



# MISO's Path to Resource Adequacy

ESIG Fall Technical Conference  
October 26, 2022

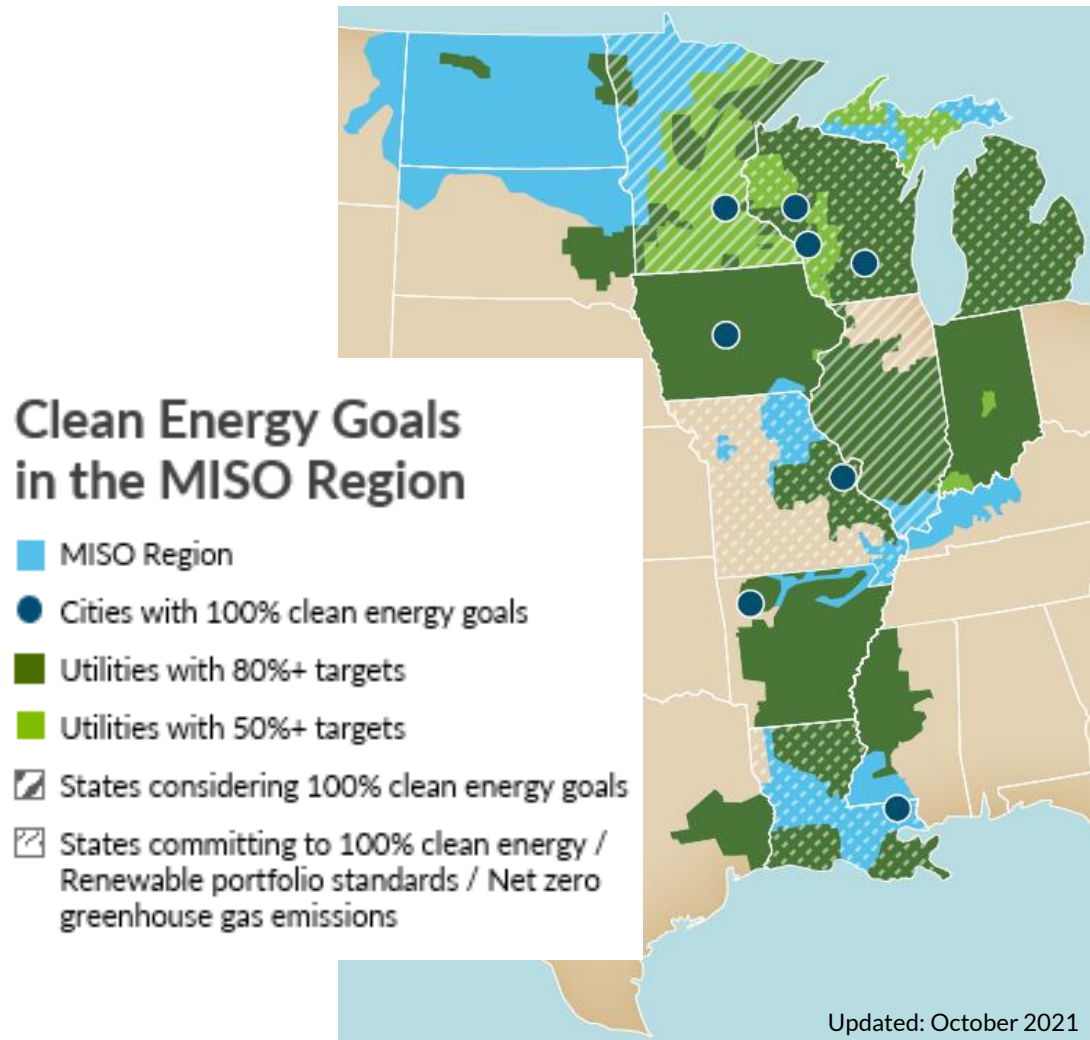
Durgésh P. Manjuré  
MISO Energy

# Executive Summary



- Aggressive decarbonization strategies and accelerated policies are driving rapid change in our region.
- The evolving resource fleet is altering the operational paradigm with increasing variability & uncertainty with a reduction in reserve margins and reliability attributes.
- MISO is accelerating its efforts to help address the changing reliability risk profile through several resource adequacy reforms.

