



Market Redefinition: Accreditation Reform

Resource Adequacy Subcommittee

Feb 28 - Mar 1, 2023

Purpose & Key Takeaways



Purpose: Frame the purpose of accreditation in MISO, why reform is needed and how MISO's proposed Direct-LOL method ties to the MISO Market Design – Guiding Principles and meets Evaluation Criteria

Key Takeaways:

- MISO's proposed Direct-LOL accreditation method meets the MISO Market Design – Guiding Principles and established Evaluation Criteria better than existing accreditation methods
- MISO will evaluate the extension of the Direct-LOL method to all non-emergency resources and provide results at a future RASC meeting
- The Planning Reserve Margin (PRM) calculation and specific LOL hours are critical design elements that MISO is committed to addressing in the first half of 2023
- Additional design and transition plan discussions will begin in Q3 2023 with a targeted filing in Q4

Market Redefinition: Develop significant market enhancements to ensure continued reliability and value in anticipation of the changing resource mix, more frequent extreme weather events, and increasing electrification.

MISO Market Design - Guiding Principles:

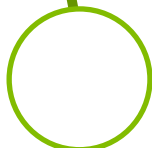
- 1 Support an economically efficient wholesale market system that minimizes cost to distribute and deliver electricity
- 2 Facilitate non-discriminatory market participation regardless of resource type, business model, sector or location
- 3 Develop transparent market prices reflective of marginal system cost and cost allocation reflective of cost-causation and service beneficiaries
- 4 Support market participants in making efficient operational and investment decisions
- 5 Maximize alignment of market requirements with system reliability requirements

Resource Accreditation: The capacity value of a resource based on its contribution to system reliability during periods of highest risk

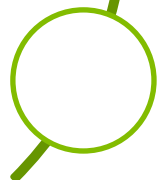
Why does MISO accredit resources?



To ensure seasonal Reserve Requirements are met



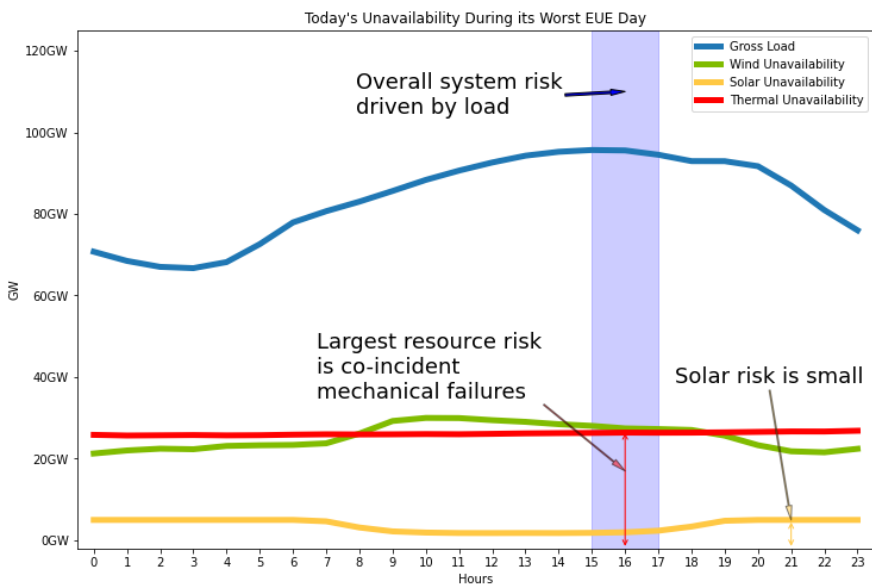
To inform long-term investment and retirement decisions by accurately representing the capacity value of a resource in the prompt year



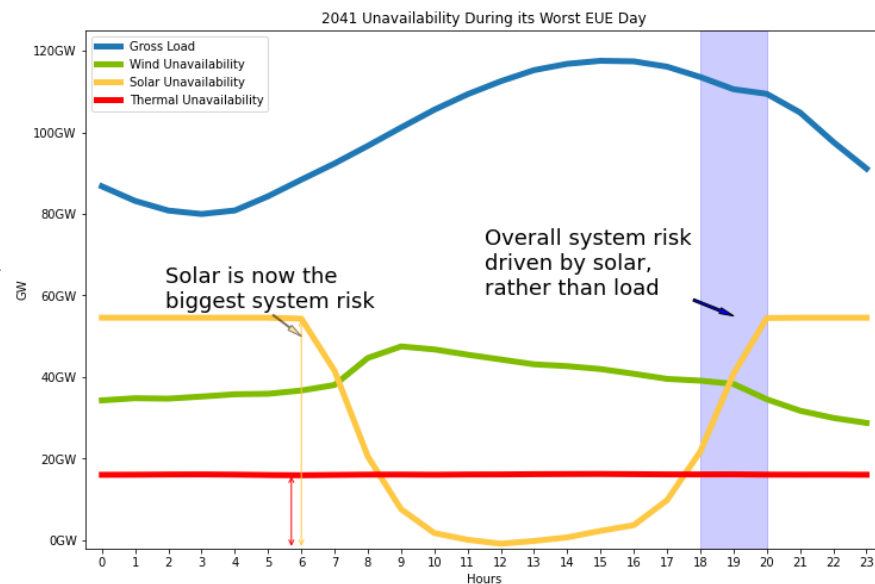
To reward resources for operating practices and attributes that serve the greatest system need

