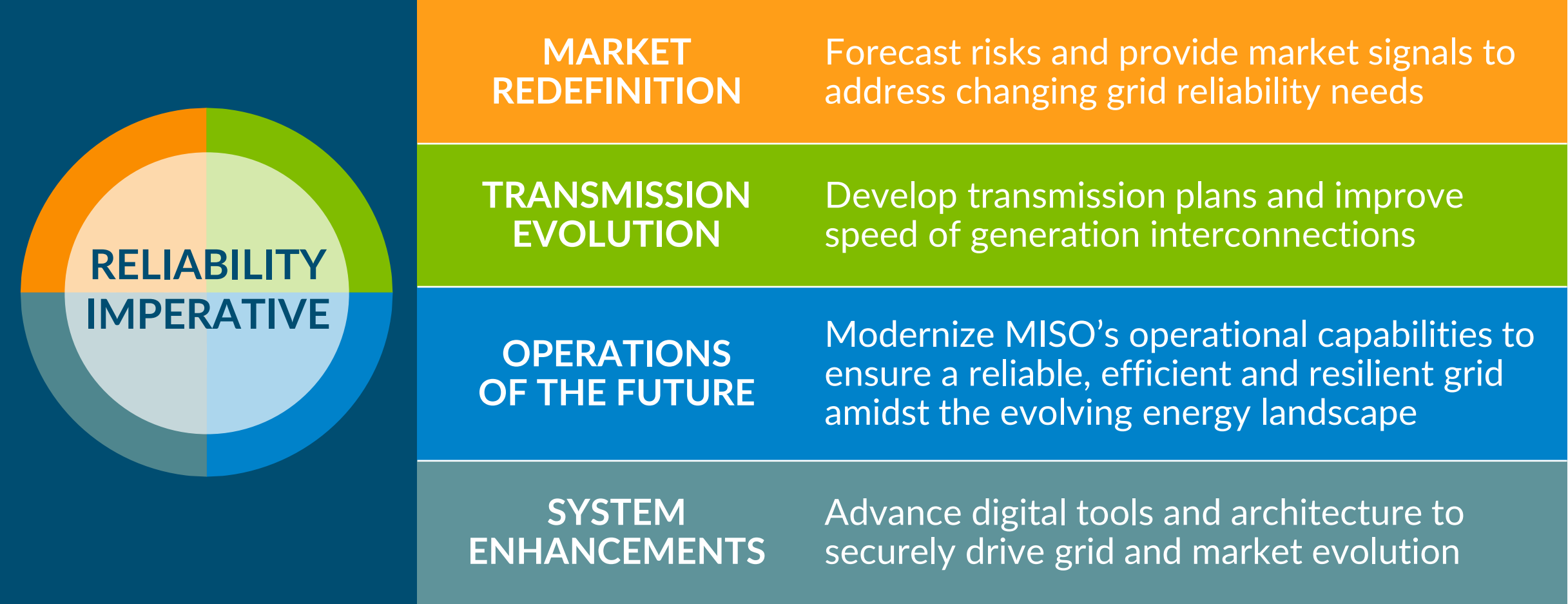




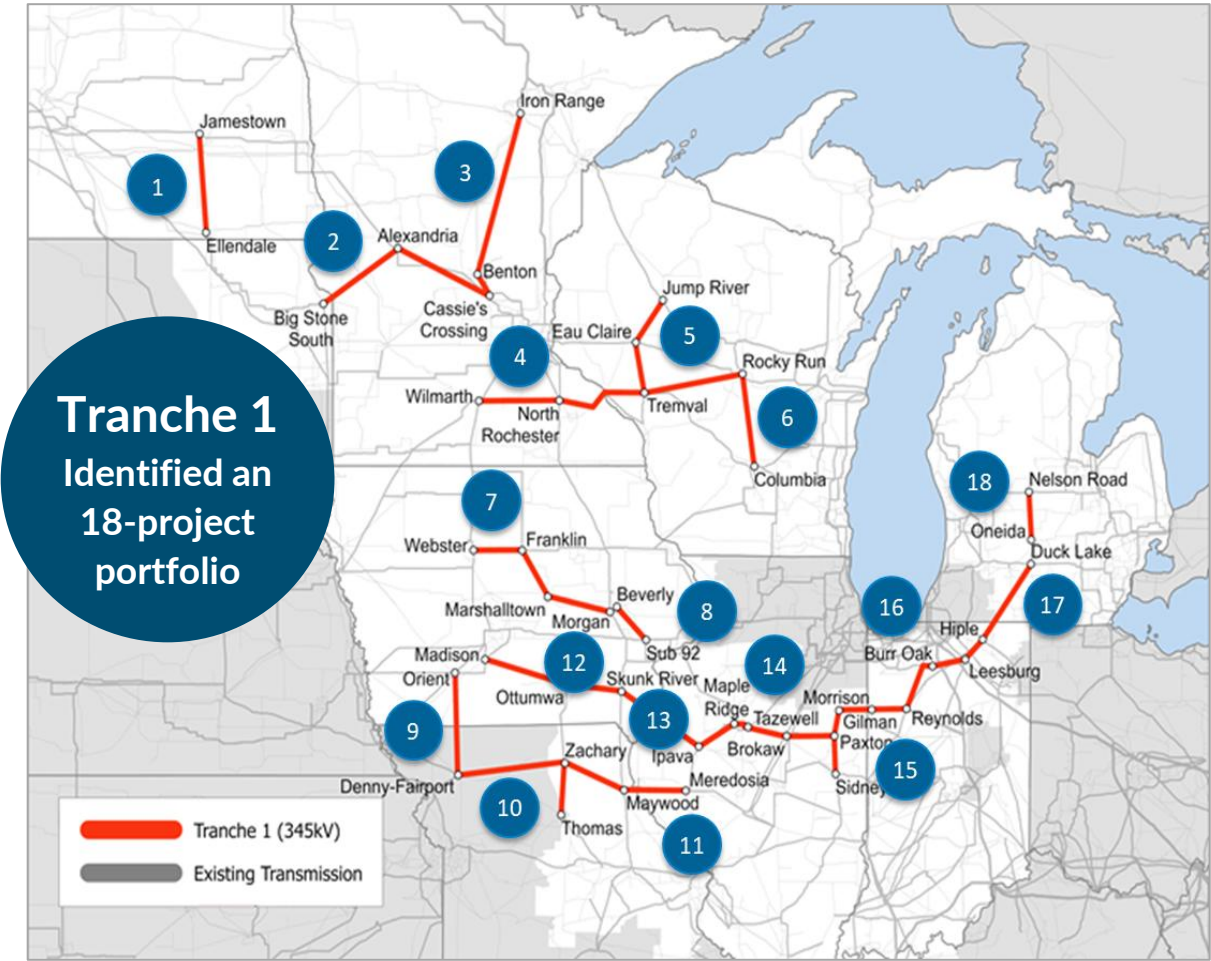
Advancing Transmission in the MISO Region

ESIG 2025 Fall Technical Conference

Through its Reliability Imperative, MISO is addressing several challenges and positioning the region to reliably support and enable the future system



