

# Welcome to Partners in Business

May 22, 2024



**Cheri Monahan**

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**FOR THE GREATER GRID**

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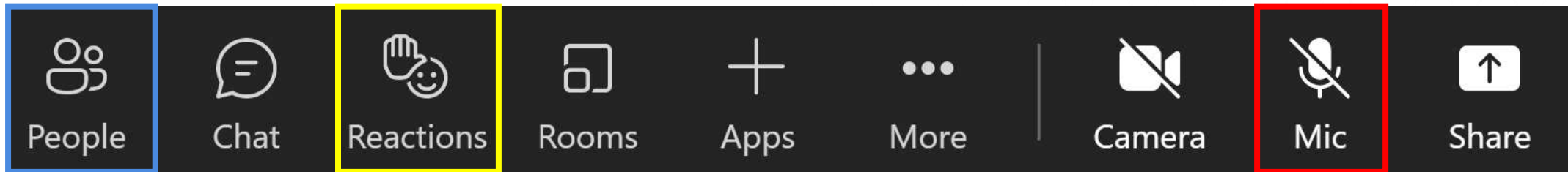
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# Today's Facility and Meeting Accommodations

- Register for meeting: sign-in and enter drawing
- Refreshments
- Relax, enjoy and ask questions
- Restroom and facility locations
- Lunch
- Professional Development Hours (PDH) Attendance Form
  - Reach out to Aaron Curtis in-person or email
- Introductions

# Virtual Meeting Reminders



Click "People" to view virtual participants

If you have a question, please raise your hand and we will call on you

Please stay on mute unless you have a question

# Presentations Available Online

ITC Midwest website:

<https://www.itc-holdings.com/itc-midwest/customer-solutions/partners-in-business/>

MISO OASIS website:

<http://www.oasis.oati.com/ITCM/index.html>

Feedback for today's meeting:

<https://forms.office.com/r/6d7FF0ftnu>



# Stakeholder Survey Introduction

- Survey open 5/28 – 6/28
- Anonymous and takes approximately 10 minutes to complete
- ITC will collect responses, analyze, and implement changes
- ScottMadden will present results at Fall Partners in Business 2024



# Today's Themes

## ITC Midwest and the External Landscape

*Scott Drzycimski, Jennifer Rhuppiah, and Chris Kerber*

## Cardinal – Hickory Creek

*Scott Drzycimski*

## Executing Through the Energy Transition

*Marc Keyser (MISO)*

## JTIQ, LRTP and Planning Priorities

*Lauren Strager and Brian Drumm*

## Summer Operations, Emergency Preparedness and GIS

*Matt Heinisch, Andrew Schafer, Nora Tidman, and Kyle Whisner*

# Safety Message



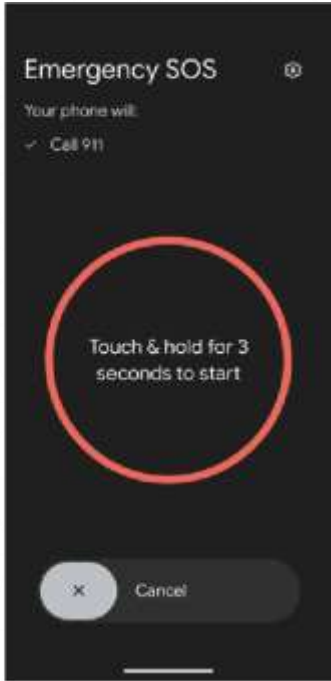
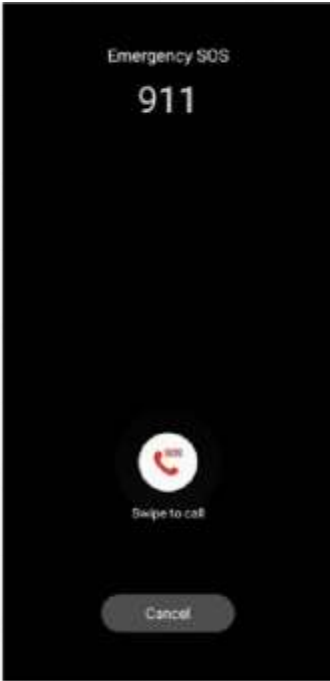
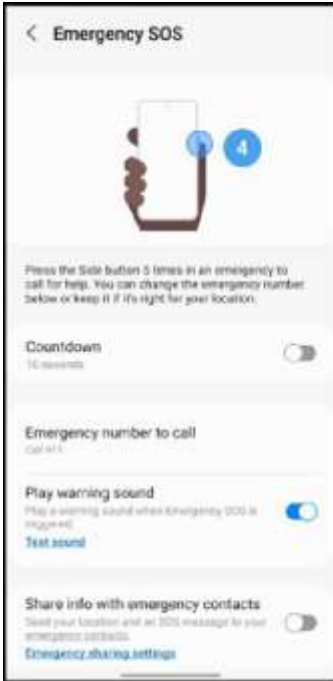
**Casey Woodside**

*Account Manager, Customer & Business Solutions*  
*cwoodside@itctransco.com*



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# Emergency Contacts



<https://support.apple.com/en-us/105072>

<https://support.google.com/android/answer/9319337?hl=en>

<https://umra.hr.umich.edu/emergency-contacts-on-your-mobile-phone/>

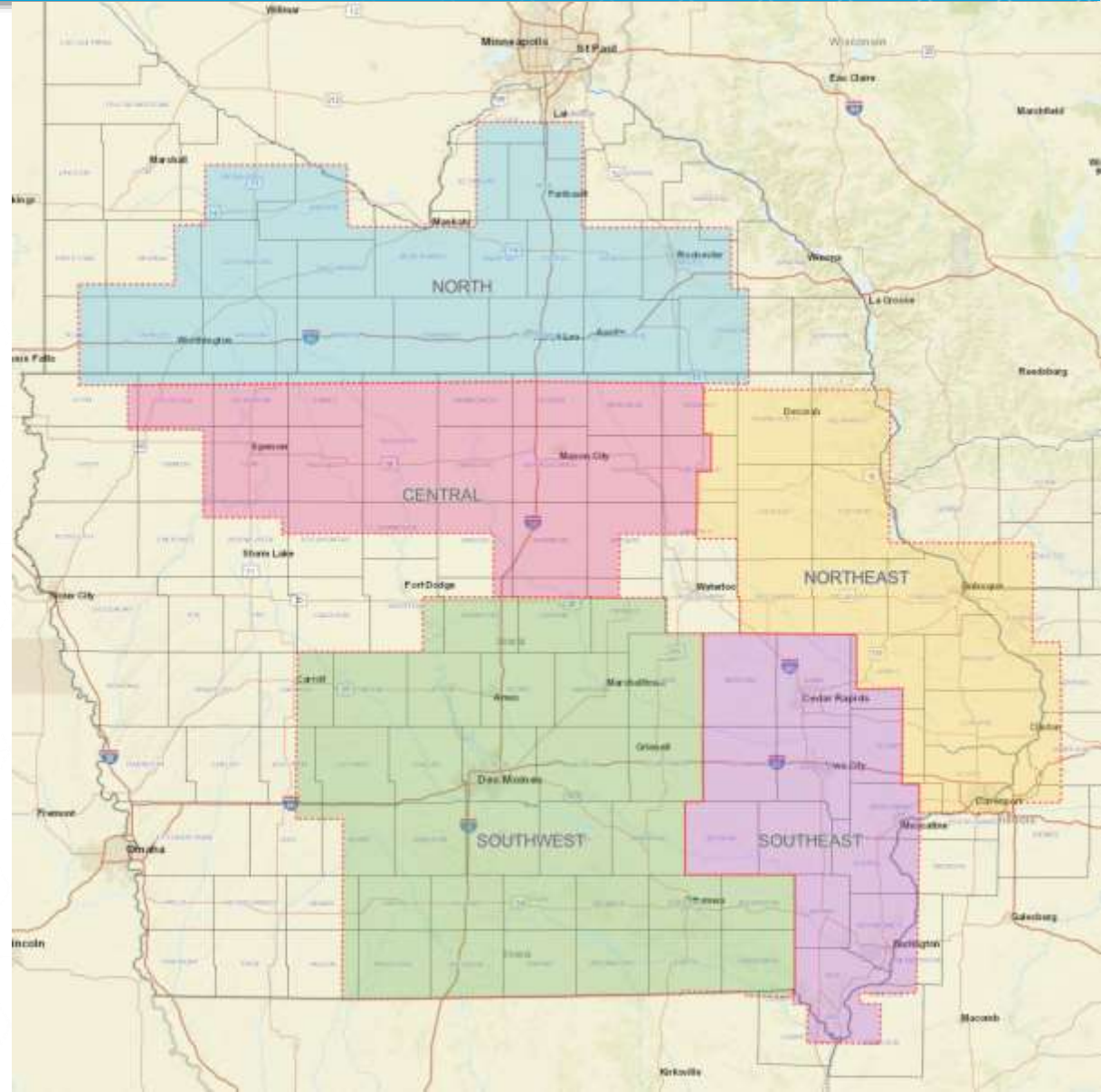
# Territory Coverage Update – Customer & Business Solutions

## Casey Woodside

- North, Central, northern half of Northeast (including Dubuque)

## Aaron Curtis

- Southwest, Southeast, southern half of Northeast



# ITC Midwest Update



**Scott Drzycimski**

*Director, Public Affairs – ITC Midwest*  
[sdrzycimski@itctransco.com](mailto:sdrzycimski@itctransco.com)



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# The Math Problem (simplified)

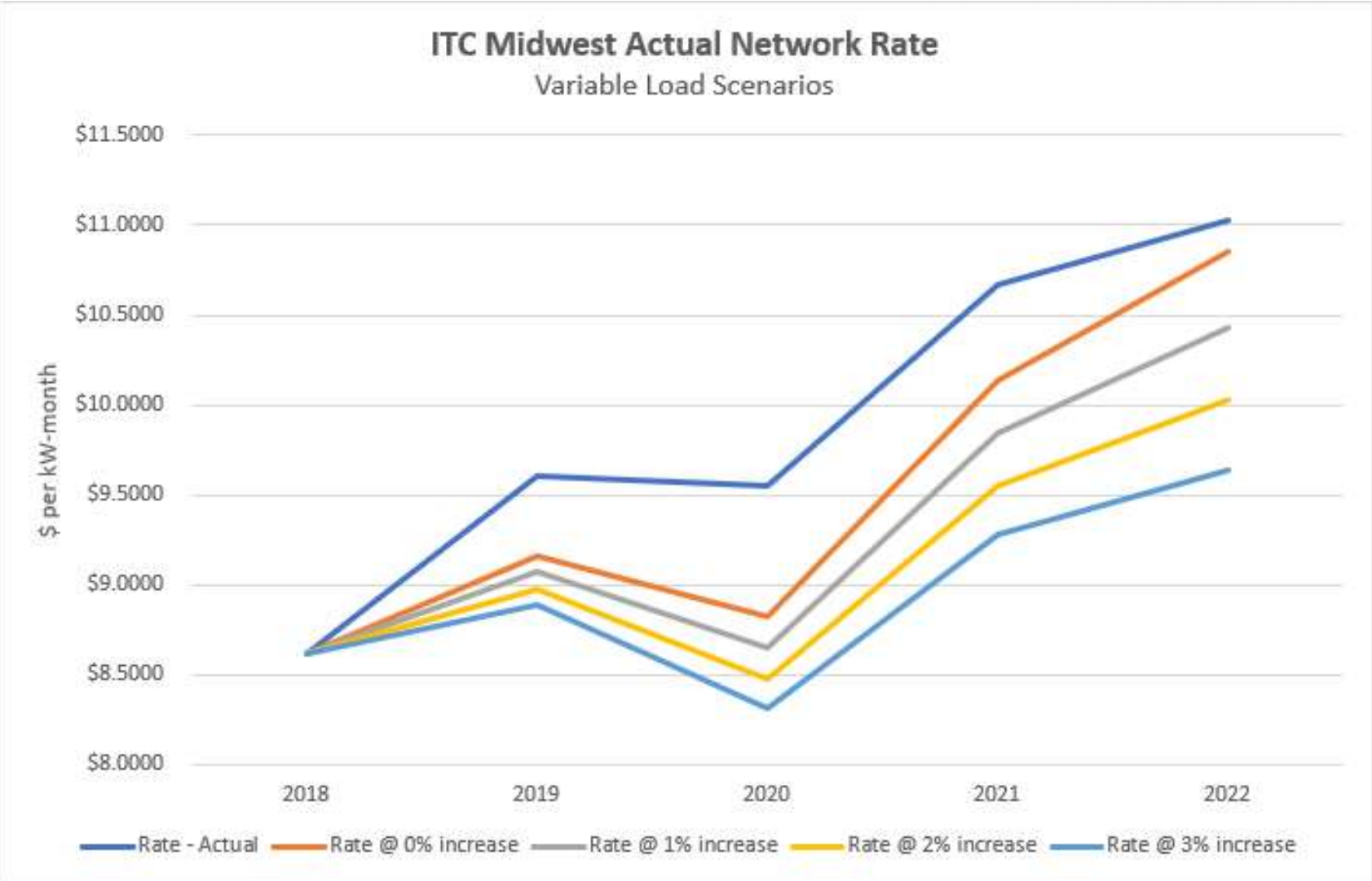
Revenue  
Requirement  
(costs)

---

Average Load

= Transmission  
Rates

# ITC Midwest Network Rate – Load Scenarios



# For The Greater Grid – And Our Customers



**Questions?**



**Scott Drzycimski**

*Director, Public Affairs – ITC Midwest*  
*[sdrzycimski@itctransco.com](mailto:sdrzycimski@itctransco.com)*

# State Regulatory Update



**Jennifer Rhuppiah**

*Manager, Regulatory Strategy*  
*[jrhuppiah@itctransco.com](mailto:jrhuppiah@itctransco.com)*



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## RULES Review under Executive Order 10

- Moratorium on administrative rulemaking and required a review of all administrative rules.
  - Chapter 11 – Electric Lines
  - Chapter 25 – Safety

## Proposals from the study by London Economics International (LEI)

- Strong suggestions for PBRs, periodic rate proceedings and Integrated Resource Plans (IRPs)

Franchises  
Received  
Since October:

Extensions: 9  
Total: 9

# Regulatory Updates - Minnesota



- Commission changes
- Legislative impacts to regulatory



**Sieben**  
(Chair)



**Sullivan**  
(Vice-Chair)



**Means**



**Ham**



**Tuma**



- **Future of Gas**

- Workshops gaining understanding of the impacts of renewable energy and zero carbon goals and the impact to the Gas sector

- **REAP**

- ICC opened an investigation to develop and adopt a Renewable Energy Access Plan (REAP) to improve transmission capacity to support renewable energy expansion.
- The ALJ shared a proposed order in the REAP and groups have filed briefs on exceptions and reply briefs.



# Regulatory Updates - Wisconsin



- Commission changes



**Strand**  
(Chair)



**Nieto**



**Hawkins**

# Federal Regulatory Update



**Chris Kerber**

*Associate Analyst, Regulatory Strategy*  
[ckerber@itctransco.com](mailto:ckerber@itctransco.com)



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# FERC Commissioners



# FERC



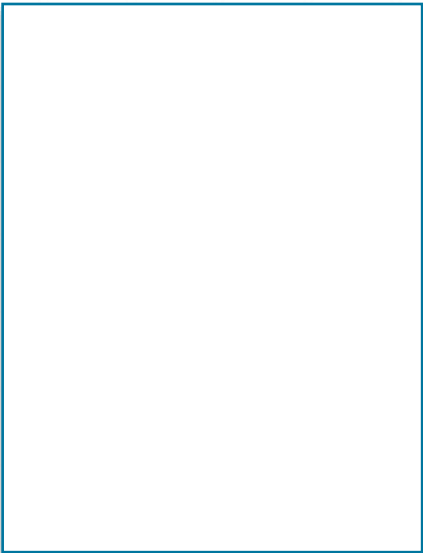
**Chairman Willie Phillips (D)**  
Term Expires 6/30/2026



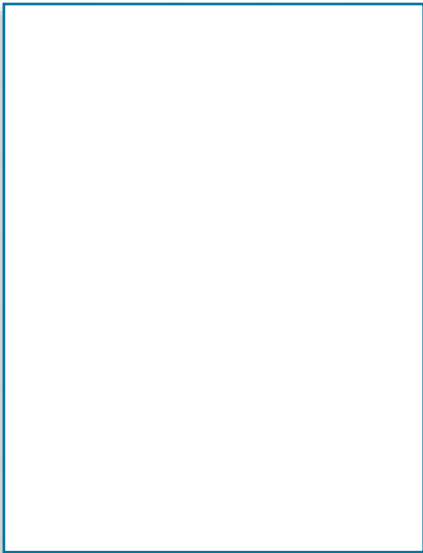
**Commissioner Mark Christie (R)**  
Term Expires 6/30/2025



**Commissioner Allison Clements (D)**  
Term Expires 6/30/2024



**Vacant**  
Term Expires 6/30/2027



**Vacant**  
Term Expires 6/30/2028

# 2024 FERC Nominees



**David Rosner (D)**  
Term Expires 6/30/2027



**Lindsay See (R)**  
Term Expires 6/30/2028



**Judy Chang (D)**  
Term Expires 6/30/2029

Nominated by President Biden on  
February 29, 2024

Testified before U.S. Senate Energy  
& Natural Resources Committee on  
March 21, 2024

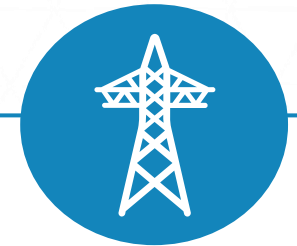
Committee / Full Senate Vote TBA

# Transmission Planning & Cost Allocation Final Rule

Final Rule issued at the May 13, 2024, FERC Open Meeting. Mandates long-term approaches to regional planning with the goal of developing more efficient and cost-effective infrastructure.

- Key Areas of Reform:

- Requires regular long-term planning over a 20-year time horizon to anticipate future needs, consideration of at least seven benefit metrics, and development of three distinct long-term scenarios incorporating best available data and inputs
- Consideration of advanced technologies in planning processes
- Acknowledges role of states in planning and cost allocation
- Implemented federal ROFR for “Right-Sized” facilities

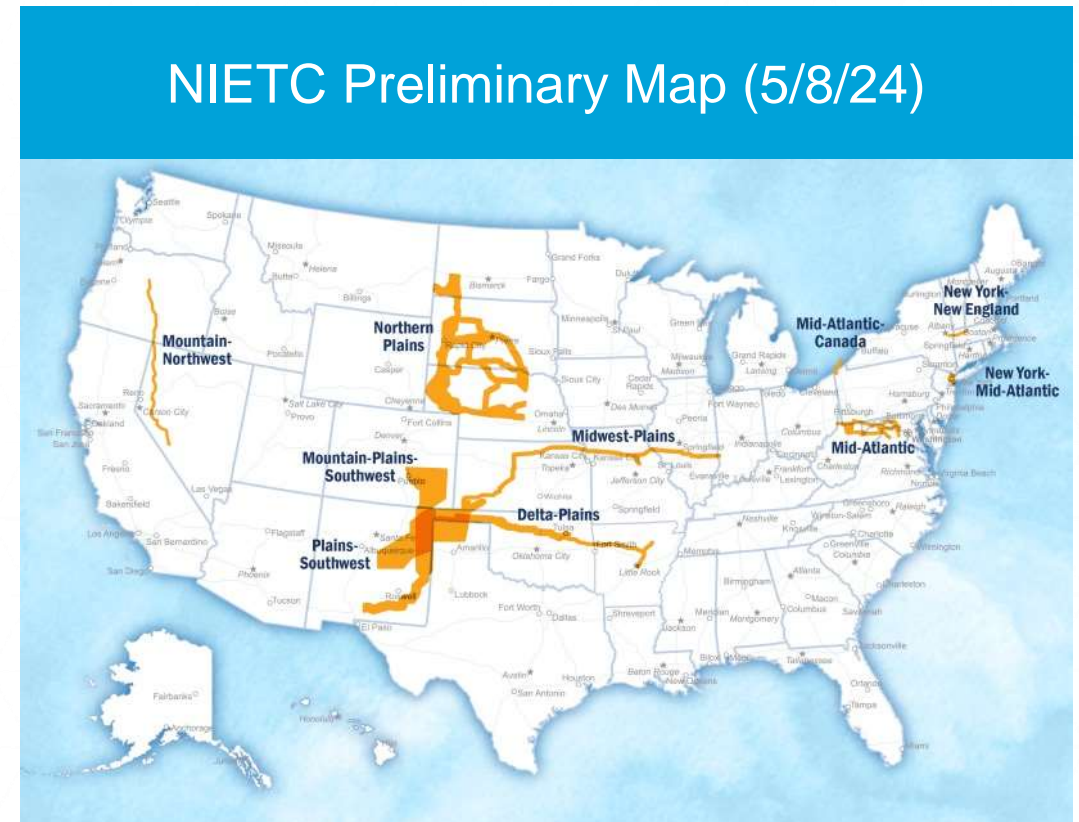


Reforms largely reflect MISO's current LRTP efforts

# Transmission Siting Backstop Authority Final Rule

Final Rule issued at the May 13, 2024, FERC Open Meeting. Implements new transmission backstop siting authority granted to FERC in the Infrastructure Investment and Jobs Act (2021).