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



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

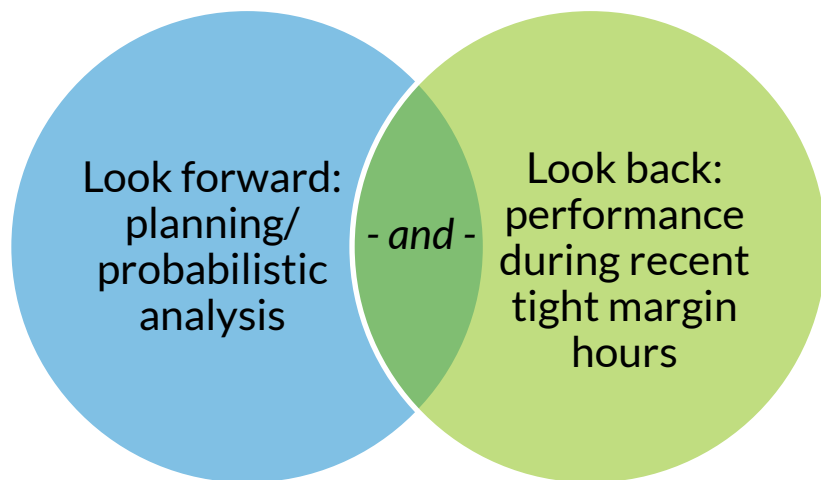
Problem Statement

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.

A different approach to resource accreditation is required to anticipate new and shifting periods of risk

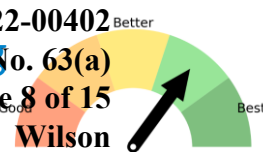


MISO's Direct-LOL and RA hour recommendation will capture and balance a range of reliability risks in both the Planning and Operations horizons

Why MISO is proposing this reform:

- Anticipation of rapid increase in solar penetration (MISO has 23 GW of executed solar GIAs not yet in-service)
- As those generators come online, the periods of risk will rapidly shift to late-afternoon and early-morning hours
- Alignment with MISO's Market Design Guiding Principles

Direct-LOL accreditation aligns better with MISO's Market Design Principles and offers distinct benefits over the existing accreditation practices for wind and solar resources



Method	Class & Unit Levels	Impact	Flexibility	Feasibility	Stability
MISO's current Wind method	Class: Average Individual-Effective Load Carrying Capability (ELCC) Unit: Performance during peak hours	Aligns availability with need for class only, but disconnected from "actual" need	Extending to many other resource types misses synergistic effects	Computationally difficult, and hard to understand as method scales	Results averaged over a range; doesn't inform the future as well
MISO's current Solar method	Class: N/A Unit: Performance during peak hours	Doesn't align changing needs with availability	Easily extendable to other resource types	Computationally efficient, and easy to administer	Easy to predict, but doesn't reflect changing conditions
Direct-LOL method	Class: Availability during Loss of Load (LOL) hours Unit: Seasonal Resource Adequacy (RA) Hours	4 Direct alignment between availability and reserve requirements; 5 Accounting of probabilistic and operational risk, compensation for desired behavior	Easily extendable to other resource types; accounts for synergistic effects; 2	Computationally efficient, and easy to administer	Results dependent on resource mix; informs the future well 3

MISO has heard stakeholder feedback and is open to the evaluation of hours utilized in determining the class level MW for resource classes

