



Minnesota's Electric Transmission System

Annual Adequacy Report

1/15/2024

REPORT PREPARED BY

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Minnesota Department of Commerce

Mission

For more than 150 years, the Minnesota Department of Commerce and its predecessor agencies have served Minnesotans. Our mission is to protect and assist consumers; to ensure a strong, competitive, and fair marketplace; and to engage people and communities across the state.

Our Strategic Priorities

- Protect the public interest through consumer protection, consumer education, assistance to consumers, safety, health and financial security, and lowering inequities.
- Serve as a trusted public resource for consumers and businesses by listening and learning from the Minnesotans Commerce services, being effective stewards of public resources, advocating for Minnesota consumers and develop a policy, programmatic, and regulatory environment that meets their needs.
- Reduce economic barriers within Commerce regulatory oversee and reduce disparities within those of all races, ethnicities, religions, economic statuses, gender identities, sexual orientations, (dis)abilities, and zip codes.
- Ensure all, especially historically disadvantaged Minnesotans, are resilient to Minnesota's climate and engaged in advancing efforts to mitigate climate change.
- Ensure a strong, competitive, and fair marketplace for Minnesotans.

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Executive Summary

Minnesota Statutes § 216C.054 requires the Commissioner of the Department of Commerce (Commerce), in consultation with the Minnesota Public Utilities Commission (Commission), to submit an Annual Transmission Adequacy Report (Report) to the Legislature. The Report is to provide a nontechnical discussion of Minnesota's current electric transmission system and a summary of the transmission planned or in process that is intended to maintain electric service reliability as well as comply with the requirements of state policy goals.

The Report provides an update of ongoing and planned transmission projects in Minnesota, summarizes how transmission lines are planned and regulated at the state and federal level, and describes short-term and long-term challenges facing transmission development.

Upgrades to the high-voltage transmission system in Minnesota and across the region are likely to be needed to both maintain reliable service and meet Minnesota's carbon reduction goals as well as the energy policy goals of other states in the region. The regional high-voltage transmission system plays a critical role in providing reliable electricity to Minnesotans at the lowest possible cost. Over the past 15 years the electricity transmission system has also increasingly been called on to deliver wind and solar generated electricity from where it is produced to where it is needed. In 2023, the Minnesota Legislature amended Minn. Stat. § 216B.1691 to require each electric utility in the state to generate or procure 100% carbon free electricity by 2040.

The high-voltage transmission system in Minnesota and much of the United States is planned and operated by regional transmission organizations under federal oversight because high-voltage electricity transmission crosses state boundaries and operates as large, interconnected networks. Depending on location, Minnesota utilities operate in either the Midcontinent Independent System Operator (MISO) or Southwest Power Pool (SPP).

MISO is responsible for planning the high-voltage transmission system in fifteen states and Manitoba, including most of Minnesota. Most transmission projects in Minnesota, in turn, are reviewed and approved in the annual MISO Transmission Expansion Plan (MTEP) process. Many of these projects are local "bottom-up" projects proposed by individual utilities. MISO's annual MTEP process can also include large "top-down" regional cost-share network upgrade projects developed with extensive multi-state stakeholder processes lasting a year or more.

In July 2022, after two years of planning discussions, MISO approved an initial group of eighteen regional "backbone" 345-kV [Long-range Transmission Projects](#) (LRTP) in the Upper Midwest—called the Tranche 1 portfolio. Three of these projects are in Minnesota, and in 2023 all three had at least started the state approval processes needed for construction. In addition, Xcel Energy, in 2023, applied to the Commission for a certificate of need and a route permit for an approximately 170-mile long proposed 345-kV double-circuit line between Sherburne County and Lyon County (Minnesota Energy Connection) in order to use the existing interconnection capacity at their retiring Sherco coal plants for new wind and solar projects. Collectively, these projects represent the most high-voltage transmission lines proposed in one year in Minnesota since 2012, when the last CapX project was approved. The Commission also convened permitting reform stakeholder effort in 2023.

In a separate planning process, in 2022, MISO and SPP worked together to complete their Joint Targeted Interconnection Queue (JTIQ) Study, the status of which was last updated here: [November 2023 JTIQ Update](#). The resulting five JTIQ projects, one of which is in Minnesota, are intended to help reduce uncertainty and lower the cost

of “affected system” transmission upgrades required when new generation projects interconnecting into one region affect the transmission system of the other. In May 2023, Commerce, MISO, SPP, the Great Plains Institute, and the transmission owner utilities applied to the U.S. Department of Energy’s Grid Resilience and Innovation Partnership Program for a grant to help offset the cost of these JTIQ projects. In October 2023, the U.S. Department of Energy (DOE) notified Commerce that it had been [selected](#) to negotiate a \$464 million cooperative agreement for this project. Negotiations with DOE are ongoing.

At the more local level, the Commission, in 2023, issued three (3) route permits for high-voltage transmission projects: (1) the approximately 14 mile-long 115-kilovolt (kV) Duluth Loop Project in St. Louis County, (2) an approximately 3.2-mile 115 kV upgrade project in Stearns County and (3) an approximately 3-mile long 345-kV line needed to interconnect a large solar facility in Dodge County. Also in 2023, Minnesota Power applied to the Commission for approval of a major upgrade to their High-Voltage Direct Current transmission line in Northern Minnesota. Other smaller transmission projects are in the permitting process.

Regarding numerous smaller transmission upgrade plans, the [2023 Minnesota Transmission Owner’s Biennial Report](#) identifies 164 transmission inadequacies across the state and describes the projects planned to address these inadequacies. While several of these projects will be large enough to require a certificate of need and route permit from the Commission—most of them are smaller upgrades or replacement projects. The Biennial Report also indicates that Minnesota electric utilities have enough capacity to meet renewable energy standards through 2035. The Report does not evaluate compliance with the new 2023 carbon-free energy standards since compliance details are still pending.

The 17 high-voltage 345-kV LRTP projects that MISO approved in 2022 are not expected to be in service until sometime between 2028 and 2030. MISO is also considering a new “[Tranche 2](#)” group of projects to be presented to the MISO Board of Directors for approval potentially in the third quarter of 2024. As these new, large transmission projects are planned, permitted, and constructed during the rest of this decade, new generation projects, primarily wind and solar, could continue to face delays and costly transmission network upgrade requirements. Therefore, while the new high-voltage backbone transmission lines will reduce transmission constraints over the long term, other efforts will be needed in the short-term.

Not only are new generation projects facing transmission interconnection delays, existing wind generation facilities in Southwest Minnesota and elsewhere are experiencing increasing curtailment due to transmission constraints. Transmission outages during construction of the potential LRTP projects could make localized constraints worse. The Minnesota Transmission Owners in Section 9.2 of their [Biennial Report](#) summarize their ongoing efforts to address this issue, including local transmission upgrades and temporary reconfigurations. These efforts include the [Grid North Partners congestion projects](#) and the separate, MISO-led multi-state [near-term congestion study](#). The Commission and Commerce continue to monitor progress, consult with stakeholders, and encourage these efforts so they will benefit Minnesotans.

