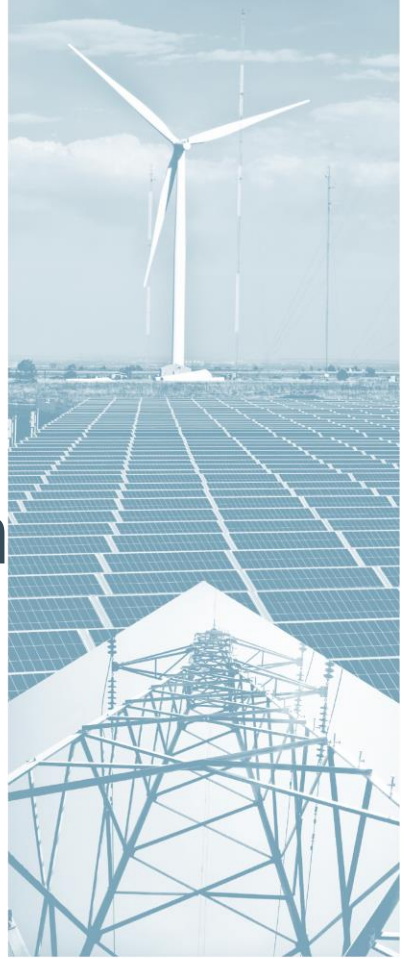
Rural Minnesota energy board
November 25, 2019



clean grid alliance: key transmission issues

Peder Mewis
Regional Policy Manager – West

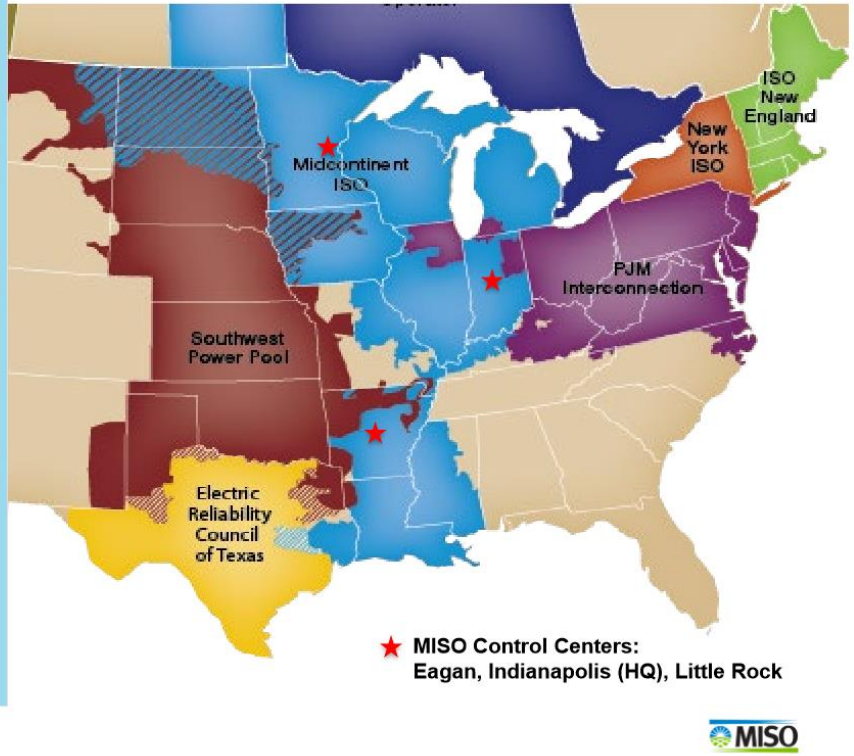
Clean Grid alliance overview

- Regional non-profit advocacy organization focused on state renewable energy policy, technical/engineering issues, project implementation, primarily for utility-scale resources
  - Members include environmental/clean energy NGOs, wind/solar/storage developers, turbine manufacturers, businesses that provide goods/services to the industries (construction, legal, supply chain)
  - 9 state footprint: ND, SD, MN, IA, WI, MO, MI, IL, IN
  - Extensive participation in stakeholder process at MISO – transmission planning, interconnection, markets, operations
  - 18-year track record of success
  - Work extensively with electric utilities and others

