



Reliability Imperative: Long Range & Interregional Transmission Planning

System Planning Committee
of the Board of Directors

March 21, 2023

Executive Summary



- As part of the Reliability Imperative, MISO's Transmission Evolution initiatives continue preparing the region for grid transformation
- Tranche 2 work is underway with the Future 2 refresh nearing completion and other key activities beginning or being planned, while MISO continues to help move the Tranche 1 portfolio towards construction
- Interregional efforts with SPP and PJM are progressing, and a Targeted Market Efficiency Project is ready for the Board approval

The Reliability Imperative's Long Range Transmission Planning pillar was renamed to 'Transmission Evolution' to include other key initiatives needed for grid transformation

TRANSMISSION EVOLUTION

TODAY'S FOCUS

Long Range & Interregional Transmission Planning



Long Range Transmission Planning

Increase forward-looking visibility

Enhance joint seams planning

Explore cost allocation for future needs

Planning Transformation



Evolve tools

Enhance system resiliency and robustness

Integrate planning model data

Resource Utilization



Address resource retirements

Streamline interconnections

As part of Transmission Evolution, long-term and interregional transmission planning provide orderly and timely regional transmission expansion given the changing resource portfolio

Reliable System



Maintain robust and reliable performance in future conditions with greater uncertainty and variability in supply

Cost Efficient



Enable access to lower-cost energy production

Accessible Resources



Provide cost-effective solutions allowing the future resource fleet to serve load across the footprint

Flexible Resources



Allow more flexibility in the fuel mix for customer choice

Long Range Transmission Planning

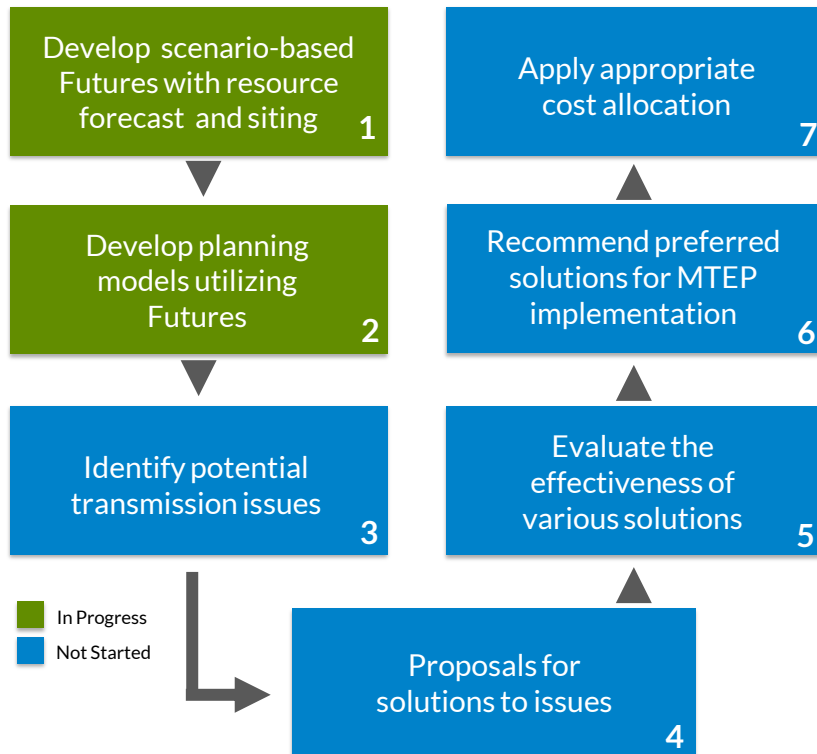
Work continues for future tranches while MISO implements the Competitive Transmission process for Tranche 1 projects

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



Long Range Transmission Planning for Tranche 2 is following MISO's seven-step, value-based planning process

