

Solving the Regional Home Energy Efficiency Challenge

A Roadmap for the
Southwestern Pennsylvania Region

ReEnergize Pittsburgh Coalition

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Executive Summary

White Paper Overview

This paper discusses the significant opportunity that currently exists to improve the state of housing stock in Southwestern Pennsylvania. In general, buildings in this area are aging and inefficient, which can create a number of problems including high electricity costs, resident discomfort, and even health problems. Energy efficiency and home weatherization can provide solutions to many of these problems, while also supporting the development of a vibrant green energy economy within Pennsylvania.

The ReEnergize Pittsburgh Coalition is a collaborative of 40 organizations throughout Southwestern Pennsylvania, whose goal is to increase quality of life for homeowners and renters of all income levels throughout the region by improving access to energy efficiency and healthy homes resources. The Coalition collaborates with diverse stakeholders and coordinates services to increase energy literacy among residents, empowering them to make informed energy decisions, which in turn supports a cleaner, healthier environment.

The Coalition has identified challenges, solutions, and a plan of action to address this opportunity, each of which will be described in more detail in the body of this white paper.

Current Challenges to Energy Efficiency

The ReEnergize Pittsburgh Coalition consists of member organizations from a variety of sectors (e.g. utility companies, conservation organizations, contractors, consultants, etc.), and therefore has access to a variety of customer perspectives. These customer perspectives are necessary in understanding the problem and in developing potential solutions. In order to gather feedback related to the current state of energy efficiency in the residential sector, the Coalition organized a Regional Energy Efficiency Summit in April 2015. Topics covered included availability of educational materials and assistance programs, perceptions on the part of homeowners, and drivers for and barriers to adoption.

After organizing the information collected at the Summit, the Coalition Steering Committee identified opportunities and potential solutions that it will work to facilitate. Based on feedback gathered from participants at the Regional Energy Efficiency Summit, the following areas were identified as barriers to implementation of residential energy efficiency projects:

- Lack of homeowner education and awareness around energy efficiency programs and home performance information
- Difficulty connecting homeowners with available programs
- Homeowner misconceptions about the value and ease of energy efficiency project implementation
- Uncertainty around demand for a skilled workforce

Opportunities Identified

After examining the current state of Southwestern Pennsylvania's housing market and the example challenges collected from stakeholders, the Coalition identified the following items as areas of opportunity:

- Better leveraging of existing resources by connecting homeowners to currently available information
- Building the energy efficiency market in Southwestern PA, as it exists in other states (Vermont/ NY/ Massachusetts/ Connecticut) by creating an easily identifiable regional coordinating resource for consumers and industry
- Improving the quality and resiliency of housing stock and increase property values by making it easier for consumers to implement energy efficiency and health and safety improvements
- Helping the region transition to "green collar" jobs through workforce development and by developing a market for energy efficiency through improved consumer awareness

Coalition Next Steps

After examining how the opportunities identified intersected with the Coalition's mission statement, the ReEnergize Pittsburgh Coalition has chosen to move forward with the following initiatives making up the primary focus of its strategic plan:

- Maintain and grow relationships within the multi-sector collaborative of public-private partners

- Develop a one-stop shop coordinating mechanism for energy efficiency in Southwestern Pennsylvania
- Work to link the value of energy efficiency improvements to property value through efforts such as greening the Multi-List (MLS) real estate database, promoting Home Energy Score, and seeking increased data availability about home performance in property records
- Integrate residential energy efficiency into regional organizations and planning efforts
- Assemble information on financial assistance options for homeowners and continue to monitor developments related to programs that are in development.

Conclusion

These priorities form the roadmap for not only the Coalition's work, but the work of all partners in the residential energy efficiency sector in Allegheny County, including the City and County government, local municipalities, businesses, realtors, and non-profit organizations. The roadmap developed by the Coalition will serve to improve the health and comfort of homes within Southwestern PA, the affordability of resident electricity bills, and the energy literacy and empowered decision-making of its residents. The Coalition believes that the wide range of stakeholders affected by this issue will have a much greater impact by joining together with a single voice, and the ReEnergize Pittsburgh Coalition is ready to be that voice.

Background

Problem Statement

The word “home” conveys images of comfort, care, and protection from the elements. However, as is the case particularly in older homes, residents do not always see these benefits. Southwestern Pennsylvania housing stock is aging and can be prone to a variety of issues that result in temperature-related discomfort, poor indoor air quality, health concerns, and high electricity bills. Home improvements such as weatherization and energy efficiency improvements can provide solutions to many of these problems, but while there are assistance programs available to support such improvements for homes, many homeowners are not aware of or do not take advantage of these programs.

The ReEnergize Pittsburgh Coalition has identified significant opportunities related to home performance within Southwestern Pennsylvania, specifically the need for home weatherization to improve the comfort, health, and efficiency of the region’s housing stock, and successful engagement of the region’s residents to help access the resources made available to them. Further information regarding these opportunities and the Coalition’s strategy for addressing them is presented in further detail below.

ReEnergize Pittsburgh Coalition

The ReEnergize Pittsburgh Coalition’s mission is to increase access to and demand for energy efficiency and healthy homes, increasing quality of life for homeowners and renters of all income levels throughout Southwestern Pennsylvania. The Coalition brings together diverse stakeholders aligned around this goal, collaborating to leverage resources, share information, and coordinate services in order to increase energy literacy among residents and empower them to make informed energy decisions, leading to a cleaner healthier environment.

Founded in 2010, the ReEnergize Pittsburgh Coalition is a collaboration of non-profit organizations, government agencies, energy businesses, utility companies, and community groups all working to promote residential energy efficiency. Coalition members are involved in a variety of successful programs to that end: utility low-income weatherization programs, the Act 129 electricity savings program, the Healthy Homes Incentive Program, grant and loan

programs, and more. The Coalition has previously worked together to pursue the Better Buildings grants, to offer comments on Duquesne Light's Act 129 implementation plan, to develop a matrix of funding opportunities and assistance programs, and to catalyze work around integrating home energy use into the multi-list service.

And yet, despite these successes, members realize that there are significant challenges to bringing residential energy efficiency to scale. In 2015, the ReEnergize Pittsburgh Coalition set about to build on the foundation of its existing collaborations to establish a regional strategy for increasing energy efficiency of all homes in the region.

Regional Energy Efficiency Summit

The ReEnergize Pittsburgh Coalition recognized the need to convene a larger group of stakeholders to solicit feedback from diverse sectors, to determine whether the current understanding of the challenges and potential solutions was accurate, and to identify any additional areas for improvement. On April 28, 2015, the Coalition hosted the Regional Energy Efficiency Summit. This meeting included more than 50 representatives of City and County government, local municipalities, energy businesses, utility companies, financing agencies, and non-profit organizations.

The purpose of the Summit was to build from existing dialogue and planning to clarify and outline what key priorities are relative to residential energy efficiency and to hone strategies that would serve as a foundation for ongoing coordination, collaboration, and action. Ultimately, the Coalition's objective was to develop a roadmap that would positively impact all of the stakeholder organizations Southwestern Pennsylvania.

The Summit built upon the work of many complementary local and regional efforts, including:

- Energy For The Power of 32 Regional Planning¹ led by *Sustainable Pittsburgh*²
- Pittsburgh Climate Action & Resilience Planning³
- EcoInnovation District Planning⁴
- City of Pittsburgh Comprehensive Planning⁵ and the Allegheny County comprehensive plan⁶

¹ Energy for the Power of 32. <http://www.energy4p32.org>.

² Sustainable Pittsburgh. <http://sustainablepittsburgh.org>.

³ Office of Mayor William Peduto. "Mayor Peduto Launches Resilience Americorps with Cities of Service, Corporation for National and Community Services, and the Rockefeller Foundation." <http://pittsburghpa.gov/mayor/release?id=4996>.

⁴ Department of City Planning. "Uptown EcoInnovation District." <http://pittsburghpa.gov/dcp/ecoinnovation>.

