COMMERCE DEPARTMENT

September 6, 2024

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E002/CN-22-131

Dear Mr. Seuffert:

Attached are the comments of the Minnesota Department of Commerce (Department) in the following matter:

The Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from
Sherburne County to Lyon County, Minnesota.

The Petition was filed by Xcel Energy on March 9, 2023.

The Department recommends that the Minnesota Public Utilities Commission (Commission) consider the impacts detailed in the Environmental Report, and, if the impacts are acceptable, **approve the Certificate of Need**. The Department is available to answer any questions the Commission may have.

Sincerely,

/s/ DR. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SR/ad
Attachment

Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce
Division of Energy Resources

Docket No. E002/CN-22-131

I. INTRODUCTION

Northern States Power Company (NSP), a Minnesota corporation, doing business as Xcel Energy (Xcel Energy, the Company, or the Applicant, requests a Certificate of Need (CN) from the Minnesota Public Utilities Commission (Commission) to construct the Minnesota Energy Connection project. The project proposal includes an approximately 160- to 180-mile double circuit 345 kilovolt (kV) transmission line connecting the existing Sherco Substation in Becker, Minnesota, and a new substation in Lyon County, Minnesota, and other associated facilities, including intermediate and voltage support substations.

A. RESOUCE PLANNING BACKGROUND

The integrated resource planning process (IRP) is one tool that utilities use to identify the size, type, and timing generation and demand-side resources needed. On April 15, 2022, the Minnesota Public Utilities Commission (Commission) issued its *Order Approving Plan With Modifications and Establishing Requirements for Future Filings* (IRP Order) in Docket No. E002/RP-19-368.[1] The IRP Order at point 2 A 6 required that, "Xcel shall begin Certificate of Need and route permit proceedings for transmission lines with a capacity of 345 kilovolts extending from the locations of the retiring King and Sherco generators designed to permit new energy resources to connect to the transmission grid of the Midcontinent Independent System Operator, Inc."

The IRP Order at point 2 A 7 stated that:

> For each gen-tie line for which Xcel obtains the necessary Certificate of Need and route permit, Xcel may own the line and the renewable resources that connect to the line, up to the company's current interconnection rights for that location. Approvals for company ownership of resources interconnecting to the gen-tie lines identified in this order are conditioned on the outcome of the Certificate of Need and route permit decisions for the Sherco and King gen-tie lines.[2]

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[1] In re *2020-2034 Upper Midwest Integrated Resource Plan of N. States Power Co.*, Docket No. E002/RP-19-368, Order Approving Plan With Modifications and Establishing Requirements for Future Filings at 31 (Apr. 15, 2022) (eDocket no. 20224-184828-01).

[2] IRP Order at 31.

The IRP Order is clear that the Commission required Xcel to initiate this proceeding, requesting a CN for a 345 kV transmission line connecting to the Sherco substation, but did not pre-judge the outcome in that the IRP establishes what happens if the CN is approved (Xcel ownership of a portion of the connecting resources) and what happens if the CN is not approved (ownership would be an open question decided in other proceedings.

B. NOTICE AND EXEMPTION PETITIONS

In response to the IRP Order, on May 2, 2022, Northern States Power Company, doing business as Xcel Energy (Xcel or the Company) filed the Company's *Notice Plan Petition* (Notice Petition).[3] The Notice Petition requested that the Commission approve Xcel's proposed notice plan to communicate the Company's intent to file a certificate of need (CN) petition for two 345 kV generation-tie lines from Sherburne County to Lyon County, Minnesota (Initial Project).

Also on May 2, 2022, Xcel filed the Company's *Request for Exemption from Certain Certificate of Need Application Content Requirements* (Exemption Petition).[4] The Exemption Petition requested the Commission approve the Company's proposed exemptions to certain filing requirements for a CN petition for the Initial Project.

On June 28, 2022 the Commission issued an order approving the Notice Petition and the Exemption Petition with conditions.[5]

C. MAIN PETITION

On March 9, 2023 Xcel filed the Company's *Application to the Minnesota Public Utilities Commission for a Certificate of Need for the Minnesota Energy Connection Project* (Petition). Note that the proposed project in the Petition is slightly different than the Initial Project as described in the Notice Petition and Exemption Petition—one double circuit versus two single circuits. The Minnesota Department of Commerce (Department) does not consider the difference to be significant for the CN proceeding.

On or before April 6, 2023 comments regarding the completeness of the Petition were filed by:

- the Department;

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[3] In re *Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, Notice Plan Petition (May 2, 2022) (eDocket no. 20225-185473-02).

[4] In re *Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, Exemption Petition (May 2, 2022) (eDocket no. 20225-185473-03).

[5] In re *Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, Order on Notice Plan and Exemption Petition (June 28, 2022) (eDocket no. 20226-186932-01).

- the Department's Energy Environmental Review and Analysis unit (Department-EERA); and
- Operating Engineers Local 49 and North Central States Regional Council of Carpenters.

On April 12, 2023 reply comments regarding completeness were filed by Xcel.

On April 17, 2023 supplemental comments regarding completeness were file by the Department and Department-EERA.

On May 2, 2023 the Commission issued an order finding Xcel's Petition, as supplemented by Xcel's reply comment, to be complete.[6]

On June 5, 2024 the Commission issued its *Notice of Comment Period on the Merits of the Certificate of Need Application* (Notice). The Notice established due dates for comments and specified that the following topics are open for comment:

- Should the Commission grant a certificate of need for the proposed project?
- If granted, what additional conditions or requirements, if any, should be included in the certificate of need?
- Are there other issues or concerns related to this matter?

Below are the comments of the Department regarding the Petition and the issues specified in the Notice.

II. PROPOSED PROJECT

In the Petition Xcel proposes to construct a 160- to 180-mile, double-circuit, 345 kV transmission line. The transmission line would connect the existing Sherburne County Generation Station Substation (Sherco Substation) in Becker, Minnesota, and a new substation in Lyon County, Minnesota. The substation in Lyon County is referred to as the Terminal Substation in the Petition.[7]

Xcel also proposes to construct an intermediate substation (Intermediate Substation) and a substation to house voltage support equipment (Voltage Support Substation). The Intermediate Substation is

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[6] In re *Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, Order (May 2, 2023) (eDocket no. 20235-195506-01).

[7] The formal name of all substations, including the Terminal Substation, will be determined as part of the Route Permit proceeding. Regarding equipment at the Terminal Substation the Petition states "The Terminal Substation will require two synchronous condensers to provide system stability once the level of wind and/or solar energy interconnected reaches 1,000- 1,600 MW." However, the need may change based upon determinations made in Docket No. E002/CN-23-212: "There will also be Commission determinations regarding the 800 MW of firm dispatchable resources, some of which could offset the need for synchronous condensers at the substation at the west end [Terminal Substation] of the line."

expected to be sited approximately 20 miles from the Terminal Substation and will facilitate the interconnection of renewable resources. The Voltage Support Substation is expected to be sited at approximately the Project's mid-point and would include series capacitors (20%) and two 150 MW static synchronous compensators (STATCOMs).[8] Regarding the STATCOMs, the Petition states:

> The attributes of the STATCOMS also could potentially be provided by solar facilities located in the vicinity of the Voltage Support Substation. Every 250 MW of interconnected solar at that location would replace 150 MW of STATCOM. The need for voltage support equipment will also be impacted by the resources that interconnect to the Project and the technology available at that time.

The Company proposes that the final determinations regarding the need for and composition of voltage support equipment will be made after the resource acquisition determinations. The Company will update the Commission on any proposed changes in a separate filing. The Department agrees with Xcel on this point and recommends that the Commission require Xcel to update the Commission regarding the composition of voltage support equipment after resource determinations have been made.

In these comments, the Department refers to the Sherco—Terminal 345 kV line, the Intermediate Substation, the Voltage Support Substation, and the associated equipment collectively as the Project. Xcel expects that construction will begin in the third quarter of 2025. All components of the proposed Project are expected to be in service by September 30, 2031.

Finally, Xcel estimates that construction of the proposed Project, including substation construction and all substation equipment (including STATCOMs and series compensation) will cost $1.14 billion (2023 dollars).