- Key Areas of Reform:
  - Creates framework for how, when, and why FERC will exercise its federal backstop authority
  - Authority only applies to areas that are designated by the Department of Energy as National Interest Electric Transmission Corridors (NIETC)
  - Can only be activated when states deny or do not act on a siting application within one year



# Generator Interconnection Final Rule

First issued in 2023 (Order 2023) and later affirmed in 2024 (Order 2023-A). Overhauls processes used to study and connect generating facilities to the transmission system. Multiple appeals pending.

- Key Areas of Reform:
  - Transition to first-ready, first-served cluster study process
  - Increased financial readiness and site control requirements
  - Implements affected system study deadlines for transmission providers
  - Elimination of reasonable efforts standard

## Compliance

RTO/ISO compliance filings were due on May 16, 2024.



# Other Current Proceedings

## Outstanding Proceedings

- Transmission incentives (April 2020 / March 2021)
- Transmission planning and cost management (April 2022)
- Minimum interregional transfer capability (February 2023)

## Cases on Remand

- Return on equity for MISO transmission owners (2013 & 2015). Remanded to FERC in 2022
- Self-funding for interconnection-related network upgrades in MISO. Remanded to FERC in 2022

## Areas of Inquiry

- Section 203 Blanket Investment Authorizations

# Questions?



**Jennifer Rhuppiah**

*Manager, Regulatory Strategy*  
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**Chris Kerber**

*Associate Analyst, Regulatory Strategy*  
*[ckerber@itctransco.com](mailto:ckerber@itctransco.com)*

# Cardinal – Hickory Creek Project Overview



**Scott Drzycimski**

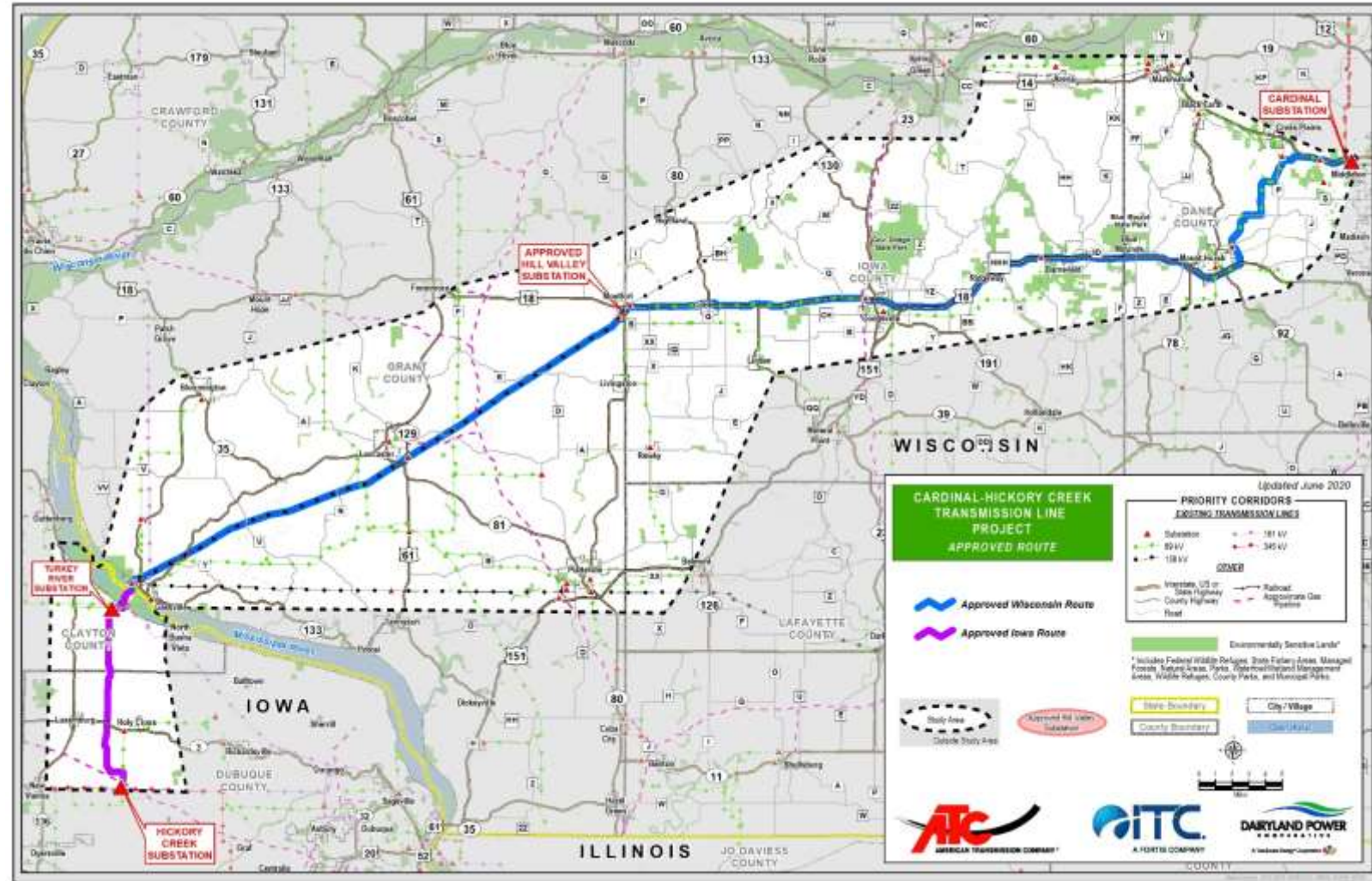
*Director, Public Affairs – ITC Midwest*  
[sdrzycimski@itctransco.com](mailto:sdrzycimski@itctransco.com)



**FOR THE GREATER GRID**

# Project Background

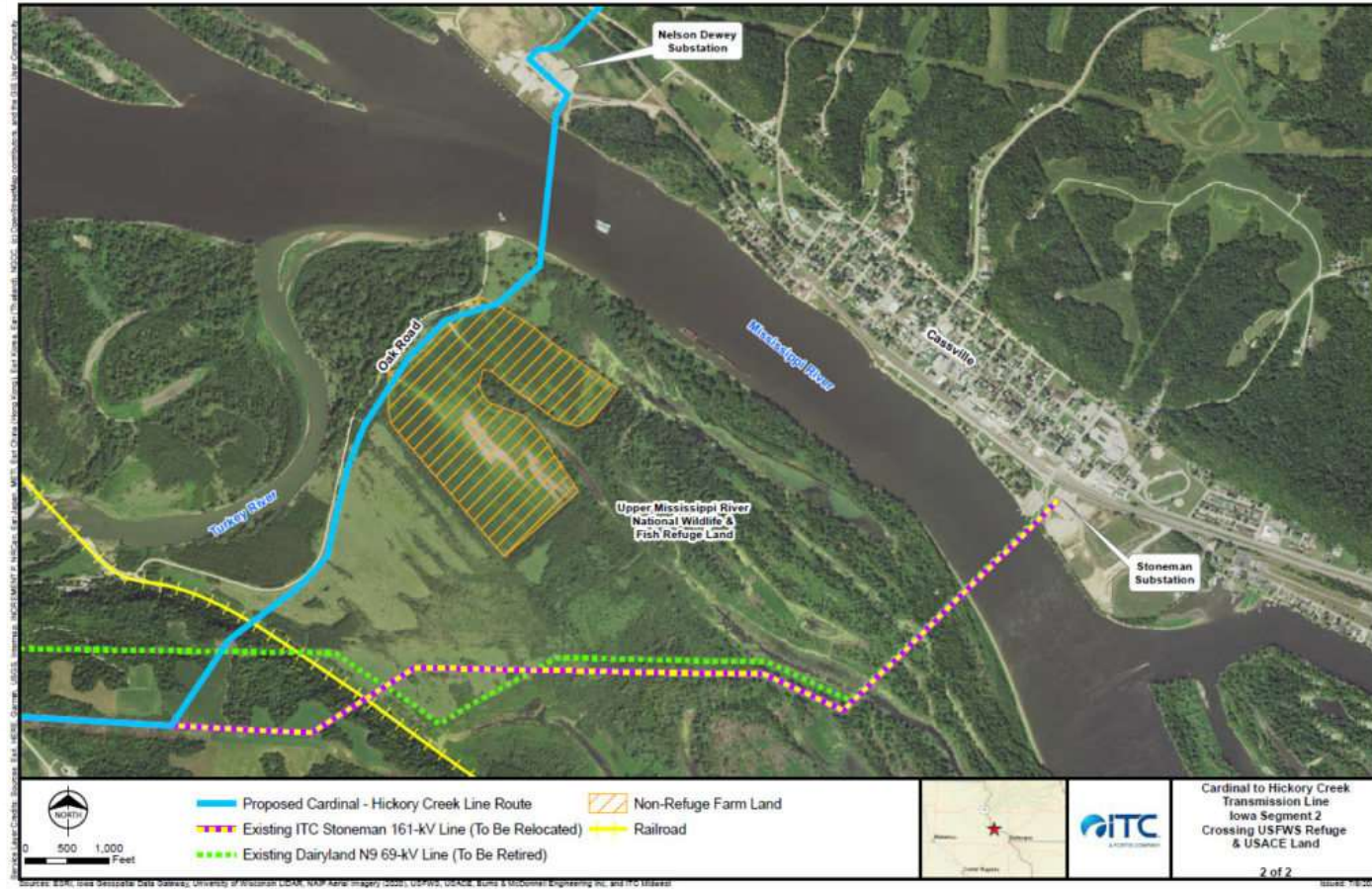
- Approved by MISO as a Multi-Value Project (MVP) in 2011 – reliability, economic benefits, renewable benefits/wind.
- Crosses two states and federal land, required state level (WI) EIS and full federal EIS under NEPA.
- In-service date was originally December 2023, now TBD due to delays caused by litigation.



As of October 2023, there were 161 renewable generation projects in Wisconsin, Iowa and other Upper Midwestern states representing more than 24.7 gigawatts conditioned upon its completion – enough to power millions of homes and businesses with clean energy.

# Refuge and River Crossing Becomes the Center of Project Controversy

- The Refuge extends approximately 260 river miles, covering just over 240,000 acres.
- Project team began meeting with the USFWS in April 2012 to seek input on routes for the project, particularly within and in proximity to the Refuge.
- Solution was new crossing at the Nelson Dewey location (retired coal generation plant).
- A very short segment of the approximately 102-mile Cardinal-Hickory Creek line will cross this area.



**Land exchange with USFWS requires roughly 19 acres for the project and provides nearly 36 acres of highly-desirable land for new Refuge purposes.**

# Reducing the Transmission Footprint and Improving Conditions within the Refuge

## The project will:

- Substantially reduce transmission infrastructure in the Refuge when the new 345 kV line is built and the existing 161 kV and 69 kV lines are removed.
- The new line follows an existing county road with minimal impact to existing vegetation.



The Nelson Dewey Substation in the foreground, with the Mississippi River and the Upper Mississippi River National Wildlife and Fish Refuge in the background.

# Reducing the Transmission Footprint and Improving Conditions within the Refuge



# Reducing the Transmission Footprint and Improving Conditions within the Refuge



# Cardinal-Hickory Creek Transmission Line Project

AP Wisconsin

## Federal judge temporarily blocks plans for a power line in Mississippi River wildlife refuge

RTO Insider

## Judge Pauses Final Mile of Cardinal-Hickory Creek through

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## Conservationists Seek Block Of Refuge Power Line Deal

By Tom Ichniowski

Law360 (March 15, 2024, 10:12 PM EDT) -- Conservation groups are asking a Wisconsin federal judge to stop the U.S. Fish and Wildlife Service from executing a land swap that would let power companies run the Cardinal-Hickory Creek high-voltage transmission line across the Upper Mississippi River National Wildlife and Fish Refuge.

E&E NEWS

## Utilities appeal order pausing Midwest power line

More than 160 renewable energy projects in the Upper Midwest have on the Cardinal-



WISCONSIN PUBLIC RADIO



ENERGY, ENVIRONMENT, NEWS

## Federal judge blocks transmission line's path through wildlife refuge

Utilities argue

BY DANIELLE H

Listen

Bloomberg

## Judge Halts Land Exchange for Midwest Power Transmission Line

FT

FINANCIAL TIMES

8/10/23

The Financial Times: What's stopping the bulldozing of US power

Also in today's newsletter, Joe Biden touts clean energy jobs on the ca

The Financial Times - Energy Source newsletter

By Amanda Chu and Myles McCormick

August 10, 2023

Hello and welcome back to Energy Source, coming to you from rural Wisconsin

REUTERS

## US judge temporarily blocks \$649 million clear

By Clark Mindock

March 22 (Reuters) - A federal

before developers can build

SEMAFOR

## The strange bedfellows slowing a greener US grid

OPINION

The Washington Post

AN INDEPENDENT NEWSPAPER

## Don't let environmentalism sabotage green energy

The Washington Post remains to be built of the 100-mile Cardinal-Hickory Creek high-voltage transmission line between Iowa and Wisconsin, expected to connect more than 600 renewable-energy facilities, producing nearly 25 gigawatts of green power to the Midwest.

en, within its own way before those developers (and all generators of the green power that they supply) to stay off of the line. "There are a number of billion-dollar projects that are in the pipeline," said the author, who runs the Breakthrough Institute, a nonprofit org-

a federal agency to approve to greenlight projects on a virtually limitless set of environmental grounds. Researchers at Stanford University studied 101 large energy infrastructure projects that completed federal environmental impact studies between 2010 and 2020. Nearly two-thirds of wh-

challenged to meet, the required environmental impact assessments can take as long as 18 months. Delays cost big money — money that would be better spent fighting climate change and smart battles. Sen. Joe Manchin III (D-RVa.) tried and failed to sidestep permitting in 2015, right after the passage of

small Mississippi River wildlife refuge.

ly blocked the construction of interstate electricity. Environmental groups that had

# Financial Times video opportunity



- C-HC project contention is emblematic of challenges facing energy industry and threatening the goals of decarbonization.
- Approached by Financial Times, a London-based worldwide media organization, that was seeking to do a story on the challenges to transitioning to an electrified, clean-energy economy in the U.S.
- The video included representatives from ITC Midwest, Dairyland Power Cooperative and Clean Grid Alliance.
- Featured on the Energy Source channel. More than 1 million subscribers and the C-HC video has been viewed more than 32,000 times.

<https://channels.ft.com/en/ft-energy-source/in-america-crucial-transmission-lines-are-proving-problematic/>



**Questions?**



**Scott Drzycimski**

*Director, Public Affairs – ITC Midwest*  
*[sdrzycimski@itctransco.com](mailto:sdrzycimski@itctransco.com)*



**Break**



# Executing Through the Energy Transition

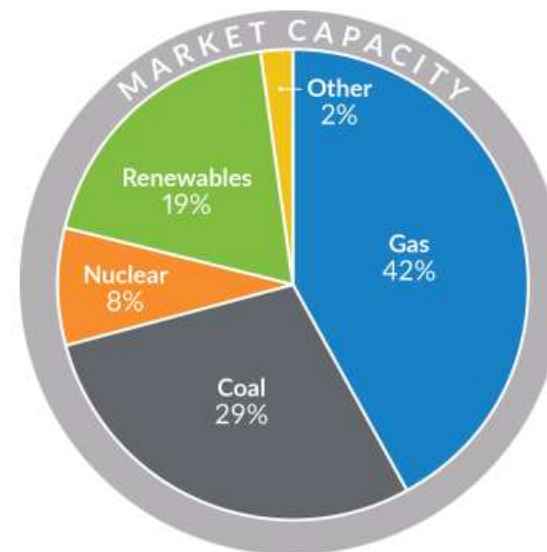
ITC Partners in Business

May 21-22, 2024

**MISO is a voluntary, non-profit member-services organization responsible for providing reliability and system-planning services across its multi-state region.**

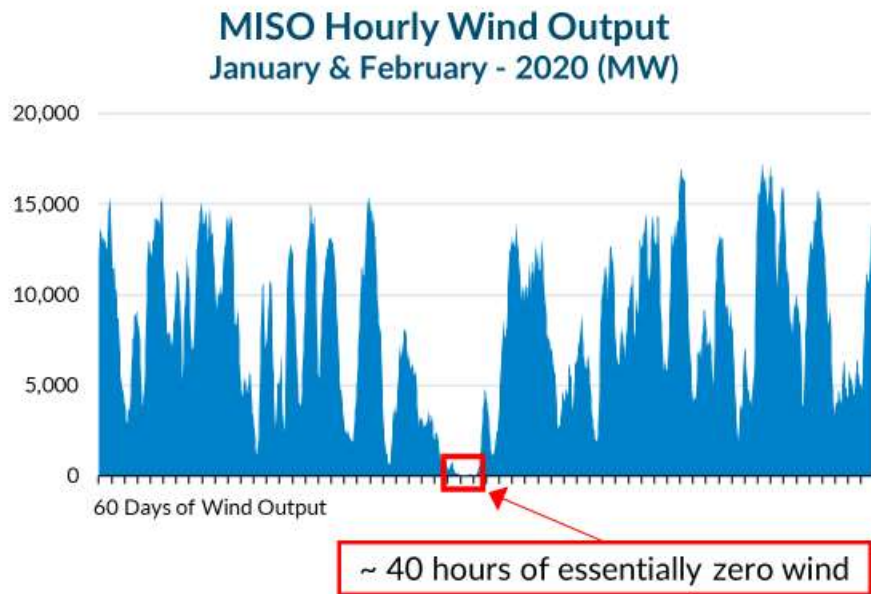


MISO by-the-numbers	
High Voltage Transmission	65,800 miles
Generation Capacity	174,000 MW
Peak System Demand	127,125 MW
Customers Served	42 million



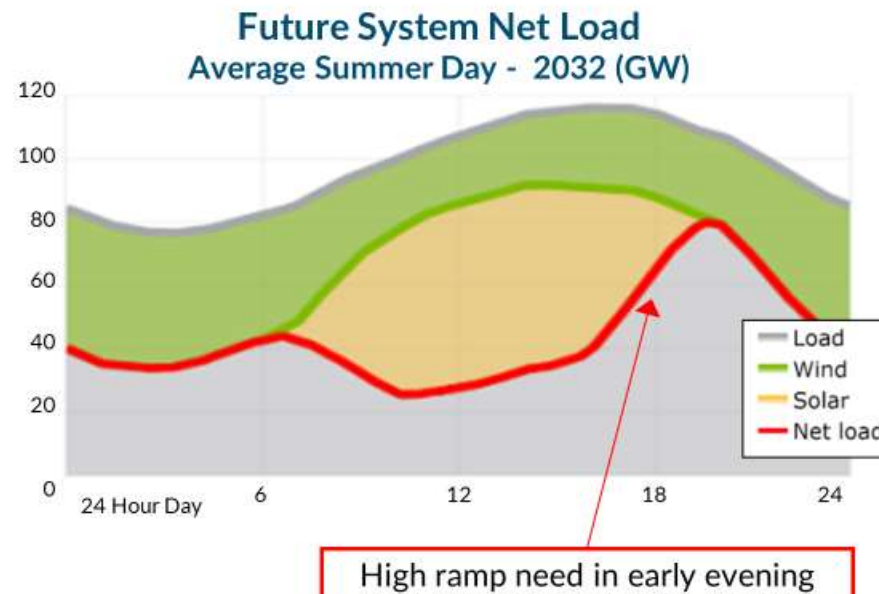
# As more of the fleet's availability becomes weather-reliant it becomes our largest contingency and the timing and magnitude of risk changes

