2302 Great Northern Drive
Fargo, ND 58102

July 1, 2024

—Via Electronic Mail and U.S. Mail—

Steven M. Kahl, Executive Director
North Dakota Public Service Commission
State Capitol Building, Dept. 408
600 East Boulevard
Bismarck, ND 58505-0480

RE: NORTHERN STATES POWER COMPANY
BIENNIAL TEN-YEAR PLAN

Dear Mr. Kahl:

In accordance with Section 49-22-04 of the North Dakota Century Code, Northern States Power Company, doing business as Xcel Energy, submits the enclosed original and seven copies of its Biennial Ten-Year Plan for Major Generation and Transmission Facilities in the state of North Dakota. The information contained in the plan complies with the rules and regulations of the North Dakota Public Service Commission (Commission), as well as the provisions of the Settlement Agreement in Case No. PU-10-657.

In compliance with Section 69-06-02-02 of the Commission's Administrative Code, notice of the filing has been given to each state agency and officer entitled to notice as designated in Section 69-06-01-05. Section 69-06-02-02 also requires the Company to serve the plan to the county auditor of each county in which any part of a site or corridor is proposed to be located. The Company is not proposing any new generation sites or transmission corridors in this plan, so it is not filing the plan with any county auditors. Attached is a service list that both complies with the statutory requirements above and relevant Commission rules and procedure.

An electronic copy of this filing is also being sent to you for your convenience.

1 PU-24-268 Filed 07/01/2024 Pages: 28
2024 Ten Year Plan
Northern States Power Company
Alex Nisbet, Reg. Policy Specialist

Please contact me at alex.j.nisbet@xcelenergy.com if you have any questions regarding this filing.

Sincerely,

/s/

ALEX NISBET
REGULATORY POLICY SPECIALIST

CERTIFICATE OF SERVICE

I, Joshua DePauw, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

BIENNIAL 10-YEAR PLAN FOR MAJOR GENERATION AND TRANSMISSION FACILITIES IN THE STATE OF NORTH DAKOTA

Dated this 1st day of July 2024

/s/
_____
Joshua DePauw
Regulatory Administrator

Northern States Power Company d/b/a Xcel Energy
2024 North Dakota Ten-Year Plan
Service List – Notice of Filing

Steven. M. Kahl
Executive Secretary
North Dakota Public Service Commission
600 East Boulevard Ave., Dept. 408
Bismarck, ND 58505

Aeronautics Commission
PO Box 5020
Bismarck, ND 58502

Attorney General
State Capitol Building, 1st Floor
600 East Boulevard Ave., Dept. 125
Bismarck, ND 58505

Department of Agriculture
State Capitol Building, 6th Floor
600 East Boulevard Ave., Dept. 602
Bismarck, ND 58505-0020

Department of Health
600 East Boulevard Ave, Dept 325
Bismarck, ND 58505-0250

Department of Human Services
600 East Boulevard Ave., Dept 325
Bismarck, ND 58505-0250

Department of Labor & Human Rights
600 East Boulevard Ave., Dept 406
Bismarck, ND 58505-0340

Department of Commerce
Division of Economic Development & Finance
1600 East Century Ave., Suite 2
Bismarck, ND 58503

Energy Infrastructure and Impact Office
1707 N. 9th St
Bismarck, ND 58501

Game & Fish Department
100 North Bismarck Expressway
Bismarck, ND 58501-5095

North Dakota Industrial Commission
State Capitol 14th Floor
600 E. Boulevard Ave. Dept. 405
Bismarck, ND 58505-0840

Office of the Governor
600 East Boulevard Avenue
Bismarck, ND 58505-0001

Department of Transportation
608 East Boulevard Ave.
Bismarck, ND 58505-0700

State Historical Society of North Dakota
612 East Boulevard Ave.
Bismarck, ND 58505

Indian Affairs Commission
State Capitol, 1st Floor Judicial Wing – Rm 117
600 East Boulevard Ave.
Bismarck, ND 58505

Job Service of North Dakota
PO Box 5507
Bismarck, ND 58506-5507

Department of Trust Lands
1707 N. 9th St.
Bismarck, ND 58501

Parks and Recreation Department
Liberty Memorial Building
604 East Boulevard Ave. Dept 750
Bismarck, ND 58505

Natural Resources Conservation Service
220 East Rosser Avenue
Bismarck, ND 58502-1458

Department of Water Resources
1200 Memorial Highway
Bismarck, ND 58504-5262

United States Department of Defense
Minot Air Force Base
167 Summit Drive
Minot, ND 58701

United States Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501-7926

United States Army Corps of Engineers
3319 University Dr,
Bismarck, ND 58504

Federal Aviation Administration
Fargo FSDO
4620 Amber Valley Parkway
Fargo, ND 58104

