

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Act 129 Energy Efficiency and Conservation Program Phase III

Docket No. M-2014-2424864

COMMENTS OF THE KEYSTONE ENERGY EFFICIENCY ALLIANCE
TO SECRETARIAL LETTER REGARDING THE DESIGN AND IMPLEMENTATION OF
PHASE III OF ENERGY EFFICIENCY AND CONSERVATION PROGRAMS UNDER ACT 129

Introduction

On October 23, 2014, the Pennsylvania Public Utility Commission (PUC, or Commission) released a Secretarial Letter seeking comments on a number of important topics relevant to designing and implementing a potential Phase III of the energy efficiency and conservation (EE&C) Program required under Act 129. Act 129 directs that the Commission set new incremental consumption and peak demand reduction targets, if the benefits of the program exceed the costs.

Keystone Energy Efficiency Alliance (KEEA) is a non-profit, tax-exempt 501(c)(6) corporation dedicated to promoting the energy efficiency and renewable energy industries in Pennsylvania. With over 50 member organizations and individuals and growing, KEEA is the premier advisory group representing Pennsylvania's energy efficiency and advanced energy companies, entrepreneurs, and workers. KEEA advocates on behalf of Pennsylvania's energy efficiency and renewable energy professionals on the local, state, and federal levels. KEEA greatly appreciates the opportunity to submit comments to the PUC on these issues.¹ The programs implemented under Act 129 have been successful in delivering cost-effective energy efficiency to the businesses and residents in Pennsylvania. KEEA supports the initiation of a Phase III of EE&C Programs, and offers several suggestions to maximize the benefits of these programs moving forward.

Energy efficiency is a critical resource in Pennsylvania as a driver of economic growth and job creation. Governor Tom Corbett's 2014 Energy Plan reports that PA has the "5th highest number of energy and resource efficiency jobs in the nation with over 42,000 employees."² Most recently, according to a November 2014 report by the BW Research Partnership and the Economic Advancement Research Institute (EARI), clean energy firms in PA supported 57,330 workers at 4,269 businesses and other establishments. Energy efficiency work is the largest part of PA's clean energy industry, with 37,468 workers, or 65.4% of the industry total. Furthermore, the industry is growing. Industry employers expect to add 4,846 new workers in the next year, amounting to a growth rate of 8.5%.³

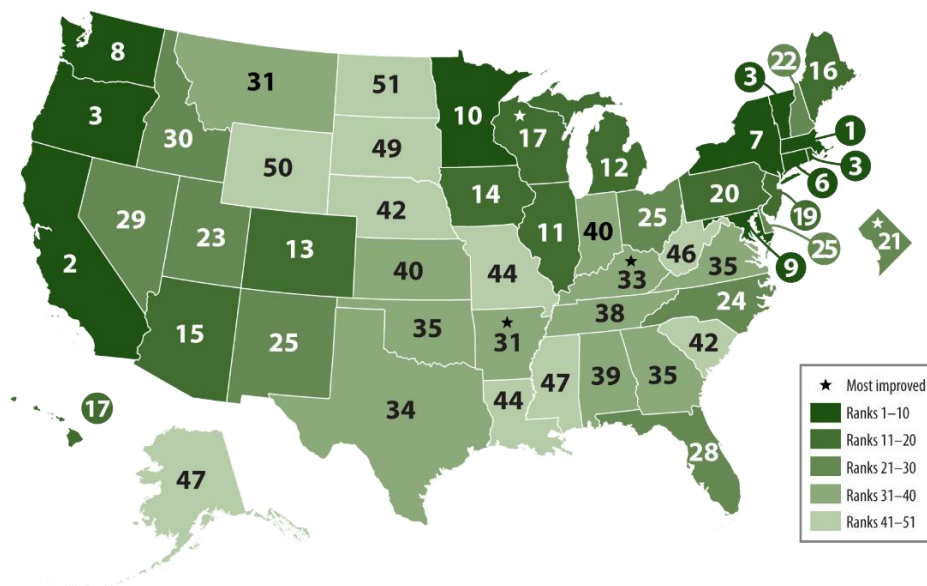
Pennsylvania has the opportunity to do much more to support economic growth in the energy industry. In 2014, Pennsylvania ranked 20th in ACEEE's *State Energy Efficiency Scorecard*, as shown in the map below. Thus, there is significantly more that can be done when it comes to energy efficiency,

¹ KEEA prepared these comments with assistance from the American Council for an Energy-Efficient Economy (ACEEE). ACEEE is a nonprofit, 501(c)(3) organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behaviors.

² Corbett Report. <http://energy.newpa.com/wp-content/uploads/2014/01/PA-State-Energy-Plan-Web.pdf>.

³ See KEEA and E2's November 2014 report *Clean Jobs Pennsylvania: Sizing Up Pennsylvania's Clean Energy Jobs Base and its Potential*.

particularly when it comes to ratepayer-funded programs. KEEA believes that Phase III can help maximize the contributions of efficiency to Pennsylvania’s economy if done properly. Not only will increased efficiency efforts lower customer bills, reduce market risk, and improve grid reliability, it will also support significantly more jobs throughout the state. KEEA’s comments on Phase III are designed to guide the Keystone State toward a more prosperous future.



Source: American Council for an Energy-Efficient Economy

Comments

1. Length of Phase III EE&C Program & Inclusion of Incremental Progress Requirements

KEEA supports the Commission’s assertion that a longer Phase III may be preferable, and proposes a total Phase III length of six years, with target setting for a potential next phase occurring during the sixth year. Longer phases are important to allow EDCs to make long-term plans for portfolios and maintain consistent program offerings while providing certainty to the marketplace. Utilizing a portion of the sixth year for planning a potential next phase will also smooth the regulatory process. Statewide evaluations should assess the first five years of the phase, and be published during the sixth year to inform stakeholder comments on a potential next phase.

While a longer Phase III is beneficial to utility portfolio planning, it is extremely important that the Commission receives assurances that EDCs are achieving savings during each year of Phase III. Setting only a cumulative target could result in EDCs front or back-loading efficiency efforts, which would ultimately hurt all stakeholders and retard energy savings overall. At the same time, KEEA recognizes the need for flexibility in program offerings, as well as the longer timelines that are necessary for planning, marketing, and completing comprehensive program offerings. Savings from more comprehensive efforts might similarly take longer to materialize. **KEEA therefore recommends that the Commission set benchmarks for EDCs as they did in Phase II.** However, KEEA notes that many high-performing states have annual targets in place (i.e. Massachusetts, Arizona, and Rhode Island). Pennsylvania’s current regulatory structure – especially the emphasis on penalties for underperformance but no opportunities for

EDCs to earn performance incentives for surpassing targets – prevents KEEA from recommending annual incremental targets at this time. However, we continue to believe that utilities can – and should – hit incremental targets if incentivized properly. The current structure places all the risk on EDCs, with no potential for reward. **KEEA encourages the Commission to consider including performance incentives for EDCs in future rulemakings. Once a reward structure is in place, KEEA would support annual incremental targets for EDCs.** Performance incentives are discussed further in Section 10.