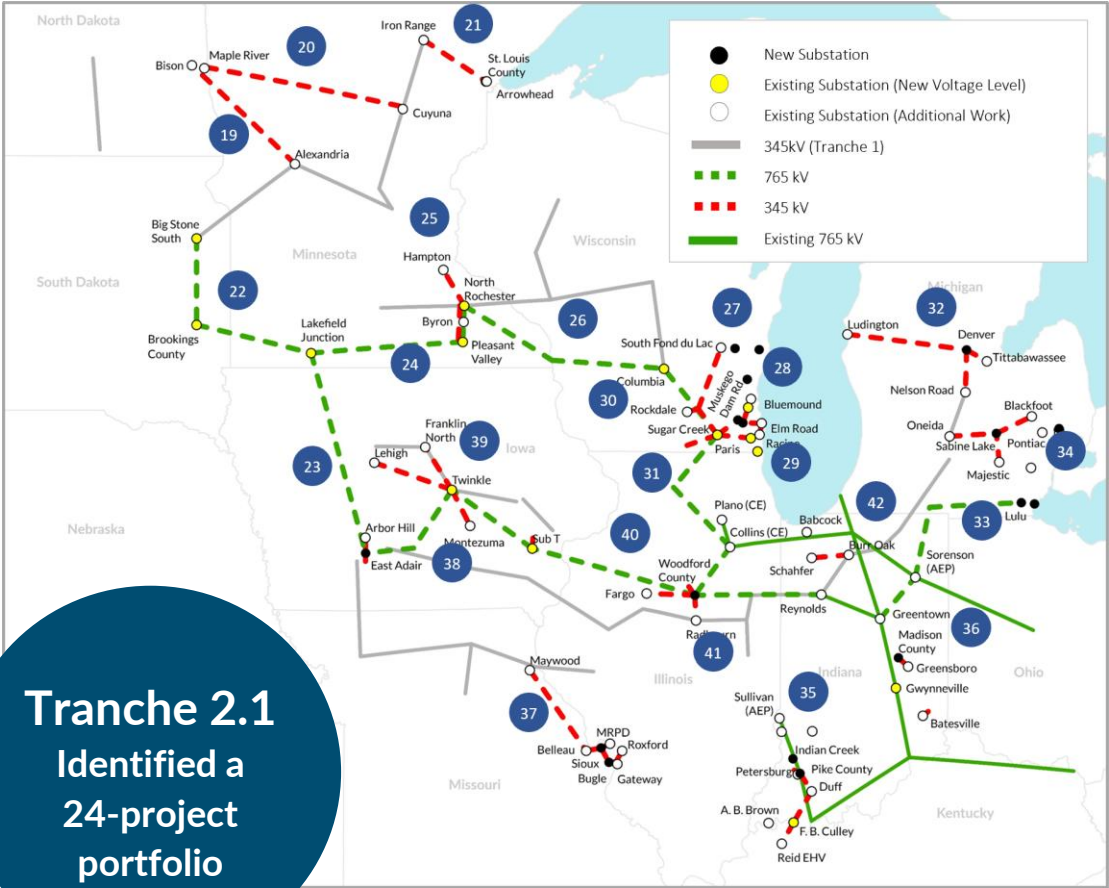
Tranche 1, approved in 2022, addresses needs in the Midwest and maximizes existing right of way



ID	Project Description	State
1	Jamestown – Ellendale	ND
2	Big Stone South – Alexandria – Cassie’s Crossing	SD/MN
3	Iron Range – Benton County – Cassie’s Crossing	MN
4	Wilmarth – North Rochester – Tremval	MN/WI
5	Tremval – Eau Clair – Jump River	WI
6	Tremval – Rocky Run – Columbia	WI
7	Webster – Franklin – Marshalltown – Morgan Valley	IA
8	Beverly – Sub 92	IA
9	Orient – Denny - Fairport	IA/MO
10	Denny – Zachary – Thomas Hill – Maywood	MO
11	Maywood – Meredosia	MO/IL
12	Madison – Ottumwa – Skunk River	IA
13	Skunk River – Ipava	IA/IL
14	Ipava – Maple Ridge – Tazewell – Brokaw – Paxton East	IL
15	Sidney – Paxton East – Gilman South – Morrison Ditch	IL/IN
16	Morrison Ditch – Reynolds – Burr Oak – Leesburg – Hiple	IN
17	Hiple – Duck Lake	IN/MI
18	Oneida – Nelson Rd.	MI

Most Tranche 1 projects are progressing through regulatory processes

Tranche 2.1, approved in 2024, also addresses the Midwest by developing a 765 kV transmission backbone that ensures regional reliability



765 kV TRANSMISSION TECHNOLOGY

1 765 kV circuit

=

(3) 500 kV circuits

OR

(6) 345 kV single circuits

OR

(3) 345 kV double circuits



Benefits:

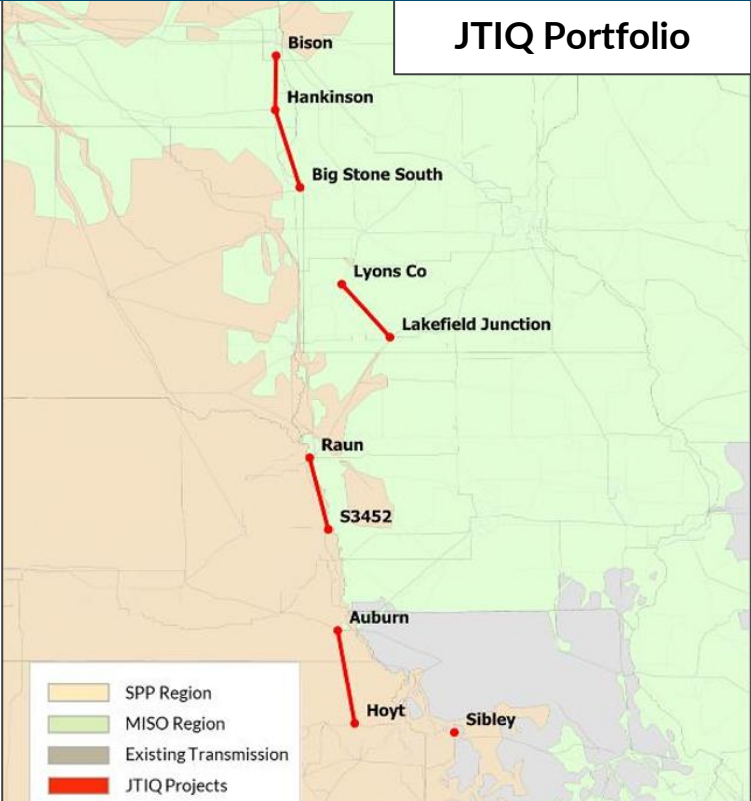
- Can carry more electricity than smaller lines
- Minimizes land use
- Reduces energy losses over long distances for high efficiency

MISO's approach to the Tranche 2.1 business case analysis builds off the Tranche 1 benefit metrics

Reliability Benefits	1. Mitigation of reliability issues	Value of alleviating reliability issues which, if unresolved, introduce a risk of unserved load
	2. Reduced risks from extreme weather events	Increases grid resilience and decreases the probability of major service interruptions
Avoided Investment Benefits	3. Avoided capacity costs	Avoids capital costs for local resource builds versus regional expansions defined in Futures
	4. Capacity savings from reduced losses	Value of reducing transmission losses during peak capacity periods
	5. Avoided transmission investments	Avoids the need for facility replacement due to age and condition
Production Cost Benefits	6. Congestion and fuel savings	Enhances market efficiency and provides access to low-cost generation
	7. Energy savings from reduced losses	Lower production costs to serve load with transmission facilities that reduce system losses
	8. Reduced transmission outage costs	Reduced transmission congestion during forced and planned transmission outages
Environmental Benefits	9. Decarbonization	Enables the economical dispatch of renewable resources to help reduce the carbon footprint

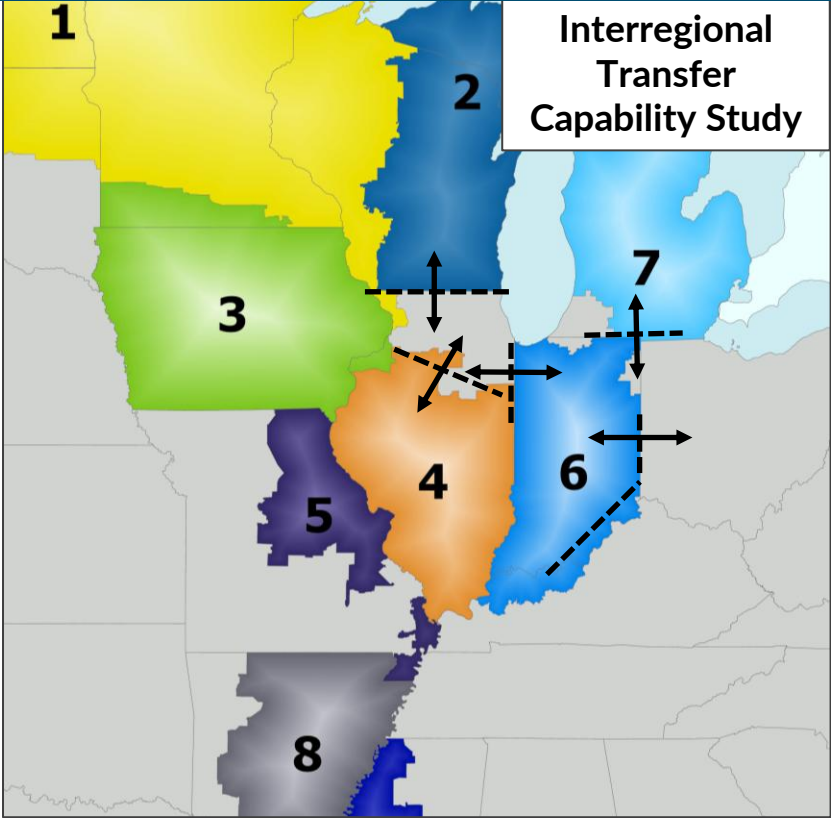
Interregional planning enables the efficient transfer of energy between planning regions along the seams to help ensure reliability