## Potential long duration wind droughts



- Long duration wind droughts have and will occur again
- Current storage solutions are helpful for shorter term, but not longer-term wind droughts

## Shifting net load shapes



- 'Duck curve' effect will increase with higher solar penetration
- Operating conditions will require increased flexibility (~ 40 GW of reliable 'up-ramp' capability)

# Coordinating and executing on the priorities within the Reliability Imperative is required to address challenges to reliability

## RELIABILITY CHALLENGES

- Attributes needed to ensure reliability will become more scarce
- Extreme weather events are more frequent and severe
- Large single-site load additions and incremental load growth
- Fuel-assurance issues with gas pipelines and other energy infrastructure
- Supply chain and permitting issues are delaying generation projects
- Investor preferences to/not to finance new energy projects

## KEY INITIATIVES

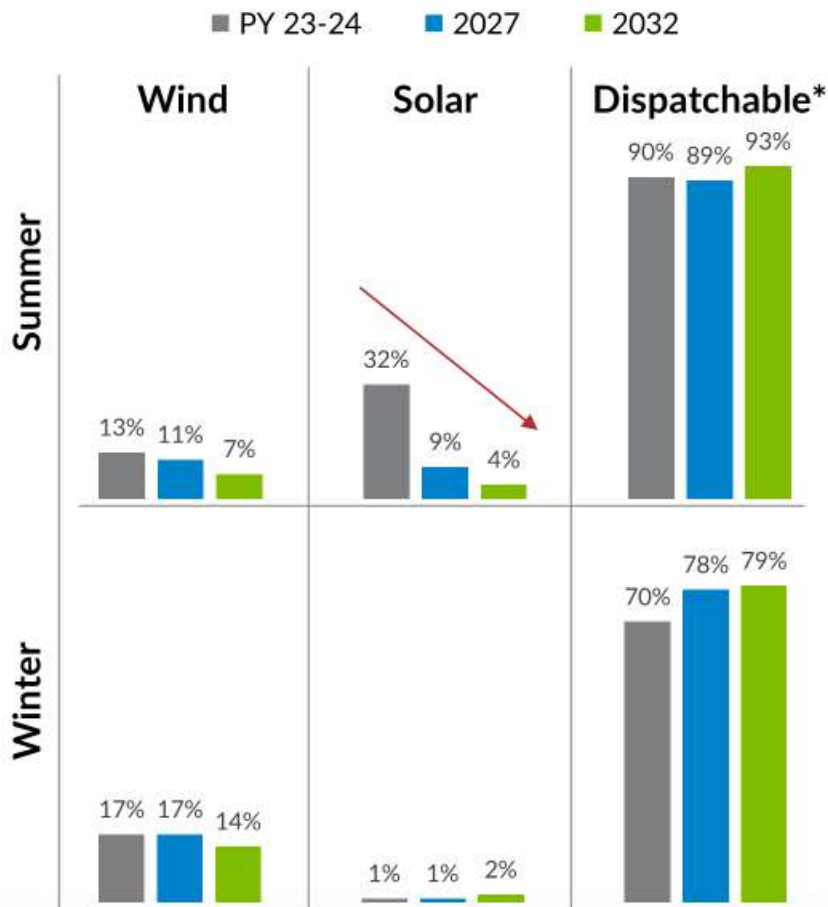


# Filed accreditation changes designed to improve alignment with the reliability value of resources

## Approach

- Risk hours expanding from summer peak to also include winter
- Seasonal marginal value based on 'Direct Loss of Load' (DLOL) approach matches accreditation with risk hours based on class and individual asset performance
- Solar accreditation falls off with higher levels of penetration because risk hours are shifted to early evening

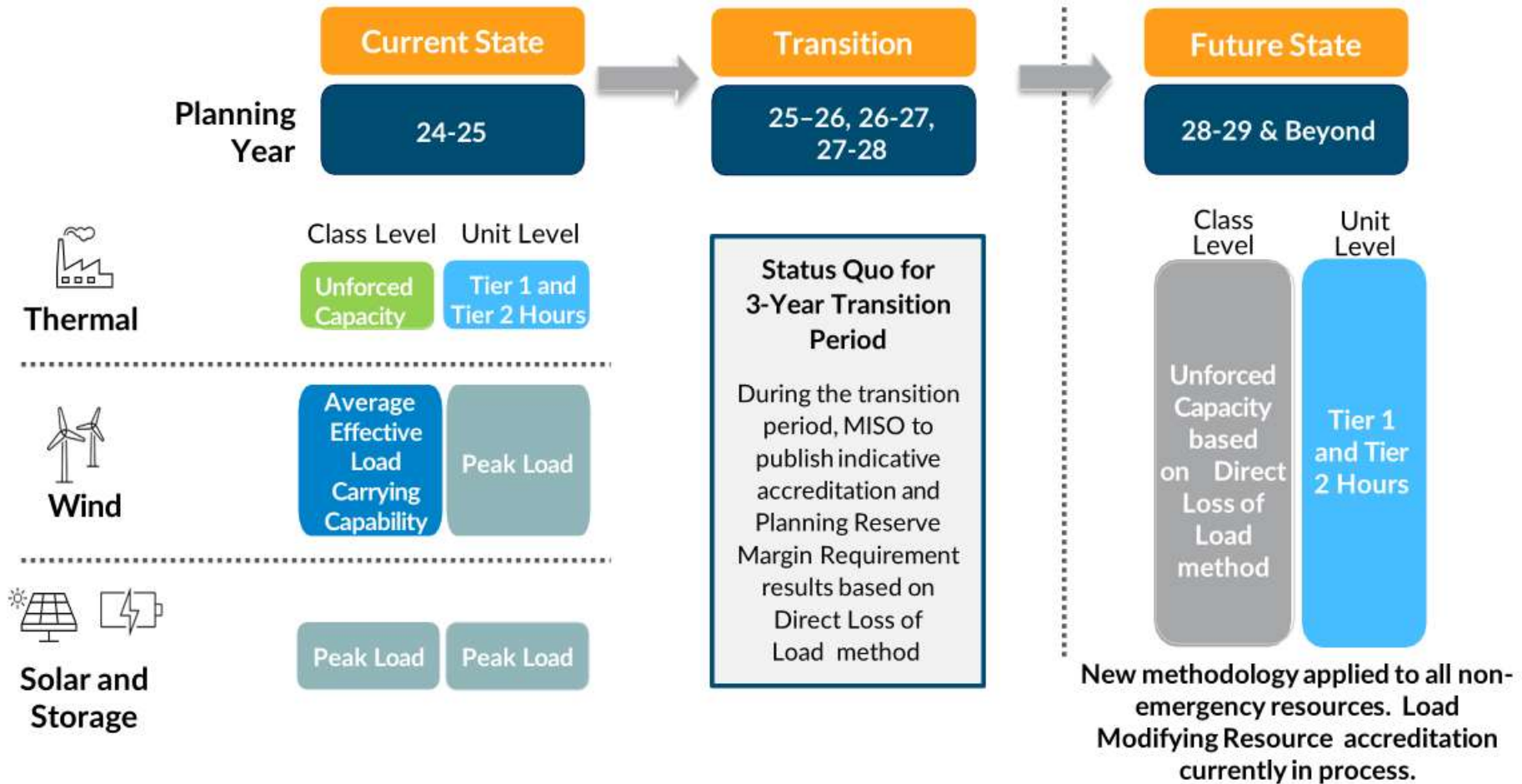
## Indicative Accreditation Trends (% of installed capacity)



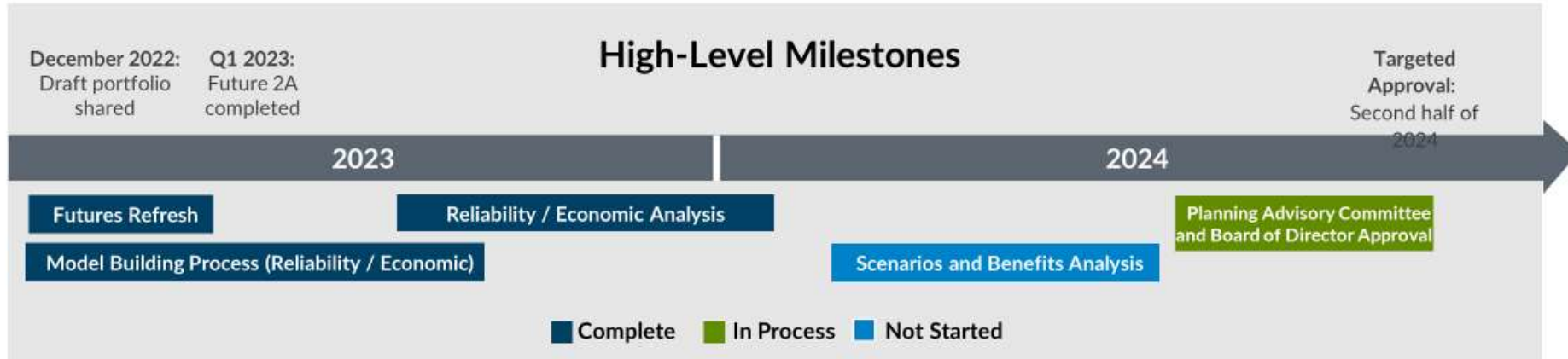
## Expected Outcomes

Accreditation based on reliability contribution is the right direction, but it comes with additional coordination challenges as MISO Members evolve their fleets

# A three-year transition allows time for stakeholders to better understand and plan for the accreditation and reserve margin calculations



# Long Range Transmission Planning work is progressing on several fronts



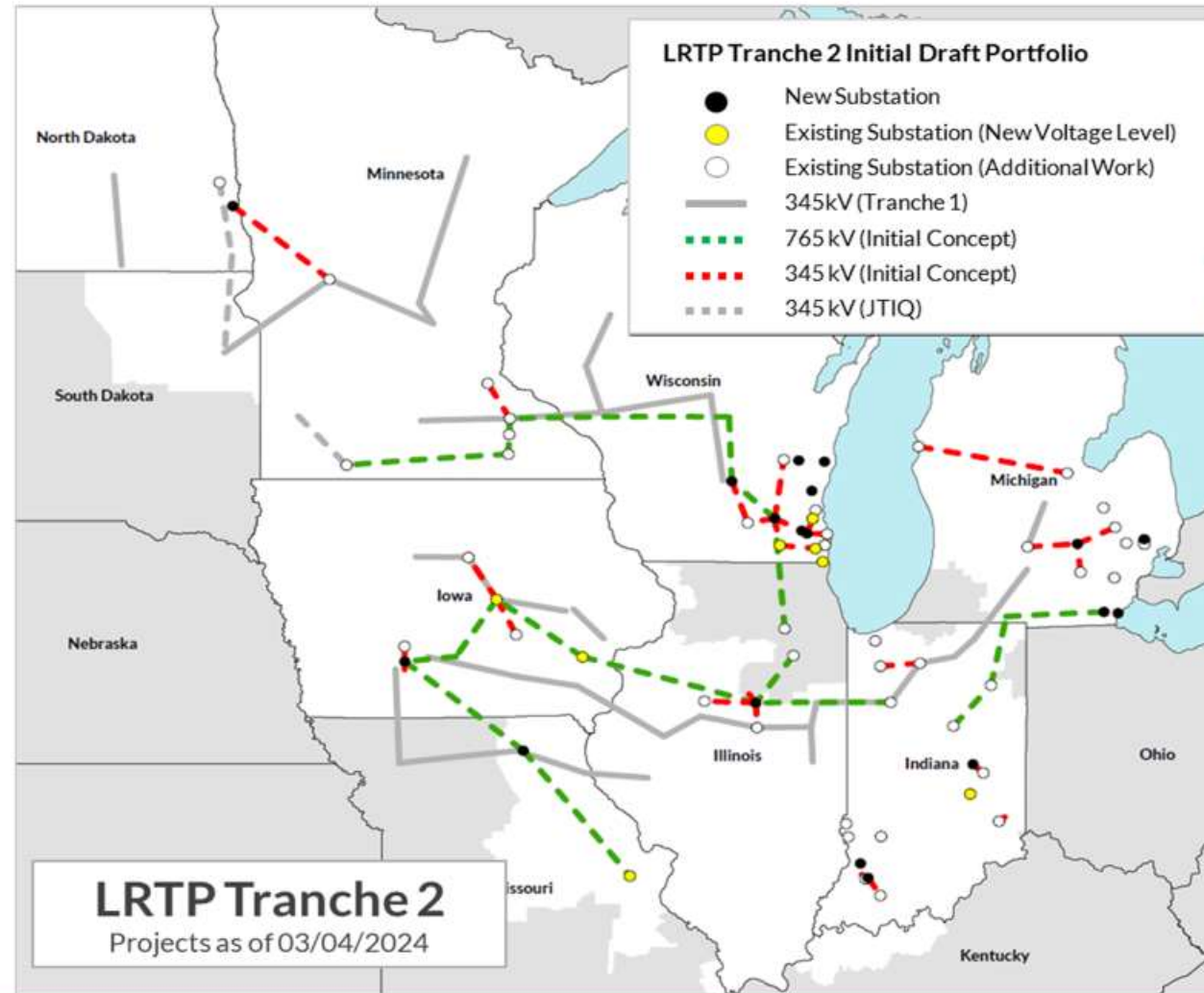
## Tranche 3 (MISO South)

- Significant load additions and growth potential in MISO South
- Significant increase in MTEP project investment
- Exploratory discussions started on Tranche 3
- MISO South region regulators focused on cost allocation approaches

## Other

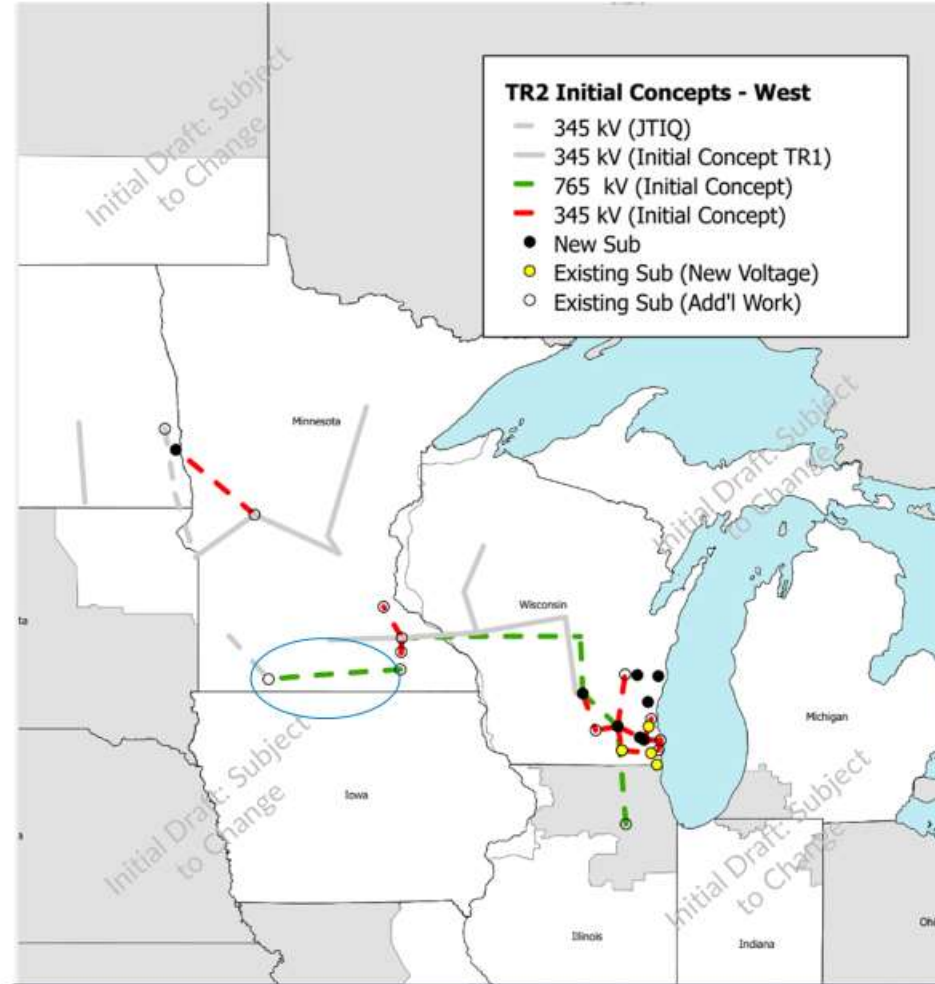
- MISO-SPP Joint Targeted Interconnection Queue (JTIQ) study:
  - 5 projects estimated at \$1.6 B of investment; DOE grant being negotiated
  - Finalizing tariff changes to facilitate FERC and Board approval
- Exploring more interregional opportunities

# MISO released an initial draft portfolio in March for the first phase of Tranche 2 with approval targeted for later this year



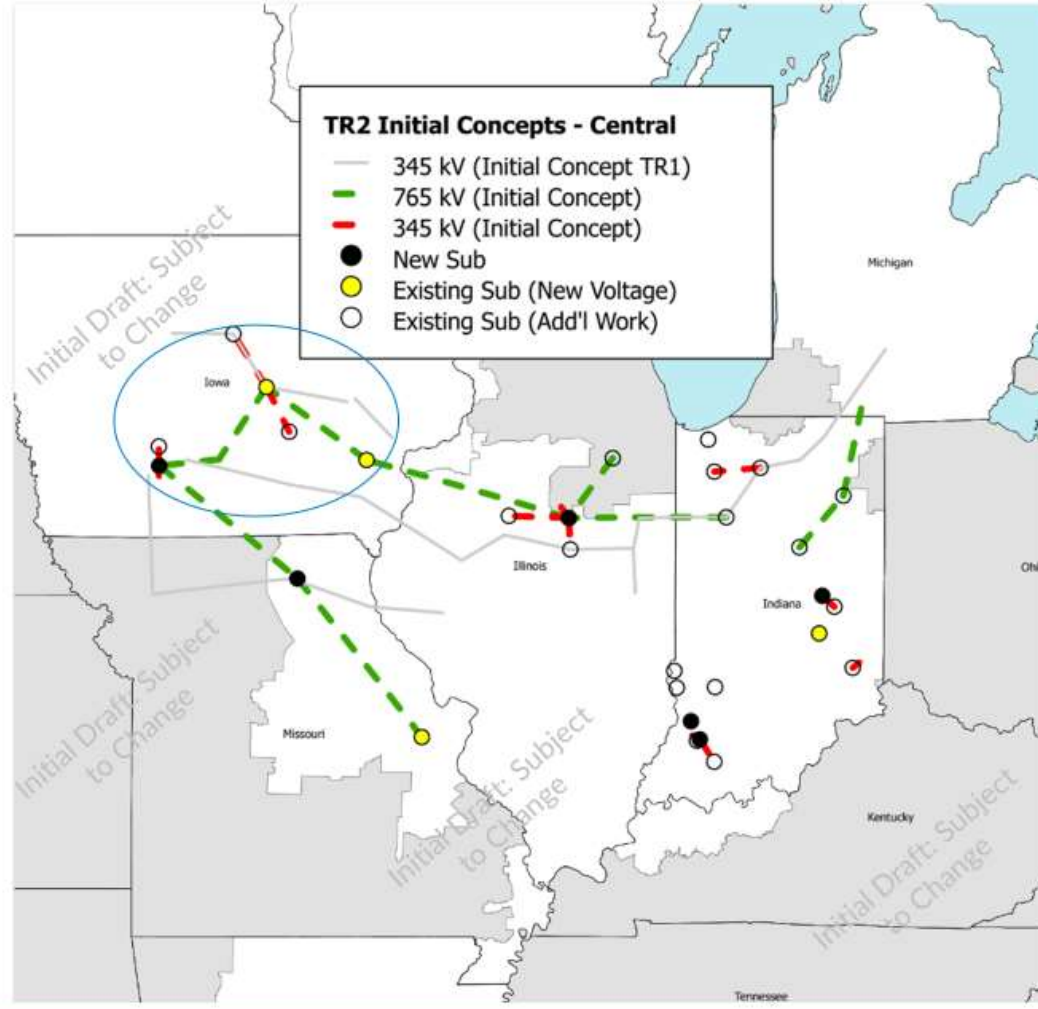
# The anticipated portfolio will reliably and efficiently enable MISO member goals and load growth, with a final cost expected to be between \$17 and \$23 Billion – West Sub-regional View