North Dakota Transmission Authority
c/o North Dakota Industrial Commission
600 E. Boulevard Ave., Dept 405
Bismarck, ND 58505-0840

North Dakota Pipeline Authority
c/o North Dakota Industrial Commission
600 E. Boulevard Ave., Dept 405
Bismarck, ND 58505-0840

Dept of Environmental Quality
4201 Normandy St.
Bismarck, ND 58503-1324

North Dakota Geological Survey
600 E Boulevard Avenue
Bismarck, ND 58505-0840

North Dakota Forest Service
307 1st Street East
Bottineau, ND 58318-1100

Federal Bureau of Land Management
North Dakota Field Office
99 23rd Avenue W, Suite A
Dickinson, ND 58601

Military Aviation and Installation Assurance Siting Clearinghouse
3400 Defense Pentagon, Room 5C646
Washington DC, 20301-3400

Twentieth Air Force - 91st Missile Wing
167 Summit Drive
Minot, ND 58701

United States Department of Defense
Grand Forks Air Force Base
799 Eielson St., Building 631
Grand Forks, ND 58205

Department of Career and Technical Education
600 E Boulevard, 15th Floor
Bismarck, ND 58505-0610

NORTH DAKOTA
TEN YEAR PLAN

Northern States Power Company

July 2024

TABLE OF CONTENTS

INTRODUCTION

In accordance with the rules and regulations of the North Dakota Public Service Commission (Commission) governing the siting of energy conversion and transmission facilities pursuant to Chapter 49-22 of the North Dakota Century Code, Northern States Power Company - Minnesota (NSPM or the Company), hereby files this Ten-Year Plan.

The NSP-Minnesota operating company (NSPM) has service territory in North Dakota, South Dakota, and Minnesota. NSPM's affiliate, NSP-Wisconsin (NSPW) has service territory in Wisconsin and Michigan. NSPM and NSPW plan, build, and operate a single integrated electric production and transmission system to meet the electrical needs of their customers (the NSP System) under an agreement accepted by the Federal Energy Regulatory Commission known as the Interchange Agreement. We presently serve approximately 95,000 retail electric customers in North Dakota around Fargo, Grand Forks, and Minot, and 59,000 natural gas customers in the Fargo and Grand Forks areas. The Company owns just over 380 miles of transmission lines and 21 substations (69kV and above) in North Dakota.

Section M of this Ten-Year Plan contains expanded information in compliance with the Settlement Agreement in Case No. PU-07-776 and Order points in Case Nos. PU-08-907 and PU-08-908 including:

- A summary of the major power purchase agreements we plan to pursue over the next 5 years,
- A summary of anticipated future applications for an Advance Determination of Prudence (ADP), and
- A report regarding reductions in energy production at our base load generation units due to the existence of wind generation, and the impacts and costs of cycling coal plant production to accommodate off-peak wind generation.

Seven copies of this Ten-Year Plan are being filed with the Commission. Notices of the filing of this report have been given to those agencies and officers designated in Article 69-06-01-05 of the Administrative Code.

SECTION A: Existing Electric Generation Facilities

The following North Dakota electric generating facilities are either owned and operated by NSPM, or the power generated is purchased by NSPM. A full list of all generating plants owned by the NSPM and NSPW companies (i.e., the NSP System) can be found in Section M of this report.

Border Winds Wind Facility

The Company owns and operates the 150 MW Border Winds wind facility near Rolla, North Dakota. The facility is comprised of 75 Vestas V100 2.0 MW turbines with variable pitch blades. The Border Winds footprint spans nearly 25,000 acres in the northeastern part of Rolette County. The plant went into service in December 2015.

Courtenay Wind Facility

The company owns and operates the 200 MW Courtenay wind facility north of Jamestown, North Dakota. The facility is comprised of 100 Vestas V100 2.0 MW turbines with variable pitch blades. The Courtenay facility spans nearly 25,000 acres in northeastern Stutsman County. The plant went into service in December 2016.

Foxtail Wind Facility

The Company owns and operates the 150 MW Foxtail Winds facility located 20 miles west of Ellendale, North Dakota. The facility is comprised of 7 Vestas V110 and 68 Vestas V120 2.0 MW turbines with variable pitch blades. The Foxtail facility spans nearly 20,000 acres in western Dickey County. The plant went into service in December 2019.

Purchases of Power Produced in North Dakota

Xcel Energy currently has a twenty-year power purchase agreement (PPA) ending January 18, 2026 with Acciona Wind Energy USA for energy supplied from its 11.88 MW Velva Wind farm located in McHenry County, North Dakota. Xcel Energy also has a twenty-year PPA ending December 31, 2039 with ALLETE Clean Energy for energy supplied from its 105.6 MW Glen Ullin Energy Center wind facility located in Mercer and Morton Counties, North Dakota.

