May 31, 2017

Gladys M. Brown, Chairman
Pennsylvania Public Utility Commission
400 North Street
Keystone Bldg.
Harrisburg, PA 17120

Re: In the Matter of the *En Banc* Hearing on Alternative Ratemaking Methodologies; PUC Docket Number: M-2015-2518883

Dear Ms. Brown,

The Alliance for Industrial Efficiency (the "Alliance") appreciates the opportunity to submit comments in response to Docket No. M-2015-2518883 on alternative rate methodologies. The Alliance is a diverse coalition that includes representatives from the business, environmental, labor and contractor communities, including over 600 electrical, mechanical, and sheet metal contractors in Pennsylvania alone. We are committed to enhancing manufacturing competitiveness and reducing emissions through industrial energy efficiency, particularly through the use of clean and efficient power generating systems such as combined heat and power (CHP) and waste heat to power (WHP).

We greatly appreciate the effort of the Public Utility Commission (PUC) to seek information from stakeholders on the efficacy and appropriateness of alternatives to traditional ratemaking principles for public utilities. We are specifically writing about best practices in standby rate design. As elaborated below, standby tariffs can present a barrier to CHP deployment by increasing costs for CHP hosts, making it more difficult for projects to pencil out. We support the concept of standardization of certain aspects of standby service rates, as is presented in the Model Standby Service Template in Appendix A. A model tariff can help ensure transparent, reasonable rates across utilities, which would help realize the substantial potential of CHP and WHP in Pennsylvania.

About CHP in Pennsylvania

By generating both heat (thermal energy) and electricity from a single fuel source, CHP dramatically increases overall fuel efficiency – allowing utilities and host companies to effectively "get more with less." CHP more than doubles the fuel efficiency of a conventional plant, using more than 70 percent of fuel inputs. WHP systems recover waste heat and use it to generate electricity with no additional fuel and no incremental emissions. As a consequence,

CHP and WHP can produce electricity while lowering costs for both host companies and all Pennsylvania ratepayers.

In Pennsylvania, there is a substantial opportunity to implement CHP. Currently, the state has 153 CHP sites, generating 2,948 megawatts (MW) of clean and efficient power.[1] The potential is far greater. The Department of Energy estimates the state has 7,759 MW of remaining CHP and WHP technical potential capacity (identified at 12,708 sites), with 3,620 MW of remaining onsite technical potential in the industrial sector alone.[2]

A 2016 report from the Alliance for Industrial Efficiency found that if an economically viable portion of the state's CHP and WHP was deployed,[3] Pennsylvania industrial sector customers would save over $3.2 billion in cumulative electricity costs from 2016 to 2030.[4] These cost savings demonstrate the importance of these technologies to increasing manufacturing competitiveness.

Pennsylvania is particularly well-positioned for CHP growth because of its strong industrial base and significant remaining technical potential. Manufacturing accounts for 12 percent ($77.4 billion in 2013) of the total gross state product and employs over 9.5 percent of the workforce.[5] Pennsylvania's industrial sector consumed 35.8 percent of the total energy used statewide in 2013 (or 1,415 trillion British thermal units).[6] The size of the state's manufacturing sector and the significant technical potential for CHP indicates that Pennsylvania has a tremendous opportunity for additional CHP implementation, which can be encouraged by removing barriers such as arbitrary, excessive, and opaque standby rates.

We commend the PUC for its supportive efforts in encouraging deployment of CHP in the state. In 2016, the PUC proposed a Policy Statement that seeks to increase CHP technology development among Pennsylvania's regulated electric and natural gas distribution companies. As Commissioner Powelson has explained, "In addition to improving manufacturing competitiveness and reducing greenhouse gas emissions, CHP benefits businesses by reducing energy costs and enhancing reliability for the user." For these reasons, we are very supportive of the PUC's efforts to increase CHP deployment. Modifying standby rates is a logical next step to help the PUC achieve its goals.

