Comments of Advanced Energy Management Alliance for the Pennsylvania Public Utility Commission on the Tentative Order on the 2021 Total Resource Cost (TRC) Test

I. Background

Advanced Energy Management Alliance ("AEMA")[1] thanks then Pennsylvania Public Utility Commissioners ("Commission") and Staff for the opportunity to submit these comments. AEMA is a trade association under Section 501(c)(6) of the Federal tax code whose members include national distributed energy resource ("DER"), demand response ("DR"), and advanced energy management service and technology providers, as well as some of the nation's largest consumer resources, who support advanced energy management solutions due to the electricity cost savings those solutions provide to their businesses. This testimony represents the opinions of AEMA as an organization rather than those of any individual association members.

AEMA members have a significant presence in Pennsylvania, serving as many of the Conservation Service Providers to implement Act 129 programs. AEMA members are also Curtailment Service Providers in the PJM Load Management programs, contracting with many of the approximately 3,900 Pennsylvania businesses, local governments, and institutions participating in the PJM emergency demand response programs, totaling approximately 1,700 MW of flexible grid resources.[2] As we discuss below, many customers in Act 129 retail programs also provide separate wholesale grid services to PJM.

II. Executive Summary

Advanced Energy Management Alliance ("AEMA") member companies have participated as Conservation Service Providers ("CSPs") since Phase I of Act 129 and continue to participate now in Phase III. AEMA recognizes that Act 129, including its Demand Response ("DR") program, is a model for other states. We support a Phase IV. At this juncture, the Pennsylvania Public Utility Commission has requested input on the proposed cost-effectiveness

[1] For additional information, see AEMA website: http://aem-alliance.org

[2] PJM Demand Side Response Operations, *2019 Demand Response Operations Market Activity Report: April 2019*, p. 3, (April 10, 2019), https://www.pjm.com/-/media/markets-ops/dsr/2019-demand-response-activity-

[2] PJM Demand Side Response Operations, *2019 Demand Response Operations Market Activity Report: April 2019*, p. 3, (April 10, 2019), https://www.pjm.com/-/media/markets-ops/dsr/2019-demand-response-activity-report.ashx?la=en

methodology for DR. Our comments are mostly limited to the Demand Response program and the related Total Resource Cost ("TRC") Test elements.

The Tentative Order[3] discusses options of participation via PJM Peak Shaving Adjustment ("PSA") or Price Responsive Demand ("PRD") programs. Since these programs assume specific performance requirements set by an external party (PJM), we discuss program-design related elements, focusing on PSA primarily. In this TRC, if Pennsylvania assumes compliance with external set guidelines, those guidelines could ultimately determine Pennsylvania's program rules. Thus, our comments here venture into program design aspects of a potential Phase IV.

In particular, we recommend that the Commission adopt a more nuanced view on applying Peak Shaving Adjustment mechanism. In particular, we recommend that the Commission consider residential PSA participation, but maintain the current structure of commercial and industrial customer participation outside of PSA and PRD. This approach will likely maximize total benefits to Pennsylvania ratepayers and avoids design pitfalls.

AEMA recommends additional updates to the demand response assumptions that will more accurately capture the value of this key resource. AEMA recommends that the Phase IV TRC and related DR Potential Studies recognize updates in demand response technologies and end-user curtailment opportunities that did not exist when Phase III was designed. To assess the cost-effectiveness of a potential Phase IV, Pennsylvania should review DR programs that target broad customer classes, as well as, specific technology applications.

III. Comments on Demand Response

In this section, we focus on the Tentative Order comments regarding Demand Response. The Commission articulates interest in hearing from stakeholders on key assumptions, including, "Stakeholders at this docket in response to this Tentative Order should comment on the proposed cost-effectiveness methodology for DR"[4] and "Stakeholders are encouraged to provide comments on the proposal to nominate Phase IV Act 129 DR program reductions as Peak

[3] Pennsylvania Public Utility Commission, Tentative Order on 2021 Total Resource Cost (TRC) Test, Docket M-2019-3006868, September 19, 2019.
[4] Tentative Order, page 44.

