Via electronic mail - May 15, 2015

Reply Comments of Northeast Energy Efficiency Partnerships (NEEP)
On Docket No. M-2014-2424864
Act 129 Energy Efficiency and Conservation Programs — Phase III

Rosemary Chiavetta, Secretary
Pennsylvania Public Utilities Commission
P.O. Box 3265
Harrisburg, P.A. 17120-3265

Dear Secretary Chiavetta,

On behalf of Northeast Energy Efficiency Partnerships (NEEP),[1] please accept these reply comments regarding the Public Utility Commission's ("The Commission") Tentative Implementation Order concerning Phase III of Pennsylvania's Act 129 Energy Efficiency and Conservation Programs ("Tentative Order").

NEEP is a non-profit organization, established in 1996, whose mission is to accelerate energy efficiency in homes, buildings and industry across the Northeast and Mid-Atlantic region. NEEP is one of six Regional Energy Efficiency Organizations (REEOs), as designated by the U.S. Department of Energy (DOE), which works in cooperation with the DOE to support states in, among other things, establishing comprehensive energy efficiency programs.

Our position as a Regional Energy Efficiency Organization enables us to help inform program design by sharing the best practices and approaches of other market and policy actors in the region. As such, our reply comments are constructed to buttress the recommendations offered in our earlier comments by conveying relevant guidance, rather than to dispute assertions made by parties to the proceeding.

Introduction

In its notice dated March 11, 2015, The Commission requested public input on its Tentative Order for Phase III of the Act 129 Energy Efficiency and Conservation Programs. Parties offered comment on April 27, 2015 and we reply to those comments in the submission below. As requested by The Commission, we focused our original comments on three subject matter areas:

[1] These comments are offered by NEEP staff and do not necessarily represent the view of NEEP's Board of Directors, sponsors or underwriters. Furthermore, NEEP staff prefer to remain a commenting member of the public rather than a party to the proceeding and emphasize that these comments should not be considered legal advice.

1. Whether the Commission should further define what qualifies as a comprehensive program;
2. Whether it is consistent with the policy goals and statutory requirements of Act 129 for Pennsylvania Electric Company—which lacks a specific peak demand reduction target to due limited economically achievable potential—to voluntarily include a demand reduction target.
3. Whether the EDCs should be required to obtain a minimum of 5.5 percent of their total consumption reduction target from the low-income sector, with the additional requirement that no less than 2 percent of this consumption reduction target be obtained exclusively from direct-installed low-income measures.

Comprehensive Programs

In our previous comments, we recommended the Commission provide guidance on acceptable comprehensive program structures, rather than directing exactly how the EDCs should structure their comprehensive programs. We suggested building energy codes as one example of a comprehensive measure, and referred the Commission to NEEP's *Attributing Building Energy Code Savings to Energy Efficiency Programs*.[2] Within the multi-family sector, we also suggested support a "one stop" energy efficiency retrofit program such as the one operated by ACTION-Housing in Southwest Pennsylvania; such a program may also satisfy the "comprehensive measure" requirement.[3]

We continue to support these recommendations, and note the Department of Energy's State and Local Energy Action Network (SEE Action) recommends that "Higher targets are feasible if utilities (or third-party program administrators) can… count savings from codes and standards to some degree as well as from their own programs."[4]

While believe that building energy code attribution, and other approaches, should be included within a listing of comprehensive programs suggested by the Commission, we also suggest that the Commission remain open to a process where an EDC can suggest its own comprehensive programs, so long as the benefits of that program are deemed cost effective within the context of the broader portfolio.