III. DEPARTMENT ANALYSIS

Minnesota Statutes § 216B.2421, subd. 2 (1) defines a Large Energy Facility (LEF) as, "any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length." Since the proposed Project is 345 kV and well over 100 miles long it qualifies as a LEF. Minnesota Statutes § 216B.243, subd. 2 states that, "no large energy facility shall be sited or constructed in Minnesota

[8] Regarding the two substations and associated equipment the Petition states:

> This is a conservative approach to ensure that the potential wind turbine resonant frequency interactions associated with long highly compensated radial lines are accounted for in Project components and costs. It is possible that these interactions will not occur and the costs associated with any support equipment will be reduced.

without the issuance of a certificate of need by the Commission […].” Therefore, a CN application must be approved by the Commission before the proposed Project can be sited or constructed.

There are several factors to be considered by the Commission in making a determination in CN proceedings. In general, these factors are located in different sections of Minnesota Statutes. Some of the general statutory criteria are reflected in a more specific way in Minnesota Rules 7849.0120. However, some statutory criteria do not appear to be reflected in rules. To clarify the analysis, the Department groups all of the statutory and rule criteria into one of five categories.[9] The Department addresses each of the statutory and rule criteria below. A cross index showing where the various provision of Minnesota Statutes and Minnesota Rules are addressed is provided in Attachment 1.

The Department notes that we rely on the Environmental Report (ER) prepared by Department-EERA for an analysis of the effects of the proposed Project and the alternatives upon the natural and socioeconomic environments. The Department recommends that the Commission consider the ER in making its determination.

A. NEED ANALYSIS

Minnesota Rules 7849.0120 states that a CN “must be granted to the applicant on determining that” and proceeds to list 4 factors. Minnesota Rules 7849.0120 A requires the Commission to determine “the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states.” The rule then lists five specific considerations. The Department addresses each consideration separately below.

1. Accuracy of the Forecast

i. Background

Minnesota Rules 7849.0120 A (1) states that, in assessing need, the Commission shall evaluate “the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility.”[10] The Commission’s September 23, 2021 *Order Granting Certificate of Need and Issuing Site Permit and Route Permit* (Plum Creek Order) in Docket Nos. IP6697/CN-18-699, IP6697/WS-18-700, and IP6697/TL-18-701 clarified this criterion:

> Plum Creek did not use data from a PPA, IRP, or biennial transmission project report to demonstrate demand for the Project. However, under Minnesota statute and rules, there is no requirement that Plum Creek

[9] Need Analysis, Alternative Analysis, Socioeconomic Analysis, Other Permits, and Policy Analysis.

[10] Note that Minnesota Statutes § 216B.243 subd. 3(1) requires the Commission to evaluate the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based.

> present a PPA, IRP, biennial transmission project report, or any other specific data to demonstrate demand. The Legislature contemplated that independent power producers would construct such projects and did not require them to enter into power purchase agreements before obtaining a certificate of need. Rather, the Commission may evaluate demand using any data it finds persuasive, on a case-by-case basis. Furthermore, because Plum Creek is an independent power producer and not a utility, the Commission granted it certain variances to provide alternative data when more appropriate, and the data provided is sufficient to demonstrate demand.
>
> In this case, Plum Creek showed that utilities and commercial and industrial customers have reported strong clean energy goals above and beyond RES [Renewable Energy Standard] requirements, and additional renewable energy sources will be needed to meet that demand. Furthermore, utilities plan to retire coal-based generating units across the region in the coming years, and renewable energy sources are expected to fill some of the resulting capacity needs. These established goals and plans are strong evidence of a utility's intention for future energy development and can be used to demonstrate demand, especially when consistent with stated public policy goals. (Citation omitted.)

ii. Quantity of Generation Needed

The IRP Order at point 2 A 5 required Xcel to acquire by 2026:

- 720 MW of Company-owned solar resources to fully reutilize the interconnection capacity to be made available following the retirement of the Sherco Unit 2;[11] and
- An additional 600 MW of solar resources unconstrained by interconnection location or ownership.[12]

The IRP Order at point 2 A 8 stated that Xcel has demonstrated that, between 2027 and 2032, the Company will need approximately 600 MW more solar-resources and 2,150 MW more wind resources, or an equivalent amount of energy and capacity from a combination of wind, solar and/or storage.[13]

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[11] Note that the IRP Order clarified that 460 MW of this could come from the proposed Sherco Solar units 1 and 2 projects if approved by the Commission. On November 7, 2022 in Docket No. E002/M-20-891 the Commission issued an order approving the 460 MW Sherco Solar units 1 and 2 projects. The remaining capacity to re-use the interconnection rights of Sherco Coal unit 2 were acquired in Docket No. E002/M-23-403 via the Sherco Solar unit 3 project.

[12] IRP Order at 31.

[13] IRP Order at 31.

The IRP Order at point 2 A 9 stated that Xcel has demonstrated that, between 2028 and 2030, the Company will need approximately 600 MW of Company-owned solar and/or storage resources to maximize the use of the King gen-tie line and fully reuse the King interconnection.[14]

The IRP Order at point 3 stated that, "[i]n addition to the resources discussed in Ordering Paragraph 2, the Commission finds that it is more likely than not that there will be a need for approximately, but not more than, 800 MW of generic firm dispatchable resources between 2027 and 2029."[15]

Altogether, ordering points 2 and 3 of the IRP Order require Xcel to pursue over 5 GW of new generation resources between 2026 and 2032.

Chapter 4 of this Application provides "updates to the quantity of new generation needed based upon the updated demand and energy forecasting provided under Minnesota Rules 7849.0270." Images 4.1 and 4.2 of the Petition show an update to the Company's energy and demand forecasts that were used in the IRP.[16] Image 4.1 shows that the spring 2022 demand forecast is similar to the forecast actually used in the IRP until about 2032, after which the Spring 2022 demand forecast is significantly lower.[17] Image 4.2 shows that the Spring 2022 energy forecast is also similar to the forecast actually used in the IRP until about 2032, after which the Spring 2022 energy forecast is significantly lower.[18] Finally, Table 4.2 shows Xcel's accredited capacity situation for the years 2022 to 2032.[19] Table 4.2 shows Xcel has an accredited capacity deficit of about 3.6 GW in 2032 before any new actions are taken.[20]

In addition to the forecast, the Petition notes that the Midcontinent Independent System Operator's (MISO) resource adequacy construct is undergoing significant changes.[21] MISO has already switched from an annual construct to a seasonal construct. MISO is also exploring new methods for accrediting resources.[22]

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[14] IRP Order at 31.

[15] IRP Order at 31.

[16] In re *Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, Petition (March 9, 2023) (eDocket nos. 20233-193783-01, 20233-193783-02, 20233-193783-03, 20233-193783-04, 20233-193783-05).

[17] CN Petition at 47.

[18] CN Petition at 48.

[19] CN Petition at 53.

[20] CN Petition at 53.

[21] CN Petition at 44 and 54.

[22] See: Resource Accreditation Design Whitepaper

Given the relatively small change represented by the Spring 2022 demand and energy forecasts (until near the end of the planning period), the forecasted 3.6 GW accredited capacity deficit, and the fact that MISO is fundamentally re-structuring its resource adequacy construct, the Department did not pursue updated EnCompass modeling to determine if there was a significant change in the size, type, and timing of the Company's resources needs. The Company's needs likely exceed the capability of the proposed Project even assuming a lower forecast.

iii. Status of the MISO GIQ

During Xcel's most recent IRP, the Department analyzed data regarding MISO's generation interconnection queue (GIQ) process. In August 2024 the Department updated portions of the IRP analysis by obtaining new data from MISO's website regarding each Definitive Planning Phases (DPP) group that was currently underway and for the most recently completed DPP groups.[23] As with the IRP analysis, the Department focused on the MISO West Study Area. The data obtained is sufficient to illustrate the timing issues still being encountered by projects in MISO's GIQ process.

The data focused on the initially announced and actual start dates for each DPP group. This data on starting dates illustrates the delays encountered by MISO in getting a DPP group started—in other words, the delay in the start of studying the group's impact on the transmission grid.

The data also included the estimated final date to execute a generation interconnection agreement (GIA) when each DPP group started and the actual final date (or most recent estimate) for executing a GIA. This data on final date to execute a GIA illustrates the delays encountered by MISO in getting a DPP group from the start to the end; in other words, the delay in processing the group.

