

# “GREEN NEW DEAL” FUTURE OR FANTASY ?

## Lignite Council Annual Meeting

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A Touchstone Energy® Cooperative 

# ELECTRICITY

- We use electricity virtually every minute of every day...
  - Lighting
  - Appliances
  - Heating and cooling
  - Financial transactions
  - Smart phones & Computers
  - Transportation - electric cars are here!

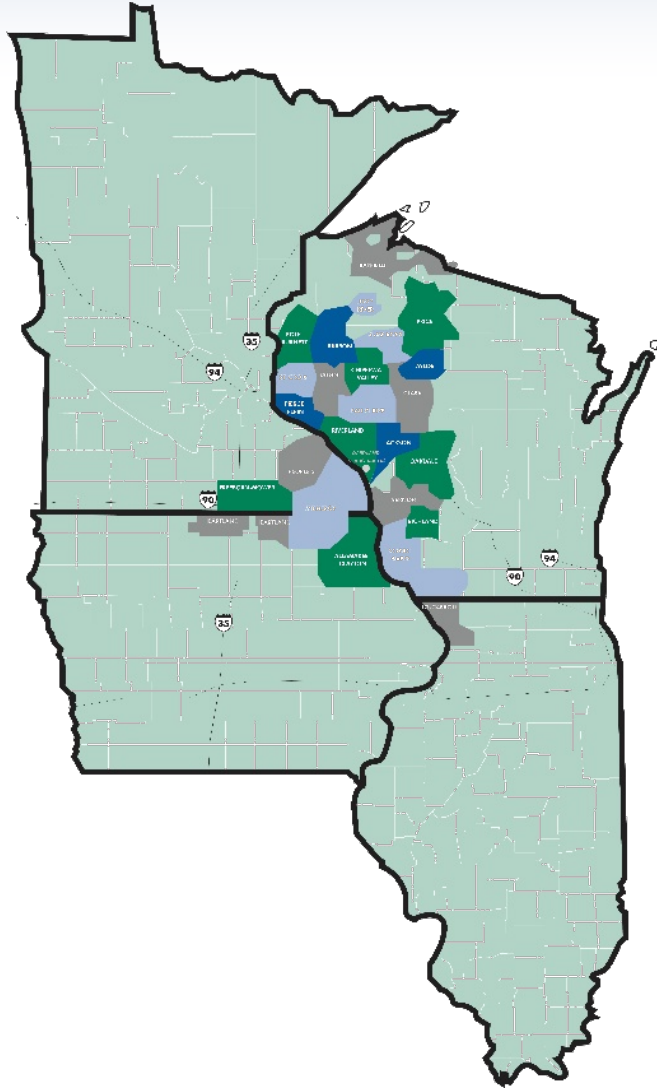


# THE ELECTRIC GRID

- Most complex machine ever created
- Electricity is a unique commodity
- Creation and consumption must be instantaneously balanced at all times!