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[2] Northeast Energy Efficiency Partnerships (et.al.) *Attributing Building Energy Savings to Energy Efficiency Programs.* (February 2013) Available at: http://www.neep.org/sites/default/files/resources/NEEP_IMT_IEE_Codes%20Attribution%20FINAL%20Report%2002_16_2013.pdf

[3] Northeast Energy Efficiency Partnerships. Increasing Energy Efficiency in Small Multi-family Properties in the Northeast: Recommendations for Policy Action. (April 2014) Available at: http://www.neep.org/sites/default/files/resources/NEEP%20Multifamily%20Report_April%202014.pdf

[4] Nadel, Steven (et.al.). Department of Energy State and Local Energy Solutions Center. *Setting Energy Savings Targets for Utilities.* (September 2011) Page 14. Available at: https://www4.eere.energy.gov/seeaction/sites/default/files/pdfs/ratepayer_efficiency_targets.pdf

Peak Demand Reduction Targets

In our previous comments, we suggested that the Commission consider options for peak demand reduction targets outside of Demand Response programs. We continue to support this line of reasoning. If the Commission's final Implementation Order includes a demand response portfolio requirement, then we recommend the Department of Energy's recently published *Framework for Evaluating the Cost Effectiveness of Demand Response* as a resource for interested parties.[5]

As for demand reduction options outside of Demand Response, we noted that some efficiency programs within the region go as far as providing specific incentives for peak demand reduction goals within a program portfolio.[6] While we recognize that the Commission has made clear their belief that "Act 129 provides the appropriate mechanism for EDCs to obtain revenue on its assets through just and reasonable rates," rather than incentives our decoupling,[7] we respectfully echo several other commenters,[8] and recommend regulatory adoption of performance incentives.

While we support incentives for EDCs who surpass their targets, we also offer a potential incentive measure which has not yet been broached by this Commission as a means of attaining Act 129's demand reduction goals. As an alternative to a complicated demand response framework based upon penalties, the Commission could instead offer performance incentives tied to quantifiable capacity reductions coincident to peak demand. Such reductions are in fact achievable and easily quantified: Duquesne Light notes that nearly half of its verified peak demand reductions during Phase I were the result of energy efficiency measures.[9] Such an incentive would send accurate market signals to utilities, which would in turn prioritize resources to achieve demand reduction goals, complying with the spirit and letter of Act 129.[10]

We make this recommendation because performance incentive policies have become a staple of the "just and reasonable rates" framework throughout the country. Indeed, the Department of Energy's SEE Action resources emphasize that "efficiency programs are most successful when the utility or third-party program operator has a financial incentive to

[5] Framework for Evaluating the Cost Effectiveness of Demand Response. *A National Forum on Demand Response: Results on What Remains to be Done to Achieve its Potential - Program Design and Implementation Working Group*. Case Studies Available at: http://energy.gov/oe/downloads/national-forum-demand-response-results-what-remains-be-done-achieve-its-potential-0

[6] Narragansett Electric Company, "Energy Efficiency Program Plan for 2015," November 2014, page 22, available at: http://www.ripuc.org/eventsactions/docket/4527-NGrid-2015-EEPP%2810-31-14%29.pdf

[7] Act 129 Phase III Tentative Implementation Order. Page 108.

[8] Keystone Energy Efficiency Comments on the Tentative Order. Page 21-23.

[9] Duquense Comments on Tentative Order, Page 3.

[10] 66 Pa. C.S. § 2806.1(d)

succeed,"[11] and further note that "targets and goals may be specified in various ways… including kilowatt (kW) of peak demand savings."[12]

As the Keystone Energy Efficiency Alliance notes in its comments, a performance incentive based upon a tiered approach with targets that encourage both long term and short term savings would discourage "cream-skimming" and align utility business interests with energy efficiency goals.[13] Following this suggested framework, we respectfully recommend that the commission consider performance incentive policies as the proven tool that they have become recognized as throughout the country.

Low-Income Targets and Direct Installed Low-Income Measures

In our previous comments, we commended the Commission's recommendation to establish a working group related to multi-family properties, a hard-to-reach market that at times overlaps with the low-income sector. We cited NEEP's recent report entitled *Increasing Energy Efficiency in Small Multifamily Properties in the Northeast: Recommendations for Policy Action* as a resource for working group participants.[14]

Within their comments, the Regional Housing Legal Service and Philadelphia Weatherization Collaborative suggest that the Commission "[I]nstruct the EDCs to use the Pennsylvania Housing Finance Agency's ("PHFA") online Inventory of Multifamily Housing and to refer to PHFA's Qualified Allocation Plan ("QAP") to identify measures that are in demand by developers of subsidized multifamily properties and to incorporate those measures into their programs."[15] We agree with this recommendation, and also suggest the National Renewable Energy Laboratory's Standard Work Specification Tool for Multi-family housing as a resource.[16]

We continue to support the Commission's recommendation to convene a multi-family working group, and echo Energy Efficiency for All's sentiment that the working group be established as soon as possible to ensure recommendations can be incorporated into draft program plans.[17] Early stakeholder engagement will be key to providing the most effective mechanisms to reach underserved low-income and multi-family markets. NEEP stands ready to serve as a resource, providing technical assistance to this working group.