- The Pittsburgh 2030 District⁷ led by the Green Building Alliance⁸
- Reducing Outdoor Air Contaminants in Indoor Spaces⁹ supported by The Heinz Endowments¹⁰

Energy Efficiency in Southwestern PA

Current State

The topic of residential energy efficiency is particularly pertinent in Southwestern Pennsylvania. The region is home to some of the oldest housing stock in the country, and while feedback indicates that residents demonstrate enthusiasm for retrofitting and upgrading their homes, they do not always take action to improve the energy efficiency of their homes or modify their behavior to save energy. The ReEnergize Pittsburgh Coalition has examined the current state of energy efficiency in the region, as well as successful programs implemented elsewhere in the country, some of which is documented below.

Aging Housing Stock

Across the region, the age of the building stock presents a challenge to energy efficiency. For example, within the City of Pittsburgh, over 76% of homes were built prior to 1960, with 53% constructed before 1940.¹¹ Energy efficiency standards were not integrated into national building codes until the 1970s, and therefore only a quarter of homes within the City meet the newer codes.

Similar challenges exist across all of Allegheny County and in the surrounding 10 counties. Many homes were constructed decades, if not a full century, before energy efficiency

⁵ Department of City Planning. "Stay tuned for the official relaunch of Pittsburgh's Comprehensive Plan!" <http://pittsburghpa.gov/dcp/comp>.

⁶ Allegheny Places. "The Allegheny County Comprehensive Plan." <http://www.alleghenyplaces.com>.

⁷ 2030 Districts. "Pittsburgh 2030 Districts." <http://www.2030districts.org/pittsburgh>.

⁸ Green Building Alliance. <https://www.go-gba.org>.

⁹ ROCIS. <http://rocis.org>.

¹⁰ The Heinz Endowments. <http://www.heinz.org>.

¹¹ Research performed by GTECH Strategies, Inc.

measures were common or mandated. While new construction projects must adhere to tighter regulations, the majority of homes lack these features and considerations.

It is important to mention here that the distinction between an efficient and inefficient home does not necessarily align with age of the home, although it can be an indication. It is possible that older homes built with quality materials can be updated to perform better than some new construction homes.

This inequity between efficient and inefficient homes – and its potential impact on property values – cannot be resolved without a market correction that recognizes the economic, comfort, and health values resulting from energy efficiency and home performance improvements.¹²

According to the US Department of Energy's "Building Science Translator" published in February 2015, high-performance homes, as they are called, combine energy efficiency above code, ensured quality installation, and product performance that meets or exceeds consumer expectations.¹³

High-Performance Homes = Energy Efficiency + Quality Installation + Product Performance

General Support but No Action

Current information indicates that there is public support in the region for residential energy efficiency improvements. A 2013 Pittsburgh Today survey showed that 85% of respondents supported policies to reduce environmental impact, including offering homeowners tax deductions to improve the energy efficiency of their houses.¹⁴

On the national level, the American Council for an Energy Efficient Economy (ACEEE) recently engaged outside polling experts to measure US citizens' perspectives about energy efficiency. They found that a significant majority of citizens support energy efficiency, regardless of gender, race or political affiliation.¹⁵

¹² "Home Performance" is the broader term used in the building science industry to describe how an entire building works together as a system, with changes to each sub-system (e.g. furnace, wiring, framing, product choice, plumbing, windows, insulation, air sealing) having a measurable impact on the operations of the rest of the system – and experienced by the occupant as air quality, comfort, and associated operations costs.

¹³ Energy.gov. "Building America Building Science Translator."

<http://energy.gov/eere/buildings/downloads/building-america-building-science-translator>

¹⁴ Pittsburgh Today. "The Pittsburgh Regional Environment Survey." October 2013.

http://www.pittsburghtoday.org/specialreports/Environment%20Survey/ENVIROSURVEY_PittsburghToday.pdf.

¹⁵ Resource Media. "National Attitudes Toward Energy Efficiency Policies." 30 July 2015.

Yet, this support of energy efficiency improvements does not often translate into action. In a national survey, only 4% of respondents had had an energy audit.¹⁶ Of the rest, 29% had “never heard of it.” Even among those who have had audits, the follow-up with recommended improvements is usually incomplete. In a survey of 1,784 homeowners across 24 states, 566 respondents had an audit in the past four years. Of those, less than half had actually taken the recommended energy efficiency steps.

In fact, the United States is among the world’s top energy users per capita.¹⁷ In addition to lack of action in relation to improving home performance, many US citizens are not inclined to adjust their behavior to save energy. This combination of inefficient buildings and behavior results in a significant portion of US energy spend being used in building operation.¹⁸ Wider energy efficiency and home weatherization adoption will support more responsible resource use and reduce energy waste.

Standards and Benchmarking

Other parts of the country have seen increased momentum for energy efficiency and home performance, catalyzed by establishing energy reduction goals, sharing best practices, developing standardized evaluation frameworks, reducing barriers, and creating incentives. Brief case studies from Baltimore and Portland, OR are described in further detail in Appendix D of this paper. ReEnergize Pittsburgh Coalition and Allegheny County’s Office of Sustainability previously published a Policy Paper outlining a variety of approaches adopted across the country to encourage residents to adopt and invest in energy efficiency measures in their homes.¹⁹

Organizations throughout the country are adopting standards programs and evaluation criteria to provide structure to energy efficiency initiatives. Frameworks such as Leadership in Energy & Environmental Design (LEED),²⁰ Energy Star,²¹ and Building Performance Institute (BPI) focus on building assets and represent a standardized methodology for evaluating the level of building performance. BPI, for example, is an independent organization that has worked to develop a national standard for residential building efficiency.²² The BPI umbrella includes

¹⁶ Resources for the Future. “Assessing the Energy Efficiency Information Gap: Results from a Survey of Home Energy Auditors.” 4 October 2011. <http://www.rff.org/research/publications/assessing-energy-efficiency-information-gap-results-survey-home-energy>.

¹⁷ World Population Balance. “Population and Energy Consumption.” http://www.worldpopulationbalance.org/population_energy.

¹⁸ Center for Climate and Energy Solutions. “Buildings and Emissions: Making the Connection.” <http://www.czes.org/technology/overview/buildings>.

¹⁹ Allegheny County Office of Sustainability. Downloadable at: <http://reenergizepgh.org>.

²⁰ U.S. Green Building Council. “LEED.” <http://www.usgbc.org/leed>

²¹ EnergyStar. <https://www.energystar.gov>.

²² Building Performance Institute, Inc. <http://www.bpi.org>.

evaluation criteria for homes as well as inspectors, allowing for an easy method of quality recognition among contractors, technicians, training organizations, and programs. BPI is considered to be the premier organization in the nation for standards and credentials in residential energy audit and home upgrade work.

Challenges

The ReEnergize Pittsburgh Coalition has identified the key barriers to increasing residential energy efficiency in Pittsburgh and Allegheny County, based on the experiences of Coalition members, a facilitated discussion at the Summit, and national research into behavioral trends. Responses fell into multiple categories, some of which are inter-connected. Major themes that emerged included:

- 1) Lack of homeowner education and awareness around energy efficiency programs and home performance issues
- 2) Difficulty connecting homeowners with available programs
- 3) Homeowner misconceptions about the value and ease of energy efficiency project implementation
- 4) Uncertainty around demand for and ability to sustain a skilled workforce

Lack of Education and Awareness

Program Eligibility and Availability

The first challenge is related to education and awareness, specifically concerning the fragmented nature of programs and the lack of a single coordinating mechanism for consumers that will quickly and easily convey information about available programs, what benefits they offer, and who qualifies for assistance. Multiple energy efficiency programs exist to assist homeowners and renters, each with its own set of qualifying parameters, applications, and restrictions. This mosaic of programs makes it extremely difficult – even for interested renters and homeowners – to understand what assistance is available and how to access it. Many homeowners simply give up or do not even try to sort through the massive amount of disparate information.

