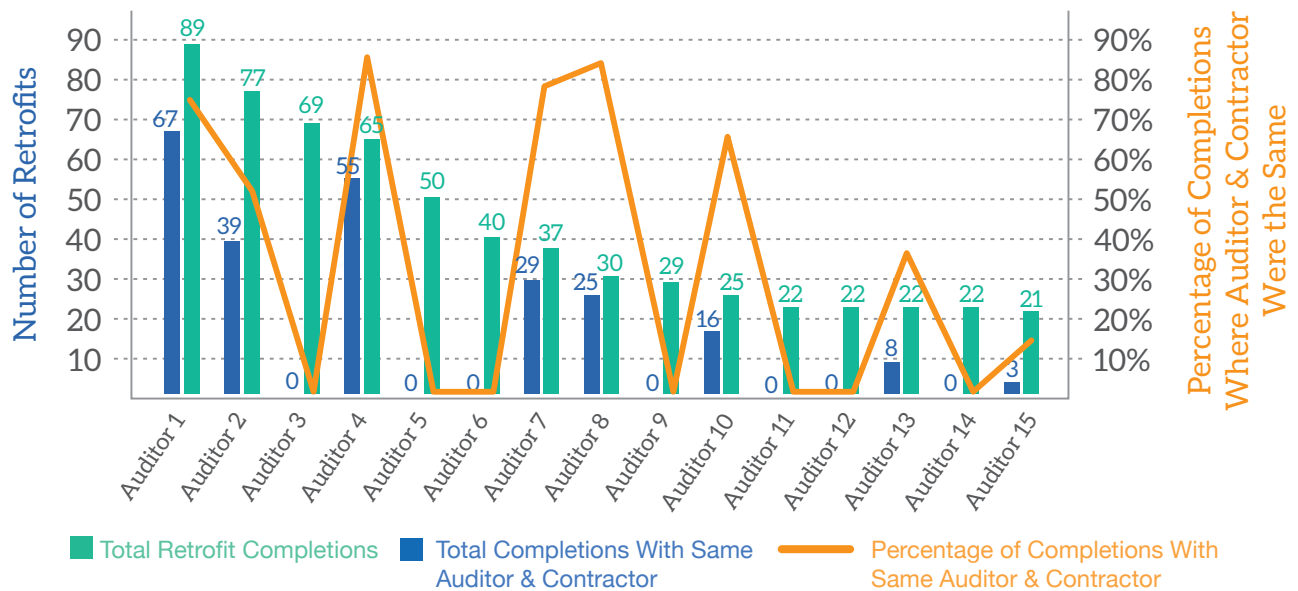
## Six contractors completed 50 or more projects within the program.

54 auditors were involved in the EnergyWorks program. Some of these were employees of contractor firms and some were independent auditors. There was no significant difference in the conversion rates (the choice of the homeowner to continue with the improvement identified) between independent auditors and contractor-employed auditors. The chart below shows the top 15 auditors in number of completed retrofits. Of the top 15, only 8 were contractor-employed auditors, meaning that independent auditors were just as

likely to be successful in advancing projects from audit to retrofit. This may seem counterintuitive, as one might expect that contractor-employed auditors would have had a higher conversion rate because they stood to gain more financially from the customer proceeding with retrofit work.

One explanation for these results is that contractor-employed auditors had less of an incentive to follow up with customers based on the auditor payment structure. At the beginning of the program, of the total \$400 audit fee, auditors received \$300 for a completed audit, and ECA retained \$100 for test-out work. Shortly after the program began, the payment structure changed so that auditors received \$300 as a base fee for the audit and could earn another \$100