# DAIRYLAND POWER COOPERATIVE



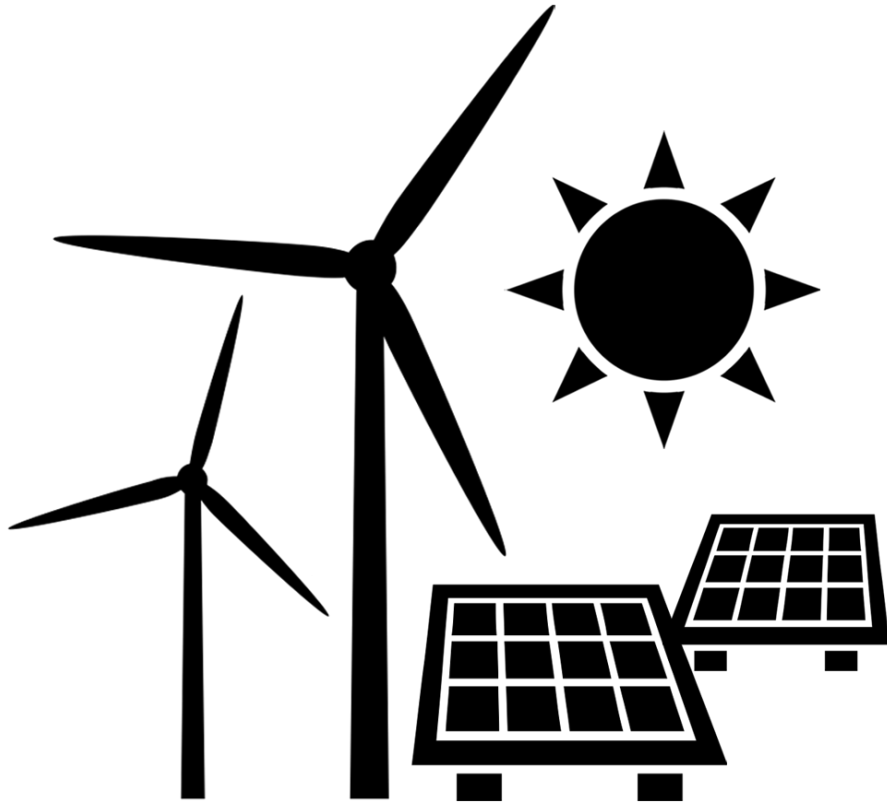
- Dairyland is generation and transmission cooperative that provides wholesale electricity and services in WI, MN, IA & IL
- Headquartered in La Crosse, WI
  - Created in 1941
  - Serve 24 member cooperatives and 17 municipals
    - Who provide electricity to nearly 600,000 people

# THIS IS A TIME OF RAPID CHANGE!

- Wind turbines
- Solar panels
- Consumer owned generation
- Battery storage
- Electric cars



