



# IURC Summer Readiness Forum

May 9, 2024

# MISO Overview



MISO's reliability footprint and regional control center locations

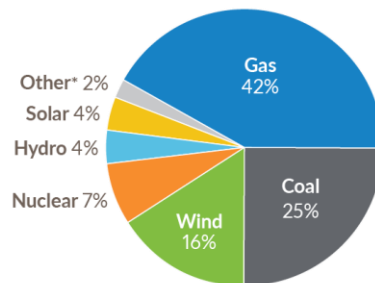
MISO is an independent, not-for-profit, member-based organization responsible for keeping the power flowing across the region reliably and cost-effectively.

## MISO KEY FACTS

Area Served	15 U.S. States and Manitoba, Canada
Population Served	45 Million
Transmission Lines	75,000 Miles
Generating Units	> 2,900
Members	54 Transmission Owners
	143 Non-transmission Owners
Market Participants	> 500
Market Transactions	> \$40 billion

## INSTALLED CAPACITY

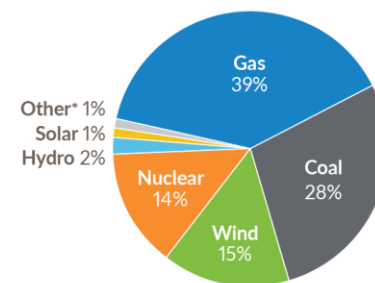
December 2023



191 GW

## ENERGY PRODUCTION

January-December 2023

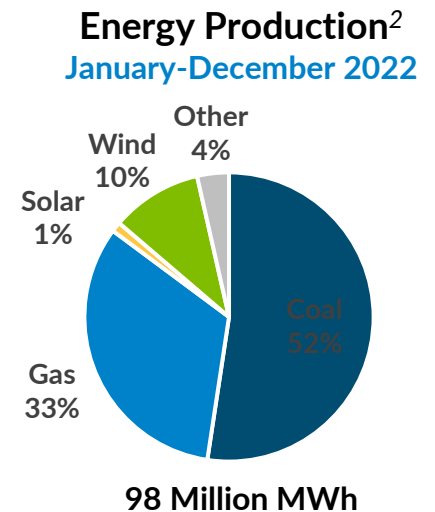
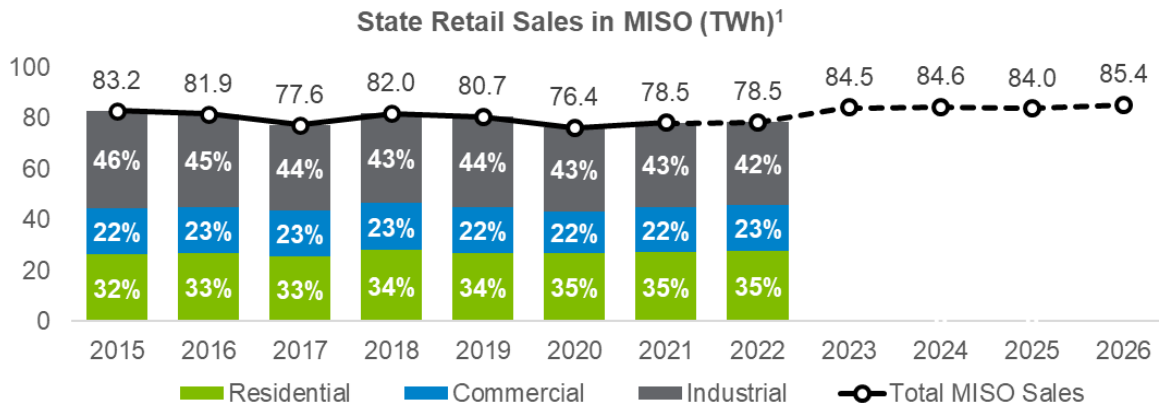
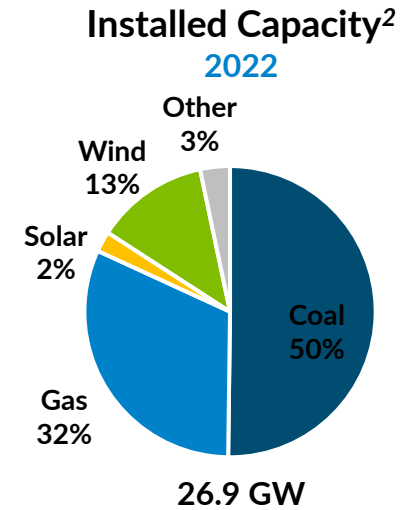
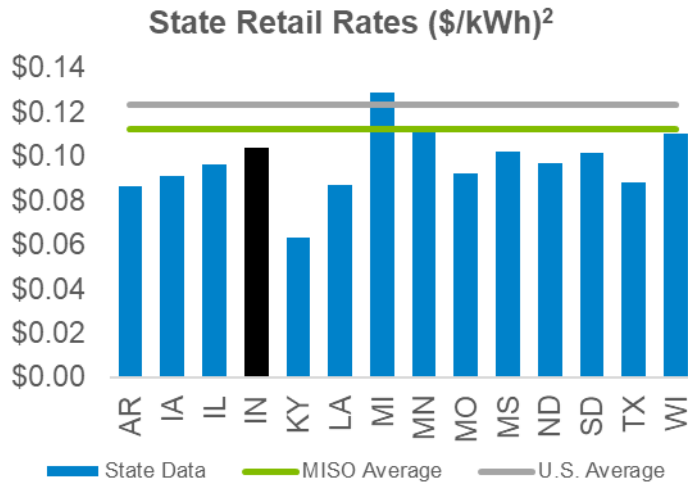


