

**Testimony of Maggie Eldridge
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**Before the Pennsylvania General Assembly
House Consumer Affairs Committee**

Hearing on:

Act 129 of 2008 Implementation

June 4, 2009

SUMMARY

ACEEE applauds Pennsylvania's enactment of Act 129 and the state's efforts to ensure timely and successful implementation of energy efficiency programs that promote a stronger economy, a cleaner environment, and improved energy security for Pennsylvania.

Our organization, in cooperation with nationally recognized experts on demand response and clean distributed energy, has conducted a detailed analysis of the potential for greater energy efficiency, demand response, and solar energy in Pennsylvania. The findings of the report suggest that there is a large resource potential for greater, cost-effective energy efficiency in Pennsylvania, enough to meet about 30% of the state's energy needs by 2025. The report suggests a suite of policies and programs, such as those required by Act 129, that tap into the efficiency and solar resource and offer significant benefits to Pennsylvanians. Our analysis estimates that a robust suite of efficiency policies and programs can lower consumer energy bills each year by \$5 billion by 2025 and create a net 27,000 jobs by 2025.

The successful implementation of Act 129 will begin to move Pennsylvania toward a more energy-efficient future such as that modeled in our analysis. However, more is needed to ensure that the Commonwealth taps the full potential benefits of energy efficiency. Sustained commitments toward Act 129 electricity energy efficiency programs in the near term and extending the program requirements beyond 2013 will help to ensure continued success. To benefit a wider group of consumers in the state, a natural gas energy efficiency resource standard (EERS) and efficiency programs for heating oil and propane customers will also be needed to help Pennsylvania achieve the greatest potential benefit from efficiency. Also, new commitments to building energy code enforcement and compliance activities will ensure long-term, locked-in savings for the built environment.

INTRODUCTION

My name is Maggie Eldridge, and I am a Research Associate in the Policy Program at the American Council for an Energy-Efficient Economy (ACEEE), a nonprofit organization dedicated to increasing energy efficiency to promote economic prosperity, energy security, and environmental protection. I am the lead author of ACEEE's *State Energy Efficiency Scorecard*, an annual publication that rates the states on their commitments to encouraging energy efficiency, and I manage the analytical efforts for our state energy efficiency studies. I would like to thank the Pennsylvania House Consumer Affairs Committee for inviting me to discuss the implementation of Act 129 of 2008. ACEEE applauds Pennsylvania's enactment of Act 129 and the state's efforts to ensure timely and successful implementation of energy efficiency programs that promote a stronger economy, a cleaner environment, and improved energy security for Pennsylvania and the nation.

Our organization, in cooperation with nationally recognized experts on demand response and clean distributed energy, has conducted a detailed analysis of the potential for greater energy efficiency, demand response, and solar energy in Pennsylvania. The findings of the report suggest that there is a large resource potential for greater, cost-effective energy efficiency in Pennsylvania, enough to meet about 30% of the state's energy needs by 2025. The report suggests a robust suite of policies and programs, such as those required by Act 129, to tap into the efficiency resource and offer significant benefits to Pennsylvanians. Our analysis estimates that a robust suite of efficiency policies and programs can lower consumer energy bills each year by \$5 billion by 2025 and result in a net job creation of 27,000 by 2025. The successful implementation of Act 129 will begin to move Pennsylvania toward a more energy-efficient future such as that modeled in our analysis. However, more is needed to ensure that the Commonwealth taps the full potential benefits of efficiency.

