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May 29, 2020

Re: Request for Integrated Transmission Plan

To: Mr. Aubrey Johnson

Cc: Jennifer Curran, Clair Moeller, Jeff Webb, Brian Tulloh, Derek Mosolf, Darrin Lahr

Attachment: CapX2050 Transmission Vision Report Executive Summary

The CapX2020 participating utilities respectfully request that the Midcontinent Independent System Operator (MISO) initiate a comprehensive, long-term transmission planning analysis using an integrated approach to identify a plan to optimally meet the year 2030 goals of utilities, their customers, and policymakers in the Upper Midwest. The power supply in the Upper Midwest is amid an unprecedented evolution with over 50% of the existing dispatchable generation fleet likely to retire in the next decade with plans for it to largely be replaced with wind and solar generation resources.

The recently published *CapX2050 Transmission Vision Report* highlights the increased criticality of a robust power grid and the need for additional regional transmission infrastructure to enable the generation fleet transition in a reliable, affordable, and safe manner. Our recent evaluation yielded conclusions that are consistent with many of the findings in MISO's Renewable Integration Impact Assessment (RIIA) which demonstrates the potential need for transmission system enhancements as renewable penetration levels exceed 30% of energy MISO-wide penetration levels consistent with current Integrated Resource Plans of the aggregate MISO region utilities. Given these expectations, the pace of fleet evolution we continue to experience, and the time needed to adequately plan, permit, and construct transmission upgrades, it is critical to identify the necessary enhancements beginning in MTEP21. We urge MISO to immediately initiate the requested planning analysis and to focus on expeditiously identifying solutions in the near term which are not only "least regrets" but also "scalable" to fit with longer-term plans of the future grid. We believe that such analyses are consistent with the ongoing development of the planning Futures and identification of transmission system inefficiencies based upon the range of potential outcomes depicted in those Futures. We also recognize that MISO is currently engaged in several Targeted Studies across the MISO region including the North Region Economic Transfer Study, Michigan Import/Export Assessment, and North/South Capacity Expansion Study. We urge MISO to continue with these efforts and to expand the scope of these studies as necessary to address expected grid needs. This approach of addressing needs on a MISO subregional basis, underpinned by the Futures, can identify regional needs while respecting subregional differences in the grid and in energy policy goals.



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The CapX2020 participating utilities have performed extensive analyses to identify the need for a comprehensive long-term transmission plan.

In 2004, CapX2020 came together to create a joint vision of the required transmission infrastructure needed to meet the projected growth of electricity requirements in the Upper Midwest and to create an environment to develop this infrastructure in a timely and efficient manner. As owners of the transmission system, we are obligated to plan and implement transmission upgrades which provide Upper Midwest consumers – and all users of the regional transmission grid – with safe, reliable, and affordable energy. The CapX2020 transmission development in the last decade involved over 800 miles of high voltage transmission and was successful in not only meeting goals to get us to our target year of 2020 but have also inspired us to not only extend our vision, but to take further necessary action.

In an effort to extend our vision into the next set of actionable steps, we published the *CapX2050 Transmission Vision Report* in March, which outlines four key takeaways that must be considered when designing the future power grid in order to ensure that the future system remains safe, reliable and affordable while allowing for an unprecedented level of change - characterized by significant reliance on non-dispatchable resources. Those key takeaways are:

- Dispatchable resources support the electric grid in ways that non-dispatchable resources presently cannot and therefore, some dispatchable resources will be necessary.
- The ability for system operators to meet real-time operational demands will be more challenging and therefore, we will need to develop new tools and operating procedures to address the challenges.
- More transmission system infrastructure will be needed in the upper Midwest to accommodate the transition of resources.
- Non-dispatchable resources alone will be incapable of meeting all consumer energy requirements at all times, and therefore, we will need to understand and promote a future electric grid that can continue to meet consumer energy requirements safely, reliably and affordably.

As we consider the next steps beyond our *CapX2050 Transmission Vision Report*, we envision a need for a comprehensive planning approach, that incorporates these four key takeaways. We also recognize the impacts to the regional grid operated and planned through our collective participation in MISO and realize that transmission planning cannot occur in isolation.



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We respectfully request MISO initiate a comprehensive transmission planning study for the MISO “Classic” subregion as outlined in the goals listed below for 2030. As MISO moves forward with the necessary grid planning, we also request that this analysis be informed by and used to inform discussions of meeting longer-range goals through the incorporation of new technologies, utilization of highly efficient long-distance transmission, and redefined policies to incent providing attributes foundational to the continued delivery of safe, reliable and affordable electric energy.

