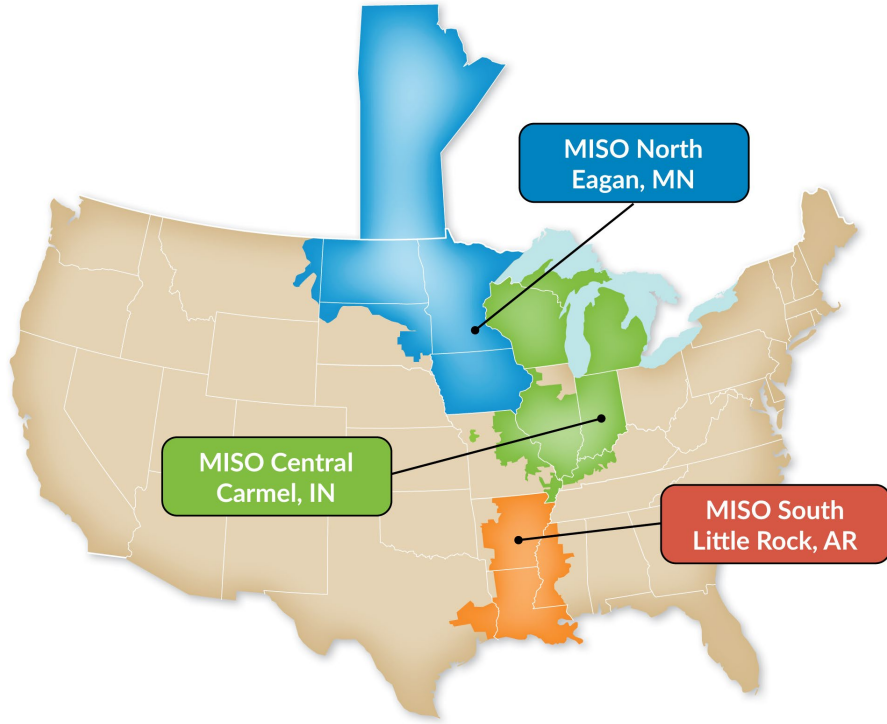




MISO Updates on Transmission Planning

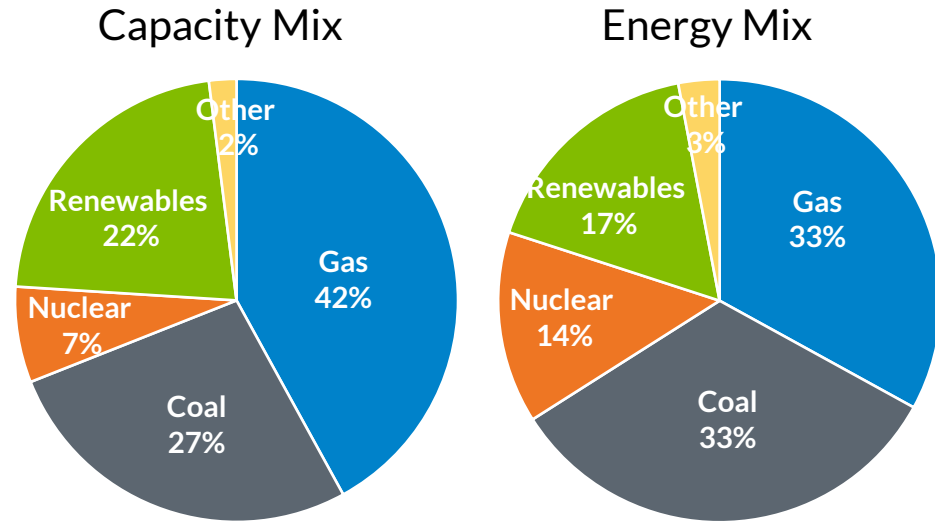
Minnesota Legislative Energy Commission
January 24, 2024

MISO is an independent, non-profit organization responsible for maintaining reliable and cost-effective delivery of power in 15 states and one Canadian province



MISO's reliability footprint and locations of regional control centers.