Using low-income assistance programs as an example, resources are available for Low Income Usage Reduction Programs, Low Income Heating Energy Assistance, Crisis Assistance, Customer Assistance Programs, and State Weatherization Assistance Programs. However,

many of which are separately managed through a gas utility and electric utility, requiring multiple steps for the homeowner to identify available programs.

These programs may be offered through utility companies, such as PA Act 129, which serves customers inside and outside the low-income bracket, but there are also loan and grant programs from the state (e.g. Keystone HELP), Allegheny County, and municipal governments, such as the Borough of Millvale and the City of Pittsburgh, which offer discounted energy efficiency loans for their residents. Aside from state, utility, and municipal resources, there are also private-market funding resources from various lending institutions and private contractors who install energy-saving devices. With each separate organization providing assistance, the puzzle of available resources becomes more convoluted.

Typically an individual's eligibility for these programs is determined by a variety of criteria, including renter/owner status, age, income, residency, credit rating, utility usage, and utility vendor. Many programs can also overlook the "lower-middle income gap," those who earn too much money to qualify for low-income assistance, but do not make enough money to fund home improvement projects themselves. The variables surrounding eligibility criteria and available programs result in a lack of clarity and increased difficulty in identifying or accessing any available assistance.

To add another layer of complexity, these programs frequently focus on only one component of home performance or home health, rather than addressing the building's needs in a holistic sense. Therefore, a homeowner may be forced to apply for multiple programs to address separate needs, such as home weatherization, water use reduction, and carbon monoxide monitoring.

Pennsylvania currently lacks a single, central coordinating program like Mass Save,²³ Vermont Energy,²⁴ Northeast Energy Efficiency Partnerships (NEEP),²⁵ or Clean Energy Works in Portland, OR.²⁶ Consequently, Pennsylvania residents find themselves chasing down pieces of this energy efficiency puzzle within a hodgepodge of assistance programs that are difficult to navigate.

Energy Efficiency and Building Science

Similar to the lack of clarity on available energy efficiency assistance programs, another barrier noted is the lack of clarity on available information about energy efficiency. According to Summit participants who implement home improvements, many homeowners they encounter

²³ Mass Save. <http://www.masssave.com>.

²⁴ Vermont Energy. <http://www.vtenergy.com>.

²⁵ Northeast Energy Efficiency Partnerships. <http://www.neep.org>.

²⁶ The City of Portland Oregon. "Clean Energy Works Portland." <https://www.portlandoregon.gov/bps/article/431322>.

know very little about how their homes operate or even where to acquire such information. Some anecdotal reports from those in the field suggest that homeowners either readily acknowledge that basic lack of understanding or make well-intentioned but ill-informed energy efficiency decisions based on their insistence that they “already know what’s wrong with the house.” Unfortunately, common misconceptions about the cost and impacts of energy efficiency can be worse than lack of information on the subject and do more harm than good.

It appears that many citizens tend to think about energy efficiency in terms of single conservation actions like replacing windows or adding caulking, rather than having any familiarity with the fundamental building science concept of a the whole house operating as a system – one that integrates various mechanical (heating, cooling, ventilation), building (foundation, walls, roof, etc.), indoor environment (interior temperature, humidity, and fresh air intake) and behavioral components (that each affect the optimal operation of another).²⁷

This lack of general knowledge surrounding building science is compounded by the perceived lack of accurate and available information on the subject. While there are a handful of comprehensive and reliable sources such as the Department of Energy’s website, feedback indicated that, as with assistance programs, the sheer amount of information created a barrier for homeowner education. The lack of a central, regionally-acknowledged source for information about energy efficiency and home performance means that homeowners who still want to educate themselves need to make multiple phone calls or piece together information culled from several websites, which is not a realistic expectation.

Because of this lack of a “one-stop shop” for information on programs or practices, messaging is not always consistent from the various sources promoting efficiency. Likewise, outreach promoting home performance is not as far-reaching or successful as desired because it and does not result in much traction or interest in pursuing energy efficiency.

Connecting Programs and Participants

Resource Availability

Utility-managed programs (e.g. low-income assistance, Act 129 electricity savings programs, etc.) comprise a significant portion of the current residential energy efficiency benefits available to renters and owners in Pennsylvania. However, there are tight restrictions on how money is spent and how benefits are measured for energy efficiency programs. Therefore, the regulations guiding these programs can have the unintended effect of restricting the total

²⁷ Building Performance Institute, Inc. “Building Science Principles Reference Guide, First Edition.” pp. 10-11.

benefit possible for the homeowner. For example, the utilities, whose program goals are measured in kilowatt-hour savings, do not get “credit” toward their goals for non-energy benefits achieved, such as increases in home comfort or indoor air quality resulting from home improvements, which limits their ability to market those benefits.

In addition, by PA Public Utility Commission regulations, utility programs are NOT permitted to spend ratepayer-funded program dollars on anything that does not specifically affect the type of utility being consumed. For example, if a home has significant moisture, mold, or mildew in the basement, it is ineligible for utility weatherization programs because tightening up the home with insulation in such a circumstance could exacerbate the mold and increase any existing indoor air quality issues. However, the weatherization program is not allowed to allocate money toward mold remediation (which would then make the home eligible for weatherization services) because mold remediation is a separate concern from energy efficiency. For cash-strapped lower-income homeowners, this restriction becomes a barrier to having the structure properly fixed.

Another difficulty with some of these programs is that they operate on multi-year phases, which have a specific budget allocation per program, per phase. Even if a homeowner identifies an applicable program for which the home is eligible, assistance dollars may no longer be available. If, for example, funds have been exhausted in a popular program, that program can remain unfunded until the next phase of that program begins. This funding cycle creates additional uncertainty for the homeowner about if and when program funding is available for homeowners.

Rental Properties

Another barrier to project implementation arises when the home is not owner-occupied. In the case of rental properties, it is frequently difficult to convince the renter and/or the landlord to undertake a property investment to improve the performance of the building. This scenario is referred to as a “split incentive,” in which the entity paying for improvements may not be the same one receiving the benefits through energy savings.

Thirty-five percent of homes in Allegheny County (188,567) are occupied by renters.²⁸ This percentage is even higher within the City of Pittsburgh. Under many leases in these properties, the landlord does not pay the utility bills, and thus has little or no incentive to invest in upgrades. Similarly, the tenant does not have a long-term interest in the structure, and thus has no incentive to invest in upgrades. “Split incentive” for renters will remain a barrier to

²⁸ Census 2010 Demographic Profile, State and Counties.
https://pasdc.hbg.psu.edu/sdc/pasdc_files/pastats/Pa_County_Data_2010.xls.

action until renter and landlord both understand the long-term benefits of and return on investments in home performance improvements.

Consumer Perceptions and Behaviors

Homeowner Priorities

Homeowners²⁹ have competing priorities, both in regard to other home improvements and to life in general, that make it difficult to dedicate time and resources to energy efficiency improvements. With our region's older housing stock, there may be structural and safety-related improvements that necessarily take priority over energy efficiency, but homeowners are also more likely to invest in home improvements that can be seen, such as granite counter tops, new flooring, or a new kitchen.

The value of these visible, cosmetic improvements will increase the appraised value of the home at the time of sale. Alternately, despite the inherent benefit, the value of energy efficiency improvements is generally not recognized by real estate appraisers. At the moment, homeowners achieve a greater return on investment with respect to resale value from cosmetic rather than home performance improvements that deliver ongoing comfort, health, and monetary benefits.

Additionally, feedback received at the Regional Energy Efficiency Summit supported the perception that if information on contractors, funding/financing, and energy efficiency programs is not readily available and easily understandable, homeowners will tend not to invest the time into trying to educate themselves.