Finally, at the national level, Commerce and the Commission actively participated in various Federal Energy Regulatory Commission (FERC) transmission related proceedings in 2023. For example, FERC issued a new generator interconnection [Order 2023](#) on July 28, 2023. The final version of the delayed regional transmission planning rule ([proposed rule](#) issued in 2022) is expected sometime in the first half of 2024. FERC also continues to hold [joint state/federal electric transmission task force meetings](#).

Why Transmission Matters: An Introduction

Electricity is generally delivered to consumers via three main steps: 1) electricity is produced at various generation facilities, 2) it is then transmitted on an integrated system of high voltage transmission lines and 3) is delivered to consumers through a distribution system of lower voltage power lines.

As the link between the mass production (generation) of electricity and delivery (distribution) to consumers, transmission plays a vital role in helping to ensure that consumers have low-cost, reliable electricity. The transmission system can be impacted by changes in either supply or demand for energy. Further, as more and smaller generation or storage facilities are added to the distribution system (also known as distributed energy resources), the dynamic and interconnected nature of the electricity system requires transmission to adapt to resulting changes in flows of electricity.

While transmission is a critical component in providing electric service, it currently accounts for a much smaller percentage of utility costs than either generation or distribution facilities. The US Energy Information Administration reports that transmission accounts for 12.1 percent of the costs of providing electric service while generation and distribution account for the other 87.9 percent. Utilities that move large amounts of power over long distances tend to have relatively more transmission costs as a percentage of total costs due to the length of the transmission lines and the line losses experienced in the transport of electricity.

When the original transmission facilities in Minnesota were built in the 1960s, they were designed primarily to interconnect an individual utility's generation and distribution facilities, and secondarily to interconnect neighboring utilities to each other to provide additional backup power and reliability.

Over time, the focus on transmission planning and reliability has grown to include interconnecting broader regions, even as the need to connect a utility's generation and distribution systems remains. This evolving design enables utilities to access other generation or transmission systems if something goes wrong on an individual utility's system. Interconnection with other electric systems provides a more reliable system overall compared to isolated systems and allows utilities to access lower cost power from other suppliers, or purchase power on a temporary basis rather than building a generation facility that may be used only occasionally.

The nation's transmission grid is split into three sections: The Eastern Interconnection, the Western Interconnection, and the Electric Reliability Council of Texas (ERCOT). The North American Electric Reliability Corporation (NERC) is responsible for reducing risks to reliability and security of the electric grid; including establishing standards. The Commission participates at NERC as a state regulatory representative. Reliability standards for the transmission grid in the part of the Eastern Interconnection, in which Minnesota is located, is overseen by the Midwest Reliability Organization (MRO), as shown in Map 1 and as discussed later in the Report.

Map 1 North American Regional Reliability Areas



Electricity follows the laws of physics: it follows the path of least resistance. Electricity placed onto the interconnected transmission grid can be withdrawn at any other place within the interconnection if there is no congestion on the transmission system. Moreover, the electrical system must be balanced in real time, meaning that the amount of electricity being produced at any given time must essentially equal the amount of electricity being used. The transmission system helps maintain this balance between supply and demand at a lower cost by allowing electricity to flow through the broader electrical system where possible.

Minnesota's Transmission System: Planning for the Future

Determining the amount of transmission infrastructure needed to provide economic and reliable electric service in Minnesota requires balancing transmission capacity to deliver electric service from available generation resources. If more transmission capacity is built than is needed, the system will be relatively free of transmission constraints, but will be less efficient and higher cost than is necessary to provide adequate service.

If too little capacity is built for the delivery of electric service from existing and new generation resources, the transmission cost component of providing electricity service may be lower, but there could be a cost to Minnesotans and the Minnesota economy in terms of reliability and access to affordable generation.

Three Large High-Voltage Lines Approved in Minnesota Since 2012

Since 2012, when the CapX group of projects were approved in Minnesota, the Commission has issued three route permits for larger, high-voltage “backbone” transmission lines (345-kV or above): In 2015, the Commission approved a 50-mile 345-kV Minnesota to Iowa line, proposed by ITC Midwest and Xcel Energy. In June 2020 —following over eight years of planning, environmental review, permitting and construction — Minnesota Power completed a new 225-mile, 500-kV line from Manitoba to Grand Rapids, Minnesota (the Great Northern Transmission Project). The last large project approved in Minnesota was in 2019, when the Commission approved the 50-mile Huntley-Wilmarth 345 kV transmission line in Southern Minnesota near Mankato. Xcel Energy constructed that project and energized it in late 2021.

Four Large Transmission Projects Proposed in 2023

The Commission in 2023 issued three route permits for local high-voltage transmission projects: (1) the approximately 14-mile long 115-kV Duluth Loop Reliability Project in St. Louis County, (2) an approximately 3.2-mile 115 kV upgrade project in Stearns County, and (3) an approximately 3-mile long 345-kV line needed to interconnect a large solar facility in Dodge County.

Notably, however, there are ten (10) transmission line projects currently undergoing certificate of need or route permit review in the state, including three large MISO LRTP projects, one 170-mile 345-kV line for generation interconnection (gen-tie), and a major upgrade to an existing high-voltage direct-current line in northern Minnesota:

- Northland Reliability 345-kV Transmission Line LRTP Project (CN-22-416 and TL-22-415) (The “Iron Range to Cassie’s Crossing” on Map 2, below)
- Alexandria to Big Oaks 345-kV Transmission Line LRTP Project (CN-22-538 and TL-23-159) (Eastern half of “Big Stone to Alexandria to Cassie’s Crossing” on Map 2, below)
- Mankato-Mississippi River Wilmarth-N. Rochester-Tremval LRTP Project (CN-22-532) (Crosses Mississippi River and into Wisconsin for rest of route, shown on Map 2 below.)
- Minnesota Power HVDC Modernization Project (CN-22-607 and TL-22-611) (Major upgrade to their High-Voltage Direct Current transmission line in northern Minnesota.

- Minnesota Energy Connection (Sherco to Lyon County 345-kV) (CN-22-131 and TL-22-132)
- Dodge County Wind 161-kV Transmission Line (CN-20-865 and TL-20-867)
- Cedar Lake 115-kV HVTL Reroute Project (TL-23-170)
- The Brookings County – Lyon County & the Helena – Hampton Second-Circuit Project (CN-23-200)
- Dairyland Cooperative's 161-kV Reroute Project (CN-23-504 and TL-23-388)
- Great River Energy's Pilot Knob Transmission Line (TL-23-410)

MISO Long Range Transmission Planning

MISO is primarily responsible for planning high-voltage transmission system in our region. Because of the evolving generation mix, emerging transmission constraint problems, and the long lead time required for large new transmission projects, Commerce and the Commission continue to advocate for MISO to engage in long-range planning.

MISO initiated their most recent long-range planning effort in August 2020 to better assess what upgrades over the next 20 years may be needed. In July 2022, MISO approved an initial group of seventeen new regional transmission line projects to ensure the reliable and efficient operation of the transmission grid in the Upper Midwest (Tranche 1 portfolio). Three of these projects are in the state of Minnesota. Total construction costs are expected to be approximately \$10 billion for all 17 projects located across the Midwest. A map of the proposed projects is shown below in Map 2.

Map 2. MISO 2022 Long-Range Transmission Projects



MISO work on the [Tranche 2](#) group of projects is ongoing, with a potential portfolio proposed to the MISO Board of Directors in mid-2024.