MISO-SPP



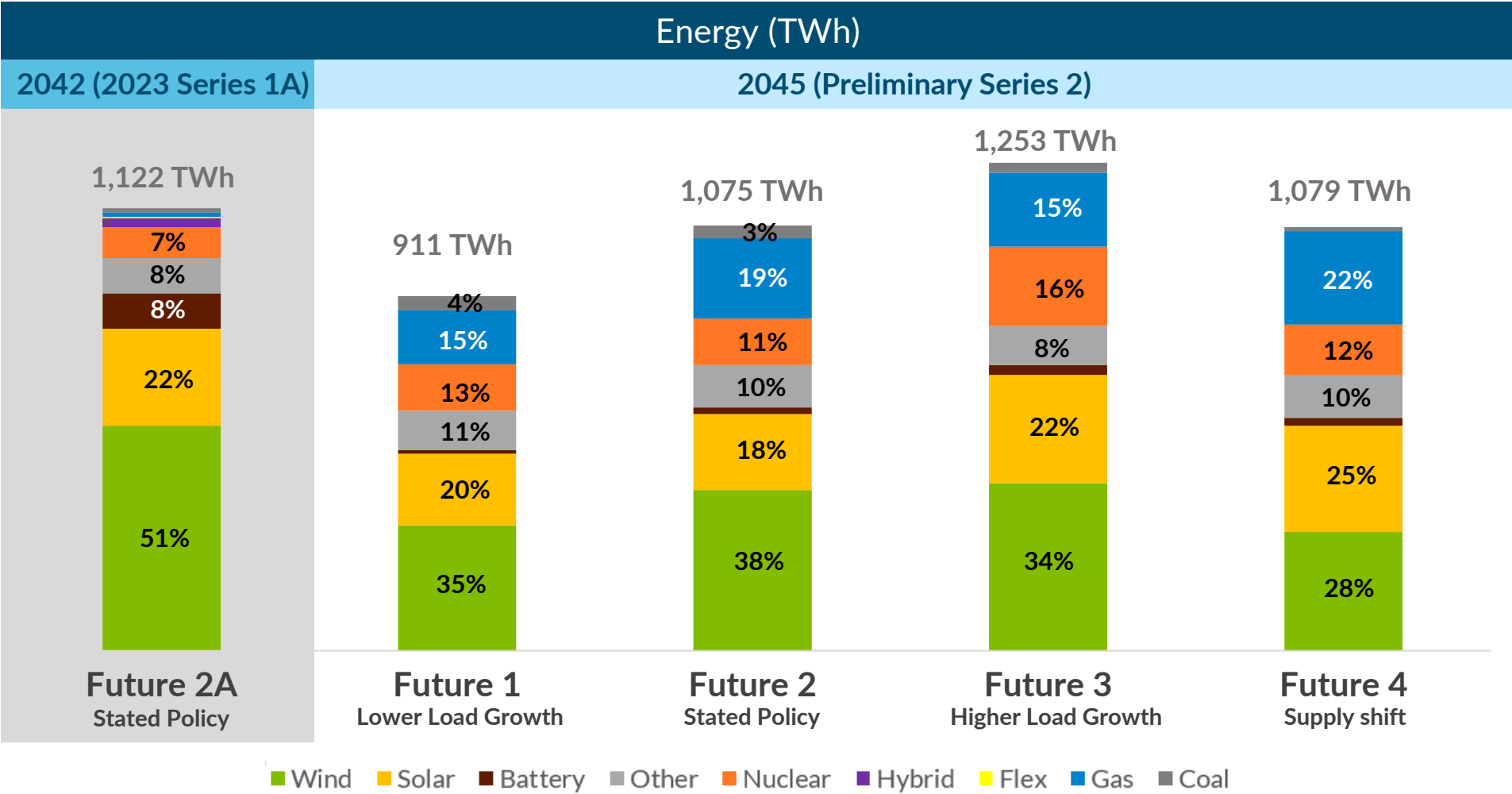
A joint study that identified a five-project portfolio