Upfront Cost Barrier

While energy efficiency improvements result in long-term savings, the initial cost can be prohibitive for many homeowners. Even when financing programs are available, homeowners are often either unaware of them or are resistant to adding another monthly bill. Programs currently offered by the Urban Redevelopment Authority³⁰ and the Pennsylvania Housing Finance Agency,³¹ for example, have had disappointing participation levels. It should be mentioned that Keystone HELP³² has had some program successes, but specifically for those customers who can demonstrate a high FICO score.

²⁹ For simplicity's sake, we use the term "homeowners," but are referring to any decision maker who has control over energy efficiency for the structure. In most cases this will be the homeowner, but in some situations a tenant in a rental unit may have the opportunity to make improvements.

³⁰ The Urban Redevelopment Authority of Pittsburgh. <http://www.ura.org>.

³¹ Pennsylvania Housing Finance Agency. <http://www.phfa.org>.

³² Keystone HELP: Home Energy Loan Program. <http://www.keystonehelp.com>

Special attention must be paid to homeowners who fall into the “lower-middle income gap,” those individuals and families whose income is too high to qualify for low-income programs, but is too low to qualify for or afford market-rate financing. This group spans working families, young professionals, and the elderly. For members of this group, the interest and desire to improve the home’s performance may exist, but the financial cost is too great to bear.

As described in previous sections, perceptions of homeowner behavior indicate that even when the homeowner is eligible for such programs, they may not participate because of lack of awareness and lack of time to research opportunities. Financing opportunities, along with assistance programs and educational materials, would also gain visibility through the creation of a one-stop information source.

Participant Skepticism

An additional barrier identified with respect to homeowner perceptions is that of distrust and fear, specifically of energy efficiency programs and their representatives. While energy efficiency is not a new concept or industry, it is one that is unfamiliar to many people, and therefore many homeowners may not trust contractors or the cost/savings estimates they provide. Often, because the homeowner may not personally know someone who has made efficiency improvements and shared their success story, a contractor’s estimates sound “too good to be true.”

Homeowners may also fear what will be found by an energy audit. For example, the auditor may identify serious structural or safety concerns that they do not have the money to address. Participants at the Regional Energy Efficiency Summit also reported that when conducting programs for low-income residents, homeowners can be skeptical of utility company representatives, fearing that they have an ulterior motive for entering the home or that they will identify building problems or code violations that the homeowner will then be responsible for repairing.

There is also a concern that an alleged utility company representative may, in fact, be a scam artist or thief. While unfortunately this is a legitimate concern and homeowners should always verify the identity of anyone entering the home, it hinders the ability of utility companies to implement home efficiency programs.

Workforce Development Hampered by Inconsistent Demand

The above mentioned factors compound to make it challenging for even motivated homeowners to take action. Program standards, offerings and guidelines fluctuate, creating uncertainty and mistrust of assistance providers. Program funding can be cyclical and

occasionally unavailable, reducing any momentum a program may have gained. This uneven demand for services makes it difficult for a service provider to maintain trained staff to support energy efficiency services.

Representatives of the weatherization and HVAC contractor community, including members of the Diagnostic Energy Auditors of Western Pennsylvania (DEAWP), have indicated that it is hard to find reliable employees in the first place because the work is dirty, physical, and hard. Additionally, ongoing training is a necessary challenge, as the landscape of the industry is constantly changing (e.g. building ratings, reporting standards, paperwork for programs, etc.).

However, once a company finds suitable employees and manages to keep them up to date on the most recent standards and guidelines, the ebb and flow of work availability frequently cannot justify maintaining and training such a staff. If efforts to grow the market for residential energy efficiency are to be successful, it will require solutions to these workforce issues.

Opportunities

There is substantial opportunity to improve the energy literacy of Southwestern Pennsylvania's citizens and performance of their homes. Moving forward to address these opportunities proactively will improve the performance, safety, and value of the region's housing stock, help protect residents from rising energy prices, and develop green collar jobs and a vibrant energy economy in Southwestern Pennsylvania.

The ReEnergize Pittsburgh Coalition, currently a volunteer-based effort with 40 member organizations,³³ has the capacity to help the Pittsburgh region become an energy efficiency leader by effectively harnessing existing resources and expanding opportunities for small mid-market businesses.

The ReEnergize Pittsburgh Coalition is poised to develop robust coordination programs that will result in:

³³ See Appendix A

- Improving the quality and resiliency of the region’s housing stock by making it easier for consumers to implement health, safety, and energy efficiency improvements; further recognizing those improvements by incorporating their financial benefits into property values
- Building the energy efficiency market in Southwestern PA, as it exists in other states (e.g. Vermont, New York, Massachusetts, and Connecticut) by creating an easily identifiable regional coordinating resource for consumers and industry
- Better leveraging existing resources by connecting homeowners to currently available assistance programs and educational materials
- Helping the region transition to green collar jobs by assisting a growing market for energy efficiency; improving consumer awareness and supporting workforce development training efforts

In order to work effectively toward these opportunities, the ReEnergize Pittsburgh Coalition plans to explore funding opportunities to help establish a formal, centralized hub of information about energy efficiency assistance programs, best practices, and local organizations. Led and managed by Coalition member organizations, this prominent and recognizable resource will raise visibility and yield greater consumer awareness, trust, and participation in the region’s green energy industry.

Coalition Roadmap

Based on the challenges and opportunities listed above, the ReEnergize Pittsburgh Coalition has identified these steps as key priorities to address in enhancing the role of energy efficiency in Southwestern PA’s residential sector.

1. Maintain and Grow Partnerships

A clear message from the participants of the Residential Energy Efficiency Summit was the desire to work together and strengthen collaboration among the Coalition’s organizations. In addition to strengthening existing relationships, the Coalition must expand the table to include a more diverse set of strategic partners. The ReEnergize Pittsburgh Coalition will continue to convene and explore tactics to be as effective as possible in achieving its mission. In order to

leverage a broader range of viewpoints, skill sets, and experience, the Coalition will work toward engaging representatives from the following stakeholder groups.

Networks

The first step will be to benchmark other multi-sector networks as models, both to emulate their successes and to borrow from their “lessons learned.” Existing networks to investigate further for collaboration include the Pittsburgh Greenspace Alliance, the Pittsburgh Climate Initiative, and the Food Policy Council.

Government

Specific groups to target for involvement moving forward include government agencies of all levels. One priority identified through the Summit that will require leadership from government is the need for improved building code adoption and enforcement, as well as more attention toward the condition of rental properties, managed through more frequent inspections.

Workforce

Another identified deficiency was the lack of focus on workforce development issues. As of the Summit, this interest and expertise was not well reflected in the ReEnergize Pittsburgh Coalition membership, programming, or priorities. The Coalition intends to work to recruit partners with the expertise and networking to lead efforts in workforce development, as it relates to the energy efficiency industry.

Utilities

Although challenging because of different geographic territories, the Coalition will endeavor to increase collaboration between utility programs. Engagement in this area will help to address an additional priority identified at the Summit, which was the need to strengthen coordination between utility programs and government-funded programs.

Residents

Across all of these categories, the use of subcommittees and working groups should continue to be strengthened, so that member time and effort are used toward measurable outcomes. It was clear through discussions at the Summit that representation from area residents is crucial, but minimal at present. Diversity and inclusion among Coalition members and the constituencies it serves must continue to be a priority.

2. Develop a Centralized Resource for Program Coordination and Consumer Education

A key that regional priority Summit participants identified is the creation of a centralized point of information to filter and organize the massive amount of information available on the subject of energy efficiency. In the likeness of best practice models around the country, a “one-stop-shop” would provide a single point of access to trusted and objective information for homeowners, supporting the energy efficiency industry and reducing barriers to adoption.

The ReEnergize Pittsburgh Coalition is poised to harness the experience and networks of its 40 member organizations to develop and maintain this centralized resource, which would be capable of transforming the energy efficiency market in Southwestern Pennsylvania. Resources provided could include information on assistance program offerings and eligibility requirements, funding and financing options, listings of vetted contractors, and educational materials related to home performance and building science.