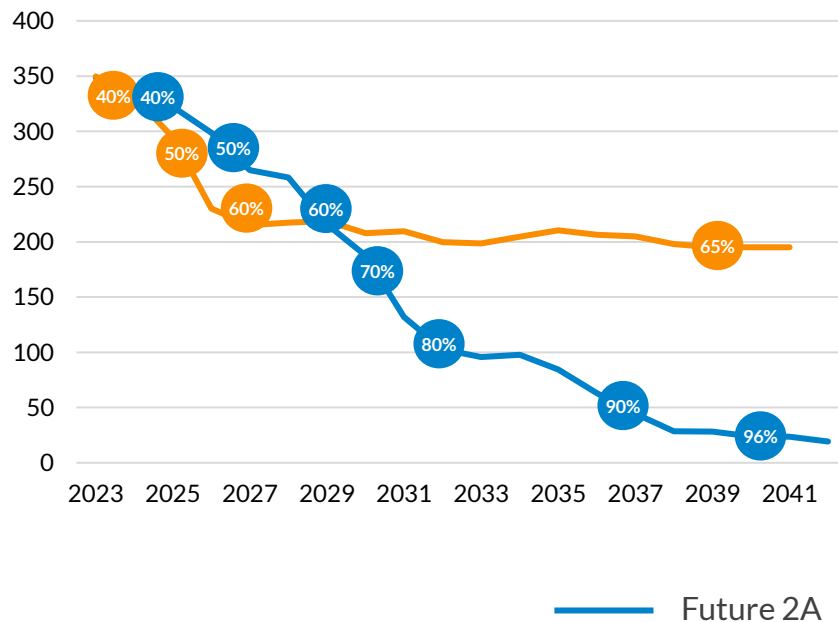
MISO's 7-Step Process



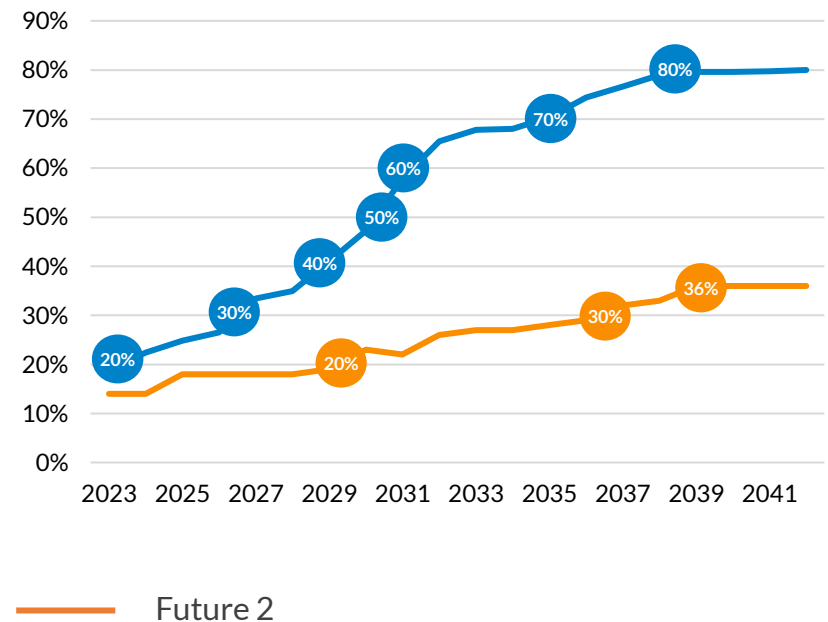
- Step 1** Futures establish potential scenarios for resource mix and load in the 20-year horizon; key parameters are load, reserves, costs, emissions, renewable energy targets, etc.
- Step 2** Models capture a range of conditions, for steady state, dynamic reliability, resilience and economic values
- Step 3-5** Applicable reliability and economic criteria are applied to find potential issues
- Step 4-5** Alternatives are provided by MISO and stakeholders
- Step 6** Recommend projects to ensure reliability, cost-effectiveness over time and economic values with stakeholder review and input
- Step 7** Tariff-based cost allocation depending on project classification tied to project benefits

Futures bookend a range of system possibilities to inform planning; updated projections show decarbonization continuing as wind and solar reach 30% penetration 10 years earlier than Future 2