Current Proposal

Class Level

Direct-LOL Method

Availability within LOLE model during LOL hours

Unit Level

RA Hours Method

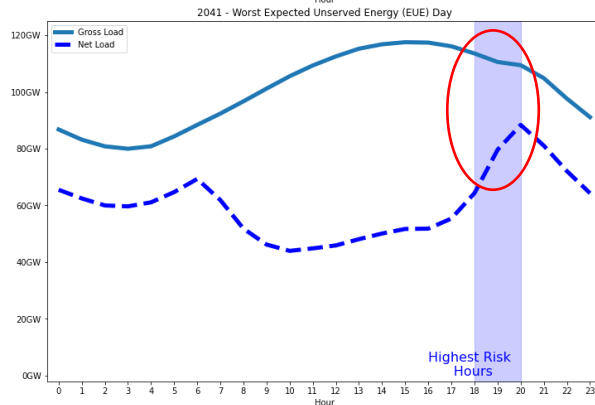
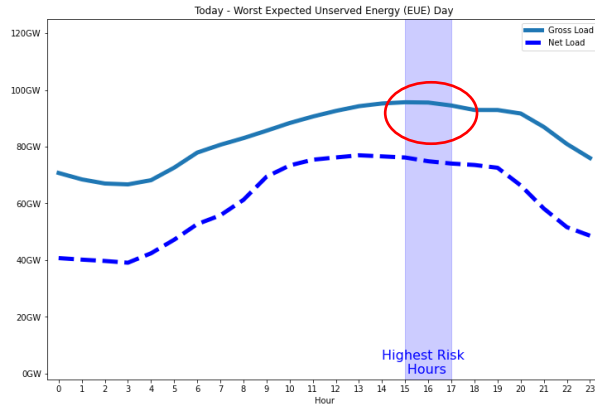
Based on performance during MISO's recent historical high-risk hours



Design Options to Evaluate

1. LOL hours only (simulation)
2. LOL hours (simulation) + RA hours (actual)
3. LOL hours (simulation) + MaxGen Hours (actual)
4. Modeling improvements to account for tight margin hours, not just LOL hours (simulation)
5. Others?

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



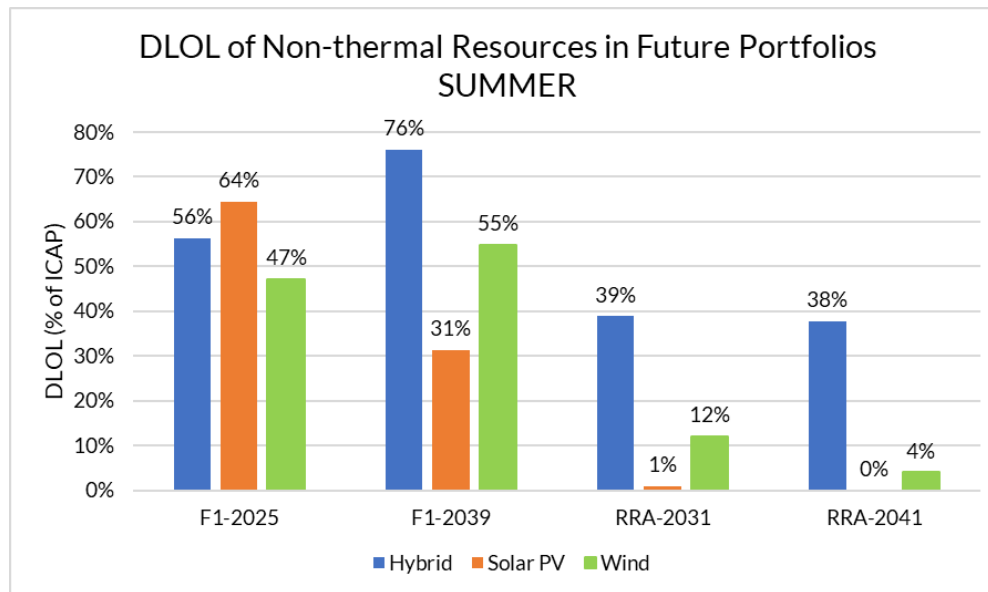
- Under the Direct-LOL accreditation methodology, MISO must ensure there is direct alignment between accreditation and requirements
- To do this, MISO will need to move away from utilizing Gross Peak Demand in the PRM calculation
- Further discussion with stakeholders is needed

MISO is considering a 3-year transition to implement the Direct-LOL accreditation method to align with the 23 GW of executed solar GAs not yet in-service

- MISO understands the concerns raised by stakeholders about moving fast and the need to comprehend the design and implications of the Direct-LOL method
- A transition plan will be developed in Q3 in parallel with ongoing detailed design discussions
- MISO will also provide potential impacts to all Market Participants prior to a FERC filing

The Direct-LOL method can be extended to other resource types such as hybrid resources (results vary based on portfolio assumptions)

ILLUSTRATIVE EXAMPLE



MISO is committed to providing DLOL results for all resources.

