



MISO Update

Implications of a Changing Resource Mix
Reliability Imperative Discussion
Resource Availability and Need (RAN)
Longer-term RA Challenges

Indiana Commission Technical Conference

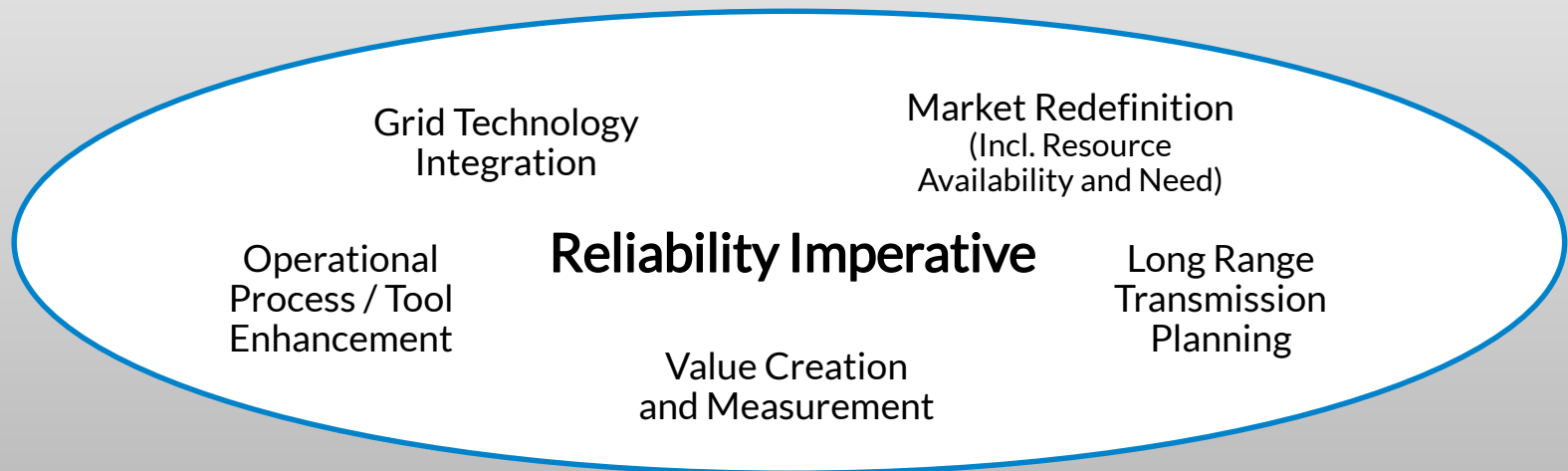
August 25th , 2020

MISO's Regional Reliability Imperative is a coordinated collection of efforts to ensure ongoing efficient reliability as members evolve their resource fleets