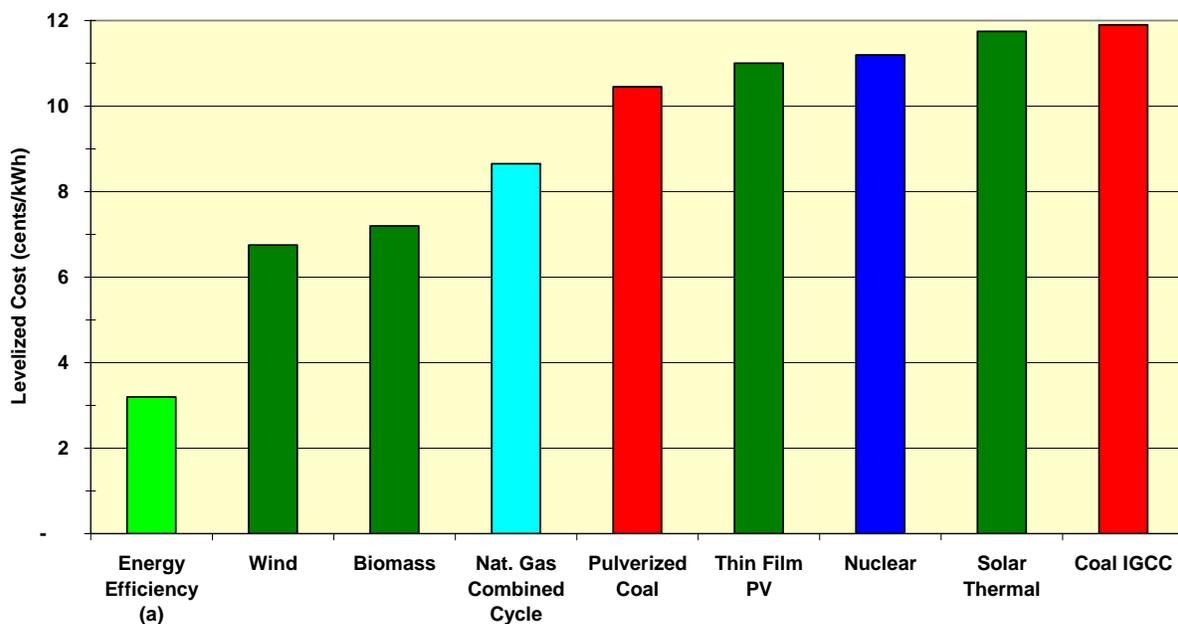
My testimony will address three key points related to energy efficiency opportunities in Pennsylvania. First, I will discuss strategies for successful implementation of Act 129, including the need for "best practice" programs and state coordination. Second, I will suggest ways to benefit a wider group of

consumers in the state, through a natural gas energy efficiency resource standard (EERS) and efficiency programs for heating oil and propane customers. Third, I will discuss the need for robust commitments to building energy code implementation in order to sustain a long-term commitment to energy efficiency.

BACKGROUND: EFFICIENCY IS PENNSYLVANIA'S BEST ENERGY STRATEGY

At present, Pennsylvania is poised to catapult forward its commitments to energy efficiency. Research by ACEEE on energy efficiency programs around the country shows that energy efficiency improvements cost about three cents per kilowatt-hour (kWh) saved. This means that efficiency is just a quarter to a third of the cost of other new electricity supply resources, as shown in Figure 1. Because efficiency costs less than conventional power plants, this demand-side resource is the best way to help consumers reduce their energy bills.

Figure 1. Average Cost of Energy Efficiency vs. Other Electricity Resources



Source: ACEEE based on data from Lazard LLC¹ except (a) ACEEE 2009.

Energy efficiency is not only the least-cost resource for meeting Pennsylvania's future energy needs, but it will also help the economy by creating high-quality "green collar" jobs. Recognizing these benefits of energy efficiency to consumers in Pennsylvania, the Commonwealth's enactment of Act 129 of 2008 represents a major milestone. The programs being developed to meet the Act 129 requirements will help consumers lower their energy bills and will help to create new, local jobs. Despite these important steps, however, there is much more potential for energy efficiency improvements in Pennsylvania.

