DIRECT LOSS OF LOAD CAPACITY ACCREDITATION: ALLOCATION OF CAPACITY OBLIGATIONS TO LOAD SERVING ENTITIES

MISO RESOURCE ADEQUACY SUBCOMMITTEE
OCTOBER 4, 2023

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on behalf of the
End-Use Customer Sector

Participating End-Use Customer Sector Members and Stakeholders

- Association of Businesses Advocating Tariff Equity (ABATE)
- Illinois Industrial Energy Consumers (IIEC)
- Louisiana Energy Users Group (LEUG)
- Texas Industrial Energy Consumers (TIEC)
- Coalition of MISO Transmission Customers (CMTC)
- Midwest Industrial Customers (MIC)
- NIPSCO Large Customer Group (NLCG)

- The members of these organizations are among the largest retail electric customers and employers within the MISO footprint
- Their focus at MISO is helping to ensure the provision of clean and reliable electric service at lowest reasonable cost

Purpose of this Presentation

- Briefly recap
  - MISO's Direct Loss of Load (LOL) Capacity Accreditation Proposal
  - Why MISO, under the Direct LOL proposal, is proposing to change the allocation to Load Serving Entities (LSEs) of the MISO Planning Reserve Margin Requirement (PRMR)
- Explain why careful consideration of the PRMR allocation issue is important
- Briefly recap MISO's August 2023 Straw Proposal for PRMR allocation
- Share our specific concerns and recommendations with respect to MISO's straw proposal

Why is MISO Proposing to Further Change its Capacity Accreditation …

Reminder of the problem statement and scope developed by MISO and stakeholders to guide this effort:

Problem Statement

Resource accreditation should reflect the availability of resources when they are most needed. Significant growth of variable, energy-limited resources in the MISO footprint, along with changing weather impacts and operational practices, are shifting risk profiles in highly dynamic ways with implications to Resource Adequacy and planning. MISO's existing accreditation methods for non-thermal resources require further evaluation to ensure that the accredited capacity value reflects the capability and availability of the resource during the periods of highest reliability risk.

Scope

Revisit the established accreditation practices for non-thermal resources with a priority focus on those with the greatest reliability impact in the near-term.

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MISO

Source: MISO Presentation "Market Redefinition: Accreditation Reform", RASC, March 1, 2023

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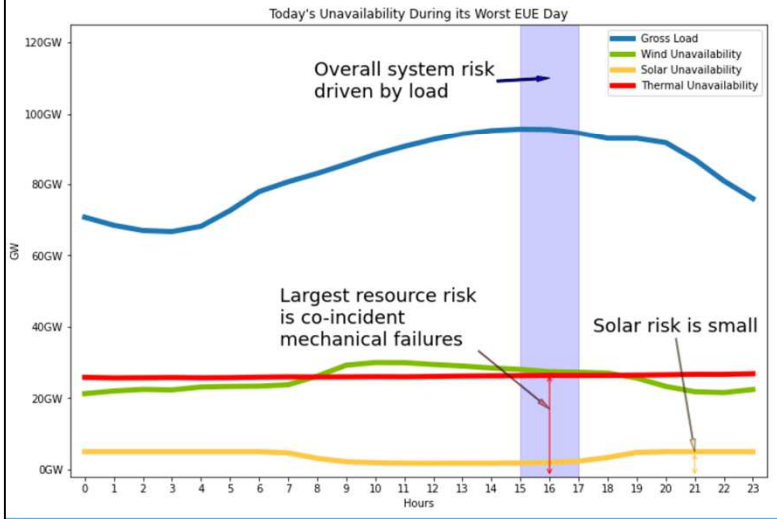
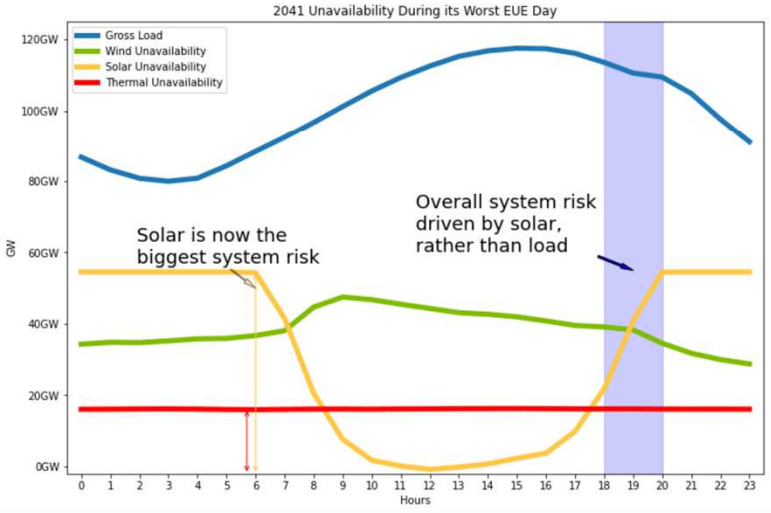
MISO has also offered …