MISO by the numbers	
High Voltage Transmission	75,000 miles
Generation Capacity	190,000 MW
Peak Summer System Demand	127,125 MW
Customers Served	45 Million



As of 11/2023

MISO continues efforts to ensure the build of Tranche 1 solutions while planning Tranche 2 and developing cost allocation for Tranches 3 and 4

Tranche	Key Milestones	Status
Tranche 1	Identify transmission solutions based on Future 1	✓
	Select developers through Competitive Transmission process	➡
	Provide post-approval transparency and support as required	➡
Tranche 2	Identify transmission solutions based on Future 2A	➡
	Select developers through Competitive Transmission process	TBD
	Provide post-approval transparency and support as required	TBD
Tranches 3 & 4	Identify transmission solutions	TBD
	Identify cost allocation approach	➡
	Select developers through Competitive Transmission process	TBD
	Provide post-approval transparency and support as required	TBD

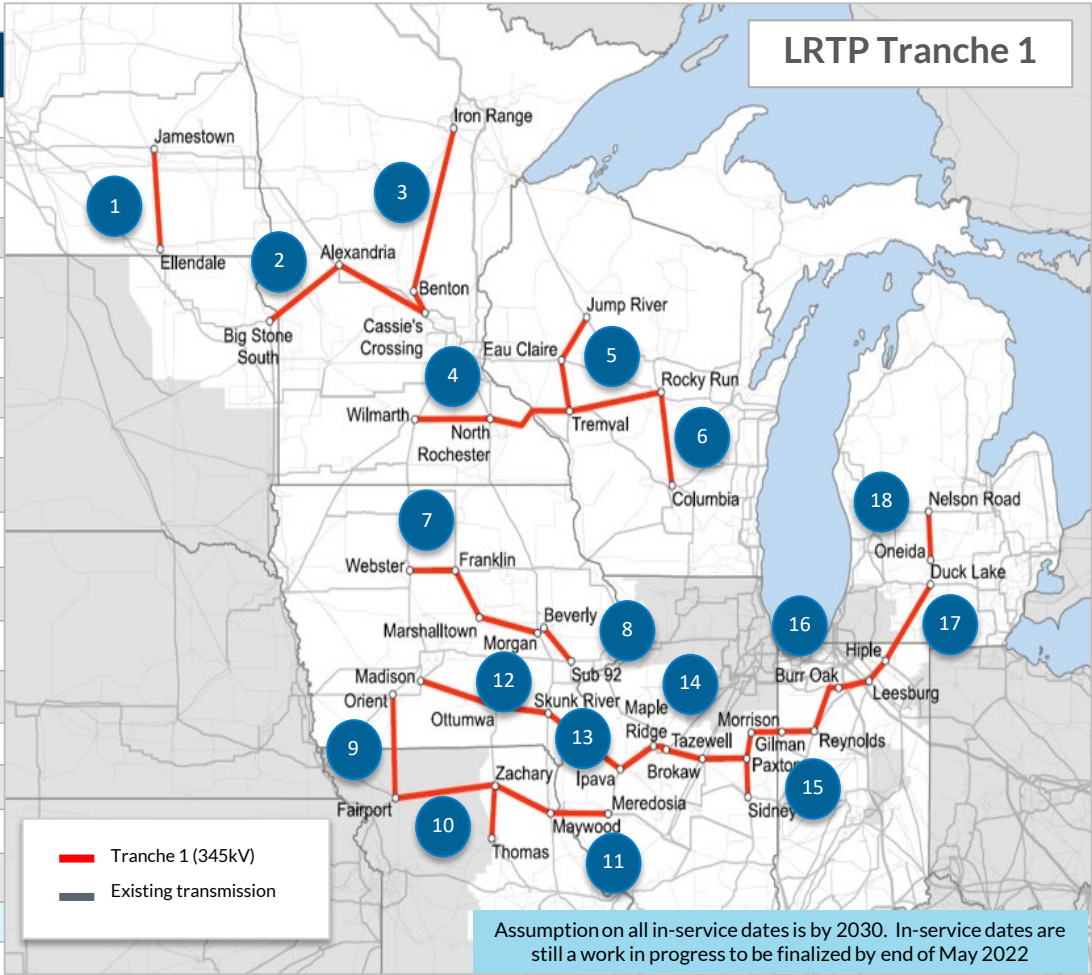
Status as of 12/5/23

■ On Track
 ■ Monitoring
 ■ On Hold

✓ Complete
 ➡ In Process

L RTP Tranche 1 represents the first step in the Transmission required to enable state and MISO member energy goals