[11] *Supra* at note 4, page 15.
[12] *id*. At page 1.
[13] Supra, at note 8
[14] *Supra*, at note 3.
[15] RHLS and PWCC Comments on the Tentative Order, Page 3.
[16] National Renewable Energy Laboratory. Standard Work Specification Tool. Available at: https://sws.nrel.gov/
[17] Energy Efficiency for All Comments on the Tentative Order, Page 4.

Additional Comments:
In addition to suggesting subject areas for discussion, the Commission also noted that it would welcome discussion of additional details regarding the Tentative Implementation order. This suggestion has led NEEP to comment on other pertinent areas, including:

1. The Governmental/Educational/Nonprofit Carve-Out
2. Ensuring Compliance with Consumption and Peak Demand Reduction Requirements
3. Remaining Phase II Budget Allocations

The Governmental/Educational/Nonprofit Carve-Out
In our previous comments, we stated our support for the Commission's discretion to make modifications to the carve-out *if no cost-effective savings can be obtained from that sector*. We continue this support, but emphasize that such modifications should comply with the spirit and letter of the enabling legislation, and pursue cost-effective G/E/NP savings to the greatest extent possible.[18]

To comply with the prescribed governmental/educational/nonprofit targets, we believe that future program plans should incorporate financing measures that would expand the pool of potential savings. While we believe that private financing should supplement—not supplant—ratepayer funded energy efficiency programs, we support strategies that would utilize private finance to extend program reach. For example, the Sustainable Energy Fund of Central Eastern Pennsylvania stresses the importance of third-party on bill repayment as a method of expanding measures that can be implemented within the 2 percent cap on retail sales.[19]

Indeed, the DOE SEE Action Network recommends on-bill financing as a way to expand ratepayer funded energy efficiency programs.[20] Some utilities in the region—including Vermont's Green Mountain Power—offer an on-bill financing mechanism directed exclusively at the government sector.[21] Such a mechanism could be established in Pennsylvania utilizing Phase II's unspent budgets as a credit enhancement, or as initial funding for a revolving loan fund that's administered on-bill. This would provide greater benefits to ratepayers than would a simple refund and allow utilities to leverage greater savings from the Phase III

[18] 66 Pa. C.S. § 2806.1(b)(1)(i)(b). Stating: "A minimum of 10% of the required reductions in consumption…shall be obtained from units of Federal, State and local government, including municipalities, school districts, institutions of higher education and nonprofit entities."
[19] Sustainable Energy Fund of Central and Eastern Pennsylvania Comments on Tentative Order, Page 4.
[20] State and Local Energy Efficiency Action Network. (2014). Financing Energy Improvements on Utility Bills: Market Updates and Key Program Design Considerations for Policymakers and Administrators. Prepared by: Mark Zimring, Greg Leventis, Merrian Borgeson, Peter Thompson, Ian Hoffman and Charles Goldman of Lawrence Berkeley National Laboratory. Page 10. Available at: https://www4.eere.energy.gov/seeaction/system/files/documents/onbill_financing.pdf
[21] Green Mountain Power. *Community Energy & Efficiency Development Fund: 2015 Annual Plan*. (November 2014) Available at: http://www.greenmountainpower.com/upload/photos/371CEED_2015_Annual_Plan.pdf

program budgets, offering potential savings closer to the legislatively directed 10 percent target.

Ensuring Compliance with Consumption and Peak Demand Reduction Requirements
In our previous comments, we expressed support for incremental annual goals that must be demonstrated within the annual plans. Further expounding on this issue, we commend the Commission for adopting annual incremental accounting goals for Act 129's Phase III. There is some debate amongst the commenting parties regarding whether savings should be calculated on a cumulative or annual incremental basis. Like several other parties, NEEP is concerned that maintaining a cumulative annual accounting approach in Phase III will lead to less consumer benefit and energy savings than otherwise would be delivered.

