

## State Regulatory Sector Response

June 2018 AC Hot Topic

Energy Supply Sufficiency

### **Executive Summary**

Though resource adequacy, the foundation of energy supply sufficiency, falls within the purview of state and local regulators, it is valuable for stakeholders to review and provide feedback on the processes and tools used by MISO to dispatch resources efficiently and reliably. Ongoing stakeholder discussions about the qualification and utilization of emergency resources will be important going forward, noting the importance of appropriate incentives, seasonal variation that could be captured, and recognition that retail tariffs may impact the ultimate use of LMRs.

More transparency is needed on planned generation and transmission outages to help stakeholders better understand the nature and drivers of these actions in looking at potential future changes in outage management practices. In addition, the future utilization of energy storage resources to support intermittent energy supply or provide other benefits will be determined and improved over time as more experience is gained. Increased visibility into storage resources located on the distribution system will be helpful to address potential operational concerns and provide certainty about unit commitment.

Finally, looking at the need for or possible changes to accommodate the future energy mix, MISO should focus on market mechanisms that properly account for the value resources provide to the grid. With demand forecasts continuing to trend lower and many grid modernization efforts taking place at the distribution level, communication about the activities throughout the electrical system will provide the best opportunity to identify the most basic solutions that can address multiple concerns most efficiently.

### **Introduction**

The Organization of MISO States<sup>1</sup> (“OMS”) appreciates the opportunity to discuss Energy Supply Sufficiency with the MISO Board of Directors and the stakeholder community. Throughout this discussion, the OMS encourages all parties to be reminded that unless actions to the contrary have been taken, state and local regulators hold jurisdiction over resource adequacy. Although this hot topic walks a fine line, in essence it is a focused discussion on resource adequacy.

The FERC-approved definition of resource adequacy is: “The ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses).”<sup>2</sup> Although resource adequacy is typically discussed within MISO as the ability to meet peak demand, FERC’s definition makes no such distinction. Similarly, state and local resource planning makes no such

---

<sup>1</sup> Montana and Manitoba did not participate in the approval of this document.

<sup>2</sup> Planning Resource Adequacy Assessment Reliability Standard, 134 FERC ¶ 61,212 (Mar. 2011).

distinction. State and local regulators make resource planning determinations such that supply and demand can be met in all time horizons, not just the peak hour.

The OMS recognizes MISO is responsible to dispatch the resources made available to it and encourages this discussion, which should remain focused on the processes and market tools MISO utilizes to dispatch supply and demand-side resources in the most efficient and reliable manner possible. Discussions between MISO and state and local regulators are critical to ensuring the appropriate capabilities to manage the system are in place.

MISO has done an appropriate job of laying the foundation for the Resource Availability and Need (RAN) discussion, and additional supporting information will be needed as the initiative progresses to ensure informed decision making. Furthermore, the OMS recommends stakeholders and MISO avoid over-interpreting single incidents. Each individual event should be thoroughly analyzed and understood before being used to demonstrate a need. If potential solutions are identified for each individual incident as part of this analysis, it will be easier to identify solutions that can address multiple issues at once.

**1. Emergency procedures: Nine percent of the generation capacity that LSEs committed towards the 2017 summer peak load forecast consisted of emergency-only resources that MISO could not utilize until reaching certain points in the MaxGen emergency procedure. Given the trends impacting energy supply that the region now faces, is the design of the procedures still appropriate, including the amount of capacity that is “walled off” for emergency use only and the thresholds for accessing it?**

Emergency procedure protocols should be discussed in the stakeholder process before full reconsideration begins. More importantly, the OMS suggests MISO and stakeholders investigate drivers that incentivize resources to register as Load Modifying Resources (LMRs), putting themselves behind the emergency-only wall, as opposed to other types of Demand Response (DR) resources that can be more readily utilized.<sup>3</sup> Addressing the issue of “walled off” resources should involve both of these solutions while also recognizing that state and local retail tariffs may dictate some quantity, momentarily unknown to MISO, of LMRs need to remain as emergency-only resources.

Several members of the OMS have been supportive of the IMM’s recommendation to re-organize the steps, actions, and categories of MISO’s emergency procedures to gain access to LMRs earlier in an event. This may be appropriate for only a subset of the resources currently registered as LMRs. It is possible that a new class of LMRs, placed earlier in the emergency procedures, that are capable of responding more quickly and frequently could be developed to address this concern.