**L RTP Tranche 2**  
Projects as 2/26/2024



# The anticipated portfolio will reliably and efficiently enable MISO member goals and load growth, with a final cost expected to be between \$17 and \$23 Billion – Central Sub-regional View

**L RTP Tranche 2**  
Projects as 2/26/2024



The Tranche 2 portfolio focuses on creating a 765 kV transmission 'highway' within the MISO region to maximize value based on land use, line distances, transfer levels and costs

1 - 765 kV Circuit



=

3 - 500 kV Circuits



6 - 345 kV Single Circuits



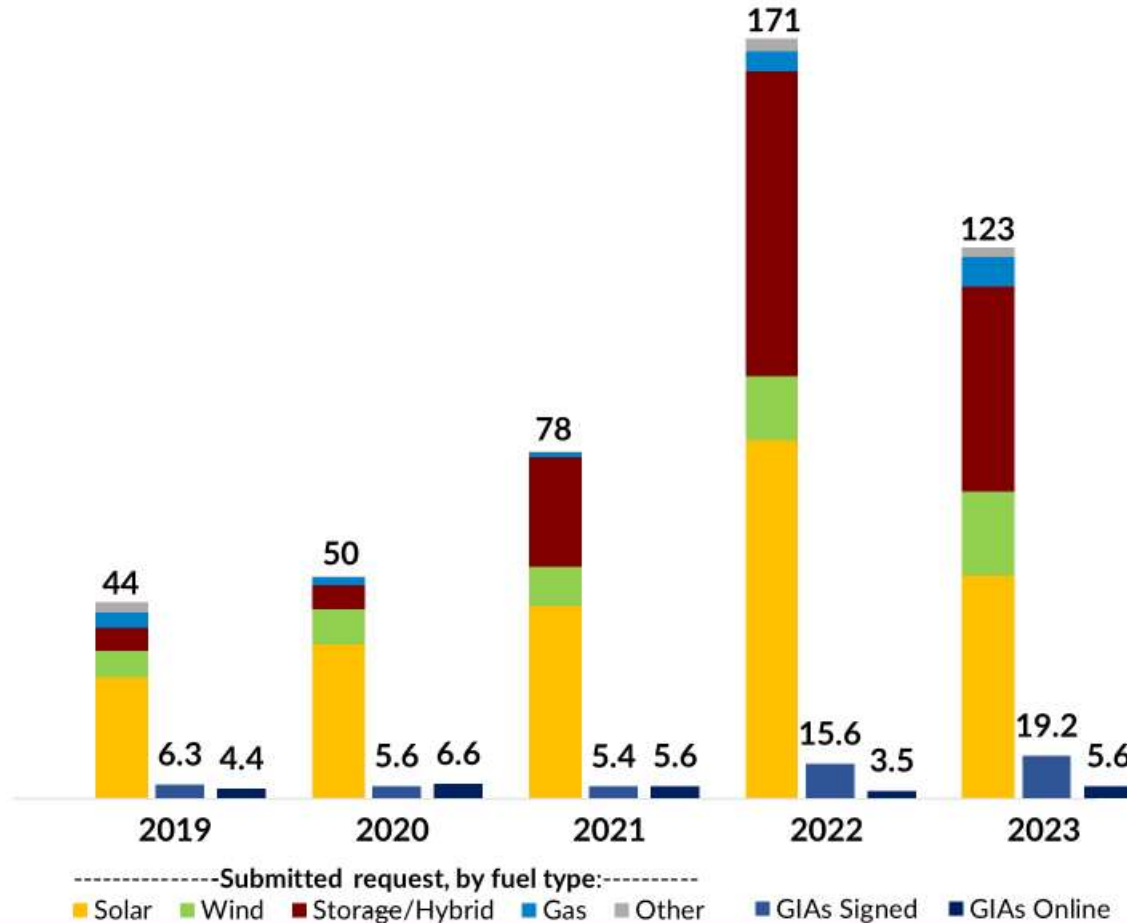
3 - 345 kV Double Circuits



Tranche 2 does not eliminate the consideration of HVDC, 345 kV or 765 kV for future needs

# The 2023 queue cycle just closed at 123 GW\* but signed agreements and actual construction reflect delays

**Generator Interconnection (GI) Queue Trends by Year**  
(Nameplate GW)



## Generator Interconnection Requests

- Requests have rapidly increased generally, but 2023 reforms resulted in ~30% reduction vs. 2022

GI Requests:	2023 New*	All Active**
Size:	123 GW	353 GW
Mix:		
Solar	40 %	47 %
Storage/Hybrid	37 %	35 %
Wind	15 %	12 %
Gas	5 %	4 %
Other	2 %	2 %

## Generator Interconnection Agreements (GIAs)

- Signed GIAs are increasing
- Construction delays continue, with installed capacity averaging over 5 GW/year

\* The 2023 Generator Interconnection Queue application cycle was deferred to April 2024

\*\* "All active" represents ~230 GW of GI requests still active from prior years + '2023 New' requests, as of April 2024

# MISO is active on many fronts to improve the manageability of the queue and provide critical resources a path to timely approval

## FERC Order 2023 Compliance

- Addresses queue backlogs, improves certainty and prevents undue discrimination for new technologies
- MISO adopted approximately 15 reforms
- Most directives are consistent with MISO reforms filed with FERC in January 2024

## MISO Queue Cap Proposal

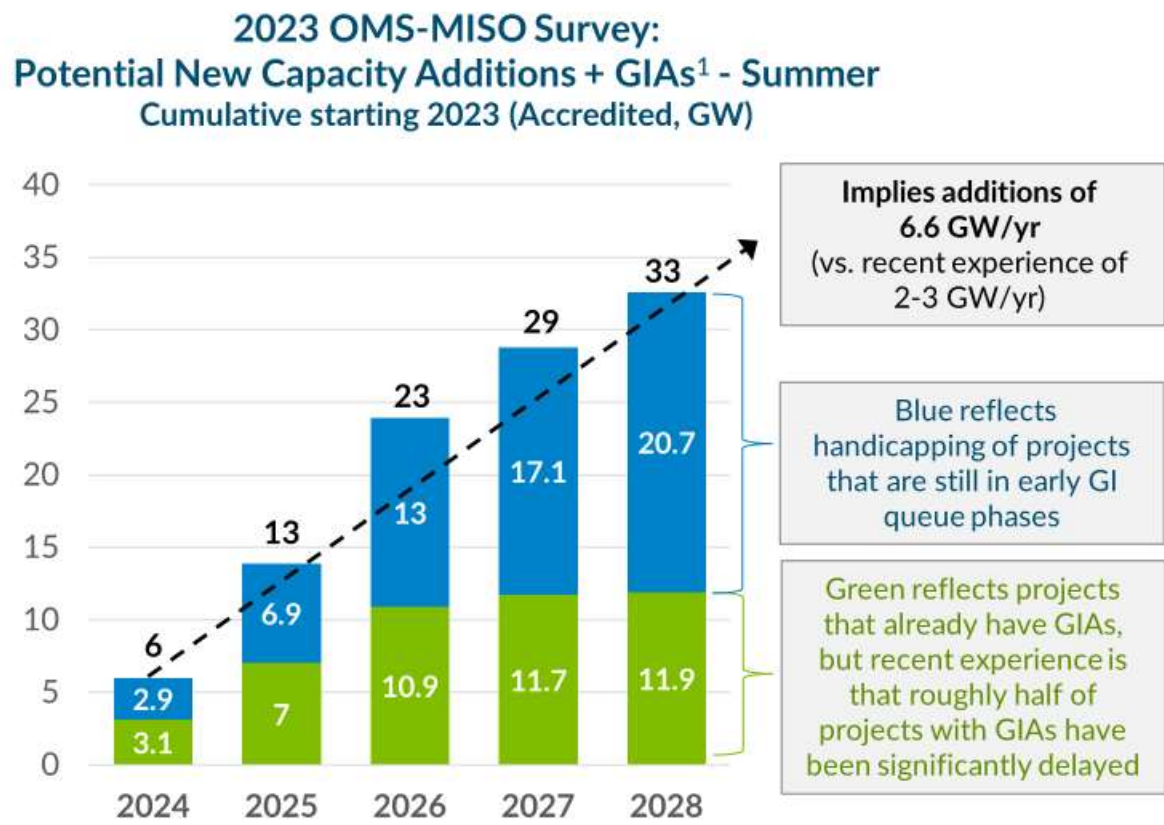
- A cap would limit the amount of capacity by GW to be studied in a given queue cycle
- Would help MISO and neighboring systems manage the study process and conduct studies more quickly given the dramatic growth in applications
- Specific proposal provisions rejected by FERC will be revised and refiled in 2024

## Additional Queue Needs to Address

- Identifying state priority projects and/or those with required reliability attributes
- Expediting critical projects to enable timely approval as resource removals must be matched with additions

# Appendix

# The potential for new additions of accredited capacity may be optimistic given recent trends and more accurate accreditation for solar and wind resources



## Implications

- Recent experience with new capacity additions has been 2-3 GW/year of new accredited capacity
- Potential new capacity in OMS<sup>2</sup>-MISO Survey may be overstated
- The profile of new resources being planned does not match with attribute needs

■ "Potential New Capacity" as reported in 2023 OMS-MISO Survey, pg 6.

■ Portion of "Committed Capacity" with GIA as reported in 2023 OMS-MISO Survey, pg 19.

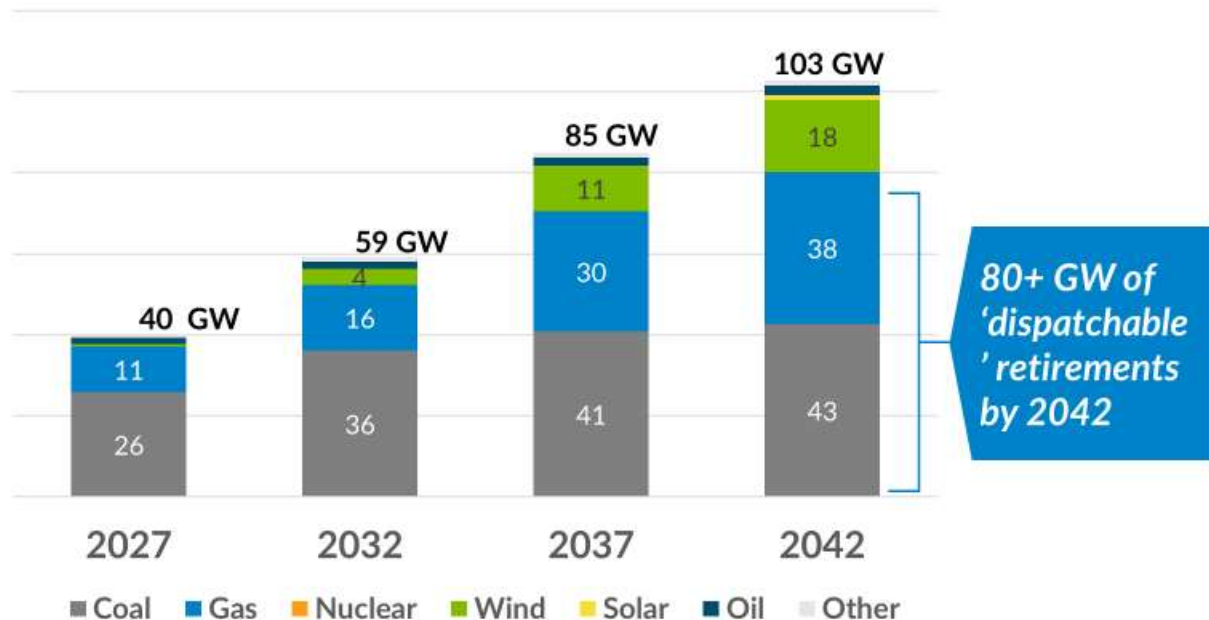
<sup>1</sup> Generator Interconnection Agreement (GIA) signed or being negotiated

<sup>2</sup> Organization of MISO States (OMS)

# Policy direction is accelerating thermal unit retirements and increasing the headwinds to new thermal unit development

- Member/state clean energy and decarbonization goals
- U.S. Environmental Protection Agency (EPA) regulations:
  - Carbon Rule
  - Good Neighbor Rule
- Inflation Reduction Act and Infrastructure Bill

Future 2A Total Retirements  
(Cumulative GW)



MISO will need to assess Futures to determine if recent developments, especially related to the Carbon Rule, will limit existing resources and may cause additional retirements beyond those assumed here

## 2024 Planning Resource Auction results reflect a declining capacity surplus across the region and a shortfall in Zone 5

Clearing Prices (\$/MW-day)		MISO Estimates with Reliability Based-Demand Curve
		2024 Auction
<u>Zones 1-4, 6 and 7</u>		
Summer:	\$30	\$197
Fall:	\$15	\$39
Winter:	\$0.75	\$2.40
Spring:	\$34.10	\$32
<u>Zone 5</u>		
Summer:	\$30	\$197
Fall:	<b>\$719.81</b>	\$758
Winter:	\$0.75	\$2.40
Spring:	<b>\$719.81</b>	\$751
<u>Zones 8-10</u>		
Summer:	\$30	\$80
Fall:	\$15	\$39
Winter:	\$0.75	\$2.40
Spring:	\$34.10	\$32

Yellow pricing indicates Cost of New Entry (CONE)

MISO Resource Adequacy Zones



## With stakeholder engagement to prioritize and sequence critical work, we expect to make significant progress on other key Market Redefinition initiatives

### Examples of deliverables in 2024

#### Reliability Attributes

*Integrate solutions identified in the Attributes Roadmap related to priority risks of system adequacy, flexibility, and system stability*

#### Deliverables

- Ensure resource adequacy and energy market signals are incenting emerging needs
- Require capabilities to strengthen the grid

#### Scarcity Pricing

*Send the right signals about the value of energy and other products leading up to and during scarcity conditions*

#### Deliverables

- Present proposed changes to relevant pricing curves for stakeholder feedback
- **Targeting FERC filing in Q3**

#### Reliability Metrics

*Recognize the limitations of the Loss of Load Expectation metric to determine system adequacy*

#### Deliverables

- Evaluate new or additional risk metrics for resource adequacy assessments and their potential to improve underlying risk models

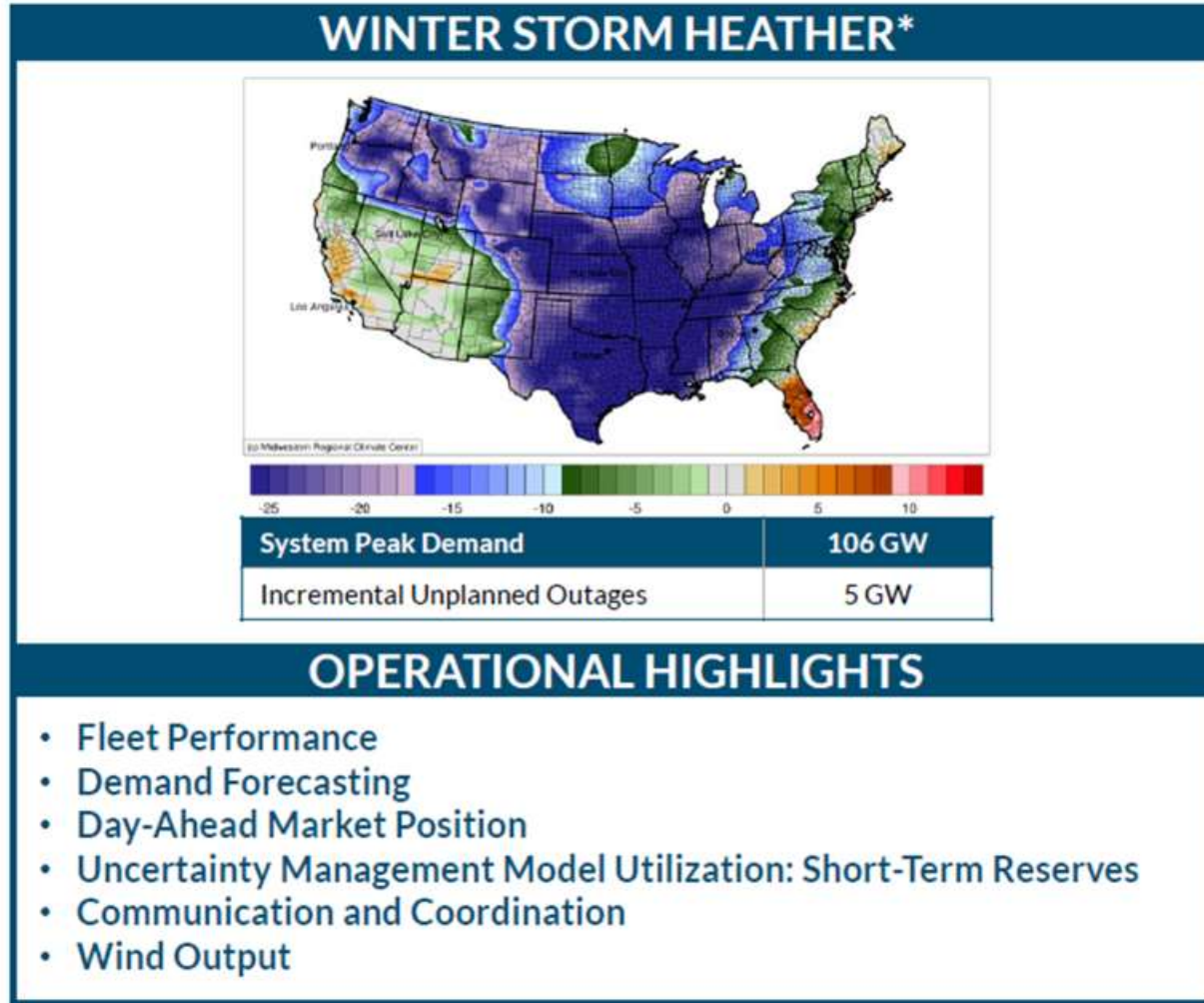
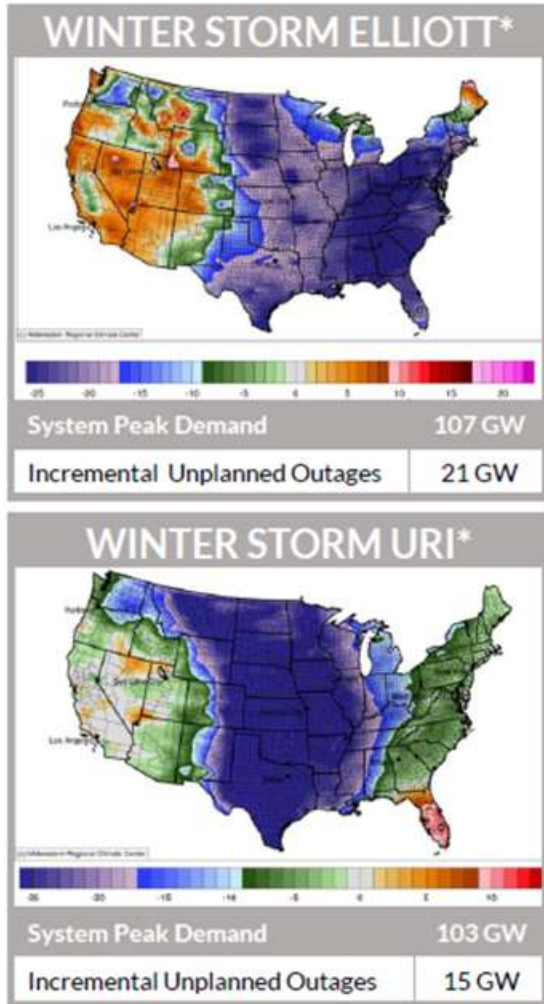
#### Load Modifying Resource (LMR) Accreditation

*Enhance accreditation to closely align with actual availability and account for specific characteristics*

#### Deliverables

- Required notification time of  $\leq 30$  minutes
- Accreditation methodology under development but based on availability and LMR type
- **Targeting filing in Q3**

# Each winter storm's unique conditions result in operational lessons learned, and Heather was no exception



\*Average Temperature: departure from 30-year normal

# JTIQ (Joint Targeted Interconnection Queue)



**Brian Drumm**

*Director, Regional Policy and RTO Engagement*  
*[bdrumm@itctransco.com](mailto:bdrumm@itctransco.com)*

# Genesis of Joint Targeted Interconnection Queue Study

- In 2020 SPP & MISO developed this study focused on identifying projects needed to remedy historical challenges facing generator interconnection projects near the seam.
- These challenges have caused projects to drop out of the study process because costly network upgrades were triggered at the same time as customer preference and changing policies have increased the demand for renewable resources, like wind and solar generation technologies.
- MISO & SPP developed a jointly selected portfolio of projects that better enable interconnection by mitigating dozens of reliability issues across both regions.
- Between 28 GW and 53 GW of improved interregional generation enablement will be available to new generator interconnection projects near the seam.
- MISO expects a joint FERC filing this summer with the tariff, rate design, and agreements, with MISO & SPP BOD review and approval to follow.