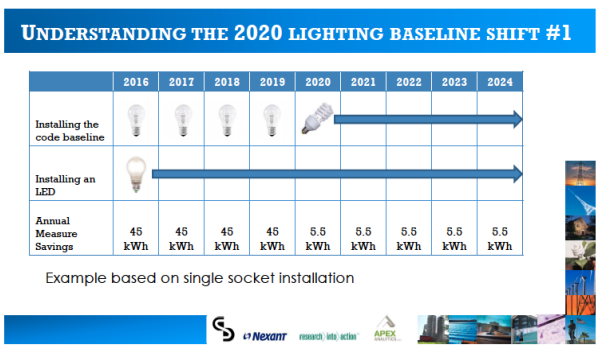
Incremental accounting is already contemplated for lighting in Pennsylvania. In the potential study, SWE emphasizes the application of the incremental annual approach in this context by noting the following:

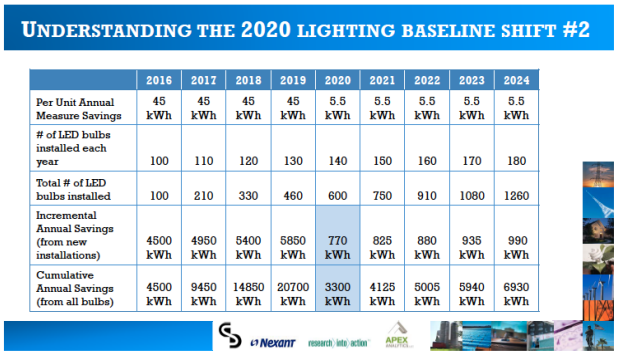
> *Screw-in LED bulbs were assumed to replace the current federal code baseline according to the EISA 2007. For the initial four years of the analysis (June 2016 through May 2020), LED bulb savings are calculated relative to a halogen bulb. For the final six years of the analysis, the SWE Team assumes the CFL bulb becomes the code baseline, and LED savings are calculated against the CFL bulb.*[22]

For lighting, too, a cumulative annual approach would dramatically reduce the savings attributed to these programs. A cumulative annual approach would also significantly increase the acquisition costs of these programs, since the vast majority of benefits delivered would not count towards the compliance goal.

In order to avoid this result, the SWE has proposed annual incremental accounting for lighting. The slides below presented by the Statewide Evaluation Team on April 8, 2015 demonstrate that the impact that accounting treatment has on the attribution of savings from lighting programs would be dramatic.[23] If a cumulative annual approach were applied, 85 percent of the savings would be lost before the end of Phase III due to the change in baseline standards, resulting in only 3,300 kWh of compliance benefit. However, since the EDCs are given credit for the sum of the incremental annual savings in each year[24], 21,470 kWh of savings would be attributed towards the Phase III goal for the same exact program design.

[22] Energy Efficiency Potential Study for Pennsylvania, p.15
[23] Presentation of Findings, SWE Energy Efficiency Potential Report, 8 April 2015, Slides 15-16
[24] Slide 4 of SWE's Presentation of Findings states "Program potential estimates based on sum of incremental annual savings"





In the original potential study, another example was demonstrated in Table 1-4 (reproduced below) for an energy efficiency program offering rebates for the purchase of high-efficiency televisions that generate 100 kWh in savings a year with an assumed useful life of four years.[25]

Table 1-4: Incremental Annual vs. Cumulative Annual Savings Example

Television Example	Year 1	Year 2	Year 3	Year 4	Year 5
Incremental Annual	100 kWh	100 kWh	100 kWh	100 kWh	100 kWh
Sum of Incremental Annual	100 kWh	200 kWh	300 kWh	400 kWh	500 kWh
Cumulative Annual	100 kWh	200 kWh	300 kWh	400 kWh	400 kWh

Clearly, the SWE believes that for lighting and high-efficiency televisions, incremental annual accounting is consistent with public policy and administrable under Act 129. We would suggest similar treatment for other shorter measure life programs, such as behavioral efficiency programs, which the SWE's market potential study identified as the third largest source of residential energy savings. We note that, according to a recent report by the U.S. Department of Energy, behavioral programs carry great potential for providing peak hour energy savings.[26]