MISO’s reliance on LMRs is not new, but the increased likelihood of their use by MISO operators is new. This review has unmasked the long-lived practice of resources registering as a resource type with the least-restrictive requirements while still qualifying as a capacity resource to meet a load serving entity’s (LSE’s) reserve requirement. The appropriate incentives (market

---

<sup>3</sup> See slide in the Appendix for a pictorial of the myriad of demand side resource participation options.

or regulatory) may not be in place today to reward DR that can be relied upon more often, and more investigation is needed to fully understand resource registration practices. In addition, MISO's current market rules only require that LMRs be available during the summer months, further complicating their utilization.

MISO should examine the potential use of a seasonal construct as a way to address many of the issues highlighted in the Hot Topic Introduction. Dating back to 2014, the OMS has supported examination of a seasonal construct. This approach would give operators better visibility into the availability and performance of all resource types throughout the year. The OMS response to the February 2015 AC Hot Topic<sup>4</sup> called out the need to better understand "demand side resource availability" as a means to better ensure winter resource adequacy. Any modifications to the emergency procedures to address access to demand-side resources (including LMRs) should be done as part of a holistic review of a seasonal construct. As MISO has shown in post-event analysis, there are demand-side resources that are willing to participate when needed.<sup>5</sup>

The retail tariffs utilized by some LMRs may place restrictions on the number of times and conditions under which the resources can be called upon to reduce load. For this reason, the existing LMR categorization should remain in place to prevent disruption of existing demand management under retail tariffs. The OMS has begun to compile information on the various tariffs that are in place for customers that are registered as an LMR to better understand the range of possibilities for these resources to be utilized under the existing retail tariffs. This effort will help stakeholders understand the state and local retail regulatory processes that will likely have to reconcile any changes to LMRs that increase frequency of use and this must be considered when addressing the timeline for potential changes.

**2. Outage management: Given the effect of planned and forced generation outages on the region's planning reserve margin requirement, which impacts the benefits received from being part of MISO's geographically expansive footprint, are additional considerations needed with regard to how we think about outage levels?**

Additional considerations are needed to address how planned and maintenance outages are configured throughout the planning year. The OMS supports increased transparency around planned outages of both generation and transmission. In many cases, supply-side solutions may not be the appropriate solution to the historically observed MaxGen events, especially when resource delivery is limited by transmission outages. The impact that transmission outages played in the MaxGen events should be fully understood to provide stakeholders with the appropriate information necessary to address the issue.

The stakeholder community is early in the process of fully understanding the nature of planned generator outages. Recently MISO and the IMM have shared, or planned to share, increasing amounts of information on "short-term planned outages." These outages can have the

---

<sup>4</sup> [http://misostates.org/images/stories/Filings/staff\\_comments/2015/Staff-CommentsToIMM-Filed17Mar15.pdf](http://misostates.org/images/stories/Filings/staff_comments/2015/Staff-CommentsToIMM-Filed17Mar15.pdf).

<sup>5</sup>

<https://cdn.misoenergy.org/20180208%20MSC%20Item%20008%20Update%20on%20January%20Weather%20and%20Winter%20Storm%20Inga122372.pdf>.

same impact as a forced outage in terms of system operations, but MISO has no way of knowing when they will occur or how to account for them in the future. The OMS recognizes it is a difficult task to separate out the different types of outages, so increased visibility, communication, and coordination may be the best end result in this area.

The recent trend of the increasing Planning Reserve Margin (PRM) percent is driven by more than increased forced outage rates. As MISO has indicated, one of the largest drivers for the increase has been decreases in forecasted peak demand. Also, it is important to note that an increase in the PRM percentage does not necessarily lead to an increase in the number of resources needed since a higher percentage of a lower peak number may still be less total MWs required. In addition, since the increase in forced outage rates is likely due to the increasing average age of the fleet, as resources retire, this trend will reverse itself. MISO should not pursue any solution if the trend is only temporary in nature.

**3. Energy storage: Now that FERC has issued an order to boost the participation of energy storage resources in ISO/RTO markets, what opportunities and/or challenges does your sector see for using storage to address the resource availability-related issues discussed above?**

The OMS is not yet convinced there is a resource availability issue related to intermittent resources considering the large strides MISO has made in forecast accuracy over the past decade. Although solar resources are new to the MISO footprint, it is likely the same trend of increasing forecast accuracy will occur with this resource type. In addition, MISO already has a ramp product and method for de-rating the capacity value of intermittent resources, which both help to ensure enough resources are available to meet demand. That said, more information is needed on the ability of the current reliability tools that MISO utilizes (i.e., Reliability Assessment Commitment (RAC) process) to ensure appropriate resources are available to determine if storage could assist in reducing otherwise not economic commitment of resources for reliability purposes.