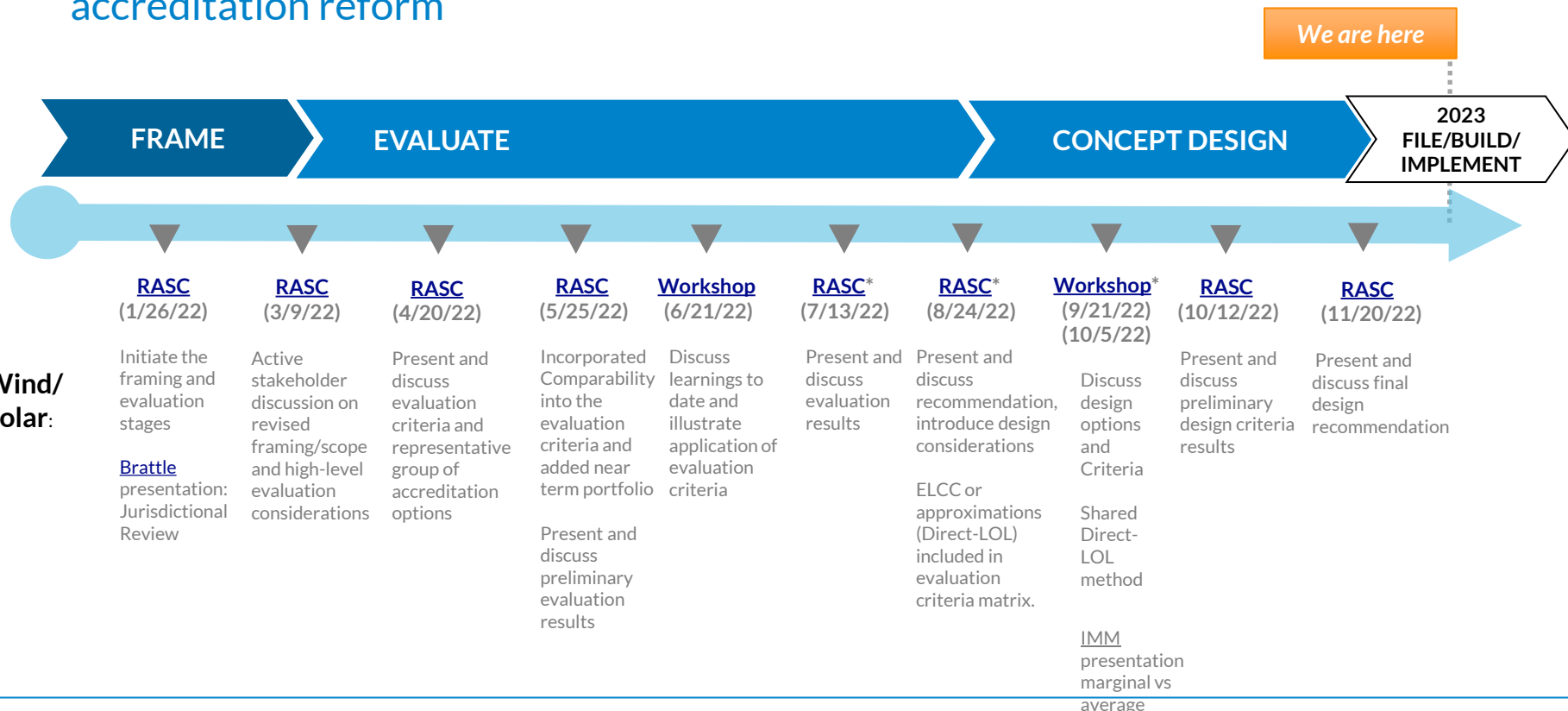
Next Steps:

- Evaluate applicability of Direct-LOL method to all non-emergency resources (coal, gas, nuclear, wind, solar, storage, hydro, etc.) and provide results
- Continue the discussion related to the design of the Direct-LOL method
 - Expansion of LOL hours
 - Improve demand assumptions in the Planning Reserve Margin (PRM) calculation to better align accreditation and requirements
 - Referencing demand levels in hours when risk is occurring
- Discuss options for transition plan to implement Direct-LOL method
- A FERC filing for Resource Adequacy accreditation reforms is targeted for Q4 2023

Appendix

MISO had extensive discussion with stakeholders related to non-ferrous accreditation throughout 2022 leading to an end of the year recommendation for accreditation reform

We are here



Wind/
Solar:

Brattle
presentation:
Jurisdictional
Review

IMM
presentation
marginal vs
average

*MISO shared additional data or Q/A document