See Section M for a listing of *all* generating plants currently owned and operated by NSPM or NSPW that serve the NSP System.

No unit retirements of NSPM generation facilities in North Dakota are planned within the next ten years.

SECTION B: Electric Generation Facilities Under Construction

NSPM does not have any generation facilities under construction in North Dakota.

SECTION C: Proposed Generation Construction Within the Next Five Years

The Company filed its 2024-2040 North Dakota Resource Plan (Resource Plan) with the Commission on April 8, 2024 (Case No. PU-24-160). The Company included a "Preferred Plan" within the Resource Plan which represents the least-cost resource mix that is consistent with North Dakota's statutes, rules and policies and that would allow the Company to maintain a safe, reliable, and affordable system for our customers and communities.

The five-year Preferred Plan within the 2024-2040 Resource Plan runs from 2024 through 2030 and does not identify any incremental capacity needs until 2027. From 2027 through 2030, the Preferred Plan considers adding over 4,800 MWs of incremental generation.

- ***Wind.*** The Company proposes to add 2,000 MWs of wind additions through 2030.
- ***Solar.*** The Preferred Plan does not include any new utility scale solar projects through 2030.
- ***Hydro.*** While the Preferred Plan assumed the Manitoba Hydro purchase agreement expired in 2025, we note that in June we executed a five-year extension of an amended agreement.
- ***Nuclear.*** The Company is seeking to extend our nuclear operations until at least 2050. To support this goal, the Company filed a Certificate of Need for additional dry fuel storage at the Prairie Island Nuclear Generating Plant with the Minnesota Public Utilities Commission (MPUC) in February of 2024. By the end of 2026, we anticipate submitting an application for license renewal with the Nuclear Regulatory Commission to extend the Prairie Island plant operating license from 2033/2034 to 2053.

  The MPUC recently approved dry fuel storage expansion in support of a Subsequent License Renewal for the Monticello Nuclear Generating Plant through 2040. Our Monticello license renewal through 2050 is currently pending review by the Nuclear Regulatory Commission. After a MPUC

decision on our Minnesota 2024 Upper Midwest Integrated Resource Plan (IRP), we will seek another Certificate of Need to support an additional 10-year life extension of the Monticello plant- bringing that extension to 2050.

- ***Firm Dispatchable.*** The Preferred Plan shows a need for 2,800 MW of firm dispatchable capacity and standalone storage resources by 2030.
- ***Coal.*** The Company has already retired Sherco Unit 2 and continues to prepare for retirement of Sherco Unit 1 in 2026, King in 2028, and Sherco Unit 3 in 2030.

The Company notes there is an ongoing regulatory proceeding in Minnesota (Docket No. E002/CN-23-212) to determine resources to meet 800 MW of firm dispatchable needs. Several parties have bid resources into the Request for Proposals (RFP), including our bid of a proposed natural gas combustion turbine (CT) in North Dakota as well as a CT and storage project in Minnesota

New Company-owned resource additions included in our current five-year Action Plan are shown in Table C-1 below (approved power purchase agreements going into effect during the next five years are listed in Section M):

Table C-1. Approved NSPM Generation Additions (2024-2030)

Resource	Type	MW	Location	In-Service
Sherco Solar	Solar	710	Minnesota	2024-2025
Wheaton	CT	225	Wisconsin	2025

SECTION D: Proposed Generation During the Next Ten Years

The system resource actions proposed for beyond the next five years in the recently filed North Dakota Preferred Plan include:

- Adding 6,600 MW of incremental wind through 2040.
- Retiring Sherco Unit 1 in 2026, King in 2028, and Sherco Unit 3 by 2030.
- Pursuing the extension of both Prairie Island and Monticello Nuclear Generating Plants into the 2050s.
- Adding approximately 2,800 MW of cumulative firm peaking resources between 2030 and 2040. These additions could be hydrogen-fueled generation, storage, DR or other new technologies, in addition to CTs, depending on cost, reliability, and state policy goals.

SECTION E: Existing Transmission Facilities (Electric)

Our existing electric transmission line facilities in North Dakota are listed in Table E-1 below.