# JTIQ Project Overview

- MISO-SPP Joint Targeted Interconnection Queue: large network upgrades
- Transmission system along the seam is at capacity – this provides generation enablement
- ~\$1.6B total portfolio investment with one-off cost allocation
- DOE grant of \$465M applied as a CIAC ~ 25% of the capitalized cost of each project
- Transmission planning study process for JTIQ represents new paradigm and MISO intends it to be used in future



# ITC Midwest Project & Benefits

- Lyons County – Lakefield to be jointly owned by ITC Midwest & Xcel
  - Approximately 75-line miles with an expected ISD +2030
  - Details subject to final routing, permitting, and subsequent updated estimates
- Benefits include:
  - Improved cost certainty for GI requests
  - Improved timing certainty
  - Optimized network upgrades
  - Improved access to diverse energy resources in the market

# JTIQ Generator Charge

- The generators will pay for the portfolio of these network upgrades through a \$/MW-Mo rate
  - Uses 20-year levelized revenue requirement calculation in Facilities Service Agreement (FSA) as foundation for charge
  - These Network Upgrades are part of a portfolio with many generators and have many complexities beyond an FSA
  - Revenue requirement will be a revenue credit to Attachment O
- DOE funding used to offset a portion of each project's capital costs (i.e., load will not pay for project capital costs)
- Regionwide load will act as a “backstop” until the JTIQ portfolio is fully subscribed
- Generators will pay back load over time as they come online
- Security for the Network Upgrades has been a big topic of discussion
  - Upon a generator default, security would be collected by the Transmission Owner and applied to the TO's formula rate template

Questions?



**Brian Drumm**

*Director, Regional Policy and RTO Engagement*  
*[bdrumm@itctransco.com](mailto:bdrumm@itctransco.com)*

# Long Range Transmission Planning (LRTP) Update



**Lauren Strager**

*RTO Policy Analyst, Associate*  
*[lstrager@itctransco.com](mailto:lstrager@itctransco.com)*



**FOR THE GREATER GRID**

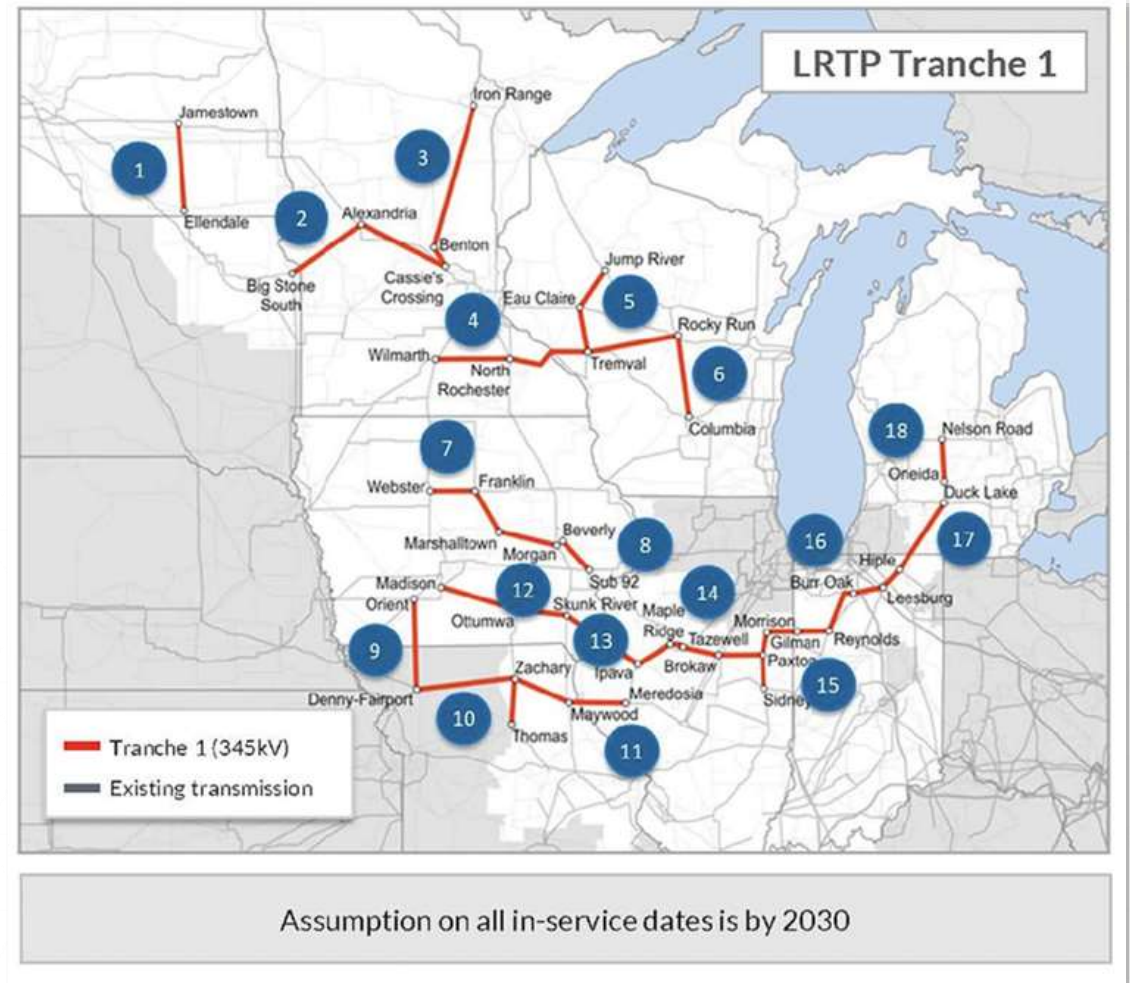
# MISO Landscape



# LRTP Tranche 1

## LRTP Tranche 1 was approved in July 2022

- LRTP addresses fleet transition, load growth, and increasingly frequent severe weather events
- 18 projects totaling \$10.3B
- 2028-2030 ISDs
- Portfolio was vetted through MISO's stakeholder process



# LRTP Tranche 1 Benefits

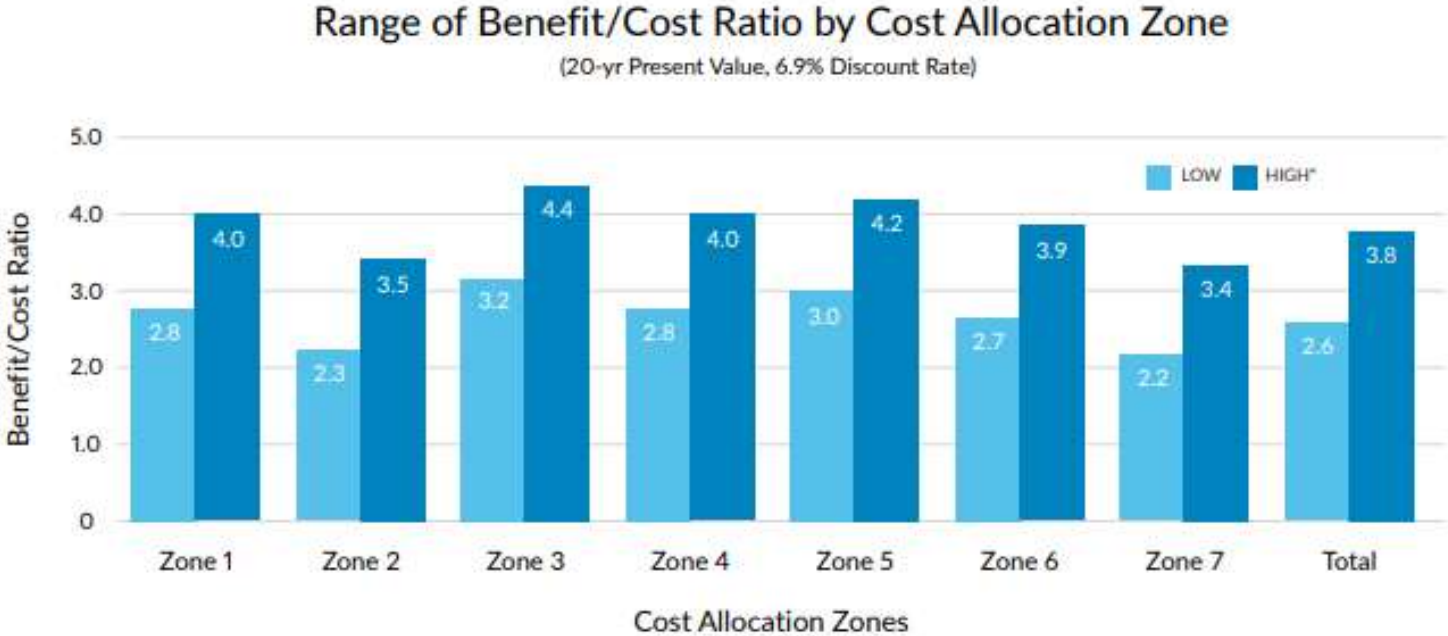
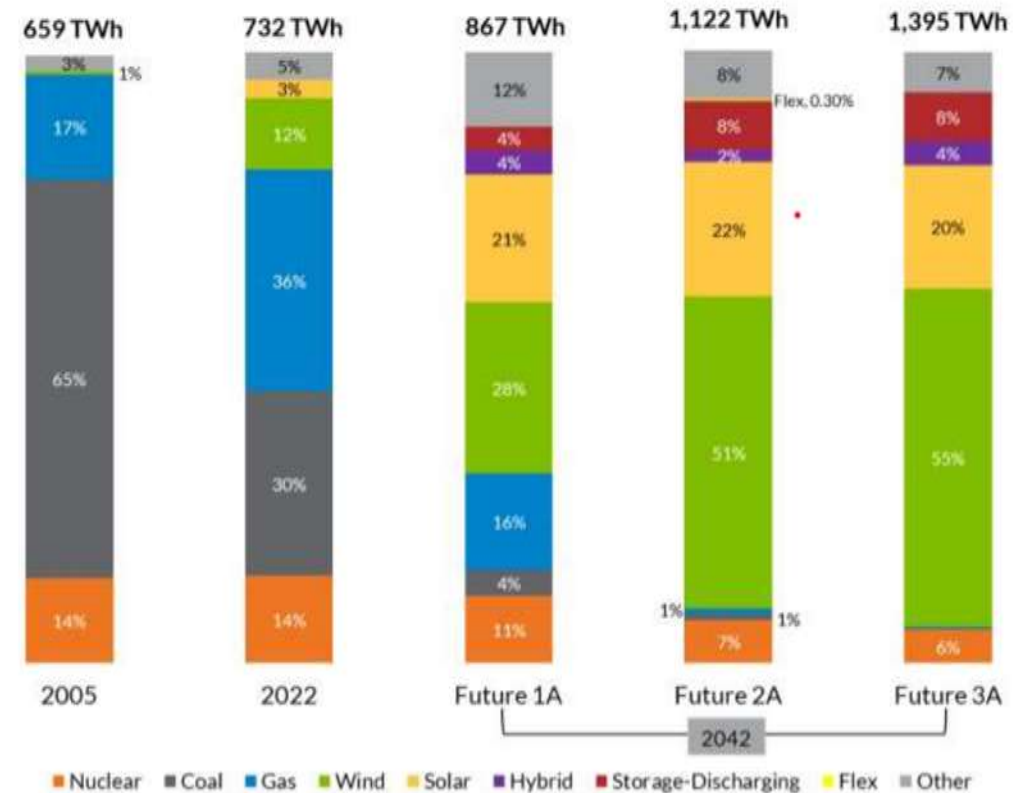


Figure 3: Benefits from the LRTP Tranche 1 portfolio exceed costs in every Midwest Subregion cost allocation zone

# Futures Refresh

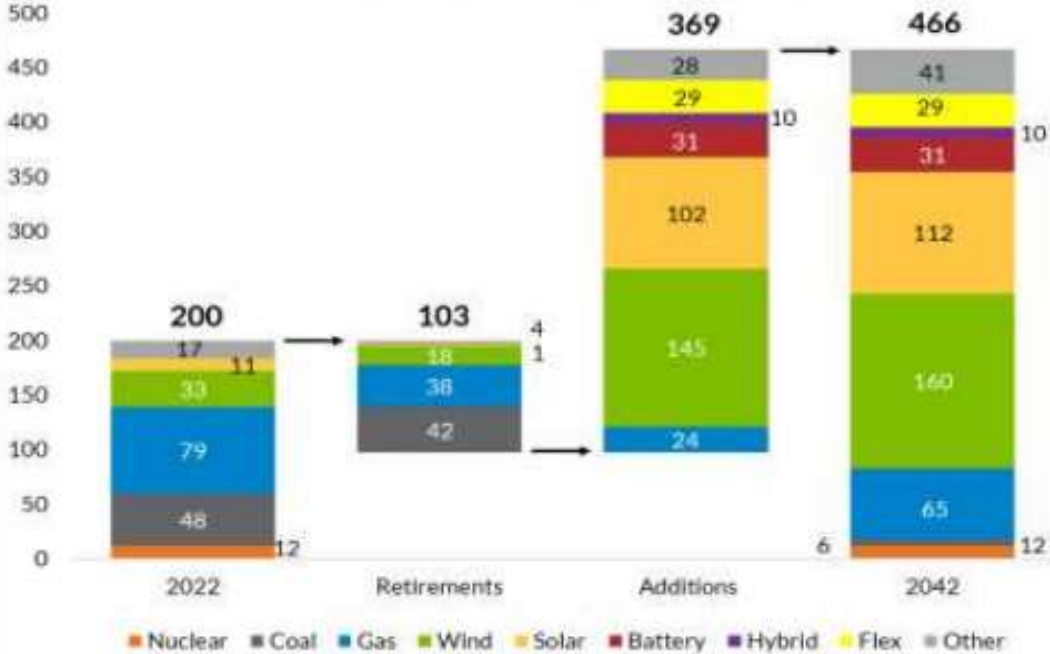
- MISO is making educated projections about what the electric system will look like in 20 years
- Establishes bookend scenarios for a range of possibilities pertaining to load growth, electrification, decarbonization, and retirements
- MISO's Futures set the foundation for MISO's long-term planning analyses
  - Future 1 (LRTP Tranche 1, foundational)
  - Future 1A
  - Future 2A (LRTP Tranche 2, load growth/fleet transition)
  - Future 3A

## MISO's Generation Fleet Transition

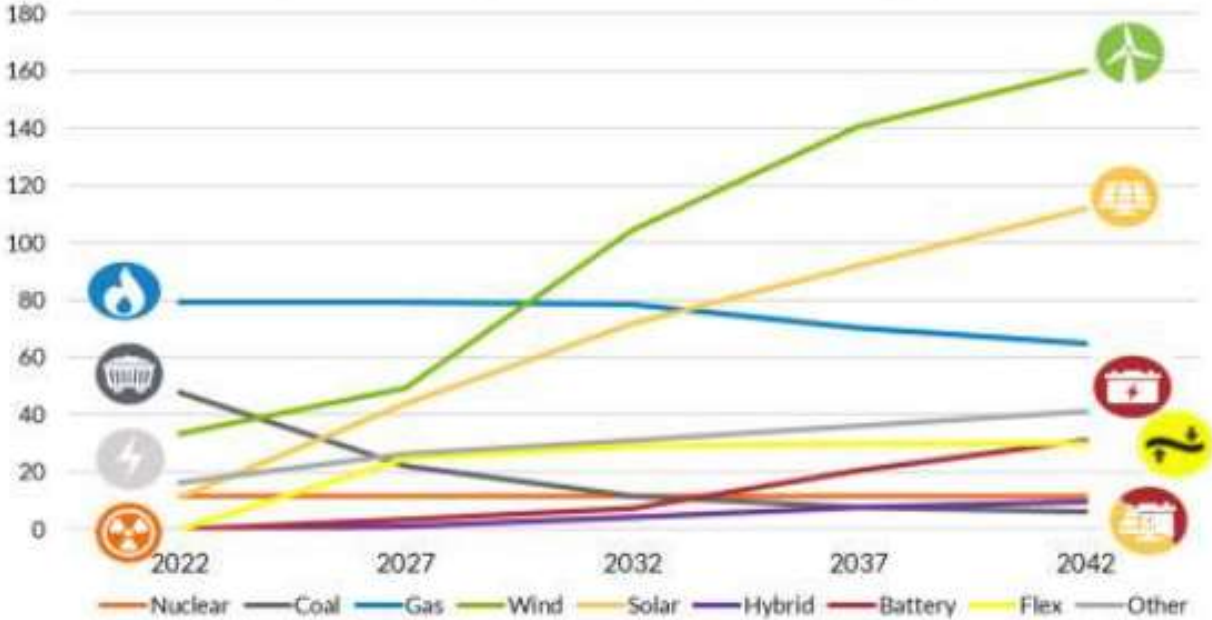


# Future 2A

Future 2A - Generation Capacity (GW)



