

VIA E-FILING
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Phase III Tentative Implementation Order - The Act 129 Phase III EE&C Program
Tentative Implementation Order. Docket No. M-2014-2424864.

Dear Secretary Chiavetta:

Enclosed for filing please find the comments of THE Pennsylvania State University.

Very truly yours,

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

The Act 129 Phase III EE&C Program : Docket No. M-2014-2424864
Tentative Implementation Order :

COMMENTS OF THE PENNSYLVANIA STATE
UNIVERSITY (PSU)

PUC Chairman Powelson’s stated, during the PUC’s April 23, 2015 Public Meeting that:
“I encourage stakeholders who plan to file comments on the Phase III EE&C Program Tentative Implementation Order to discuss how Pennsylvania EDCs can utilize CHP and the other distributed generation resources addressed in the study in their Phase III EE&C Plans” has led to the following comments.

Act 129 Phase I and Phase II were silent with respect to the permanent demand reduction and energy efficiency benefits of Combined Heat and Power (CHP) systems; however CHP systems were allowed under custom measures programs. This result of this approach is a few CHP systems being installed in the Commonwealth. PECO, under Phase II implemented a modest CHP defined incentive program which helped support the development of about 10 MW of installed capacity.

As a Professor of Architectural Engineering at Penn State University, I support the inclusion of comprehensive measures and propose further review of cost benefit analysis tests for such programs, and in particular, for programs like CHP, where electricity production is shifted from the electric grid to the customer side of the meter. Because the cost benefits are

distributed differently , evaluating the cost-effectiveness of CHP programs is more involved than the corresponding evaluation for facility energy efficiency programs.

Adopting CHP systems requires the customer to shoulder the capital and installation costs of the power generation and delivery systems, thus avoiding the need for grid based generation, transmission and distribution. This clearly means that these assets are avoided and are treated properly in the TRC test as avoided cost. Beyond that, CHP technology should trigger a different view of certain other Total Resource Cost elements:

* Effective life cycle: Act 129 Phase III uses a 15 year executive lifecycle. The Tentative Order states: “Act 129 defines a TRC test as “a standard test that is met if, over the effective life of each plan not to exceed 15 years, the net present value of the avoided monetary cost of supplying electricity is greater than the net present value of the monetary cost of energy efficiency conservation measures.” 66 Pa. C.S. § 2806.1(m).” This appears to be a statutory matter. However, it should be noted that while this may realistically work for energy efficiency measures it does not fit well with CHP systems that have useful lives of 20 to 30 years. *A 15 year effective lifecycle significantly undervalues the useful benefit of CHP systems.*

* Act 129 Phase III uses EDC’s weighted average cost of capital. “The discount rate for the Pennsylvania TRC Test is the EDC’s weighted average cost of capital. We do not propose to change this provision for Phase III.” This position is equitable when evaluating utility investments serving existing load. The key here is the utility is serving the load. When CHP is serving the load the customer is paying for the capital, not the utility. So the full cost of capital burden is on the customer and not the utility.

Therefore, an equitable approach would be to use the state's cost of borrowing for the discount rate which would shift the value stream from the capital expenditure site to operation savings and that is in the state's economic and environmental interests. .

Successful CHP programs have been implemented in California, Massachusetts, Connecticut, Maryland, New Jersey and New York. These state programs have clear commonalities:

- * Defined incentive for CHP usually a capital grant (\$/kW installed) and a performance based production payment for the initial 12 to 18 months (¢/kWh). The operating portion of the incentive is usually a “pay for performance” and which is tied to an annual system performance metric.

- * A cap on the incentive usually based on no more that 30 – 40% of the installed cost.

- * An overall CHP system efficiency requirement of 60% (higher heating value) generally measured in terms of:

$$\frac{\textit{(annual power generated + annual useful heat recovered)}}{\textit{(annual fuel used)}}$$

- * Consistent, multi-year, dedicated annual support budget.

The successes of these six state programs juxtaposed to many other attempted approaches that have failed (including custom measures programs) provides a clear signal that these elements work and should be considered in Pennsylvania.

Finally the “Pennsylvania Distributed Generation Potential Study Report” could be improved to show more baseline economic potential is available for CHP by updating a few underlying assumptions that generated the current results.

CONCLUSION

As a PSU Professor specializing in distributed energy and facility energy efficiency I appreciate this opportunity to submit comments and offer suggestions to the

Commission as it finalizes The Act 129 Phase III EE&C Program Implementation Order.

Respectfully submitted,

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