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[1] U.S. DOE Combined Heat and Power Installation Database, (https://doe.icfwebservices.com/chpdb/state/PA).
[2] U.S. Department of Energy, Mar. 2016, "Combined Heat and Power (CHP) Technical Potential in the United States" (http://energy.gov/sites/prod/files/2016/03/f30/CHP%20Technical%20Potential%20Study%203-18-2016%20Final.pd).
[3] Percentage of Pennsylvania's technical potential for CHP with less than 10-year payback period.
[4] The Alliance for Industrial Efficiency, Sep. 2016, "State Ranking of Potential Carbon Dioxide Emission Reductions through Industrial Energy Efficiency" (http://alliance4industrialefficiency.org/wp-content/uploads/2016/09/FINAL-AIE-State-Industrial-Efficiency-Ranking-Report_9_15_16.pdf). Report considers potential for CHP alongside other modest industrial efficiency improvements. Citation here refers to unpublished data reflecting CHP and WHP deployment alone.
[5] National Association of Manufacturers, Feb. 2015, "Pennsylvania Manufacturing Facts," (http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/2014-State-Manufacturing-Data/Manufacturing-Facts--Pennsylvania/).
[6] U.S. Energy Information Administration, "Pennsylvania: State Profile and Energy Estimates," December 2015 (https://www.eia.gov/state/?sid=PA#tabs-2).

Impact of Standby Rates on CHP

In a recent analysis of the utilities' tariffs, 5 Lakes Energy ("5 Lakes") compared the impact of PPL and PECO's existing standby service tariffs on a hypothetical customer with an onsite CHP system. This analysis found that the two utilities adopted significantly different approaches for assessing standby tariffs. As a result, the charges imposed on the same customer receiving the same level of standby service in the different utility territories varied substantially. For example, a company with a 2 MW CHP system with *no outages* would be required to pay standby fees ranging from roughly $5,200 to over $11,500 each month – dependent upon whether the system was located in PPL rather than PECO's service territory.[7] (See Appendix B for 5 Lakes' detailed analysis).

Both the high potential cost of these tariffs and the risk and uncertainty resulting from the wide variation between utilities' rates discourages companies from investing in CHP and WHP, thus putting Pennsylvania manufacturers at a competitive disadvantage. As a result, Pennsylvania manufacturers are less likely to enjoy CHP's economic and reliability benefits. Fair and equitable standby rates also create a business opportunity for CHP developers, who are more likely to build projects in states without excessive standby rates.

Recommendations for Standby Rates in Pennsylvania

We urge the PUC to work with utilities in the state so that they adopt fair and transparent standby tariffs, which allow utilities to recover costs and encourage reductions in peak load. One way to advance this goal is to adopt the Model Standby Service Template presented in Appendix A. This model tariff was originally developed by the Midwest Cogeneration Association in a recent tariff proceeding in Minnesota. It provides a framework for designing and assessing utility standby tariffs and is based on the following best practice principles:

- Tariffs should incorporate "time of use" charges or a mix of "time of use" charges and fixed charges as a reasonable proxy for "time of use" charges;
- Where fixed charges are employed, they should be based on the CHP system's actual forced outage rate (FOR) or a good approximation of that rate (e.g. equipment class outage rate);
- The tariff should incorporate cost-based price differentials for peak/off-peak demand, to encourage system hosts to schedule outages for off-peak periods; and
- Tariffs should include additional reasonable price differentials to encourage scheduled maintenance which reduces unscheduled outages.

[7] Analysis performed by 5 Lakes Energy LLC., 2017, Pennsylvania Standby Rate Tariff Scenarios.

Utilities can encourage scheduled CHP system maintenance at off-peak times by offering a price reduction or credit for scheduled maintenance. CHP hosts should be encouraged to coordinate with their utilities to determine the best times for scheduled maintenance. The PUC may also consider requiring coordination, with the goal of shifting maintenance to shoulder months and/or off-peak periods. By encouraging routine scheduled maintenance, CHP systems will be less likely to experience unexpected outages.