Shaving Adjustments as opposed to PRD or the Phase III design where Act 129 DR is not formally nominated to PJM."[5]

A. Peak Shaving Adjustment

The Commission does not provide evidence to support its recommendation for assuming all DR will participate in Peak Shaving Adjustment. The Tentative Order states, "The Commission's position is that Phase IV DR programs, if any, should be nominated to PJM as Peak Shaving Adjustments. This position is a departure from the Phase III DR design which did not formally nominate resources to PJM, but instead relied on reductions to have a downward influence on PJM's zonal peak load forecasts."[6] While there are benefits of PSA participation, it comes with significant limitations in program design; limits participation to only customers not involved in PJM markets directions; and involves serious logistical challenges. The Commission gives little indication if these drawbacks have been considered and analyzed.

Respectfully, AEMA stresses that the assumption that customers can participate in PSA is unlikely to be a realistic approach and encourages the Commission to adopt a TRC that is flexible in this area. The Commission should instead adopt a hybrid solution of assuming a portion of Demand Response customers are nominated to PJM, while a portion are not nominated to PJM. In particular, this solution would (1) account for timeline differences between PJM and Commission processes, and (2) enable maximum value from Pa demand response resources that participate in both Act 129 and PJM programs. AEMA acknowledges that the costs and benefits derived from participation in a program nominated to PJM will differ from those costs and benefits from programs not nominated to PJM.

Peak Shaving Adjustment is a complex tool. We recommend open and transparent discussion on the Pros/Cons of participation before assuming any demand response resource participation should conform to the performance obligations. PJM's Peak Shaving Adjustment was approved by FERC on June 29, 2019 in Docket ER19-511.[7] Almost a year of stakeholder discussions at PJM preceded development of this new mechanism and it was contested at FERC, including by AEMA and this Commission. Peak Shaving Adjustment is a complex tool and may be a valuable asset for states, particularly for those with summer-only residential DR programs.

---

[5] Tentative Order, page 46.
[6] Ibid, page 46.
[7] ER19-511 Order. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15282619

However, PJM stakeholders did not consider other types of DR beyond residential A/C cycling in developing Peak Shaving Adjustment. Peak Shaving Adjustment assumes frequent curtailment (in excess of the number of hours now required under Phase III) and also prohibits participation in other PJM programs (whereas Phase III does allow participation in PJM programs, as well). Many, if not all, existing Act 129 Phase III demand response customers in small and large Commercial and Industrial ("C&I") classes would not qualify for PSA.

These AEMA comments do not provide an in-depth review of PSA participation rules. Demand Side Analytics, LLC developed a 25-page whitepaper for regulators to help guide a state through using PJM Peak Shaving Adjustment, which we recommend reviewing for some of the nuts and bolts of PSA.[8]

In particular, it is important for the Commission to review administrative timelines, which may make it impossible for Act 129 Phase IV to enroll all of its program years in PSA. PSA requires 4 year out planning (during normal Base Residual Auction, "BRA", schedules). Even under the unusual timelines facing the PJM capacity market for upcoming three years, it is unlikely that the state will be able to submit all Delivery Years for participation. The Tentative Order notes, "no Pennsylvania EDC ["Electric Distribution Company"] nominated peak shaving in preparation for the 2022/2023 BRA".[9] It is likely that no EDC will have time to nominate peak shaving for 2023/2024 either.

Indeed, PJM capacity procurement and Act 129 planning processes are incongruent. PJM procures capacity usually three years ahead of a Delivery Year (in May for a Delivery Year starting in June three years later), whereas Act 129 holds 3-5 year phases and only finalizes plans in the months before a Program Year. Pennsylvania plans for a Final Implementation Order in summer 2020. Utility plans will come after that. On the other hand, Peak Shaving Adjustment Plans must be normally filed with PJM in September for the upcoming BRA in May. The PJM process requires PSA planners to identify individual customers expected to participate almost four years ahead of a program year. As a result, purely on the basis of timelines, there will be gaps in what years Pennsylvania can order utilities to submit demand response to PJM for accounting in the load forecast as PSA.

---

[8] Demand Side Analytics, LLC, *Summer Peak Shaving Adjustment Resources in PJM*, Prepared for CAPS, March 2019. Available: http://www.opc-dc.gov/images/pdf/SummerPeakShavingAdjustmentPrograms-PJM.pdf

[9] Tentative Order, page 46.