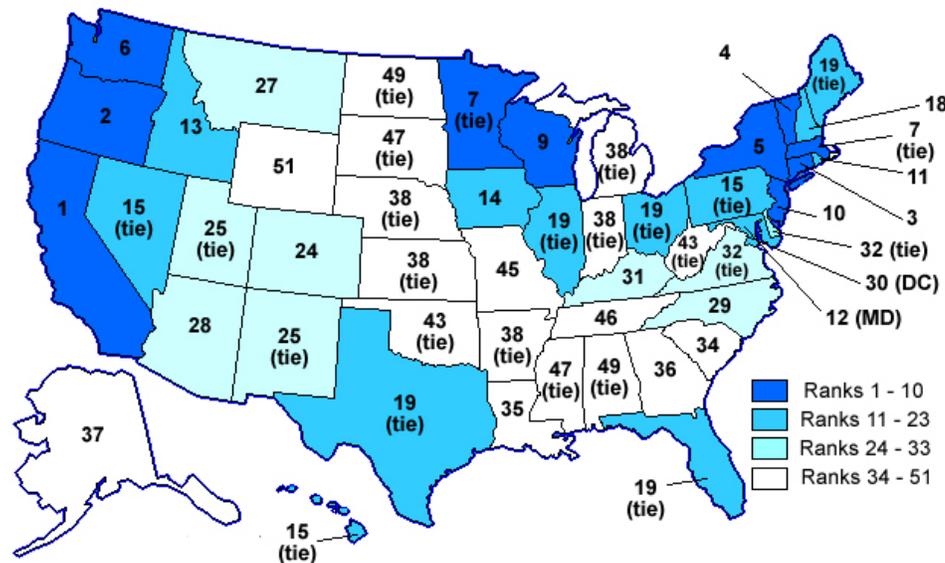
Pennsylvania Today

ACEEE publishes an annual ranking of states on their efforts to encourage energy efficiency by examining eight specific categories of state policies and programs. We have heard of multiple instances where senior policy makers, including governors, legislators, and utility commissioners, have asked what they would need to do to improve their state's ranking.

¹ Larard LLC, 2008. "Levelized Cost of Energy Analysis - Version 2.0," presented at NARUC Summer Committee Meetings, Committee on Energy Resources and the Environment, June: <http://www.narucmeetings.org/presentations.cfm?cat=Summer>.

In last year's *2008 State Energy Efficiency Scorecard*,² Pennsylvania ranked 15th in the nation on overall efforts to encourage efficiency. The Commonwealth has taken important steps in some of the energy efficiency policy categories of the scorecard to earn a spot in the top fifteen states. For example, Pennsylvania earns an above-average score in the category of transportation policies for having passed the clean car standard. Also, Pennsylvania is a leading state for its efforts to improve energy efficiency in state public facilities. A review by the Lawrence Berkeley National Laboratory³ (LBNL) identifies Pennsylvania's energy savings performance contracting (ESPC) programs for state facilities as one of the best in the nation.