Energy storage could help to alleviate resource adequacy concerns when made available to quickly respond to changes in net load. Storage resources could also be utilized as a demand response resource, helping to meet demand, possibly falling into the category of resources discussed in question 1.

The OMS has an interest in knowing/having visibility of the storage resources located on the distribution system, which may require additional coordination with electric distribution utilities to ensure their availability.<sup>6</sup> Storage resources on the distribution system could be helpful to balance intermittent resources that are also located on the distribution system, eliminating issues before they rise to the transmission level. This could lead to more efficient unit commitment at the MISO level by adding certainty to LSE loads.

---

<sup>6</sup> *Motion for Clarification of The Organization of MISO States*, Docket No. RM16-23, pg. 2-3, March 2018.

**4. Future energy supply concerns: How are the impacts on energy supply sufficiency changing currently and how might they change in the future as the generation portfolio continues to evolve?**

There are many changes occurring simultaneously within the generation portfolio. State and local regulators are mindful of these changes and consider them when making long-term resource planning decisions. The OMS will continue engaging and working with MISO to examine and develop appropriate market mechanisms, if necessary, to accommodate a changing generation mix in a way that properly values and compensates resources for the attributes they contribute to grid management and operations.

Supply sufficiency will also be impacted by the changing nature of loads. The demand side of the equation is just as important in determining what amount of supply is sufficient as the characteristics of said supply. If energy sales remain flat or enter into a longer-term decline, changes in load profiles will continue to have an impact on how MISO and its stakeholders consider what it means to have sufficient resources.

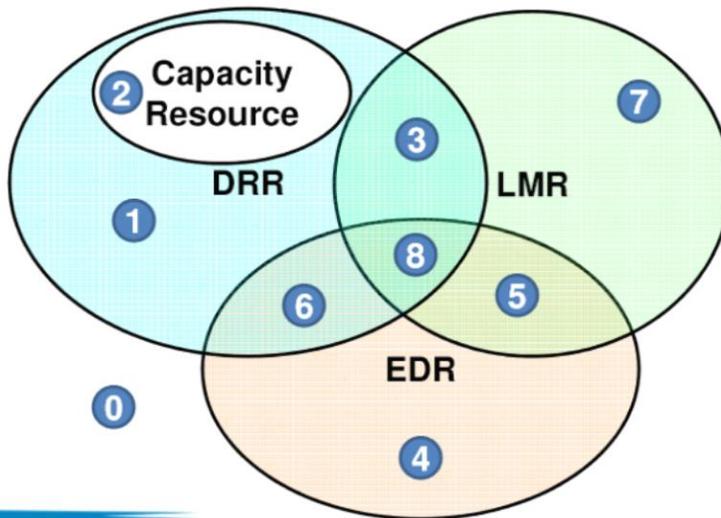
Future load patterns may largely be shaped by increasing quantities of distributed energy resources. As state and local regulators proceed with grid modernization efforts and distribution companies continue to invest in advanced grid technologies, including advanced management and monitoring systems, the impacts on the transmission system may be minimal. MISO and its stakeholders should be cognizant of providing multiple solutions for a single issue. Wherever possible, increased communication and coordination should lead to situations where a single solution is able to address multiple issues.

## Appendix

The figure below shows the many different ways that demand-side resources can be registered within the MISO markets. Currently the majority of LMRs are category 7 and therefore only available after an emergency declaration.

### Demand Resource Registration Options

As this figure shows, there are many options available for demand response registration. Note that not all of these configurations have been used by MISO Market Participants, but they are available if desired.



#	Comments/Notes
0	Not MISO Registered
1	There is no DRR "must offer" requirement here, since there are no capacity credits.
2	Common approach for DRR. Resource "must offer" in Energy & AS markets.
3	LMR receives capacity credits, and resource can optionally offer into the Energy & AS markets.
4	EDR Only. No capacity credits or "must offer" requirement.
5	LMR that optionally provides an EDR offer for emergency energy.
6	Similar to "1", but can optionally participate in emergencies
7	LMR only. Not involved in Energy and AS markets.
8	Similar to "5", but can optionally participate in Energy & AS markets.