In addition, MISO and SPP completed a related but separate planning process in 2022, the JTIQ study, to evaluate potential joint transmission projects that would reduce transmission upgrade costs when proposed new generation projects affect the others transmission network. The planning for this joint MISO/SPP effort started in December 2020. The most recent [summary of the JTIQ projects](#) and potential cost allocation approaches was provided at a MISO Planning Advisory Committee meeting in November 2023. MISO expects to file its proposed cost allocation for these projects at FERC in first quarter 2024.

In May 2023 Commerce, along with MISO, SPP, the Great Plains Institute, and the transmission owner utilities applied to the U.S. Department of Energy's Grid Resilience and Innovation Partnership Program for a grant to help offset the cost of these JTIQ projects. In October 2023, the DOE notified Commerce that it had been [selected to negotiate a \\$464 million cooperative agreement](#) for this project. Negotiations with DOE are ongoing.

Minnesota Transmission Owner's Biennial Transmission Report

Minn. Stat. § 216B.2425 requires utilities that own or operate electric transmission facilities in the state to report by November 1 of each odd-numbered year on the status of the transmission system, including present and foreseeable inadequacies and proposed solutions. The transmission owners filed [this year's report](#) on November 1, 2023. The next one is due in November 2025.

The 2023 Minnesota Transmission Owner's Biennial Report identifies 164 transmission inadequacies across the state and the associated projects to address these inadequacies. While several of these projects will be large enough to require a certificate of need and route permit from the Commission—including the 345-kV LRTP projects described above—most of them are smaller upgrades or replacement projects. The report also indicates that Minnesota electric utilities have enough capacity to meet renewable energy standards through 2035. The Report does not evaluate compliance with the new 2023 carbon-free energy standards since some compliance details are still pending. This year's Report also contains an appendix describing the potential impact of transmission construction outages on congestion costs.

The 16 participating utilities also jointly maintain the following website that provides information about transmission planning and projects: <http://www.minnelectrans.com>.

The Biennial Transmission report is subject to public comment and will be reviewed by the Commission by June 1, 2024.

Transmission, Reliability and Power Costs

Adequate transmission is essential to ensure Minnesotans have reliable electric service. When there are areas with constraints or shortages in transmission capacity, there are more frequent power outages and lower power quality (which can affect sensitive equipment). Since Minnesotans depend heavily on reliable power in

their homes and businesses, it is critical to ensure that electric service is as reliable as reasonably possible to minimize the cost to Minnesotans and Minnesota's economy.

Roles of Entities Involved in Transmission

Numerous entities can have an impact on the design and cost of the transmission system that serves Minnesota. Clearly determining responsibility and assigning authority for different aspects of transmission planning and reliability will be critical moving forward. For example, because transmission lines located outside of the state help serve Minnesota customers, utilities that own those facilities, and the states that regulate those utilities, can affect the design and cost of the transmission grid. While transmission owning utilities are involved in these matters, so are other federal and state nonutility organizations, including the following.

1. **The Federal Energy Regulatory Commission (FERC)** regulates the wholesale rates that utilities charge for transmission service and the type of transmission services provided.
2. **MISO and SPP** do not own transmission or generation facilities but work with utilities that voluntarily choose to be their members to operate the regional transmission system reliably and in the least-cost manner through energy and capacity markets. MISO and SPP assist their members in developing long-term transmission plans for the region. MISO members currently operate in all or part of 15 states plus the Canadian province of Manitoba. (MISO and SPP are called Regional Transmission Organizations, which are responsible for moving electricity over large interstate areas. Despite this geographical definition, electric utilities can choose which Regional Transmission Organization to join and, if they meet the terms of the agreements, could switch to another Regional Transmission Organization.) MISO cannot require its members to build new resources, nor is it responsible for the development of long-term plans for generation. FERC regulates the rates and practices of MISO and SPP.
3. **The North American Electric Reliability Corporation (NERC)** develops and enforces certain electric reliability standards for what is known as the "Bulk Power System" or "the grid." There are seven NERC Reliability Regions covering the United States and Canada, as shown in Map 1. Minnesota is in the "MRO" region, as noted above. NERC's other reliability organizations are the Western Electricity Coordinating Council, Inc. (WECC), Texas Reliability Entity (Texas RE), Northeast Power Coordinating Council, Inc. (NPPC), Reliability First (RF), SERC Reliability Council (SERC, the successor to the Southeast Electric Reliability Council), and Florida Reliability Coordinating Council, Inc. (FRCC). Because an outage in one part of the grid can affect other parts of the grid, NERC coordinates among these regions.
4. **The Midwest Reliability Organization (MRO)**, with members in eight (8) states (Minnesota, Wisconsin, Iowa, North Dakota, South Dakota, Nebraska, Montana and Illinois) and two (2) Canadian Provinces (Manitoba and Saskatchewan), develops and ensures compliance with regional and interregional electric standards for the transmission system and performs assessments of the grid's ability to meet the demands for electricity.
5. **The Organization of MISO States (OMS)** is a self-governing organization of representatives from the regulatory commissions of 15 states, the City of New Orleans and Manitoba. The regulatory commissions have certain authorities over transmission-owning utilities participating in MISO. The OMS examines various issues and makes recommendations to MISO, FERC and other relevant government agencies regarding matters that affect state jurisdiction and other regional transmission matters. The

Commission represents Minnesota in OMS. In addition, Commerce represents Minnesota as an associate member and, along with other Public Consumer Advocates such as the Minnesota Office of Attorney General's Residential Utilities and Antitrust Division, participates in the efforts and activities of OMS and MISO. MN Commissioner Joe Sullivan serves as the Vice President of OMS.