Figure 2. Results of the 2008 ACEEE State Energy Efficiency Scorecard



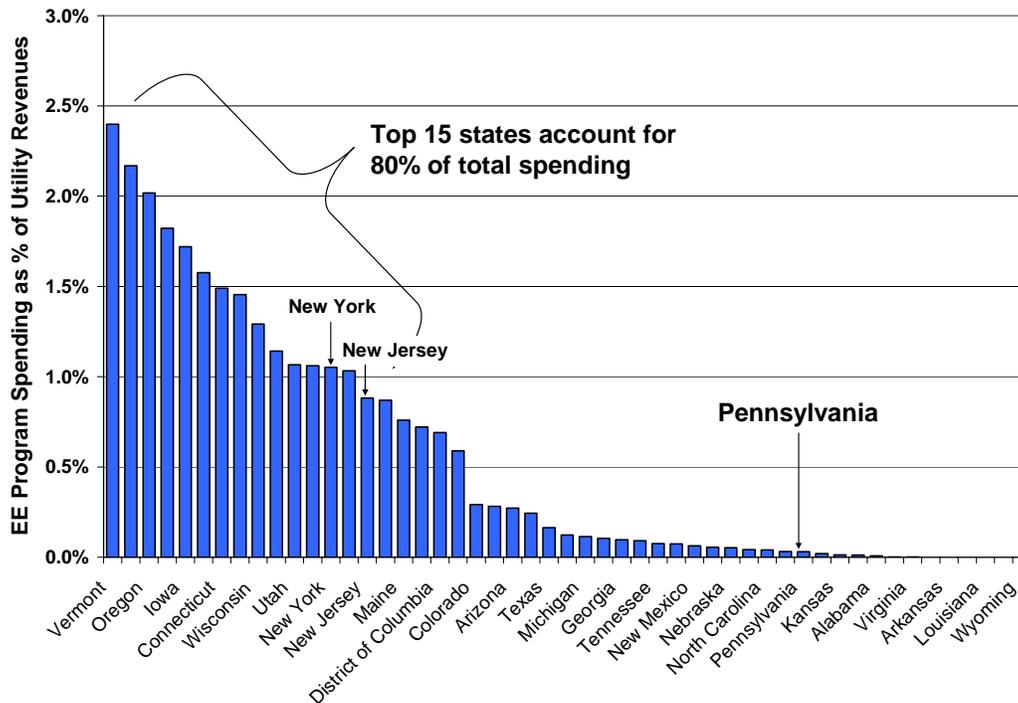
In the category of ratepayer-funded efficiency program spending, however, Pennsylvania ranked 39th in the nation, spending less than 0.1% as a percent of utility revenues in the state, or \$0.31 per capita (see Figure 3). By comparison, New York spends nearly \$12 per capita on ratepayer-funded energy efficiency programs and New Jersey spends nearly \$10 per capita on efficiency programs, putting these neighboring Mid-Atlantic states in the top fifteen of this category of the scorecard.

Pennsylvania in the Future

The implementation of Act 129 will spur important energy efficiency program investments that will improve Pennsylvania's ranking in the *Scorecard*. The integrity of these programs, however, relies upon critical strategies for success, including best practice and statewide collaboration. In addition, natural gas and heating oil programs and building energy code implementation can improve Pennsylvania's commitments to energy efficiency, increasing its energy efficiency ranking in the future.

² Eldridge, Maggie, Max Neubauer, Dan York, Shruti Vaidyanathan, Anna Chittum, and Steven Nadel. *The 2008 State Energy Efficiency Scorecard*. Washington, D.C.: The American Council for an Energy-Efficient Economy.

³ Bharvirkar, Ranjit, Charles Goldman, Donald Gilligan, Terry E. Singer, David Birr, Patricia Donahue, and Scott Serota. 2008. *Performance Contracting and Energy Efficiency in the State Government Market*. Report LBNL-1202E. Berkeley, Calif.: Lawrence Berkeley National Laboratory.

Figure 3. Energy Efficiency Program Spending in 2006 by State

ACEEE ANALYSIS SHOWS SIGNIFICANT ENERGY EFFICIENCY POTENTIAL

ACEEE conducted both a resource assessment of the amount on energy efficiency available in Pennsylvania's homes and businesses, and a policy analysis of the specific steps the Commonwealth can take to tap these efficiency resources. The resource assessment examines the ways electricity, natural gas, propane, and heating oil are used in Pennsylvania homes and businesses today, projects a reference usage and demand forecast based on current usage and market trends, and then estimates the savings that can be realized from cost-effective sets of efficiency measures available today. The policy analysis then estimates the efficiency resource that can be realized through proven, practical policies and best-practice programs already working effectively in other states.

The overall resource assessment identifies cost-effective energy savings potential of about 30% by 2025. The residential, commercial, and industrial customer classes all contribute to the overall savings potential. For example, Figures 4, 5, and 6 show the relative share of various end-use cost-effective savings opportunities for residential, commercial, and industrial electricity users.

The policy analysis then identifies about a dozen programs and policies to tap the available efficiency resources. We estimate that demand-side resources can meet about a quarter of the state's electricity needs by 2025, reduce projected peak demand by 35%, and meet 15% of natural gas needs and 11% of heating oil needs by the same year. This policy suite represents a significant opportunity to promote a stronger economy by lowering consumer energy bills by nearly \$5 billion per year by 2025 and create 27,000 net local jobs. The efficiency opportunities discussed next are critical components of the suite of policies needed to tap into these benefits.