KEEA also notes that to date, Pennsylvania’s savings targets have lagged behind those set by many other states. Currently, 24 states have mandatory savings targets in place, shown in Table 1 below. Sixteen of these states have targets equivalent to 1% per year or greater, with many states in the Northeast targeting upwards of 1.5%. A recent study by ACEEE found that nearly all states were on track to meeting their targets.⁴

State	Approx. annual electric savings target (2014-2020)	State	Approx. annual electric savings target (2014-2020)
Massachusetts	2.6%	Iowa	1.3%
Arizona	2.4%	Michigan	1.0%
Rhode Island	2.3%	New Mexico	1.0%
Vermont	2.0%	New York	1.0%
Maine	1.6%	Illinois	0.9%
Maryland	1.6%	California	0.9%
Colorado	1.5%	Arkansas	0.8%
Minnesota	1.5%	Pennsylvania	0.8%
Connecticut	1.4%	Wisconsin	0.7%
Hawaii	1.4%	Nevada	0.4%
Oregon	1.4%	North Carolina	0.4%
Washington	1.4%	Texas	0.1%

Table 1. Savings targets from ACEEE’s 2014 State Energy Efficiency Scorecard

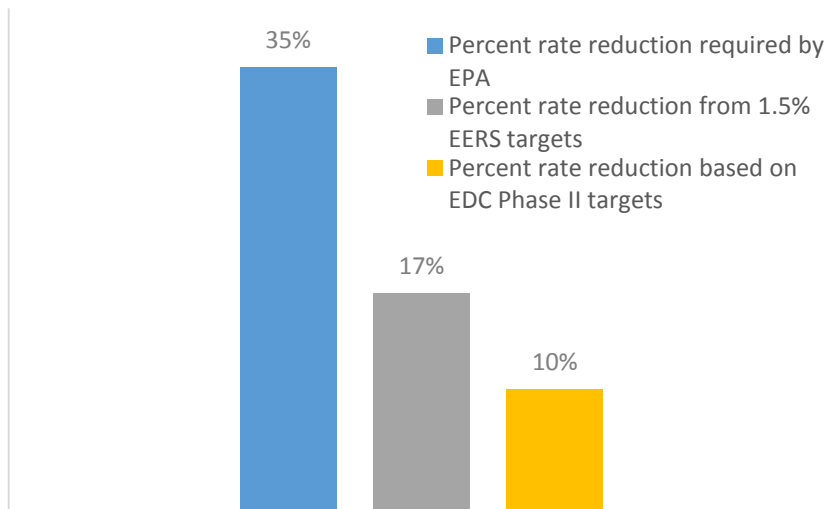
KEEA recognizes that many of these states are not constrained by a cost-cap. However, we do not believe that the cost-cap limits EDC savings to the levels currently being achieved. Rather, there is sufficient evidence to suggest that **the Commission should increase EDC savings targets in order to maximize allowable efficiency spending.** Under Act 129, each PA EDC is permitted to spend up to 2% of its budget (based on 2006 levels) on Act 129 programs. During Phase I, each PA EDC spent less on its Act 129 programs than its Phase I budget permitted. This, along with each EDC’s large carryover savings, suggest that PA EDCs can handle higher Act 129 savings targets. Below, Table 2 summarizes each EDC’s Phase I and II budgets and actual spending.

⁴ Downs, A. and C. Cui. 2014. *Energy Efficiency Resource Standards: A New Progress Report on State Experience*. Washington, DC: American Council for an Energy-Efficient Economy.

	Duquesne	PECO	PPL	Met-Ed	Penelec	Penn Power	West Penn
Phase I Total Budget (\$ million)	\$78.2	\$341.6	\$246.0	\$99.5	\$91.9	\$26.6	\$94.2
Phase I Actual Spending (\$ million)	\$67.0	\$221.1	\$240.9	\$90.7	\$76.4	\$21.9	\$85.7
Percentage of Phase I Budget Used	86%	65%	98%	91%	83%	82%	91%
Phase II Total Budget (\$ million)	unavailable	\$256.0	\$186.1	\$74.6	\$68.9	\$20.0	\$70.7
Phase II Actual Spending to Date (\$ million)	unavailable	\$96.0	\$50.8	\$22.3	\$21.1	\$6.8	\$22.0
Percentage of Phase II Spending to Date	unavailable	38%	27%	30%	31%	34%	31%

Table 2. EDC budgets and spending.

Finally, KEEA notes that there is still considerable uncertainty surrounding final rules for the U.S. Environmental Protection Agency’s (EPA) Clean Power Plan (CPP). **KEEA recommends that the Commission take the potential implications of the CPP into consideration in this proceeding. In any future Phase III Order, KEEA recommends that the Commission explicitly lay out its assumptions surrounding how future EDC savings goals will help meet CPP requirements. At a minimum, the Commission should develop a transparent process for stakeholders beyond the utilities to petition the Commission if the outcome of the CPP Final Rules warrants further changes to Phase III approved plans.** In the CPP, EPA assumes that all states can ramp up energy savings to 1.5% of sales through energy efficiency measures ‘outside the fence line’ by 2030. This EPA analysis should guide the Commission in assigning Phase III savings targets for EDCs. Energy efficiency is the lowest-cost compliance option for energy savings and attendant emissions reduction and offers significant flexibility. ACEEE research suggests that Pennsylvania could meet 56% of its proposed emission rate reduction through the adoption of four common energy efficiency policies.⁵ The vast majority of efficiency-driven emissions reductions could come from ramping up programs to the EPA-proposed 1.5% savings per year, as shown in Table 3 below. At current target levels, EDC savings will contribute a much smaller portion of the proposed EPA rate reduction. Ramping up programs in Phase III would help put EDCs on a path toward meeting Clean Power Plan goals in a cost-effective way.⁶



⁵ Results of ACEEE *Change is in the Air* analysis (2014) 2030 annual electricity savings added to the denominator of each states’ 2012 emissions rate, as calculated by EPA. Savings from energy codes in 2030 treated as zero emissions generation.

⁶ These calculations are based on the way EPA set targets in the draft rule. Although the details are likely to change in the final rule, this illustrates the potential of additional energy savings.

Table 3. Potential for meeting EPA proposed rate reductions through energy efficiency. Analysis for the first two columns as shown in *Change is in the Air* (2014). Potential rate reductions from Phase II targets were calculated separately and assume a 13 year measure life with Phase II targets annualized.