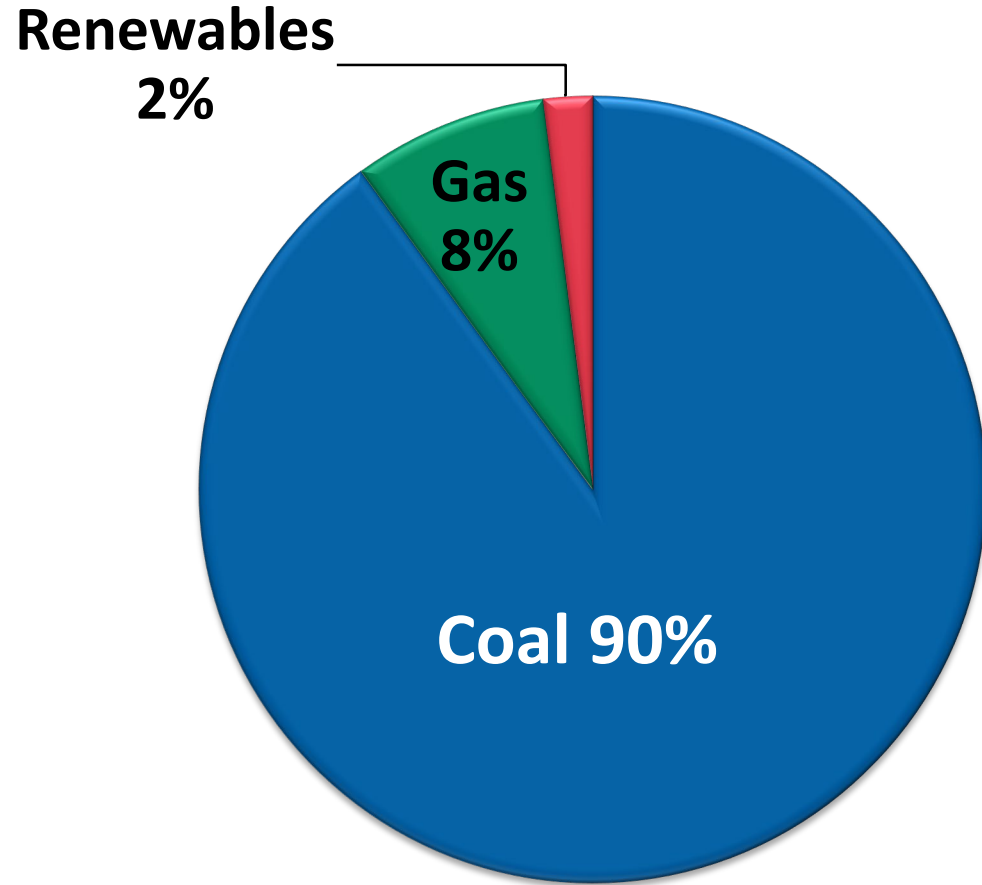
# DAIRYLAND IS CHANGING WITH THE TIMES



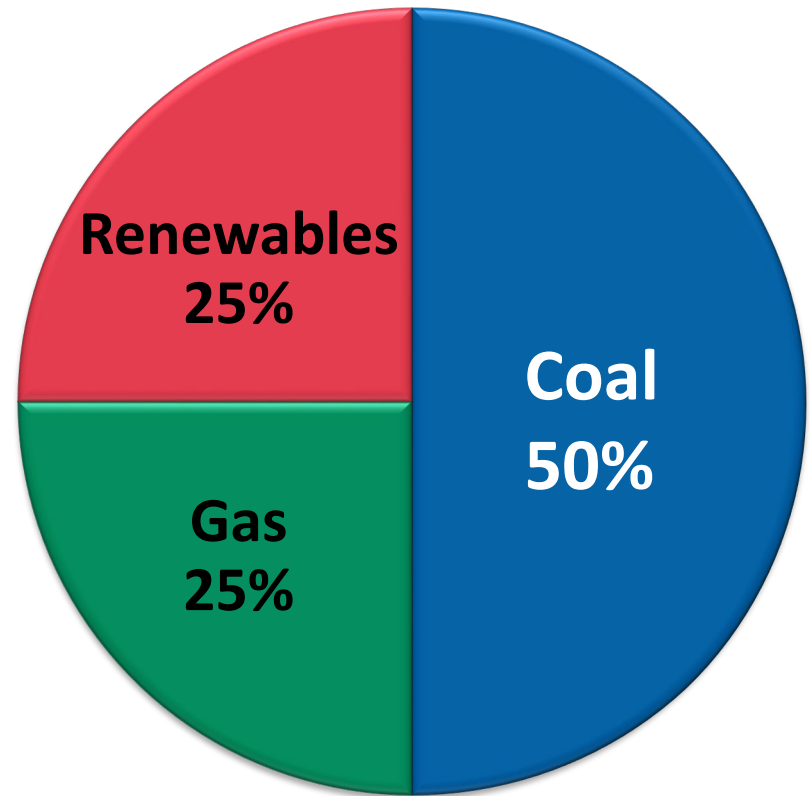
- Diversifying our generation portfolio
  - Retired 5 of our oldest coal fired units
  - Upgraded our JPM & Genoa power plants
  - Adding significant wind and solar generation
  - Building new natural-gas-fired power plant
    - Timed to serve new load
    - Enables intermittent renewable resources
  - Enhancing regional transmission grid

# DAIRYLAND'S CHANGING OPERATIONS

Building a more balanced generation portfolio



2005



2025

# ENERGY POLICY

- Traditional policy drivers
  - Safety
  - Affordability
  - Reliability
- New policy driver is
  - Climate change
  - Urgency
  - Focused almost solely on electricity





# GREEN NEW DEAL

- Proposed by Rep. Alexandria Ocasio-Cortez
  - Calls for an end of fossil fuel use.
  - Nearly every Democrat running for president has endorsed it.
  - Wide range of experts say it is not feasible.