The two sets of data are summarized below in Table 1. Table 1 shows that the recent study DPP groups in the West Study Area have all encountered substantial delays. The minimum delay encountered, for DPP-2022-Cycle 1, is well over a year

[23] MISO studies new generation projects in separate groups across several study areas. The MISO West Study Area includes Montana, North Dakota, South Dakota, Minnesota, Iowa, and western Wisconsin. At this time one group is established each year for MISO west. MISO DPP information can be found here: MISO DPP Information

Table 1: MISO West Study Area Group Start and End Dates[24]

West Region Study Groups	DPP Start			GIA Executed			Total Delay
	First Announced	Actual	Delay	At DPP Start	Actual	Delay	
DPP-2016-FEB	27-Jan-17	27-Jan-17	-	16-Jun-18	29-Mar-19	286	286
DPP-2016-AUG	16-Jun-17	12-Sep-17	88	21-Feb-19	01-Mar-20	374	462
DPP-2017-FEB	03-Nov-17	15-Oct-18	346	02-Mar-20	16-Mar-20	14	360
DPP-2017-AUG	23-Mar-18	12-Jun-19	446	05-Nov-20	13-Jan-22	434	880
DPP-2018-APR	10-Aug-18	09-Sep-19	395	28-Jan-21	11-May-22	468	863
DPP-2019-Cycle1	20-Dec-19	05-May-20	137	21-Jan-22	09-Jul-23	534	671
DPP-2020-Cycle1	03-Dec-20	06-Jan-21	34	27-May-22	02-Aug-24†	798	832
DPP-2021-Cycle1	20-Oct-21	08-Dec-21	49	26-Jun-23	03-Mar-25†	616	665
DPP-2022-Cycle1	14-Dec-22	27-Mar-23	103	17-Apr-24	24-Oct-25†	555	658

† Estimate as of August 1, 2024.

The 2017 (August), 2018, 2019, 2020, and 2021 DPP groups have all taken at least 3 years to move from the first estimated starting date to signing a GIA. If two years are needed for final permitting and construction of a project, then it would be reasonable to assume a five-year process for a project. This DPP group delay indicates that re-use of existing interconnection capability in order to avoid the MISO GIQ continues to be an important strategy.

The Department also obtained data on the capacity studied in each DPP group and the interconnection costs determined by the MISO studies. Table 2 below shows the capacity studied and the resulting costs from the published studies for all three DPP phases for the most recently completed DPP groups in the West Study Area.

Table 2: MISO West Study Group Results[25]

Study Group	NRIS MW			Average NRIS $ / MW			Maximum $,000 / MW		
	DPP1	DPP2	DPP3	DPP1	DPP2	DPP3	DPP1	DPP2	DPP3
DPP-16-Feb	5,387	4,567	3,302	$475	$135	$60	$1,164	$240	$159
DPP-16-Aug	5,618	2,400	2,302	$639	$141	$93	$1,923	$461	$134
DPP-17-Feb	3,421	1,394	245	$969	$1,966	$970	$2,089	$4,265	$1,211
DPP-17-Aug	4,819	3,594	600	$181	$679	$103	$609	$1,647	$247
DPP-18-Apr	8,023	4,240	953	$134	$225	$64	$606	$2,676	$226
DPP-19-Cycle1	8,126	5,428	2,515	$112	$238	$248	$954	$2,223	$1,008

[24] In re *2020-2034 Upper Midwest Integrated Resource Plan of N. States Power Co.*, Docket No. E002/RP-19-368, Comments of the Minnesota Department of Commerce at 39 (February 11, 2021) (eDocket no. 20212-170853-02).

[25] Department IRP Comment at 40.

Table 2 shows capacity is being evaluated in DPP3 stage but in limited quantities. Furthermore, the cost threshold at which projects drop out appears to be around $250,000 per MW for the three most recent groups.

Since the IRP analysis was completed, MISO has approved a large group of new, high voltage transmission lines, referred to as LRTP Tranche 1.[26] For the most part the LRTP Tranche 1 transmission is expected to be placed in-service by 2030. In addition, MISO appears to be near to seeking final approvals related to additional high voltage transmission lines via the MISO- Southwest Power Pool (SPP) Joint Targeted Interconnection Queue Study[27] (JTIQ) and LRTP Tranche 2.1. The JTIQ transmission lines are specifically designed to enable interconnection of new generation near the MISO-SPP border. Therefore, MISO is making significant progress towards expanding the transmission grid to enable new generation interconnection.

Overall, the updated analysis does not provide a sufficient basis to change the Department's conclusion in the IRP that Xcel's Commission-approved plan may not be achievable within the MISO GIQ construct due to continued delays in MISO's GIQ study groups in the West Study Area and high interconnection costs for new generation projects.

2. Conservation Impacts

Minnesota Rules 7849.0120 A (2) states that the Commission must consider "the effects of the applicant's existing or expected conservation programs and state and federal conservation programs."[28]

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[26] For details see MISO's LRTP page at: https://www.misoenergy.org/planning/long-range-transmission-planning/

[27] For details see MISO's JTIQ page at: https://www.misoenergy.org/engage/committees/miso-spp-joint-targeted-interconnection-queue-study/

[28] Note that Minnesota Statutes § 216B.243 subd. 3 states that, "[n]o proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures…"

Minnesota Statutes § 216B.243 subd. 3(2) requires the Commission to evaluate the "effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand."

Minnesota Statutes § 216B.243 subd. 3(6) requires the Commission to evaluate "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."

Minnesota Statutes § 216B.243 subd. 3(8) requires the Commission to evaluate "any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically."

Regarding this criterion Xcel states that "[t]he Project is needed to interconnect generation resources that will replace the capacity and energy of Sherco Units 1 and 3 and are required to both utilize existing interconnection rights and maximize the Sherco interconnection. Consequently, conservation and demand-side management cannot meet the need."

The Department notes that energy efficiency (EE) and demand response (DR) resources were taken into account in determining the quantity of new supply-side resources needed by Xcel. Regarding EE, the IRP Order at point 2 A 1 required Xcel to save at least 780 GWh via EE annually through 2034. In addition, the IRP Order at point 2 A 2 reiterated the requirement to acquire 400 MW of incremental DR by 2023 as ordered in the Company's last IRP.

Chapter 4 of the Petition discusses the Company's updated forecast of energy and demand requirements. Image 4.1 of the Petition shows the Company's IRP demand forecast, IRP demand forecast updated for Commission-ordered EE, and the spring 2022 demand forecast. In brief, the IRP demand forecast assumed a particular level of EE, but the Commission ultimately ordered additional EE. Xcel updated the old IRP forecast for the higher level of EE. This updated version of the old forecast was then compared by Xcel to the spring 2022 forecast. Xcel concluded that "after accounting for increased levels of DSM that were approved in the IRP, the updated 2022 load forecast result in a larger incremental resource need than the Company had anticipated in the IRP."[29] Note that Image 4.1 shows that the three forecasts do not appear to diverge significantly until after 2030.

Image 4.2 of the Petition shows the Company's IRP energy forecast, IRP energy forecast updated for Commission-ordered EE, and the Spring 2022 energy forecast.[30] As with the demand forecast discussed above, the IRP energy forecast assumed a particular level of EE, but the Commission ultimately ordered additional EE. Xcel updated the old IRP forecast for the higher level of EE. This updated version of the old forecast was again compared by Xcel to the spring 2022 forecast. As with the demand forecast, the Spring 2022 energy forecast is higher than the IRP energy forecast after Xcel's adjustment for changes to conservation. Note that Image 4.2 shows that the three forecasts do not appear to diverge significantly until after 2030.

Based upon this data, the Department concludes that the effects of Xcel's existing and expected EE and DR programs were considered when determining its needs, and, considering the scale of the need, reasonable changes in EE and DR will not significantly change the overall need to re-use the Sherco interconnection.

[29] CN Petition at 46.

[30] CN Petition at 48.

3. Promotional Practices

Minnesota Rules 7849.0120 A (3) states that the Commission must consider "the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974."[31]

The Petition on page 21 states "Xcel Energy has not conducted any promotional activities or events that have triggered the need for the Project." In addition, Xcel indicates at page 21 that proposed Project is not needed due to growth in demand. Rather, the proposed Project is needed to meet existing energy needs, irrespective of the future growth rate, and also needed to enable Xcel to retain and reuse the interconnection rights connected to Sherco Units 1 and 3.