2. Inclusion of Peak Demand Reduction Requirements

KEEA supports the inclusion of demand response (DR) programs in EDC portfolios. Demand response and energy efficiency are complementary program offerings. Rather than emphasize one program type over another, the Commission should recognize the synergies that exist between efficiency and DR. EDCs should be encouraged to achieve both peak demand reductions and total consumption reductions. Efficiency programs can reduce demand permanently, at peak as well as non-peak times, while DR can help identify inefficient energy uses that can be reduced at specific times, enhancing overall grid efficiency. Technologies that enable DR can be used to manage energy use year-round. Utilities can co-market programs, and customers who participate in one type of program may be prime candidates for participating in other types of programs. Including both DR and efficiency as program offerings can lead to greater overall awareness of energy and money savings opportunities for both customers and utilities.

The recent court decision to vacate FERC Order 745 has created uncertainty about demand response programs. Additionally, the results of the PA Statewide Evaluator (SWE) Demand Response Potential Study will not be released until early 2015. Accordingly, KEEA cannot comment on the specific amount of spending EDCs should direct toward DR. However, **KEEA recommends that the Commission base potential DR targets on the cost-effective DR opportunities available in each sector.** The benefits of these programs will be realized by all customers due to the benefits that accrue to the overall electricity system. **If the SWE determines that DR is cost-effective only in select EDC service territories, Act 129 allows for DR targets to be approved only for those EDCs.**⁷

KEEA also recommends that the Commission consider easing the 100 hour requirement for DR programs. In its Act 129 Demand Response Study, the SWE noted that the 100 hour target “leads to DR resources being called during hours during which they are not likely to be cost effective.”⁸ The SWE recommended that it would be more appropriate – and cost-effective – to significantly reduce the number of hours demand resources are dispatched. KEEA agrees with the SWE’s conclusion that demand response programs will be significantly more cost effective if the 100-hour criterion is removed. A significant part of EnerNOC’s Phase II comments addressed this subject.

At this time, KEEA cannot recommend a specific division between DR and energy efficiency in EDC portfolios. **However, allocation of targets under the spending cap should reflect the relative costs and benefits of efficiency and DR.** These cost-benefit considerations should include societal benefits, including non-energy benefits and impacts on other fuel usage. **We further emphasize that if the SWE determines DR is not cost-effective, we believe Act 129 requires full budgets be made available for energy efficiency programs, as they have been in Phase II. Additionally, regardless of the results of the SWE, if an EDC can show that a DR program is cost-effective, KEEA supports inclusion of such a program in an efficiency portfolio.**

3. Inclusion of Government, Educational, and Non-Profit Sector Carve-out

As KEEA has noted in the past, the Government, Educational, and Non-Profit (G/N/I) carve-out is explicitly required by Act 129. We do not believe the PUC has the authority to remove this carve-out.

⁷ 66 Pa. C.S. §2806.1(b) requires that each EDC develop and file an EE&C plan and that each plan include specific proposals to that EDC.

⁸ Statewide Evaluator, “Act 129 Demand Response Study”

KEEA recommends that the Commission continue to require that EDCs achieve at least 10% of their portfolio savings in this sector. EDCs have not expressed difficulties in meeting the G/N/I target to date.

Furthermore, KEEA emphasizes the importance of multifamily properties within the G/N/I sector. There is significant potential to broaden the reach of multifamily programs. A 2013 study by CNT Energy and ACEEE found that there was significant opportunity for policy improvement to better serve the sector.⁹ The same study also identified Pennsylvania as a state where efficiency improvements in the multifamily sector could lead to the highest energy savings, upwards of 445 GWh. These improvements would have significant effect on customer bills.

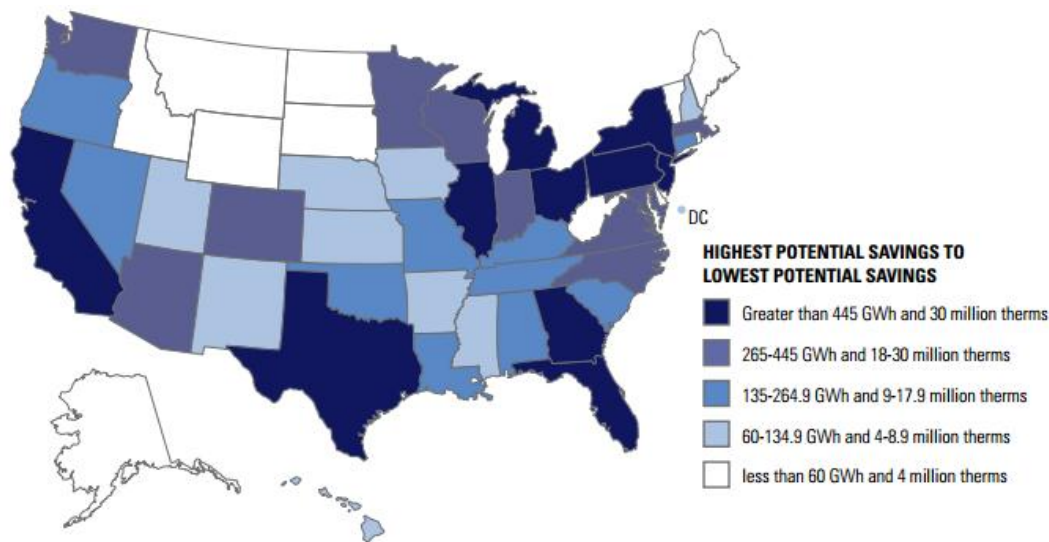


Table 7. Potential savings from multi-family sector efficiency improvements. Source: McKibben, A., A. Evens, S. Nadel, and E. Mackres. 2012. *Engaging as Partners in Energy Efficiency*. CNT Energy and ACEEE. <http://www.aceee.org/sites/default/files/publications/researchreports/a122.pdf>.

We urge the Commission to set specific reduction targets for multifamily housing within the G/N/I carve-out. KEEA recognizes that multifamily markets face significant and unique barriers to participation in efficiency programs and recommends that the Commission work toward addressing these barriers.

Regardless of whether the Commission sets specific savings targets for the multi-family sector, the Commission should require EDCs to assess the multifamily energy savings and spending already associated with their efficiency efforts, which currently are claimed across disparate program sectors – commercial, residential and G/N/I. Currently, EDCs are not required to report on multifamily expenditures or savings, which makes progress in this sector difficult to measure. This step would enable the Commission to better understand where program dollars are being spent in the multifamily sector.

