BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of a Working Case to Explore	)	
Emerging Issues in Utility Regulation	)	**File No. EW-2017-0245**

Advanced Energy Management Alliance Comments on Distributed Energy Resources in Missouri

I. Background

Advanced Energy Management Alliance ("AEMA")[1] 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 filing represents the opinions of AEMA as an organization rather than those of any individual association members.

II. Introduction

AEMA thanks the Missouri Public Service Commission ("Commission") for exploring demand response in Missouri and for the opportunity to comment in this docket. Missouri has significant untapped DR potential, and realizing this potential would create three major value streams in Missouri:

[1] Reference AEMA website for additional information: http://aem-alliance.org

- **Lower customer bills**: It costs less to incent customers to reduce their consumption for a limited number of hours per year than it does to retain existing peaking generation or to construct new generation.
- **Economic development**: Instead of buying energy from out-of-state fuel producers, DR results in energy dollars flowing to the businesses, school districts, and institutions that participate in DR, and is reinvested in the local economy.
- **Increased reliability and resiliency**: Recent storms have demonstrated the need for a resilient electric grid and not relying exclusively on central station generation and long transmission lines. DR stabilized the Florida electric grid after Hurricane Irma, and could be deployed in Missouri in the case of a major weather event. DR can also facilitate the integration of renewable energy, as planned for in Ameren's most recent IRP.

Dozens of states from across the country, both in deregulated and regulated jurisdictions, have utilized DR and achieved these benefits. AEMA seeks to collaborate with key energy stakeholders in Missouri to help realize DR potential. We recognize that Missouri is a vertically integrated state, and our members wish to partner with utilities to implement programs that benefit utilities and their customers. As is detailed in our comments, other vertically integrated states, most notably Indiana, have pioneered models to stimulate DR participation that strengthens utility planning and operational processes. We hope that the Commission and Staff find our answers to be useful to their efforts, and we look forward to participation in upcoming technical conferences.

III. Responses to Questions

What are the current levels of distributed energy resources (energy efficiency, distributed generation, demand-response, etc.) in Missouri?

Based on a 2017 presentation from MISO, there appears to be minimal DR in Missouri[2]. By comparison, nearly every other zone within MISO has at least 400 MW of DR enrolled in the

[2] http://www.marc-conference.org/2017/MARC2017Presentations/SeymourMARC2017.pdf, page 4.

MISO market. Given that DR penetration typically reaches 5%-10% of system peak, Zone 5 could achieve DR levels of 500 to 1,000 MW in the next 10 years. We are aware that Ameren recently released an RFP for DR that reaches 97 MW in 2024, but this represents a fraction of the potential market, as highlighted in the potential study[3].

Should previous Commission policy decisions regarding demand-response aggregation be reconsidered?

Yes, in light of the absence of DR in Missouri, the Commission should reconsider previous decisions. However, it may not be necessary for the Commission to overturn the ban on customers participating either directly or through a 3rd party Aggregator of Retail Customers (ARC) in the wholesale market. As is detailed in our answer to the next question, AEMA recommends a path forward that enables Missouri customers to partner with ARCs while being enrolled in the wholesale market by utilities. This type of approach would allow Missouri to capitalize on the hundreds of millions of dollars that ARCs have invested in DR technology and market expertise, while ensuring that DR is well integrated into utility planning and operational processes. When the PSC issued their original ban, there were concerns regarding utilities not having visibility into these resources, and we have tried to address those concerns in these comments.

ARCs have fueled the considerable growth of DR across the country in both regulated and deregulated states, and should be included in efforts to grow DR in Missouri. The benefits of ARCs include but are not limited to the following:

- **Increasing customer participation**: Many customers assume that they do not have the flexibility to participate in DR programs. Through working with thousands of customers in both wholesale and state level DR programs, ARCs have gained expertise in helping customers discover and maximize flexibility, thereby increasing participation. ARCs have considerable experience with recruiting smaller industrial and commercial

[3] Volume 4 of Ameren DSM Potential Study https://www.illinois.gov/sites/ipa/Documents/AppendixB-4vol1-5AmerenPotentialStudy.pdf

customers who do not have the staff or the desire to participate in programs directly. In PJM, upwards of 90% of the customers that participate are less than 1 MW.

