Appendix I

Energy Conservation and Efficiency Programs

Appendix I
Mankato – Mississippi River Transmission Project
Certificate of Need and Route Permit Application
E002/CN-22-532 and E002/TL-23-157

Minnesota Rule 7849.0290 requires a Certificate of Need application to provide information related to an applicant's energy conservation and efficiency programs and a quantification of the impact of these programs on the forecast information required by Minn. R. 7849.0270. The Applicant requested an exemption from this content requirement, and proposed to provide substitute information related to its conservation programs in Minnesota. The Applicant also proposed to provide information regarding how conservation and energy efficiency was considered by the Midcontinent Independent System Operator, Inc. (MISO) in its evaluation of the Project.[1] In response, the Department agreed that the proposed information will better inform the record as to the need for the proposed Project and recommended that the Commission grant the requested exemption with the provision of the proposed alternative data.[2] The Commission approved the Applicants' requested exemption with provision of the alternative data.[3] The required information is provided below.

For decades, Minnesota has been a national leader in energy efficiency. The state's utility-sponsored energy efficiency programs are among the longest-standing in the country, and Minnesota is the only Midwestern state that is consistently ranked in the top ten on the American Council for an Energy Efficient Economy's (ACEEE) State Energy Efficiency Scorecard. Minnesota utilities' energy savings achievements through demand-side management (DSM) have saved billions of dollars for customers and avoided millions of tons of greenhouse gas and other pollutants while creating and supporting jobs in the state.[4] Xcel Energy provides below information related to their conservation programs, as well as a discussion of how conservation and energy efficiency was considered by MISO in its evaluation and approval of the Project.

[1] *See* Docket No. E002/CN-22-532, *In the Matter of the Application for a Certificate of Need for the Mankato to Mississippi River 345 kV Transmission Project*, Request for Exemption from Certain Certificate of Need Application Content Requirements at 8 (Oct. 17, 2023).

[2] *See* Docket No. E002/CN-22-532, Comments of the Minnesota Department of Commerce, Division of Energy Resources at 4-5 (Nov. 13, 2023).

[3] *See* Docket No. E002/CN-22-532, Consent Items at 1 (Dec. 7, 2023).

[4] The Aggregate Economic Impact of the Conservation Improvement Program 2008-2013, Minnesota Department of Commerce, Division of Energy Resources, Cadmus (Oct. 2015), https://mn.gov/commerce-stat/pdfs/card-report-aggregate-eco-impact-cip-2008-2013.pdf.

A. Xcel Energy's Energy Conservation and Efficiency Programs

Xcel Energy has maintained a consistent and high level of DSM achievement. Between 1994 and 2022, Xcel Energy invested nearly $2.2 billion (nominal) resulting in 11,813 gigawatt hours (GWh) of electric energy savings, 3,733 megawatts (MW) of electric demand savings and an estimated 19.92 million dekatherms (Dth) of natural gas savings.[5] In its 2024-2026 Energy Conservation and Optimization Triennial Plan, dated June 29, 2023 (Xcel Energy's ECO Triennial Plan), Xcel Energy continued to strive to provide customers with a wide variety of options for saving energy. Xcel Energy's ECO Triennial Plan proposed ambitious goals of saving 1,734 GWh, 674 MW, and 3,918,970 Dth over the three-year period at a cost of approximately $530 million.[6]

Further, as provided below in **Table I-1** and **Figure I-1**, in the January 29, 2024 Update to Xcel Energy's ECO Triennial Plan, Xcel Energy revised its savings goals outlined above to include 1,871 GWh, 674 MW, and 3,532,624 Dth over the same three-year period at a cost of approximately $588 million.[7] These proposed savings goals also aligned with Xcel Energy's DSM commitments in its most recent Integrated Resource Plan (IRP).[8]

[5] *See* Docket No. E,G002/CIP-23-92, Xcel Energy 2024-2026 Energy Conservation and Optimization Plan (June 29, 2023) at 2.

[6] *See id.* at 1.