An incremental annual approach allows EDCs to accumulate savings towards their goal as those savings are delivered. It also properly aligns incentives, because it would remove the incentive to turn on and turn off shorter measure life programs, and give EDCs the flexibility to run such programs throughout the Phase and receive credit. As a result, EDCs would be more likely to develop balanced portfolios with a mix of shorter and longer measure life

[25] Energy Efficiency Potential Study for Pennsylvania, p.16

[26] State and Local Energy Efficiency Action Network. (2014). Insights from Smart Meters: The Potential for Peak-Hour Savings from Behavior-Based Programs. Prepared by: Todd, A., M. Perry, B. Smith, M. Sullivan, P. Cappers, and C. Goldman of Lawrence Berkeley National Laboratory. Available at: https://www4.eere.energy.gov/seeaction/system/files/documents/smart_meters.pdf

programs so that customers are receiving a balance of short and long term benefits. At the same time, a move to an annual incremental approach would not have any impact on longer-lived measures as EDCs would continue to invest in them.

The sample residential portfolio in **Appendix A (attached)** illustrates how the different accounting approaches impact different kinds of measures. In a cumulative structure, for example, the LED Lighting Program, the Behavioral Home Energy Report Program, and the ENERGY STAR Monitors Program, are all adversely affected due to their shorter useful lives, while an incremental structure more fairly credits the benefits that they deliver. The HVAC Central Air Conditioning Program and the Refrigerator Recycling Program, however, are treated equally in both approaches since their respective useful lives are greater than five years.

The Tentative Implementation Order proposed that, "For any measures installed whose useful life expires before the end of the phase, another measure must be installed or implemented during that phase which replenishes the savings from the expired measure."[27] If the Commission takes an incremental annual accounting approach, then the EDCs would receive credit for replenishing expired measures. If, however, a cumulative annual methodology is applied, then EDCs would not receive any compliance benefit from replenishing expired measures, therefore causing them to either delay shorter-lived measures so that they do not expire during Phase III or causing their acquisition costs to increase due to expenditure on measure replenishment that does not contribute towards their compliance goal.

If the Commission were not to adopt the recommendation to move to an incremental annual goal, NEEP would propose as an alternative that the Commission extend the same treatment applied to lighting to all measures with a life shorter than the compliance period. This alternative will ensure that EDCs are permitted to count the annual incremental savings from these programs towards their compliance goal and will remove the incentive for them to delay their deployment.

Remaining Phase II Budget Allocations

In our previous comments, we cited the benefits of investments in efficiency outlined in the SWE's potential study and recommend that the most cost-effective avenue for returning unspent Phase II allocation to ratepayers would be through continued investment in energy efficiency measures. Furthermore, Act 129 explicitly directs that EDCs submit "proposals to implement energy efficiency and conservation measures to achieve *or exceed* the required reductions in consumption."[28] Refunding unspent Phase II allocations to the ratepayers

[27] Tentative Implementation Order, Energy Efficiency and Conservation Program, Docket No. M 2014-2424864, Pennsylvania Public Utility Commission. 11 March 2015, p.43

[28] 66 Pa.C.S. § 2806.1(b)(1)(A)

through further implementation of energy efficiency measures would provide both the most cost-effective conduit for refund, as well as satisfy the intent of Act 129's enabling language.

Conclusion

NEEP commends the Commission for continuing to support energy efficiency and conservation programs within the Commonwealth of Pennsylvania by shepherding Act 129 into its third phase of implementation.

Please accept these comments in the spirit they are intended: to aid the Commission, and, ultimately, the people of Pennsylvania, in security a more affordable, reliable, cleaner and sustainable energy future.