MISO and Neighboring Grid operators

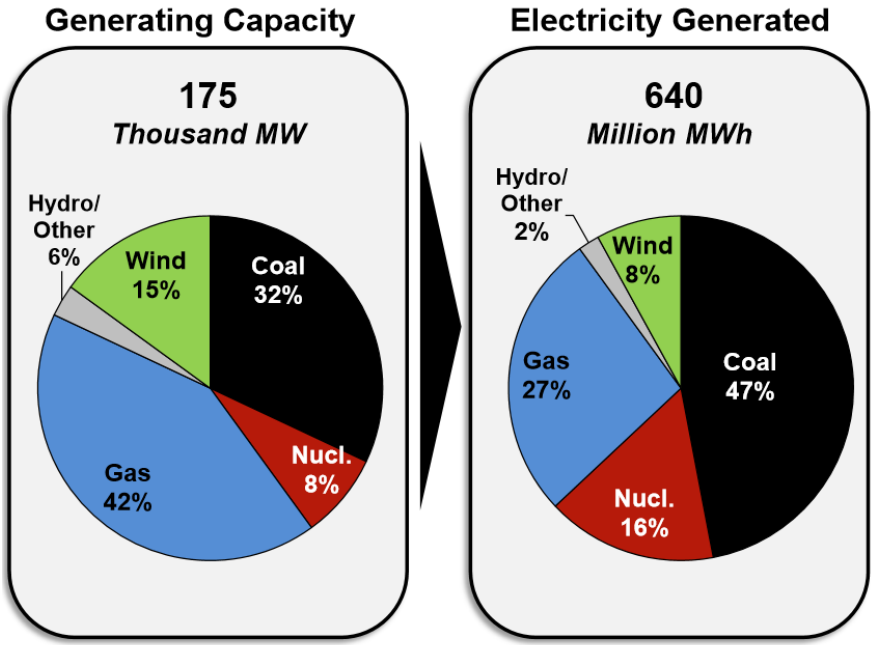
MISO

- 15 states + Manitoba
- 42 million customers
- $30 billion market
- > 6,600 generation units with 175,000 MW capacity
- 68,500 miles of high voltage transmission lines
- > 180 member utilities
- > 460 market participants