We believe that such a model tariff would help Pennsylvania utilities achieve fair rates, accurate cost recovery, and reductions in peak load. We recommend the PUC adopt a policy statement that includes such a model tariff. Further, standby tariffs should be readily understandable by customers, the public and regulators. To aid in such transparency, we recommend the PUC require each utility to include in their Standby Tariff a standardized, brief summary of charges. We recommend that the PUC initiate a rulemaking to address standby rates specifically. We propose that prior to this rulemaking, the PUC holds a workshop or other venue that would create an open dialogue with stakeholders to address the need and scope of a proceeding on standby rates.

Conclusion

For all of the reasons stated above, the Alliance urges the PUC to ensure standby rates are fair and reasonable, thus encouraging more CHP and WHP deployment in the state. We urge the Commission to review each of Pennsylvania utility's standby tariffs to ensure equitable revenue allocation and rates which are correlated to cost of service. These rates should be transparent and designed to send a clear price signal for the most efficient interface between utility and CHP and WHP resources. Although the preliminary analysis of utility tariffs included in Appendix B is limited to only two Pennsylvania utilities, it demonstrates the inconsistency and uncertainty that CHP hosts face across the state. We believe that the recommendations contained herein could help encourage additional deployment by ensuring that standby rates for all Pennsylvania utilities are fair and transparent. Adopting this approach will keep electricity costs lower for all consumers and help cut electricity and heat costs for Pennsylvania manufacturers, making them more competitive.

Thank you for your consideration.

Sincerely,

Jennifer Kefer
Executive Director
Alliance for Industrial Efficiency

Appendix A: Model Standby Service Tariff Template[8]

Customer Charge	Consistent with, but do not duplicate, full-time user tariff charge AND Charge or credit to reflect greater or lesser administrative costs associated with partial use customer.
Reservation Fee	Zero and recover in the demand charge OR Fixed fee to recover utility's embedded costs for capacity, transmission, and distribution based on the forced outage rate of the last 12-month usage period or, in the first year of operation, best performing systems in the technology class.
Demand Charge	**<u>Scheduled Outage</u>** Zero OR Variable demand charge proportionate to hours of planned usage and reflecting utility's cost differential due to planning at times that impose zero or low cost to utility. AND Variable demand charge for off-peak usage to reflect utility cost differential during off-peak hours. **<u>Unscheduled Outage</u>** If no Reservation Fee, variable demand charge designed to recover proportion of utility's embedded costs for capacity, transmission, and distribution based on partial-use customer's hours of unscheduled use. OR If a fixed Reservation Fee is also charged, variable demand charge designed to recover utility's embedded costs for capacity, transmission, and distribution based on partial use customer's proportionate use about Forced Outage Rate assumed in Reservation Fee AND Variable demand charge for off-peak usage to reflect utility's cost differential during off-peak hours.
Energy Charge	If no Reservation Fee and/or Demand Charge, recover proportion of utility's embedded costs for capacity, transmission, and distribution in energy charges based on partial-use customer's hours of use. Pricing should reflect utility's cost differential for schedule usage and off-peak usage. OR If embedded capacity, transmission, and distribution costs are recovered in Reservation Fee and/or Demand Charge, pricing should reflect utility's energy cost only. AND Pricing should reflect peak and off-peak energy prices or real time energy prices.
Transparency	Standby tariffs should be simple and understandable, include all information necessary to calculate total standby charges and the components of standby tariffs imposed on a customer, and follow a uniform format established by the Public Utilities Commission to allow companies across utility tariffs by all parties and stakeholders.

[8] This model tariff was originally developed by the Midwest Cogeneration Association (2017).

Appendix B: 5 Lakes Energy Standby Rate Analysis

Introduction

This appendix contains the preliminary standby rate analysis that 5 Lakes Energy conducted for two Pennsylvania utilities: PECO Energy Company and PPL Electric. Table 1 shows the monthly charges to a hypothetical 2 MW CHP system in three scenarios: no outage, a scheduled outage, and an unscheduled outage.[9] Note that a customer would be charged the same amount for a scheduled or an unscheduled outage.