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Appendix A

Sample Residential Portfolio:

1. LED Lighting Program
    a. 100 bulbs installed each year
    b. 45 kWh annual savings per bulb from 2016-2019, decreasing to 5.5 kWh in 2020 due to the rising baseline standard
    c. 15 year useful life

2. Behavioral Home Energy Report Program
    a. 100 report recipients per year
    b. 108.4 kWh annual savings per recipient[29]
    c. 1 year useful life[30]

3. Consumer Electronics Program, ENERGY STAR Monitors
    a. 100 ENERGY STAR Monitors installed each year
    b. 23.8 kWh annual savings per monitor
    c. 4 year useful life

4. HVAC Central Air Conditioning Program
    a. 100 ENERGY STAR Central Air Conditioners with proper sizing installed each year
    b. 205 kWh annual savings per air conditioner
    c. 14 year useful life

5. Refrigerator Recycling Program
    a. 100 refrigerators recycled with replacements each year
    b. 451.6 kWh annual savings per refrigerator recycled
    c. 7 year useful life

[29] True savings from behavioral programs are dependent upon a number of factors including average usage, housing stock, and program maturity, and are measured using randomized-controlled trial methodology. The 108.4 kWh figure was taken from the potential study for Indirect Feedback (Home Energy Reports) in homes with gas heating.
[30] A one-year useful life is stated for the Behavioral Home Energy Report to align with what is stated in the Potential Study. However, recent research regarding the persistence of behavioral savings from these programs suggests that these measures have a longer useful life. See report by Cadmus, "Long-Run Savings and Cost-Effectiveness of Home Energy Report Programs" http://www.cadmusgroup.com/papers-reports/long-run-savings-cost-effectiveness-home-energy-report-programs/

Sample Residential Portfolio	Year 1	Year 2	Year 3	Year 4	Year 5
1. LED Lighting Program					
Incremental Annual (kWh)	4,500	4,500	4,500	4,500	550
Sum of Incremental Annual (kWh)	4,500	9,000	13,500	18,000	18,550
Cumulative Annual (kWh)	4,500	9,000	13,500	18,000	2,750[31]
2. Behavioral Home Energy Report Program					
Incremental Annual (kWh)	10,840	10,840	10,840	10,840	10,840
Sum of Incremental Annual (kWh)	10,840	21,680	32,520	43,360	54,200
Cumulative Annual (kWh)	10,840	10,840	10,840	10,840	10,840[32]
3. Consumer Electronics Program, ENERGY STAR Monitors					
Incremental Annual (kWh)	2,380	2,380	2,380	2,380	2,380
Sum of Incremental Annual (kWh)	2,380	4,760	7,140	9,520	11,900
Cumulative Annual (kWh)	2,380	4,760	7,140	9,520	9,520[33]
4. HVAC Central Air Conditioning Program					
Incremental Annual (kWh)	20,500	20,500	20,500	20,500	20,500
Sum of Incremental Annual (kWh)	20,500	41,000	61,500	82,000	102,500
Cumulative Annual (kWh)	20,500	41,000	61,500	82,000	102,500[34]
5. Refrigerator Recycling Program					
Incremental Annual (kWh)	45,160	45,160	45,160	45,160	45,160
Sum of Incremental Annual (kWh)	45,160	90,320	135,480	180,640	225,800
Cumulative Annual (kWh)	45,160	90,320	135,480	180,640	225,800[35]

[31] Cumulative savings from the LED Lighting Program drop significantly in Year 5 due to the change in the EISA lighting standard, which impacts the accounting for all bulbs, including those installed prior to 2020.
[32] Cumulative savings from Behavioral Home Energy Report program remain at 10,840 regardless of the duration of the program due the application of the one-year useful life stated in the Potential Study.
[33] Cumulative savings from the Consumer Electronic Program, ENERGY STAR Monitors do not increase from Year 4 to Year 5 because the savings from Year 1 expire (due to its four-year useful life) and are replaced in Year 5.
[34] There is no difference in savings for the HVAC Central Air Conditioning Program under a cumulative annual approach or an annual incremental approach because the baseline standard does not change during Phase III and the useful life is greater than five years.
[35] There is no difference in savings for the Refrigerator Recycling Program because the baseline standard does not change and the useful life is greater than five years.

TOTAL SAVINGS TOWARDS GOAL					
Sum of Incremental Annual (kWh)	83,380	166,760	250,140	333,520	412,950
Cumulative Annual (kWh)	83,380	155,920	228,460	301,000	351,410