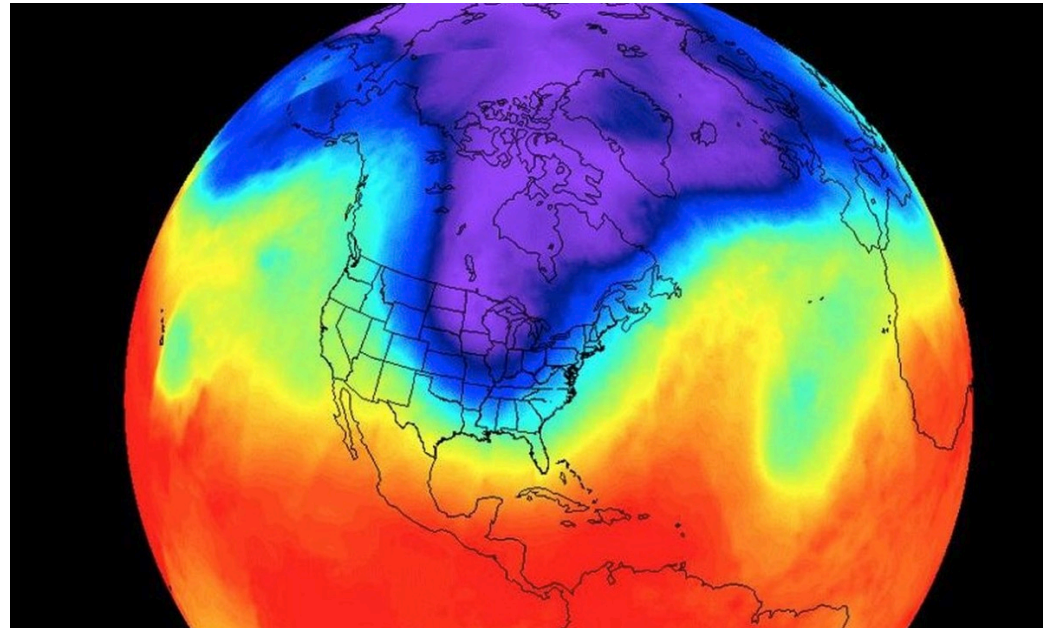


# ACTION SHIFTS TO STATE LEVEL

- At least 15 states have introduced some version of the Green New Deal.
- Governors in three of the four states Dairyland serves have announced their support for 100% clean energy by 2050 (Minnesota, Wisconsin and Illinois)
- Policy makers are enamored with the idea!