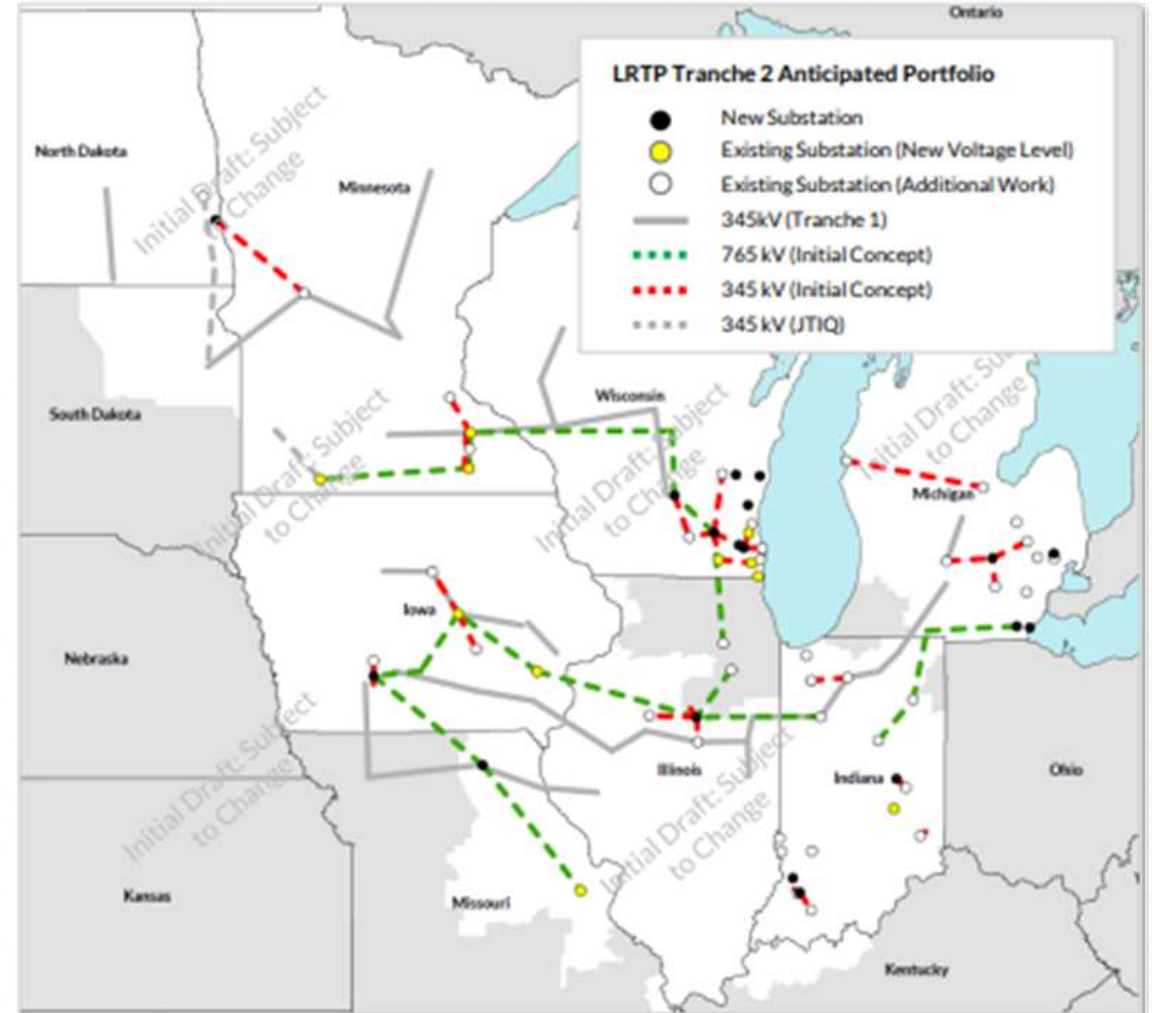
Future 2A - MISO Resource Fleet Evolution (GW)



# LRTP Tranche 2

## Tranche 2 targeting approval in September 2024

- Tranche 2 estimated at \$17-23B
- MISO is developing benefit metrics used to reflect the value of transmission in supporting reliability and flexibility in the future
- Tranche 2 analysis and solution testing is underway
- Solutions will be vetted by a robust stakeholder process



# L RTP Tranche 2 Timeline

MISO posted potential solutions on March 4, stakeholder alternatives were submitted for MISO's review on April 5, targeting portfolio approval in September



## L RTP Workshop Topics (Subject to Change)

- Key projects & project alternatives analysis
- Reliability & economic analysis assessment
- Benefit metrics discussion
- Draft portfolio discussion
- Finalized reliability, economic, & benefit metrics review

## PAC & MISO BOD Key Dates (Subject to Change)

- July 17 | PAC preview of draft portfolio
- Late July to early Aug | PAC substantive feedback on report
- Mid-Aug | PAC recommendation on draft portfolio
- Late Aug | SPC draft portfolio review
- Sept 17 & 19 | SPC & BOD approval

Questions?



**Lauren Strager**

*RTO Policy Analyst, Associate*  
*[lstrager@itctransco.com](mailto:lstrager@itctransco.com)*



# Lunch in Atrium

# Summer Operational Preparedness



**Matt Heinisch**

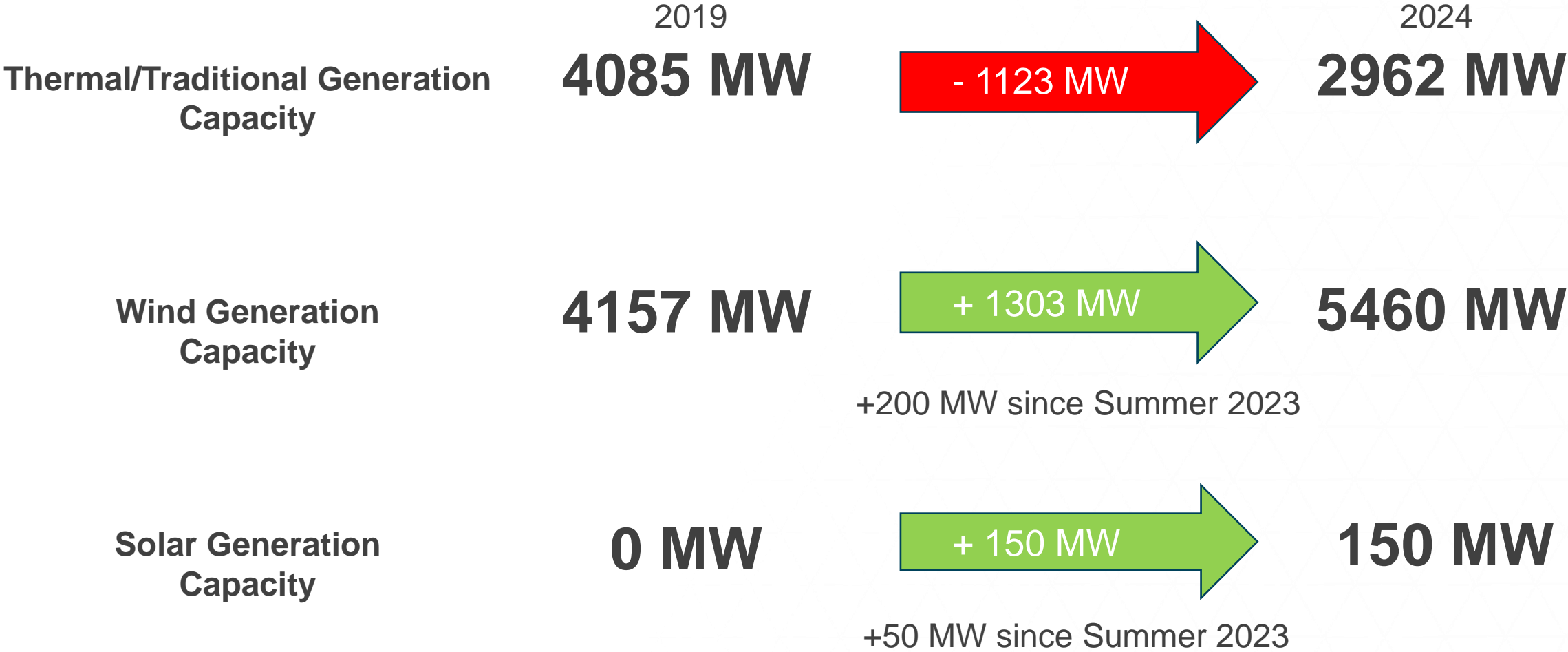
*Supervisor, Operational Planning*  
*[mheinisch@itctransco.com](mailto:mheinisch@itctransco.com)*

# Transmission System Topology Changes

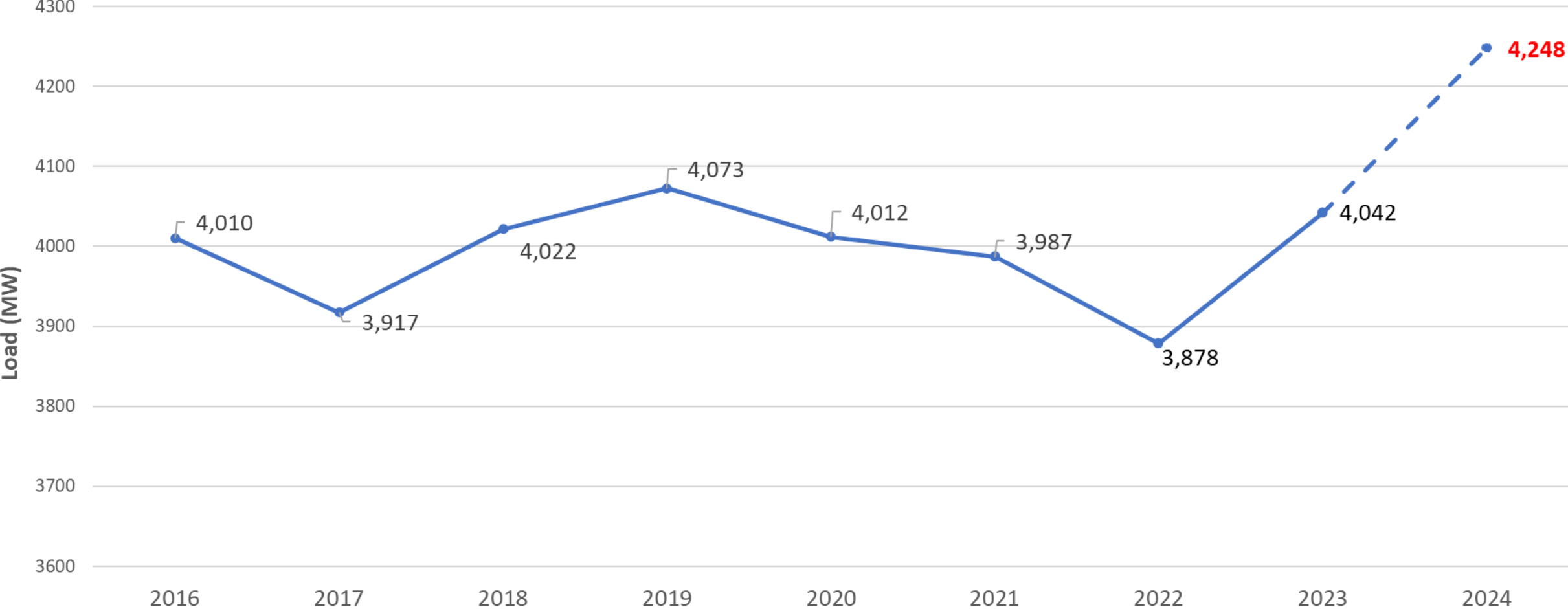


- A. Turkey River-Stoneman 161kV De-energized
- B. Mason City Macnider Industrial 161kV Substation
- C. Thisius 161/69kV Substation
- D. Keokuk Geode 69kV Substation
- E. Munier 69kV Substation

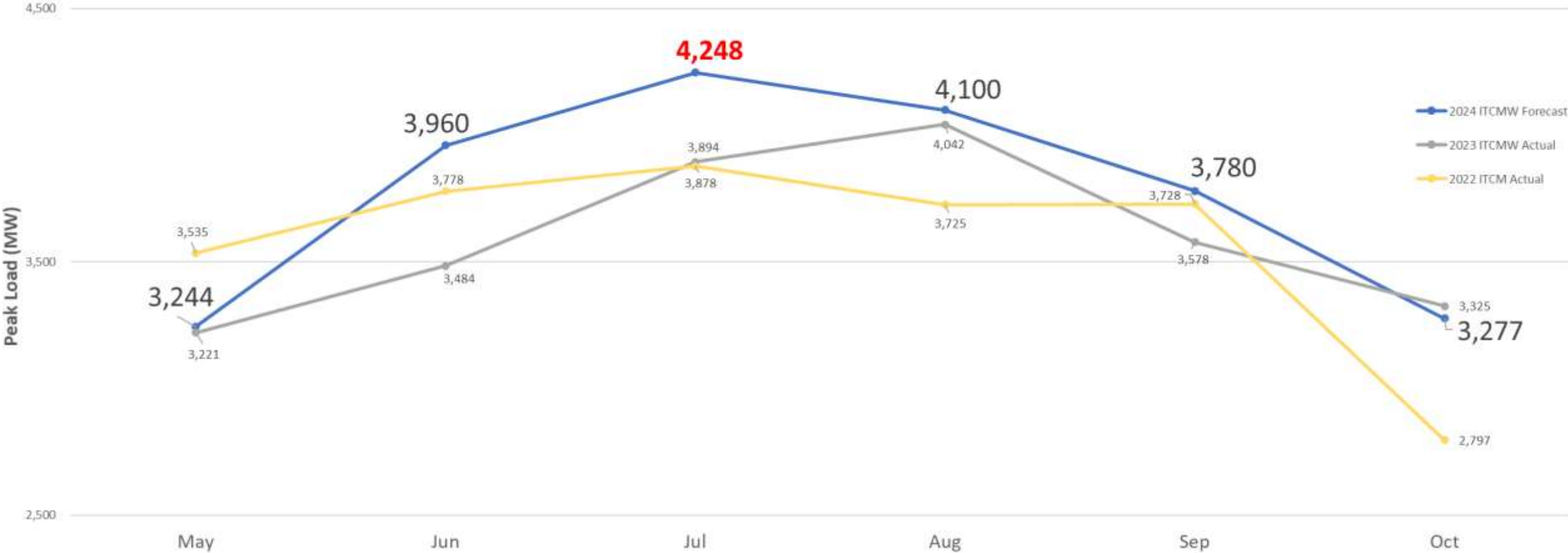
# Generation Changes



# Yearly Control Area Load



# Monthly Control Area Load



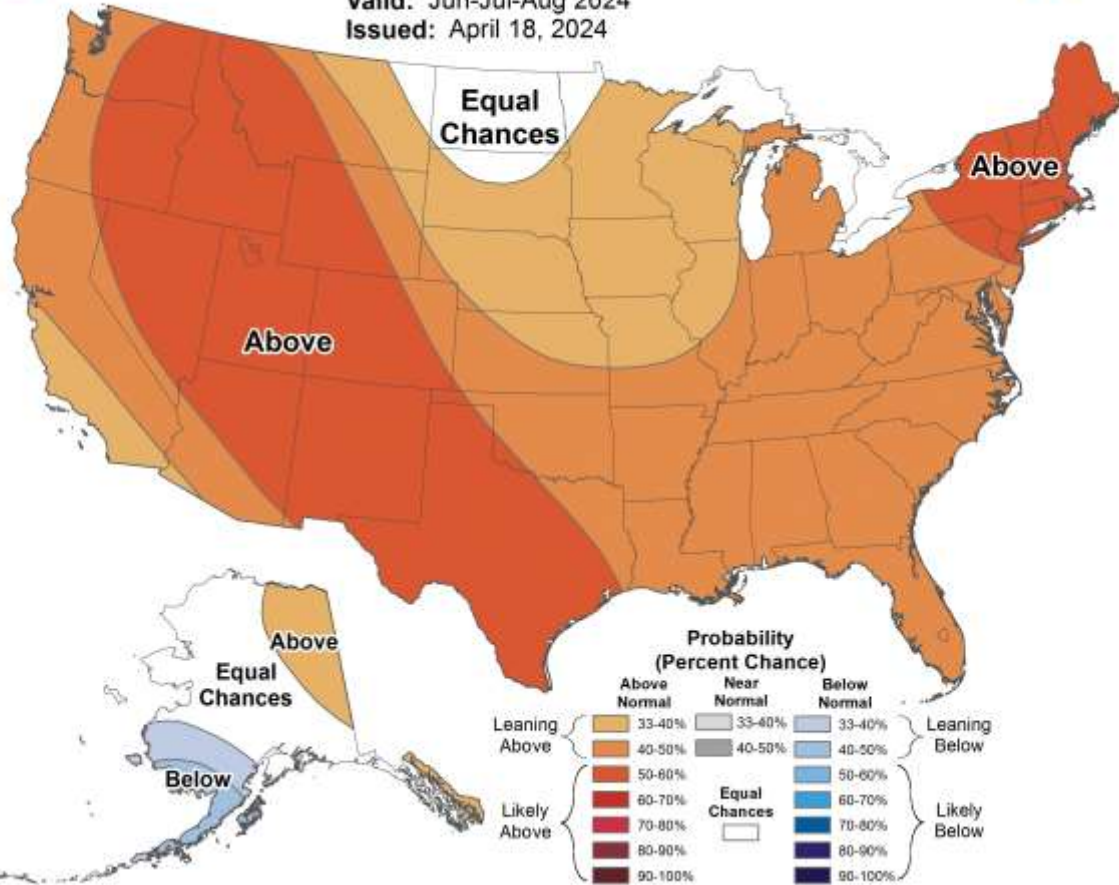
# Summer Climate Forecast



## Seasonal Temperature Outlook



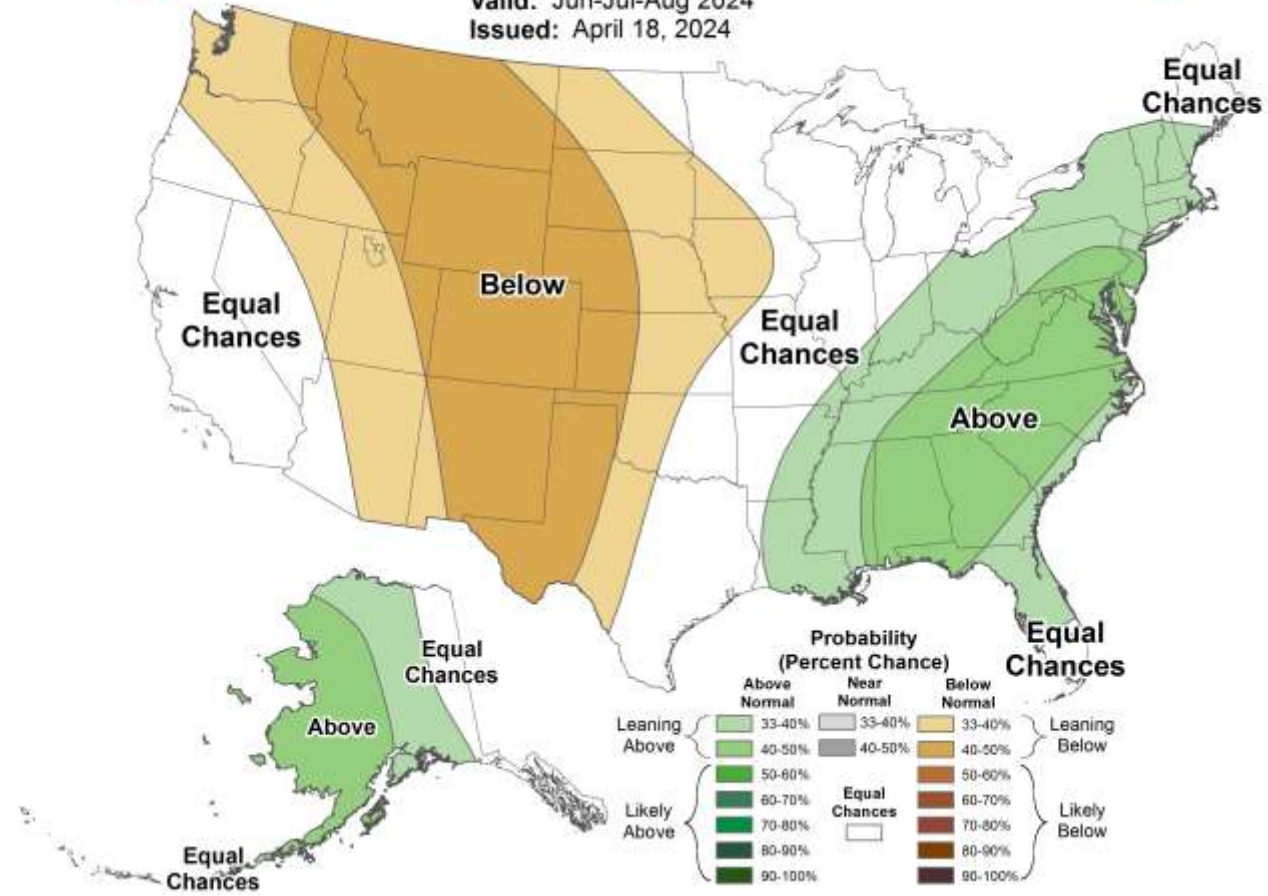
Valid: Jun-Jul-Aug 2024  
Issued: April 18, 2024



## Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2024  
Issued: April 18, 2024



# Study Methodology

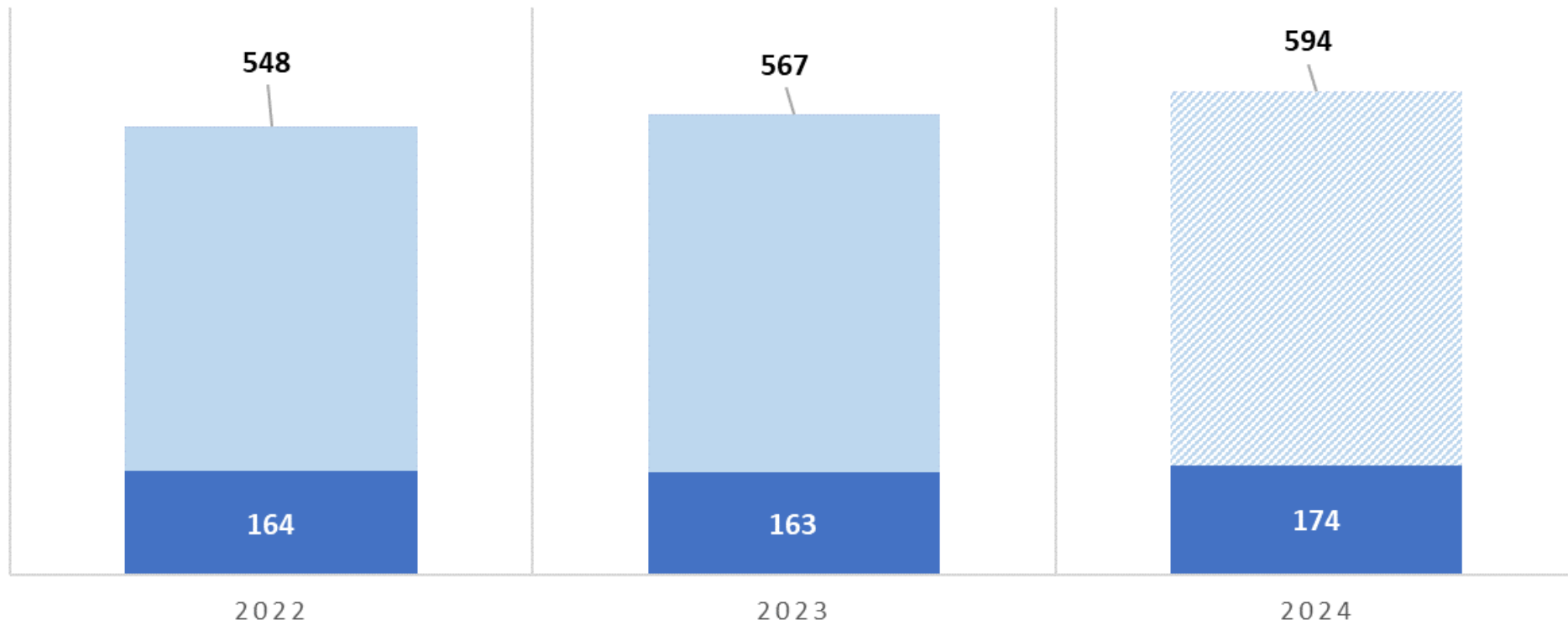


- Outages submitted as of 3/14/23.
  - Studied **non recallable** planned outages that are **(5) days or longer** in duration.
  - Studied **recallable** planned outages that are **(11) days or longer** in duration.
    - Focused on outage overlaps to identify outage conflicts
- Studied summer outages using **a standard high load base case** and **two additional stressed biased cases** using TARA and OSI.

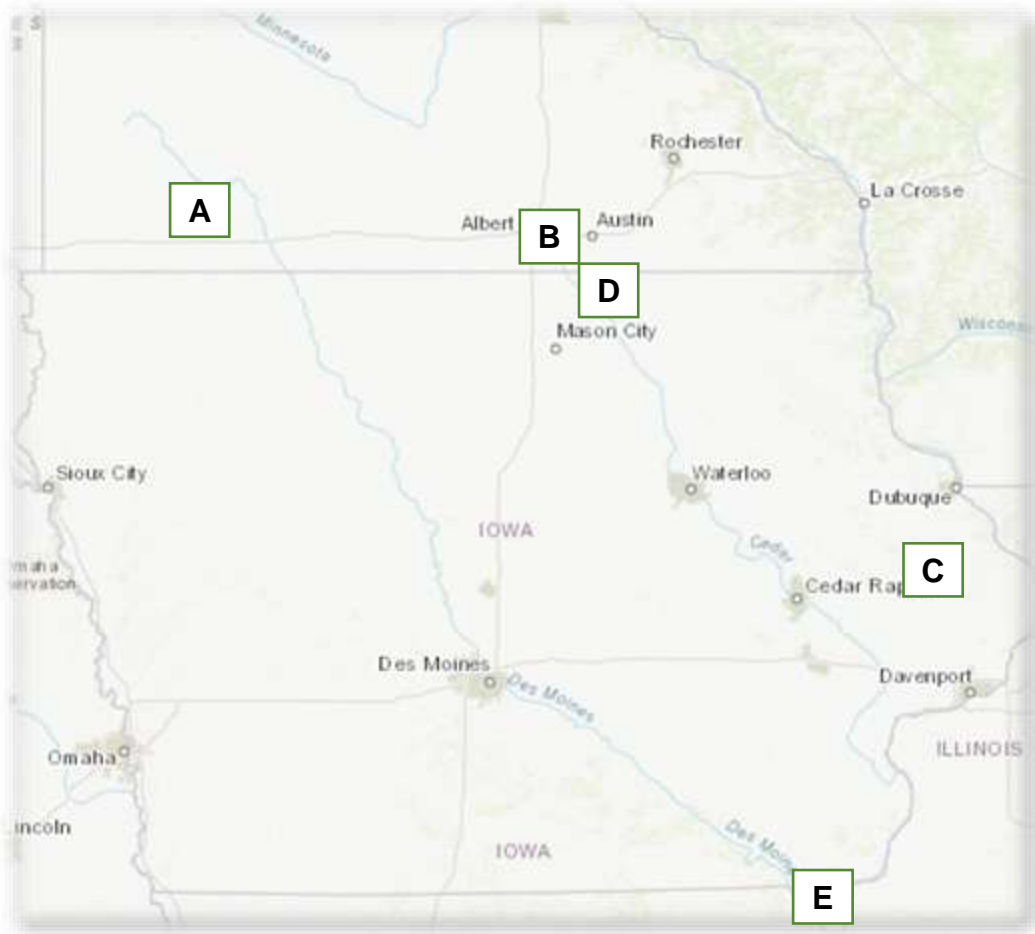
# Anticipated Outages

## NUMBER OF REQUESTS JUNE-SEPT

■ Submitted by 5/1 ■ Submitted after 5/1



# Major Outages



A. Heron Lake 161kV Rebuild

B. Hayward Transformer Replacement

C. Maquoketa 161kV Rebuild

D. Barton Relay Replacements

E. Keokuk Geode-Messenger Rebuild

# Summer Assessment

## Maximizing Resources:

- Over 1300 MVAR cap bank capacity (69kV and above) – 98.4% Available
- Utilization of reconfigurations to minimize generation impact of scheduled outages.

## Preparedness:

- Re-review worst case 34.5kV contingencies and load transfer plans.
- Develop operating guides for standing issues or long-term jobs ahead of summer.

Questions?



**Matt Heinisch**

*Supervisor, Operational Planning*  
*mheinisch@itctransco.com*



# Emergency Preparedness & Response



**Andrew Schafer**

*Manager, Emergency Preparedness & Response*  
[aschafer@itctransco.com](mailto:aschafer@itctransco.com)



**Nora Tidman**

*Emergency Preparedness & Response Specialist*  
[ntidman@itctransco.com](mailto:ntidman@itctransco.com)

# Emergency Preparedness & Response

ITC's Emergency Management Program centers around 5 key mission areas identified in the National Incident Management System (NIMS): prevention, mitigation, preparedness, response, and recovery.

To improve overall readiness and resilience, we aim to build and sustain core capabilities to better prepare for emergencies and ensure the safety of ITC and the communities we serve.

## Focus Areas



Event Management Plan



Preparedness/ Situational Awareness



Weather Monitoring

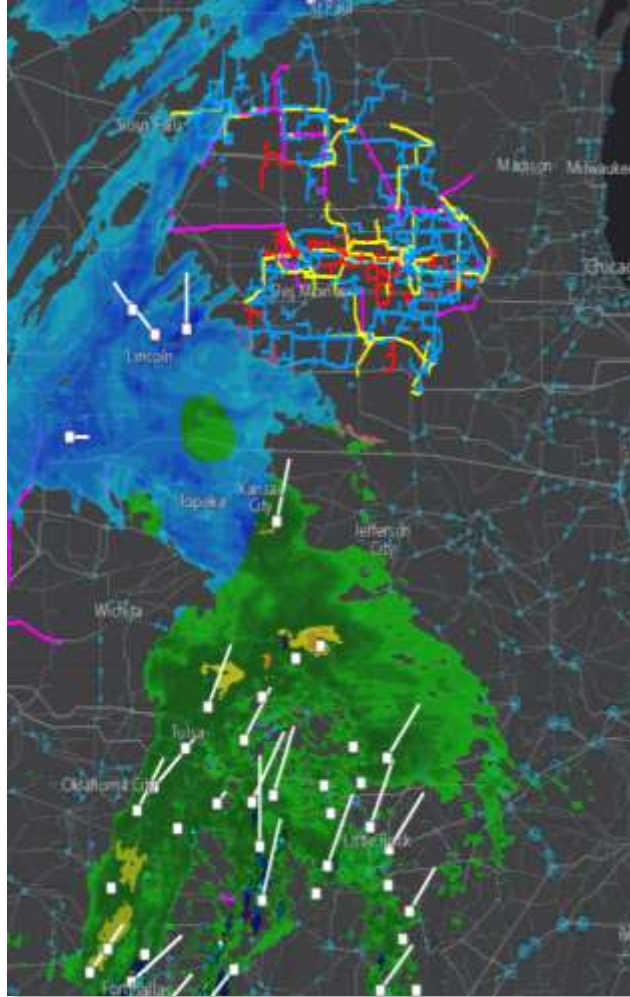


Mutual Assistance Coordination



Training & Exercising

# Storm Preparedness



Weather Monitoring

Situational Awareness Updates

Grid Operations

Operational Readiness

# Situational Awareness

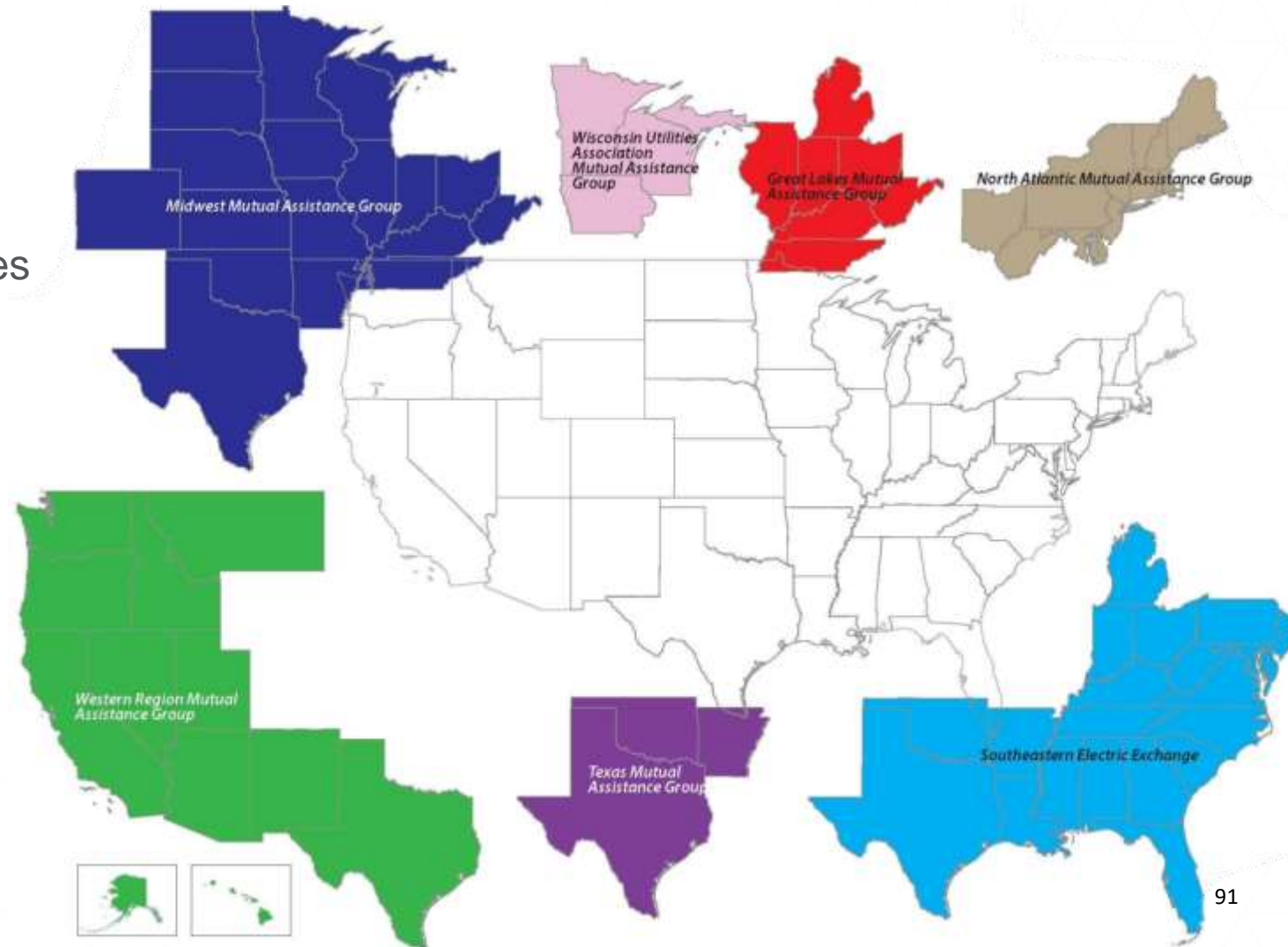
Weekly Operations & Situational Meeting  
Government & Industry Networks  
ITC 24/7 Operations Centers



# Electrical Utilities Mutual Assistance Groups

## ITC is a member of three Mutual Assistance Groups:

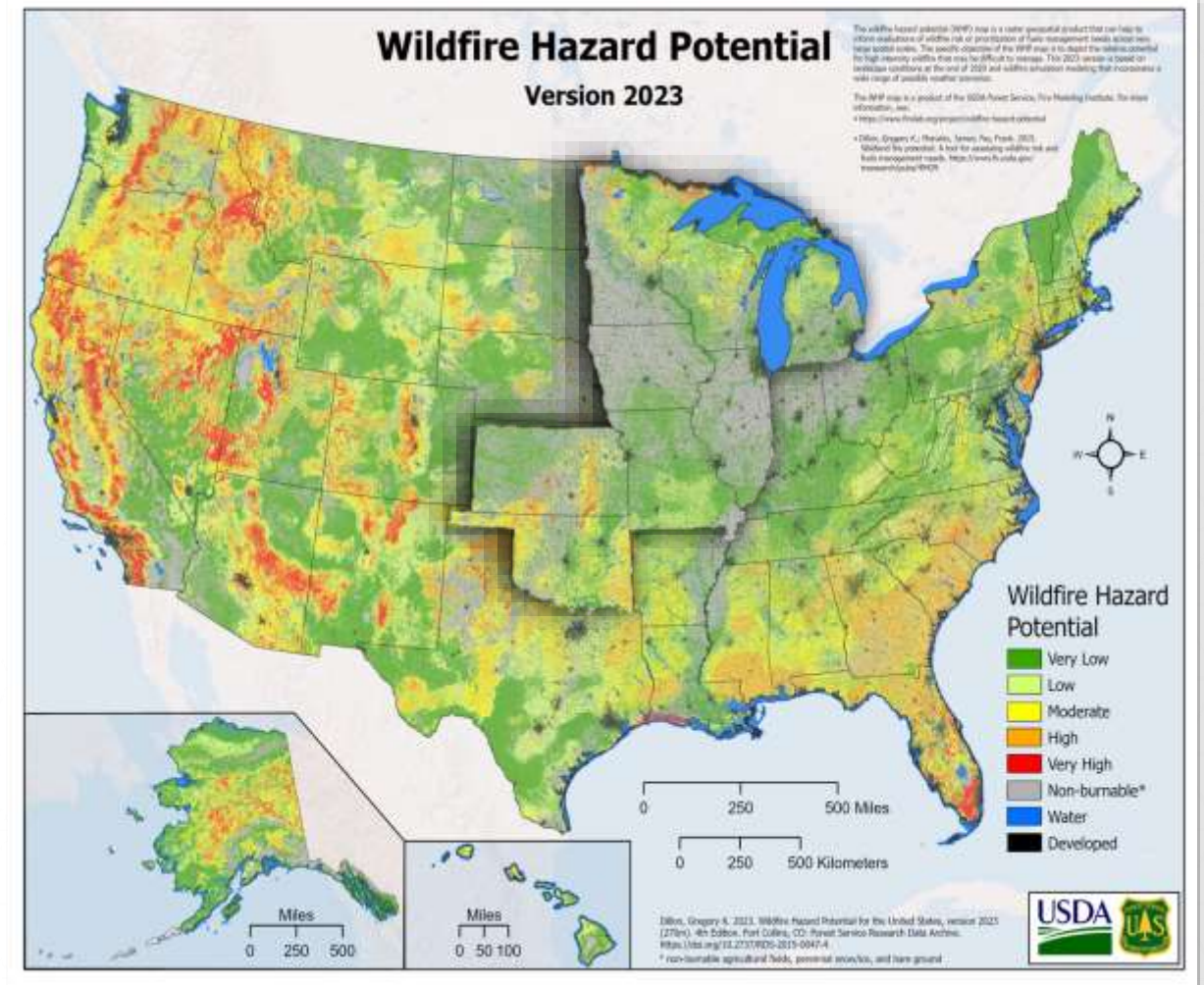
- **ITC Midwest**
  - **Midwest Mutual Assistance Group**
    - 35 operating companies from 24 states
- **ITC Michigan**
  - **Great Lakes Mutual Assistance Group**
    - 14 Member Utilities through the Great Lakes Region
- **Fortis Mutual Assistance Group**



# Wildfire Risk

## Wildfire Hazard Potential across ITC Service Territory

ITC is assessing our wildfire risk across all operating companies and identifying mitigation efforts and response procedures to further reduce risk.