Second, KEEA understands that the Natural Resources Defense Council (NRDC) is currently funding a state-wide potential study focused on the multifamily sector. **KEEA recommends that the Commission make use of the study in making future determinations related to programs targeted**

⁹ Source: McKibben, A., A. Evens, S. Nadel, and E. Mackres. 2012. *Engaging as Partners in Energy Efficiency*. CNT Energy and ACEEE. <http://www.aceee.org/sites/default/files/publications/researchreports/a122.pdf>.

at the multifamily sector. The study should enable the EDCs to adequately measure the cost-effective resources across service territory and empower them to improve multifamily program offerings.

Third, the Commission should require EDCs to address barriers to multifamily program implementation, most notably financing. Financing options, including on-bill repayment, are the most effective new tool that the PUC could bring to support multifamily. Stakeholders, including EDCs, have already invested resources in developing recommendations for a piloted program. The PUC should require at least one utility to conduct a pilot program to be launched at the beginning of Phase III.

Furthermore, coordination between EDCs – as well as additional coordination with natural gas distribution companies – could help clarify program offerings for multifamily building owners. ACEEE identified additional best practices in a 2013 report.¹⁰ KEEA encourages the Commission to work with utilities to develop strategies to better reach the multifamily market.

4. Inclusion of Low-Income Sector Carve-out

The low-income sector carve-out should continue as part of Phase III. Low-income efficiency programs provide financially vulnerable customers with important options for saving energy. Studies have shown that each dollar of LIHEAP funding generates \$1.13 in economic activity, suggesting that there are co-benefits to investing in low-income efficiency programs.¹¹ Keeping the lights on and conditions safe for low-income communities is important, and low-income efficiency programs also help reduce bill arrearages and the associated costs borne by all ratepayers.

During Phase II, EDCs are required to achieve 4.5% of portfolio savings in the low-income sector. Nationwide, low-income programs accounted for about 6.5% of electric spending in 2012, and about 3% of estimated savings.¹² The low-income carve out in Pennsylvania makes us a leader in this area. Meanwhile, low-income programs are often subject to relaxed cost-effectiveness thresholds. For example, at a recent stakeholder meeting, PPL indicated a TRC ratio of 0.92 for low-income programs administered during Phase II. **During Phase III, KEEA recommends a carve-out based on EDC portfolio budgets, rather than portfolio savings.** KEEA generally supports savings goals over budgetary carve-outs, but to better serve all market segments, it is important that EDCs are able to shift funding to more cost-effective programs. A budgetary carve-out it will also give EDCs flexibility to do more safety- and comfort-oriented measures for low-income households.

As in the G/N/I sector, KEEA recommends that the Commission set forth specific energy savings targets for tenants residing in multifamily housing with incomes at or below 150% of the FIG. Low-income tenants who reside in multifamily housing have been largely unable to enjoy the same benefits of the Act 129 programs enjoyed by low-income tenants and/or owners of single-family homes. But while tenants within this sector remain underserved by Act 129 programs, the savings potential in this housing stock is great.

KEEA also notes that it is possible to deliver cost-effective low-income efficiency programs. In an ACEEE report of exemplary low-income programs, 37% of programs had TRC ratios greater than 1.0.¹³

¹⁰ See Johnson, K. 2013. *Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings*. ACEEE: Washington, DC. <http://www.aceee.org/sites/default/files/publications/researchreports/e13n.pdf>.

¹¹ Blinder, A. and M. Zandi. 2010. "How the Great Recession Was Brought to an End," p. 16. Princeton University. <http://www.princeton.edu/~blinder/End-of-Great-Recession.pdf>

¹² Consortium for Energy Efficiency. 2014. *CEE Annual Industry Report. 2013 State of the Efficiency Program Industry: Budgets, Expenditures, and Impacts*. March 24. Boston, MA: CEE.

¹³ Kushler, Martin; York, Dan; Witte, Patty, ACEEE, September 2005, "Meeting Essential Needs: The Results of a National Search for Exemplary Utility-Funded Low-Income Energy Efficiency Programs." Available at: <http://www.>

Furthermore, an Opower analysis of low-income programs deployed by 86 utilities found 54% of those programs were cost-effective.¹⁴ Many of these cost-effective low-income programs include behavioral and energy education energy efficiency programs that can reach every low-income household in a utility service territory and coordination with external agencies, such as non-profits or federal weatherization assistance programs. Examples of states with such coordination programs include Ohio, Washington, Wisconsin, and Massachusetts. These programs maximize achievable savings by leveraging funding across sources.

In Pennsylvania, a diversity of service delivery providers including community-based organizations (CBOs) deliver low-income programs. However, funding mechanisms have at times complicated these efforts. **The Commission should work with EDCs and service delivery providers to standardize a funding approach that encourages leveraging funding from the Department of Energy and gas utilities programs to maximize efficiency and benefits.** KEEA encourages the Commission to recognize the benefits of increased coordination efforts and work with EDCs and the service delivery providers to streamline funding mechanisms accordingly.

5. Inclusion of Whole-House and Whole-Building Programs

KEEA fully supports the inclusion of comprehensive measures in utility portfolios, including whole-house and whole-building requirements. Rather than prescribe specific programs that utilities must include in portfolios, KEEA encourages the Commission to investigate other mechanisms for encouraging comprehensive programs. KEEA also supports further analysis of the risk the current system imposes on utilities that desire to offer whole building programs. Though several EDCs currently offer “home performance” or other similarly comprehensive programs, the savings created by these programs varies widely. Some are primarily audit programs with a direct-install component, while others drive deeper savings through their incentive structures. For the purposes of providing guidance to the utilities as they design new programs, **KEEA supports defining comprehensiveness at the individual program level, encouraging flexible performance-based programs that reward deep savings.** Programs that support comprehensive retrofits and new construction based on performance are also better aligned with what drives the marketplace, be it for existing buildings or new construction.