System risk is shifting from being driven by peak load today, to being driven by the unavailability of weather-dependent resources (primarily solar) in the future

UNAVAILABILITY TODAY



UNAVAILABILITY 2041



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MISO

Source: MISO Presentation "Market Redefinition: Accreditation Reform", RASC, March 1, 2023

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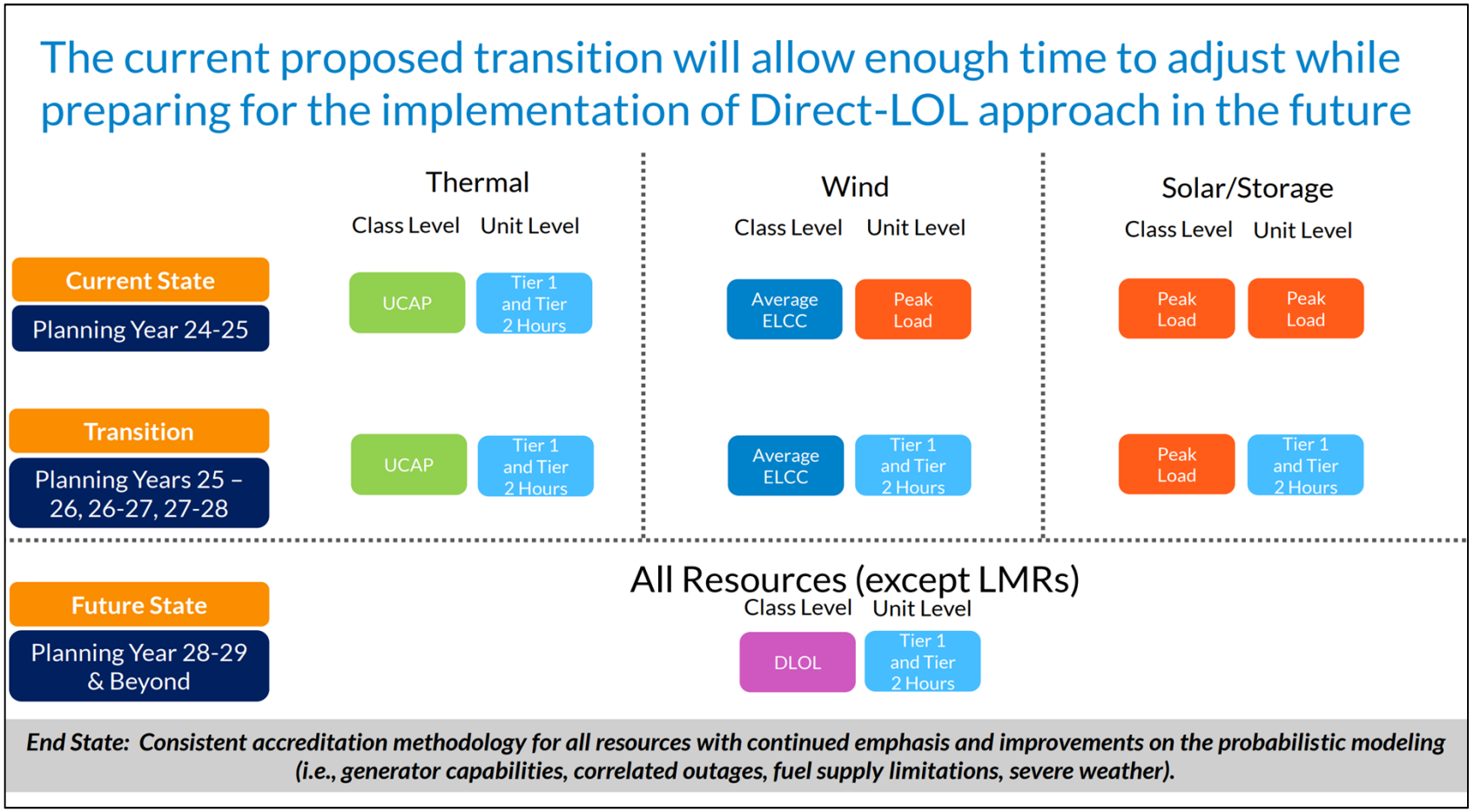
MISO's Direct LOL Capacity Accreditation Proposal