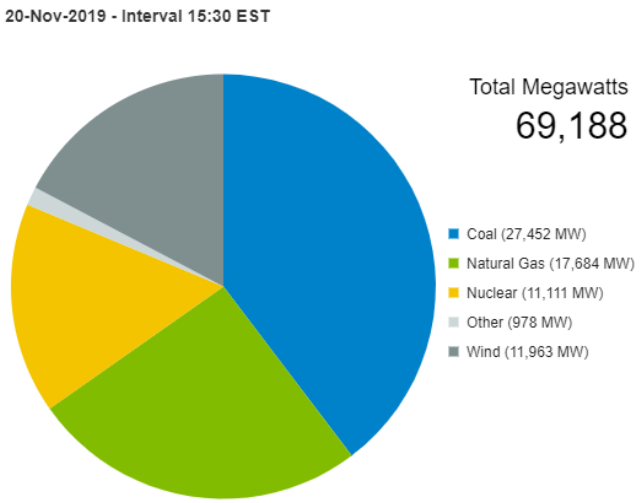


1

Total MISO 2018

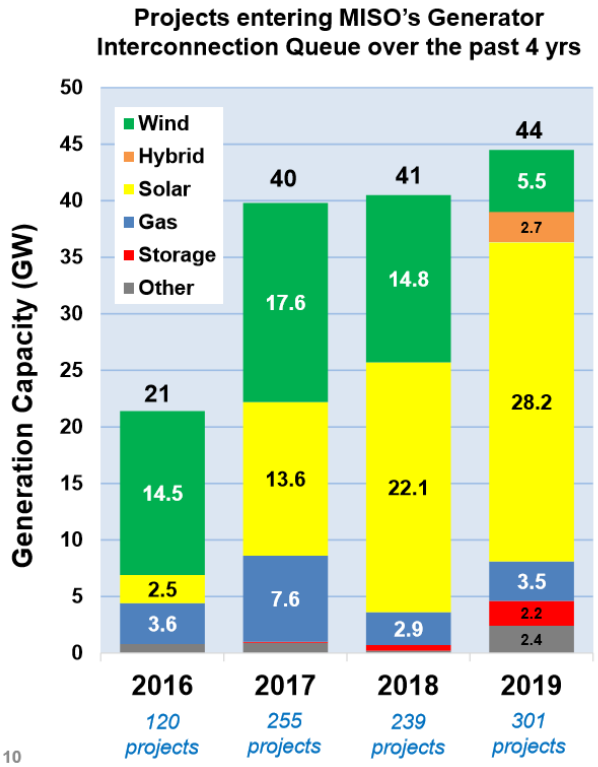


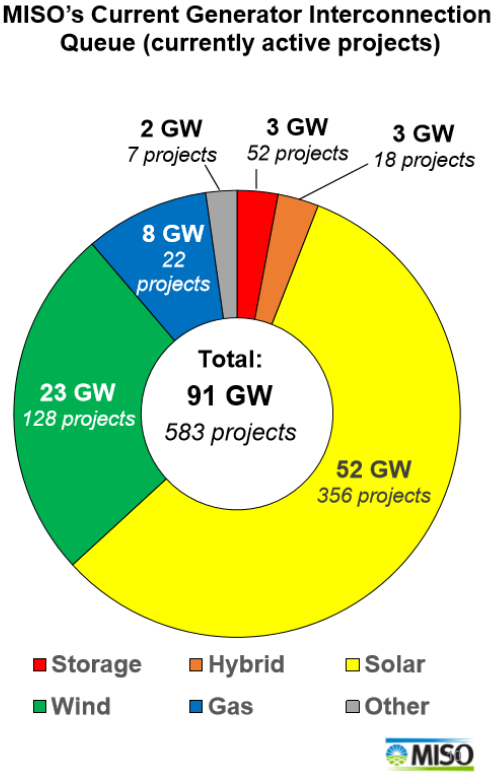
Real time fuel mix



Renewables account for over 85% of MISo interconnection queue

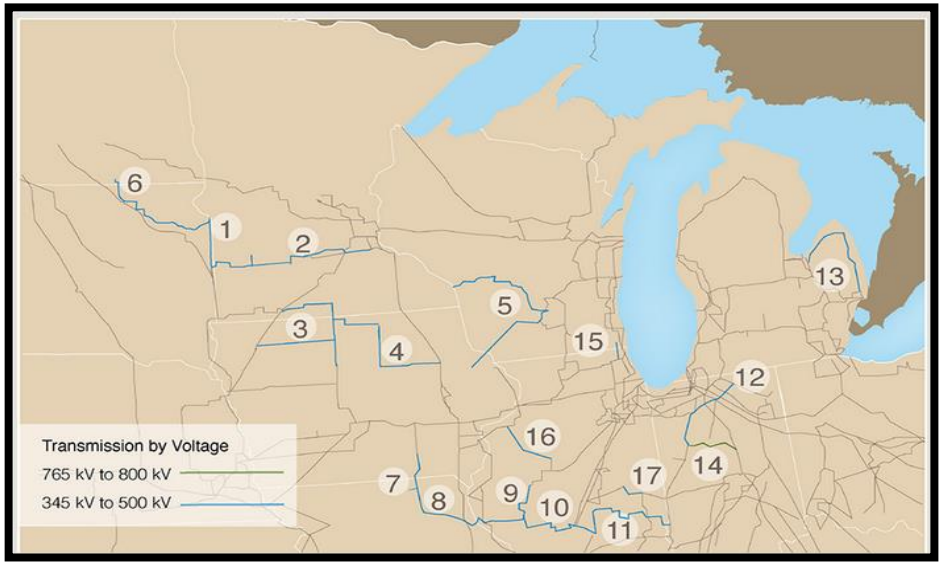
Although solar in the queue is booming, we expect wind to continue to be cost effective in western MISO after PTC expires due to the good resources.