Pay-for-performance measures encourage comprehensive savings. Several EDCs already have experience with programs that pay for performance. For example, FirstEnergy’s program includes graduated incentive tiers based on energy savings. PECO’s new construction program includes a base incentive with additional incentives offered for additional above-code savings achieved. **KEEA recommends that the Commission require EDCs to adopt program models for all sectors that award participants based on performance, rather than dictating specific measures EDCs must include in programs.** Comprehensive programs are associated with several barriers that KEEA believes the Commission has the ability and opportunity to address as part of the Phase III planning process. First, the implementation of the TRC currently used in Pennsylvania accounts for all project costs as being energy related, when in fact non-energy benefits often play a large part in the owner’s decision to invest in energy efficiency. The current TRC test fails to recognize these benefits, but it does count full costs. **KEEA recommends that the Commission consider implementing cost accounting mechanisms to capture non-energy benefits.** One tool of the building owners market that has been used in other states is to survey building owners.

aceee.org/sites/default/files/publications/researchreports/U053.pdf

¹⁴ Opower, “Unlocking Energy Efficiency for Low-Income Utility Customers: Four Key Lessons from Real-World Program Experience,” p. 8. June 19, 2014. Available at: <http://www2.opower.com/unlocking-ee-for-low-income>

Second, the TRC is implicitly biased against investments that achieve deeper more comprehensive savings over time and instead rewards “cream skimming,” which is focused on low cost, high payback technologies. Short-term savings goals generally have a negative impact on comprehensive programs. Greater investment in more permanent efficiency investments generally take longer to close, and building a pipeline in the early years of a comprehensive program, when trade allies are still being trained, is difficult. As noted elsewhere, it costs more in the start-up years, given training and infrastructure development needed for comprehensive programs, than in the later years of the program. To address this issue, **the Commission should consider adopting mechanisms that allow comprehensive programs greater flexibility in meeting cost benefit tests if those programs can demonstrate that they are driving investment in deeper savings.**

Third, keeping service providers properly trained in new techniques and whole-building practices is often penalized by the current cost-effectiveness calculations. KEEA commends the West Penn Power Sustainable Energy Fund’s investment in the PA Home Energy program, which was successful in developing a statewide service provider infrastructure that could be leveraged by utility programs, reducing the risk of those programs in launching comprehensive programs. **KEEA recommends that the Commission consider the separation of investments in service provider training and market development efforts from the evaluation of program costs for comprehensive programs.**

Fourth, the Technical Resource Manual (TRM) provides mechanisms for alignment between program savings calculations and program evaluation for many individual technologies but not for comprehensive retrofits. Comprehensive retrofits generally use energy modeling to make savings predictions, but they are often evaluated using billing analysis. This misalignment between program operations and evaluation increases the risk that programs will later show poor realization rates, thus low TRC scores. **The Commission should initiate ongoing engagement between statewide evaluators and utility managers of comprehensive programs to determine methods to standardize prediction and evaluation methodologies. The Commission should also determine savings metrics available for quality-assured, performance-tested installations, especially of HVAC systems.**

KEEA recognizes that comprehensive programs using whole-building analysis are associated with higher costs per unit of saved energy than simpler prescriptive measures. However, these programs, when balanced with lower cost programs, lead to an overall portfolio that is cost-effective. It is unreasonable to think that an emphasis on comprehensive programs will push acquisition costs upwards of \$0.50/kWh.¹⁵ Furthermore, there is little evidence that acquisition costs rise drastically over time. Though utilities may begin to invest in deeper, more comprehensive measures as portfolios mature, technological improvements help balance overall portfolio costs. For example, the cost of LEDs had dropped dramatically recently. An ACEEE survey of portfolio acquisition costs found median costs of about \$0.21/kWh, with Pennsylvania EDCs falling closer to the minimum of \$0.13/kWh. States with higher acquisition costs included Massachusetts, Vermont, and Rhode Island. Each of these states is running aggressive efficiency programs, and their programs likely have longer average measure lifetimes than

¹⁵ Our discussion here focuses on first-year acquisition costs, which can be useful for program budgeting purposes. However, it is most appropriate to focus on levelized cost of saved energy when comparing the costs of efficiency programs to avoided costs of energy supply (levelized means that upfront costs are amortized over the lifetime of a measure at an assumed discount rate). Acquisition costs do not take into account the full value of efficiency investments because they capture only the first-year savings, whereas measures continue saving energy throughout their useful lifetime. For example, two measures can have identical levelized costs, while the first-year cost for the measure with a shorter lifetime, e.g. a CFL, appears lower than that of a measure with a much longer lifetime (e.g., insulation).

those of EDCs in Pennsylvania. In 2013, all three states achieved savings of about 2% of retail sales, while Pennsylvania EDCs achieved average savings of just under 1%.¹⁶

State	2009	2010	2011	2012	4-year average (2009-2012)
Arizona	\$0.13	\$0.16	\$0.18	\$0.15	\$0.15
California	\$0.28	\$0.28	\$0.39	n/a	\$0.32
Colorado	\$0.20	\$0.26	\$0.24	\$0.24	\$0.24
Connecticut	\$0.31	\$0.35	\$0.30	\$0.37	\$0.33
Hawaii	\$0.17	\$0.19	\$0.22	\$0.30	\$0.22
Illinois	n/a	n/a	\$0.16	n/a	\$0.16
Iowa	\$0.15	\$0.15	\$0.17	\$0.15	\$0.16
Massachusetts	\$0.49	\$0.42	\$0.36	\$0.43	\$0.42
Michigan	\$0.14	\$0.13	\$0.14	\$0.15	\$0.14
Minnesota	\$0.23	\$0.30	\$0.31	\$0.28	\$0.28
New Mexico	\$0.18	\$0.17	\$0.15	\$0.13	\$0.16
Nevada	\$0.11	\$0.12	\$0.13	\$0.17	\$0.13
New York	\$0.21	\$0.21	\$0.21	n/a	\$0.21
Oregon	\$0.24	\$0.21	\$0.24	\$0.23	\$0.23
Pennsylvania	n/a	n/a	\$0.14	n/a	\$0.14
Rhode Island	n/a	\$0.35	\$0.37	\$0.41	\$0.38
Texas	\$0.20	\$0.20	\$0.22	n/a	\$0.20
Utah	\$0.27	\$0.28	\$0.20	\$0.23	\$0.24
Vermont	\$0.35	\$0.33	\$0.34	\$0.31	\$0.33
Wisconsin	n/a	n/a	\$0.19	\$0.13	\$0.16
Average	\$0.23	\$0.24	\$0.23	\$0.24	\$0.23
Median	\$0.21	\$0.21	\$0.21	\$0.23	\$0.21
Minimum	\$0.11	\$0.12	\$0.13	\$0.13	\$0.13
Maximum	\$0.49	\$0.42	\$0.39	\$0.43	\$0.42

Table 4. Average first-year acquisition costs by state from Molina, M. 2014. *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*. ACEEE: Washington, DC.