- Develops a Capacity Accreditation Percentage for each Resource Class based on:
  - A simple average of the forecasted MW availability of the Resource Class in MISO's SERVM Loss of Load Expectation (LOLE) study model during the hours where load is probabilistically forecasted by that model to be lost
  - Divided by the installed capacity of the Resource Class
- The Resource Classes are Coal, Gas, Hydro, Pumped Storage, Run-of-River, Solar, Battery Storage and Wind
- In the 2023/2024 Planning Year LOLE Study Model, loss of load occurred in 3,409 of the 65,700,000 hours simulated (7,500, 8,760 hour simulations)
- MISO's proposal treats all loss of load hours the same even though the amount of Expected Unserved Energy (EUE) for each Loss of Load hour is different

Allocation of Class Accredited Capacity to Individual Resources

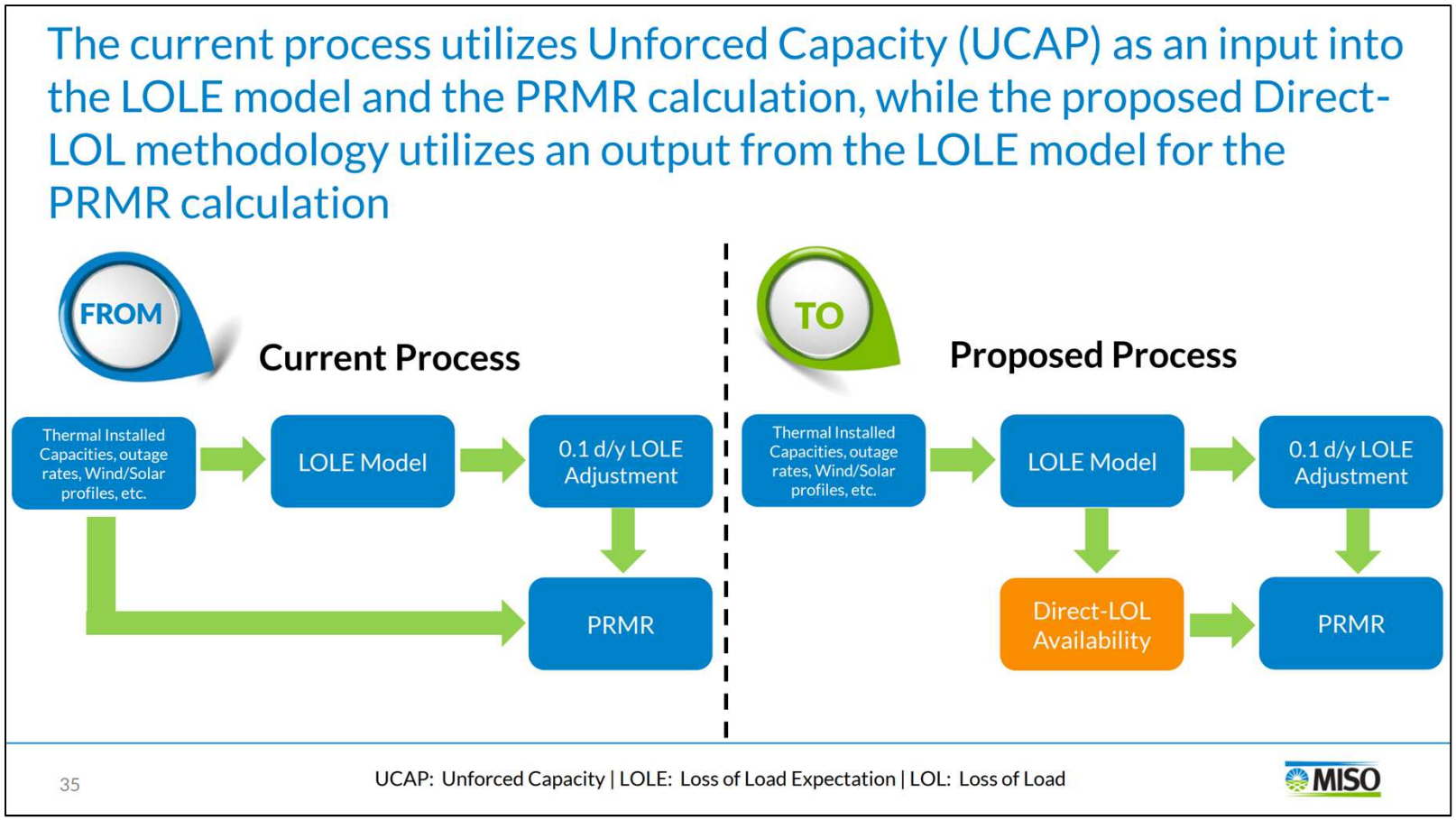
- MISO proposes the total capacity that is accredited to each Resource Class under the Direct LOL method be allocated to the individual resources in each class based on each resource's historical MW availability over the most recent past three years
  - 80% based on the Resource Adequacy (Tier 2) hours for historical period
  - 20% based on the Non-Resource Adequacy (Tier 1) Hours for historical period
- MISO proposes to phase in its capacity accreditation proposal over three years <u>with the Direct LOL portion not implemented until the 2028/2029 Planning Year</u>