**Future 2A vs. Future 2
Carbon Emissions**
(million short tons)

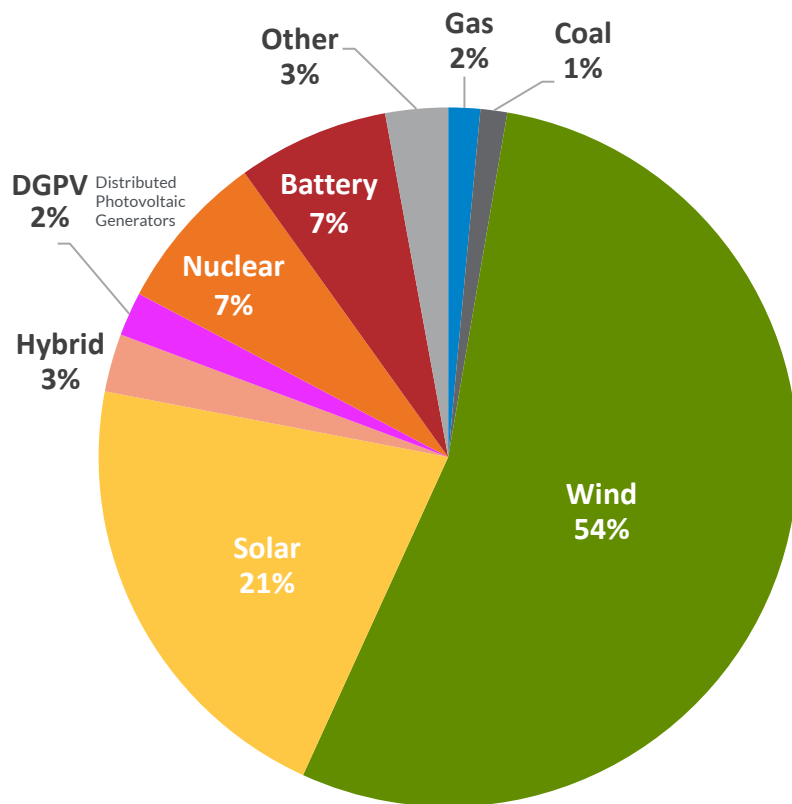


**Future 2A vs. Future 2
Wind and Solar Energy Generation**

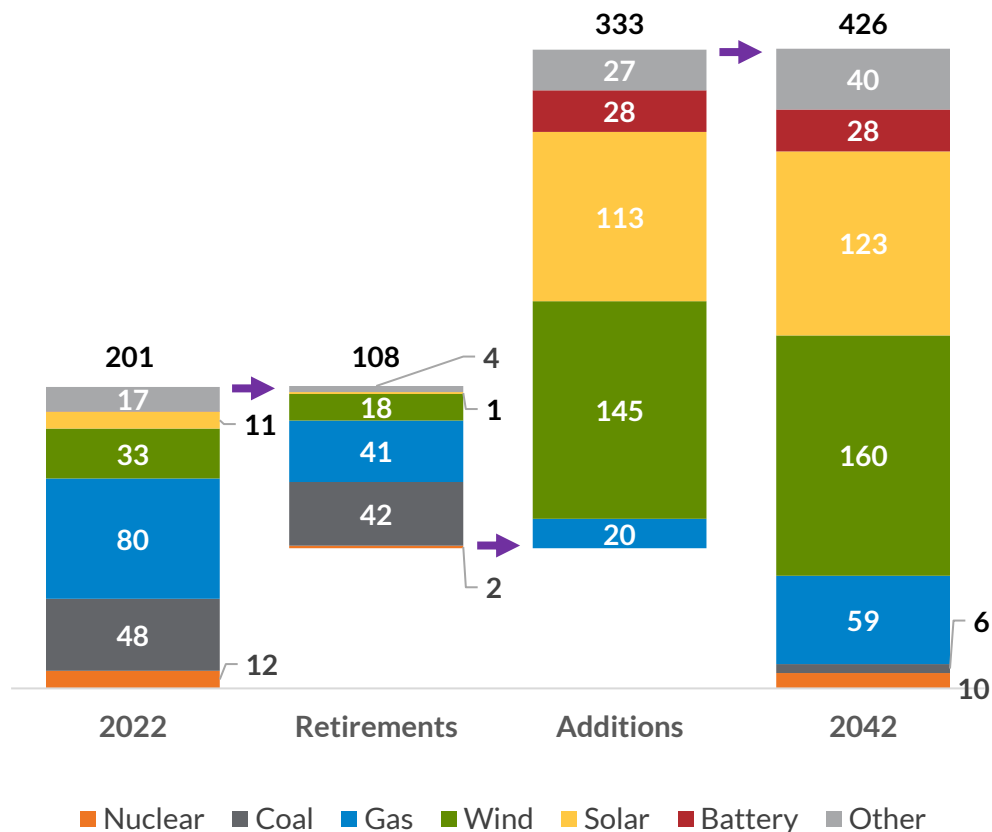


Updated member resource plans and goals result in a Future 2A that's closer to the prior Future 3 and introducing new system reliability needs