MISO-PJM

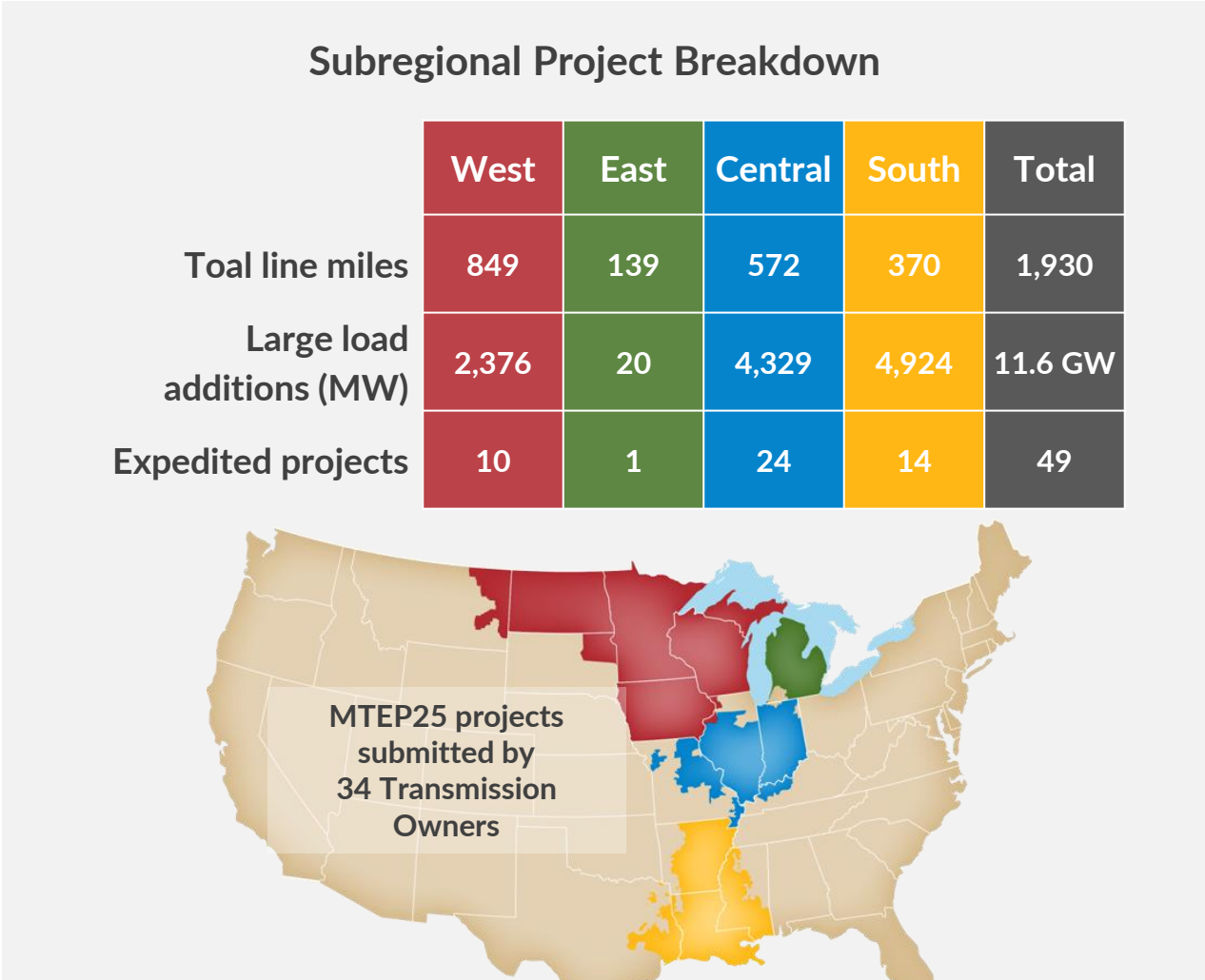
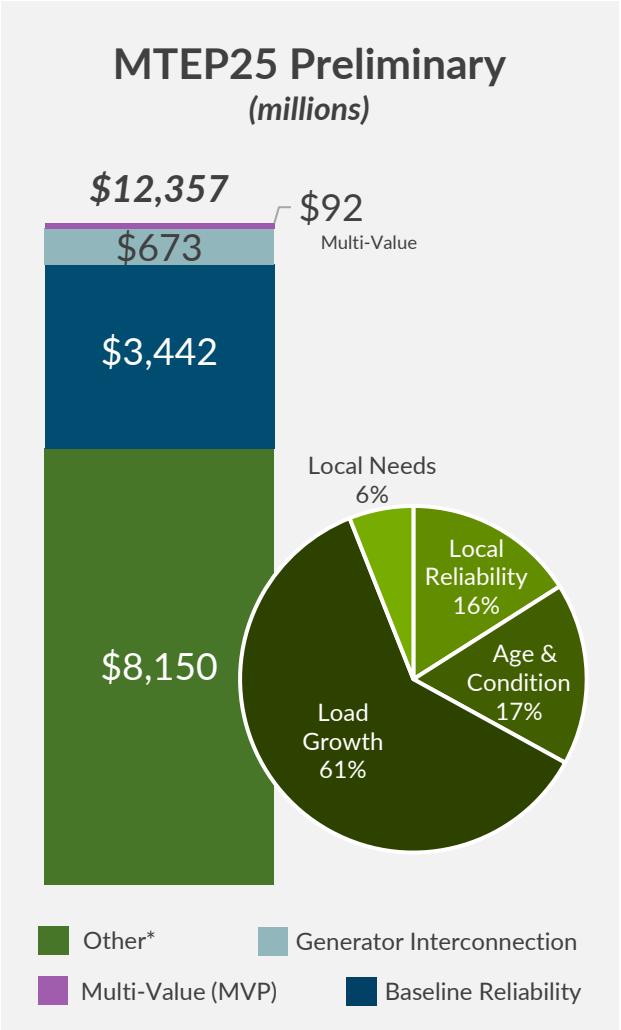