614 Million MWh

\*Other: Diesel, Biomass, Storage, Demand Response Resources

Learn more at <https://www.misoenergy.org/meet-miso/media-center/corporate-fact-sheet/>

# Indiana Retail Sales, Capacity, & Generation



<sup>1</sup> Historical data from US Energy Information Administration (EIA) Form 861; forecasted data from the State Utility Forecast Group (SUFG)  
<sup>1,2</sup> <https://www.eia.gov/electricity/state/indiana/>

# MISO meteorologists expect a hot summer and an active hurricane season

- A hotter summer is expected across the entirety of the MISO footprint
  - 2016 is the top analog year pointing to pervasive heat across the MISO footprint in June, July, August and September
- A developing La Niña weather pattern will allow for hotter conditions in July and August across the Eastern Interconnect, but May and June also pose a threat for heat waves across MISO
- East-based heat over the PJM footprint has the potential to impact Net-Scheduled Interchange
- All vendors are forecasting a very active tropical storm season in the Atlantic Basin
  - However, storms originating in the basin may move to the East coast or into the Gulf of Mexico, where they can impact the MISO footprint



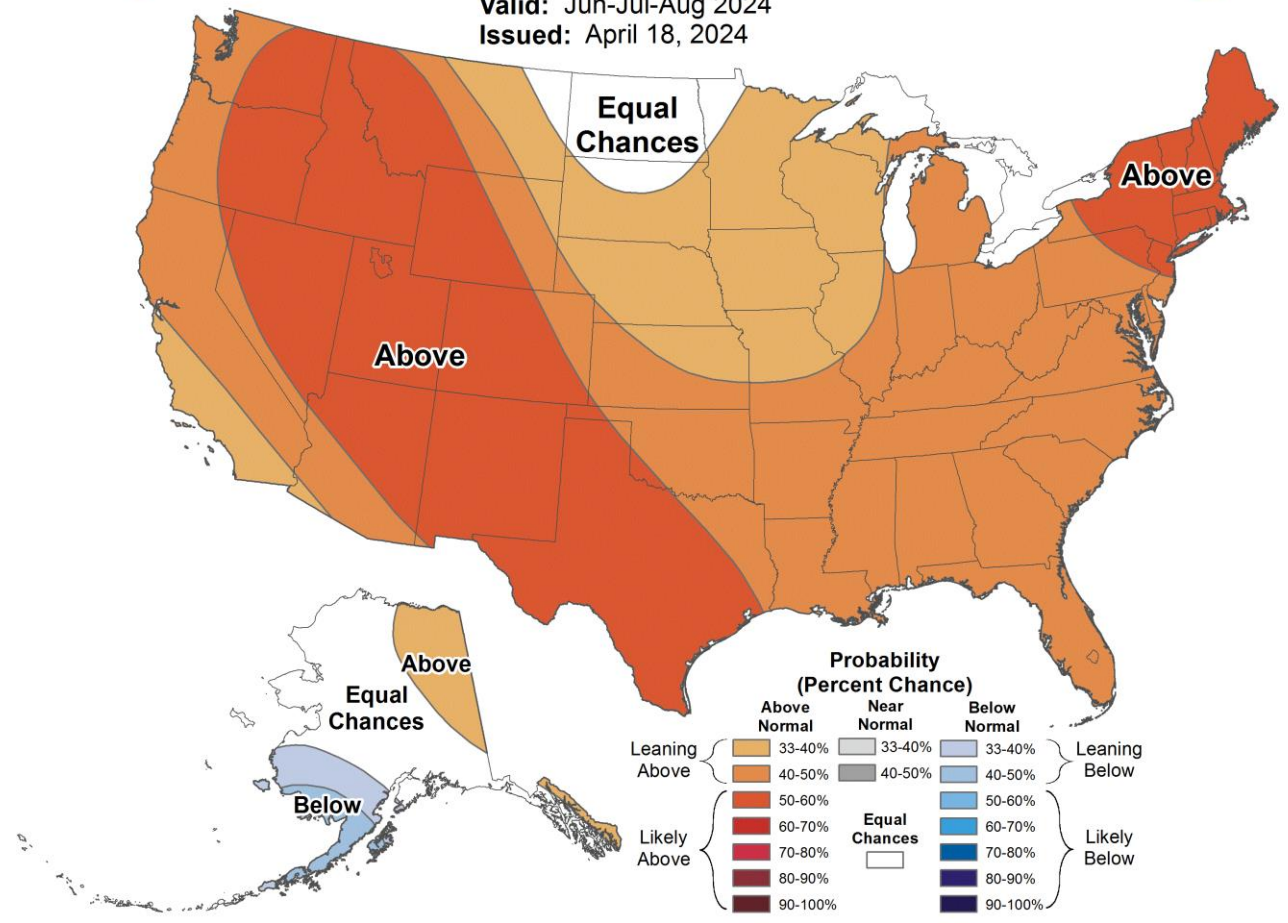
# Summer Temperatures



## Seasonal Temperature Outlook



Valid: Jun-Jul-Aug 2024  
Issued: April 18, 2024