Future 2A – 2042 Energy*



Future 2A – 2042 Installed Capacity (GW)*



The Tranche 2 schedule will be refined as the iterative process progresses, with model completion targeted for late Q2 2023



Interregional Transmission Planning

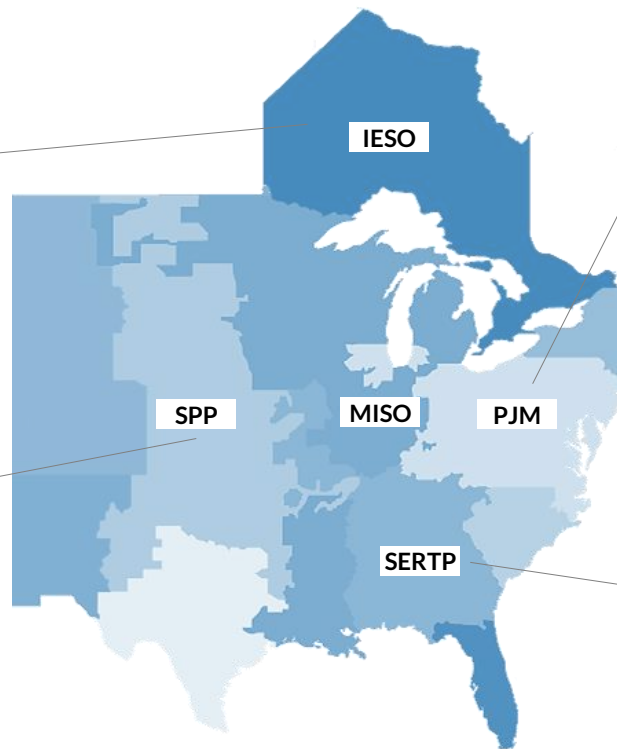
MISO continues several coordinated efforts to review and address issues along the seams and prepare for pending FERC orders

Independent Electricity Service Operator

- Conduct processes driven by planning agreement
- Coordinate on issues/projects to study along the seam

Southwest Power Pool

- Finalize cost allocation for SPP-MISO JTIQ portfolio
- Conduct Order 1000 driven planning processes in Joint Operating Agreement
- Submit FERC filing for SPP-MISO Targeted Market Efficiency Project (TMEP) Study Process



PJM Interconnection

- Conduct Order 1000 driven planning processes in Joint Operating Agreement
- Finalize decisions on potential PJM-MISO 2023 study efforts

Southeastern Regional Transmission Planning

- Conduct Order 1000 driven planning processes in planning agreement
- Coordinate on issues/projects to study along the seam

The SPP-MISO Joint Targeted Interconnection Queue (JTIQ) portfolio is moving towards Board approval



Agreement reached on cost allocation



JTIQ whitepaper completed



Seek FERC approval of Tariff revisions in Q2



Request Board approval



The 2022 Targeted Market Efficiency Project, a Market-to-Market Flowgate Facility in Illinois, is before the Committee for approval as part of MTEP22 Appendix A

Powerton to Towerline 138 kV Project

Upgrade:	Wave Trap Replacement
Transmission Owners:	Ameren Illinois – Commonwealth Edison
Benefit to Cost Ratio:	36.5
Cost:	\$200,000
Interregional Cost Allocation:	PJM - 71.6% MISO - 28.4%
MISO Cost:	\$56,800
MISO Regional Cost Allocation:	100% Ameren Illinois (Transmission Pricing Zone 3)



Potential Motion

"The System Planning Committee moves that the Board of Directors approve the Powerton to Towerline 138 kV Targeted Market Efficiency Project that was reviewed as part of MTEP22 for inclusion in MTEP22 Appendix A."