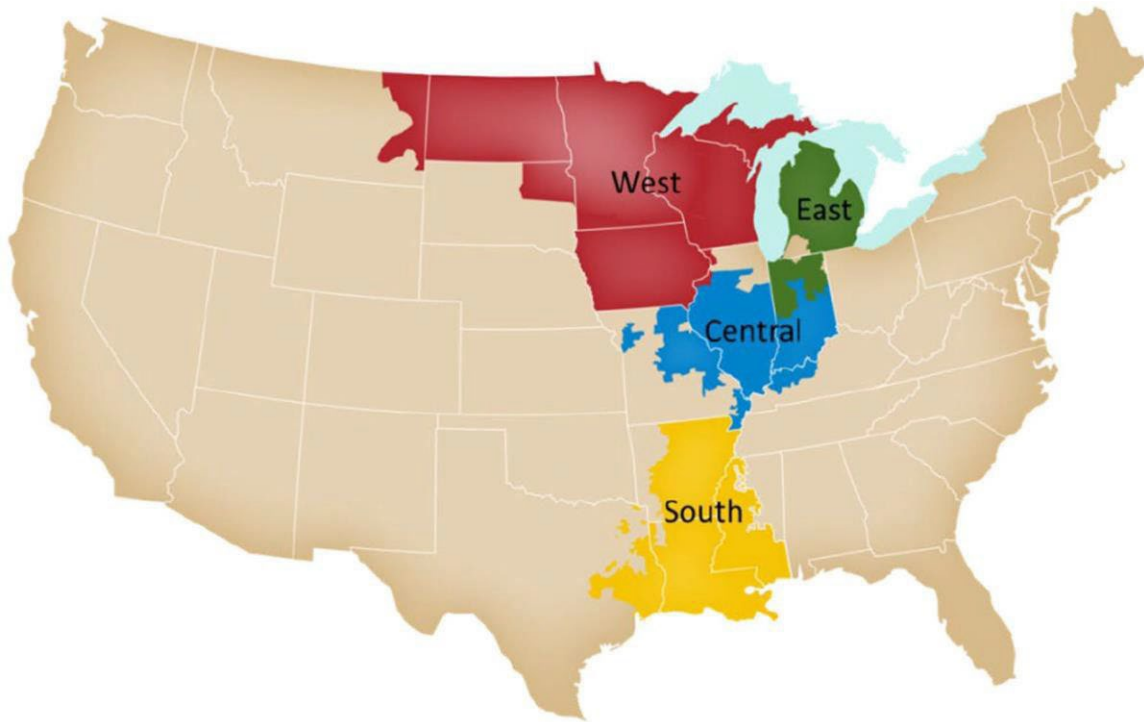
6. **Southwest Power Pool Regional State Committee (SPP RSC)** is a self-governing organization of representatives from the retail regulatory commissions in 12 states. SPP RSC is the equivalent of OMS for the SPP footprint. MN Commissioner John Tuma serves as the President of the SPP RSC.
7. **Minnesota Public Utilities Commission** requires Minnesota utilities to develop enough transmission to reliably serve load. The Commission also regulates the retail rates of Minnesota's investor-owned utilities, including the amount of transmission costs that can be recovered from their retail customers. In addition, while the Commission does not regulate the wholesale rates charged by Minnesota's investor-owned utilities, it does ensure that these utilities allocate transmission costs and revenues appropriately at the retail level, considering factors such as the types or classes of retail customers and their usage.
8. **Commerce's Division of Energy Resources** investigates matters pending before the Commission and makes recommendations to address proposals by utilities and others.
9. **MISO Stakeholder Sectors** participate in one of eleven defined industry sector groups. Sectors that meet eligibility criteria can vote on matters pertaining to the MISO grid MISO. These MISO sector participants include the following: End-use Customers, Environmental Groups, Independent Power Producers, Municipal Utilities, Coops and other Transmission Dependent Utilities, Power Marketers, the Public Consumer Group and Transmission Developers.

Because it is heavily involved in Minnesota's electric transmission system, MISO warrants further discussion. As noted above, MISO is a Regional Transmission Organization (RTO) created and regulated by FERC. MISO is involved in numerous matters that are critical to the reliable and low-cost operation of the bulk transmission system. These activities include: planning for contingencies if large generation plants are retired or transmission components fail; conducting engineering analyses of the effects of various changes to the generation fleet or transmission components of the system as a whole; planning for transmission needs in the MISO region; coordinating with other RTOs in the Eastern Interconnection System; monitoring the day-to-day (and minute-to-minute) operations of the regional transmission system; determining which generation units will operate (from lowest to highest cost) in the energy market at any given time; addressing the operational effects of congestion on the transmission system; and analyzing where the greatest congestion exists. Staff of Commerce and the Commission participate in various MISO workgroups and committees.

The MISO region spans 15 states and, for reliability purposes, the Canadian province of Manitoba. To focus its review of the reliability of the transmission system, MISO established four transmission planning zones.

As shown in Map 3, below, Minnesota is in the West Transmission Planning Zone.

Map 3: MISO Transmission Planning Subregions



How Much Transmission Is Enough

Minnesota's Transmission System is Integrated into Regional Grid

When the initial transmission system was designed and built over 60 years ago, items such as home computers, video games, cable TV and cellphones were unheard of. Few customers had air conditioners, and few plug-in appliances had been invented or available. Those transmission facilities were sized and constructed to meet the electricity needs of the population and economy at the time with some assumptions for growth based on certain expectations at that time.

In response to the changing location of electric generation facilities, the CapX high-voltage transmission backbone projects were planned, permitted, and constructed in Minnesota between 2004 and 2012. Minnesota residents and industry also need acceptable power quality, meaning evenly delivered energy without power surges and other fluctuations that can affect computers and other sensitive electronic devices. A lack of capacity on the grid could lead to some locations in the state where power quality would become unacceptably poor. In some locations and times, too much electricity is trying to flow on the lines causing congestion, resulting in economic and reliability problems in making sure electricity can be delivered where it is needed.

While the use of the transmission system varies with the overall demand for electricity and location of the supply, transmission planning requires a focus on the amount and timing of the highest demand and need to import electricity into a region. However, in some regions, the transmission need is to be able to export power.

The need to export power is when the demand for electricity is low and the supply of electricity exceeds demand in an area. This imbalance typically occurs during overnight hours in the spring and fall when the demand for power is low and the generation of electricity from certain resources, such as wind, is high.

When planning for the supply of electricity, the highest demand for electricity (peak demand) during the day and the season is reviewed. While peak demand for electricity in the MISO region has typically occurred in the summer, MISO must also plan for meeting high winter loads.

Well-designed transmission systems help facilitate more efficient use of generation resources. A transmission system or “grid” that covers a broader region and multiple utilities, with access to a larger portfolio of generation resources, allows strategic use of the most efficient resources available on the grid at any given moment. Since the regional wholesale market deploys least-cost generators first, having access to more generators can help reduce electricity prices. As indicated above, in its role as a regional transmission organization, MISO helps coordinate both regional transmission planning and operations. These functions help to mitigate potential inefficiencies that can result from a balkanized utility grid that is based on individual utilities planning and operating their systems solely to meet the needs of their customers in their own service territories. Being aware of the various costs of resources in its region, MISO can provide direction to its members on how to dispatch those resources more efficiently overall.

As a result, planning the transmission system means meeting not only the overall expected peak demand for power, typically in summer months, but also the demand for relatively high amounts of power during extreme weather and other circumstances. Moreover, when generation capacity is higher than the demand for electricity in a region, the need to move or export electricity increases. Transmission planning also considers changes in technologies and the economy. While excess transmission capacity could result in additional costs and environmental impacts, a shortage in transmission capacity would have negative effects on the cost and reliability of electricity.

SPP plays a similar role in its footprint to MISO and will be expanded on in future reports.

Federal and State Actions Related to Minnesota’s Transmission Grid in 2023

Additions to transmission are needed not only due to factors in Minnesota, but also due to federal and regional governmental actions directly affecting the use of Minnesota’s transmission grid (as well as other states’ grids). Issues that developed recently with potential effects in Minnesota are described in this section of the report.

