Prepared Testimony of

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before the

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Act 129 Requirement for Electric Distribution Companies to Meet Certain Energy-Efficiency Requirements

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Chairman Godshall, Chairman Daley, and Members of the Committee:

Thank you for the opportunity to present testimony on a topic of significant importance to the Public Utility Commission (Commission or PUC): Energy Efficiency and Conservation (EE&C) provisions. Pennsylvania had the foresight to implement cost-effective efficiency and conservation provisions via the passage of Act 129 of 2008. The Act declared that such measures are in the public interest in an effort to reduce electric price volatility, promote economic growth and ensure affordable and reliable electric service to Pennsylvania residents and businesses. Now preparing to implement Act 129 Phase III, we continue to watch as the program's success lowers Pennsylvania's overall carbon footprint. However, the Commission has five recommendations for modification of Act 129 that we think will elevate the program and benefit all participants. I will present these recommendations at the end of my testimony,

Act 129 required Electric Distribution Companies (EDCs) with at least 100,000 customers to adopt and implement cost-effective EE&C plans to reduce energy consumption and demand. For reference, this mandate covers seven of the 11 EDCs in Pennsylvania. In total, these programs are available to approximately 5.6 million customer accounts, including 4.9 million residential accounts.

Annually, each EDC's expenditure for any Phase of Act 129 cannot exceed 2% of the EDC's total annual revenues as of 2006. EDCs are permitted to recover costs of implementation through a reconcilable surcharge whereby the EDC projects future costs, sets rates based on said projections and reconciles any over-/under-collections over time. The total annual expenditure for all seven EDCs is approximately $245 million dollars annually. In 2014, the average residential utility consumer paid between $2 and $4 per month in Act 129 charges. Each EDC's budget cap is provided in the table below.

EDC	**Annual Expenditure Cap**
Duquesne	$19,545,952
Met-Ed	$24,866,894
PECO	$85,477,166
Penelec	$22,974,742
Penn Power	$6,659,789

PPL	$61,501,376
West Penn Power	$23,562,602
Total	$244,588,521

EDCs are not permitted to recover lost revenues through their Act 129 surcharge. EDCs may seek Commission approval for adjustments to distribution rates, via a base rate case proceeding, to account for reductions in customer consumption manifested from Act 129 measures.

The effectiveness of each EDC's plan is determined by a PUC-approved Total Resource Cost (TRC) test. The TRC is met "if over the effective life of each plan, not to exceed 15 years, the net present value of the avoided monetary cost[1] of supplying electricity is greater than the net present value of the monetary cost of energy-efficiency conservation measures."[2] The TRC test excludes environmental and societal costs and benefits[3].

Phase I of Act 129 directed the EDCs to reduce total consumption from 2010 levels by 1% in 2011 and 3% in 2013. Phase I further directed EDCs to reduce peak demand in the 100 highest hours by 4.5% during the summer of 2012. To distinguish consumption from peak demand: consumption reduction is a continuous efficiency measure, like installing efficient lightbulbs, whereas peak demand reduction is the mitigating of usage during short time frames that coincide with system peaks, such as turning down the air conditioning for a few hours on a hot day.

Phase I of Act 129 lasted four years (June 1, 2009 – May 31, 2013). The total cost to implement the EDC plans during that time period was $803 million. Including estimated participant costs,[4] the total plan cost totaled $1.75 billion. The total avoided cost of supplying electricity to consumers was $4.2 billion. That is, the

[1] "Avoided monetary cost" includes energy, capacity, ancillary, and transmission and distribution costs.

[2] TRC test example: Calculate the cumulative electricity cost savings over the life of a compact fluorescent light (CFL) bulb and reduce these savings by the incremental cost of a CFL relative to a standard light bulb, including any EDC administrative costs related to the EDC's light bulb program.

[3] Examples of excluded benefits include reductions in carbon dioxide, sulfur dioxide (SO_2), nitrogen oxide (NOx), and particulate emission, and home and business comfort or productivity increases.

[4] Implementation costs include EDC and contractor Act 129 administrative costs and customer investment costs on efficiency measures. Participant costs are the additional costs above the incentives that customers receive for participating in various efficiency programs.

benefits of the Phase I programs were more than double its costs, resulting in a benefit to cost ratio of 2.4.