Interfaces considered for transfer analysis

Preliminary Series 2 Futures results highlight changes in load growth and show the impacts of policy changes and supply chain frictions



MTEP25 includes a record number of Expedited Project Requests and supports significant large load additions



MISO will begin its next set of LRTP studies in 2026



Midwest LRTP

Builds on an extensive foundation of prior studies and stakeholder engagement

Needs Support subregional transfers, state and member goals, and load growth

Process Evaluate system reliability and economics using models defined by the updated Futures

Outcome Solutions for identified issues (subsequent MTEP cycles)

South LRTP

Begins the subregional journey with a collaborative, investigative approach

Needs Support reliability and load growth

Process Evaluate system reliability and load-serving needs using models defined by the updated Futures; develop detailed scope with stakeholders, beginning with Louisiana

Outcome Options to guide next steps, which could include transmission and/or generation solutions for further study

MISO developed a compliance plan with stakeholders for FERC Order 1920 while maintaining flexibility to meet regional and subregional needs

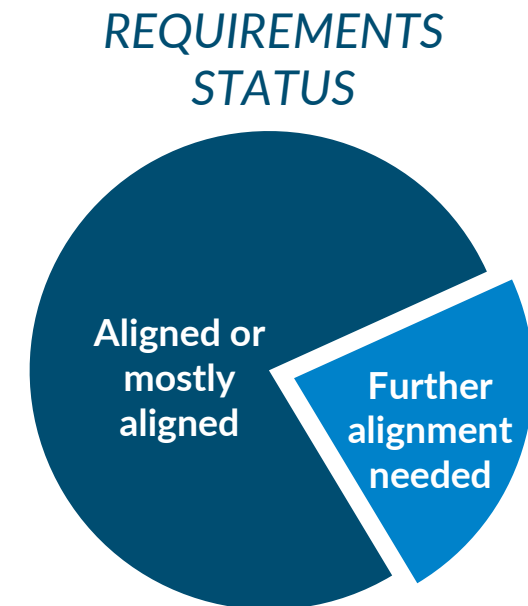
Key Areas for Order 1920 Compliance

Long Range Transmission Planning
A consistent part of the transmission planning process, with required scenarios and benefit metrics

Benefits
Standardized according to a set of seven defined metrics

Interregional Planning Agreements
Revised to reflect new long-term planning requirements and expanded data-sharing protocols

Cost Allocation
Aligned with state preferences and commensurate with benefits





Questions



MISO is the electric grid operator for the central United States. We ensure power flows reliably and affordably across 15 states and the Canadian province of Manitoba. Additionally, MISO facilitates the buying and selling of electricity in its region and partners with its stakeholders to plan the grid of the future.

45 million people depend upon the work we do and the service we provide 24/7/365.

Learn more and follow MISO at:

misoenergy.org

LinkedIn: Midcontinent ISO