Federal Legislation: Infrastructure Investment and Jobs Act

On November 15, 2021, President Biden signed into law the \$1.2 trillion Infrastructure Investment and Jobs Act (IIJ Act). The IIJ Act includes approximately \$27 billion in new spending over five (5) years on the nation’s energy

grid. Most of the funding targets updating and improving the existing grid, with some targeted towards new transmission lines. Some of its key provisions include:

- Directing the DOE to establish a \$5 billion grant program for grid hardening and weatherization to help reduce the impacts of extreme weather events on the grid.
- Authorizing \$6 billion toward grid reliability and resilience research, development, and demonstration, including \$1 billion specifically for rural areas. This new program includes innovative approaches to transmission, distribution and storage infrastructure that is implemented at the state level by publicly regulated entities on a cost-share basis.
- Authorizing \$3 billion in the Smart Grid Investment Matching Grant Program to deploy technologies that enhance grid flexibility.
- Establishing a \$2.5 billion Transmission Facilitation Fund and a Transmission Facilitation Program, positioning DOE to leverage federal funding to reduce the overall risks of transmission projects.
- Authorizing \$500 million to the State Energy Program to support state transmission and distribution planning, among other activities.
- Authorizing \$350 million to develop advanced cybersecurity technologies for the energy sector.
- In addition to these funds, the IIJ Act addresses some aspects of federal oversight of transmission siting and planning, summarized below in the federal and state jurisdiction section of this report.

Many of the details of these programs, and their specific applicability to Minnesota and the organizations with roles in the transmission system, will be determined by DOE over the coming months and years. Initial grants have been awarded in 2023, and the DOE has issued, and will issue, a new series of solicitations for next year.

As described above, Commerce, along with MISO, SPP, the Great Plains Institute, and the transmission owner utilities applied to the U.S. Department of Energy's Grid Resilience and Innovation Partnership Program for a grant to help offset the cost of these JTIQ projects. In October 2023, the [DOE notified Commerce that it had been selected](#) to negotiate a \$464 million cooperative agreement for this project. Negotiations with DOE are ongoing.

Federal Regulatory and Planning Developments

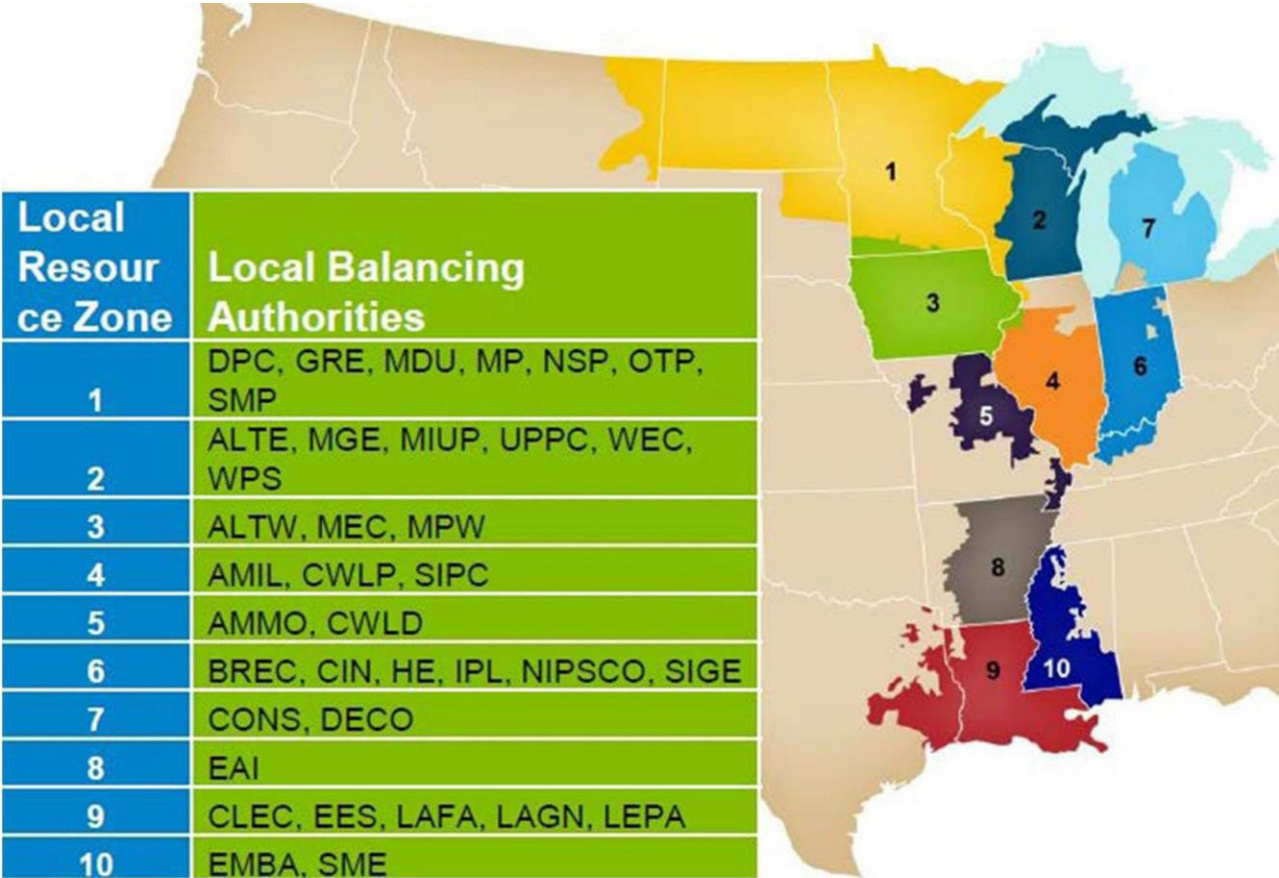
Federal and state issues regarding the high-voltage transmission system are often addressed at MISO (and FERC) so an overview of MISO operations is provided below to help understand the underlying issues being addressed. Due to its wide swath and geographic diversity, MISO is divided into ten geographical regions ensuring that there are adequate electric generation resources to meet the needs in each zone (also known as "resource adequacy"). See Map 4.

Minnesota is part of MISO's Planning Reserve Zone 1, along with the western half of Wisconsin, all of North Dakota and portions of Montana, South Dakota and part of Illinois. Utilities included in Zone 1 are Dairyland Power Cooperative, Great River Energy, Montana-Dakota Utilities, Minnesota Power, Northern States Power, Otter Tail Power and the Southern Minnesota Municipal Power Agency. The utility that serves Minnesota in Zone 3, in the southernmost part of Minnesota, is Interstate Power and Light, which sold its transmission

resources to ITC Midwest, a transmission-only utility. Interstate also sold its Minnesota distribution system and customers to the Southern Minnesota Electric Cooperative.

Map 4: MISO’S Resource Planning Zones

Source: The Midcontinent Independent System Operator



Constraints on Power Transfers within MISO

The amount of electricity that MISO North can export to and import from MISO South has been limited since shortly after MISO integrated the Entergy region (MISO South) in 2013. SPP filed a complaint with FERC, claiming that MISO should pay for certain transfers that exceed 1,000 MW. Under a settlement, MISO is currently paying SPP and Joint Parties more than it previously did to transfer power over 1,000 MW. The annual cost to maintain the settlement is estimated to be up to \$38 million and is dependent on the usage of the interface.

Originally, while there are significant potential savings in settlement costs, the minimal amount of physical congestion on the interface between MISO North/Central and MISO South within MISO’s models did not

provide enough economic benefit to justify a project. However, MISO is generally planning to assess potential new projects for the North-South interface as part of its Tranche 4 LRTP study in 2025 or 2026.