# Members and States in the MISO Region continue to set ambitious deep decarbonization goals

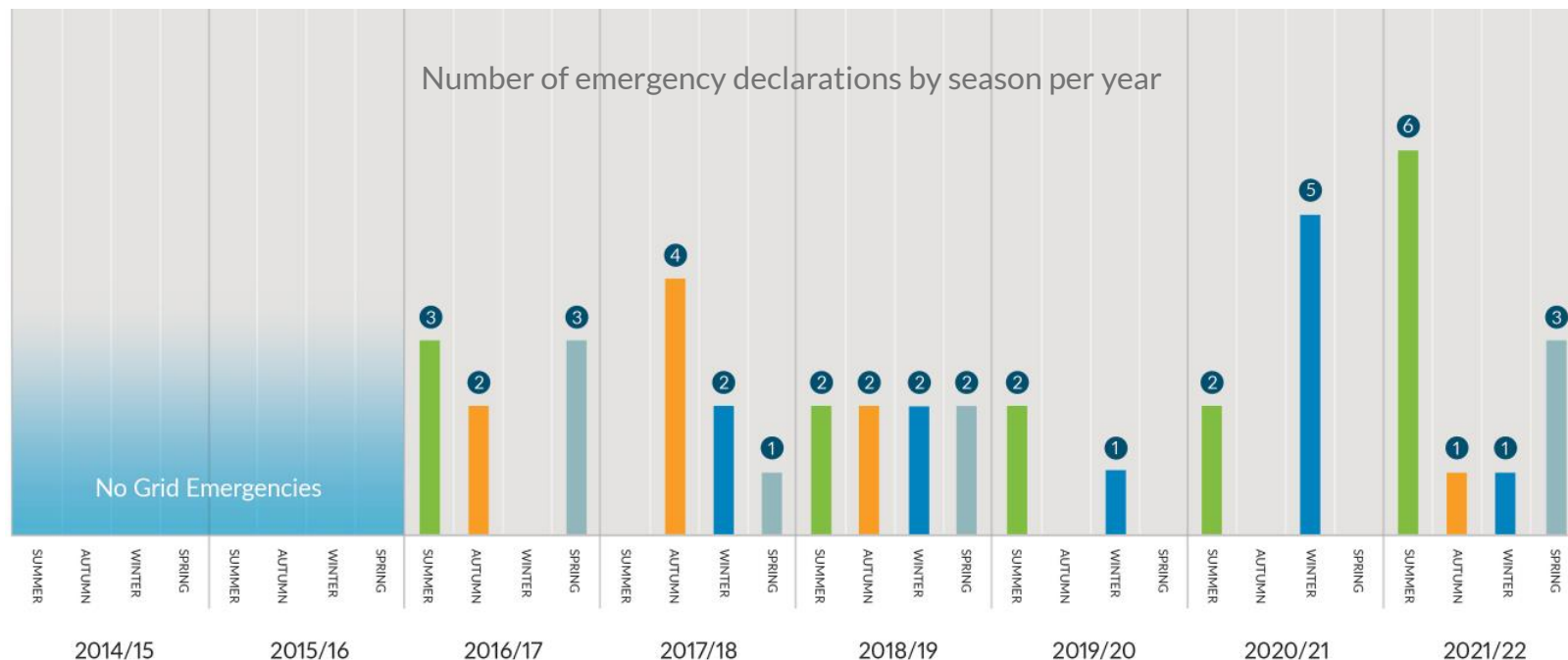


17 utilities  
have energy  
goals greater  
than 80%

4 states have  
100% clean  
energy goals

1 state  
with  
100% clean  
energy law

# The region's energy landscape is transitioning toward a more complex, less predictable future



## Past

Focus on providing energy  
in *the worst peak load  
hour* during the summer

## Present

Focus on providing energy  
on *the worst day in each  
season*

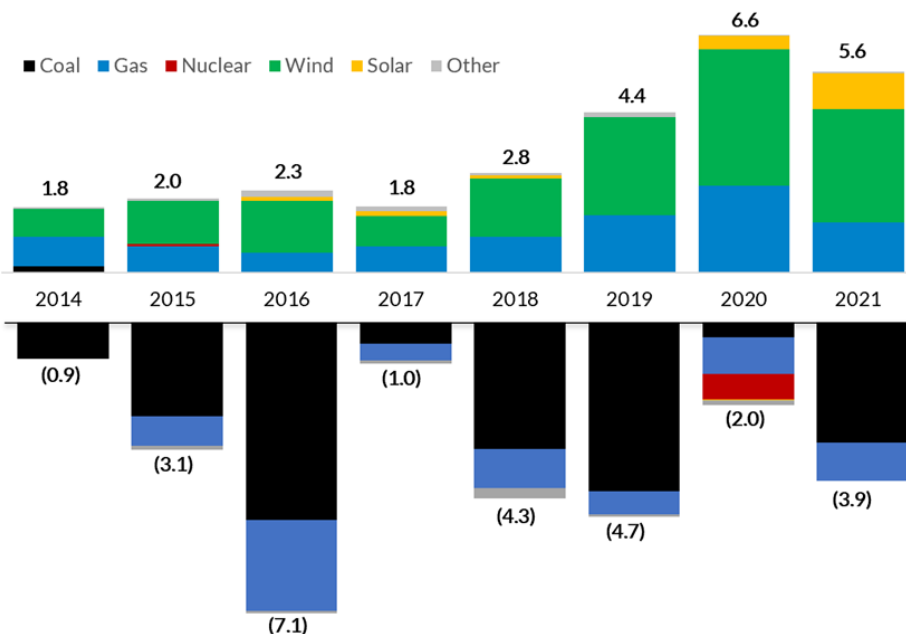
## Future

Focus on providing  