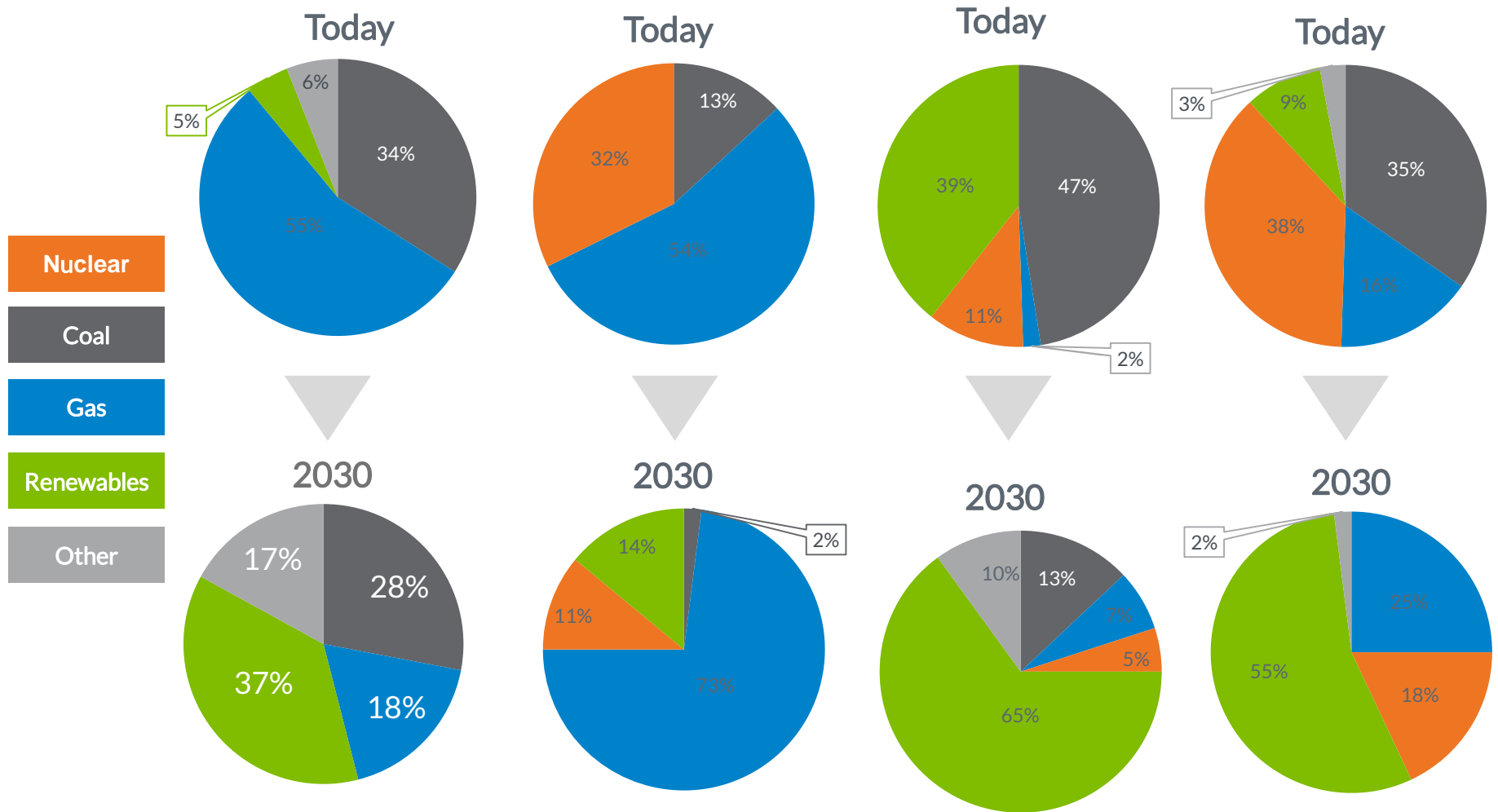
Members' resource fleets have changed and will continue to change at an accelerated rate.

The fleet changes are resulting in substantially more grid diversity and volatility.

MISO is actively pursuing multiple workstreams to ensure on-going reliability and value creation. This requires visibility of the volatility, the availability of flexible resources and the ability to both manage and move those resources to where they are needed.

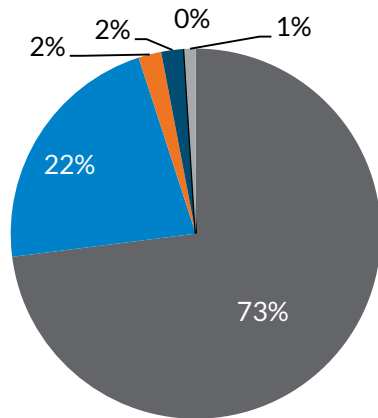


Members' resource fleets are changing rapidly and are becoming more diverse



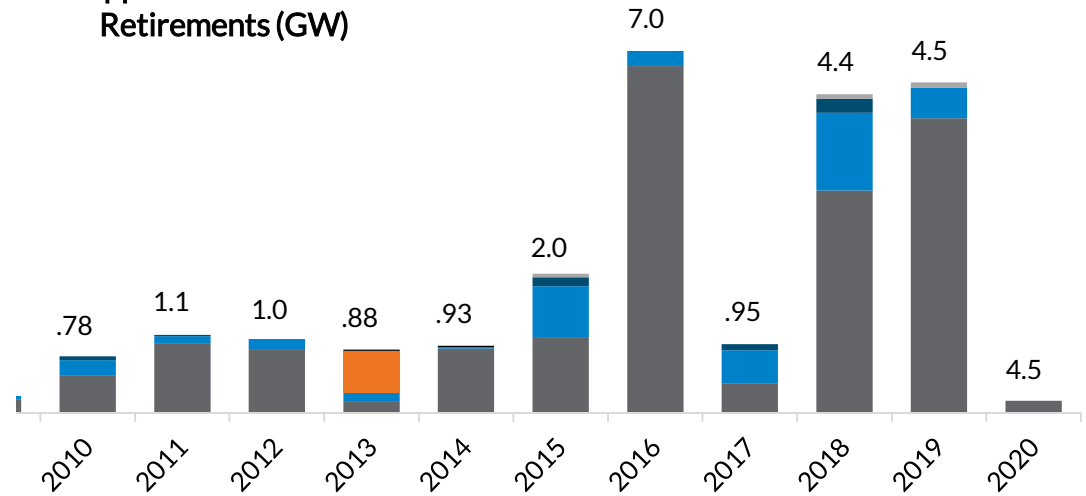
As the fleet evolves, resources that have historically been used to balance the system are retiring