# 100% FOSSIL-FUEL-FREE BY 2050

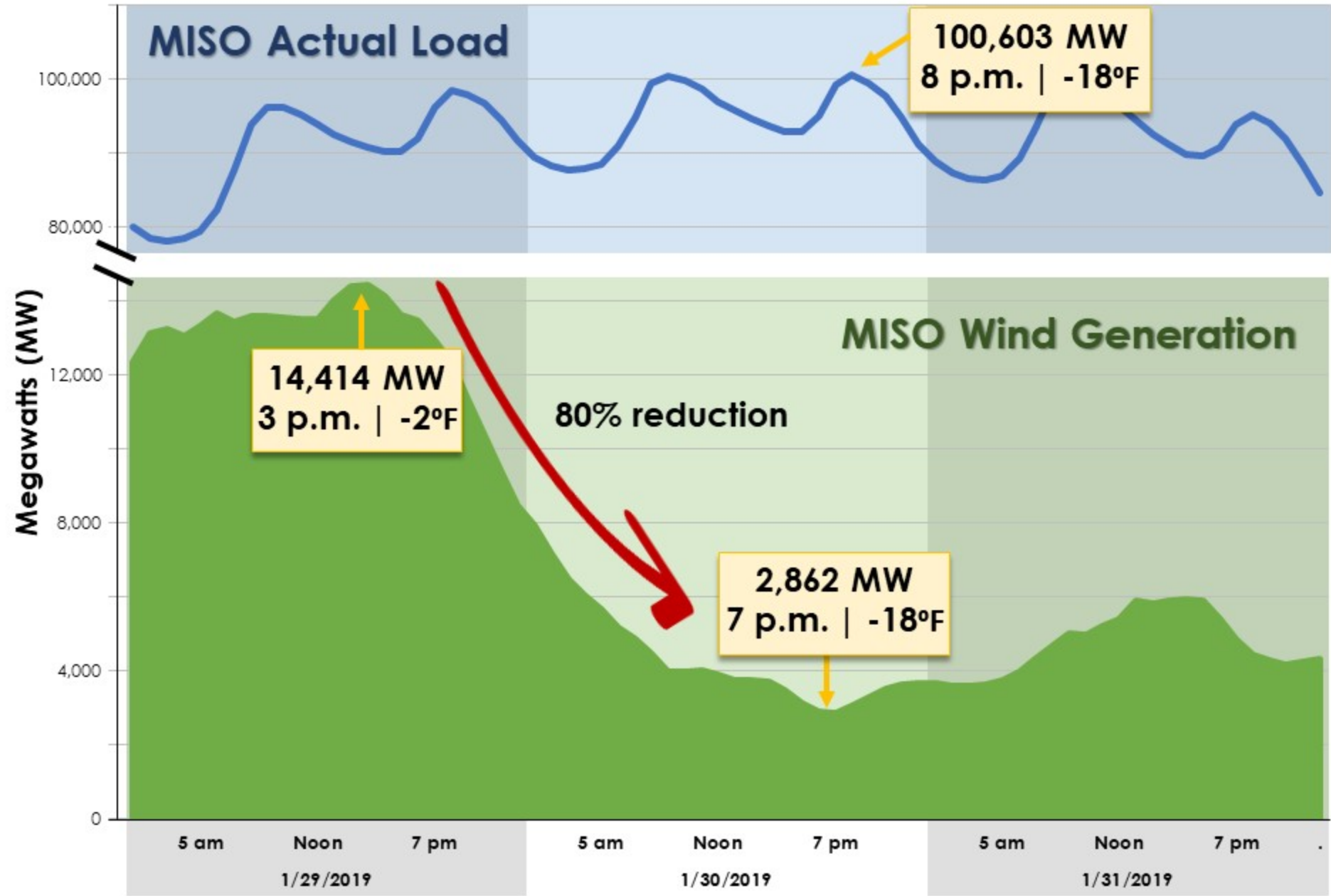
- Proposals ignore limits of technology
- Cannot run a continuous flow electric grid with intermittent resources
- Policy makers ignore a critical aspect of renewable energy – the weather!