Table E-1. NSP Transmission Lines in North Dakota

Line Description	Line #	kV	Mileage
Bison-Alexandria SS (MRES)	955	345	34
Total 345 kV			**34**
Letellier (MHEB)-Drayton	912	230	28.7
Prairie-Grand Forks (WAPA)	916	230	6.8
Maple River-Frontier (MPC)	910	230	3.6
Maple River-Sheyenne	911	230	6.6
Sheyenne-Fargo(WAPA)	915	230	4.3
Sheyenne-Lake Park (MPC)	911	230	1.4
Audubon (OTP)-Hubbard (MP)	909	230	38.3
Glenboro (MHEB)-Peace Garden	920	230	2.0
Peace Garden-Rugby (OTP)	920	230	54.4
McHenry (GRE)-Magic City	924	230	20.48
Total 230 kV			**166.58**
Maple River-Red River #1	839	115	5.6
Maple River-Red River #2	5571	115	5.6
Maple River-Cass County	839	115	2.7
Cass Co. Tap-Moderow (MPC)	839	115	1.9
Moderow (MPC)-Sheyenne	839	115	1.5
Cass County-Sheyenne	866	115	3.5
Sheyenne-Mapleton (OTP)	866	115	1.5
Mallard-Souris	860	115	5.3
Souris-Magic City	850	115	7.0
Magic City-Velva	5572	115	15
Velva-McHenry	5572	115	5.2
McHenry (GRE)-Neal (GRE)	850	115	0.2
Prairie-Nordic1	5510	115	2.0
Prairie-Nordic2	5511	115	2.0
Courtenay Wind-Jamestown (OTP)	5577	115	17
Total 115 kV			**76**
Gateway-Grand Forks Steam (MPC)	746	69	0.9
Gateway-Prairie	746	69	5.5

Grand Forks (WAPA)-Central	786	69	4.6
Central-Sugar Hills (East Grand Forks)	786	69	0.8
Grand Forks (WAPA)-Sugar Hills (East Grand Forks)	786	69	2.5
Elk Valley-Larimore (MPC)	776	69	1.7
Prairie-Emerado (MPC)	772	69	13.3
Prairie-Thompson	733	69	8.5
Thompson-Reynolds	773	69	7.0
Reynolds-South	773	69	10.0
South-Hillsboro Tap	773	69	8.6
Hillsboro Tap-Hillsboro	773	69	1.9
Hillsboro-Trail County	773	69	1.0
Trail County-Kelso (MPC)	773	69	9.3
South-Mayville (MPC)	768	69	12
Mayville (MPC)-Mayville	768	69	1.2
Mayville-Hatton (MPC)	768	69	14.8
Total 69 kV			**103.6**

There is a transmission line facility in North Dakota that is slated for retirement within the next decade. Specifically, this facility comprises of a 1.7-mile span of line running from the Larimore substation to Larimore Tap (Elk Valley-Larimore), identified as line number 776.

SECTION F: Existing Transmission Facilities (Natural Gas)

NSPM operates an 11.9 mile intrastate natural gas pipeline facility in the state of North Dakota, from an interconnection with Williston Basin Interstate Pipeline Company near Mapleton, North Dakota, to our natural gas distribution system in Fargo, North Dakota. The Commission granted a Certificate of Public Convenience and Necessity and Corridor Certificate for this facility in Case No. PU-400-89-426.

We have no plans to retire this intrastate natural gas pipeline within the next 10 years.

SECTION G: Proposed Electric Transmission Construction in the Next Five Years

NSPM does not currently have plans to construct new electric transmission facilities in North Dakota within the next five years.

SECTION H: Proposed Gas Transmission Construction in the Next Five Years

NSPM does not currently have plans to construct new natural gas pipeline transmission facilities in North Dakota within the next five years.

SECTION I: Proposed Electric and Gas Transmission During the Next Ten Years

NSPM does not currently have plans to construct either new electric transmission or natural gas pipeline transmission facilities in North Dakota within the next 10 years.

SECTION J: Regional Coordination

MISO Planning

All major transmission planning performed by the Company is now coordinated through Midcontinent Independent System Operator (MISO) on a regional basis. MISO issues its annual MISO Transmission Expansion Plan (MTEP) after coordinated planning and stakeholder review.

The Company participated in a large regional Multi Value Project (MVP) study with MISO to determine what large regional transmission build-outs would be necessary to increase the overall reliability and efficiency of the transmission system. The costs of these projects are being shared among beneficiaries across the entire MISO North/Central footprint. These projects qualify for MVP cost treatment based on their contributions to increased reliability, economic benefits, or compliance with one or more of the states' renewable requirements.

Sub-Regional Planning

As a result of complying with the Federal Energy Regulatory Commission Order No. 890 rules, MISO has also implemented Sub-Regional Planning Meetings as part of their annual MTEP development process. The Company participates in the Western Region meetings. These Sub-Regional Planning meetings provide forums for stakeholder input and coordination of plans, and we actively participate in each one. This joint planning is intended to maximize use of existing facilities and minimize the number of new electric transmission facilities. More information regarding this joint planning is available at the following link under the Planning section:

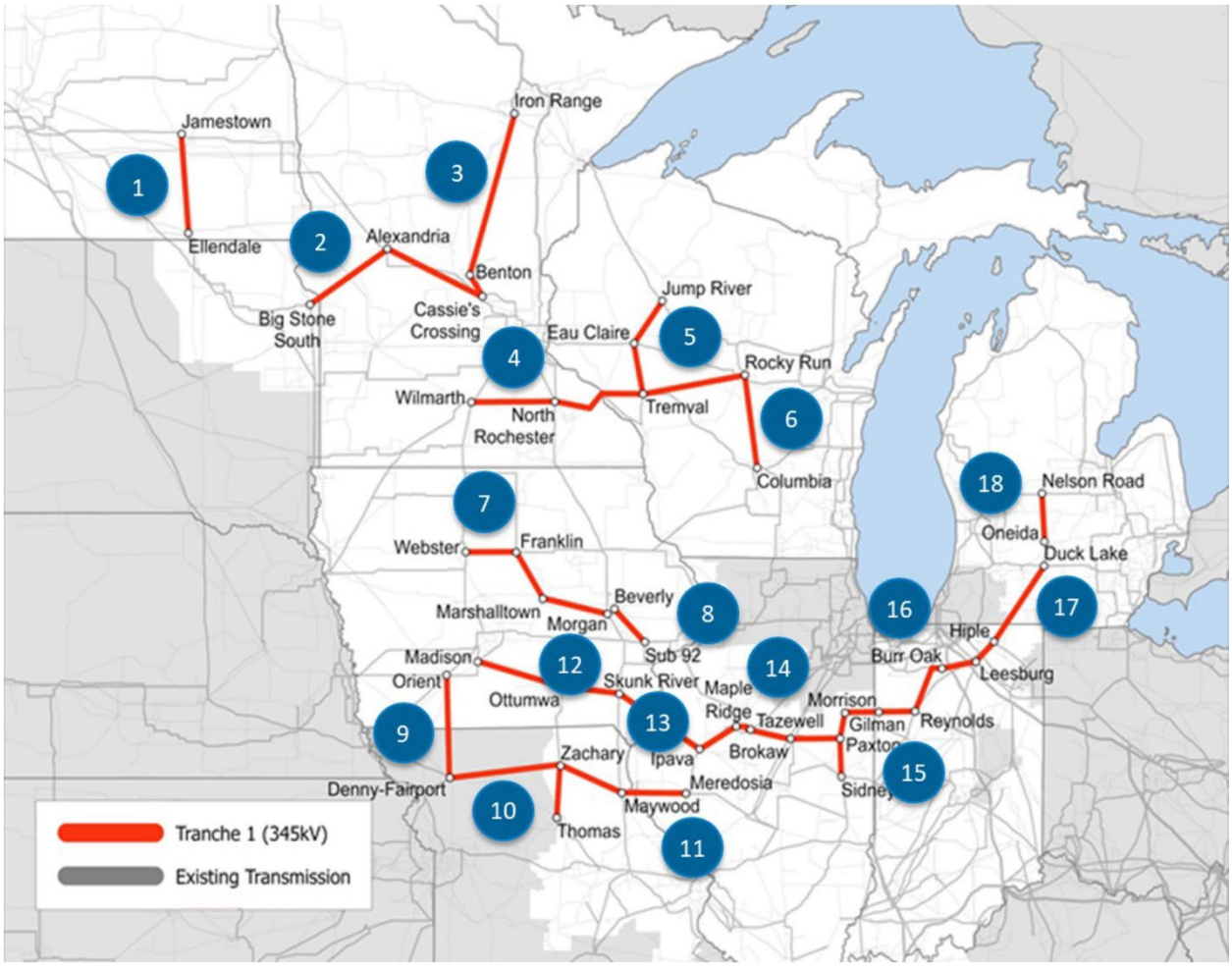
Midcontinent Independent System Operator (MISO) (misoenergy.org)

Xcel Energy also participates in transmission planning with a regional group of utilities called the Minnesota Transmission Owners (MTO). The MTO consists of all the investor-owned, cooperative, and municipal utilities that own transmission facilities 100 kV and above in Minnesota. Several MTO members (e.g., Xcel Energy, Great River Energy, Otter Tail Power, etc.) also own significant transmission facilities in North Dakota. In addition to the biennial planning work of the MTO, the MTO utilities also coordinate their transmission planning activities with MISO's MTEP process.

Targeted Planning Studies

The Company participates in all MISO targeted planning studies, which are studies that happen outside the normal MTEP process. MISO has performed one targeted study in the last two years.

The MISO Long Range Transmission Plan (LRTP) study is to improve overall system reliability and transfer electricity across the MISO region from where it is generated to where it is needed. The Tranche 1 portfolio was approved in July of 2022 by MISO's Board of Directors at a cost of $10.3 Billion of new transmission projects. This is one of four tranches that MISO is planning to study over the next couple of years as we move towards the transmission grid of the future. The map below shows the Tranche 1 projects.