Finally, the Department notes Xcel's statement that "[t]he Spring 2022 peak corporate demand forecast for this update shows an average annual growth rate of 0.02% from 2022 through 2034." Regarding the energy forecast, Xcel states that "the Spring 2022 forecast is calling for approximately -0.2% growth over the full 2022-2034 planning period." Thus, the demand forecast shows essentially no growth, and the energy forecast shows a reduction in requirements.

Based upon this information, the Department concludes that promotional practices of the applicant did not give rise to the needs claimed in this proceeding.

4. Non-CN Facilities Analysis

Minnesota Rules 7849.0120 A (4) states that the Commission is to consider "the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand."[32]

It is not possible that current facilities and planned facilities not requiring a CN could meet the identified need. This is because all of Xcel's current generation facilities were considered in the EnCompass modeling that formed the basis for the Commission's determination that more than 5 GW of new generation was needed by Xcel. In addition, all of Xcel's planned generation facilities (whether or not they required a CN) were considered in the EnCompass modeling.

Based upon this analysis the Department concludes that current facilities and planned facilities not requiring a CN will be unable to meet the claimed need.

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[31] Note that Minnesota Statutes § 216B.243 subd. 3(4) requires the Commission to evaluate promotional activities that may have given rise to the demand for this facility.

[32] Note that Minnesota Statutes § 216B.243 subd. 3(6) requires the Commission to evaluate alternatives for satisfying the energy demand or transmission needs including but not limited to upgrading of existing energy generation and transmission facilities and distributed generation.

5. Efficient Use of Resources

Minnesota Rules 7849.0120 A (5) states that the Commission is to consider "the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources."

The Petition states that the proposed Project is needed to enable the Company to reuse existing interconnection rights at the Sherco site after the coal-generating units retire.[33] In essence, the proposed Project will enable the Company to use the interconnection rights at Sherco while simultaneously using the wind and solar resources in Lyon County and potentially at a variety of sites along the line. The proposed Project will simultaneously enable Xcel to make efficient use of existing interconnection rights and the states' wind and solar resources.

The Department concludes that the proposed facility will make efficient use of existing interconnection and renewable generation resources.

6. Department Conclusion

Based upon the above analysis, the Department concludes that the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the Company, to the Company's customers, and to the people of Minnesota and neighboring states.

B. ALTERNATIVES ANALYSIS

Minnesota Rules 7849.0120 B requires the Commission to determine "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record." The rule then lists four specific considerations. The Department addresses each consideration separately below.

1. Size, Type, and Timing

Minnesota Rules 7849.0120 B (1) states that the Commission must consider "the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives."

i. Size

Regarding size, the Department discussed the definition of size (as well as type and timing) in the context of transmission lines in the Department's January 28, 2013 comments in Docket No.

[33] CN Petition at 14.

ET6675/CN-11-826.[34] In that proceeding, the Department defined "size" as referring to "the quantity of power transfers that the transmission infrastructure improvement enables." The Department maintains this interpretation.

According to Xcel, using 3,000-amp substation equipment, a double circuit 345 kV line has a capacity of 3,581 megavolt amperes (MVA). In comparison, a single 500 kV line has a capacity of 2,595 MVA while a double circuit 500 kV would be able to carry equal or more energy than the double circuit 345 kV line. Xcel states that the objective of the Project is "enabling the predictable and cost-effective interconnection and delivery" of generation to the Sherco Substation point of interconnection (POI). Because the 500 kV alternatives are more costly than the double circuit 345 kV line, they are not a prudent alternative.[35]

Regarding lower voltages, a double circuit 230 kV line could operate at the required 3,000-amp capacity but would generate more than double the losses of a comparable 345 kV option. Finally, voltage levels of 69 kV and 115 kV cannot provide the necessary amperage and were not evaluated.[36] Therefore, the Department concludes that the size of the proposed Project is not excessive and therefore is reasonable.

The claimed need for the proposed Project is to interconnect new generation while allowing the re-use of its existing interconnection rights at the Sherco Substation located in Becker, Minnesota. Based upon review of the Petition, the Department concludes that generation alternatives do not meet the claimed need for the Project. Moreover, upgrading existing transmission lines or generation facilities cannot meet the identified need as they do not allow for new generation to be interconnected to the Sherco Substation POI.

In summary, the Department concludes that the Company's proposed size is reasonable.

ii. Type

As noted above, the Department discussed the definition of type in the context of transmission lines in the Department's January 28, 2013 comments in Docket No. ET6675/CN-11-826.[37] In that proceeding the Department interpreted "type" as referring to "the transformer nominal voltages, rated capacity,

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[34] in re *Application for a Certificate of Need for the Upgrade of the Southwest Twin Cities Chaska Area 69 Kilovolt Transmission Line to 115 Kilovolt Capacity*, Docket No. E002/CN-11-826, Comments of the Minnesota Department of Commerce at 15 (January 28, 2013) (eDocket no. 20131-83242-01).

[35] See the Petition at pages 72-73 for cost details.

[36] The Petition on page 72 states, "[t]o deliver 1,996 MW of energy to the Sherco POI, the transmission facilities must be capable of transferring the entirety of the needed energy on one or two lines utilizing a minimum of 3,000 Amps substation equipment."

[37] Department Chaska CN Comment at 15.

surge impedance loading (SIL), and nature (AC or DC) of power transported." The Department maintains this interpretation.

Regarding nominal voltages, 345 kV is the standard high voltage used in Minnesota for long-distance transfer projects. Over the past two decades, several 345 kV projects have been approved by the Commission and constructed.[38] The Petition discusses 500 kV alternatives as follows:

> For higher voltages, Xcel Energy analyzed a single circuit 500 kV line option, Option 10. The analysis showed that while a single circuit 500 kV line could transfer a large amount of power, it did not perform as well as the 345 kV/345 kV Option 9 option. The single circuit 500 kV would transfer up to approximately 1,900 MW before the system would become unstable. The 500 kV option would also be more costly. For comparison, a single circuit 500 kV line would generally cost approximately $4.1 million per mile and require four 500 kV/345 kV transformers at Sherco (costing an additional $75 million). A double circuit 500 kV line would be able to carry equal to or more energy than Option 9, but would cost approximately $4.5 million to $5 million per mile. In contrast, the indicative cost for a 345 kV/345 kV line is approximately $3.5 million per mile.

The capacity of a double circuit 345 kV line is higher than a single circuit 500 kV line (3,581 MVA vs 2,595 MVA), and "the impedance of a double circuit 345 kV line, i.e., the losses, is only 5% higher than a single circuit 500 kV line."[39] Finally, while Minnesota has two 500 kV transmission lines, neither is located in southwest Minnesota, where the Terminal Substation is located.

As mentioned above, the Company did not consider 69 kV and/or 115 kV lines since those sizes cannot provide the necessary 3,000 Amps and the Department agrees with this position. The Company screened from consideration higher voltages, such as 765 kV, because "they do not exist in Minnesota and because a single circuit 765 kV line costs far more than a double circuit 345 kV line."[40] Additionally, lines would require transformers to convert the voltage to 345 kV for the interconnection to the Sherco POI. The Department agrees with the decision to disregard 765 kV. Once a double circuit 345 kV line is able to meet the Project needs of interconnecting 1,996 MW to the Sherco Substation POI, and

[38] For examples see Docket Nos. E002, ET6675/CN-17-184 for the Huntley –Wilmarth 345 kV Transmission Line Project; ET6675/CN-12-1053 for the Minnesota-Iowa 345 kV Transmission Line Project; E002, ET2/CN-06-1115 for the CapX 345-kV Transmission Projects; and E002/CN-01-1958 for Four Large High Voltage Transmission Line Projects in Southwestern Minnesota.

[39] CN Petition at 72.

[40] CN Petition at 73.

up to 2,182 MW[41]—the Company's preferred option 9a—after losses, at lower cost, the Department concludes that the alternative using a double circuit 345 kV line is reasonable.

Regarding the nature of power transmission, alternating current (AC) is to be used for the proposed Project. The Petition states the following about the advantages of AC over high voltage direct current (HVDC) in this case:

> A high voltage direct current (HVDC) transmission line is generally employed to deliver generation over a considerable distance, more than 300 miles, to a load center. HVDC systems typically do not allow for cost-effective interconnections along the line.
>
> The technologies[42] have different performance benefits and would require a converter station on each end of the line to convert the voltage from AC to DC and DC to AC.
>
> … estimates the cost (2023$) of a 2,000-2,4000 MW HVDC line to be in the range of $1.4B-$1.7B…

Based upon the estimated cost of the HVDC line, assuming the shorter route length of 165 miles, compared to preferred option estimated cost of $1.139B[43], the Department agrees with the Company's conclusion that AC is preferable to HVDC in this case.