# Summer Precipitation

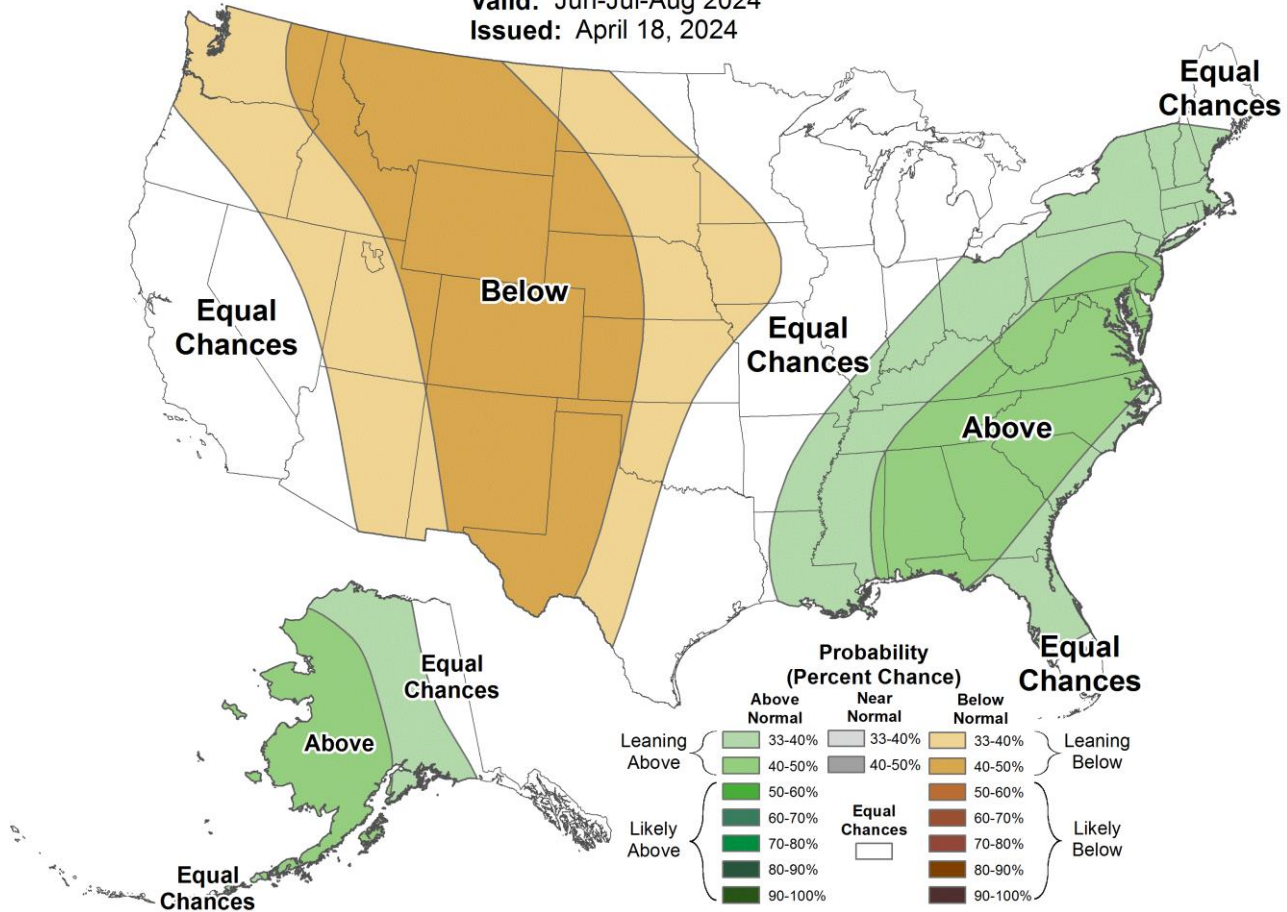


## Seasonal Precipitation Outlook

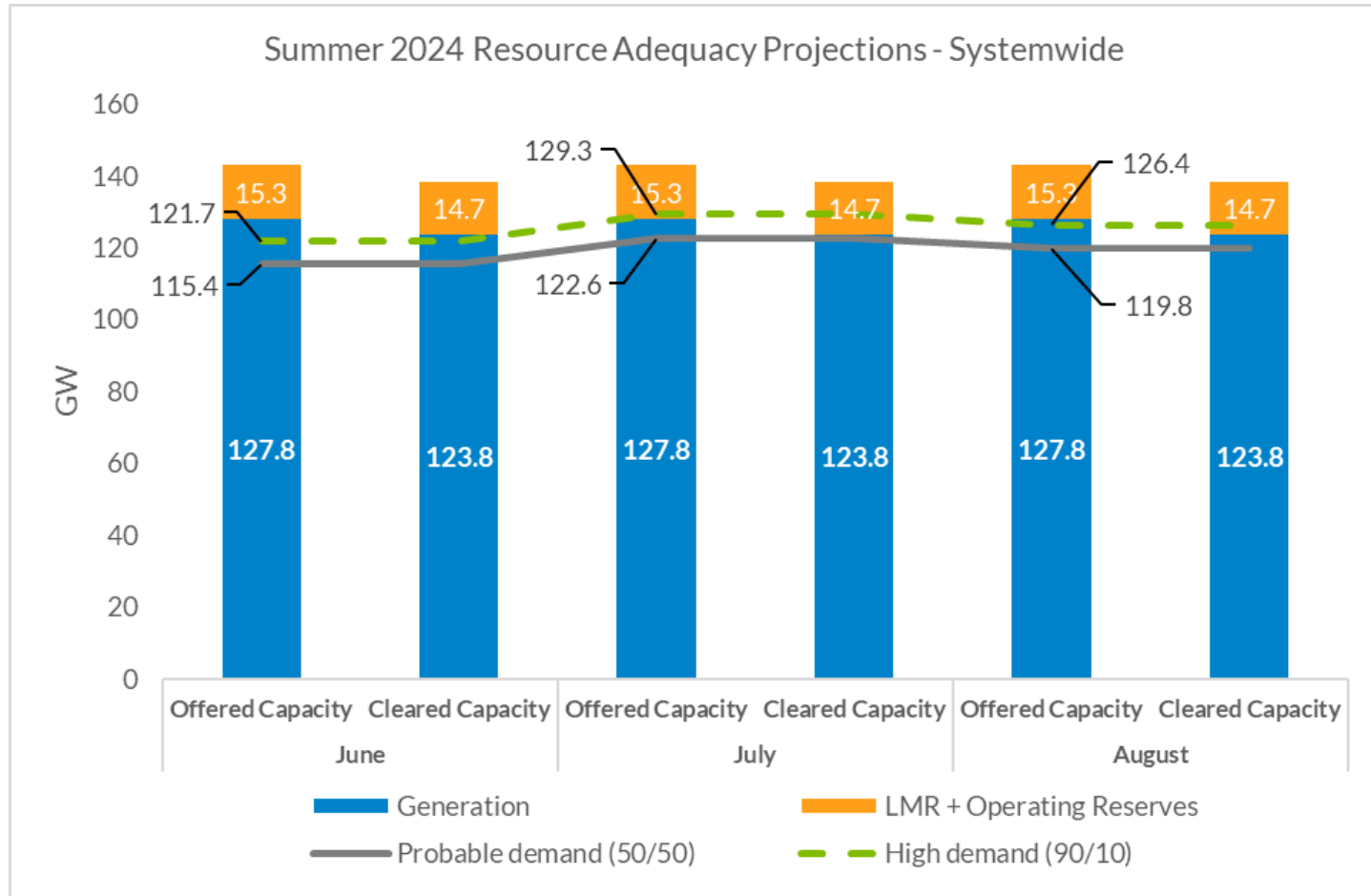


Valid: Jun-Jul-Aug 2024

Issued: April 18, 2024



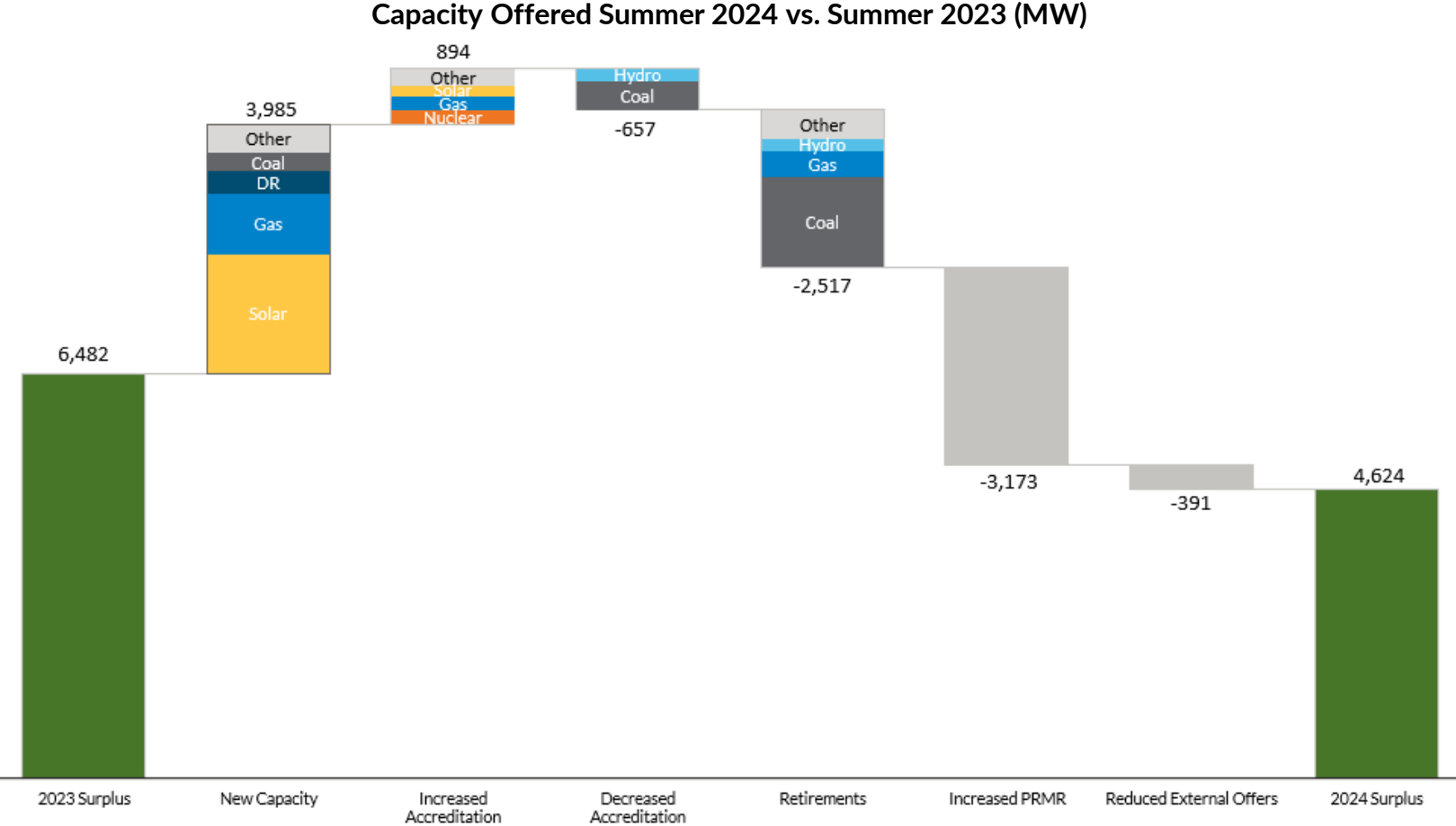
# MISO projects sufficient capacity under probable demand, but will rely on LMRs and Operating Reserves to meet a high-demand scenario





# The MISO footprint showed approximately a 30% decrease in surplus but remained adequate

*Reduced surplus driven by retirements, increased PRMR and reduced external offers*



DR: Demand Response

Capacity indicated is offered accredited value

Source: Slide 4 from MISO Planning Resource Auction for Planning Year 2024-2025 Results Posting