MISO's Proposed Direct LOL Capacity Accreditation Phase In



Source: MISO Presentation "Market Redefinition: Accreditation Reform", RASC, July 11-12, 2023

Why does this affect the MISO PRMR and the Allocation of the MISO PRMR to LSEs …



Source: MISO Presentation "LOLE Modeling and Accreditation Workshop", September 22, 2023

Current Resource Adequacy Construct

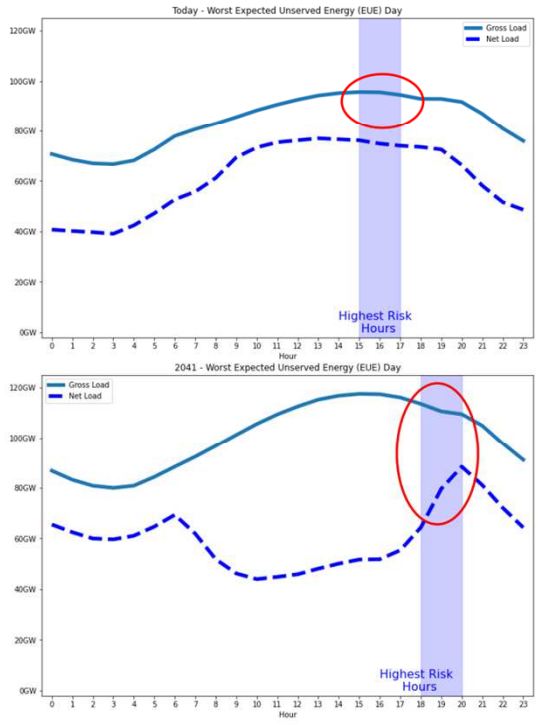
- Total MISO PRMR is measured in terms of Unforced Capacity (UCAP) from resources
- Total MISO PRMR =
  - Module E 50/50 Forecast of MISO's Peak System Demand (including losses)
  - plus the Planning Reserve Margin (PRM) percentage, determined through capacity adjustment in MISO's SERVM model, necessary to produce a one day in ten year LOLE result in the model on an annual basis
- Each LSE's PRMR =
  - LSE's Model E forecasted demand at the time of the MISO System Peak (including losses) grossed up by the PRM percentage
- Why?
  - Forecasted MISO System Peak Demand = Sum of Forecasted LSE Demands at MISO System Peak

