Virginia's Approach to Building a Sustainable Home Energy Efficiency Industry

Virginia Department of Mines Minerals and Energy

Virginia's Approach to Building a Sustainable Home Energy Efficiency Industry

Background on Virginia's Residential Retrofit Pilot Project

Starting in early 2011, the states of Virginia, Alabama, Washington, and Massachusetts began collaboration on a multi-state project to grow and strengthen the home energy efficiency industry in each state. This 3-year project, which was funded by the U.S Department of Energy (DOE) State Energy Program, has enabled Virginia to transform the residential retrofit market in key communities, while developing a model that can be adopted by other communities throughout the state. By engaging consumers through online tools and home energy scorecards, as well as reaching out to energy auditors and contractors through training and workforce development, Virginia aims to establish a residential retrofit market that will sustain itself long after the DOE funded project is completed.

The Virginia Department of Mines, Minerals, and Energy (DMME), in collaboration with its partners, oversaw the Virginia Residential Retrofit Pilot Project. Three non-profit organizations known as Regional Energy Alliances (REAs) implemented the Pilot Project for the home energy retrofit and remodeling market.

The Pilot Project focused on developing the capacity of the community-based REAs to pilot home energy labels delivered through energy audits, provide an innovative suite of financing options, facilitate retrofit adoption by participating homeowners, train the implementation workforce, measure and verify the results of the installed home retrofit measures, and work with policy makers, utilities, and other stakeholders to support and ultimately grow the energy efficiency industry in Virginia.

OBJECTIVES OF THE PILOT PROJECT

The goal of the Virginia Residential Retrofit Pilot Project (the Pilot Project) was to target 2% of households in five defined geographic service territories and achieve home energy efficiency gains of 20% or greater per home. Pilot Project objectives were to:

1. *Establish a new program model of home retrofit markets through development of regional energy alliances;*
2. *Inform/engage homeowners through creation of a suite of marketing tools, including a home energy performance score metric;*
3. *Establish a financing program to help fund home retrofits;*
4. *Create a knowledgeable and skilled contractor network through training and workforce development;*
5. *Ensure a regulatory environment that facilitates financing for and adoption of*

Virginia's Collaborating Partners

The three REAs are implementing the pilot project in five different geographic areas of Virginia:

COMMUNITY ALLIANCE FOR ENERGY EFFICIENCY (cafe^2): Community Housing Partners (CHP) recently formed the cafe^2 to orchestrate and facilitate the energy efficiency home retrofit project in the City of Roanoke and the Town of Blacksburg.

LOCAL ENERGY ALLIANCE PROGRAM (LEAP): LEAP is directing the transformation of the residential energy efficiency retrofit sector in Charlottesville and Arlington County in Northern Virginia.

RICHMOND REGION ENERGY ALLIANCE (RREA): RREA is fostering a market for residential energy efficiency retrofits in the Richmond metropolitan area.

Other instrumental project and multi-state partners included Earth Advantage Institute, the National Associations of State Energy Officials, the Southeast Energy Efficiency Alliance, and The Cadmus Group.[1]

The REAs' Process Flowcharts

One of the best practices that emerged from the Pilot Project's process evaluation was the development of a Process Flowchart for each REA. The charts were developed by staff at The Cadmus Group, the consultant hired to undertake the process evaluation, in conjunction with the Executive Directors of the three REAs. The charts graphically illustrate the steps that the REAs undertake and track as they manage a home retrofit project. In addition to being a valuable management tool, the process flowchart shows the complexity of the business model that the REAs operated under during this project –one which will continue in some fashion as they transition to a market-based business model. The following page provides an example of the RREA Process Flowchart that was created by The Cadmus Group:

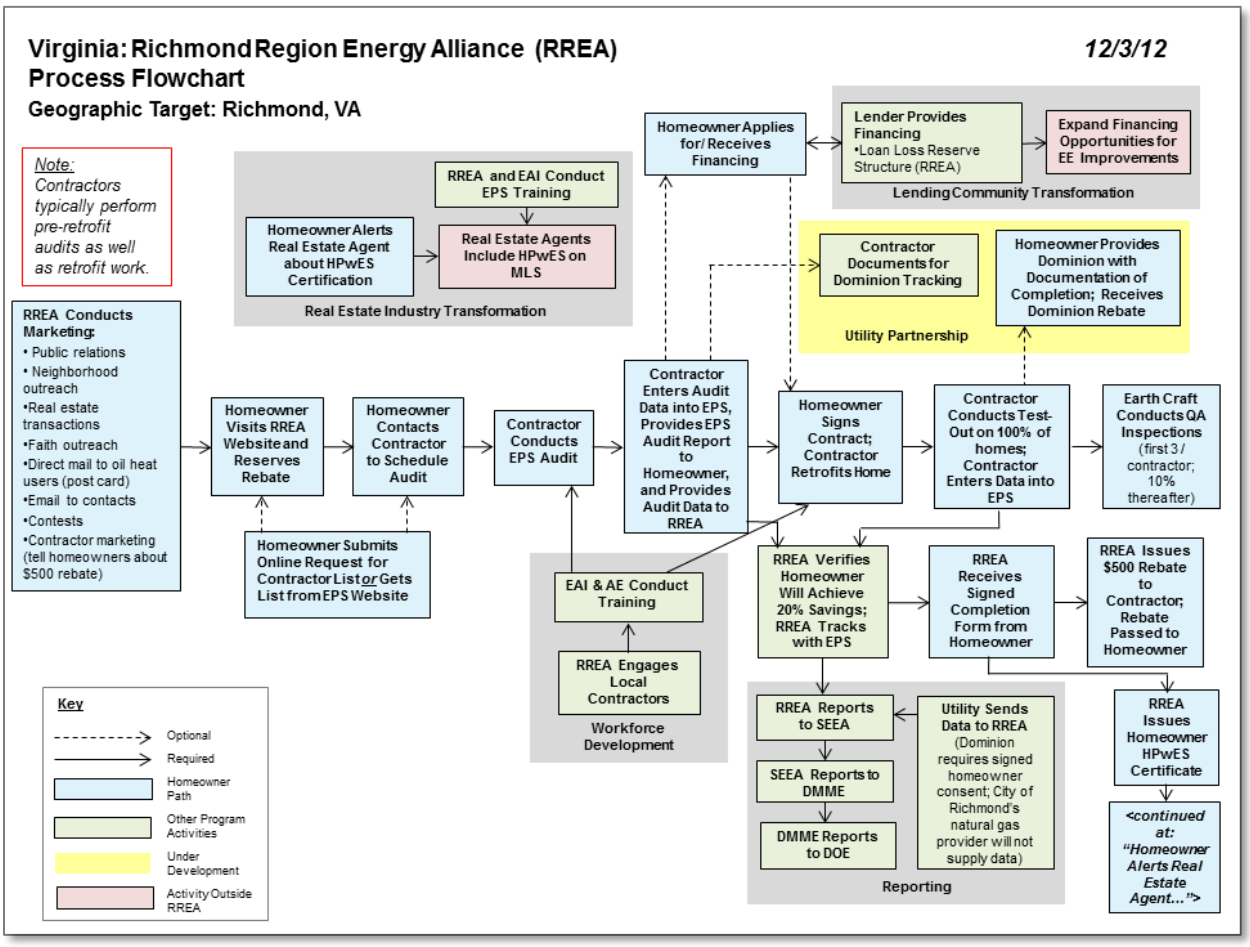
---

[1] EARTH ADVANTAGE INSTITUTE (EAI): EAI collaborated with regional, state, and local partners to incorporate the homeowner engagement tools and home energy rating and labeling process. For this Pilot Project, auditors/contractors used the EPS software tool to evaluate the estimated energy use of the home and generate an EPS label and report, which they then provided the homeowner. The EPS label is synonymous with a MPG rating for cars. The EPS report provides information on suggested energy efficiency improvements to the house and the expected energy savings that would result. EPS "…provides a standardized estimate of a home's energy use and associated carbon emissions. The EPS allows for comparisons of one home's energy use to another, without the influence of varying occupant behavior. Homeowners can also use the label and report to compare the typical energy use of the house in its current state versus what it could be like after energy upgrades." For more information about EPS see: http://www.energy-performance-score.com/. This EPS software tool is now available to the market in an updated version known as CakeSystems (http://cakesystems.com/). The CakeSystems software can produce an EPS label and report, as well as other energy labels and reports.

NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS (NASEO): NASEO coordinated the Steering Committee's management of the multi-state collaboration of Alabama, Massachusetts, Virginia, and Washington, helping to build on the synergies inherent in a broad, multi-state effort. NASEO also managed the process evaluation activities across the four states.

SOUTHEAST ENERGY EFFICIENCY ALLIANCE (SEEA): SEEA assisted the Virginia REA's with planning and strategy development, budgeting, and implementing contractor trainings.

THE CADMUS GROUP: Cadmus was contracted by the four states to conduct a process evaluation of their pilot projects in order to identify strengths and opportunities for improvement regarding program design, homeowner and contractor engagement, and marketing.



Pilot Project Highlights and Lessons Learned

Virginia's approach to the Pilot Project built on the initial successful efforts in Central Virginia by LEAP and expanded to other geographic areas with a focus on comprehensive retrofits and deep impact savings. Following the initial period of organizational development, the REA programs launched the Pilot Project in mid-2011 and have ramped-up services. Collectively, the REAs completed over 350 home retrofits with a 28% audit-to-retrofit conversion rate, along with slightly exceeding their initial average home energy savings target of 20%. The impact of the Pilot Project is illustrated in the following table.