MISO's Competitive Bid Process for Regional Transmission (Transmission Developer Qualification and Selection)

One of FERC's stated goals is to promote competition for the construction of transmission projects. FERC in Order 1000 eliminated a federal (but not state) right of first refusal on regionally cost shared transmission projects. Minnesota passed an incumbent utility "Right of First Refusal"—or ROFR—statute in 2012. This act provides utilities that own transmission with "the right to construct, own, and maintain an electric transmission line that has been approved for construction" by a FERC-regulated transmission planning process. The utility that owns the existing facilities that interconnect with the new line has 90 days following approval by the FERC-regulated process of the new line to notify the Commission of whether it intends to construct the line. If the utility does not intend to construct the line, the Commission may order it to do so. Otherwise, other entities may have the opportunity to construct the line. See Minn. Stat. § 216.246. Overall, eight MISO states have ROFR laws, which give utilities the exclusive right to build transmission. Those states are Iowa, Indiana, Michigan, Minnesota, Montana, North Dakota, South Dakota and Texas.

In November 2020, as part of on-going litigation, a non-utility transmission line developer petitioned the Supreme Court to review an Eight Circuit Court of Appeals decision upholding Minnesota's ROFR law. The Supreme Court declined to hear that case in March 2021. This year, the Supreme Court declined to hear a challenge to a Fifth Circuit Court of Appeals ruling finding the Texas ROFR law unconstitutional. The Texas ROFR law is structured differently than Minnesota's ROFR law.

The ROFR issue continues to be debated at FERC too. For example, in August 2022 the Industrial Energy Consumers of America filed a complaint at FERC regarding the issue. Commerce and the Commission [both intervened](#) in that FERC docket.

Minnesota does promote transmission cost control and competition through other means. For example, existing certificate of need (CN) law requires the Commission to consider alternatives to proposed facilities, including alternatives proposed by other utilities.¹ In addition, Commerce proposes, and the Commission typically approves, "soft" cost caps in CN proceedings. For example, one project near Mankato, referred to as "Huntley-Wilmarth," was approved by MISO in December 2016. The project establishes a transmission line to interconnect substations owned by Xcel Energy and ITC Midwest. The Commission granted the certificate of need and the route permit for the project on August 5, 2019, and included a soft cap as part of the approval. Barring unusual circumstances, costs up to the soft cap will generally be deemed reasonable. However, the

¹ For a recent example see the proceeding regarding Minnesota Power's HVDC Modernization Project (CN-22-607 and TL-22-611).

burden is on the utility to show that costs above the soft cap are reasonable and such a showing must wait until the utility's next rate case rather than being allowed to occur in an annual rider filing.

MISO's Multi-Value Transmission Project Portfolio

In 2011, MISO approved a large portfolio of backbone regional transmission projects—the last such group approved until the 2022 LRTP projects described above. This portfolio included 17 different transmission projects across the MISO North, Central and East footprint, and the costs of which were regionally shared across the MISO footprint at the time. The projects, referred to as multi-value projects or “MVP” projects¹⁵ had a wide variety of goals, including to:

- Provide benefits in excess of costs under the scenarios studied. In this case the benefit-to-cost ratio for the MVP portfolio ranged from 1.8 to 3.0.
- Maintain system reliability by resolving various reliability violations defined by federal reliability standards. The MVPs addressed violations on approximately 650 transmission elements for more than 6,700 system conditions and mitigated 31 system instability conditions.
- Enable 41 million MWh of wind energy per year to meet renewable energy mandates and goals.
- Provide an average annual value of \$1,279 million over the first 40 years of service, at an average annual revenue requirement of \$624 million.
- Support a variety of generation policies by using a set of energy zones that support wind, natural gas and other fuel sources.

Two of the 18 MVP projects are in Minnesota: the 345-kV line between Brookings, South Dakota, and the Southeast Twin Cities and the 345-kV line from Lakefield Junction to Winnebago, Iowa. Overall, final construction costs for these projects were generally in line with cost estimates used by MISO when adjusted for inflation, with some projects under budget and some over.

Planning for this MVP portfolio of transmission projects began in 2007. As of December 2021, all 17 MVP projects have been approved in state regulatory proceedings. Construction is now complete on 16 of the 17 projects. The last project to get regulatory approval, the Cardinal-Hickory Creek Project, is under construction except for the Mississippi River crossing, for which approval is still pending as of 2023 due to ongoing litigation.

Distributed Energy Aggregation in Interstate Markets: FERC Order 2222

On September 17, 2020, FERC issued a new final rule intended to enable aggregators of distributed energy resource (DER) like small generators, rooftop solar, behind-the-meter batteries and electric vehicles to compete in all regional organized wholesale electric markets. The purpose is to remove what FERC sees as existing barriers to DER and to increase the competitiveness of wholesale markets. MISO's compliance filing was filed in April 2022, with implementation details to be worked out over the next eight years. FERC required MISO to refile an updated compliance tariff due in May 2024. MISO held a series of DER Task Force meetings throughout the last two years that serve as a clearing house for discussions on MISO's Order 2222 compliance filing.

FERC Advanced Notice of Proposed Rulemaking (ANOPR) on Regional Transmission Planning and Cost Allocation and Generator Interconnection

On July 15, 2021, FERC issued an Advanced Notice of Proposed Rulemaking (ANOPR) that potentially sets in motion a new federal rulemaking process that may change the rules governing planning and expansion of the nation's electric transmission system. The ANOPR expressed concern that the current rules for planning, cost allocation, and interconnection of generation, all of which were adopted a decade or more ago, are no longer resulting in economically efficient transmission expansion that reflects the need to add large amounts of renewable generation to the grid in the next two decades. The ANOPR received 376 initial comments totaling thousands of pages. Commerce filed [initial comments](#) in the docket in October 2021. In April 2022, FERC issued its Notice of Proposed Rulemaking—its draft rule—for public comment. Commerce and the Commission filed [joint comments](#) on the proposed rule (NOPR) on August 16, 2022. FERC has not, as of the end of 2023, issued a final rule but is expected to sometime in the first quarter of 2024.

Complaint by Large Power Customers to FERC regarding MISO Transmission Owners' Return on Equity (ROE)

As discussed in prior reports, a group of industrial end-users filed a complaint at FERC in late 2013 seeking to reduce the allowed return on equity (ROE) of MISO Transmission Owners and limit capital structure ratios and incentive equity adders. At that time, MISO transmission owners had a base ROE of 12.38 percent. The complaint sought to decrease the transmission owners' base ROE over 300 basis points below the then- current base ROE, to 9.15 percent.

In 2015, MISO's Public Consumer Group, of which Commerce is a member, provided testimony identifying the basis for decreasing the ROE to a reasonable level. FERC's Trial Staff filed briefs that were supportive of consumer advocates' positions. Transmission customers and consumer advocates argued that FERC's high ROEs imposed undue costs on consumers and distorted decision-making by encouraging utilities to build transmission rather than generation or distribution resources. While transmission resources are needed, it would not be appropriate to build only transmission to meet the electric needs of society since there must be an appropriate balance of production and delivery of electricity.

Because the Commission requires utilities under its ratemaking authority to offset high ROE transmission costs with high ROE transmission revenues, Minnesotans taking service from such utilities have been spared from paying high ROEs without the revenue offset. While these ratemaking decisions have reduced the harm of paying for high ROEs for such ratepayers in Minnesota, such benefits will be returned to Minnesota retail ratepayers only if utilities choose to provide a credit to Minnesota retail ratepayers for higher revenues or—as with utilities subject to the Commission's ratemaking—are required to do so. Even if Minnesota retail ratepayers receive the benefit of revenue offsets to reduce the high rates they pay for electric service, the distortion of utility decision-making remains an issue.