Even if the timeline issues could be resolved, C&I customers that could choose between PSA and other PJM programs, are unlikely to view PSA participation as beneficial, unless they are highly summer peaking and have no way to otherwise monetize their reduction capability. The PSA program would likely offer a fraction of the benefit of traditional PJM capacity program participation along with the substantially increased costs associated with much more frequent dispatch. We discuss the issues here in more depth below.

B. Participation by Customer Class

The potential benefits of Peak Shaving Adjustment participation for residential classes and for small and large commercial and industrial classes are different due to PJM's prohibition on participation in both Peak Shaving Adjustment and other PJM Programs.

AEMA agrees that nominating Phase IV Act 129 DR programs for residential customer classes as Peak Shaving Adjustments may be appropriate. AEMA, however, strongly disagrees with nominating Phase IV Act 129 DR programs for commercial and industrial classes as Peak Shaving Adjustment resources.

Peak Shaving Adjustment was designed for summer-only residential customers in mind. Peak Shaving Adjustment is not designed for C&I customers with year-round curtailment capability. Residential customers rarely participate in PJM programs, whereas commercial and industrial customers regularly do participate in PJM programs. The PJM Peak Shaving Adjustment program has a clear exclusion component: customers that participate in PJM's economic and emergency demand response programs cannot also participate in the PJM Peak Shaving Adjustment. Simply put, if C&I customers must choose between Act 129 DR programs and PJM programs, they are very likely to choose PJM programs. It is conceivable that Act 129 DR dollar incentives to participants could theoretically be significant enough such that customers would choose Act 129 DR over PJM, but the incentives would have to be much higher than they have been in Phase III. Currently, AEMA members see the incentives for Act 129 participation to be roughly ¼ the scale of incentives for PJM emergency demand response. The prohibition on dual participation is essentially a very high "cost" equivalent to the value of PJM emergency incentives that must be considered if C&I customers are considered for Peak Shaving Adjustment. In all likelihood, the costs will not exceed the benefits of using C&I customers in

Peak Shaving Adjustment. Eliminating this assumption will likely lead to a cost-beneficial program on its own, without Peak Shaving Adjustment largely due to the sizable transmission and distribution ("T&D") cost avoidance benefits.

With T&D costs increasing, much of the value of demand response in Pennsylvania (and in other regions) is now derived from avoided T&D costs. Tables 1 and 2 from the Tentative Order illustrate the significant distribution costs, such as, $$70.05/kw-year in Meted, $105.81/ kw-year in PECO and $121.21/kw-year in PPL. As a result, it is likely that T&D costs will drive the benefits for DR programs in a potential Phase IV and Pennsylvania should not develop assumptions for cost-effectiveness/ DR potential with capacity avoidance as the sole driving factor. Phase IV Act 129 should not require commercial and industrial customers to be in Peak Shaving Adjustment.

Given the foregoing, the Commission should update its assumptions on capacity value. Given the uncertainties and challenges with PSA, it may be reasonable to assume Peak Shaving Adjustment participation only for residential customers in the TRC Test. The Commission should update its capacity value for C&I curtailment without PSA based on input from PJM regarding the normal downward pressure on zonal obligations of curtailment at peak times. **In its Final Order, the Commission could direct utilities to submit any residential customers to PJM for PSA, when the timelines allow. The Commission should not require utilities to submit C&I customers for PSA.**

If the Commission chooses to go the route of PRD, AEMA also recommends that only residential customers be forced to participate, while C&I customers continue to stay separate and for the state to rely "on reductions to have a downward influence on PJM's zonal peak load forecasts" as they do today, with any necessary updates to quantify this impact.

IV. Updates to Demand Response Technologies

Act 129 Phase IV 2021 TRC Test and related DR Potential Studies should consider all customer classes and technologies that drive peak demand reduction. Act 129 has historically included programs that serve all customer classes. The Commission must consider equity issues in developing DR programs. As the grid becomes smarter, it is reasonable to assume Act 129's DR programs should also adapt and leverage the diverse span of controllable load across Pennsylvania, such as burgeoning smart thermostats, building automation, smart electric vehicle charging, and onsite customer energy storage load shifting.