# Training & Exercises

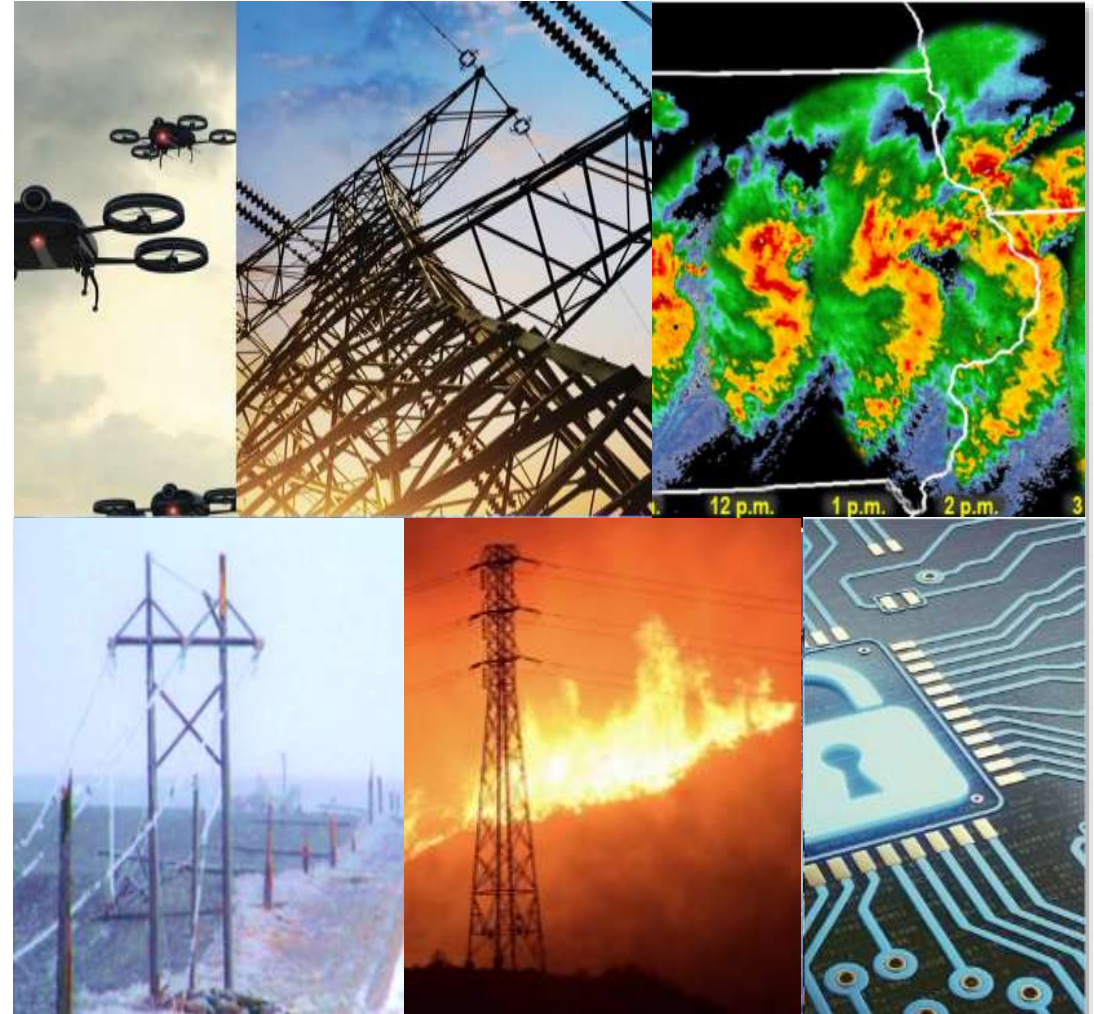
## NERC GridEx VII Exercise

Cyber Security: Ransomware

Supply Chain: Emergency Transformer Move

Physical Security: Electrical Substation

Sabotage





# Questions?



**Andrew Schafer**  
*Manager, Emergency Preparedness & Response*  
[aschafer@itctransco.com](mailto:aschafer@itctransco.com)



**Nora Tidman**  
*Emergency Preparedness & Response Specialist*  
[ntidman@itctransco.com](mailto:ntidman@itctransco.com)

# GIS Use Across ITC



**Kyle Whisner**

*Manager, Transmission Line Design*  
*[kwhisner@itctransco.com](mailto:kwhisner@itctransco.com)*

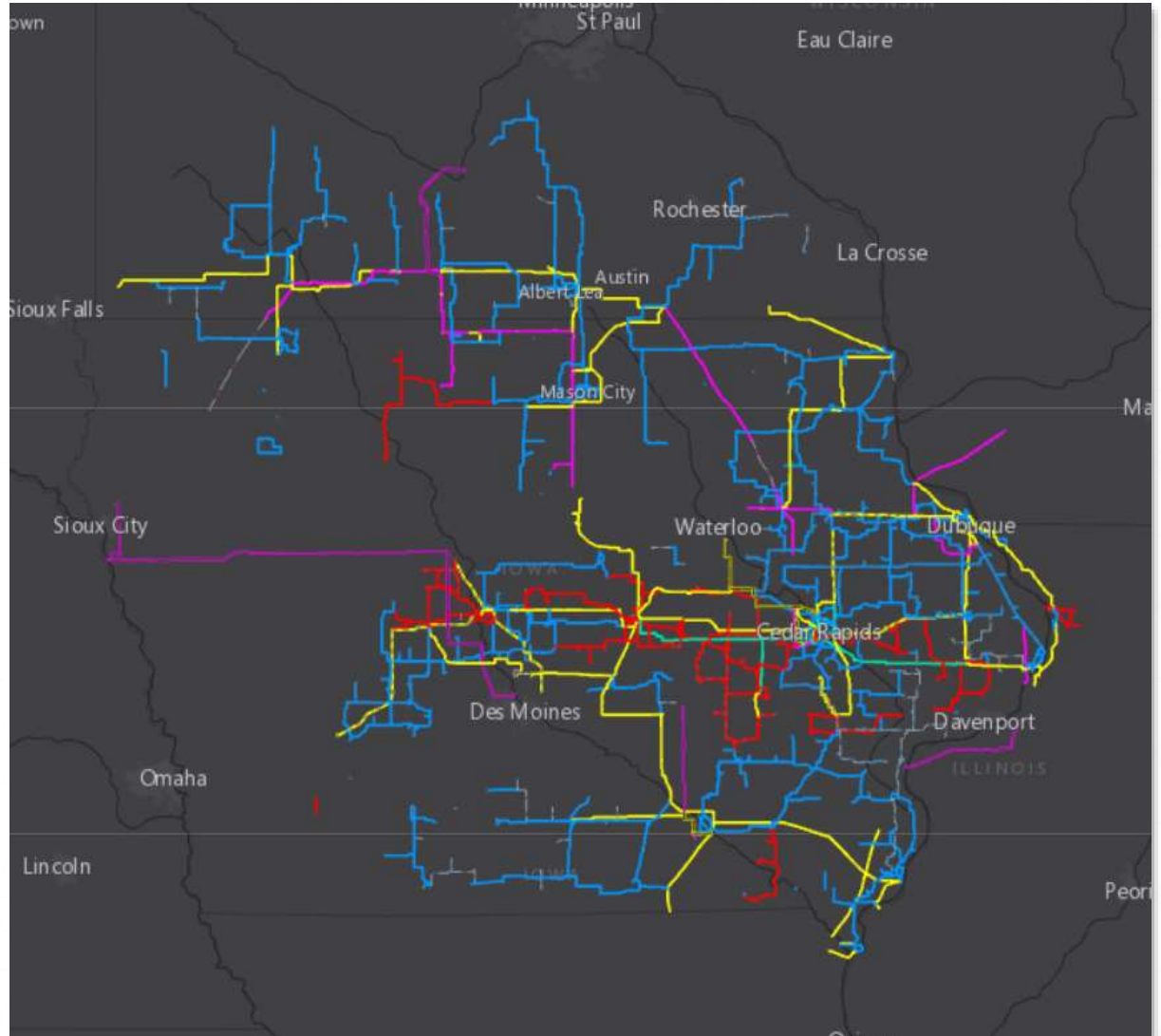


**FOR THE GREATER GRID**

# GIS Use Across ITC

## GIS (Geographic Information System)

- ITC System mapped by voltage
- Includes:
  - Conductor
  - Shield Wire
  - Structures
  - Etc.



# GIS Use Across ITC

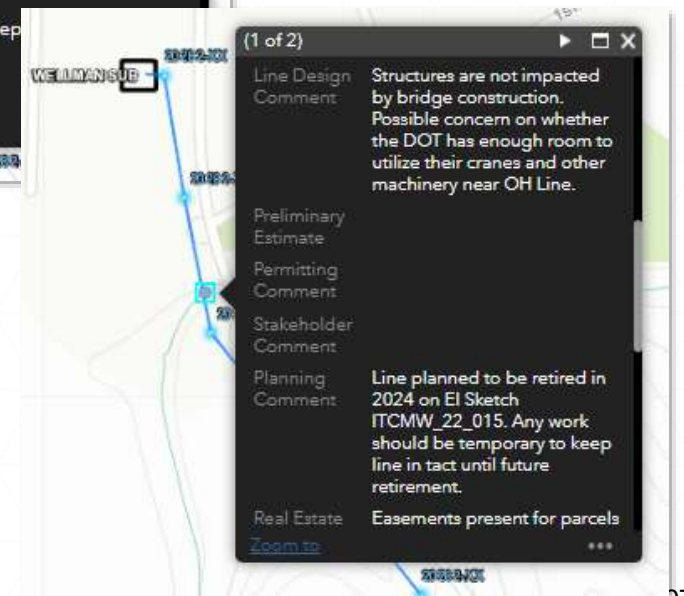
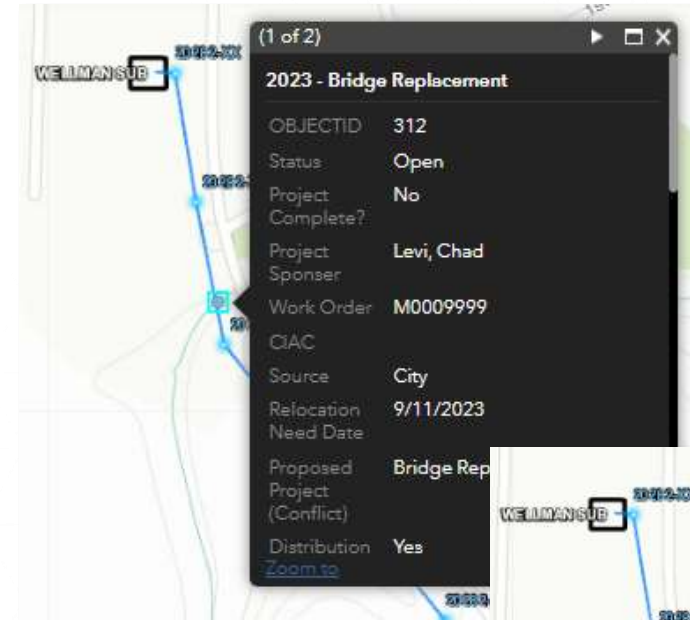
## Line Conflicts Tracking

Requests from Others with questions about ITC Line Facilities

- Landowners
- Industrial Customers
- Cities
- Counties

Responding Owner at ITC

- Adds location to Map
- Attaches any Drawing
- Requests Input/Feedback
- Compiles Feedback and provides response to the requestor
- Departments at ITC
- Provide feedback in one location that remains attached



# GIS Use Across ITC

## Outage Tracker

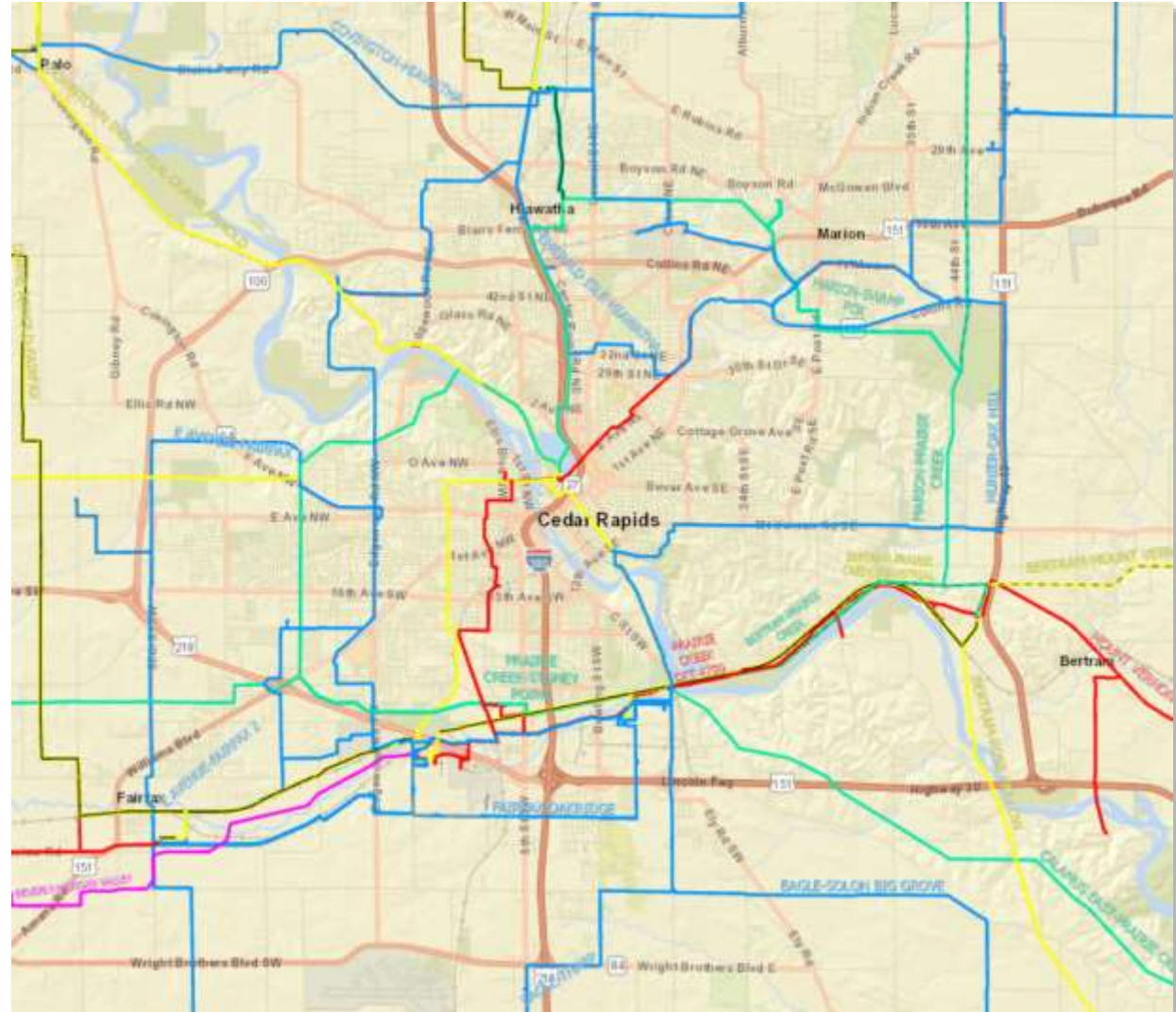
- Displays Real Time Outages Graphically
  - Allows coordination and response to unplanned outages on the system
  - More spatial awareness compared to traditional one-line (point to point) outage maps



# GIS Use Across ITC

## Sharing

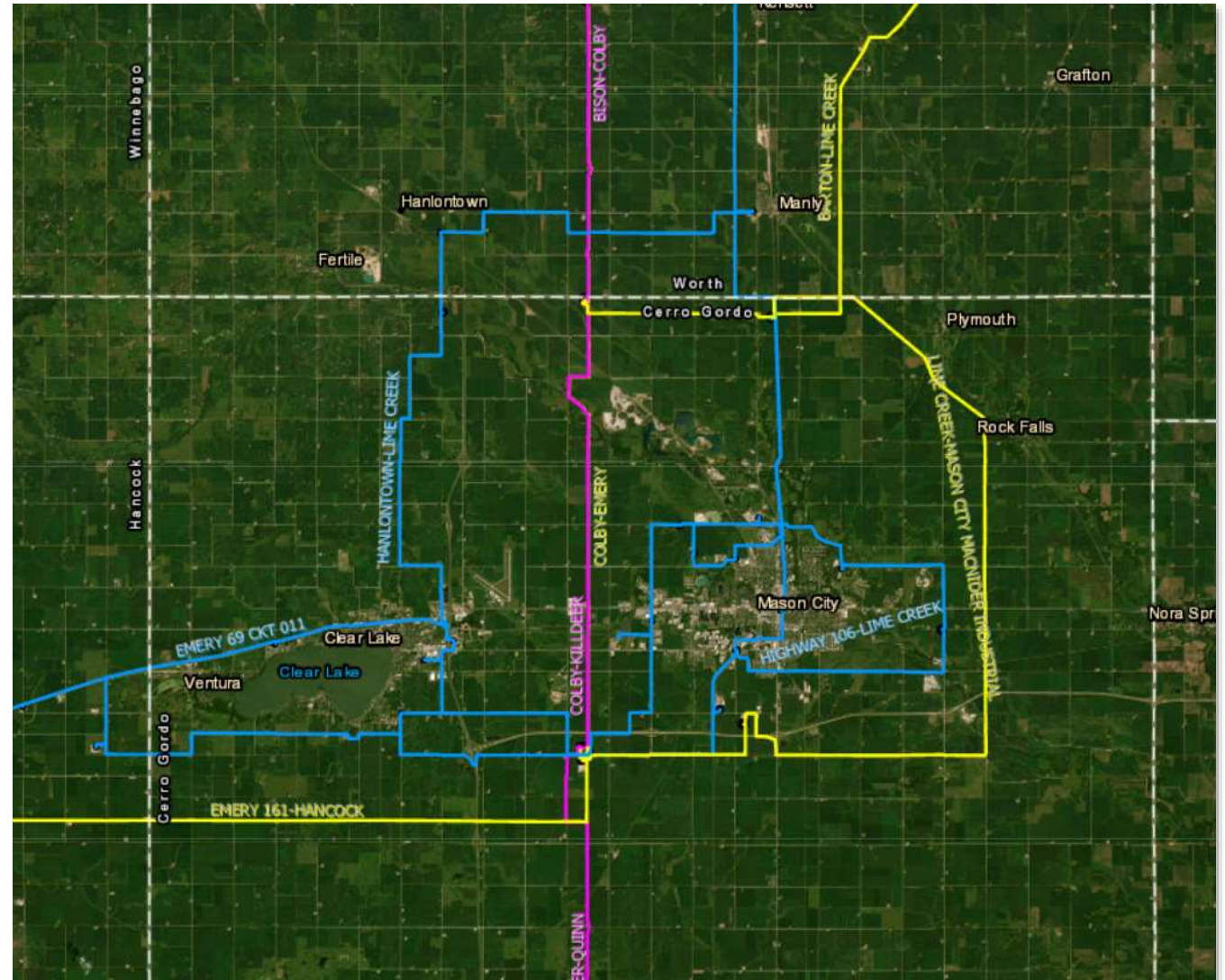
- Starting to share data with adjacent electrical utilities
  - Coordinate crossing
  - Outages
  - Underbuild



# GIS Use Across ITC

## Other Items

- **Real Estate**
  - Easement Mapping
- **Vegetation**
  - Mapping and Tracking of Clearing and Maintenance Activities



**Questions?**



**Kyle Whisner**

*Manager, Transmission Line Design*  
*[kwhisner@itctransco.com](mailto:kwhisner@itctransco.com)*

# Closing



**Casey Woodside**

*Account Manager, Customer & Business Solutions*  
*cwoodside@itctransco.com*

# Meeting Feedback

We value your thoughts on how we can continue to improve these meetings.

Please visit: <https://forms.office.com/r/6d7FF0ftnu> or scan this code to find a quick and anonymous evaluation.



***Cheri Monahan***

*Director, Customer & Business Solutions*

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*319-631-8442*

***Casey Woodside***

*Account Manager, CBS*

*[cwoodside@itctransco.com](mailto:cwoodside@itctransco.com)*

*507-318-9397*

# Our Next Meetings

## ITC Midwest True-Up – TBD

- Hosted virtually using Microsoft Teams
- Reminder emails will be sent in the upcoming months

## ITC Midwest Fall Partners in Business – TBD

- Kirkwood Hotel, Cedar Rapids, IA
- Wedgewood Cove Golf Club, Albert Lea, MN

# Stakeholder Survey Reminder!

- Survey open 5/28 – 6/28
- Anonymous and takes approximately 10 minutes to complete



# Thank You for Attending!

Copies of today's presentation are available at:

<https://www.itc-holdings.com/itc-midwest/customer-solutions/partners-in-business/>

<http://www.oasis.oati.com/ITCM/index.html>

**Please leave your nametag on your table before you leave. Thank you!**

***Cheri Monahan***

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***Aaron Curtis***

*Manager, CBS*

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***Casey Woodside***

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*507-318-9397*

A blue-tinted landscape photograph of a field with a utility pole and a dark blue banner with white text. The scene shows a utility pole on the left, a field in the foreground, and a line of trees and buildings in the distance under a cloudy sky. A dark blue banner with white text is overlaid on the right side of the image.

**Have a great summer!**