Programs and Resources

As mentioned above, barriers to adoption include a wide range of issues such as awareness of programs, program eligibility, funding restrictions, skepticism around program legitimacy, and maintaining a skilled workforce. This information hub has the potential to become a trusted and recognizable resource that is committed to providing objective, reliable information to help homeowners sort through the maze of assistance programs that cover a variety of services for a range of customer types. Homeowners could also view lists of reputable contractors and identify which ones have previous experience with energy efficiency programs and hold related certifications.³⁴

Building Science and Value

Many homeowners perceive that energy efficiency improvements do not add value to the home. Alternately, those who do see value in such improvements do not always know where to start. The Coalition has identified the need for consumer education resources on a variety of topics including: the building science behind how a home operates as a system; the costs and savings associated with energy efficiency improvements; and the non-monetary value of

³⁴ A similar model has been successful in New York State through a program led by New York State Energy Research and Development (NYSERDA): Home Performance with Energy Star (HPwES). Vetted BPI certified contractors who receive training and are subject to review by NYSERDA use NYSERDA’s HPwES branding to conduct outreach to homeowners. By using NYSERDA’s brand, auditor and contractors demonstrate their credibility to homeowners.

energy efficiency improvements, such as increased comfort, improved indoor air quality, and environmental benefits.

Coaching

In addition to serving as a clearinghouse of information, this one-stop-shop could also include an “energy coach” component, offering support from area residents who are familiar with the issues and landscape of the region’s energy efficiency industry. This advisor could provide the support and guidance that many homeowners need in order to commit to energy efficiency improvements, for example walking the homeowner through the process of scheduling an energy audit, obtaining financing, and implementing recommended measures.

Testimonials

Similar to the coaching component described above, a testimonials component of this information hub would include feedback from users who have been through the project implementation process and can provide feedback and advice. Stories provided by early adopters, particularly local ones, can help address the issue of skepticism among potential participants. Increased visibility of initiatives throughout the region’s communities may help to drive momentum for the adoption of energy efficiency projects, eventually engaging whole neighborhoods and tapping into “Pittsburgh Pride.”

3. Monetize the Value of Home Energy Investments

In order to drive change in the residential sector, it is imperative that financial assessments of homes recognize the financial benefit of energy efficiency improvements. In contrast to more cosmetic home improvements, which can increase the asking price, energy-saving improvements that save money and increase the health and comfort of a home do not. In fact, Pennsylvania’s real estate market does not currently have a mechanism for assessing the value of home performance.

The Coalition has identified a number of avenues to explore in recognizing and incorporating the value of home energy efficiency investments, including a standardized framework to evaluate energy saving projects, ways this information could be housed within existing real estate databases, and existing programs to leverage.

Home Energy Score

A major challenge to determining the financial value of home efficiency improvements is ensuring an accurate and objective method of project evaluation. One such framework is the Department of Energy's Home Energy Score, which provides a standardized, asset-based score that allows for comparison of homes based on energy efficiency performance criteria, as one would compare cars using a miles-per-gallon rating. This score can then be used to compare homes to one another, allowing a homebuyer to consider energy use when choosing a home, just as one would consider the number of bathrooms.

While a homeowner who invests in energy improvements already receives the benefits of greater comfort and lower energy bills, the incorporation of the Home Energy Score into property assessment criteria would also allow the homeowner an opportunity to receive increased monetary value for these improvements when the home is sold. The ReEnergize Pittsburgh Coalition is exploring avenues to incorporate the Home Energy Score into property assessments and databases to better capture the value of energy efficiency projects.

Property Databases

After obtaining a more complete picture of a home's performance through the incorporation of an evaluation framework such as the Home Energy Score, the information must be listed somewhere useful, where it can be accessed easily to help determine property value. The West Penn Multi-List Service (MLS) provides information for home buyers, realtors, and – perhaps most importantly – appraisers, who utilize MLS listings to identify comparable properties and help determine market value.

When the MLS listings do not include any information on the energy efficiency aspects of the property, it is impossible to include the value these features in the price. It is also impossible for buyers who are specifically looking for these types of features to identify potential homes. Integrating energy information into the MLS significantly helps to "make the invisible visible," a stated priority of Summit participants.

In addition to using the MLS to highlight a building's Home Energy Score, home buyers could access the information through home listings on the Allegheny County Real Estate website. Even more Home Energy Score is added to the property information, the county real estate data could be modified to provide data fields for capturing more basic information like the age and type of heating equipment in a home (e.g. "boiler" instead of simply "central heating," and presence/absence of any insulation based on R-value).

Realtor Education

In addition to establishing evaluation framework and reporting capability, these efforts must include realtor education in order to be successful in promoting the value of energy efficiency.

Realtors provide a crucial link between the buyer, seller, MLS, appraiser, and financing agency. In order to support increased awareness of home performance, it is critical that realtors understand the value of energy efficiency and commonly adopted measures so they can showcase high performance homes and speak to any questions home buyers may have on the subject. The Coalition recently conducted a survey among Pittsburgh-area realtors and learned that many have noticed a growing interest in energy efficient homes, particularly among younger homebuyers.³⁵

Time-of-Sale Actions

The ReEnergize Pittsburgh Coalition is examining opportunities to incentivize or require a home energy audit and/or retrofits at the time of sale. The timing of services could be beneficial because it would allow the cost of improvements to be bundled into the overall financing of the home.

Recognizing the value of energy efficiency at the time of sale may be particularly effective with first time homebuyers. It is possible, for example, that agencies such as the Urban Redevelopment Authority or the Pennsylvania Housing Finance Agency could offer or even require workshops or informational materials for first-time homebuyers. These materials could include information on the importance of energy efficiency and basic home energy efficiency responsibilities like changing furnace filters regularly, leaving vents unblocked by furniture, or bleeding radiators annually.

The Coalition also recognizes the value of addressing issues tied to rental properties, as well as owner-occupied homes. The split incentive described above explains why it is sometimes difficult to secure buy-in on energy efficiency projects from the landlord and/or the renter, but the Coalition will continue to explore potential solutions like green leases and methods for stakeholder engagement.

4. Integrate with Regional Organizations and Planning Efforts

Summit participants overwhelmingly felt that in order to achieve the greatest amount of success with residential energy efficiency adoption, it will be necessary to support initiative rollout on a broad, regional scale, rather than on a small, municipal scale. The ReEnergize Pittsburgh Coalition, through its efforts to develop a centralized hub of information, can raise awareness of large-scale opportunities and facilitate cross-community and cross-sector

³⁵ ReEnergize Pittsburgh Coalition. Realtor Survey, results to be published at: <http://reenergizepgh.org>.

collaboration. In order to further any region-wide efforts, the Coalition must seek out existing opportunities as well as engage new municipalities, organizations, and businesses across Allegheny County and the larger region.

Community

A key partner will be the Congress of Neighboring Communities (CONNECT),³⁶ a network of the City of Pittsburgh and the 36 neighboring municipalities that share common borders. These inner-ring suburbs are particularly important, as their housing stock is largely older, with fewer newer housing developments than some of the outer ring suburbs and communities.

Additionally, the Coalition will explore the potential for outreach and education to municipal and community leaders through potential partners like the regional Councils of Government, the Institute of Politics,³⁷ and the Local Government Academy.³⁸

Government

The ReEnergize Pittsburgh Coalition will also need to develop links to county, regional, and state planning efforts in order to ensure that energy efficiency is integrated as a priority in future plans. The Pennsylvania Department of Environmental Protection participated at the Regional Energy Efficiency Summit, and the Coalition plans to continue to engage with them as well on the regional and state levels to support broader-reaching opportunities.

Looking specifically at the state of housing stock, while nearly every publicly-funded new construction housing project is required to meet higher energy efficiency standards, most existing structures are exempt from these requirements. Incorporating energy efficiency requirements into the guidelines for standing home renovations can help alleviate the performance gap between older and newer homes.