# MISO Wind Generation: January 2019 Polar Vortex

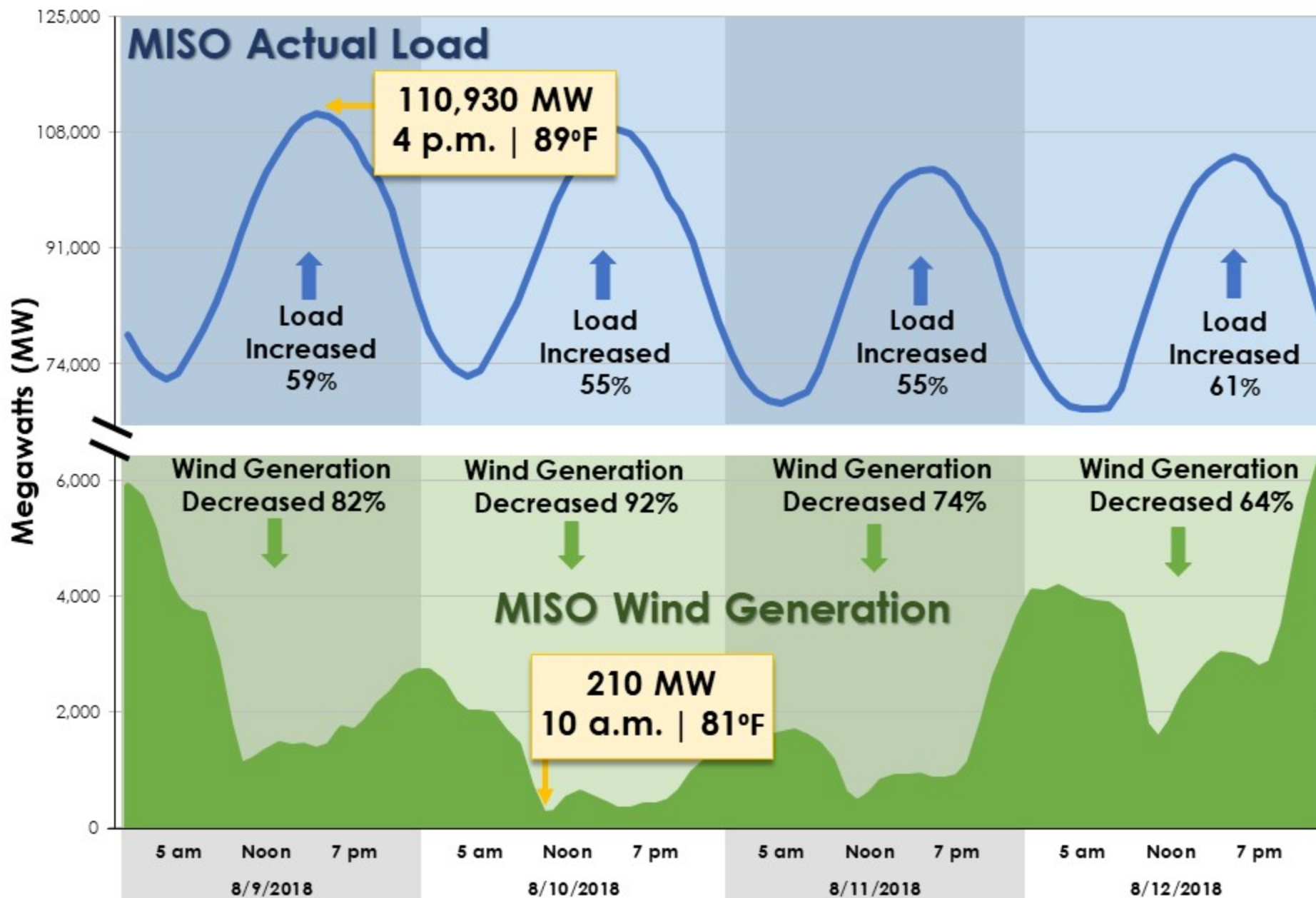


Regional temperatures low as **-33°F**



# MISO Wind Generation: August 2018 Heat Wave

Regional temperatures high as **92°F**



# HOW MUCH RENEWABLE ENERGY?

- MISO renewable energy integration study
  - Complexity increases sharply from 30% - 40%
  - Wind & solar variability increases
  - Curtailment becomes increasingly significant
  - Increases ramping of fossil fuel plants
  - Requires a lot of additional transmission capacity
  - Grid stability issues increase greatly near 40%

# IMPACT ON CLIMATE CHANGE

## Impact of 100% carbon free electricity in MN

U.S. share of global carbon emissions	14.34 %
U.S. electric sector share of U.S. CO2	28%
U.S. electric sector share of global CO2	(28% of 14.34)= 4%
MN share of total U.S CO2 emissions	1.73%
MN share of total global CO2 emissions	(1.73% of 4)= .07%
MN electric sector share of MN emissions	25%
MN electric sector share of global CO2	(25% of .07)= <b>.0175%</b>

# IMPACT ON CLIMATE CHANGE

- Conclusion – if Minnesota achieved 100% carbon free electricity by the end of business today, it would only reduce global carbon emissions by:  
**175 ten thousandths of one percent!**
- The costs and risks to grid stability of implementing a 100% fossil-fuel-free grid far outweigh the theoretical benefits!



# CONCLUSION

Important to emphasize that even as the utility industry increases its reliance on renewable energy, we still need a balanced “all of the above” approach to our generation portfolio if we wish to maintain the affordability, reliability and sustainability of our national electric grid!

THANK YOU !

Questions or Comments?