Figure 4. Cost-Effective Efficiency Resource Potential for Commercial Electricity Use

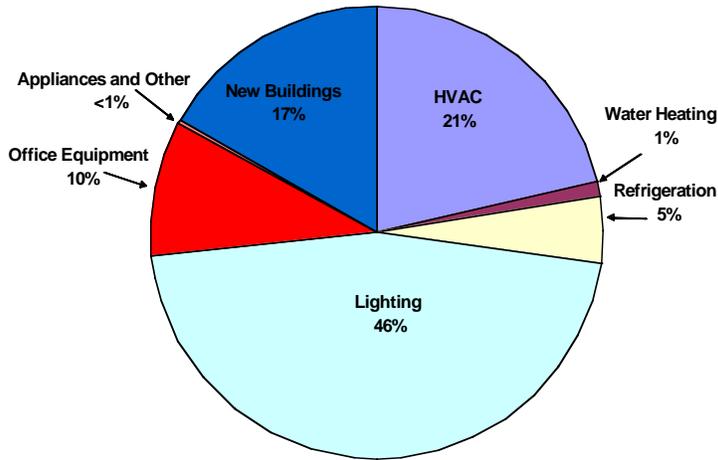


Figure 5. Cost-Effective Efficiency Resource Potential for Residential Electricity Use

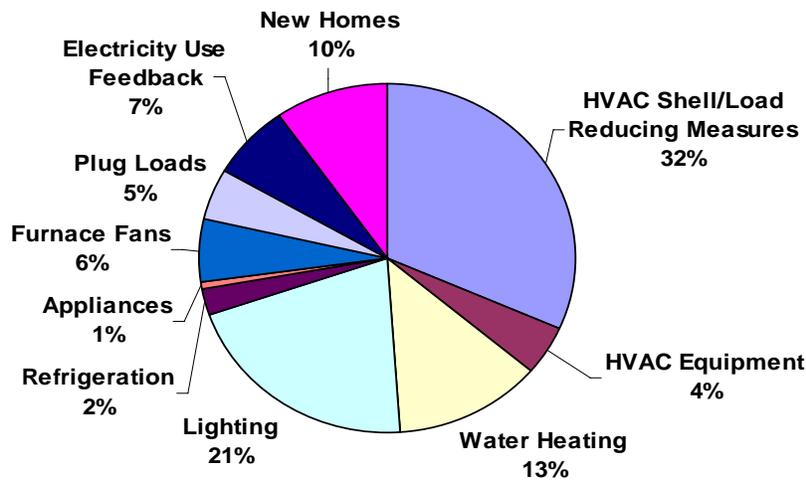
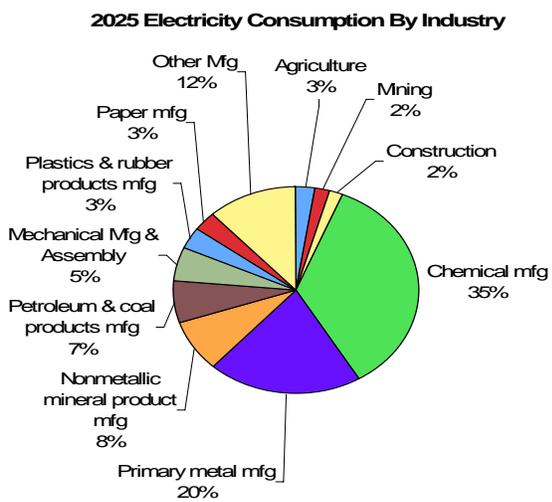


Figure 6. Electricity Consumption by Industry in 2025 and Cost-Effective Resource Potential