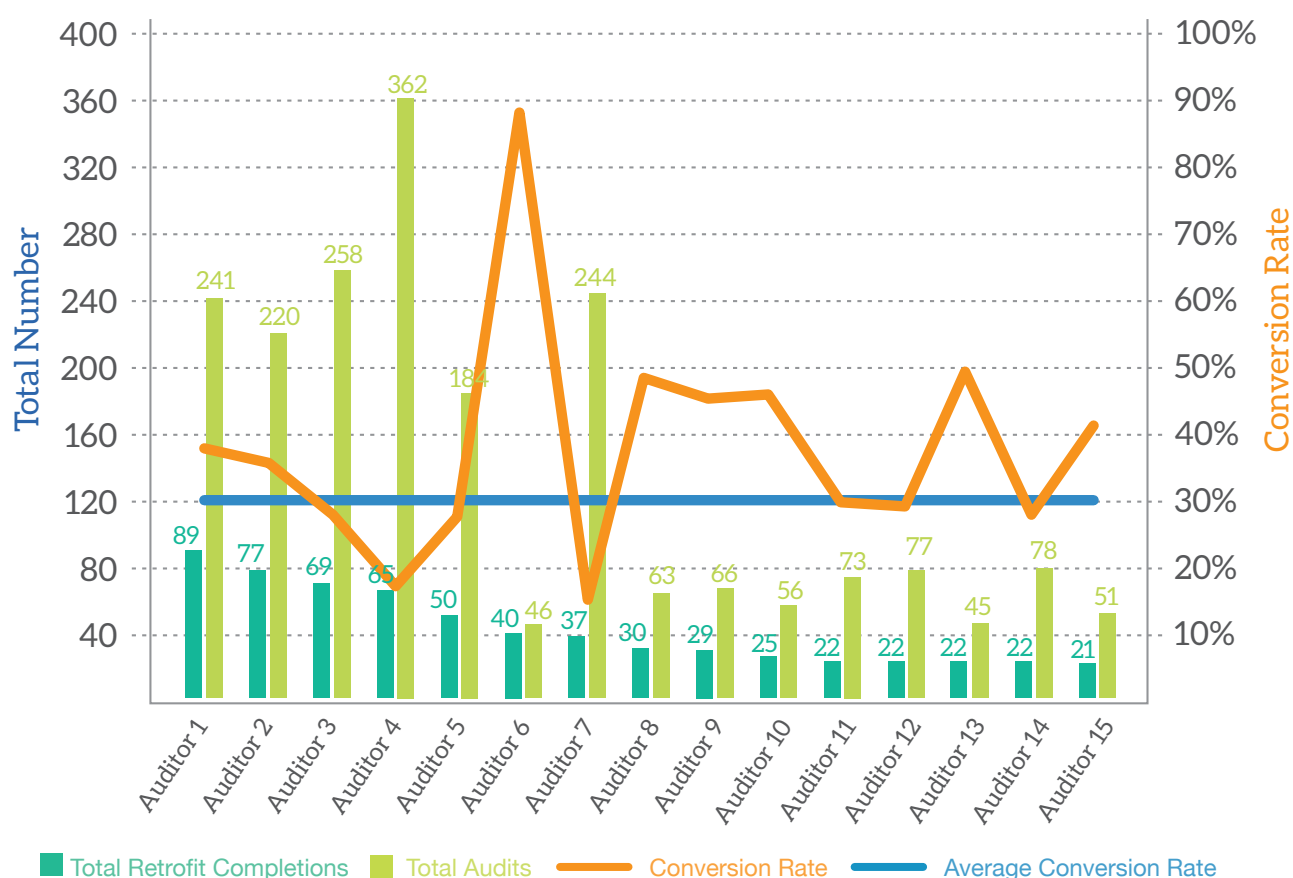
Job Completions By Auditor (Top 15 in Number of Completed Retrofits)



as a bonus when the customer got a proposal for retrofit work from a contractor. Since the contracting firm employing the auditor could generate a proposal for work immediately after completing the audit, they were able to earn the \$100 bonus right away. Thus, they had less of an incentive to follow up with the customer and earn the \$100 bonus. This lack of follow-up could have negatively impacted their conversion rate.

Interestingly, for **all** independent auditors and contractor-related auditors, the latter did have a slight advantage when it came to converting audits to projects. For projects completed through October 31, 2013, conversion rates for independent auditors averaged 30%; for contractor-related auditors, 32%. For the top 15 auditors (in number of audits that proceeded to completed projects), the average conversion rate was 30%; for all auditors, 31%, as shown below.

**Auditor Conversion Rates (Top 15 in Number of Completed Retrofits)**



The majority of audits were conducted by a small subset of auditors. The top six auditors in total number of audits completed accounted for over half (56%) of the audits completed, and 86% of the audits were completed by the top 20 auditors.