Regional planning opportunities will likely include issues that fall outside the Coalition's primary focus of residential energy efficiency, but will still support the mission of increased quality of life for Southwestern Pennsylvania's residents. Support for these initiatives could manifest themselves in a number of ways (e.g. large-scale community energy projects like solar panels accompanying municipal facilities or assistance programs that prioritize funding for communities that encourage energy efficiency improvements). Ultimately, visible support from all levels of government will show that responsible resource use is a priority.

³⁶ CONNECT: Congress of Neighboring Communities. <http://www.connect.pitt.edu>.

³⁷ Institute of Politics. <http://www.iop.pitt.edu>.

³⁸ Local Government Academy. <http://localgovernmentacademy.org>.

Corporate

As of 2014, Pennsylvania was home to over 4200 businesses related to energy efficiency or renewable energy,³⁹ and the state's clean energy industry is poised to expand from there as the government enacts stricter emissions requirements for electricity generation. There may be potential for the Coalition to attract more creative partners to support its goals, partners such as regional and national energy efficiency companies, energy retailers, and energy generation companies. For example, America's largest solar installer, SolarCity,⁴⁰ recently announced a partnership with Nest Labs, best known for the Nest Thermostat.⁴¹ By working together, these companies will help to advance both energy efficiency and renewable energy adoption, encouraging a "whole house" approach, rather than a piecemeal improvement plan. The ReEnergize Pittsburgh Coalition plans to explore what opportunities might exist to collaborate with corporate partners for win-win solutions.

5. Focus on Financing

The final key priority for advancing home energy efficiency will be identifying innovative and easy financing options for homeowners. The Coalition's role as a one-stop-shop of information on the subject will be useful to aid the variety of homeowners accessing it. The "middle-income gap" needs particular attention, as it represents frequently overlooked customer group. These individuals earn enough to be ineligible for low-income assistance programs, but not enough to self-finance home energy improvements or to qualify for existing financing programs. As financing options develop, the Coalition will continue to monitor the various avenues available and provide related information.

Education on the importance of energy efficiency improvements must be paired with information about financing resources. Current market behaviors indicate that visible, cosmetic home improvements are valued higher than invisible home performance improvements. A Pittsburgh-based documentary filmmaker commented that "no one will ask you what the return on investment is on your granite countertops, but they will ask you the payback on your high-efficiency furnace." This perception bias signals that financial incentives and the inclinations of those who apply for them are skewed against energy efficiency. Additional education will be needed to support this final priority for the Coalition.

³⁹ Keystone Energy Efficiency Alliance. "Clean Energy Jobs Report." 13 November, 2014.
http://cleanenergyworksforus.org/wp-content/uploads/2014/11/111314_CleanJobsPA_ReleaseFINAL21.pdf.

⁴⁰ Solar City. <http://www.solarcity.com>.

⁴¹ Nest. <https://nest.com>.

State

There is potential to advocate for dedicated funding at the state level, similar to the Energize Connecticut loan program.⁴² Pennsylvanians already have access to the Keystone Home Energy Loan Program, or “Keystone HELP”. The program had been stalled because of a budget cut, which had resulted in drastically increased interest rates. At the time of the Regional Energy Efficiency Summit in April 2015, interest rates at Keystone HELP were higher than any commercial lender or bank, so there was no advantage to pursue financing through the program.

Keystone HELP recently received a new round of funding in the summer of 2015, so it will be important to observe this program for updates. However, while this type of loan program can be helpful to some homeowners who are already interested in making improvements, it is not sufficient to incentivize homeowners who were not otherwise considering energy improvements.

In addition to the Keystone HELP program, there may be potential to establish a regional revolving loan fund specifically for home energy improvements, which may include renewable energy systems, in addition to efficiency improvements. Still to be determined are factors such as who would administer the revolving loan fund, what interest rates and terms would be necessary to incentivize participation, and what sources of seed money exist.

Public / Quasi-Governmental

There are also public organizations that offer financing options for homeowners (e.g. the Urban Redevelopment Authority and the Pennsylvania Housing Finance Agency). The ReEnergize Pittsburgh Coalition plans to assemble information relevant to these options for interested parties as part of the “one stop shop.” Continued engagement with these organizations, and others like them, will be necessary

Utility

On-bill repayment is an exciting possibility that has emerged as a solution in some other states. The benefit of on-bill repayment is that the homeowner’s project financing repayments are incorporated into the electricity bill and offset by the project’s energy savings. A major benefit of this setup is that the homeowner is not burdened with an additional bill to pay. In fact, when properly designed, the savings of the project will be equal to or greater than the loan repayment, so the homeowner’s monthly bill should remain close to the same or less.

⁴² Energize Connecticut. “Energize CT Heating Loan Program.”
<http://www.energizect.com/residents/programs/energizect-heating-loan-program>.

In August 2012 the Pennsylvania Public Utilities Commission established a working group to investigate the potential for on-bill repayment in the state. The working group recommended against pursuing on-bill repayment at this time, but the Coalition will continue to monitor any changes to the outlook in Pennsylvania as the practice becomes more prevalent elsewhere.

Conclusion

ReEnergize Pittsburgh Coalition's work to identify challenges and opportunities through research and stakeholder engagement has culminated in a refined set of priorities. These priorities form the roadmap for not only the Coalition's work, but the work of all partners in the residential energy efficiency sector in Allegheny County, including the City and County government, local municipalities, businesses, realtors, and non-profit organizations.

Consensus among Summit participants called for the ReEnergize Pittsburgh Coalition to take the lead on actively driving a concerted regional effort to address the issues identified at the Summit. Participants indicated that it will be crucial to continue actively recruiting partners from the public sector and the organizations involved in residential mortgages, residential energy efficiency, and home performance financing mechanisms.

A specific point of focus for the Coalition's efforts will be in creating a central point of information and guidance about home energy efficiency programs: what they cover, who is eligible, and how to get involved. Additionally, the Coalition will work toward increasing the perceived value of energy efficiency by working to incorporate home performance data in real estate databases such as the MLS.

The ReEnergize Pittsburgh Coalition is poised to help facilitate great strides in the residential energy efficiency sector through the collaboration of public and private organizations, local and regional government, utility companies and end users. The Coalition believes that rather than raising individual voices for special interests, aligning a group of voices can present a powerful voice for change.

Appendix

A: ReEnergize Pittsburgh Coalition Membership

ReEnergize Pittsburgh Coalition Members	
ACTION-Housing	Lawrenceville United
Allegheny County	Mount Washington Community Development Corporation
Bloomfield Development Corporation	New Hope Church
The BlueGreen Alliance	Oakland Planning and Development Corporation
The Breathe Project	Operation Better Block
Citizens for Pennsylvania's Future (Penn Future)	Peoples Natural Gas
City of Pittsburgh	Pennsylvania Environmental Council
Columbia Gas	Pittsburgh Climate Initiative
Community College of Allegheny County	Pittsburgh Community Services, Inc.
Conservation Consultants, Inc. (CCI)	Pittsburgh Green Innovators
Diagnostic Energy Auditors of W. PA (DEAWP)	The Penn State Center Pittsburgh
Duquesne Light	The Pittsburgh Foundation
Green Homes Pgh	Q-Dot
Group Against Smog and Pollution (GASP)	Rebuilding Together Pittsburgh
GTECH Strategies	Sierra Club
Habitat for Humanity	Squirrel Hill Urban Coalition,
Hazelwood Initiative	Steel Valley COG
The Home Performance Coalition	Sustainable Pittsburgh
Kingsley Association	