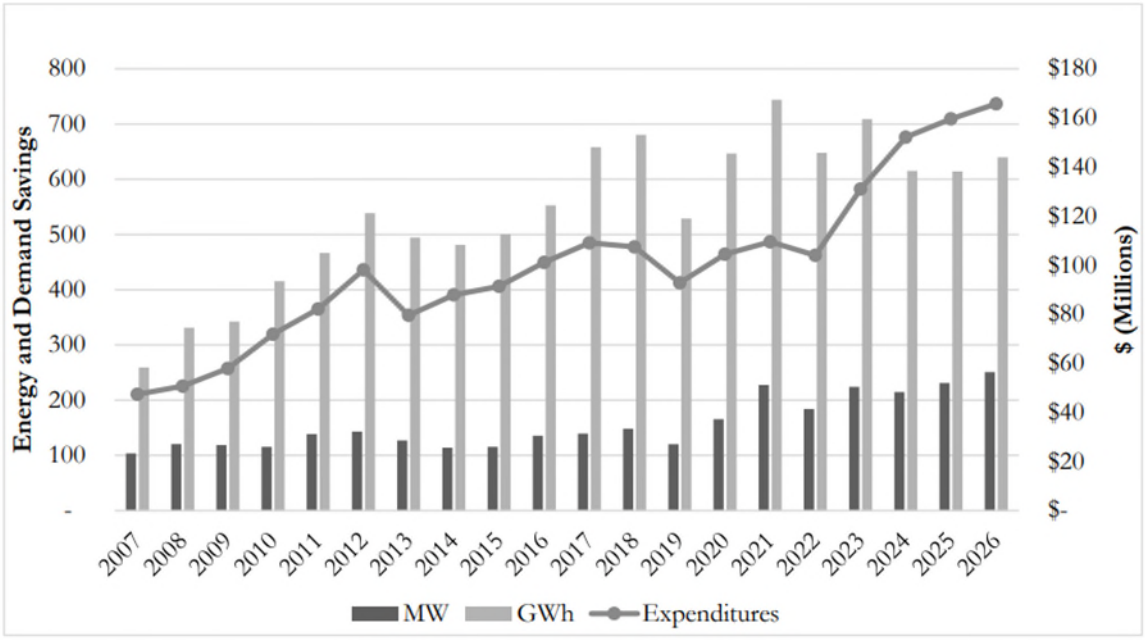
[7] *See* Docket No. E,G002/CIP-23-92, Xcel Energy 2024-2026 Energy Conservation and Optimization Plan Compliance Filing Update (January 29, 2024) at 1.

[8] *See* Docket No. E002/RP-24-67, *In the Matter of Xcel Energy's 2024-2040 Integrated Resource Plan*, 2024-2040 Upper Midwest Integrated Resource Plan (Feb. 1, 2024).

Table I-1
Proposed Xcel Energy Portfolio Budgets and Savings, 2024-2026[9]

		2024	2025	2026
Electric Spending		$135,640,027	$141,047,902	$147,294,579
Natural Gas Spending		$29,820,687	$31,603,116	$35,414,954
Electric Demand Savings (kW)		206,960	223,451	243,149
Electric Energy Savings (MWh)	First-Year	570,375	569,358	595,344
	Lifetime	8,954,889	8,938,924	9,346,905
Natural Gas Energy Savings (Dth)	First-Year	1,091,887	1,169,560	1,271,177
	Lifetime	15,360,340	15,762,865	17,204,888
Lifetime Cost of Saved Energy	Electric ($/kWh)	$0.0151	$0.0158	$0.0158
	Gas ($/Dth)	$1.9414	$2.0066	$2.0584

Figure I-1
Xcel Energy's Energy Conservation and Optimization Electric Achievements, 2007-2026[10]



[9] *See* Docket No. E,G002/CIP-23-92, Xcel Energy 2024-2026 Energy Conservation and Optimization Plan Compliance Filing Update (January 29, 2024) at 1.

[10] *See id.* at 3.

Likewise, Xcel Energy's 2024 IRP filing included energy efficiency (EE) and demand response (DR) investments.[11] Xcel Energy proposed to seek to achieve EE savings levels ranging from 2 to 2.5 percent annually, which, when combined with naturally occurring EE, will achieve average savings of over 780 GWh of energy in each of 2024 through 2040.[12] Further, while Xcel Energy exceeded the Commission's 2019 requirement to secure an incremental 400 MW of DR load by the end of 2023, the 2024 IRP filing also proposed to increase Xcel Energy's DR load to 1,365 MW in the next five years.[13]

B. MISO's Consideration of Conservation and Energy Efficiency in MTEP21

The Mankato – Mississippi River Transmission Project is not needed to support growing peak demand. Rather, the Project is needed to provide additional transmission capacity to reliably transport increasing amounts of renewable generation on the system. More specifically, the existing transmission system in southern Minnesota plays a key role in transporting and delivering renewable energy from Minnesota, North Dakota, and South Dakota to regional load centers of the Twin Cities and areas to the East and South. The Project is needed to provide additional transmission capacity, to mitigate current capacity issues, and to improve electric system reliability throughout the region as more renewable energy resources are added to the electric system in and around the region. Given that the need for this Project is not driven by increases in peak demand, the Commission granted the Applicant's request for exemption from certain forecasting data for Applicants' service areas and systems as required by Minn. R. 7849.0270, subp. 2. Instead, the Applicant committed to provide forecast information utilized by MISO in studying, planning, and analyzing the Project as part of MISO's 2021 Transmission Expansion Plan (MTEP21).

MISO's annual transmission planning process develops multiple future scenarios to study transmission needs under a variety of economic, policy, and technological

[11] *See* Docket No. E002/RP-24-67, *In the Matter of Xcel Energy's 2024-2040 Integrated Resource Plan*, 2024-2040 Upper Midwest Integrated Resource Plan (Feb. 1, 2024).

[12] *See* Docket No. E002/RP-24-67, 2024-2040 Upper Midwest Integrated Resource Plan, Appendix J (Feb. 1, 2024) at 3.

[13] *See id.* at 11.

possibilities. Each future scenario contains assumptions about future fuel costs, environmental regulations, demand and energy levels, and technological possibilities.