Also, regarding the nature of transport, both AC and HVDC underground transmission are not feasible or reasonable alternatives. The Petition states the reasons why underground AC should be disregarded:

> > High voltage AC underground systems at 345 kV are generally limited in length to approximately 50 miles …
> >
> > While longer installations can be constructed … practical applications of underground AC lines for more than 50 miles are technically infeasible.

According to the Petition, while HVDC cable systems can be used for underground lines of 100 miles or more and have much lower line losses compared to high voltage AC when using comparable conductor, these systems "require converter stations on each end of the line to convert the voltage

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[41] CN Petition at Table 5.2 (page 65).

[42] The Company mentions two technologies of HVDC as the dominant types for transferring large amounts of power: Line Commutated Converter (LCC) and Voltage Source Converter (VSC).

[43] CN Petition at Table 2.2 (page 29).

from DC to AC and AC to DC." The Petition estimates the cost for underground HVDC over 100 miles at $25 million or more per mile – construction costs for underground high voltage AC systems are estimated to be similar – making this alternative considerably more expensive than the preferred Option 9a at $3.8 million per mile. Based upon this, the Department agrees with the Company's conclusion that underground transmission should not be considered.

In summary, the Department concludes that the Company's proposed type is reasonable.

iii. Timing

As noted above, the Department discussed the definition of timing in the context of transmission lines in the Department's January 28, 2013 comments in Docket No. ET6675/CN-11-826. In that proceeding, the Department interpreted "timing" as referring to "the on-line date for the transmission infrastructure improvements."[44] The Department maintains this interpretation.

Table 2.6 of the Petition shows an in-service date of September 30, 2027.[45] As discussed above the claimed need for the project is to interconnect new generation to the existing Sherco Substation in anticipation of the retirement of the coal-powered generators at Sherco. MISO rules[46] require replacement generation to achieve commercial operation within three years of the closure date of the existing facility. As a result, the Project needs to be in-service on or before 2029.[47] Therefore, the timing of the Project approximately matches the retirements that trigger the need.

In summary, the Department concludes that the Company's proposed timing is reasonable.

2. Cost Analysis

Minnesota Rules 7849.0120 B (2) states that the Commission is to consider "the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives."

The size, type, and timing analysis show that the most realistic alternative is a double-circuit 345 kV line. Table 2.2 of the Petition shows the total cost of the Project at $1.139 billion and a transmission

[44] Department Chaska CN Comment at 15.

[45] CN Petition at 33.

[46] See MISO Tariff, Attachment X.

[47] Last possible commercial operation date of replacement generation facility of the last Sherco generation unit to retire (Table 1.1).

line cost of approximately $3.8 million per mile[48] in 2023 dollars. For comparison, the Petition presents the cost of a single-circuit 500 kV alternative at approximately $4.1 million per mile (2023$), and that of a double-circuit 500 kV alternative at approximately $4.5 million to $5 million per mile (2023$). In the case of a single-circuit 500 kV line, four 500 kV/345 kV transformers are required, costing an additional $75 million. Assuming a single-circuit 500 kV line is built—instead of a double-circuit 345 kV line—translates into an estimated $129,000,000 (2023$) difference in capital costs.[49]

In total, the Petition presents ten options and two suboptions—options 9a and 9b. Options 1 to 9, 9a, and 9b are 345 kV while option 10 is 500 kV.[50] The options deliver from 663 MW to 2,396 MW (after accounting for losses). The identified need is to deliver at least 1,996 MW of energy to the Sherco Substation POI, options 1 to 5, single-circuit 345 kV, deliver from 663 MW to 1,500 MW, so they do not meet the identified need. Similarly, options 6 and 7, double-circuit 345 kV, and option 10, single-circuit 500 kV, also do not meet the identified need as they deliver from 1,142 MW to 1,763 MW. Only options 8, 9, 9a, and 9b meet the identified need of delivering at least 1,996 MW.

According to the Petition, for the purpose of comparing costs (2023$), Options 8 and 9 were estimated at $840 million, Option 9a was estimated at $930 million, and Option 9b was estimated at $970 million[51] (all costs exclusive of allowance for funds used during construction (AFUDC) and contingencies). Although Options 8 and 9 have lower costs, the Company prefers Options 9a and 9b to Options 8 and 9:

> Option 9a and 9b are preferred over Option 8 and Option 9 because they include STATCOMs to address potential turbine interaction issues that may occur due to the amount of anticipated wind generation, the high levels of series compensation and radial nature of the Project.

The Petition states on page 68 that "series compensation is a lower cost technology than STATCOMs,"[52] hence Option 9a has a lower cost. Furthermore "combining lower levels of series compensation with STATCOMs [Option 9a] was shown to mitigate SSR [Sub-Synchronous Resonance] and SSCI [Sub-Synchronous Controller Interaction] issues in initial studies," and Option 9a provides

[48] Chapter 2 of the Petition states "To prepare a cost estimate for the transmission line portions of the Project, Xcel Energy relied in part upon the actual costs incurred for constructing the Huntley-Wilmarth 345 kV Project …"

[49] This difference in costs does not account for other differences in the projects, for example, the proposed single-circuit 500 kV line has no STATCOMs.

[50] The summary of the results can be found on Table 5.2. of the Petition.

[51] The Company's response to Department Information Request No. 5 stated "the difference is $40 million due to the cost difference between equipment options for voltage support …"

[52] CN Petition at 68.

more MWs of capacity (2,181 MW) than Option 9b (2,027 MW). Therefore, the Department agrees with Xcel's choice of Option 9a as the preferred option.

Based upon this analysis, the Department concludes that the Company's proposed Project is the least cost alternative, and that voltage support technology to bolster the double-circuit 345 kV line is reasonable.

3. Natural and Socioeconomic Environments Analysis

Minnesota Rules 7849.0120 B (3) states that the Commission is to consider "the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives."

The Petition on page 20 states that:

> The Company's approved Resource Plan including the Project achieves substantially more carbon reduction than cases in which the Project is not included.

Department Information Request No. 8 requested the Company provide a calculation of the CO_2 emissions for the proposed Project and for the no-build alternative, considering in both cases the approved Resource Plan. Xcel stated:

> The table shows the CO_2 emissions from the Alternate Plan compared against Scenario 9 (Supplement Preferred Plan) and Scenario 1 (Reference Case). The Alternate Plan includes the proposed project. Scenario 9 (Supplement Preferred Plan) and Scenario 1 (Reference Case) do not.[53]

	Scenario 1 (Reply)	**Scenario 9 (Supplement Preferred Plan)**	**Alternate Plan**
Total	131,420,991	122,686,056	111,007,843
Delta Vs. Alternate Plan (CO_2 Tons)	20,413,148	11,678,213	

[53] Totals and Deltas were calculated using the data provided on Information Requested № 8 and vary slightly from the ones informed. We believe these differences are due to rounding error.

Based on the estimates provided, it is clear that the "Alternate Plan"—the approved Resource Plan, including the Project—results in an estimated reduction on the amount of CO_2 emissions of 11,678,213 tons compared to the "Scenario 9 (Supplement Preferred Plan)." Notably, the estimated reduction resulting from building the Project is greater than the emissions reduction resulting from following "Scenario 9 (Supplement Preferred Plan)" instead of "Scenario 1 (Reply)," the alternative to the Resource Plan, which is 8,734,935 CO_2 tons.[54]

From the analysis cited above the Department concludes that the Company's estimated CO_2 reduction has a substantial impact.

4. Reliability Analysis

Minnesota Rules 7849.0120 B (4) states that the Commission is to consider "the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives."

The identified need for the proposed Project to be able to connect at least 1,996 MW to the Sherco POI. Only options 8, 9, 9a, and 9b meet the identified. According to the Company, "Options 9 and 9a have the potential do deliver more energy than Option 8 and differ only in the way the synchronous condensers are connected." According to the Company, "high levels of series compensation on long radial lines have known potential Sub-Synchronous Resonance (SSR) and Sub-Synchronous Controller Interaction (SSCI) issues with current wind turbine technologies."[55] As a result the Petition studies combinations of series compensation and STATSCOMs to address this issue. Specifically, Option 9, 9a, and 9b use different voltage support technologies. As discussed above, Xcel prefers Options 9a and 9b to Options 8 and 9, since those options include STATSCOMs.