On December 22, 2015, Administrative Law Judge David H. Coffman issued an Initial Decision, determining that the allowed base ROE should be reduced by over 206 basis points (just over 2 percent), to 10.32 percent.

On September 28, 2016, FERC approved Judge Coffman's Initial Decision, requiring MISO to refund the difference between the base ROEs of 12.38 percent and 10.32 percent, a reduction of over 200 basis points.

On July 2017, MISO filed its compliance filing showing that the transmission owners provided sizable refunds to Minnesota utilities in February and June 2017 that were flowed back to Minnesota customers.

More recently, following multiple rehearing requests, on November 19, 2020, FERC issued Opinion No. 569-B, in which it made minor modifications to the discussion in, but largely reaffirmed, its previously issued Opinion No. 569-A wherein FERC revised its return on equity (ROE) analysis and methodology. This FERC decision was remanded back to FERC yet again on August 9, 2022, by the Court of Appeals for the District of Columbia. A decision in that case is still pending.

Incentive ROEs for Transmission

In another long-running issue, FERC originally granted ROE adders of 100 basis points to companies that were transmission-only companies to encourage such structures. Previously, Commerce participated with Joint Consumer Advocates to urge FERC to eliminate or reduce this ROE adder; FERC reduced the adder in half, to 50 basis points. Commerce and other consumer advocates opposed FERC giving a bonus ROE of 50 basis points for ITC Holdings (ITC), a transmission-only company, since changes in ITC's corporate structure called into question its independence from generation facilities. On Oct. 18, 2018, FERC reduced ITC's independence ROE adder from 50 to 25 basis points. FERC concluded that ITC is still "independent" following its acquisition by Fortis Inc. (Fortis) and GIC Private Limited (GIC), but less independent than it was before, which means ITC is still eligible for an independence adder, but a smaller one. In September 2019 ITC appealed this FERC decision to the DC Circuit and OMS intervened in support of FERC (19-1190), and the DC Circuit denied the ITC petition for review in February 2019.

Additionally, the Joint Consumer Advocates and the Organization of MISO States filed separate protest comments with FERC on January 5, 2018, to oppose Ameren Service's request for 100 basis point ROE incentive adder (on top of their 10.32% base ROE), for the Illinois River & Mark Twain components of the Grand Rivers Project. Ameren did not support why this ROE incentive adder was needed, particularly since Ameren already has incentives for cost mitigation. On February 13, 2018, FERC denied Ameren's request for a 100-basis point adder. On March 30, 2018, the OMS and Joint Consumer Advocates filed a joint answer to Ameren's rehearing request. On November 5, 2018, on rehearing FERC granted a 50-basis point ROE incentive adder (reduced from the 100-basis point adder requested by Ameren Service).

In a FERC Order issued on March 21, 2019 in Docket No. PL19-3, FERC issued a Notice of Inquiry (RM20-10), seeking comments on the scope and implementation of its electric transmission incentives regulations and policy. The OMS (with Commerce and the Commission supporting) filed comments with FERC recommending the evaluation of granting ROE incentive adders on a case-by-case basis. The comments recommended keeping benefits to consumers at the forefront of any analysis to determine whether to grant or eliminate ROE transmission incentives and supported non-ROE incentives first for mitigation of transmission project risks. A FERC decision on the issue is still pending.

U.S. Department of Energy Defense-Critical Electric System Review

United States Department of Energy (DOE) includes transmission infrastructure in an on-going evaluation of electric power system assets that may be crucial to national security under 16 U.S.C. § 824o–1. DOE’s review of defense critical electric infrastructure can result in designations of electric system assets that are identified as critical to national defense. DOE’s review may also help identify and prioritize areas of the electric system that need additional investment and/or hardening against potential threats or disruptions. Transmission infrastructure in Minnesota that is deemed defense critical may require increased security measures, additional investments and/or may be subject to emergency orders and rules issued by the Secretary of DOE in an emergency.

Impacts to future planning of Transmission in Minnesota

Ongoing Transmission Constraint Issues

Transmission constraints continue to slow interconnection of large-scale wind and solar generation in Minnesota. Longer-term, new high-voltage transmission lines are needed to help reduce these constraints. In July 2022, as described above, MISO approved a group of eighteen (18) new large high-voltage transmission lines in our region and is in the process or working on a second group.

Even after MISO approves plans with large transmission upgrades, though, it takes time—five to ten years—to plan, permit, and construct them. To help address this issue in Minnesota, in 2023 the Commission convened a series of stakeholder meetings to discuss improvements to their wind, solar and transmission permitting and environmental review process. A [summary report](#) on the results of this process was presented to the Commission on January 3, 2024.

Over the short-term, while long-range transmission regional capacity issues are addressed, there is increased industry interest in improving the operating capacity and efficient use of the existing system. Efforts to improve the transfer capability of the existing high-voltage system are ongoing in the MISO region, including using ambient adjusted line ratings and system reconfigurations. Ambient adjusted rating changes are based on temperature alone. More complicated and more expensive, but potentially more valuable, Dynamic Line Ratings are based not only on forecasted ambient air temperature, but also on other weather conditions such as wind, cloud cover, solar irradiance intensity, precipitation and/or on transmission line conditions such as tension or sag.

On December 16, 2021, FERC issued a final rule on the use of ambient-adjusted ratings. This final rule requires all transmission providers, both inside and outside of organized markets, to use ambient-adjusted ratings as the basis for evaluating near-term transmission service to increase the accuracy of near-term line ratings. While the final rule does not mandate the adoption of dynamic line ratings, the rule does require that organized market operators establish and maintain systems and procedures necessary to allow transmission owners that would like to use dynamic line ratings the ability to do so.

New Transmission Projects Raise Concerns about Land Use and Land Rights

In recent years, natural gas pipelines, electric utilities and crude oil pipelines, have sought approval to construct new energy projects in Minnesota. Since the siting process in Minnesota mandates public meetings and hearings and other outreach efforts to potentially impacted residents, landowners and the general public, the legal framework and other issues regarding land rights and land use are also receiving close scrutiny. In addition to wanting to know what benefit their area of the state would derive from a project, landowners and other affected citizens naturally want to know what their rights are regarding such projects impacting their land so they may be assured that their rights are not infringed upon during the process.

To date, answers to affected citizens and landowners have been provided during established regulatory processes. The answer to “what benefit does this project have for my area or my state,” is a key question that is addressed in the State of Minnesota’s Certificate of Need²⁰ process and land rights questions are addressed in various parts of Minnesota statutes.

To help stakeholders understand facility permitting proceedings before the Commission that affect them and to help them have more productive input into those proceedings, the Commission and Commerce host public meetings and hearings, and the Commission has created the specially designated position of public advisor. This position is responsible for implementing a program to better inform stakeholders and to advise them on how to have a meaningful voice in the permitting process.