2011 Multi-Value project portfolio

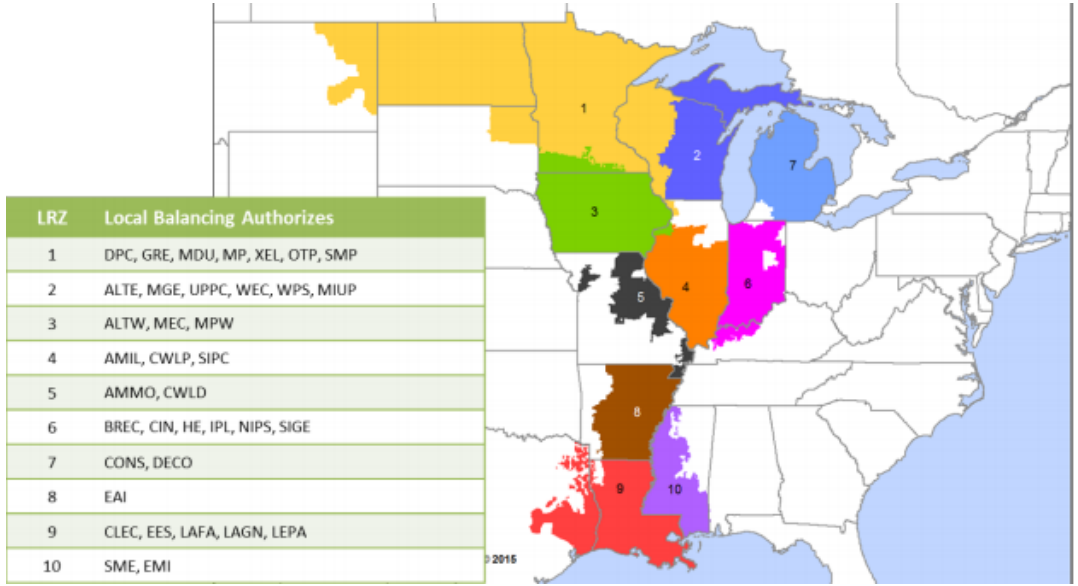
- Multi-Value Portfolio (MVP) – MISO continues to report (in FERC Filings) that portfolio is performing even better than expected.
- New MVP lines are already full – no capacity left particularly in MISO West.
- Wisconsin recently approved the Cardinal Hickory Creek transmission line and it's already fully subscribed.
- Still needs approval from IUB and other federal agencies.
- Won't be in service until 2023.