energy for *the worst  
week in each season*

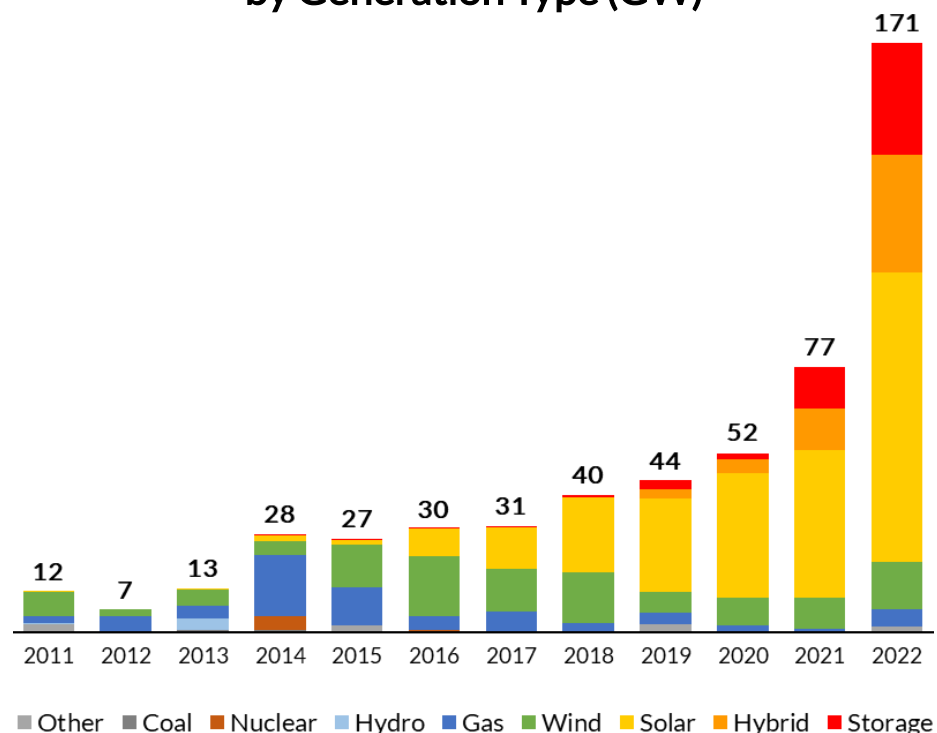
Policy drivers such as EPA regulations, ESG criteria, State Energy Policy, and the Inflation Reduction Act are accelerating the fleet transition and associated risks

# MISO's interconnection queue reveals continued shift to renewables & storage and fewer resources with long duration dispatchability

## Historic additions and Retirements (GW)



## Queue Applications\* by Generation Type (GW)



MISO's evolving fleet has resulted in a steady decrease in accredited capacity – a trend anticipated to continue in the future.