- **Utility visibility**: Historically, the Midwest region has had utility interruptible tariffs. While some of these tariff programs are more reliable and advanced than others, utilities often do not have real-time visibility into customer performance during grid emergencies. Aggregators have invested private capital in technology that provides utilities and grid operators the visibility they need when the grid is at its most fragile state.
- **Risk mitigation**: By aggregating customers into a large portfolio, ARCs are able to shield individual customers from the type of out of-pocket penalty risk that prevents many customers from participating. ARCs can build a cushion into their portfolio, so if a customer is unable to perform, the overall resource can still perform and deliver so that utilities and grid operators receive the performance they expected.
- **Flexibility**: ARCs can "play tetris" with customer capabilities, so if one customer can only reduce consumption for three hours but there is a six-hour event, an ARC could pair that customer's capability with another customer with limited duration capability.

AEMA appreciates that Missouri utilities may prefer to contract with a single entity or ARC, rather than having several ARCs competing in the state. AEMA is not opposed to a bilateral approach, as long as the bilateral appropriately captures the full potential of cost-effective DR in Missouri. Our collective preferred approach is the tariff model highlighted below.

Should a model state tariff be designed?

Yes, a model state tariff should be designed. Missouri can look to Indiana for guidance on how to develop such a tariff, as American Electric Power has developed a tariff[4] through its subsidiary Indiana & Michigan ("I&M") Power that has attracted robust participation at a small fraction of the cost of new generation. This innovative program recently won a "Program Pacesetters" award from the Peak Load Management Alliance.[5]

[4] https://www.indianamichiganpower.com/global/utilities/lib/docs/ratesandtariffs/Indiana/IM_IN_TB_16_09-27-2017.pdf

[5] http://www.peakload.org/?page=Award2017

Indiana is analogous to Missouri in that it is vertically integrated and has a ban on ARCs enrolling customers directly in the wholesale market. While I&M is located in PJM, the tariff could easily be modified for Missouri and MISO purposes. The I&M tariff contains the following features:

- ARCs that are qualified by I&M are allowed to sign up customers to participate in DR, but instead of the ARCs enrolling the customers directly with PJM, they must register the customer with I&M who subsequently enrolls those customers in the PJM DR program. This enables I&M to incorporate DR into their planning and operational processes, and to have visibility and dispatch control over the resources.

- By enrolling the customers in the PJM program, I&M receives capacity credit, and offsets the amount of capacity they need to procure from the wholesale market.

- I&M compensates ARCs at the higher of the average of the PJM capacity market clearing price over the last four years or 35% of Net CONE, which represents the assumed cost of building new generation. Therefore, I&M uses DR as a cost-effective alternative to retaining or constructing expensive generation. ARCs typically pass along a majority of the payments to end-use customers, boosting economic development in Indiana

This type of tariff, open to all customers over a certain size (e.g. 100 kw of peak demand), represents an effective means for stimulating cost-effective DR and DER while working within existing Missouri and MISO market constructs. AEMA has included the link to the I&M tariff and would be glad to provide suggested redlines to conform to MISO rules. The tariff could also serve as a foundation for a broader set of innovative services if so desired by the Commission, such as distribution-level services or additional wholesale market programs.

The Commission could work with stakeholders to develop an appropriate compensation level for DR, tied to the utility-specific or statewide avoided cost of capacity, such as some percentage of Net CONE. Not only does this provide a transparent investment signal for participants, it ensures that Missouri utilities can attract firm capacity at a clear discount to similar supply-side investments, while also hedging against future PRA volatility.

Under the Missouri Energy Efficiency Investment Act, utilities can earn incentives for meeting voluntary targets to reduce demand. AEMA recommends that the utilities earn incentives for MW enrolled under the tariff approach highlighted above, so they will be aligned with customer interests, and will not have their bottom lines negatively impacted by using DR instead of traditional generation.

Should changes be made to the Integrated Resource Planning (IRP) process to accommodate increased use of distributed energy resources?

AEMA would recommend the following principles for the IRP process:

- Utilities should consider the full useful life of DERs, rather than assuming the same 3-year cycle used for energy-efficiency programs, when valuing their benefits.
- Utilities should consider the full range of benefits available from DER projects (when comparing them to traditional supply-side investments. These benefits are captured in a 2015 RMI study on the "Economics of battery energy storage.[6]"
- Valuing DER capacity based on utilities' actual avoided costs will provide for an apples-to-apples comparison with other supply-side investments.

What information about distributed energy resources do the Regional Transmission Organizations need? What information do the utilities have? And what information are the utilities providing to the Regional Transmission Organizations?