In all, EnergyWorks provided over 2,000 project opportunities for auditors and contractors to both

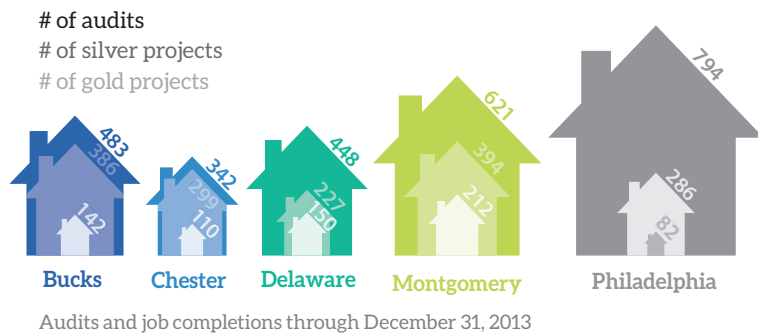
gain experience and enhance reputation and visibility in the energy efficiency market.

### Geographic Impact

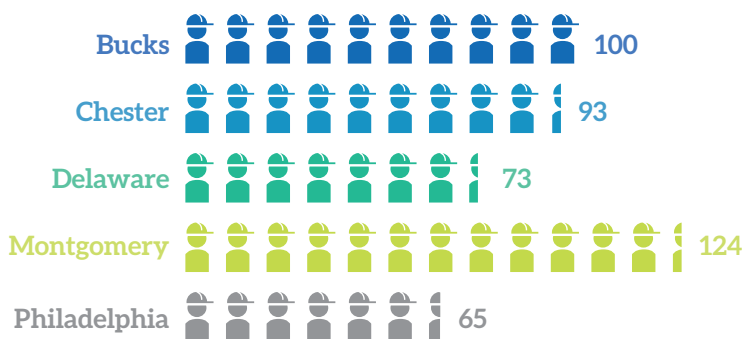
EnergyWorks was a *regional* success. The Philadelphia region can be a difficult place in which to mount a successful regional campaign due to a number of issues, not least of which is the cost



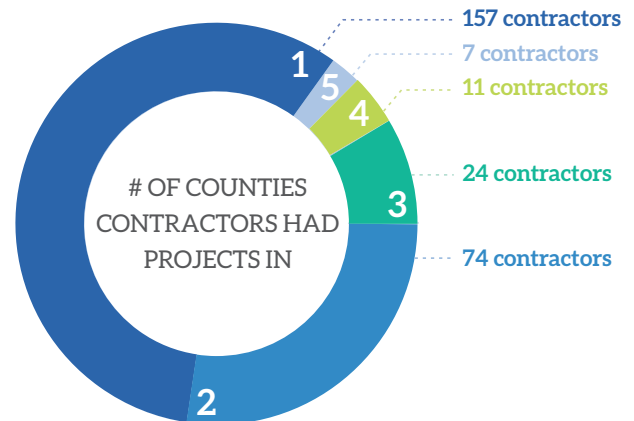
of advertising. The Philadelphia region is the sixth most expensive media market in the country. Often programs that succeed in Philadelphia proper do not succeed in the suburbs, and vice versa. The EnergyWorks program is an example of an initiative that has been successful on a truly regional scale.



Despite initial concerns that it would be difficult to find contractors certified and willing to work in the City of Philadelphia, the program attracted 65 contractors who completed projects in Philadelphia County. Interestingly, when compared with the chart entitled “Job \$ Volume and Average Job Cost by County,” (under Economic Impact) those contractors who did work in Philadelphia County realized the highest average income per job of all five counties.



While 7 intrepid contractors took projects in all five counties, 58% of all contractors worked on projects in just one county. An additional 27% expanded to two counties, demonstrating the highly local orientation of most contracting firms.



### Growth of Customer and Community Demand for Energy Efficiency Improvement

One of the primary objectives of EnergyWorks was to help grow a market for energy efficiency improvements. Doing so required a considerable consumer education effort before any significant consumer demand could develop.

The EnergyWorks marketing program proved an essential means of reaching potential customers and educating them on the benefits of energy efficiency improvement. It delivered the message to regional residents through advertising on regional rail lines and buses, targeted ads on Google, Facebook and weather websites, and community outreach programs held in neighborhood locations. All of this served to heighten awareness of the opportunities that energy efficiency improvement could provide. It also required a significant investment of funds.

EnergyWorks not only met but exceeded its stated goal of 2,000 completed residential retrofit projects before Phase I of the program ended on

.....