Current State of Transmission in MISO

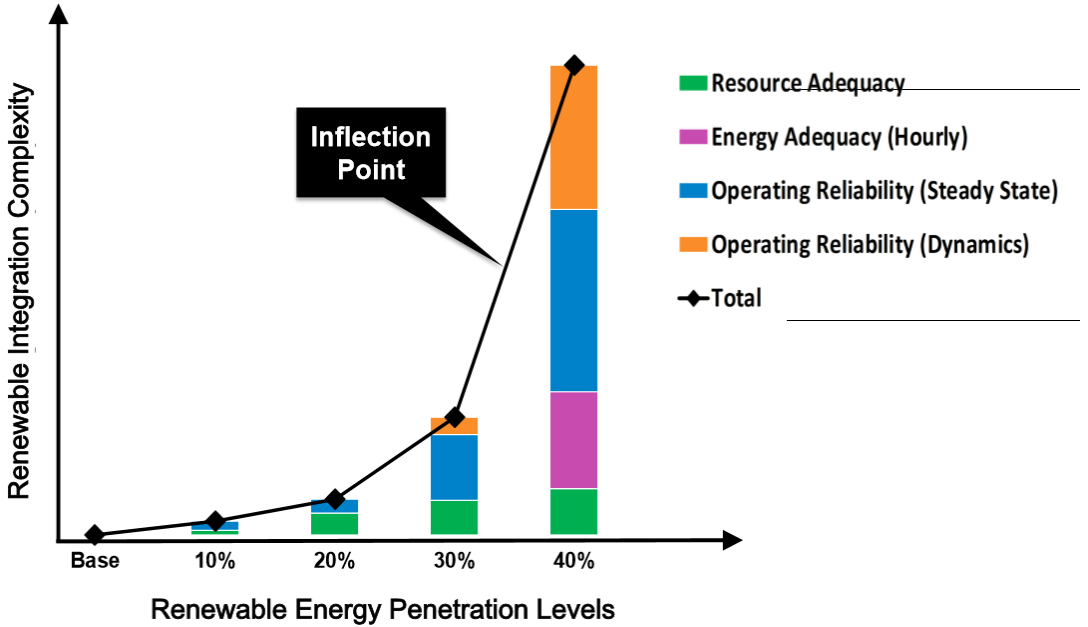
- MISO Local Resource Zone 1 largely closely for business for most interconnection customers.
- Transmission upgrades too costly.
- February 2017 Definitive Planning Phase cycle – significant transmission upgrade costs in both MISO and Southwest Power Pool (SPP) assigned to generators.
- Upgrades in tens-to-hundreds of millions of dollars resulted in only 250 MW (2 projects) moving forward.
- Seams issues between MISO-SPP need to be addressed.

LRZ	Local Balancing Authorizes
1	DPC, GRE, MDU, MP, XEL, OTP, SMP
2	ALTE, MGE, UPPC, WEC, WPS, MIUP
3	ALTW, MEC, MPW
4	AMIL, CWLP, SIPC
5	AMMO, CWLD
6	BREC, CIN, HE, IPL, NIPS, SIGE
7	CONS, DECO
8	EAI
9	CLEC, EES, LAFA, LAGN, LEPA
10	SME, EMI



Miso Renewable Integration Impact assessment (RIIA)

Renewables currently represent about 10% of the electricity generated in MISO. RIIA study shows challenges begin to emerge when levels surpass 30%.



MISO

Capx2050 transmission vision study

- CapX2020 utilities will examine the transmission grid that serves Minnesota, eastern North Dakota, eastern South Dakota and western Wisconsin.
- Identify potential constraints on the transmission grid and/or its operations.
- Provide information about future transmission needs.
- May lead to development of a comprehensive plan that will ensure the continued reliable delivery of low-cost energy.
- Recognize that the existing generation fleet will transition to more carbon-free resources.
- Study expected to be complete in early 2020 and will include analytical results as well as the magnitude and extend of grid issues.
- CGA will partner with CapX utilities to work on infrastructure needs and legislative education going forward.

Transmission activities in MISO

- STUDIES:
  - MISO [annual] Transmission Expansion Plan (MTEP)
  - Market Efficiency Project Studies
  - Congested Flowgate Studies
  - Interregional Planning (MISO-SPP, MISO-PJM)
  - Targeted Studies (i.e., Regional Generator Outlet, MWEX)
  - MISO Queue – Interconnection Studies for New Generators
- Cost allocation associated with each type of transmission
- Current planning happening in silos; creates misalignment

Conclusion

- Transmission is congested and new MVP lines are largely fully subscribed, particularly in MISO West.
- Seeing wind/solar development move to MISO Central region (i.e., Michigan, Indiana, Illinois)
- MTEP21 “futures scenarios” need to better reflect the interconnection queue – need comprehensive planning that includes reliability, market efficiency, public policy, other drivers.
- Address the planning “silos” that are occurring at MISO
- Realign cost allocation – interconnection customers being asked to pay for large transmission upgrades that provide multiple benefits to the grid.
- Elevate the importance of transmission needs with state legislators and the Walz administration.

THANK YOU

ADDRESS 570 Asbury Street, Suite 201, St. Paul, MN 55104 OFFICE 651.644.3400 WEB CleanGridAlliance.org

@cleangridalliance @CGA_Midwest @clean-grid-alliance