As DER market penetration increases, information sharing between RTOs and utilities will be increasingly important for maintaining a reliable grid. However, any information sharing should not impede upon states' jurisdiction or impose undue burdens on DERs. Utilities and RTOs can

[6] https://www.rmi.org/wp-content/uploads/2017/03/RMI-TheEconomicsOfBatteryEnergyStorage-FullReport-FINAL.pdf

share information about the location, availability, resource characteristics, and retail/wholesale services of DERs as the need for insight and transparency grows.

One area where transparency can be improved today is the demonstrated ability of DERs to respond during an emergency if they receive capacity credit to do so. Utilities can ensure that any readiness testing they do with their DER resources is communicated to RTOs, and RTOs can ensure that they have sufficient processes in place to confirm a resource's ability to respond to shortage events on at least an annual basis. Allowing resources that do not provide reasonable deliverability assurances to RTOs to receive capacity credit socializes their underperformance risk across state borders and threatens customers throughout the entire market.

Is any new behind-the-meter technology or hardware needed to accommodate or facilitate the development of distributed energy resources?

Generally, states can look to independent aggregators to deliver the behind-the-meter technology and hardware necessary to deliver effective DER solutions to customers. However, states can take action to promote the development of DERs by deploying smart meters that empower customers to be more aware of and engaged with their energy usage. Given the increasing value of interval data, fueled by increases in the ability to analyze and model large volumes of data, smart meters that are capable of five-minute interval data likely strike the best balance of providing cost-effective data granularity for most customers.

Just as important as the technology and hardware, are the processes and policies to facilitate data access between utilities, customers, and 3rd parties, while protecting and ensuring each customer's right to data privacy. The Commission could encourage or direct utilities to adopt industry standards such as Green Button Connect[7] to provide bill data to customers and enable secure data sharing. This is important in order to maximize the value that customers can derive from AMI investments.

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[7] Green Button Connect is a widely adopted, industry-developed secure interface that standardizes and enables the ongoing exchange of energy usage data. http://www.greenbuttondata.org

It is also important to note that not all customers necessarily benefit from five-minute interval data, as they may simply not use enough electricity to warrant acting on the more granular insights that they provide. For smaller sites, such as those that have less than 500 kW of peak demand, hourly-interval data may be more appropriate and cost effective, while still accomplishing the goal of empowering customers to engage with their electricity usage.

Will any distribution system upgrades be required to accommodate or facilitate the development of distributed energy resources?

Certain upgrades may be necessary depending on the level of penetration and whether DERs are exporting energy back to the grid, instead of operating solely behind the meter. For DR, which does not result in grid exports, there should be no need for distribution upgrades.

In fact, the Commission and utilities should consider how DERs can defer or avoid the need to invest in distribution or transmission system upgrades. Non-wire alternatives (NWAs) can be more cost-effective than traditional network augmentation projects and can significantly de-risk investment decisions that rely on forecasts of uncertain load growth. DERs can also provide a wide range of benefits, such as reduced environmental impacts and improved voltage control, by combining DR, storage, and DG into holistic solutions, and these benefits should be fully valued and considered by utilities. Where NWAs provide more net benefits to customers than traditional network investments, utilities should be incentivized to invest in them without risking shareholders' repercussions.

What process should be developed to provide for resource accreditation, including consideration of capacity factors?

The primary goal of the resource accreditation process should be to ensure that resources are deliverable during emergencies and conform to all relevant market rules. In the context of a standard offer tariff, AEMA's view is that these processes should align with MISO in order to promote synergies and reduce complexity between the utility and wholesale programs. In instances where the Commission feels that MISO rules do not go far enough in ensuring continued resource deliverability during emergencies, they should enact their own standards in order to ensure their ratepayers receive the full benefits of the programs.

Are there any other issues related to distributed energy resources that should be brought to the Commission's attention?

The Commission should engage with the DER community to understand potential barriers at the MISO level that may inhibit the growth of DERs. Such barriers include the inability of DERs to aggregate across broad geographic areas and rules that may limit resources' value or reliability during system emergencies. It is crucial that MISO rules support states' policies and interests in a manner that supports regional efficiencies and reliability.

IV. Conclusion

Again, we thank the Commission for its interest in this topic and for considering comments from Advanced Energy Management Alliance. Feel free to contact me should you have any questions about this filing and please consider AEMA as your resource on DR and DER issues.

Respectfully Submitted,

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