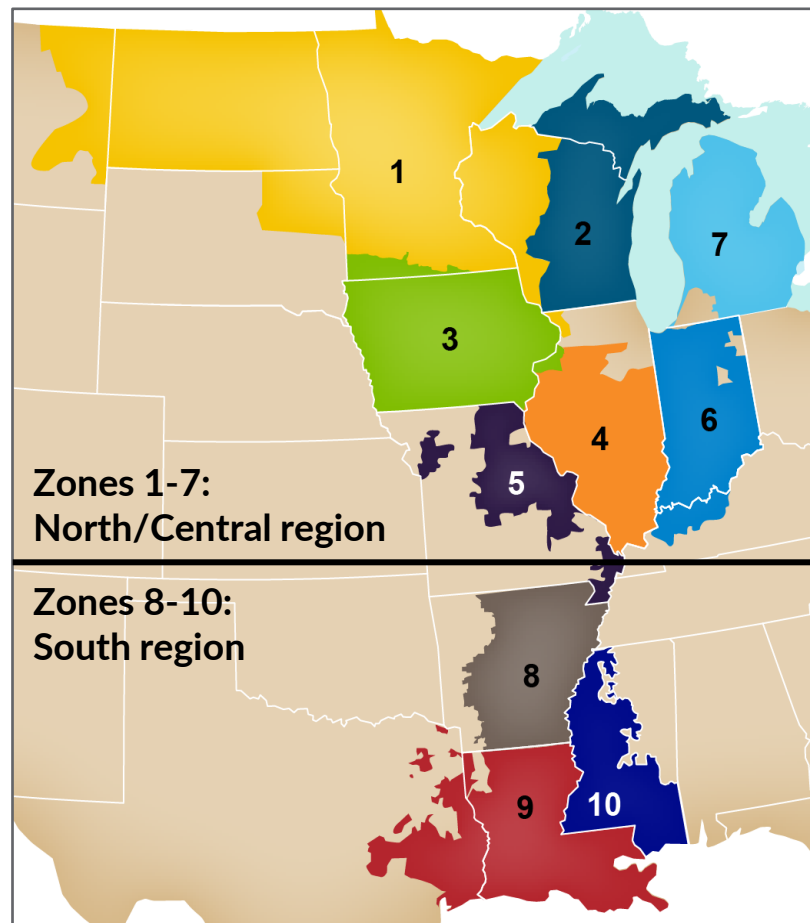


# Zone 6 demonstrated sufficient capacity in the 2024 Planning Resource Auction

## 2024 PRA Results

Zone	Local Balancing Authorities	Summer	Fall (Price \$/MW-Day)	Winter	Spring
1	DPC, GRE, MDU, MP, NSP, OTP, SMP	30.00	15.00	0.75	34.10
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	30.00	15.00	0.75	34.10
3	ALTW, MEC, MPW	30.00	15.00	0.75	34.10
4	AMIL, CWLP, SIPC, GLH	30.00	15.00	0.75	34.10
5	AMMO, CWLD	30.00	719.81	0.75	719.81
6	BREC, CIN, HE, IPL, NIPS, SIGE	30.00	15.00	0.75	34.10
7	CONS, DECO	30.00	15.00	0.75	34.10
8	EAI	30.00	15.00	0.75	34.10
9	CLEC, EES, LAFA, LAGN, LEPA	30.00	15.00	0.75	34.10
10	EMBA, SME	30.00	15.00	0.75	34.10
ERZ	KCPL, OPPD, WAUE (SPP), PJM, OVEC, LGEE, AECI, SPA, TVA	30.00	15.00	0.75	34.10

## MISO Resource Adequacy Zones



ERZ: External Zone Resource

# MISO is executing on the Reliability Imperative priorities to reliably manage the changing resource portfolio

## MARKET REDEFINITION

### Completed

- ✓ Seasonal Requirements and Accreditation (first Planning Resource Auction May)

### In Process

- Reliability-Based Demand Curve: **2025\***
- Accreditation: **2028\***
- Attributes: **2024 & beyond\***
- Scarcity Pricing: **2024**

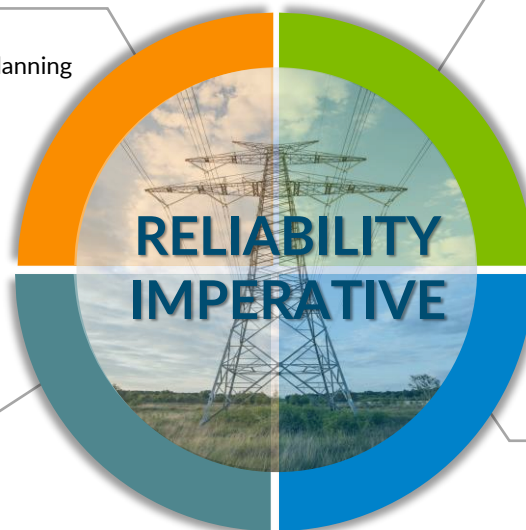
## SYSTEM ENHANCEMENTS

### Completed

- ✓ Energy Management Systems Upgrade
- ✓ Model Manager Phases 1 and 2
- ✓ Improved Customer Interface Systems

### In Process

- Day-Ahead Market Clearing Engine: **2024\***
- Real-Time Market Clearing Engine: **2025\***
- Azure Migration



## TRANSMISSION EVOLUTION

### Completed

- ✓ Tranche 1 Approved and Competitive RFPs Issued
- ✓ Futures Refresh
- ✓ Completed MISO-SPP JTIQ Study
- ✓ Ongoing Generation Interconnection Queue Reforms, Shortened Approval Time