ID	Project Description	Est. Cost (\$M, 2022)
1	Jamestown – Ellendale	\$420M
2	Big Stone South – Alexandria – Cassie’s Crossing	\$595M
3	Iron Range – Benton County – Cassie’s Crossing	\$853M
4	Wilmarth – North Rochester – Tremval	\$718M
5	Tremval – Eau Claire – Jump River	\$575M
6	Tremval – Rocky Run – Columbia	\$673M
7	Webster – Franklin – Marshalltown – Morgan Valley	\$716M
8	Beverly – Sub 92	\$178M
9	Orient – Denny - Fairport	\$561M
10	Denny – Zachary – Thomas Hill – Maywood	\$1,115M
11	Maywood – Meredosia	\$356M
12	Madison – Ottumwa – Skunk River	\$683M
13	Skunk River – Ipava	\$600M
14	Ipava – Maple Ridge – Tazewell – Brokaw – Paxton East	\$640M
15	Sidney – Paxson East – Gilman South – Morrison Ditch	\$533M
16	Morrison Ditch – Reynolds – Burr Oak – Leesburg- Hiple	\$374M
17	Hiple – Duck Lake	\$488M
18	Oneida – Nelson Rd.	\$302M
Total Project Portfolio Cost		\$10,380



Tranche 1 projects have begun state regulatory approval processes

Regionally Cost Allocated Project Reporting Analysis

Tranche 1 / Multi-Value Project - Project Status, November 2023

#	Project Name	State	Estimated In Service Date		Status		Cost		Explanation
			MTEP Approved	October 2020	State Regulatory Status	Construction	MTEP Approved	Current Cost	
1	Jamestown - Ellendale	ND	12/31/2028	12/31/2028	○		\$439	\$439	
2	Big Stone South - Alexandria - Cassie's Crossing	SD/MN	6/1/2030	6/1/2030	◐		\$574	\$574	
3	Iron Range - Benton County - Cassie's Crossing	MN	6/1/2030	6/1/2030	◐		\$970	\$970	
4	Wilmarth - North Rochester - Tremval	MN/WI	6/1/2028	6/1/2028	◐		\$689	\$689	
5	Tremval - Eau Clair - Jump River	WI	6/1/2028	6/1/2028	○		\$505	\$505	
6	Tremval - Rocky Run - Columbia	WI	6/1/2029	6/1/2029	○		\$1,050	\$1,050	
7	Webster - Franklin - Marshalltown - Morgan Valley	IA	12/31/2028	12/31/2028	◐		\$755	\$755	
8	Beverly - Sub 92	IA	12/31/2028	12/31/2028	○		\$231	\$231	
9	Orient - Denny - Fairport	IA/MO	6/1/2030	6/1/2030	○		\$390	\$390	
10	Denny - Zachary - Thomas Hill - Maywood	MO	6/1/2030	6/1/2030	○		\$769	\$769	
11	Maywood - Meredosia	MO/IL	6/1/2028	6/1/2028	○		\$301	\$301	
12	Madison - Ottumwa - Skunk River	IA	6/1/2029	6/1/2029	○		\$673	\$673	
13	Skunk River - Ipava	IA/IL	12/31/2029	12/31/2029	○		\$594	\$594	
14	Ipava - Maple Ridge - Tazewell - Brokaw - Paxton East	IL	6/1/2028	6/1/2028	○		\$572	\$572	
15	Sidney - Paxson East - Gilman South - Morrison Ditch	IL	6/1/2029	6/1/2029	○		\$454	\$454	
16	Morrison Ditch - Reynolds - Burr Oak - Leesburg - Hiple	IL/IN	6/1/2029	6/1/2029	○		\$261	\$261	
17	Hiple - Duck Lake	IN/MI	6/1/2030	6/1/2030	○		\$696	\$696	
18	Oneida - Nelson Rd.	MI	12/31/2029	12/31/2029	○		\$403	\$403	

State Regulatory Status Indicator Scale
 ○ Pending
 ◐ In regulatory process or partially complete
 ● Regulatory process complete or no regulatory process requirements

Total	\$10,324	\$10,324
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All 3-Projects in MN have begun regulatory process, one in Iowa

MISO is aiming to identify Tranche 2 potential transmission project solutions by early spring 2024 and a Board approval of Tranche 2 Projects in 2024



■ Complete ■ In Process ■ Not Started
 PAC - Planning Advisory Committee

A FERC filing is planned for Q2 of 2024 to move toward approval of the SPP-MISO Joint Targeted Interconnection Queue (JTIQ) portfolio, state regulatory processes to follow



Agreement reached on cost allocation



DOE grant application submitted (grant awarded)