Option 9a has each line compensated to 20% and required one 150 MVAR STATCOM per line, while Option 9b uses two 175 MVAR STATCOMs per line to achieve 1,996 MW. As discussed above, while both Options 9a and 9b include voltage support technology to mitigate the effects of SSR and SSCI, Option 9a provides more MW of capacity at a lower cost.

The Company considered several other alternatives such as generation, demand-side management, non-CN alternatives, DC lines, and a no-build alternative. Since the need for the proposed Project is to connect new generation to the existing Sherco Substation to re-use the interconnection rights that will become available as the coal units at Sherco retire, none of these alternatives is a suitable replacement for the preferred Option 9a—a double-circuit 345 kV line with voltage support technology.

[54] The delta between "Scenario 9" and "Alternate Plan" is 11,678,213 (= 122,686,056 – 111,007,843), and the delta between "Scenario 1" and "Scenario 9" is 8,743,935 (= 131,420,991 – 122,686,056).

[55] CN Petition at 67.

Based upon a review of the Company's Petition, the Department concludes that the alternatives to the proposed Project would result in equivalent or inferior reliability.

5. Department Conclusion

Based upon the above analysis, the Department concludes that a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record.

C. PROTECTING THE NATURAL AND SOCIOECONOMIC ENVIRONMENTS

Minnesota Rules 7849.0120 C requires the Commission to determine, "by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health." The rule then lists four specific considerations. The Department addresses each consideration separately below.

1. Overall State Needs

Minnesota Rules 7849.0120 C (1) states that the Commission shall evaluate "the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs."[56]

The Petition states that the Project is needed because:

> [it] will support Xcel Energy's and the State's transition to clean energy by enabling the predictable and cost-effective interconnection and delivery of at least 1,996 megawatts (MW) of generation to the Sherco Substation point of interconnection (POI), providing necessary energy resources and optimizing the reuse of the Company's interconnection rights that will become available as the coal units at Sherco retire by the end of 2030.

The Department agrees with the Company that the proposed Project is relevant due to the timing issues still being encountered by projects in MISO's GIQ process. Moreover, the proposed Project plans to interconnect renewable generation replacing coal-generation, a replacement that will contribute to Minnesota's goals established by Minnesota Statutes § 216B.1691 subd. 2g. Beyond that, Xcel has an accredited capacity deficit for all the years starting 2025 until 2032, reaching its peak of about 3.6 GW in 2032, before any new actions are taken, according to Table 4.2 of the Petition.[57] Although Xcel's

[56] Note that Minnesota Statutes § 216B.243 subd. 3(3) requires the Commission to evaluate the relationship of the proposed facility to overall state energy needs.

[57] CN Petition at 53.

needs likely exceed the capability of the proposed Project, as mentioned above, the Department concludes that it would be more difficult for Xcel to provide reliable and cost-effective service without the proposed Project.

2. Effects on Natural and Socioeconomic Environments

Minnesota Rules 7849.0120 C (2) states that the Commission shall evaluate "[t]he effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility."

As noted above, the Department relies on its ER for its socioeconomic analysis in a CN proceeding. The ER provides information related to the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of not building the facility. The Department recommends that the Commission consider the ER filed by Department-EERA in the Commission's decision in this matter.

3. Induced Development

Minnesota Rules 7849.0120 C (2) states that, in assessing need, the Commission shall evaluate "the effects of the proposed facility, or a suitable modification thereof, in inducing future development."

As noted above, the Department relies on the ER for its socioeconomic analysis in a CN proceeding. The ER provides information related to inducing future development. The Department recommends that the Commission consider the ER filed by Department-EERA in the Commission's decision in this matter.

4. Socially Beneficial Uses

Minnesota Rules 7849.0120 C (4) states that, in assessing need, the Commission shall evaluate "the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality."[58]

As noted above, the Department relies on the ER for its socioeconomic analysis in a CN proceeding. The ER provides information related to enhance environmental quality. The Department recommends that the Commission consider the ER filed by Department-EERA in the Commission's decision in this matter.

[58] Note that Minnesota Statutes § 216B.243 subd. 3(5) requires the Commission to evaluate benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region.

D. OTHER PERMITS

Minnesota Rules 7849.0120 D requires the Commission to determine that "the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments."[59] This rule does not list any specific considerations.

Chapter 8 of the Petition discusses numerous permits and approvals that may be required for the proposed Project.[60] The Department reviewed the information on potentially required permits. Regarding the permits required by other agencies, the Department presumes that the various agencies will review and confirm that the Company is in compliance prior to granting their permits. The Department relies upon the agencies to enforce their requirements. Of course, should any necessary permits be denied, the proposed Project will not be constructed, regardless of the Commission's decision regarding the Petition.

Based upon the above discussion, the Department concludes that the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

E. POLICY ANALYSIS

There are several remaining criteria in statutes and rules that are applicable to a CN but do not closely fit into the rule decision criteria discussed above. Therefore, these criteria are grouped into a final category of policy considerations.

1. Robustness of the Transmission System

Minnesota Statutes § 216B.243, subd. 3 (9) states that the Commission shall evaluate "with respect to a high-voltage transmission line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota."

The proposed project will have several benefits related to the regional transmission system. The Petition on page 40 states:

[59] Note that Minnesota Statutes § 216B.243 subd. 3(7) requires the Commission to evaluate the policies, rules, and regulations of other state and federal agencies and local governments.

[60] CN Petition at 139.

> Interconnection rights are a valuable asset in part because the regional transmission grid is congested: there is not currently enough transmission capacity on the regional system to accommodate all the renewable energy projects that wish to interconnect. Although additional infrastructure is planned, interconnection delays and high estimated upgrade costs are expected to persist. Therefore, reusing available, existing interconnection rights can speed the addition of renewable energy resources, in this case, replace retiring thermal generation.

The project will allow the delivery of the required 1,996 MW at the Sherco POI, with a potential of connecting up to 4,000 MW, "if the generation is a combination of resources, wind, solar, combustion turbine, and/or batteries," done in a timely manner to allow Xcel Energy to retain the interconnection rights at Sherco while meeting customer needs. In Table 2.4 of the Petition, we observe an increase on the estimated monthly bill impact across all classes of customers.[61] However, the Petition states, "the Project will enable the addition of more cost-effective renewable generation, the impact on customer bills would be mitigated by the cost-beneficial renewables over the long term."[62]

In summary, the Department concludes that the proposed Project will have substantial benefits in terms of enhanced access and deliverability improving the robustness of the transmission system.

2. Renewable Preference

There are two sections of Minnesota Statutes that provide a preference for renewable resources in resource planning and resource acquisition decisions. First, Minnesota Statutes § 216B.243, subd. 3a states that:

> The Commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the Commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this Subdivision, "renewable

[61] CN Petition at 31.

[62] CN Petition at 30-31.

> energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel. [63]

Second, Minnesota Statutes § 216B.2422, subd. 4 states that:

> The Commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the Commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest.

The Department notes that the proposed Project aims at interconnecting new renewable generation to the Sherco Substation that guarantees the reuse of Xcel's interconnection rights at the Sherco location.[64] Therefore, it could reasonably be stated that these renewable preference statutes do not apply.

According to the IRP Order, Xcel needs to acquire, by 2026, 720 MW of company-owned solar-powered generation to reuse Sherco Unit 2's interconnection rights.[65] Moreover, between 2026 and 2032, Xcel needs to acquire approximately 600 MW solar-powered generation and 2,150 MW of wind-powered generation, from which 1,300 MW can be met with company-owned wind, solar, and/or storage to fully reutilize the Sherco Unit 1 and Unit 3 interconnection.[66] It is by connecting new generation through the proposed Project that Xcel will be able to reuse the interconnection rights. Beyond that, while the Project cannot be substituted for by generation alone, it has the potential to connect a quantity of renewable-generated energy greater than that required to reuse the existing interconnection rights.[67]

In summary, the Department concludes that renewable generation is not a reasonable alternative, and this statutory criterion has been met.

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[63] Note that Minnesota Statutes § 216B.243 subd. 3(11) also requires the Commission to evaluate whether an applicant has made the demonstrations required under this subdivision.

[64] The Department recognizes that non-renewable generation may be interconnected using the proposed Project. See Docket No. E002/CN-23-212 for details.