## Weather-responsive and seasonally relevant online marketing proved very effective in driving audits and retrofits.

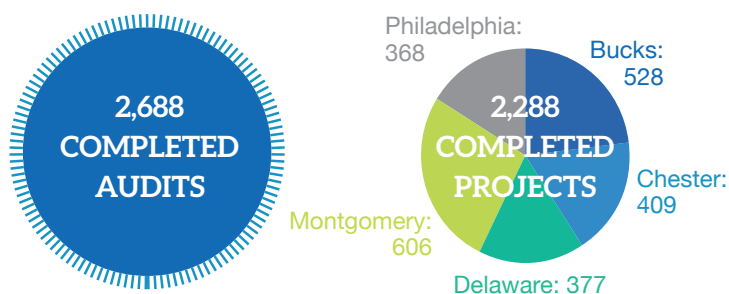
.....

September 30, 2013. The 2,288 projects completed by December 31, 2013, show the dramatic growth of the market and the increased demand for whole house energy efficiency improvements that the EnergyWorks program underwrote. Additionally, 1,866 regional residents had audits done on their homes but did not follow through with retrofits through the EnergyWorks program, although they may have had follow-on work completed privately, and 1,349 more applied for the program but never scheduled an audit. Regardless of the outcome in these additional cases, the fact that they were interested enough to apply for or purchase an audit in these numbers represents heightened customer awareness of the desirability of energy efficiency improvement.

## Energy Savings

It was difficult to determine the program's energy savings for two reasons. One was data deficiencies inherent in the original data provided by the regional utility companies. The second contributing factor was that the original energy savings estimates, based on a Department of Energy-dictated baseline building model of a circa-1980 frame construction house very unlike the masonry construction prevalent in the Philadelphia region, were not reliable.

Only gold projects could be adequately analyzed for savings, since they were the only ones for which pre-retrofit utility data were available. It was concluded that the 209 gold projects with usable data achieved a 10.9% energy savings per month, for a total energy savings of 25,843 kWh. Extrapolated to all 822 gold projects, that represents a month energy savings of 101,641 kWh, or \$12,929 per month. Annualized, the electricity savings are 1,219,692 kWh and \$155,148.



Audits and job completions through December 31, 2013

## LESSONS LEARNED

**B**eyond the tangible results of a program like EnergyWorks - the retrofits and energy savings - lie important lessons of what worked and what didn't, what should be duplicated and what should be buried. Many of these learnings can provide useful, actionable takeaways for the contractor community.

### 1 SINGLE POINT OF CONTACT CRITICAL TO OPERATIONAL SUCCESS

Having a single point of contact at the Mayor's Office of Sustainability through which all major communications between project partners was funneled was extremely helpful. This helped eliminate confusion and miscommunication of information and gave partners a clear resource to turn to for any needed direction.

### 2 BUILD THE PROGRAM WITH CONTRACTORS AT THE CORE.

The auditors and contractors were the critical point of contact with the EnergyWorks customer. The program would have benefitted from a design that placed the contractors more at the center. While the marketing program was building demand among customers, the contractor portion of the program should have been conducting more intensive outreach to contractors, developing better means for two-way feedback, setting key performance indicators, and supporting with training and other applicable resources. Compared to other programs DOE-funded programs in the country, the EnergyWorks conversion rates were lower. This could have been improved by better incorporating contractors and auditors into the program and giving

them as much information and support as possible to help them increase the conversion rates.

Contractors and auditors were, in effect, the sales force for home energy efficiency improvements. It was important that they be equipped with as many tools as possible to make the process from audit to report to contract proposal to completed project as expeditious as possible. The most successful conversions seem to have happened when a project proposal was ready either immediately or very quickly after an audit completion. The more time that elapsed, the less likely a project would be undertaken. Support for the entire auditor/contractor process needed to make that rapid response as easy as possible. Regular constructive communication with contractors and auditors would have built more of a sense of community and commitment to the program and a willingness to make changes and try new tactics along the way (e.g. handheld devices for audits).

.....

**Giving auditors and contractors the tools, support and training they need to speed the process from audit to report to contract proposal results in higher conversion rates.**

.....

### 3 ESTABLISH KEY PERFORMANCE INDICATORS AND DATA COLLECTION GOALS EARLY

In the creation of any type of program, it is important to decide what will be the measures of success. Along the path to achieving that goal, there need to

be clearly defined indicators of whether the program is working. These key performance indicators (KPIs) should be identified early in the program to track and analyze interim results based on real data. In the EnergyWorks program, the overall goal of 2,000 retrofits was a good overarching goal, but smaller, interim goals tied to performance also needed to be set to better understand trends as they were occurring over the life of the program and how they were impacting the top-level retrofit goal.

For key performance indicators to work effectively, there needs to be a baseline established against which to measure progress. Once the “current state” is defined, KPIs that are tied to the program goal can then measure real growth. KPIs also determine what are the appropriate data to collect and what are not relevant to the program goal.