### 2018-2022:

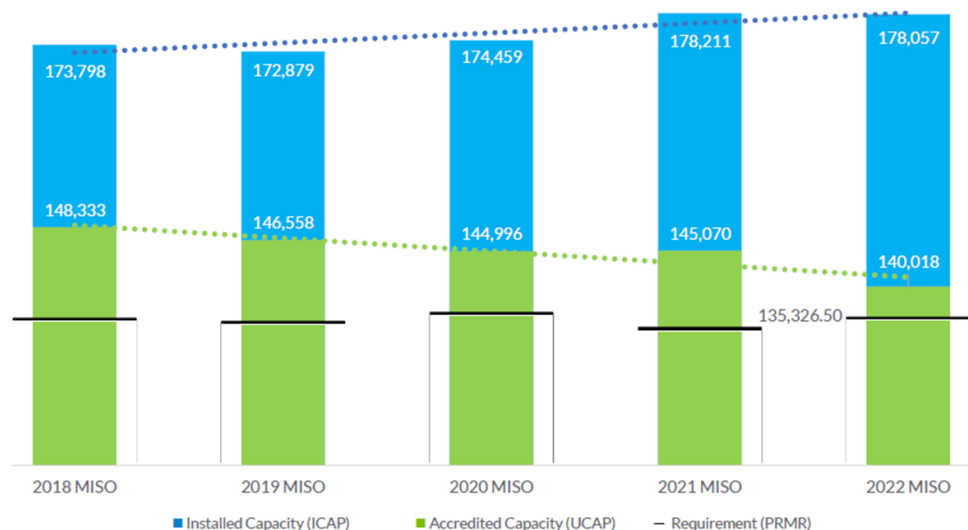
Installed capacity:



Accredited capacity:



RA requirement:

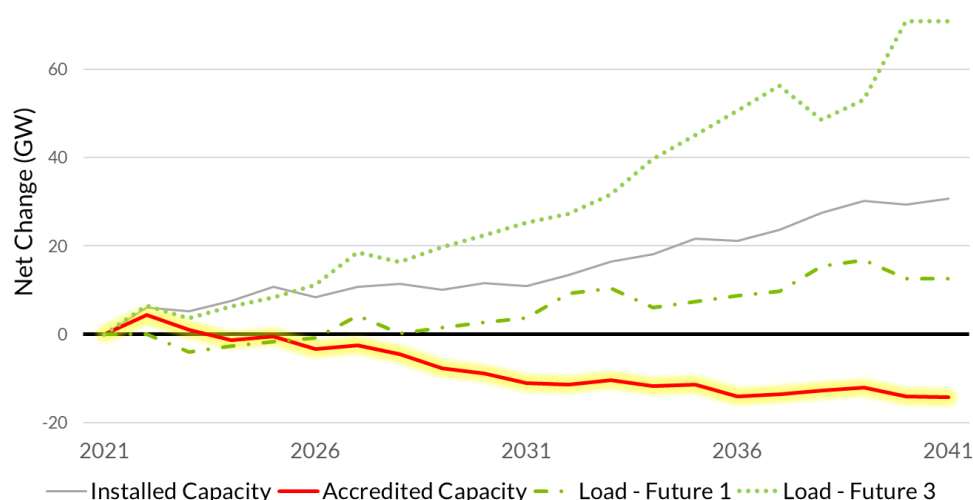


### 2021-2041\*:

Installed capacity:



Accredited capacity:



# Declining accredited capacity was evident in MISO's 2022 PRA which demonstrated capacity shortfalls resulting in prices up to CONE