Impacts of Virginia's Pilot Project (through September 2013)

Virginia Program	Cumulative Total of Completed Energy Audits	Cumulative Total of Completed Retrofits	Audit-to-Retrofit Conversion Rate	Portfolio Average Home Energy Savings	Average Retrofit costs
TOTAL	1,259	356	28%	22%	+$8,500

Each REA provided a number of important program elements to encourage existing homeowners to undertake energy efficiency retrofit projects. These included broad consumer awareness, unique homeowner outreach strategies, workforce training and quality assurance, financial incentives, linkages with local partner resources, facilitating service delivery, information sharing, policy awareness and advocacy, and planning for ongoing operations as noted below:

- **Consumer Awareness:** The REAs tested various strategies for increasing consumer awareness, including e-newsletters campaigns, linking with other planned neighborhood events, and other community based social marketing efforts. For example, a "Home Energy Makeover Contest" received over 1,100 entrants from across Central Virginia and received broad media coverage. Building on the initial success in generating broad consumer awareness, the REAs have more recently focused on consistent messaging and the specific program offerings.

- **Homeowner Outreach/Engagement Strategies:** The Pilot Project was designed to supply objective information through online tools and energy labeling about the home's performance that would help the homeowner make decisions on the financial merits of moving forward with an energy efficiency retrofit. A key component of this strategy was creating an Energy Performance Score (EPS) label and report during the energy audit. The EPS label provides a standardized estimate of a home's energy use and associated carbon emissions and is synonymous with a MPG rating for cars. The EPS report provides information on suggested energy efficiency improvements to the house and the expected energy savings that would result. Homes with poor EPS ratings would be encouraged to pursue upgrades. The Pilot Project included training energy auditors on utilizing EPS software to generate EPS labels and reports, while also working with the local real estate community and appraisers to include EPS results when determining a home's value. Earth Advantage Institute worked with the program implementers and contractors to create a system for delivering EPS results to homeowners.