[65] IRP Order at 31.

[66] IRP Order at 31.

[67] The Petition states on page 58 "The amount of generation interconnected, however, could be substantially greater (in the Company's Plan, approximately 4,000 MW) if the generation is a combination of resources, wind, solar, combustion turbine, and/or batteries."

3. Distributed Generation Analysis

Minnesota Statutes § 216B.2426 states that:

> The Commission shall ensure that opportunities for the installation of distributed generation, as that term is defined in section 216B.169, Subdivision 1, paragraph (c), are considered in any proceeding under section 216B.2422, 216B.2425, or 216B.243.

Minnesota Statutes § 216B.169 states:

> For the purposes of this section, the following terms have the meanings given them […] (c) "High-efficiency, low-emission, distributed generation" means a distributed generation facility of no more than ten megawatts of interconnected capacity that is certified by the commissioner under Subdivision 3 as a high efficiency, low- emission facility.

Any applicable distributed generation (DG) would be reflected in the Company's and MISO's models used to analyze the project. Any DG sited in the local area would impact the rate of local load growth the Company would need to serve. However, there is no reason to believe the impacts of DG would be significant. Therefore, the Department concludes that this statutory criterion has been met.

4. Innovative Energy Project (IEP) Preference

Minnesota Statutes § 216B.1694, subd. 2 (a) (4) states that an IEP:

> … shall, prior to the approval by the commission of any arrangement to build or expand a fossil-fuel-fired generation facility, or to enter into an agreement to purchase capacity or energy from such a facility for a term exceeding five years, be considered as a supply option for the generation facility, and the commission shall ensure such consideration and take any action with respect to such supply proposal that it deems to be in the best interest of ratepayers.

This statute does not apply since the proposed facility in question is a transmission line rather than a generating facility and will not directly result in building or expanding a fossil-fuel-fired generation facility.

5. RES Compliance

Minnesota Statutes § 216B.243, subd. 3 (10) states that the Commission shall evaluate "whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691." In turn,

Minnesota Statutes §216B.1691, subd. 2a (a) states that each electric utility shall provide retail customers in Minnesota the following percentages of total retail electric sales from energy generated by renewable energy technologies:

1) 2012 12 percent;
2) 2016 17 percent;
3) 2020 20 percent;
4) 2025 25 percent; and
5) 2035 55 percent.

In addition, Minnesota Statutes § 216B.1691 subd. 2f requires that public utilities such as Xcel generate or procure solar energy equal to at least 1.5 percent of Minnesota retail sales by the end of 2020. At least ten percent of the 1.5 percent goal must be generated by or procured from solar photovoltaic devices with a nameplate capacity of 40 kW or less. The solar energy standard (SES) statute (Minn. Stat. § 216B.1691, subd. 2(f)) excludes certain retail sales to iron mining, paper, and wood products manufacturers from the calculation of the SES requirement.

The Department reviews historical compliance with the RES statute in a biennial report to the legislature. The most recent report was the *Minnesota Renewable Energy Standard: Utility Compliance* (RES Report), filed January 12, 2023.[68] The RES Report concluded that, "[a]ll of the utilities subject to the Minnesota Renewable Energy Standard have demonstrated compliance with the 2021 Renewable Energy Standard requirements." Thus, Xcel met the 2021 requirement. Regarding future compliance, the Department notes that Table 3 of the RES Report estimates Xcel can comply through 2040.[69]

Regarding the SES, the RES Report at Table 2 showed that Xcel met the overall SES and the small solar carve out section of the SES in 2021.[70] Moreover, the IRP Order directed Xcel to acquire by 2026 approximately 720 MW of Company-owned solar-powered generation—to reutilize the Sherco Unit 2 interconnection rights—and, between 2027 and 2032, approximately 600 MW more of solar-powered generation and 2,150 MW of wind-powered generation—or an equivalent amount of energy and capacity from a combination of wind, solar, and/or storage, out of which approximately 1,300 MW of this need may be met through 1,300 MW of Company-owned generation to fully reutilize the Sherco Unit 1 and Unit 3 interconnections.[71] Overall, these plans strengthen the claim that Xcel should be able to satisfy the statute. Therefore, the Department concludes that this statutory criterion has been met.

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[68] The report is available at: https://www.lrl.mn.gov/docs/2023/mandated/230009.pdf

[69] The report is available at: https://www.lrl.mn.gov/docs/2023/mandated/230009.pdf

[70] The report is available at: https://www.lrl.mn.gov/docs/2023/mandated/230009.pdf

[71] IRP Order at 31.

6. Environmental Cost Planning

Minnesota Statutes § 216B.243, subd. 3 (12) states that the Commission shall evaluate "if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk."

In this case, the Company is proposing a transmission line, not a generating plant. Moreover, this line is not proposed to interconnect any particular new generating plant. Therefore, the Department concludes that this statute does not apply.

7. Statewide Power Sector Carbon Dioxide Emissions

Minnesota Statutes § 216H.03, subd. 3 states that, "[u]nless preempted by federal law, until a comprehensive and enforceable state law or rule pertaining to greenhouse gases that directly limits and substantially reduces, over time, statewide power sector carbon dioxide emissions is enacted and in effect, and except as allowed in Subdivisions 4 to 7, on and after August 1, 2009, no person shall construct within the state a new large energy facility that would contribute to statewide power sector carbon dioxide emissions."

Note that Minnesota Statutes § 216H.03, subd. 3 has, as a precondition: "until a comprehensive and enforceable state law or rule pertaining to greenhouse gases that directly limits and substantially reduces, over time, statewide power sector carbon dioxide emissions is enacted and in effect […]. Following the passage of the state's carbon-free energy targets in Minnesota Statutes § 216B.1691 subd. 2g (Carbon-free standard) the Commission has determined that this section is no longer applicable as the state has an enforceable law that limits statewide power sector carbon dioxide emissions.[72]

8. Local Job Impacts

Minnesota Statutes § 216B.2422, subd. 4a states:

> The commission must consider local job impacts and give preference to proposals that maximize the creation of construction employment opportunities for local workers, consistent with the public interest, when evaluating any utility proposal that involves the selection or construction of facilities used to generate or deliver energy to serve the utility's customers, including but not limited to an integrated resource plan, a

[72] In re *Xcel Energy's Competitive Resource Acquisition Process for up to 800 Megawatts of Firm Dispatchable Generation,* Docket No. E002/CN-23-212, Order Approving Petition and Requiring Compliance Filing (November 3, 2023) (eDocket No. 202311-200215-01).

> certificate of need, a power purchase agreement, or commission approval of a new or refurbished electric generation facility. The commission must, to the maximum extent possible, prioritize the hiring of workers from communities hosting retiring electric generation facilities, including workers previously employed at the retiring facilities.

At this time there are no alternative proposals to consider, only the proposed Project. The Petition states that the workforce required for construction of the proposed Project is estimated to be approximately 100 to 200 construction workers.[73] In addition, the Petition states potential short-term benefits such as, "creation of construction jobs, purchases of construction material and other goods from local business, and expenditures on temporary housing for non-local personal," and "use of local personnel and construction material retailers during construction of the Project."[74] Moreover, the Company states an intention to "work with local communities to identify opportunities for further enhancing the socioeconomic benefits of the Project."[75] Finally, the Petition indicates that one to two workers are required to perform annual aerial inspections and three workers to perform ground inspections—every four years.

In summary, the Department concludes that the Company has adequately addressed this statutory requirement.

9. Domestic Content Preference

Minnesota Statutes § 216B.2422, subd. 4b states, "[t]he commission may give preference in resource selection to projects utilizing energy technologies produced domestically by entities who received an advanced manufacturing tax credit for those technologies under section 45X of the Internal Revenue Code, as allowed under the federal Inflation Reduction Act of 2022, Public Law 117-169."

The Department understands that section 45X of the Internal Revenue Code generally applies to generation projects rather than transmission projects. Therefore, the Department concludes that this statute does not apply.

10. Inflation Reduction Act Compliance

The Commission's September 12, 2023 *Order Setting Requirements Related to Inflation Reduction Act* in E,G999/CI-22-624 at point 1 states:

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[73] CN Petition at 92.

[74] CN Petition at 129-130.

[75] CN Petition at 130.