This study is available at the following link:

https://www.misoenergy.org/planning/long-range-transmission-planning/

SECTION K: Environmental Information

Clean Energy Fleet Transition

In the past two decades, the NSP Companies have placed a higher priority on making prudent investments in the NSP System to improve its environmental standing. Older, inefficient coal-fired plants have either been replaced with highly efficient natural gas plants or renovated to improve efficiency and reduce emissions. Coal generation now accounts for about 13 percent of the energy our customers use, while natural gas has grown to supply about 25 percent of their needs. Baseload nuclear power plants, which reliably supply nearly 25 percent of the energy our customers use, have been relicensed and upgraded to enable them

to operate safely and reliably until the early 2030s. Wind energy now supplies 29 percent of the energy our customers use and provides a hedge against rising fuel prices.

Given our investments in renewable energy and baseload nuclear power plants, carbon-free resources now supply 64 percent of the energy used by our customers. Since 2005, the NSP System has reduced total carbon emissions by over 57 percent. This long-term strategy provides value to customers in the form of declining fuel costs and emissions reductions.

Regional Haze Planning

During the first planning period for Regional Haze (2006-2017), Xcel Energy was required to conduct *Best Available Retrofit Technology* (BART) studies for Sherco Units 1 and 2 based on the age of the units. Our King plant was excluded from this requirement as it had already installed *Best Available Control Technology* (BACT) as part of the Company's *Metropolitan Emission Reduction Project* and no further controls were required at that time. Sherco Unit 3 was not evaluated under the first planning period for Regional Haze as it was constructed after the time period subject to BART studies.

As a result of the first Regional Haze planning period new, lower emission limits were established for Sherco Units 1 and 2 for both oxides of nitrogen (NOx) and sulfur dioxide (SO2) to reflect application of BART on the units. Subsequent legal action ensued which ultimately led to a settlement agreement resulting in new SO2 emission limits for Sherco Unit 3 to reflect actual emissions rather than the previously permitted levels.

During the second planning period for Regional Haze (2018-2028), Xcel Energy designed a compliance strategy consisting of the following components:

- Commit to the retirement of Sherco Unit 2 by 12/31/2023
- Commit to the retirement of Sherco Unit 1 by 12/31/2026
- Commit to the retirement of King Unit 1 by 12/31/2028
- Commit to the retirement of Sherco Unit 3 by 12/31/2030
- No further addition of NOx and SO2 emission control technologies on King and Sherco units.

The operational model that informed compliance with the second Regional Haze planning period is the IRP. The IRP incorporates Xcel Energy's three strategic priorities of Lead the Clean Energy Transition, Enhance our Customer Experience, and Keep Bills Low. The IRP outlines how the company

aggressively works to keep our customers' bills low while simultaneously reducing carbon emissions by more than 80 percent in the Upper Midwest by 2030, on our way to achieving our vision to provide all customers with 100 percent carbon-free electricity by 2050. Retirement of the King and Sherco units is a significant component of this plan.

As the final step in the second planning period, Xcel Energy was issued Administrative Orders mandating the individual unit retirement dates noted above.

Cross-State Air Pollution/Good Neighbor Rule

On February 28, 2022, U.S. EPA proposed steps to reduce ozone forming emissions that were impacting areas that were unable to comply with the 2015 National Ambient Air Quality Standards (NAAQS) for ozone. The proposed "Good Neighbor Plan" identified states that had a modeled connection to downwind non-attainment areas and proposed overall state Oxides of Nitrogen (NOx) emission reductions that would be required to ameliorate their contributions to impacts downwind. The final rule, which was published on March 15, 2023, identified powerplants and certain other industries, in Minnesota as required to participate in the emissions reduction program. Litigation has since stayed implementation in Minnesota while the litigation progresses. Even if the stay is made permanent, EPA continues to review the NAAQS standards as required by the Clean Air Act and adjustment to existing standards as well as development of new, more restrictive, secondary standards will impact Xcel Energy's fossil-fueled electric generating fleet and result in additional states being included in the national emissions trading program triggering a need for additional emissions controls and/or purchasing of expensive and limited emission allowances.

Greenhouse Gas (GHG) Regulations

Because fossil fuel-based electric generating units are included in recognized source categories EPA is required under Section 111 of the Clean Air Act to set standards for new units and to provide guidelines for states to set standards for existing units.

On May 8, 2024, EPA published greenhouse gas emission guidelines applicable to existing fossil fuel-fired (both coal and natural gas) steam electric generating units (EGUs) and New Source Performance Standards for new and reconstructed fossil fuel-fired stationary combustion turbine electric generating units.

For existing fossil fuel-fired EGUs that will operate past December 31, 2038, their carbon dioxide (CO2) emissions must be reduced 90% by no later than 2032. EPA based this level of emissions reduction on the performance of carbon capture and sequestration (CCS) technology. For EGUs that will retire between December 31, 2032 and December 31, 2038, EPA provided less stringent standards based on co-firing with natural gas to reduce emissions. For EGUs that retire before December 31, 2032, the EPA does not require any reduction in emissions.