The focus on acquisition costs also means that efficiency is not on a level playing field with other resources. Traditionally, utilities base resource acquisition decisions not on first-year costs, but on levelized costs. Similarly, levelized cost is an appropriate metric for energy efficiency resources, which continue to save energy over several years of their effective useful lifetime. Nationally, the levelized cost

¹⁶ Statewide savings figures from ACEEE's 2014 State Energy Efficiency Scorecard.

of energy efficiency is significantly lower than traditional resources, as shown in the figure below. As with acquisition costs, Pennsylvania’s levelized cost of efficiency falls well below the average of \$0.028 per kWh, and is in fact one of the lowest in the country, at about \$0.017 per kWh.¹⁷

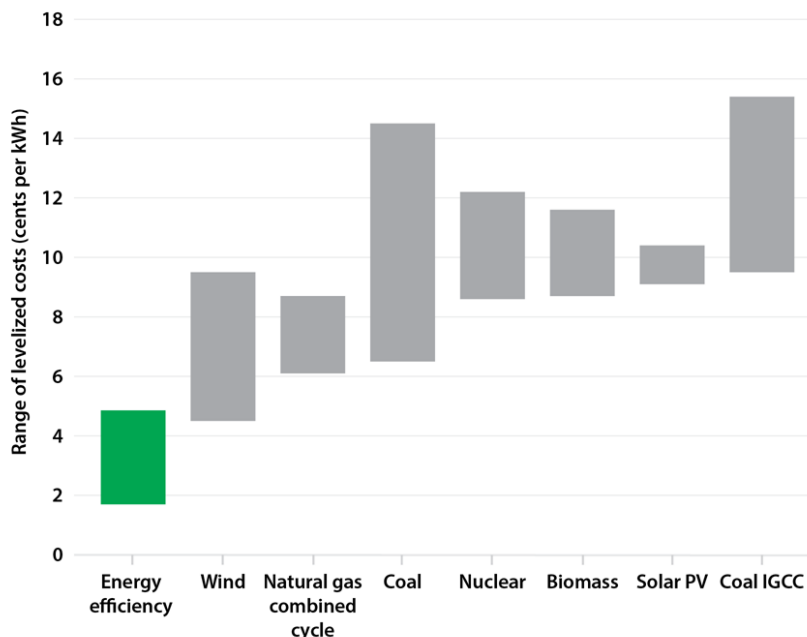


Table 5. Levelized costs of supply-side resources. Source: Molina, M. 2014.

Overall, the results, of the ACEEE study demonstrate the reliability of energy efficiency as a long-term, least-cost resource. The study concluded that several long-standing portfolios have maintained these low costs over time and as savings levels have increased, and that there is only a very weak correlation between costs and savings levels.

6. Phase III Budgets

KEEA is supportive of allowing EDCs to roll budget surpluses from Phase II into Phase III, however, with important caveats. For one thing, we will assume that savings targets are set more robustly than they were under Phase II. As shown above, EDCs are significantly under-spending in Phase II. Meanwhile, carryover savings alone has allowed several EDCs to meet significant portions of their savings goals, even before implementing Phase II programs, as shown below. PPL met more than 60% of its Phase II savings goals with roll-over alone. It is extremely likely that EDCs will meet savings targets before they expend Phase II budgets. Overall, this demonstrates that Pennsylvania may have had more cost-effective energy efficiency resources available than determined by the assumptions in the Phase II target-setting.

KEEA notes that while Act 129 limits total EDC budgets, there is no statutory limit on how much savings EDCs can achieve. **The Commission should not impede the potential for cost-effective energy efficiency by placing limitations on EDC savings.** Energy efficiency savings provide widespread benefits. The SWE final report on Act 129 Phase I determined that all PA EDCs had positive benefit-to-cost ratios. In other words, each dollar spent on energy efficiency generated significantly more savings. Cost-benefit ratios ranged from 1.6 (Met-Ed) to 3.1 (Duquesne). **KEEA urges the Commission to**

¹⁷ Molina, M. 2014.

require EDCs to continue generating benefits for Pennsylvania through ongoing investments in energy efficiency, even after savings targets are met.

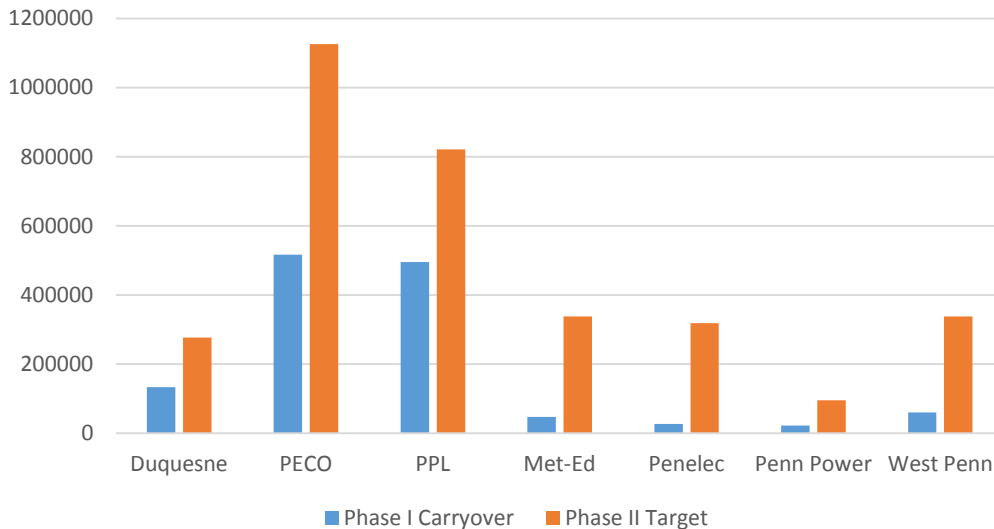


Table 6. Carryover versus Phase II targets by EDC. PPL met the largest portion (60.8%) of Phase II savings, while Penelec’s rollover contributed the least (8.4%) to Phase II savings goals.

KEEA is also concerned with the large amount of carryover savings that was rolled into Phase II, since these savings have significantly diminished the remaining energy savings required of each EDC. For this reason, **we once again recommend that the Commission consider significantly higher targets moving into Phase III.** We recognize that EDCs face penalties in the case of under-achievement, and we are sensitive to the fact that banked savings buffer the risk associated with penalties. Banking is likely necessary under the current business model in Pennsylvania that relies on penalties rather than incentives for success. Still, KEEA believes that allowing banked savings significantly diminishes the results of Pennsylvania’s savings targets since EDCs are able to meet targets while achieving less than SWE-calculated achievable savings potential in a given year. The Commission should consider strategies used in other states (i.e. Michigan) to limit roll-over while still encouraging strong and continuous program efforts from EDCs. For example, the Commission could consider a cap on roll-over. However, KEEA is wary that such a cap – if not paired with an incentive - could cause utilities to shut down programs once they have reached the maximum banked savings threshold. Including other mechanisms to incentivize success would limit the risk of program shut-downs and encourage continuities. We discuss performance incentives further in Section 10.