MISO's Direct Loss of Load Capacity Accreditation Proposal

- Total MISO PRMR =
  - Sum of the Direct LOL Accredited Capacity for each Resource Class
  - plus the capacity adjustment needed in MISO's SERVM model to produce a one day in ten year LOLE result in the model on an annual basis
- Where, the Direct LOL Accredited Capacity for each Resource Class is the simple average of available capacity of the class during the loss of load hours that occur in the SERVM model
- As noted earlier, the 2023/2024 SERVM model loss of load hours consist of 3,409 hours out of a total of 65,700,000 simulation hours
- The average MISO system demand during the loss of load hours
  - ≠ Module E 50/50 Forecast of MISO's Peak System Demand
  - ≠ Sum of Module E Forecasted LSE Demands at the MISO System Peak
- **As a result, for the Direct LOL proposal, a reasonable method needs be developed to allocate the Total MISO PRMR to LSEs when the Direct LOL method is implemented**

MISO has also offered …

As risk begins to shift, it is critical that the demand used for the Planning Reserve Margin (PRM) calculation is aligned with the period when the risk is occurring



- Under the Direct-LOL accreditation methodology, MISO must ensure there is direct alignment between accreditation and requirements
- To do this, MISO will need to move away from utilizing Gross Peak Demand in the PRM calculation
- Further discussion with stakeholders is needed

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Source: MISO Presentation "Market Redefinition: Accreditation Reform", RASC, March 1, 2023

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The allocation of PRMR to LSEs is an important wholesale cost of service issue

- Specifically, it affects how the incremental capacity needs of LSEs (and, thus, the fixed production costs associated with that incremental capacity) are driven by the MISO Resource Adequacy Construct
- This is because it affects how much additional accredited capacity LSEs need to either self-supply, acquire bilaterally or purchase from the Planning Resource Auction (PRA) in order to supplement the accredited capacity of the resources the LSEs have already acquired to serve their demand at the time of the MISO system peak

It is important to note …

- Nothing is changing going forward with respect to the need to have sufficient capacity to cover LSE demand at the time of the MISO System Peak
- What is changing is the hour that determines the additional accredited capacity necessary to meet the one day in ten year LOLE target
- Specifically, that hour will shift from the time of the MISO System Peak toward the evening hours as a greater amount of solar resources, rather than conventional resources, are added by LSEs to cover their demand at the time of the MISO System Peak
- This is because the availability of solar resources declines as the evening hours are approached – an issue not faced when using conventional resources

Very careful review is required of any proposed changes and should not be rushed

- The current approach, which allocates the total MISO PRMR based on LSE demand at the time of system peak demand, predates MISO and has been in place for decades
- Due to the strong price signal it provides, many LSEs (and/or their end-use customers) have modified their processes and, in some cases, made significant capital investments to minimize their demand at or around the time of the system peak, which has reduced the total MISO PRMR from what it would otherwise be
- As a result, great care needs to be taken with respect to both the impact of removing the current price signal and the impact of the new price signal that would be introduced under a change
- In addition, if the change is not consistent with cost causation, the change in allocation could cause significant cost subsidies between customers
- Finally, it needs to be remembered that MISO is not proposing to implement the Direct LOL part of its capacity accreditation proposal until the 2028/2029 Planning Year -- a filing to FERC on this issue does not need to be rushed

Furthermore, basic cost of service principles need to be followed …

- Equity
  - To extent practicable, each customer (LSE) is only held responsible for what is necessary to serve that customer, no more and no less
- Engineering Efficiency (cost minimization)
  - The appropriate price signal is sent to reduce demand when the loss of load risk is highest
- Conservation
  - Wasteful or inefficient uses are discouraged or minimized
- Stability
  - Impact of changes in customer usage patterns on the desired outcome (sufficient capacity in this case) is minimized

MISO's Straw Proposal to allocate the Direct LOL PRMR to LSEs

- MISO proposes a two-step process:
  - First, allocate the Direct LOL PRMR to Local Resource Zones (LRZs) based on the demand of those LRZs during times of loss of load events in the MISO SERVM LOLE Study
  - Then, allocate each LRZ's PRMR allocation to the LSEs within that LRZ based on the historical demand of each LSE in a manner consistent with the approach used for capacity accreditation
    - This Implies possibly basing the allocation of PRMR from LRZs to LSEs 80% on LSE demand during Tier 2 hours and 20% on LSE demand on during Tier 1 hours
    - It also implies possibly using three years of historical demand data