The winning family from a "Home Energy Makeover Contest" attends a kickoff meeting with LEAP staff and contractors

- **Incentives and Financing:** The REAs provided access to financing and partial retrofit rebate funding to make it easier for homeowners to complete the home energy upgrades. The financing program included three Loan Loss Reserve Funds operating in conjunction with local lending institutions as well as a 0% PowerSaver Loan Program in support of LEAP's Central Virginia retrofit projects. Integrating local utility incentives helped to further reduce the cost of the energy efficiency retrofits for the homeowner. Several of the REAs are exploring the establishment of an on-bill financing program that could provide a convenient way for homeowners to repay project financing costs on their monthly utility bill.

- **Training and Quality Assurance for the Residential Market Place:** The Pilot Project provided workforce training and quality control/quality assurance processes for a network of home raters, energy auditors, contractors, remodelers, and equipment installers. The REAs hosted STAR (Sustainability Training for Accredited Real Estate Professionals) training, conducted by EAI staff, for appraisers and the real estate community about the features and benefits of new and existing high performance homes and the advantages of energy efficiency and energy savings.

- **Linkages with Local Partners to Leverage Resources:** Through the Pilot Project, the REAs increased their linkages and coordination with utilities and local lending institutions. In addition, the Pilot Project helped expand the home performance contractor network in the state, including developing the businesses that deliver those services. For the first time, contractors

and auditors are using the same terminology and software programs. The REAs are now leveraging on-going programs like Home Performance with ENERGY STAR to build greater brand-recognition and awareness among homeowners and retail partners.

- **Facilitating Service Delivery**: The REAs—in their "one-stop-shop" approach—have attempted to simplify and streamline the process of retrofits for homeowners, with easy access to energy audits, trained contractors, and financial incentives. When homeowners conduct deep retrofits, this is an important decision, as they are remodeling their home in a significant way.

An Energy Coach discusses options for decreasing energy consumption with a homeowner

- **Peer-to-Peer Information Exchange**: The Pilot Project included efforts for sharing information and lessons learned among the Virginia REAs, as well as sharing strategies and approaches across the other participating states. The Pilot Project included participation by a Multi-State Steering Committee, which oversaw a process evaluation with the contractual assistance of The Cadmus Group. The process evaluation examined the effectiveness of the programs' design and implementation and identified best practices throughout the four state collaborative effort.

- **Policy Awareness and Advocacy:** The REAs have joined together with the residential marketplace and service providers to help create an advocacy group, which is an on-going policy success. The Virginia Energy Efficiency Council (VAEEC) is a private sector driven effort that will work with policy makers to support, promote, educate, and transform the market-based energy efficiency sector in Virginia. Visit the Council's website at http://www.vaeec.org.

The Future of Residential Energy Efficiency in Virginia

Having local, community-based REA partners is a key to effectively gaining attention and deploying services in the residential sector. The REAs have shown to be adaptive regarding program marketing and deployment, and can help support the utilities in reaching their established energy efficiency goals. Moving forward, the REAs are transitioning from organizations that have relied heavily on significant levels of grant funding to businesses that will be more market-based enterprises with much less reliance on grant funding.

Following the completion of the Multi-State Project in September 2013, the three Virginia REAs are now working together to create a robust and cost effective residential energy efficiency program statewide under the Department of Energy's Home Performance with ENERGY STAR program. LEAP will lead this joint venture with cafe[2] and RREA and they will continue to serve the five geographic areas of the state where they made significant in-roads during the Pilot Project. DMME will continue to provide partial financial and other support to the REAs as they move forward in 2014 and beyond.

For more information on the Virginia program or the local REAs, please contact Ron Hachey, Energy Projects Coordinator, Virginia Department of Mines, Minerals, and Energy (DMME) at 804-692-3239, Ron.Hachey@dmme.virginia.gov or Al Christopher at 804-692-3216, Al.Christopher@dmme.virginia.gov.