As of the end of Phase I, the state's seven largest EDCs collectively saved 5.4 million megawatt-hours (MWhs) per year and reduced peak demand by 1,500 megawatts (MW). Additionally, all seven EDCs exceeded their individual 2013 compliance targets for electricity consumption savings and peak demand reductions based upon their reported and verified Phase I energy and demand savings[5]. Further, Phase I resulted in other realized benefits for our state and local economies:

- The leveraging of Conservation Service Providers (CSPs) by EDCs to implement various programs and measures in their plans has resulted in the Commission registering approximately 140 businesses as CSPs to date.
- The carry-over of consumption reductions into wholesale markets is helping to mitigate peak wholesale energy prices.
- Low-income customers are now availed additional efficiency measures above and beyond existing programs like the Low-Income Usage Reduction Program, or LIURP.
- Lower consumption is reducing the capacity utilization of the distribution, transmission and generation systems and is therefore helping to avoid additional investments in these facilities.
- Last, these measures are providing associated emissions reductions in carbon dioxide, sulfur dioxide, nitrogen oxide, and fine particulate matter.

As a result of the success of Phase I, and pursuant to statutory requirements, the Commission implemented a three-year Phase II EE&C program from 2013 through 2016. Prior to initiating Phase II, the Commission conducted energy-efficiency baseline and potential studies. The results of these studies helped the Commission establish cost-effective energy savings requirements for each of the seven EDCs. The reduction requirements differed for each EDC based on its respective energy savings potentials, cost of energy savings measures, and annual expenditure caps. The reductions fell around the 2% mark for the breadth of plans. Each EDC's Phase II target is provided in the table below.

[5] compliance order: http://www.puc.pa.gov/pcdocs/1274560.doc

EDC	3 Year % of 2009/10 Forecast Reductions	3 Year MWh Value of 2009/10 Forecast Reductions
Duquesne	2.0	276,722
Met-Ed	2.3	337,753
Penelec	2.2	318,813
Penn Power	2.0	95,502
PPL	2.1	821,072
PECO	2.9	1,125,851
West Penn	1.6	337,533

The Commission did not establish demand-reduction targets when designing Phase II since it was still gathering data on the cost effectiveness of the Phase I demand-reduction programs and determining future demand reduction potential when designing Phase II.

As we are currently still in Phase II, which runs until May 31, 2016, the Commission does not have comprehensive numbers on the costs and benefits of the entire phase. However, during year one of Phase II, the EDCs spent approximately $174 million, while program participants contributed another $150 million. This equates to a total one-year cost of $324 million. The benefits of the program for this one year accrue to $559 million, resulting in a benefit to cost ratio of 1.7. In other words, $1.70 of benefits was realized for every $1 spent during year one of Phase II.

The Commission continues to monitor the progress of each EDC during Phase II. The data from the first annual report shows promising prospects for the majority of EDCs' compliance with their respective savings targets.

Also of significant importance, in June of this year the Commission issued its Final Implementation Order for Phase III of Act 129.[6] Based on energy-efficiency and demand-response potential studies, the Commission set a new portfolio of targets to be achieved over a five-year period from 2016 through 2021. For energy efficiency, the Commission adopted several reduction targets ranging from a low of 2.6% for West Penn Power to 5.0% for PECO. As with Phase II, the difference in targets is based on the potential energy savings, cost of energy savings measures, and annual expenditure caps in each territory. Each EDC's Phase III reduction target is provided in the table below.

[6] Order entered June 19, 2015 at Docket No. M-2014-2424864

EDC	% of 2010 Forecast
Duquesne	3.1%
Met-Ed	4.0%
PECO	5.0%
Penelec	3.9%
Penn Power	3.3%
PPL	3.8%
West Penn	2.6%

For peak demand reduction, the Commission adopted targets for all EDCs but one, Penelec. Upon review, it was determined that Penelec did not have any achievable potential demand reductions. The other six EDC reduction targets range from 1.4% at PPL to 2.0% at PECO. Each EDC target is provided in the chart below.

EDC	% Reduction (Relative to 2007-2008 Peak Demand)
Duquesne	1.7%
Met-Ed	1.8%
PECO	2.0%
Penelec	0.0%
Penn Power	1.7%
PPL	1.4%
West Penn Power	1.8%

Phase III of Act 129 continues to leverage the lessons learned from experiences in previous phases. The Commission re-designed the demand-reduction

component in an effort to better target the limited events in which the electric system is most constrained. These critical peak events are what the grid operators use to design generation-capacity and reliability benchmarks for the future. By designing a demand-response program that targets 24 hours over six different days annually, as opposed to the Phase I 100-hour target, the Commission believes that the program will appropriately balance end users' willingness to participate with the effectiveness of reductions during the most critical hours of grid operations.