7. Finalizing Phase II Spending

While KEEA’s comments in this section are limited, **we do support standardization among EDC protocols in order to limit customer confusion.** EDCs should develop standard rebate submission deadlines for customers, with a recommended 180 days given. These should hold true even for those measures installed at the end of a Phase, to prevent customer confusion. Any budgetary residuals from Phase II should be rolled over into a single unified surcharge for Phase III. EDCs and Commission staff should track spending and savings specific to each phase, but customers should only face one surcharge on their bills.

8. Updating the Technical Reference Manual

During Phase I and II, the Commission implemented an annual updating process for the TRM. **KEEA recommends that moving forward, the TRM be updated on an “as-needed” basis** (i.e. as new information is acquired). While minor updates may be determined to be necessary annually, the Commission should avoid making large revisions to the TRM on an annual basis. Additionally, any changes should continue to be prospective, to avoid the need to make major adjustments to utility efficiency portfolios during the current program year.

The Commission should also determine a schedule for more comprehensive reviews of the TRM. We recommend that these occur every 3 years. Stakeholders should be included in this review process.

9. Updating the Total Resource Cost Test

Three recent developments suggest that now is a critical time for Pennsylvania to update its energy efficiency cost-effectiveness screening practices. First, the National Efficiency Screening Project (NESP) recently developed a new set of best-practice guidelines on energy efficiency cost-effectiveness screening called the Resource Value Framework (RVF). This new framework has broad support and provides a good platform for Pennsylvania to evaluate its current cost-effectiveness practices that takes into account state policy goals and the public interest. Second, several states that use the Total Resource Cost (TRC) Test have recently taken a closer look at their practices and are taking steps to improve the way the TRC is used. For example, Maryland, Arkansas, and New York are all moving to improve their application of the TRC test. Pennsylvania can take advantage of resources and learning from these states. Third, the U.S. Environmental Protection Agency’s (EPA) proposed rules under Section 111(d) of the Clean Air Act for reducing greenhouse gas emissions provides an opportunity for efficiency programs to serve as a least-cost compliance option. To make full use of this cost-effective potential, Pennsylvania should ensure their cost-effectiveness framework is allowing for cost-effective efficiency potential to be harnessed. Utility plans need to be nimble enough to incorporate these upcoming major policy changes.

Given new screening principles (RVF), new efforts by states to improve their TRC tests, and the potential opportunity for energy efficiency to count toward EPA’s the Clean Power Plan (CPP), KEEA urges the Commission to review its methodology for energy efficiency cost-benefit analysis. In its TRC order in 2012¹⁸ the Commission stated that “many issues involved in the EE &C plans, program implementation, and operation of the TRC Test are ongoing in nature, and future updates may be proposed by stakeholders or the Commission as needed.” We believe these recent national developments, and the Commission’s openness to make updates, argue for a comprehensive review and update of current cost-effectiveness practices.

Resource Value Framework (RVF)

The RVF is a platform to develop and implement consistent and balanced energy efficiency screening tests. The RVF does not endorse a specific cost-effectiveness test, and in fact finds that states should not be limited to the traditional screening tests presented in the California Standard Practice Manual. Rather, it outlines several principles that states should adhere to in designing an energy efficiency screening test.

Another helpful resource is the Cost-Effectiveness Screening Principles and Guidelines developed by the Northeast Energy Efficiency Partnerships (NEEP). The guidelines establish four overall principles that states should consider in reviewing their energy efficiency screening practices: 1) alignment of

¹⁸ Phase II TRC Order, Docket No. M-2012-2300653 (August 30, 2012)

screening with state energy policies, 2) ensuring symmetry of costs and benefits, 3) consideration of a range of options for estimating hard to quantify non-energy impacts, and 4) ensuring transparency in screening among stakeholders.

KEEA recommends that the Commission should review and refine a consistent and symmetrical methodology for TRC application. We recommend that the Commission lead a transparent stakeholder process to use the RVF and NEEP’s *Principles and Guidelines* document to review the application of its own TRC test and make important updates to its TRC to be consistent with national best practice. Consistency in methodology will allow utilities to plan long-term programs and not worry that inputs or methodologies will change. We discuss several possible revisions and/or refinements next. This should be done prior to the implementation of Phase III.

Pennsylvania’s Act 129 states that the EDCs “shall demonstrate that the plan is cost-effective using a total resource cost test approved by the Commission” (emphasis added).¹⁹ This indicates that what is definitive is what the Commission approves as the test. For example, the TRC definition in statute only mentions the “monetary cost of energy efficiency measures.” The other associated non-measure program costs would not be part of that literal description. Translating the TRC definition from statute to an acceptable TRC test requires modification to add those other program costs. Similarly, in recent years, the Commission has established orders to clarify several details on how the TRC is put into practice. Again, there is an opportunity for the Commission to refine the TRC, and we recommend several areas for consideration: energy benefits, non-energy impacts, discount rate, and avoided environmental compliance costs.

Energy Benefits

It is important that energy efficiency programs that save natural gas, fuel oil, or propane properly account for these non-electric energy benefits. If the non-electric energy benefits are not fully, properly and consistently accounted for, whole-house and whole-building measures that save both electricity and other fuels are unfairly disadvantaged. These programs have huge potential to save electricity, which provide benefits to all ratepayers. If the programs’ costs and benefits are not always properly screened, then cost-effective savings will be left on the table. While the focus of the TRC definition in Pennsylvania statute emphasizes electric benefits, the non-electric benefits should also be monetized and included to ensure a fair and balanced TRC.

It appears that at least some utilities are currently adjusting the costs for these programs (that save non-electric fuels) in the TRC calculation. For example, programs that save other energy types are only accounting for the costs associated with electric measures. This is one approach, however this can present challenges in instances when it is difficult to define the electric-only baseline cost. Another approach would be to count all participant costs, but then also ensure that all monetized participant benefits are included. In its review of the TRC, the Commission and stakeholder group should review this issue to **ensure symmetry between costs and benefits.**

Non-Energy Impacts (NEIs)

In addition to avoided energy costs, there are many non-energy impacts from energy efficiency programs. Several jurisdictions incorporate these impacts into their energy efficiency cost-effectiveness

¹⁹ Pennsylvania Statute § 2806.1(b)(I)

screening, including at least two jurisdictions in the Northeast (Massachusetts and Rhode Island) that use the TRC as their cost-effectiveness test²⁰.

One of the most important principles is to ensure that the TRC is symmetrical. For example, if participant costs are monetized, then monetized participant benefits also need to be included.