The finalized New Source Performance Standards for new and reconstructed fossil fuel-fired stationary combustion turbine electric generating units, will impact any future combustion turbine and combined-cycle units. The EPA's emissions standards for new units are tiered based on an EGU's capacity factor. Units with a "low-utilization" (less than 20 percent capacity factor) have an emission limit based on use of lower emitting fuels (hydrogen, natural gas and distillate oil). Units with a capacity factor between 20 to 40 percent have an emission limit based on the "Best System of Emission Reduction" of efficient operations of simple cycle natural gas-based turbines. Base load units (greater than 40 percent capacity factor) are required to meet emission stringent limits of 90% reduction in carbon emissions. These new rules will be challenging for planned dispatchable resources needed to reliably support the grid.

Litigation has been initiated against EPA's new Greenhouse Gas Rule which will shape the future compliance obligations but how the rule will change is not discernible.

Xcel Energy's retirement plans for the remaining coal-fired generating units exempts King, Sherco Unit 1, and Sherco Unit 3 from compliance with the new rule's existing source EGU requirements.

Land Use Planning

Specific environmental information and efforts to involve land-use planning agencies will be provided to the Commission in future regulatory filings pertaining to specific facilities identified for construction.

SECTION L: Projected Demand for Service

The NSP System integrates electric generation and transmission to serve customers in North Dakota, South Dakota, Minnesota, Wisconsin, and Michigan. Xcel Energy produces long-range median NSP System forecasts of

native energy requirements and summer and winter peak demands. For planning purposes, we also develop a "bandwidth" of projected scenarios to supplement our median forecasts. These scenarios are intended to represent uncertainty in a "business-as-usual" view reflecting a relatively narrow range of U.S. economic growth with no fundamental change in the relationship between the regional and national economies. Table L-1 shows the long-range NSP System forecast of native energy requirements and summer and winter peak demands. Table L-2 shows the North Dakota contribution to this system peak forecast (i.e., North Dakota's "coincident-peak").

The forecast for the NSP System is based on forecasts of state jurisdictional sales by major customer class: residential (with and without space heating), small commercial and industrial, and large commercial and industrial. Each customer class is modeled independently for the five states in the NSP System using regression analysis and the estimates are subsequently adjusted for the Company's assumptions of Electric Vehicle adoption, Beneficial Electrification, Distributed Solar Generation, Demand Side Management, and Large Customer Load additions. The largest adjustment to the current forecast is for large data centers locating in Minnesota that are projected to add new load growth in the 2025-2026 timeframe.

North Dakota's NSP-coincident peak was calculated using an 8760 modeling approach,[1] where base load by state, electric vehicles, beneficial electrification, and energy efficiency are all given hourly shapes and aggregated. The overall NSP peak is then identified as the highest point in this aggregated hourly profile for month, season, or year. The North Dakota loads shown in table L-2 are the loads coincident with the forecast NSP peak.

The North Dakota 25-year historical native energy requirements[2] and the North Dakota "non-coincident" peak demand is shown in Table L-3 below. The North Dakota non-coincident peak is the state's highest demand irrespective of when the NSP System peak occurs. The non-coincident peak demand is used in evaluating transmission capacity requirements because the transmission system must always be capable of supplying the full local customer demand. Due to load diversity caused primarily by weather variations among states within the NSP System, non-coincident peak customer demands in our North Dakota service area can be as much as 25 percent higher than it is during the hour in which the total system peak

[1] This process is described in the Company's 2024-2040 Upper Midwest Integrated Resource Plan. North Dakota Case No. PU-24-160, Appendix E: Load and DER Forecasting.

[2] The native energy requirements are subsequently determined by applying a loss factor to total sales.

demand occurs. These local non-coincident peak demands determine the need for transmission improvements required for load serving functions.

Table L-1. NSP System Energy & Peak Loads (2024-2042)

Forecast Year	Energy (GWh)	Summer Peak (MW)	Winter Peak (MW)
2024	43,823	9,408	6,715
2025	44,308	9,526	7,036
2026	46,524	9,946	7,377
2027	47,973	10,311	7,526
2028	48,170	10,511	7,596
2029	48,339	10,643	7,750
2030	48,866	10,835	7,913
2031	49,436	11,040	8,146
2032	50,305	11,331	8,428
2033	51,291	11,573	8,574
2034	52,555	11,902	8,851
2035	53,763	12,212	9,080
2036	55,302	12,496	9,392
2037	56,674	12,686	9,565
2038	57,934	12,890	9,786
2039	59,222	13,088	9,681
2040	60,215	13,202	9,807
2041	61,161	13,296	9,966
2042	62,174	13,389	10,401
Compound Annual Growth Rate (2024-2042)			
% Growth:	**1.96%**	**1.98%**	**2.46%**
Notes:	1) Peak Load is ***coincident*** to the NSP System peak.		
	2) Winter Peak = MISO Winter Peak season, 2024 is 2024 - 2025 winter peak.		
	3) Peak Load is the Base Peak (uninterrupted)		