Goal 1: Strengthening the existing transmission system, but still allowing flexibility to meet future needs such as by:

- Increasing utilization of more efficient resources to meet goals in line with the varied preferences of individual companies and taking advantage of the most cost-effective resource locations.
- Increasing system strength, operability and reliability for a wider range of future scenarios.
- Increasing effectiveness of existing ancillary service capabilities and allowing for the adoption of new technologies to meet system needs.
- Increasing optionality for future system changes.

Goal 2: Taking advantage of a stronger transmission system to create a more tightly interconnected grid, allowing for more effective use of energy and ancillary services when and where they are needed by:

- Identifying interchange points for long-distance transfers.
- Utilizing long distance connections to allow access to the lowest cost resource locations
- Capturing geographic and weather diversity over a wider region to efficiently enable higher penetration levels of intermittent resources.
- Incorporating technologies to address local issues raised by resource changes while also enabling regional coordination.

To meet these goals, we request an integrated approach which simultaneously employs multiple tools and processes including, but not limited to:

- Long-term system reliability (steady-state thermal and voltage analysis)
- System stability in a reduced inertia system
- Operational complexity (analysis of non-transmission alternatives and/or solutions to operability in a mainly power-electronics based system)
- Market economics (analysis of market efficiency and system flexibility)
- Energy adequacy to serve customers over all hours of the year (ensuring adequate import/export capability into various regions)



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- Leverage stakeholders' detailed knowledge of their systems

In addition to the technical analyses performed, policies (including cost allocation), procedures, and market mechanisms will need to be created or existing practices updated to incent or support what is needed for a safe, reliable and affordable system in the future. A parallel effort to the technical analyses will need to take place to address and develop policy level solutions as issues are identified.

We applaud MISO's forward thinking as demonstrated in the Renewable Integration Impact Assessment, MTEP21 Future Scenario development, current Targeted Studies, and Resource Availability & Need effort as necessary to enable a power grid that is flexible to accommodate whatever the future may hold. It's our hope that this request serves to stitch together all these efforts to determine an actionable near-term transmission plan. We appreciate MISO's consideration of this request and are committed to working with MISO and its stakeholders, and utilizing our knowledge of our systems, to bring a future transmission plan to fruition.

Central Minnesota Municipal Power Agency

By: 
 Name: Christopher Kopel
 Title: CEO

Otter Tail Power Company


 Vice President, Asset Management

Ben Porath
Digitally signed by Ben Porath
 DN: cn=Ben Porath, o=Dairyland Power
 Cooperative, ou=Chief Operating Officer,
 email=ben.porath@dairylandpower.com,
 c=US
 Date: 2020.05.28 10:40:49 -0500

Ben Porath
Chief Operating Officer
Dairyland Power Cooperative

Rochester Public Utilities


Sidney Jackson
Director of Core Services

Great River Energy


 Priti Patel
 Vice President & Chief Transmission Officer

Southern Minnesota Municipal Power Agency


Mark Mitchell
Director of Operations and Chief Operating Officer

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Minnesota Power



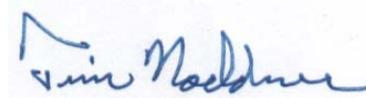
Daniel Gunderson
VP Transmission & Distribution

Missouri River Energy Services



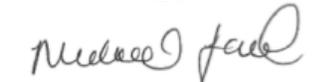
Raymond Wahle
SVP Power Supply and Operations

WPPI Energy



Tim Noeldner, P.E.
VP Rates & Special Projects

Xcel Energy



Michael Lamb
SVP Transmission

About CapX2020:

CapX2020 is one of the largest transmission-development initiatives in the nation. Our duty is to reliably and affordably serve our consumer's current and future power supply needs. The ten utilities include cooperatives, municipals, and investor-owned utilities providing reliable transmission service to nearly 5.5 million electric consumers for decades. Collectively, we operate over 42,000 miles of transmission lines in our combined service territories and are national leaders in planning, building, and maintaining a reliable transmission system capable of using the most cost-effective resources available.

The utilities include:

- Central Minnesota Municipal Power Agency
- Dairyland Power Cooperative
- Great River Energy
- Minnesota Power
- Missouri River Energy Services
- Otter Tail Power Company
- Rochester Public Utilities
- Southern Minnesota Municipal Power Agency
- WPPI Energy
- Xcel Energy