### In Process

- Tranche 2: **2024\***
- Tranche 3: **TBD\***
- Futures Resource Expansion Tool
- Modernize transmission tracking & reporting

## OPERATIONS OF THE FUTURE

### Completed

- ✓ Operator-in-Training Program Development
- ✓ Created Uncertainty Management Team

### In Process

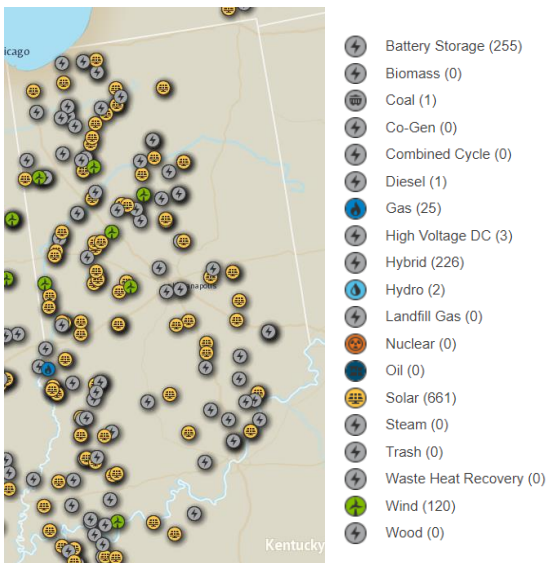
- Develop Predictive Model
- Train First Class of New Operators
- Reserve Procurement Integrated with Improved Uncertainty Management

\*Upcoming key date

# Generation Interconnection Queue Projects

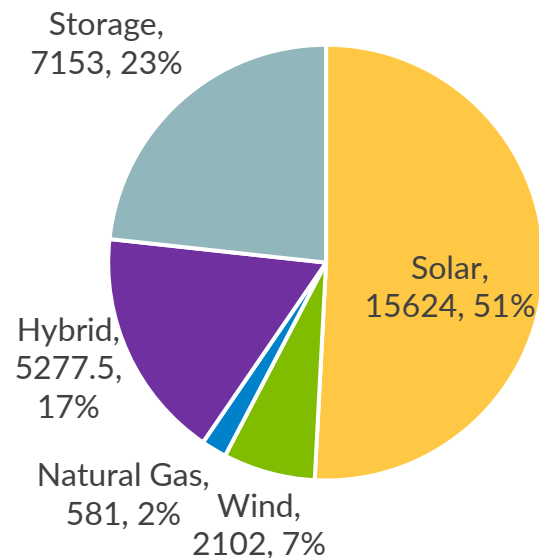
## ACTIVE GIQ PROJECTS

As of 3/22/2024



## ACTIVE GIQ PROJECTS (MW)

As of 3/18/2024



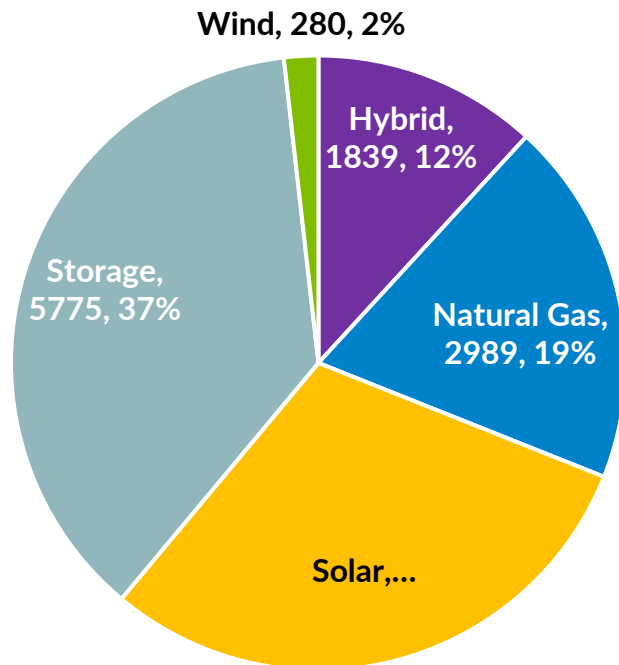
**30,734 MW**

Queue Status	MISO Total	Indiana
Active Queue	225 GW	30.7 GW
Generator Interconnection Agreement (GIA), Not Constructed	~50 GW	6.8 GW

Source: [giqueue.misoenergy.org/PublicGiQueueMap/index.html](https://giqueue.misoenergy.org/PublicGiQueueMap/index.html)