Finalize cost allocation and study process Tariff language

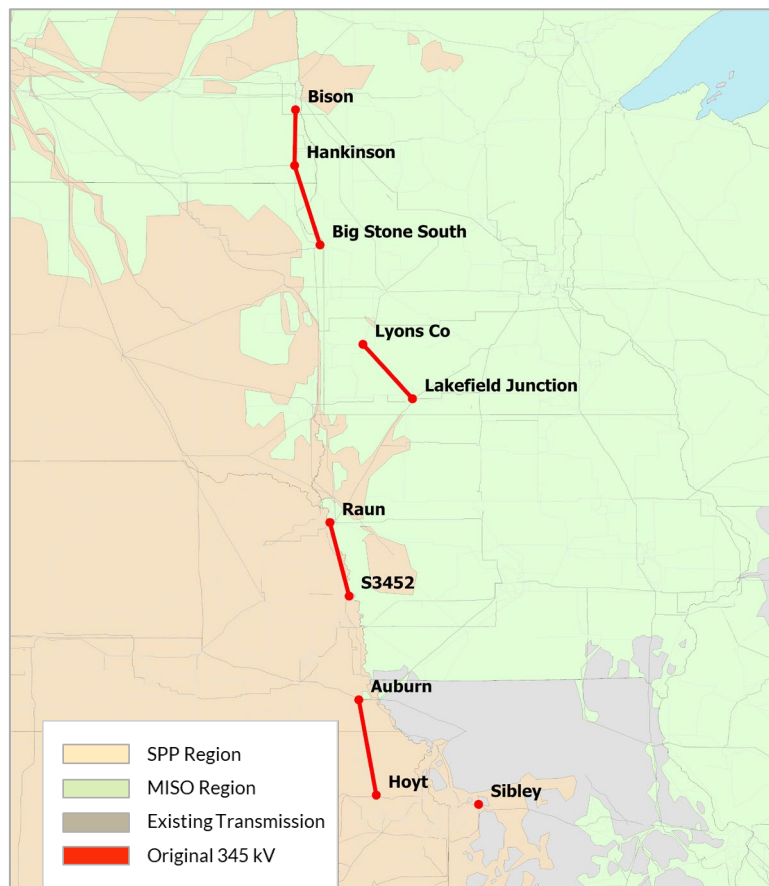


Seek FERC approval of Tariff revisions in Q1, 2024



Request Board approval*

Complete To Do



* Request for Board approval is subject to regulatory approval of the Tariff revisions.



Appendix

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

MARKET REDEFINITION

Aims to ensure generation resources with the capabilities and attributes the system demands will be available all hours of the year.

TRANSMISSION EVOLUTION

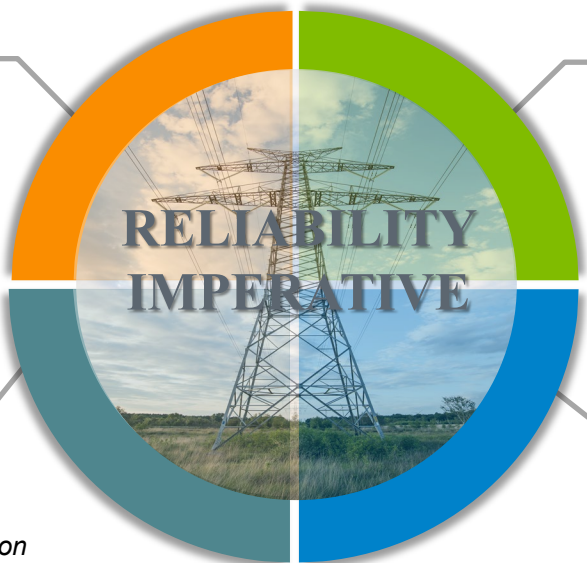
Assesses the region's future transmission needs holistically, in concert with utility and state plans, supporting the lifecycle of generation resources and considering the allocation of related costs.

SYSTEM ENHANCEMENTS

Transforms MISO's legacy system platform into a flexible, upgradeable, and secure system that will evolve with the industry and focus on the integration of advanced technologies to process increasingly complex information.

OPERATIONS OF THE FUTURE

Focuses on the skills, processes and technologies needed to ensure MISO Operations can effectively manage the grid into the future under increased complexity.



[MISO Reliability Imperative \(misoenergy.org\)](http://misoenergy.org)