Table 1. Comparison of Standby Rates for a 2 MW CHP System Across Different Scenarios

Scenario	PECO Energy Company	PPL Electric
No Outage	$11,518.57	$5,263.80
Scheduled Outage	$11,518.57	$5,263.80
Unscheduled Outage	$11,518.57	$5,263.80

PECO Energy Company

For the following calculations, we assumed a Rate HT - High Tension Power customer with generation equal to 2,000 kW based on its nameplate capacity rating ("CRR Level") and a contract maximum limit of 5,000 kW. Capacity Reservation bills are estimated with reference to the company's Pilot Capacity Reservation Rider (CRR) and do not include estimated energy charges.

Summary:
No Outage = $11,518.57
Scheduled Outage = $11,518.57
Unscheduled Outage = $11,518.57

No Outage, Scheduled Outage, Unscheduled Outage

- There is a monthly minimum demand charge based on 60% of the CRR level plus 40% of the supplemental contract level.

.60 * 2000 kW = 1200 Kw
.40 * 3000 kW = 1200 kW
1200 + 1200 = 2400 kW

[9] This analysis does not take into account energy charges.

- The variable distribution charge rate on the HT rate schedule is:

$4.67/kW of demand

- Therefore, the reservation fee is:

2400 * 4.67 = 11,208

- There is also a fixed distribution charge of $310.57

Total Standby Bill (not including energy charges) = **$11,518.57**

PPL Electric

For the following calculations, we assumed a General Service customer electing service at 12,470 volts and reserving 2,000 kW in backup (unscheduled) standby capacity. We assume a total load of 5,000 kW (2,000 kW served by a CHP system and 3,000 kW in supplemental service). Standby bills are estimated with reference to the company's Rule 6A – Standby Service for Qualifying Facilities and do not include estimated energy charges.

Summary:
No Outage = $5263.80
Scheduled Outage = $5263.80
Unscheduled Outage = $5263.80

No Outage

Reservation Fee

- There is a monthly reservation fee in the amount of the Backup Capacity Charge multiplied by the standby capacity reserved
- The Backup Capacity Charge for service at 12,470 volts is $2.547/kW

2.547 * 2000 = 5094

Fixed Distribution Charge

- There is also a fixed distribution charge of $169.80
- Therefore, the monthly standby bill in a "no outage" scenario would be $5,094.00.
- Total "No Outage" Standby Bill = $5263.80

Scheduled Outage

- We assume a scheduled/maintenance outage in the month of April.

Reservation Fee

- There is a monthly reservation fee in the amount of the Backup Capacity Charge multiplied by the standby capacity reserved
- The Backup Capacity Charge for service at 12,470 volts is $2.547/kW

2.547 * 2000 = 5094

Fixed Distribution Charge

- There is also a fixed distribution charge of $169.80

Demand/Distribution Charges

- When an outage is scheduled/maintenance, the distribution charge rate is 0.00/kWh
- Therefore, there are no additional demand/distribution charges when an outage is scheduled ahead of time
- The minimum bill is the greater of the reservation fee or actual charges (there does not appear to be doubling up).
- Therefore, we default to the reservation fee as calculated above in the “no outage” scenario.
- The total standby bill, not including energy charges, transmission service or generation supply charges, is estimated to be: $5263.80

Unscheduled Outage

- We assume an unscheduled/backup outage in the month of April.

Reservation Fee

- There is a monthly reservation fee in the amount of the Backup Capacity Charge multiplied by the standby capacity reserved
- The Backup Capacity Charge for service at 12,470 volts is $2.547/kW

2.547 * 2000 = 5094

Fixed Distribution Charge

- There is also a fixed distribution charge of $169.80

Demand/Distribution Charges

- When an outage is unscheduled/backup, the distribution charge rate is 2.547/kW (as used in calculating the reservation fee).

  2.547 * 2000 = 5094

- The minimum bill is the greater of the reservation fee or actual charges (there does not appear to be doubling up).
- The total standby bill, not including energy charges, transmission service or generation supply charges, is estimated to be: $5263.80