As part of the development of these future scenarios, MISO develops forecasts for conservation, energy efficiency, and demand response, collectively referred to as "Distributed Energy Resources" (DER) by MISO. These forecasts are developed by aggregating each MISO member's load forecasts. To consider a broader range of potential DER outcomes, MISO creates forecasts considering varying adoption rates, technological advancements, and economic factors. MISO's forecasts are developed for each of MISO's 10 Local Resource Zones, to consider regional differences, and then are aggregated to a MISO-wide forecast.

Similar to previous MTEPs, MISO commissioned Applied Energy Group (AEG) to develop new DER technical potential for MTEP21. AEG developed estimates of DER impacts through survey of load-serving entities (LSE) and secondary research. Based on analysis for MTEP20, with updated utility information and Futures narratives for this cycle, technical potential represents feasible potential under each scenario. To support modeling, AEG compiled DER programs by type and cost into program blocks for use in MISO's Electric Generation Expansion Analysis System (EGEAS) – an integrated resource planning tool.

The DER resources were modeled as program blocks in three main categories: Demand Response (DR), Energy Efficiency (EE), and Distributed Generation (DG). The DER programs also fall into two sectors: Residential and Commercial and Industrial (C&I). A complete list of the DER programs considered by MISO in MTEP21 is provided below in **Table I-2**.

Table I-2
MTEP21 Distributed Energy Resource Programs[14]

DER Type	EGEAS Program Block	DER Program(s) Included
DR	C&I Demand Response	Curtailable & Interruptible, Other DR, Wholesale Curtailable
DR	C&I Price Response	C&I Price Response
DR	Residential Direct Load Control	Res. Direct Load Control
DR	Residential Price Response	Res. Price Response
EE	C&I High-Cost EE	Customer Incentive High, New Construction High
EE	C&I Low-Cost EE*	Customer Incentive Low, Lighting Low, New Construction Low, Prescriptive Rebate Low, Retrocommissioning Low
EE	C&I Mid-Cost EE	Customer Incentive Mid, Lighting Mid, New Construction Mid, Prescriptive Rebate Mid, Retrocommissioning Mid
EE	Residential High-Cost EE	Appliance Incentives High, Appliance Recycling, Low Income, Multifamily High, New Construction High, School Kits, Whole Home Audit High
EE	Residential Low-Cost EE*	Appliance Incentives Low, Behavioral Programs, Lighting, Multifamily Low, New Construction Low, Whole Home Audit Low
DG	C&I Customer Solar PV*	C&I Customer Solar PV
DG	C&I Utility Incentive Distributed Generation	Combined Heat and Power, Community-Based DG, Customer Wind Turbine, Thermal Storage, Utility Incentive Battery Storage
DG	C&I Utility Incentive Solar PV*	C&I Utility Incentive Solar PV
DG	Residential Customer Solar PV	Res. Customer Solar PV
DG	Residential Utility Incentive Distributed Generation	Customer Wind Turbines, Electric Vehicle Charging, Thermal Storage, Utility Incentive Battery Storage
DG	Residential Utility Incentive Solar PV	Res. Utility Incentive Solar PV

During the program selection phase for the MTEP21 Futures, each block was offered against supply-side alternatives to determine economic viability. For all three MTEP21 Futures, EGEAS selected the following program blocks, all within the C&I group: Customer PV, Utility Incentive PV, and Low-Cost Energy Efficiency. Additionally, Specific EE programs were grouped by cost into three tiers for C&I and two tiers for Residential.

Announced resources were included in Futures base assumptions. Several stakeholders submitted feedback detailing DERs they intend to add to their systems; these are also included in the totals below. Only selected programs and stakeholder additions were

[14] **Appendix G-3** at 42 (MTEP21 Report Addendum).

implemented in the MTEP21 Futures models. **Table I-3** and **Table I-4** show the total DER technical potential and additions modeled in MTEP21 by Future. The additions are those that were found to be economically superior to other alternatives and thus were included in the MTEP21 Futures. All of the values shown in **Table I-3** and **Table I-4** are in addition to the DER included in MISO LSE base forecasts.

Table I-3
DER Capacity (GW): 20-Year Technical Potential and Additions in MISO

MTEP21 DERs Capacity (GW) Technical Potential & Added	Future 1		Future 2		Future 3	
	Potential	Added	Potential	Added	Potential	Added
Demand Response (DR)	5.2	0.9	5.9	0.9	5.9	0.9
Energy Efficiency (EE)	13.3	7.8	14.5	8.1	14.5	11.7
Distributed Generation (DG)	14.7	3.5	14.7	3.5	21.8	6.2

Table I-4
DER Energy (GWh): 20-Year Technical Potential and Additions in MISO

MTEP21 DERs Energy (GWh) Technical Potential & Added	Future 1		Future 2		Future 3	
	Potential	Added	Potential	Added	Potential	Added
Demand Response (DR)	442	118	498	118	498	118
Energy Efficiency (EE)	86,886	30,801	94,313	31,393	94,313	49,145
Distributed Generation (DG)	26,119	5,709	26,119	5,709	36,934	9,837