B: Regional Energy Efficiency Summit Participants

Organization	Name
Action Housing	Kathryn Fantauzzi
Allegheny Conference on Community Development	Carly Dobbins-
Allegheny County	Phil LaMay
Allegheny County Economic Development	Cassa Collinge
Allegheny County Health Department	Alaina Conner
Allegheny County Health Department	Jeff O'Brien
City of Pittsburgh	Grant Ervin
City of Pittsburgh Office of Sustainability	Aftyn Giles
City of Pittsburgh Office of Sustainability	Ari Lattanzi
Columbia Gas of Pennsylvania and Maryland	Scott Waitlevertch
Comfy House	Tom Branch
CONNECT	Kathy Risko
Conservation Consultants Inc.	Jeaneen Zappa
DEAWP	Rhett Major
DEAWP	Brady Shields
Demand Home Performance, LLC.	Dom Pandolfo
DeMarco and Associates	Patty DeMarco
Dollar Energy Fund	Daniel O'Brien
Duquesne Light	Dave Defide
Duquesne Light	Ken Varhola
EEme, LLC	Enes Hosgor
Independent Consultant	Alison Steele
Green Homes Pittsburgh	Christa Ross
GreenoverGreen	Tim Carryer
GTECH Strategies	Zaheen Hussain
GTECH Strategies	Andrew Butcher
GTECH Strategies	Ian Brown
GTECH Strategies	Lydia Kremer
Home Performance Coalition	Brian Castelli
Home Performance Coalition	Nate Natale
Housing Authority of City of Pittsburgh	Aster Teclay
Institute of Politics	Kim Bellora

Kingsley Association	Mikana Maeda
Neighborhood Allies	Sarah Dieleman Perry
Oakland Planning and Development Corporation	Elly Fisher
PCRG	Ernie Hogan
Penn Future	Evan Endres
Penn State Center Pittsburgh	Cindy Hasenjager
Pennsylvania Department of Environmental Protection	Maggie Hall
Pennsylvania Environmental Council	Lindsay Baxter
Pennsylvania Housing Finance Agency	Carla Falkenstein
Peoples Natural Gas	Bill Roland
Pittsburgh Green Innovators/Conservation Consultants,	Nicole Miller
Southwestern Pennsylvania Commission	Laura Mundell
Steel Valley COG	George Lambrinos
Sustainable Pittsburgh	Mike Hill
Turtle Creek Valley COG	Amanda Settlemaier
University of Pittsburgh	Melissa Bilec
University of Pittsburgh	Kevin Ketchman
URA	Jessica Smith Perry
Wilksburg Community Development Corporation	Gordon Manker

C: Minutes from Regional Energy Efficiency Summit

Regional Energy Efficiency Forum

April 28, 2015

1:00-4:00 p.m.

Welcome and Background

Andrew Butcher, GTECH Strategies and Jeaneen Zappa, Conservation Consultants, Inc.

- Purpose: To build on foundation of existing collaborations; to establish a regional strategy / agenda for increasing residential energy efficiency of all homes.
- ReEnergize Pittsburgh Coalition History-- 5 years : 60+ organizations
- Increased connectivity of programs and services
- Shared challenges - hence shared opportunities
 - Policy constraints; middle income qualifications; financing; quality assurance; data sharing; marketing and consumer awareness; quantifiable health benefits; scaled workforce
- Many complimentary efforts:
 - Energy For The Power of 32 Regional Planning
 - Pittsburgh Climate Action & Resilience Planning
 - EcoDistricts
 - Pittsburgh Comprehensive Planning
 - 2030 Challenge
 - Reducing Outdoor Air Contaminants in Indoor Spaces
- Within the City of Pittsburgh
 - **53%** of homes were built before 1939.
 - **23.9%** were built between 1940-1959.
 - This means that over 76% of our housing stock was built before 1960, and more than half before 1940.
 - Energy efficiency not in national building codes until 1970s.
- Survey across 24 states—of homeowners who had energy audit, less than half actually implemented energy efficiency steps

Case Studies (additional details below)

Lindsay Baxter, Pennsylvania Environmental Council and Tim Carryer, GreenoverGreen

- Clean Energy Works Portland
- Retrofit Baltimore
- Home Energy Score—Vermont

Facilitated Discussion

Question 1: What are the barriers to increasing residential energy efficiency in Pittsburgh and Allegheny County?

- **Priorities/Time**
 - Older building stock, other improvements become priorities first
 - Homeowners prioritize improvements that are visible and/or improve re-sale value (i.e. granite counter tops)
 - Homeowners are busy with work, families, etc. (i.e “getting dinner on the table”)
- **Money**
 - Upfront financing
 - Bridging the middle income gap, those who don’t qualify for programs but can’t self-finance
 - Even when financing programs exist (examples: URA, PHFA) participation is low because people don’t know about them or have the time to sort through them.
- **Distrust/Fear**
 - Distrust in the savings estimates from contractors who are trying to make a sale
 - In contrast, local government and testimonies from friends are considered to be credible sources
 - Fear of what you’ll find if you bring in an auditor
 - Not wanting a stranger in your home (especially for utility programs, as there is a fear that the representative isn’t really with the utility company and it’s a scam)
 - Not trusting data from utilities
- **Information/Assistance**
 - People don’t know much about home performance; Homeowners are willing to pay for home improvements but tend to invest in aesthetic improvements, not energy.
 - Misperception of the cost of energy efficiency
 - Need for a one-stop resource with info, hand-holding
 - Need consistent messaging from different sources
 - Need creative funding for outreach efforts/promotion
- **Rental properties**
 - “split incentive”- entity paying for improvements may not be the same receiving the benefits through savings
 - Solutions will differ for buildings with one owner versus multiple investors
- **Workforce**
 - It’s gritty, hard work. Hard to find employees
 - Rules are always changing (example: for building ratings, reporting standards, paperwork)
 - Rebate/Utility type programs often present difficulties for contractors. Pursuing that type of work is often cost prohibitive, but, due to the availability for consumers, it’s often the only available work.

- Utility restrictions
 - Restrictions on how money is spent, benefits measured, for energy efficiency programs. Utilities/Programs not allowed to report on non-energy benefits observed. Makes it more difficult to market those benefits to new consumers.
 - Restrictions on data sharing

Question 2: What are the potential solutions to these barriers? What should be the top 3 priority policies or programs for increasing energy efficiency in Allegheny County?

Top 3

- Creation of one-stop shop/ Energy Coach model
 - Preferably with seal of approval of local gov't
 - One stop shop for info/financing/contractors—run by gov't or non-profit to avoid trust issues; needs to be self-funded, at least in the long-term.
- Begin using home energy score/Other tactics to assign value for energy efficiency at time of sale
 - How's my house compare to others?
 - Include home energy score on county real estate website
 - Involve realtors in promoting efficiency
 - Incentivize or require energy audit at time of sale; bundle improvements into overall financing
 - Make "invisible" visible (i.e. to buyers)
 - Include efficiency in MLS
 - Special emphasis on first-time homebuyers
 - Example: trainings and resources
 - audits for first time homeowners
- Financing
 - On-bill repayment—include an income consideration for rate of repayment
 - Connecticut financing program
 - Revolving loan fund
 - Bring in more creative partners (like solar companies, energy retailers)

Other Recommendations:

- Solution needs to be regional, not municipality by municipality
- Address workforce
- Code adoption and enforcement
 - Municipalities can adopt stricter codes than state
 - Rental inspections

- Increasing collaboration between utility programs
 - Challenging because of different geographic territories
 - Also, greater coordination between utility programs and government-funded programs.

- Improve information
 - Marketing; develop consistent messaging
 - Tap into “Pittsburgh Pride”
 - Providing homeowners with info on savings after retrofits (Measurement & Verification)
 - Make it easy and elegant

- Green leasing for rental units

Government Panel

Grant Ervin, City of Pittsburgh

Phil LaMay, Allegheny County

Kathy Risko, CONNECT

Maggie Hall, PA Department of Environmental Protection

- City is eager to include feedback from today’s session into update to *Pittsburgh Climate Action Plan*. Can also help to promote programs through its Cable channel and YouTube channel.
- County is very interested in supporting residential energy efficiency, but need to know there’s a good cross-section of communities and populations that support it. They’ve looked at several case studies from other areas; would consider a real estate tax incentive for energy efficiency improvements; interested in seeing it integrated into regional MLS.
- CONNECT member communities are not necessarily focused on energy efficiency--yet. Many municipalities worked together on SunShot program to adopt solar codes. Biggest barrier for local government is finding the capacity to make programs happen. Remember, local governments own buildings too and also need to make energy efficiency improvements
- In the 1990s, PA collapsed its state energy office and folded it into DEP; DEP doesn’t have much involvement in residential energy efficiency, but would like to review minutes from this meeting and think about how it fits into strategy/programming.
- If Pittsburgh puts something together that works, it should be adopted across the other municipalities.
- Audience questions—would city or county participate in a pilot program for a home in need of rehab?
 - Action Housing Uptown Projects; recommendation for greater cross pollination between ReEnergize Pittsburgh Coalition and Passive House Community
 - Allegheny County Economic Development does work with developers
 - Do you just want access to a property or want us to pay for it?
 - Wilksburg CDC also recommended as partner for getting access

- What makes EE important to you
 - If there's cost savings to be realized, it's a win-win
 - Opportunity for value creation; improve existing building stock.