Cost-Effective Resource Potential by Measure		
Efficiency Measures	Savings Potential in 2025 (GWh)	Savings Potential in 2025 (%)
Sensors & Controls	237	0.4%
EIS	67	0.1%
Duct/Pipe insulation	1,587	2.8%
Electric Supply	1,710	3.0%
Lighting	550	1.0%
Motors	2,240	3.9%
Compressed Air	1,030	1.8%
Pumps	1,523	2.7%
Fans	231	0.4%
Refrigeration	123	0.2%
Process-specific measures	3,500	5-10%
Total	9,297	21% - 26%

ACT 129: STRATEGIES FOR SUCCESS

ACEEE applauds the Pennsylvania Public Utility Commission for its active involvement in the implementation of Act 129. The PUC has put out timely documents and guidance to the public throughout the process. In completing a series of state analyses on the potential for greater energy efficiency, ACEEE has identified that a robust stakeholder process is one of the most important aspects of a successful project in order to get input from key stakeholders on what is and what is not likely to work locally. Similarly, maintaining a robust stakeholder process throughout the implementation of Act 129 programs will continue to be a strategy for success.

Best Practices and Statewide Coordination

Our organization has identified numerous best practice models for energy efficiency programs from around the U.S. In 2007, ACEEE conducted its second national review of exemplary energy efficiency programs,⁴ which identified exemplary programs across the entire spectrum of customers, including residential, small businesses, schools, offices, industries, and agriculture. In many categories of programs, the approaches used are proven and are providing consistent, reliable, and cost-effective savings. There are also innovative programs that are promoting new technologies and targeting customer segments that haven't been well-served or have been entirely missed by past programs, such as programs targeting industrial processes, agriculture, high tech industries such as data centers, and the food service industry. There are programs continuing to innovate to try to achieve deeper savings with program participants, such as boosting incentives and services for customers who choose to implement large sets of recommendations, rather than single measures or small sets of measures. For a homeowner, a comprehensive retrofit approach can mean up to 40% energy savings.

Collaboration among stakeholders and market participants is also a critical element of successful programs as a way to leverage resources and reach broader areas with common and consistent program services and messages. Pennsylvania can take advantage of these best-practice strategies that have been proven elsewhere. Although efficiency programs will be administered by utilities throughout the Commonwealth, statewide coordination across utility service territories could benefit program effectiveness. Certain program criteria, such as levels of incentives and eligibility thresholds of equipment programs, may be most effective as standard criteria across utility service territories. Such standardization makes it easier for trade allies, such as retailers and contractors who may operate in several service territories, and also permits joint marketing and education, which creates economies of scale to reduce costs and bolster participation. Statewide coordination on common incentives structures and consumer education will be critical enabling tools for Act 129 implementation.

Keystone HELP

The Keystone HELP energy efficiency loan and rebate program will also be a strategy to support successful programs developed by the utilities. We strongly support the House restoring full funding for the Keystone HELP energy efficiency loan program, which offers financing for consumer efficiency low interest loans. Financing will be critical for consumers implementing everything from whole-house retrofits to inefficient furnace replacement or other approved program measures under Act 129. In just the last four months, Keystone HELP has approved hundreds of loans and rebates and has hundreds more pending approval. With a network of over a thousand qualified contractors, this program is able to serve thousands of Pennsylvanians with easy access to low income loans for energy efficiency improvements to their homes. With the start of the utility programs by the end of the year, it will be important to have the funding in place to help make the utility programs a success. Senate Bill 850, the budget bill recently passed by the Senate, removed money from the Consumer Energy Program in Act #1 and money for the Small Business Energy Efficiency Program that would be allocated for this purpose. Keystone Energy Efficiency Alliance, who we collaborated with on this report, would like to see the Keystone Help program

⁴ York, Dan, Marty Kushler, and Patti Witte. 2007. *Compendium of Champions: Chronicling Exemplary Energy Efficiency Programs from across the U.S.* Washington, D.C.: American Council for an Energy-Efficient Economy.

have the necessary funding to help make the utility programs successful.