Additionally, Commerce has a designated Tribal Liaison, and since 2019 the Commission has had a Tribal Liaison who works to help Tribal Nations get involved in commission proceedings. As part of the Commission’s efforts, Commerce and PUC Commissioners meet with Tribal Nations annually on a government-to-government basis to provide information and hear from tribal leaders. During this year’s annual consultations, Commissioners worked to ensure Tribal Nations were aware of the large infrastructure projects, as well as other issues.

The Commission has also made significant updates to its website intended to help members of the public engage in proceedings like facilities permitting dockets. This includes [several webpages](#) describing generally how different types of energy facilities projects are permitted and when the public can engage. Additionally, [Tranche One](#) and other large transmission projects have individual project websites with project-specific information, public meeting information, and about how to get involved.

In tandem with the website updates, the Commission organized an intergovernmental agency working group (Public Engagement Working Group) focused on improving public engagement in facilities permitting dockets. This workgroup produced a report detailing how agencies involved with permitting can ensure it is giving consistent relevant information, hosting meaningful public meetings, and helping the public understand how to be involved. Staff is implementing these recommendations in all new permitting dockets, including high profile large transmission projects.

Cost Responsibility for Mitigation

As utilities build more infrastructure, state regulators must ensure that utilities use cost discipline. To encourage cost discipline and prevent ratepayers from paying more than is reasonable for new utility infrastructure, at a minimum, a utility must justify any cost recovery above the amount the utility originally indicated that the project would cost. This focus is important since decisions to approve or deny a project are based in part on cost effectiveness of the proposed facility. Consequently, it is important to minimize errors in estimation to avoid ill-informed decisions from being made that would result in higher system costs than necessary. Minnesota has built such discipline into its transmission approval process.

When utilities install infrastructure in an area, there are always mitigation measures employed to address local concerns. Thus, it is important to ensure that decisions made by a utility on behalf of local governments or citizens reasonably consider the cost implications noted above. Further, it is important that costs of any significant upgrades are equitably allocated to ratepayers, based on ratemaking principles such as cost-causation, cost minimization and administrative feasibility. Discussions about such issues have occurred and are likely to continue in the future.

Federal versus State Jurisdiction Over Siting and Construction

The routing and permitting of interstate transmission lines has been the province of the states (with limited exceptions) for virtually the entire history of the electricity industry in the United States. The grid formerly consisted of many localized transmission and distribution networks, so federal interest in siting of the transmission system was limited. In addition, state and local governments are well-positioned to weigh the local factors that go into siting decisions, including environmental and scenery concerns, zoning issues, development plans and safety.

However, the electricity transmission system in the 48 contiguous states has evolved into a complex continent-spanning network consisting of three major interconnections. Although the federal government has recently increased its authority over transmission reliability and in other areas, it has, for the most part, left transmission siting decisions in the hands of the states. However, as concerns over grid congestion and its impact in reliability have grown, the federal government has carved out a small role in transmission siting as a “backstop” siting authority in designated transmission corridors.

When the United States Congress passed the Energy Policy Act of 2005 (2005 Act), one section of the 2005 Act authorized (DOE to designate “National Interest Electric Transmission Corridors” based on DOE’s findings after conducting a study of congestion. The 2005 Act then authorized FERC to permit the construction and operation of electricity transmission facilities within the boundaries of these DOE designated corridors. This authority, however, may not be exercised by FERC unless the state where the facility would be sited lacks the authority to issue the permit, the applicant does not qualify for the permit in the state, or the state has “withheld approval” of the permit for more than one year. Much debate and litigation occurred regarding whether “withheld approval” included rejecting a permit application. Partly as a result, FERC has to date never used this backstop permitting authority.

However, the Federal IJ Act of 2021 addresses this ambiguity by explicitly allowing FERC to overrule state objections whether the state “withheld approval” or denied approval within a DOE designated corridor. In addition, the 2021 IJ Act, expands the scope of DOE’s review by providing additional factors that DOE may consider when designating a National Interest Corridor. Specifically, DOE may now review whether a designation will “enhance the ability” of electric generation facilities “to connect to the electric grid,” whether the designation will decrease electricity costs for consumers, and whether the designation will enhance the United States’ energy security.

Most recently, FERC on December 15, 2022, [issued a notice of proposed rulemaking](#) for implementing its backstop authority. The proposed rule has not yet been finalized. The DOE also issued its [“Transmission Needs” study](#) on October 30, 2023, and on December 19, 2023, issued its [final guidance](#) on National Interest Electric Transmission Corridor (NIETC) Designation Process—which uses the Transmission Needs study as one basis for determining what constitutes an NIETC. See the [Midwest Region fact sheet](#) on the 2023 Transmission Needs Study.

The NIETC designation, paired with FERC’s electric transmission backstop authority is intended to expedite interstate high voltage transmission line permitting as well as open opportunities for federal funding for priority transmission projects. Whether federal high-voltage transmission permitting will become a realistic option remains an open question.

Conclusions

- The high-voltage electric transmission system in Minnesota is part of a much larger regional system that is planned and operated by the Midcontinent Independent System Operator (MISO) and the Southwest Power Pool (SPP). MISO and SPP works with its utilities and member states to plan and operate the electric transmission system in Minnesota and surrounding states to achieve reliability, regional coordination, and efficiency.
- The legacy high-voltage transmission system in the United States was not originally designed to accommodate the ongoing shift from a limited number of large conventional power plants to many widely dispersed generation projects. While new transmission lines have been added in Minnesota and the region, the existing high-voltage transmission system is increasingly constrained and has limited the amount of new renewable generation projects that can be interconnected to the system.
- Planning and constructing regional portfolios of cost-shared “backbone” high voltage transmission lines is more effective than state-by-state projects because the multi-state high-voltage transmission system works together as an integrated whole. Minnesota-only projects would be paid for by Minnesota ratepayers alone—instead of being regionally cost-shared—and would likely be of limited value because bottlenecks on neighboring states would continue to restrict energy delivery from Minnesota generators to the larger region and vice versa.
- Long term, based in part on Minnesota leadership on the issue, in July 2022 MISO approved an initial group of regional and interregional transmission line projects in the Upper Midwest (LRTP Tranche 1 portfolio). Three of these proposed projects are in Minnesota. All three have started the permitting phase at the Commission.
- Short term, some utilities will be able to interconnect new wind and solar projects using interconnection capacity at their existing or retiring coal or natural- gas plants. Other shorter-term projects and reconfigurations to reduce transmission constraints are being put into operation while the larger projects are undergoing permitting and construction.
- Recognizing the cross-border issues, MISO in 2022 completed a Joint Targeted Interconnection Queue (JTIQ) Study with the Southwest Power Pool (SPP). The JTIQ projects are intended to reduce expensive transmission upgrade costs when new generation projects in one transmission system trigger upgrades in the other. Commerce was selected in 2023 for a \$464 million Department of Energy Infrastructure Act grant that, once finalized, would pay for about one-quarter of the costs of these JTIQ projects. Negotiations with DOE are ongoing.
- Minnesota has been and will continue to be involved in numerous regional and national efforts to ensure that electric transmission lines are planned and constructed in a reliable, cost-effective and environmentally responsible manner for the State’s economic future and the needs of its businesses and citizens and to maintain the State’s jurisdiction over the provision of essential services to ensure safe, adequate, and efficient utility services at fair, reasonable rates.