## 4 KEEP IT SIMPLE AND FOLLOW UP

The initial EnergyWorks process was too complicated and offered too many opportunities for customers to drop out of the program. The redesigned and relaunched website in April 2013 resolved many of the initial problems but it came very late in the program. The goal of EnergyWorks being a “one-stop shop” for energy efficiency was not fully realized until that point.

One of the more successful auditors interviewed by the evaluation team stated that he believed his success in converting his audits into retrofits was due to the fact that he followed up with his customers after they received the audit report to see if they needed any help moving to the next step in the process. A dedicated EnergyWorks customer service rep from day one could have performed the same service for customers, leading to more

conversions from audit to retrofit. This function was incorporated too late in the program.

A dedicated customer service rep who can guide the customer through the energy efficiency process makes it more likely that the customer will progress from audit to retrofit.

## 5 QUALITY ASSURANCE COMPONENT IMPORTANT IN BUILDING CUSTOMER TRUST

The existence of the quality assurance component in the EnergyWorks program helped customers overcome concerns about not having enough knowledge to know how to choose a qualified contractor. The test-in, test-out on 100% of gold projects gave customers the sense that they had adequate information to determine if the project had delivered what was promised. Likewise, the independent third party audit provided by a non-profit organization in a program backed by the U.S. Department of Energy all lent credibility to the results and the recommendations for improvement.

## 6 LOAN PROGRAMS SUCH AS KEYSTONE HELP PROVIDE BETTER LEVERAGE OF FUNDS

One of the strongest components of EnergyWorks was the Keystone HELP program at its center. The ability to leverage DOE funds against AFC and PA Treasury’s pool of capital meant that EnergyWorks funds went farther and had greater impact than a rebate/grant-based program. Reduced rate funding in the 5-county region is still available through Fall

2014 through KeystoneHELP and can provide a powerful incentive for customers to choose to make energy efficiency improvements.

## 7 MARKETING IS EXPENSIVE BUT APPROPRIATELY TARGETED CAN BE VERY EFFECTIVE

At significant cost (about \$2 million in total), the EnergyWorks program dramatically increased customer awareness within the 5-county region of the need for energy efficiency improvements. Contractors, while unlikely to have the same financial resources for marketing as EnergyWorks, can build on that increased market awareness and utilize much of what was learned from the EnergyWorks marketing effort to enhance their own marketing and sales programs.

EnergyWorks discovered that the demand for energy efficiency improvements was not always value-driven. In addition to financial savings, other market drivers were comfort, health, safety, indoor air quality, and a sense of environmental responsibility. Short term benefits –such as comfort and health – often trumped long-term financial benefits as the trigger-point for purchase. Marketing programs that link an array of potential benefits to specific services are more likely to be successful. They are also more likely to be effective if they generate a sense of urgency, be it related to weather, time limits or other constraints.

Weather-related targeted advertising was particularly effective, especially during periods of extreme cold and snowfalls. Real-life customer testimonials were very useful in convincing potential customers to contact the EnergyWorks program. A

clear call-to-action in every customer interaction increased response rates. Communicating with the customer in plain English rather than highly technical terminology improved the likelihood of adoption.

## Targeted online marketing with clear language is a cost-effective way to reach the energy-efficiency consumer.

EnergyWorks discovered through trial and error that it was important to develop targeted, rather than scattershot, marketing tactics with a clear means of evaluation attached to each tactic to determine if it was working. If it didn't seem to be working, EnergyWorks marketing reevaluated and, if necessary, changed direction. Over time, marketing efforts shifted more heavily online from transit and print advertising to allow for measurement of marketing effects and to direct money most effectively.

## 8 BE SURE YOU HAVE LOTS OF CUSTOMER SUPPORT

EnergyWorks learned that most customers are not experienced at purchasing energy efficiency improvement services for their homes. They often feel ill-equipped to maneuver through the minefields of audits, proposals, contracting and financing. Providing sufficient well-trained, helpful customer support throughout the process leads to more satisfied customers and better program word-of-mouth.

## 9 THERE'S NO SUCH THING AS TOO MUCH TRAINING

In the EnergyWorks program, the auditors and contractors were the people with the most direct contact with the potential customer. They needed to be prepared with as many tools as possible to convince the customer to have the work performed. Additional sales training would have equipped the energy efficiency improvements community with skills that could help support the industry after the end of EnergyWorks.