NATURAL GAS AND FUEL OIL PROGRAMS

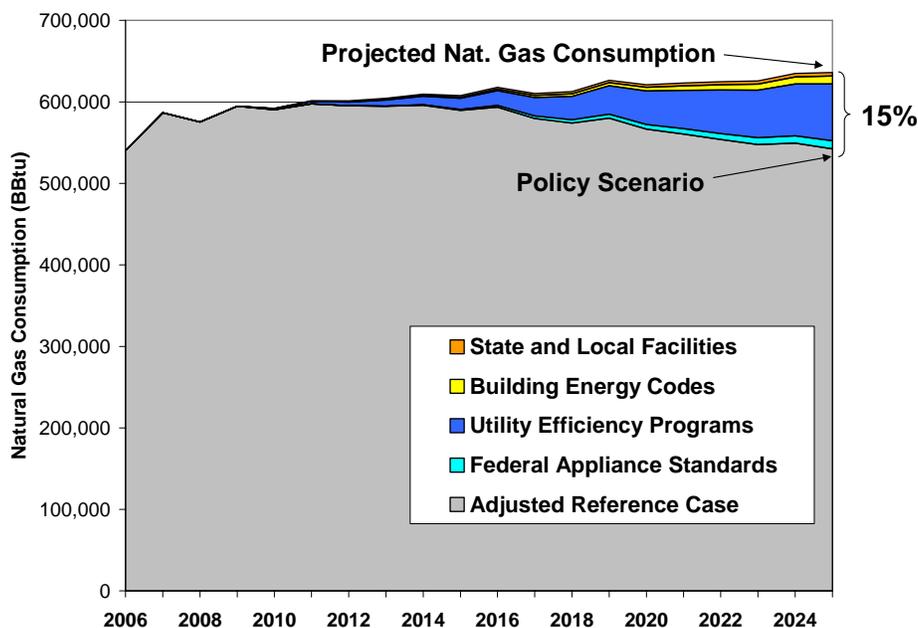
The programs being developed to meet the electricity savings targets for Act 129 will help electricity customers in Pennsylvania lower their electric bills. Ensuring the success of these programs to electricity customers will help the Commonwealth meet these targets. Also, the state should look to extend the program requirements beyond 2013 to ensure long-term, sustained energy efficiency commitments. There are many consumers in Pennsylvania, however, that will not be reached through these programs. For example, more than fifty percent of households in Pennsylvania heat with natural gas. About twenty-five percent of households in Pennsylvania use fuel oil or propane to heat their homes; these are predominantly used in rural areas. Some programs are available to these customers, such as the Keystone HELP energy efficiency loan and rebate program and a rebate program offered by PECO Energy Company to its natural gas customers, though more is needed to significantly improve the efficient use of these fuels, thereby helping to lower consumer energy bills and create new, local jobs.

Natural Gas

By enacting Act 129 in 2008, Pennsylvania became one of about 20 states with an energy efficiency resource standard (EERS). Currently, about twenty states have an EERS for electricity energy efficiency resources. Six of these states also have enacted a natural gas EERS, including Minnesota, California, Colorado, Michigan, New York, and Illinois, and an additional four states currently have pending legislation that would establish an EERS for natural gas distributors. Leading natural gas efficiency programs in the nation are currently achieving a half percent to one percent natural gas savings per year.

Our analysis indicates that there is an overall cost-effective resource potential for energy efficiency to meet nearly thirty percent of Pennsylvania's natural gas needs by 2025. To tap these energy efficiency resources, utility efficiency programs required by a long-term natural gas EERS can meet about eleven percent of the Commonwealth's natural gas needs by 2025. This represents the largest savings potential for the natural gas policies analyzed in our report, shown in the figure below.