Next Steps

- ReEnergize Pittsburgh Coalition to develop white paper with strategy for regional energy efficiency agenda.
- **All are invited to next Coalition meeting Thursday, July 9th at 2:00 p.m.** (Location TBD)
- We welcome continued discussion and feedback. Feel free to contact:
 - Jeaneen Zappa, CCI, jeaneenz@ccicenter.org
 - Andrew Butcher, GTECH, a.butcher@gtechstrategies.org
 - Lindsay Baxter, PEC, lbaxter@pecpa.org

D: Examples of Consumer Education Resource Programs

The one-stop-shop should be run by a non-profit or local government agency, which are perceived to be credible sources of information and which do not have a financial interest at stake (as compared to a contractor). However, funding to support initiatives like this are limited, so the one-stop-shop would need to be designed to be self-sustaining, in the long-term. One potential solution is to establish a structure for cost-sharing by the contractors and/or financing agencies that benefit from the increased business.



Two goals: 1) Improve homes to save energy, 2) Create jobs

- Launched in 2011 as project of non-profit organization
- Through the use of an energy coach, pre-screened contractors, and financial incentives, experienced 60% conversion rate from audit to retrofits.
- Includes job-training component, with special emphasis on jobs for city residents.
- Strong support from city gov't, including co-branding and advocacy to state gov't on importance of financial incentives.



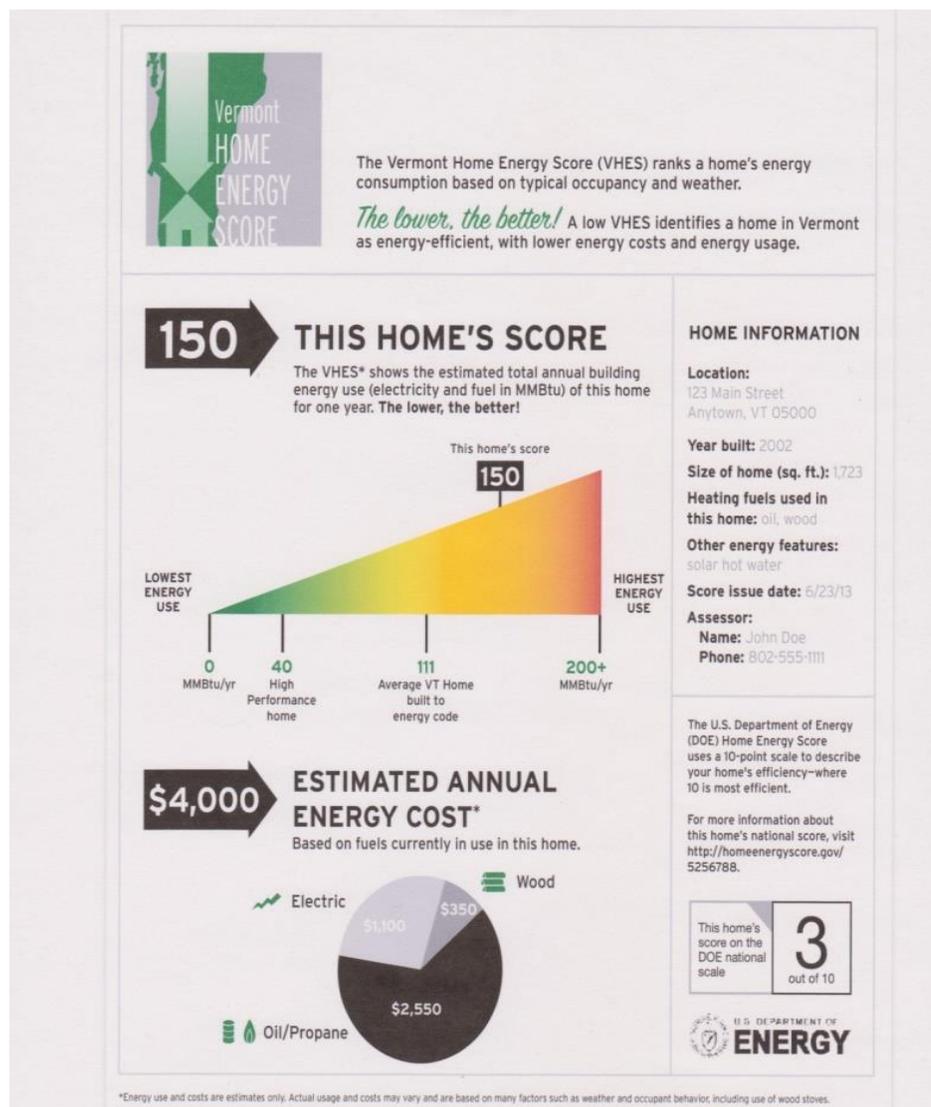
- Launched in 2009 as City program, with goal of retrofitting 500 homes
- Premise: homeowners will make improvements if given 1) access to low-interest, long term financing, 2) the advice of an "energy coach" and 3) pre-qualified contractors
- Resulted in 584 loans, \$6M investments (as recorded by payments to contractors), 400 jobs (48 new), increased diversity of work force.
- Success led to the program being expanded statewide, and run by a non-profit organization. On-track to be self-sustaining by 2018.
- Lessons learned--- basically a "messaging machine;" "build a big tent around" your project; importance of the City-branding to attract participants

E: Examples of Home Energy Score Program and Report

Case Study: Vermont Home Energy Score

- U.S. Department of Energy's Home Energy Score uses a scale of 1-10, where 10 is most energy efficient.
- Vermont Home Energy Score (VHES) is based on total energy use per year (in BTUs).
- VHES label provides information on home's age, energy use (fuel type, amount, and cost)
- Use of a home energy score opens up a conversation with homeowners on potential improvements; assigns a value to efficiency improvements for real estate transactions

Sample report from Vermont's program:



F: ReEnergize Pittsburgh Coalition Structure and Responsibilities

Pittsburgh-based non-profit organization, GTECH Strategies, recently transferred the convening duties for the ReEnergize Pittsburgh Coalition from their organization to CCI (Conservation Consultants Inc.), a fellow non-profit organization that focuses exclusively on home performance and energy efficiency. In addition, the Steering Committee has met to identify the following priorities for Committees, and the associated next action steps and focus for the Coalition:

- Policy Committee
 - Greening the MLS
 - Home Energy Score
 - Provide briefings to the public sector leadership about key issues
- Financial Resources Committee
 - Creating an up-to-date matrix of all existing resources
 - Establish funding - align with and engage the Green Bank efforts coalescing with Green Building Alliance regionally
- Outreach Committee
 - Devise creative and engaging ways to teach the public about home performance and energy efficiency
 - Communicate about ReEnergize Pittsburgh Coalition's purpose and initiatives
- Workforce Development
 - Develop an apprenticeship program
 - Identify and involve workforce development organizations, such as Workforce Investment Board



For additional information, please visit the ReEnergize Pittsburgh Coalition website at <http://renergizepgh.org>



For further questions about this paper or the Coalition, please contact the lead convener, CCI, at 412-431-4449