## MISO's North/Central sub-region

Capacity Shortage: **1200 MW**

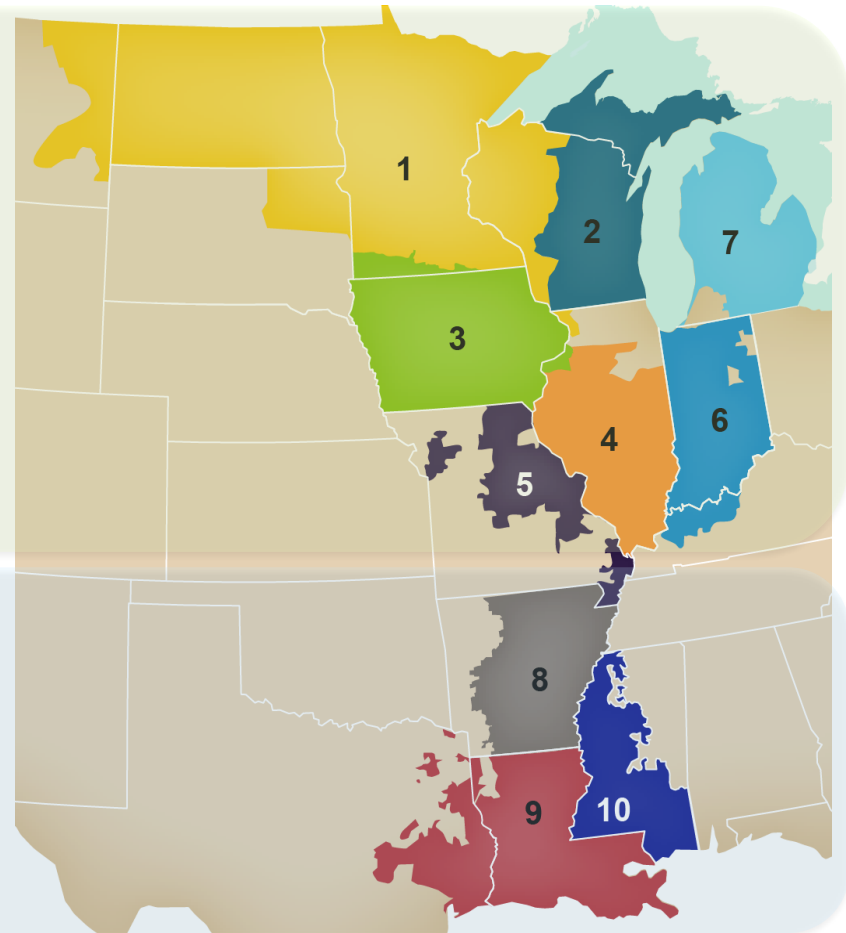
Auction clearing price: \$236.66(CONE)

Load exposed to CONE: 8,000 MW

## MISO's South sub-region

Capacity surplus: 2800 MW

Auction clearing price: \$2.88



MISO footprint and its ten local resource zones

# MISO has been working on several resource adequacy reforms, the first of which were approved by FERC in September 2022



## Sub-annual construct

Change from traditional annual summer-based construct to four distinct seasons

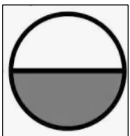
Approved



## Improved accreditation

Align resource accreditation with availability in the highest risk periods

Approved



## Minimum capacity requirement

Require at least 50% of capacity to be secured for each Load Serving Entity, prior to the Planning Resources Auction

Rejected



# These reforms revise planning requirements and resource accreditation, & help improve visibility into capacity sufficiency

	Annual Construct	Sub-annual Construct
Requirements	Annual RA requirements	4 distinct seasonal RA requirements
Accreditation	Conventional resources accredited annually based on a 3-year forced outage rate (UCAP)	Accredited based on resource's* availability during the highest risk periods of the season (SAC)
Planning Resource Auction	Annual Planning Resource Auction to meet annual resource adequacy requirements	Independent auctions for all seasons at one time to meet seasonal resource adequacy requirements

# MISO continues to work with stakeholders on wind and solar accreditation enhancements and anticipates a FERC filing in 2023