NEEP's *Guidelines* provide specifics on current practices for identifying, prioritizing, and estimating values for NEIs. Prioritization will be important and can help focus on NEIs that would have the biggest impact, i.e. accounting for them would enable programs with large amounts of energy savings. For example, comprehensive whole-house and whole-building programs have a broad set of benefits and could be a priority. **KEEA recommends that the Commission's stakeholder process identify, prioritize, and determine values NEIs for inclusion in the TRC.**

Discount Rate

The current practice of assuming the weighted average cost of capital (WACC) for energy efficiency cost-effectiveness screening undervalues the reduced risk of energy efficiency program expenditures versus supply-side investments. To reflect the lower financial risk of efficiency investments, some jurisdictions have alternative discount rates for energy efficiency valuation in the UCT and TRC tests, such as a risk-adjusted discount rate. In Massachusetts, regulators have acknowledged that energy efficiency resources are a low-risk investment and that a low-risk discount rate is most appropriate for the TRC test²¹. KEEA recommends that the PUC similarly adopt a risk-adjusted discount rate for efficiency programs in Pennsylvania. **In its review of the TRC application, the Commission and stakeholder group should include review of an appropriate discount rate.**

Avoided Costs of Environmental Compliance

KEEA recommends accounting for avoided costs of environmental compliance in energy efficiency program cost-effectiveness evaluation. While there is uncertainty about how the EPA's Clean Power Plan proposal might be applied, it is reasonable to expect some amount of compliance cost. These costs should be accounted for in screening efficiency programs. If they are not, more expensive compliance options might be chosen, and those costs will be passed on to ratepayers. In other words, energy efficiency can help reduce the compliance costs for Pennsylvania. KEEA recommends that a Commission-led stakeholder process refer to NEEP's *Guidelines* on options for identifying and determining environmental compliance costs.

10. Other Important Issues

Performance Incentives

KEEA's comments on Phase III are shaped by the current constraints of the utility regulatory model in Pennsylvania. Act 129 explicitly calls for penalties and disallows the recovery of lost revenues associated with energy efficiency programs. The existing regulatory structure is all risk, with no reward for EDCs. It makes sense, therefore, that EDCs will support limited targets and pursue "cream-skimming" strategies that emphasize savings from prescriptive measures rather than pursuing deeper, more complex projects that maximize long-term energy savings. **KEEA strongly urges the Commission to implement performance incentives for utilities in conjunction with the current penalty framework.**

²⁰ http://www.neep.org/sites/default/files/resources/Forum_C-E_Screening_Guidelines_Final_No_2014.pdf

²¹ Woolf, T. et al. 2013. *Energy Efficiency Cost-Effectiveness Screening in the Northeast and Mid-Atlantic States*. <http://www.synapse-energy.com/project/efficiency-screening-practices-northeast>

Though Act 129 places limitations on cost-recovery, there is no language explicitly preventing the Commission from implementing performance incentives. A performance incentive is *not* tied to or equivalent to lost revenue recovery. KEEA does not support lost revenue mechanisms but strongly supports performance incentives. Performance incentives are a key tool in incentivizing EDCs to reach high levels of savings. KEEA feels that performance incentives are an important part of a comprehensive efficiency program and should be included as a reasonable and prudent part of the demand-side management strategy in Pennsylvania. Sixteen of the 24 states that currently have energy savings targets in place couple those policies with performance incentives.²² Research done by ACEEE in 2011 found that performance incentives were correlated with higher per-person investment in efficiency programs by utilities, and that they contributed to increased “buy-in” by corporate management.²³

KEEA sees the value in performance incentives and believes that they could be a way to mitigate the effect of banked savings from one year to another. In Michigan, for example, utilities that overachieve annual savings targets may elect to collect a performance incentive on the over-achievement, or they may roll savings over to the next year to meet targets. To date, utilities in Michigan have exclusively elected the performance incentive. The structure of the performance incentive, of course, does matter. KEEA hopes the Commission will pursue this issue further, at which time we would be pleased to comment on best practices in performance incentive structures.

Statewide Collaborative

The Commission should consider the establishment of a statewide collaborative to bring together stakeholders to foster information sharing around energy efficiency program design issues and emerging opportunities. The collaborative could also develop tools, protocols, and practices and act in an advisory role to the Commission. KEEA urges the Commission to further explore this strategy. Statewide collaboratives currently exist in a number of other states – [Illinois](#), [Rhode Island](#), [Massachusetts](#), and [Connecticut](#), and, for example. These groups help build strong efficiency programs by bringing together multiple stakeholders groups in a coordinated way. They also promote statewide consistency since stakeholders come together at set times to discuss common approaches, eliminating the need for piecemeal proceedings. Since stakeholders include a wide cross-section of energy end-users, they have an interest in pushing continuous improvement.

Commission staff should be responsible for the planning leadership, and operation of the statewide collaborative. Commission staff should also help coordinate the role of a statewide collaborative with utility-specific working groups. Utility-specific stakeholder groups are important, and the statewide collaborative should provide additional – rather than duplicative – resources. Stakeholder collaboratives typically employ targeted working groups. These working groups are comprised of a smaller number of interested stakeholders who collaborate on selected issues to develop recommendations for the overall statewide collaborative. Statewide collaboratives – and their working groups - can address a variety of issues, including:

- Coordinating comprehensive updates to the TRM.
- Developing proposals for quantifying non-energy benefits.
- Developing goals and guidelines for energy efficiency potential and market studies outside of the scope of the work undertaken by the SWE.
- Developing a statewide program database that includes program documentation in a single easily accessible location.

²² ACEEE’s 2014 State Energy Efficiency Scorecard

²³ Hayes et al. 2011

- Promoting public awareness of efficiency programs statewide.

Under the current process, stakeholders are several steps removed from the target setting and statewide energy efficiency planning process. While EDCs make significant efforts to incorporate the views of local stakeholders during their individual portfolio planning process, SWE market potential studies do not account for this input. A statewide collaborative could bridge the gap between these two planning processes. KEEA recommends that the Commission explore this strategy as an important planning tool for Phase III and onward.

Savings Targets for Natural Gas Distribution Companies

KEEA understands that the Commission does not have the authority under Act 129 to establish gas conservation goals within Act 129 proceedings. Based on the need to have comprehensive approaches and the value to consumers going forward, **we request that the Commission establish a proceeding outside of Act 129 with the goal of establishing gas conservation goals across all companies.** Of the 24 states with energy savings targets in place, 15 include mandatory targets for natural gas savings. These natural gas programs often work in tandem with electric efficiency programs, allowing customers to receive the full benefits of energy efficiency. Co-delivery of natural gas and electric efficiency programs can also help increase the reach of cost-effectiveness of all programs. Several Pennsylvania gas utilities have experience with gas conservation programs and those programs along with other states who have successfully integrated both gas and electric conservation programs can serve as the starting point for developing programs.

KEEA thanks the Commission for the opportunity to submit comments and for holding stakeholder meetings before the Tentative Order is released.

Sincerely,

A handwritten signature in cursive script, appearing to read "Maureen Mulligan".

Maureen Mulligan