# 2023 Generation Interconnection Queue

## Indiana Queue Requests (MW)



## MISO Total

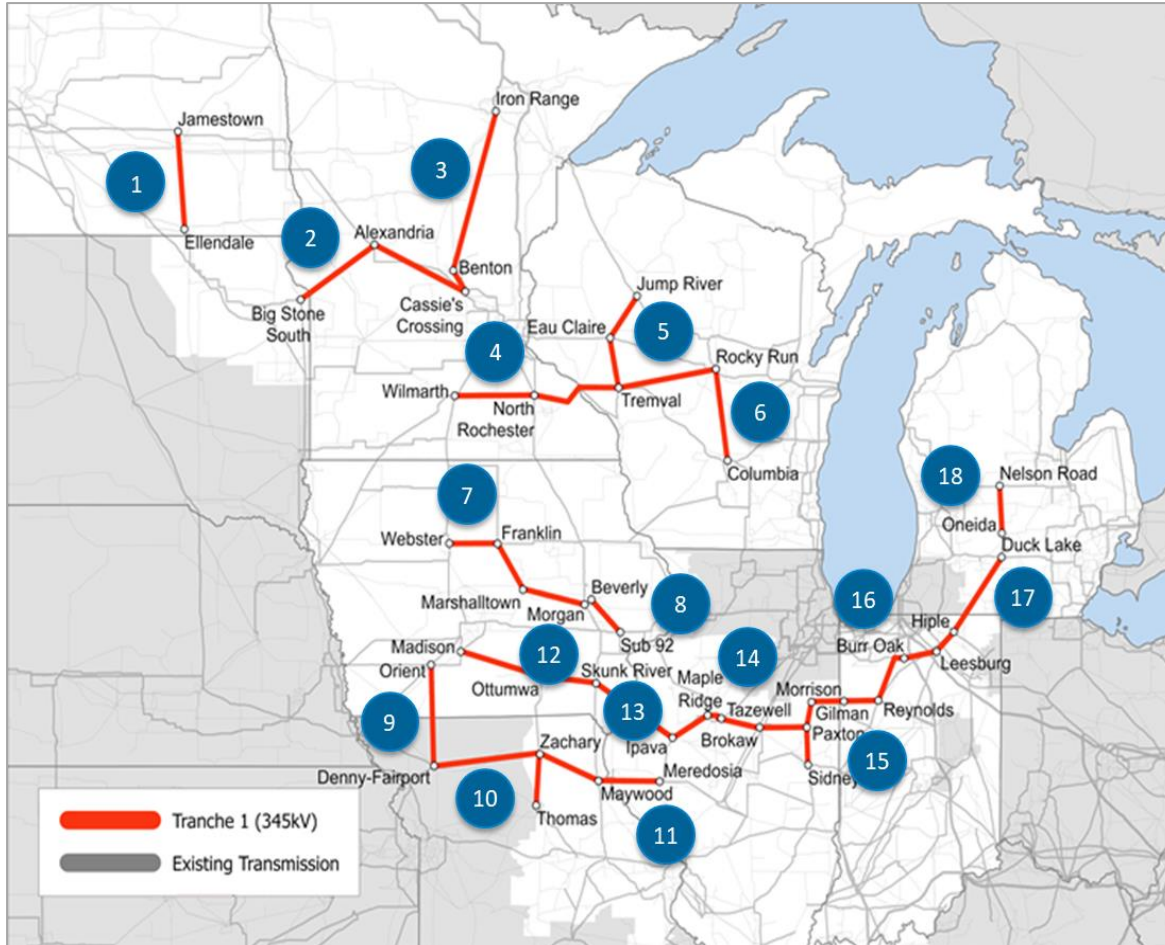
- 600 requests
- 123,805 MW

## Indiana Total

- 73 requests
- 15,555 MW

*Application data is not final. Alternations are expected until project numbers are assigned.*

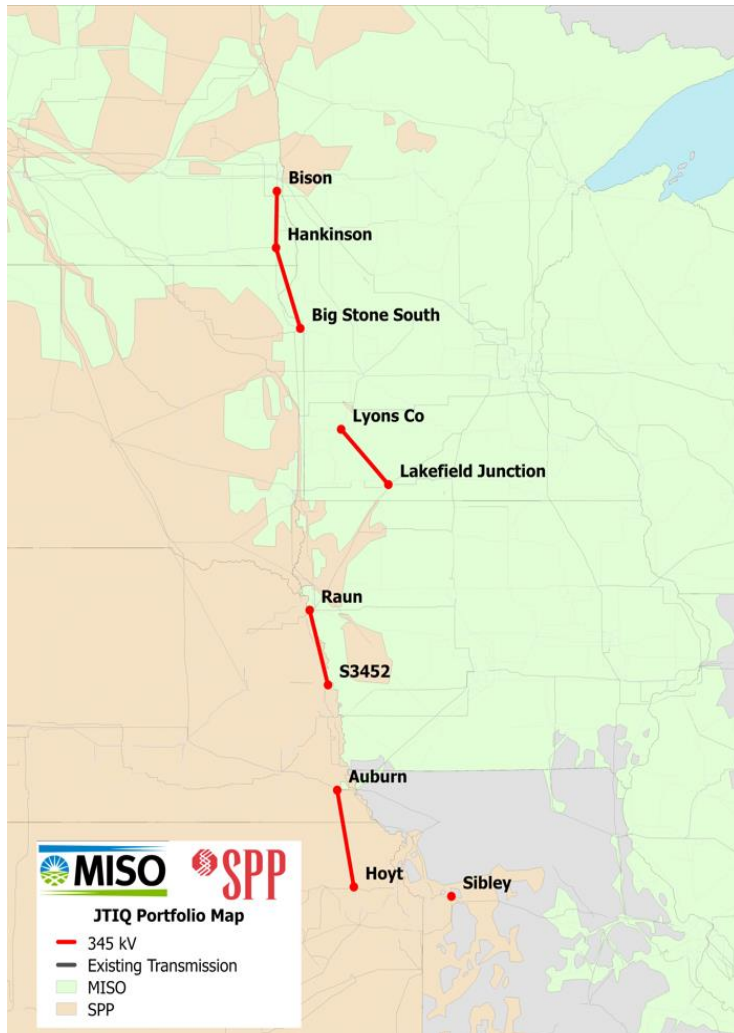
# MISO Long Range Transmission Planning (LRTP): Tranche 1 Projects