## Existing Approach for Wind

### Class Level

Individual  
ELCC -  
average

### Unit Level

Based on  
performance  
in peak hours

## Existing Approach for Solar

### Class Level

N/A

### Unit Level

Based on  
performance  
in peak hours

## Recommended Approach for Wind and Solar

### Class Level

**Probabilistic Method**  
Portfolio ELCC or  
approximation – *Average vs.*  
*Marginal TBD*

### Unit Level

**RA Hours Method**  
Based on performance  
during MISO's recent  
historical high-risk hours

## Approach for Thermal

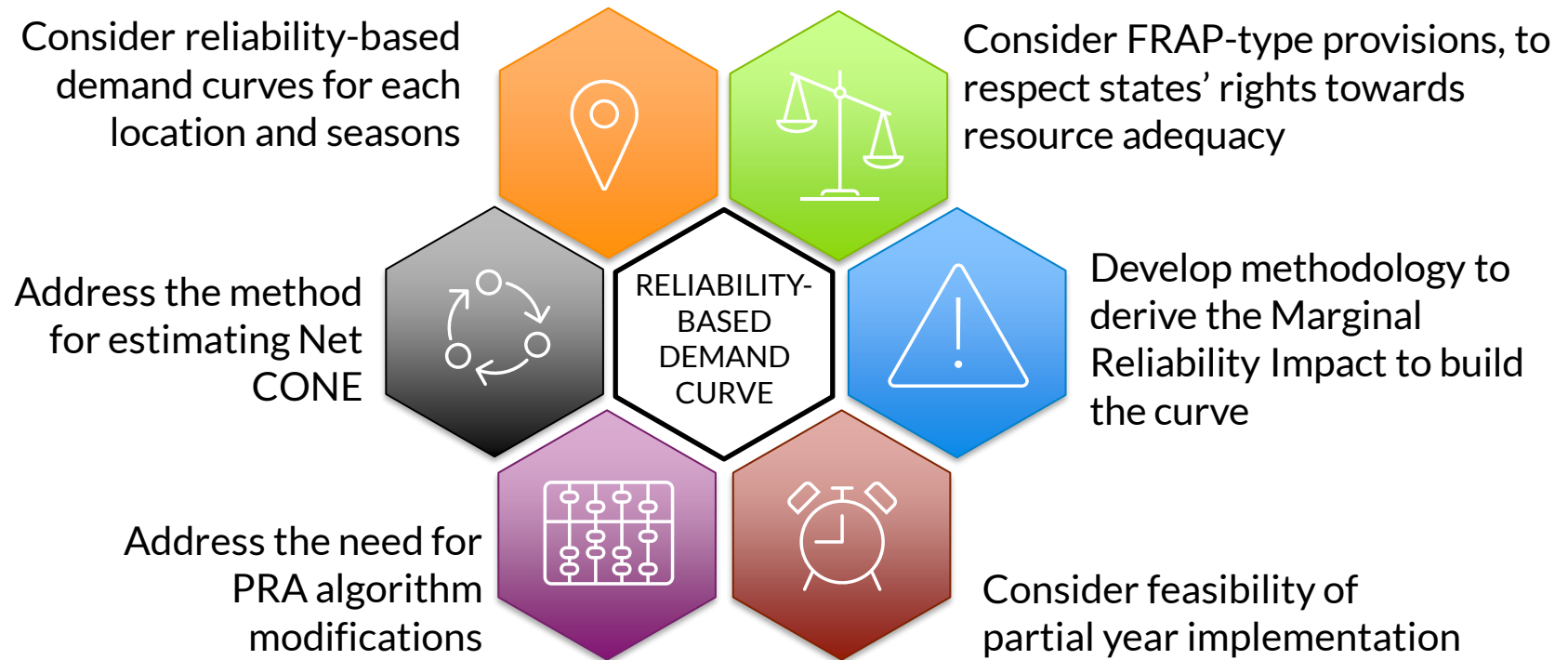
### Class Level

Unforced Capacity (UCAP)