> The utilities shall maximize the benefits of the Inflation Reduction Act in future resource acquisitions and requests for proposals in the planning phase, petitions for cost recovery through riders and rate cases, resource plans, gas resource plans, integrated distribution plans, and Natural Gas Innovation Act innovation plans. In such filings, utilities shall discuss how they plan to capture and maximize the benefits from the Act, and how the Act has impacted planning assumptions including (but not limited to) the predicted cost of assets and projects and the adoption rates of electric vehicles, distributed energy resources, and other electrification measures. Reporting shall continue until 2032.[76]

The Department Information Request No. 9 requested the Company provides a response to this requirement. Xcel stated:

> Xcel Energy does not believe that a certificate of need docket for a transmission line can be construed as a resource acquisition proceeding, but answers that it continues to work internally and with stakeholders to maximize the value of the IRA clean energy incentives. The clean energy tax credit provisions included in the IRA support our continued build out of renewable resources on our system. While the Minnesota Energy Connection (MNEC) itself does not qualify for the IRA, it enables the Company to utilize more renewable generation that does qualify for the IRA.
>
> A detailed set of information about how the Company maximizes the benefits of the Inflation Reduction Act can be found in the Company's 2024-2040 Upper Midwest Integrated Resource Plan (IRP) filed with the Minnesota Public Utilities Commission on February 1, 2024 in Docket № E002/RP-24-67. The IRP is one of the primary venues through which the Company has been able to utilize the benefits of the IRA clean energy tax credits. The Company's Preferred Plan, which includes the MNEC and generation projects interconnected with MNEC, includes as estimated $700 million in savings between 2024 and 2029, with over $5 billion between 2030 and 2040, for a total of $5.7 billion in estimated savings from the IRA.[77]

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[76] In re *Joint Investigation into the Impacts of the Federal Inflation Reduction Act*, Docket No. E,G999/CI-22-624, Order Setting Requirements related to Inflation Reduction Act at 12 (September 12, 2023) (eDocket No. 20239-198869-01).

[77] Estimated PTC/ITC amount are based on the preferred plan with PVSC dispatch results assuming the NREL 2023 ATB assumed tax credit schedule and qualifying for full tax credits. Actual earned tax credits might differ from these estimates due to curtailment and other conditions.

The Department agrees with Xcel that section 45X of the Internal Revenue Code generally applies to generation projects rather than transmission projects. Moreover, the Department recognizes the Company's effort to go a step further, citing their commitment to maximizing the benefits of the IRA through their IRP. Therefore, the Department concludes that this statute does not apply.

F. CONDITIONS

Utility cost estimates are used extensively in CN and other regulatory proceedings and provide a strong basis for the Commission to hold utilities accountable to the costs they represent for facilities, particularly since CNs consider alternatives to proposed projects. In its role to ensure that rates are reasonable, the Commission has generally not allowed approval of projects in CN proceedings to constitute a "blank check" for cost recovery in riders when actual costs are greater than the estimated costs the utilities represented in regulatory approval proceedings.[78]

To implement ratepayer protections, once the Commission determines the costs of the proposed Project based on its decisions regarding route alternatives, the Department recommends the Commission hold Xcel accountable by requiring Xcel to:

1) provide a final number or cap amount within 60 days of the Commission's Order determining the route;
2) wait until the first rate case after the proposed Project is placed in-service to recover any cost overruns from Minnesota ratepayers; and
3) justify fully the reasonableness of recovering any cost overruns of the proposed Project from Minnesota ratepayers.

These conditions mean that Xcel should be allowed to recover costs up to the level of the cost estimate the Commission approves for the proposed Project without further Commission action.

G. COMMISSION'S NOTICE

The first issue specified in the Notice is, "Should the Commission grant a certificate of need for the proposed project?" Should the Commission find, after consideration of the ER, that the proposed facility "will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health," the Department recommends that the Commission issue a CN to the Company.

[78] In re *Application of Xcel Energy and ITC Midwest LLC for a Certificate of Need for the Huntley-Wilmarth 345 kV Transmission Line Project*, Docket No. E002, ET6675/CN-17-184, Direct Testimony and Attachments of Mark A. Johnson at 11-12.

The second issue specified in the Notice is, "If granted, what additional conditions or requirements, if any, should be included in the certificate of need?" The Department recommends the Commission condition approval of the proposed Project upon requiring Xcel to:

1) provide a final number or cap amount within 60 days of the Commission's Order determining the route;
2) wait until the first rate case after the proposed Project is placed in-service to recover any cost overruns from Minnesota ratepayers; and
3) justify fully the reasonableness of recovering any cost overruns of the proposed Project from Minnesota ratepayers.

The third issue specified in the Notice is, "Are there other issues or concerns related to this matter?" The Department has no other issues or concerns.

IV. DEPARTMENT RECOMMENDATION

Based upon the above analysis the Department:

- Has not identified any contested issues with respect to the representations made in the Petition pertaining to the certificate of need, but relies on input from MISO studies and Department-EERA's ER on some issues; and
- Concludes that the Petition has met the requirements of Minnesota Statues § 216B.243 and Minnesota Rules 7849.0010 to 7849.0400.
  - Xcel has met each of the five criteria listed under Minnesota Rules 7849.0120 A and thus shown that "the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states;"
  - Xcel has met each of the four criteria listed under Minnesota Rules 7849.0120 B and thus shown that "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record;" and
  - Xcel has shown that "the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments" as required by Minnesota Rules 7849.0120 D.

Should the Commission find, after consideration of the ER, that the proposed facility "will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health," the Department recommends that the Commission issue a CN to the Company.

The Department recommends the Commission condition approval of the proposed Project upon requiring Xcel to:

1) provide a final number or cap amount within 60 days of the Commission's Order determining the route;
2) wait until the first rate case after the proposed Project is placed in-service to recover any cost overruns from Minnesota ratepayers; and
3) justify fully the reasonableness of recovering any cost overruns of the proposed Project from Minnesota ratepayers.

Finally, the Department recommends that the Commission require Xcel to update the Commission regarding the composition of voltage support equipment after resource determinations have been made.

Regulatory Criteria	Where Addressed in Comments
Minn. R. 7849.0120, subpart A (1)	Section III, A, 1, Pages 6-11
Minn. R. 7849.0120, subpart A (2)	Section III, A, 2 Pages 11-12
Minn. R. 7849.0120, subpart A (3)	Section III, A, 3 Pages 12-13
Minn. R. 7849.0120, subpart A (4)	Section III, A, 4 Page 13
Minn. R. 7849.0120, subpart A (5)	Section III, A, 5 Pages 13-14
Minn. R. 7849.0120, subpart B (1)	Section III, B, 1 Pages 14-18
Minn. R. 7849.0120, subpart B (2)	Section III, B, 2 Pages 18-20
Minn. R. 7849.0120, subpart B (3)	Section III, B, 3 Pages 20-21
Minn. R. 7849.0120, subpart B (4)	Section III, B, 4 Pages 21-22
Minn. R. 7849.0120, subpart C (1)	Section III, C, 1 Pages 22-23
Minn. R. 7849.0120, subpart C (2)	Section III, C, 2 Page 23
Minn. R. 7849.0120, subpart C (3)	Section III, C, 3 Pages 23-24
Minn. R. 7849.0120, subpart C (4)	Section III, C, 4 Page 24
Minn. R. 7849.0120, subpart D	Section III, D Pages 24-25
Minn. Stat. § 216B.243, subd. 3(9)	Section III, E, 1 Pages 25-26
Minn. Stat. §§ 216B.243, subd. 3a and 216B.2422, subd. 4	Section III, E, 2 Pages 26-27
Minn. Stat. § 216B.2426	Section III, E, 3 Pages 27-28
Minn. Stat. § 216B.1694, subd. 2(a)(4)	Section III, E, 4 Page 28
Minn. Stat. §§ 216B.243, subd. 3(10) and 216B.1691 subd. 2f	Section III, E, 5 Pages 28-29
Minn. Stat. § 216B.243 subd. 3(12)	Section III, E, 6 Page 29
Minn. Stat. § 216H.03	Section III, E, 7 Page 30
Minn. Stat. § 216B.2422, subd. 4a	Section III, E, 8 Pages 30-31
Minn. Stat. § 216B.2422, subd. 4b	Section III, E, 9 Page 31
Commission Order in E,G999/CI-22-624	Section III, E, 10 Pages 31-33

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Comments

Docket No. E0002/CN-22-131

Dated this **6th** day of **September 2024**

/s/Sharon Ferguson

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