Assumption on all in-service dates is by 2030

ID	Project Description	Est. Cost (\$M, 2022)
1	Jamestown – Ellendale	\$439M
2	Big Stone South – Alexandria – Cassie's Crossing	\$574M
3	Iron Range – Benton County – Cassie's Crossing	\$970M
4	Wilmarth – North Rochester – Tremval	\$689M
5	Tremval – Eau Clair – Jump River	\$505M
6	Tremval – Rocky Run – Columbia	\$1,050M
7	Webster – Franklin – Marshalltown – Morgan Valley	\$755M
8	Beverly – Sub 92	\$231M
9	Orient – Denny – Fairport	\$390M
10	Denny – Zachary – Thomas Hill – Maywood	\$769M
11	Maywood – Meredosia	\$301M
12	Madison – Ottumwa – Skunk River	\$673M
13	Skunk River – Ipava	\$594M
14	Ipava – Maple Ridge – Tazewell – Brokaw – Paxton East	\$572M
15	Sidney – Paxson East – Gilman South – Morrison Ditch	\$454M
16	Morrison Ditch – Reynolds – Burr Oak – Leesburg – Hiple	\$261M
17	Hiple – Duck Lake	\$696M
18	Oneida – Nelson Rd.	\$403M
<b>Total Project Portfolio Cost</b>		<b>\$10.3B</b>

# MISO/SPP Planning Collaboration: Joint Targeted Interconnection Queue (JTIQ) Projects

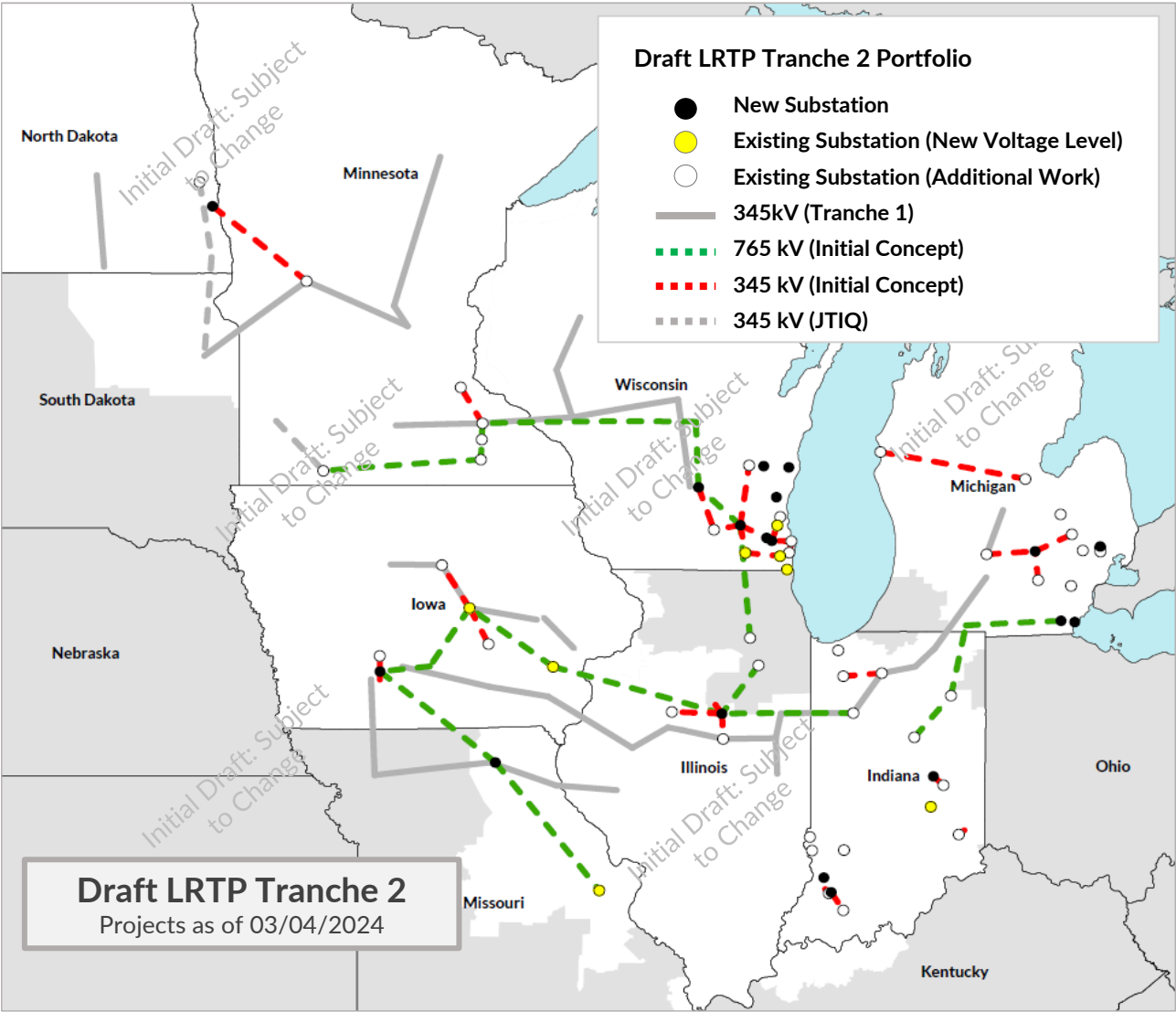


Original JTIQ Portfolio	Location by RTO	2021 Conceptual Cost E&C
<b>Bison - Hankinson - Big Stone South</b>	MISO	\$476 M
Lyons Co. - Lakefield (was Brookings - Lakefield*)	MISO	\$331 M*
Raun - S3452	MISO - SPP	\$144 M
Auburn - Hoyt	SPP	\$90 M
Sibley 345 Bus Reconfiguration	SPP	\$19 M

\*The Brookings Co-Lakefield 345kV in the original JTIQ project portfolio will be replaced by a shorter Lyons Co - Lakefield 345kV project due to an approved MISO MTEP 22 project Brookings Co- Lyons Co 345kV double circuit line.

**Bold = North Dakota substations at Bison and Hankinson**

# MISO Long Range Transmission Planning (LRTP): Initial Draft Tranche 2 Portfolio







Bob Kuzman  
[Bkuzman@misoenergy.org](mailto:Bkuzman@misoenergy.org)