Figure 7. Impact of Energy Efficiency Policies on Natural Gas Needs in Pennsylvania



Fuel Oil and Propane

Heating oil and propane customers will also be good candidates for energy efficiency services. Because the public utility commission (PUC) does not regulate these fuels, consumers do not have as many options for energy savings programs. The state should work with the fuel oil and propane distributors to incentivize high-efficiency equipment upstream, and work downstream by encouraging consumers to make whole-house energy savings retrofits. Also, a sustained commitment will be critical to fund and educate consumers on existing programs that are available to these customers, such as the Keystone HELP energy efficiency loan and rebate program. The state could use stimulus funds and the bond issue to kick-start these programs and then begin exploring longer-term sources of support such as additional bond issues, federal greenhouse gas allowance proceeds, or an oil/propane energy efficiency fund supported by a small per gallon fee. For example, Massachusetts is planning a program using stimulus funds to start such an effort.

BUILDING ENERGY CODES AND ENFORCEMENT

Building Energy Code Levels

Codes and standards represent one of the most cost-effective strategies for improving energy efficiency. Because buildings have long lifetimes, incorporating energy efficiency measures at the time of construction, when energy efficiency measures are cheaper, is critical to lock-in energy savings. Otherwise, higher costs hinder the prevalence of building retrofits, making new, inefficient buildings known as “lost opportunities” for energy savings.

Today, most states have adopted some form of a national model energy code called the International Energy Conservation Code (IECC) for residential buildings with a reference to a code by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) for commercial buildings. Our analysis for Pennsylvania assumes the continued improvement of building energy codes for all newly constructed and renovated buildings in the state. Our report assesses the impact of adopting the 2009 IECC and to adopt 30% efficiency improvements, a level anticipated to be met in the 2012 IECC, and 50% efficiency improvement targets in subsequent years. ACEEE applauds the Pennsylvania Department of Labor and Industry for managing the public input process for the adoption of the 2009 IECC and for working toward its adoption without weakening the code through amendments. The 2009 IECC offers an overall national 15% improvement in energy efficiency over the 2006 IECC according to the U.S. Department of Energy and its adoption positions Pennsylvania to meet the energy code-related “conditioning” requirements of the recent federal stimulus bill, the *American Recovery and Reinvestment Act of 2009* (ARRA). This makes the Commonwealth eligible to receive certain DOE grant awards related to energy efficiency and renewable energy, including funding for energy code compliance and enforcement activities.

Building Energy Code Compliance

A critical and often overlooked area of building energy code implementation is compliance with and enforcement of energy efficiency requirements in new construction. Stringent energy codes must be complemented with strong enforcement and high compliance in order to be effective. National estimates suggest that building energy codes are enforced in merely half of all new buildings.

Our analysis for Pennsylvania suggests a need for rapidly expanded code implementation activities and a significant economic benefit in doing so. The recent federal stimulus legislation, ARRA, requires that states develop a plan to achieve 90% compliance of the most recent IECC or ASHRAE codes within eight years. DOE will be issuing guidance on how to meet the 90% compliance requirement. There are current federal opportunities available to help states improve building energy code implementation to meet these targets. For example, the Department of Energy, the national laboratories, and the Building Codes Assistance Project (BCAP) are interested in developing pilot projects in states to develop training tools to increase code compliance. Also, pending federal climate legislation has opportunities for pilot

project for enforcement and training. It is to Pennsylvania's advantage to exploit these opportunities as they arise.

Training for code officials in the state as well as for design professionals and building contractors is crucial to ensure high quality inspections and code compliance. Using stimulus funding to retain and create new positions for building code officials, with proper training and certification, would be an excellent means of stimulus dollars for workforce development.

CONCLUSION

In conclusion, the successful implementation of Act 129 programs will rely upon the use of best practices and statewide collaboration. We ask that the Committee remain engaged throughout the implementation process and also in taking important next steps on energy efficiency opportunities to continue to lower consumer bills and create new, local jobs. ACEEE believes that there will be critical needs for efficiency services for natural gas, heating oil, and propane customers, and that these can be addressed through a natural gas EERS and funding for heating oil and propane efficiency programs. Also, better implementation of building energy codes through expanded efforts to train and certify code officials can ensure that long-term energy savings in Pennsylvania's buildings. We believe these next steps are critical to help Pennsylvania move toward greater energy security, reliability, and economic prosperity.