Total Approved Retirement since 2005 (24.3 GW)

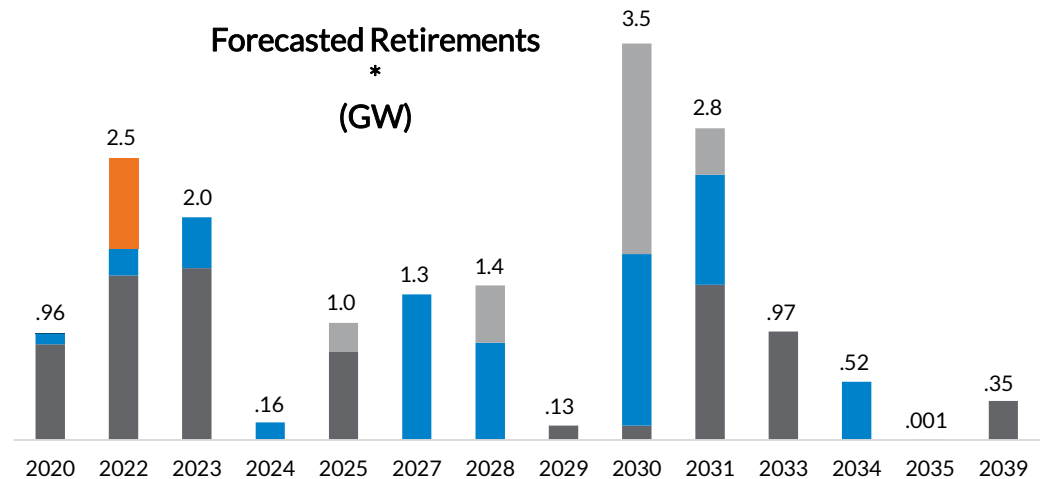


- Coal
- Gas
- Nuclear
- Oil
- Other

Approved Generator Retirements (GW)



Forecasted Retirements (GW)



The Resource Adequacy construct of the past, will not meet the needs of the future

	Deficiencies / Insufficiencies	Impact to Reliability
Resource Planning	Current requirements and mechanisms do not incent members to bring their share of resources or required capabilities to the pool.	The resource pool will continue to erode, creating more episodes of tight operating conditions.
Reliability Needs	The current reserve margin analysis does not adequately reflect variation in resource production and other seasonal risk factors.	Reserve margin does not ensure resource MWs are available at the right time with the right capabilities in Day-Ahead and Real-Time.
Resource Availability	Accreditation process does not accurately reflect expected Real-Time availability.	An increased number of emergency events due to scarcity of available resources.

MISO is focused on near-term resource adequacy enhancements, while continuing to assess long-term considerations

	Identify Reliability Needs	Planning Horizon	Operating Horizon
Needs	<p>Develop analytic methods to define reliability criteria.</p> <p>Identify system reliability needs in addition to peak hour MWs.</p>	<p>Define planning constructs that complement state and member roles in Resource Adequacy.</p>	<p>Improve pricing for existing products.</p> <p>Develop necessary new processes, tools and products.</p>
Importance	<p>Addresses the 24/7 risk, not just peak hour.</p>	<p>Stakeholders require better information to inform planning and investment decisions.</p>	<p>Market prices must better reflect underlying system conditions.</p>
2020/21 Focus	<p>Define system reliability needs and capabilities.</p>	<p>Develop sub-annual planning + PRA reform.</p> <p>Enhance resource accreditation.</p>	<p>Address emergency and scarcity pricing reforms.</p>

MISO is engaged with stakeholders on directionally-correct FERC filings in 2020/21 and ongoing reliability needs analysis