MISO's Illustrative Example of the LRZ Portion of its Straw Proposal

MISO's proposed strawman solution would allocate the PRMR based on contribution to reliability risk

Existing Process

LRZ	CPF	PRM %	UCAP PRMR*	% of Total PRMR
1	10,000	7%	10,700	35.7%
2	6,000	7%	6,420	21.4%
3	12,000	7%	12,840	42.9%
MISO	28,000	7%	29,960	100%

Proposed Strawman

LRZ	Load (DLOL)	% of MISO	DLOL PRMR**	Net Change in PRMR
1	10,500	36.2%	10,846	146
2	5,800	20%	5,992	(428)
3	12,700	43.8%	13,122	282
MISO	29,000	100%	29,960	0

ILLUSTRATIVE EXAMPLE
assumes UCAP PRMR = DLOL PRMR

LSE allocation of LRZ PRMR would be based on accreditation look back period

LRZ UCAP PRMR = LRZ CPF * PRM%

LRZ DLOL PRMR = (LRZ DLOL Load/MISO DLOL Load) * MISO DLOL PRMR

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CPF: Coincident Peak Demand Forecast
LSE: Load Serving Entity

*UCAP PRMR also includes transmission losses and PRM % add back
**MISO DLOL PRMR would be calculated as described in slides 11 & 12

MISO

Source: MISO Presentation "Market Redefinition: Accreditation Reform", RASC, August 22-23, 2023

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End-Use Customer Sector Concerns: Allocation of Total MISO PRMR to LRZs

- The current hourly load shapes in the SERVM LOLE Study Model
  - Reflect LSE and end-use customer demand suppression based on the current allocation of PRMR to LSEs
  - Do not reflect how demand suppression would change if that allocation was significantly changed
  - Would need to be modified in their development so that they dynamically reflect changes in demand behavior
- A simple average of LRZ demand across all loss of load hours in the LOLE Study Model inefficiently gives the same weighting to demand during loss of load hours with a lower unserved energy risk as is given to demand during loss of load hours with a higher unserved energy risk
- All of the above break the “equity”, “engineering efficiency” and “conservation” principles

End-Use Customer Sector Concerns: Allocation of LRZ PRMR to LSEs

- Demand suppression during Tier 1 hours does not provide any reduction in MISO's LOLE
- Demand suppression during many Tier 2 hours does not provide any significant reduction in MISO's LOLE
- As a result, basing the allocation of each LRZ's PRMR to the LSEs within that LRZ on Tier 1 and Tier 2 hours would include many more hours than necessary
- Including too many hours
  - Dilutes the demand suppression price signal particularly versus that which is currently provided at or around the MISO system peak
  - Reduces the pool of load capable of suppressing demand
  - Inefficiently shifts capacity responsibility from lower load factor customers to higher load factor customers
- Also, using three years of historical data, rather than the current practice of using one year of historical data (e.g., for Peak Load Contribution (PLC) values), creates unnecessary lag and is not consistent with customer choice practices
- Once again, the "equity", "engineering efficiency" and "conservation" principles of cost of service are being broken

End-Use Customer Sector Recommendations

- This issue should be slowed down
  - MISO did not clearly indicate its intention to include a change to the PRMR allocation to LSEs in its Direct LOL Accreditation Filing with FERC until the July 11-12, 2023 RASC Meeting
  - There is no need to implement a change in the PRMR allocation until the Direct LOL method is actually implemented (currently proposed by MISO as the 2028/2029 Planning Year)
- Any allocation change should fully follow cost of service principles
- If LRZ demand in the SERVM model during loss of load hours is going to be used to allocate PRMR to LRZs
  - The load shapes in the SERVM model should be modified in their development so that they are able to dynamically reflect changes in demand behavior
  - LRZ demand during loss of load hours should be weighted based on the amount of Expected Unserved Energy (EUE) in each loss of load hour

End-Use Customer Sector Recommendations (Cont'd)

- If historical demand data is used to allocate PRMR from each LRZ to the LSEs within that LRZ
  - The number of hours used should be limited to those that truly present a significant LOLE risk (Tier 1 hours do not and many Tier 2 hours do not)
  - Only the historical data from the most recent year should be used, not three years of historical data

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QUESTIONS?

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