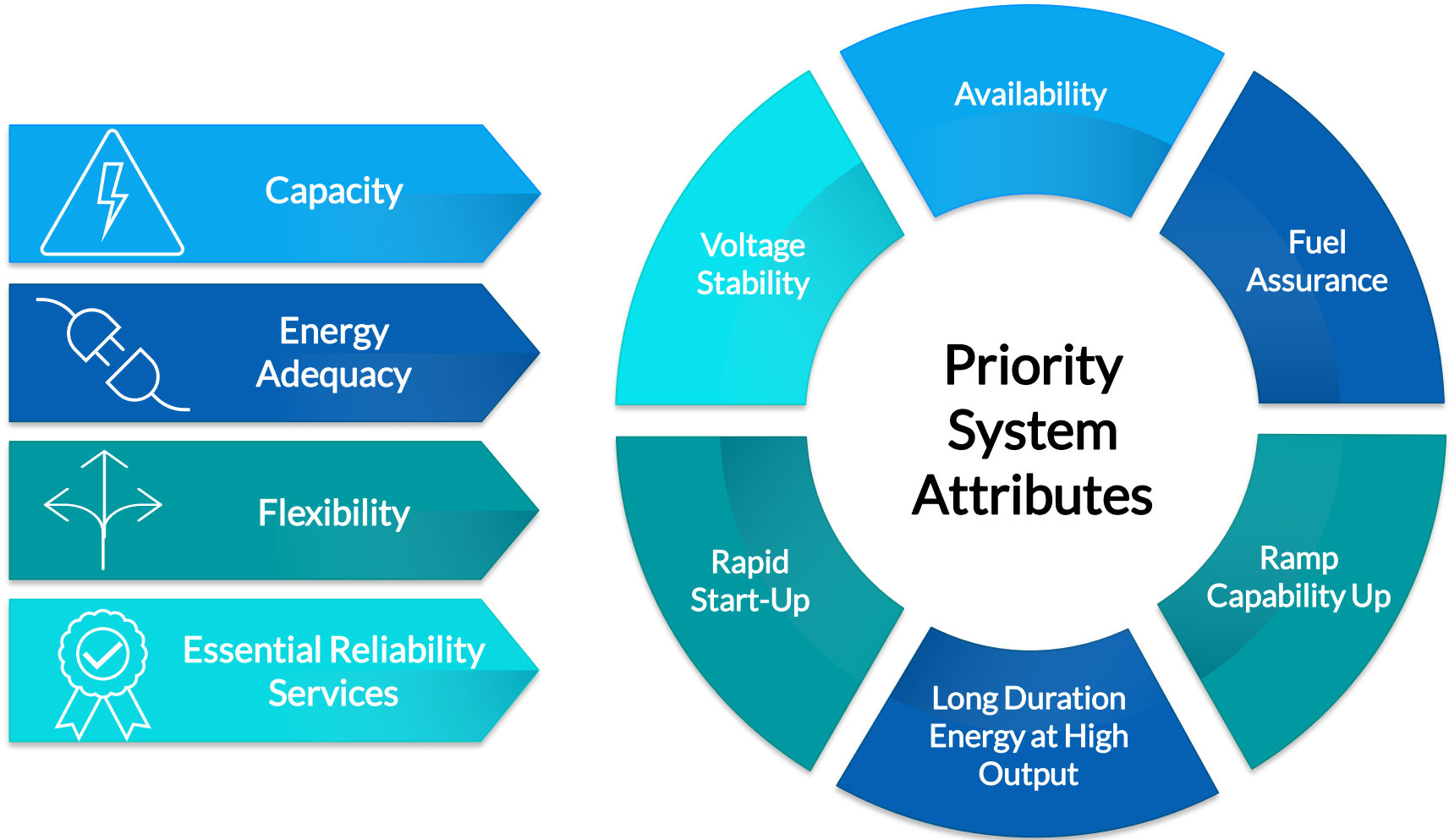
### Unit Level

RA Hours Method

# MISO is considering reliability-based demand curve options to create market-based incentives for investment and retirement decisions



# Maintaining reliability with the changing resource portfolio and evolving risks increases the importance of ensuring adequate resource attributes



## Other efforts and developments addressing resource adequacy

Effort/Development	Impact
Improved resource accreditation	Aligns resource capabilities and accredited resource value with needs during the highest risk hours in each season
FERC unit retirement process reforms (Attachment Y)	Provides longer-term view and preparation
Regional Resource Assessment and OMS-MISO survey enhancements	Improves visibility on needs and gaps with both near- and longer-term view
Reliability Based Demand Curve	Provides mechanism to value capacity differently under surplus and deficiency situations.
Identify and quantify necessary resource attributes	Ensures reliability with rapid retirements of legacy resources and a future with significant renewable resources and emerging technologies
Long Range Transmission Planning Tranche 1 approval	Enables lower interconnection costs and facilitates Member plans



## Contact:

Durgesh Manjure

[dmanjure@misoenergy.org](mailto:dmanjure@misoenergy.org)