C&I customers continue to be a huge driver of electricity consumption in Pennsylvania. As companies adopt smart technology in their plants and operations, more and more electricity demand is easily dispatchable and controllable. A Potential Phase IV can leverage this trend and consider the cost-effectiveness of programs that dispatch only a few times a summer (as is the case with Phase III), as well as consider enhanced dispatch requirements which may accrue even more benefits to the grid. States such as Massachusetts have adopted programs that offer two levels of participation to customers – daily dispatch and infrequent dispatch – to capture different willingness to curtail across different customer types.[10]

When Act 129 Phase III was approved in 2016, smart electric vehicle charging was not considered. Now, electric vehicles represent one of the largest sources of new electric demand on some circuits and are an easily controllable demand source. Since 80% of charging occurs at home when drivers return from work, coinciding with evening peak demand on the electric grid, many states have adopted smart electric vehicle charging programs that enable customers to time shift their consumption to overnight hours. These programs are generally low cost since the relative added cost of smart charging equipment is negligible, however, customers need to be targeted to participate or else this opportunity to charge at a "smart" time will be lost.

Many residential, commercial, and institutional customers in Pennsylvania are also now investing in onsite energy storage to provide bill management, resilience, and other benefits. Act 129 programs could easily tap into this burgeoning market and incentivize customers to charge/discharge at the right times to avoid system or local peaks.

V. Other Assumptions

In this section, we discuss several distinct issues related to Act 129. First, one design issue AEMA members have seen in Act 129 is that utilities are subject to targets within their specific territories, whereas the value of these DR resources can reach beyond individual utility boundaries. Some utilities may find it easier to find peak reduction customers than others. Actual participation rates can vary from forecasts due to changing economics. **One possible solution is to adopt a "Cap and Trade" style approach in which each utility must deliver a**

fair portion of the overall state obligation by either developing DR resources within their territory or buying those resources at a fixed market rate from anywhere within the state. We acknowledge the inherent challenges in such an approach, however, this sort of out of the box thinking may help drive additional overall savings to Pennsylvania ratepayers and could be a key input to DR Potential Studies.

Next, we note the Commission's history of analyzing Demand Reduction Induced Price Effects ("DRIPE") and the Commission's proposed decision to not include the downward influence on prices from reductions in energy demand as a benefit. Unfortunately, this pathway will undervalue energy efficiency and demand response activities by ignoring a key benefit. **The Commission's position on Price Suppression Effects[11] does not acknowledge recent analyses and modeling from other states, which may drive updates to its thinking in this area**. Many states include DRIPE impacts in their benefit-cost analyses. We highlight a recent Massachusetts analysis.[12]

Finally, the Commission proposes to not value societal benefits, including avoided carbon dioxide emissions and other environmental benefits. Given Pennsylvania Governor Wolf's announced plans to join the Regional Greenhouse Gas Initiative, the time is right to value avoided carbon emissions in the TRC.

VI. Conclusion

AEMA appreciates this opportunity to share input on the 2021 Total Resource Cost Test. In particularly, we have laid out an alternative path for capacity assumptions related to demand response programs. The new Peak Shaving Adjustment mechanism may be appropriate for residential customers, but likely not for commercial and industrial customers. T&D savings are likely to drive the benefits for C&I participation in a Potential Phase IV.

AEMA offers itself as a resource. Please do not hesitate to reach out if we can provide additional input. Thank you for this opportunity to submit comments on this important issue for Pennsylvania consumers and the economy.

---

[11] Tentative Order, page 25.

[12] Synapse Energy Economics, et al., *Avoided Energy Supply Components in New England: 2018 Report*, Amended October 24, 2018. Section 9 (pp 146-194). Available: https://www.synapse-energy.com/sites/default/files/AESC-2018-17-080-Oct-ReRelease.pdf

Respectfully submitted,

Katherine Hamilton
Executive Director
Advanced Energy Management Alliance
1701 Rhode Island Ave., NW
Washington, DC 20036
Katherine@aem-alliance.org
202-524-8832

October 31, 2019