Phase III is also designed to increasingly leverage behavioral programs. These types of measures differentiate themselves from more conventional hardware and insulation measures. In essence, behavioral measures use specific usage information to educate customers and advance them toward more efficient energy use. For instance, a homeowner participating in this type of program may be advised that he or she is consuming more electricity than other homes of similar size, appliance characteristics and occupancy. The program can then, based on surveys, indicate what behaviors are leading to this increased usage and make recommendations on how to revise behavior in an effort to save money.

I will note that Phase III continues to drive the needle of efficiency programs toward more comprehensive measures. Comprehensive measures are those that entail much more detailed analysis and implementation to provide more significant long-term energy savings. Projects like combined heat and power (CHP), home energy audits and direct installation of efficient appliances for low-income customers are all categorized as comprehensive. As the market for efficient lightbulbs becomes more and more saturated, comprehensive measures will become more vital in obtaining additional and longer lasting electric consumption reductions.

I would like to share five distinct recommendations for modification of Act 129. I believe these modifications are reasonable and will help to benefit all parties involved in these proceedings and plans.

1.) First, the current Act places a hard cap on budgets based off of 2006 revenues. The Commission requests the authority to increase program budgets where necessary to obtain additional, incremental peak demand and energy consumption reductions. This increase would track with changes to the Bureau of Labor Statistics Electric Price Index for our region, and could be implemented once every five years.

2.) Second, the Act requires a minimum $1,000,000 penalty for non-compliance, even if an EDC misses compliance by only one MWh. The Commission believes language mandating only an upper limit would be beneficial.

3.) Third, the TRC only allows for the accounting of 15 years of costs and benefits. Many resources, such as solar arrays or CHP facilities, last longer than 15 years. As such, the Commission recommends allowing for the entire effective life of a measure.

4.) Fourth, the Act gives the Commission 120 days to review the EDCs' propose plans. We believe increasing this timeline to 180 days would be prudent to give all stakeholders and the Commission more time to thoroughly review proposed plans.

5.) Fifth, the Act requires the Commission to file annual reports to the legislature. We believe a requirement of one report per phase or for a report every five years would be a prudent amendment. This allows more data to be compiled in the report, thereby making it more valuable.

I hope the Committee will take these proposals under consideration.

Continuing on the topic of energy efficiency, in early August, the Environmental Protection Agency (EPA) issued final regulations designed to reduce carbon emissions from electric generation units (EGUs). These regulations are known as the Clean Power Plan. The EPA's final regulations are designed to cut EGU carbon emissions nationwide 32% by the year 2030. Each state has a different reduction mandate based on its specific EGU fleet. For Pennsylvania, the 2030 carbon reduction target is 33%. The Commission has been intently following the EPA's promulgation of these new regulations and is now working diligently to analyze and evaluate the new regulations. We are working hand-in-hand with the Pennsylvania Department of Environmental Protection (DEP), the National Governor's Association, and PJM Interconnection, LLC – our region's electric grid – to educate ourselves on the many facets of the plan.

The EPA regulations permit a broad array of options for each state to comply. Potential compliance measures include but are not limited to: increasing coal fleet efficiency; switching from coal to natural gas generation; increasing natural gas fleet efficiency; building new nuclear facilities; uprating existing nuclear facilities; and building new renewable capacity. Of particular interest to the

PUC, and potentially to this Committee, is the additional option to use energy efficiency as a compliance measure.

Experience from the Act 129 programs lends credence to the viability of using end-use energy efficiency as a portion of any State Implementation Plan. Ultimately, though, the design and structure of Pennsylvania's Clean Power Plan is the responsibility of DEP and the General Assembly, and we fully understand and respect that. We have kept the communication lines open with DEP and are fully ready to assist our fellow state agency in any way possible.

Regardless of our involvement in any future plan, the Commission is keenly interested in how progression toward these goals may alter reliability of electric service and affect the costs of such service. There's a wide array of analyses on the reliability and economic outcomes from the new regulations. At this point in time, it would be premature to speculate on these until further review of the final regulations can take place.

In closing, I submit that Act 129 has been a successful story to date. The Commission is proud of the continued increase and evolution of energy efficiency throughout the state. It is a testament of the good work from Commission staff, utilities, CSPs, consumer advocates and other business interests throughout the Commonwealth. Moving forward, the Act may be a potential asset for compliance with the Clean Power Plan. Such an outcome will be the decision of DEP and this General Assembly.

I thank you all for your time and look forward to any questions you may have.