Table L-2. ND Juris. Energy & Coincident Peak Loads (2024-2042)

Forecast Year	Energy (GWh)	Summer Coincident Peak (MW)	Winter Coincident Peak (MW)
2024	2,283	407	401
2025	2,278	407	401
2026	2,279	408	402
2027	2,282	411	404
2028	2,295	415	405
2029	2,297	416	407
2030	2,310	419	410
2031	2,329	423	418
2032	2,365	431	427
2033	2,390	438	430
2034	2,416	445	436
2035	2,442	452	446
2036	2,477	461	455
2037	2,505	467	461
2038	2,544	476	472
2039	2,588	486	476
2040	2,646	496	482
2041	2,694	506	359
2042	2,752	516	386
Compound Annual Growth Rate (2024-2042)			
% Growth:	**1.04%**	**1.33%**	**-0.21%**
Notes:	1) Peak Load is *coincident* to the NSP System peak.		
	2) Winter Peak = MISO Winter Peak season, 2024 is 2024 - 2025 winter peak.		

Table L-3. ND Juris. Energy & Non-Coincident Peak Loads (2005-2023)

Year	Energy (GWh)	Annual Growth	Non-Coincident Peak (MW)	Annual Growth
2005	2,289	6.10%	426	5.70%
2006	2,353	2.80%	439	3.00%
2007	2,378	1.10%	463	5.50%
2008	2,478	4.20%	427	-7.80%
2009	2,379	-4.00%	427	0.00%
2010	2,422	1.80%	445	4.20%
2011	2,441	0.80%	449	0.90%
2012	2,419	-0.90%	468	4.20%
2013	2,479	2.50%	453	-3.20%
2014	2,491	0.50%	444	-2.00%
2015	2,418	-2.90%	456	2.70%
2016	2,379	-1.60%	436	-4.40%
2017	2,348	-1.30%	423	-3.00%
2018	2,403	2.30%	417	-1.40%
2019	2,357	-1.90%	422	1.10%
2020	2,259	-4.15%	415	-1.69%
2021	2,282	1.00%	438	5.69%
2022	2,252	-1.32%	423	-3.47%
2023	2,266	0.63%	425	0.34%

SECTION M: Other Information

1. NSP System Generating Plants

Listed in Table M-1 below are all of the generating facilities owned and operated by NSPM or NSPW (collectively, the NSP System).

Table M-1. NSP System Generating Plants

Resource	Fuel	Capacity		Location
Sherburne County	Coal	1,195	MW	Becker, MN
Prairie Island	Nuclear	1,040	MW	Red Wing, MN
Monticello	Nuclear	617	MW	Monticello, MN
High Bridge	Natural Gas CC	580	MW	St. Paul, MN
Allen S. King	Coal	510	MW	Oak Park Heights, MN
Riverside	Natural Gas CC	508	MW	Minneapolis, MN
Wheaton	Natural Gas, Fuel Oil	340	MW	Wheaton, WI
Angus Anson	Natural Gas CT	386	MW	Sioux Falls, SD
Black Dog	Natural Gas CC, CT	526	MW	Burnsville, MN
Blue Lake	Nat Gas CT, Fuel Oil	542	MW	Shakopee, MN
Inver Hills	Natural Gas CT	345	MW	Inver Grove, MN
Community Wind	Wind	26	MW	Lincoln Cty, MN
Nobles	Wind	200	MW	Worthington, MN
Courtenay	Wind	200	MW	Courtenay, ND
Pleasant Valley	Wind	200	MW	Austin, MN
Blazing Star 1	Wind	200	MW	Hendricks, MN
Border Winds	Wind	150	MW	Rolla, ND
Foxtail	Wind	150	MW	Kulm, ND
French Island	Wood, RDF, Fuel Oil	174	MW	La Crosse, WI
Fowke Wind Energy Center	Wind	100	MW	Dexter, MN
Lake Benton II	Wind	100	MW	Lake Benton, MN
Jeffers	Wind	44	MW	Cottonwood Cty, MN
Mower County	Wind	99	MW	Mower Cty, MN
Dakota Range 1&2	Wind	296	MW	Grant Cty, SD
Jim Falls	Hydro	60	MW	Chippewa River, WI
Bay Front	Wood, Nat Gas	26	MW	Ashland, WI
Wissota	Hydro	40	MW	Chippewa River, WI
Holcombe	Hydro	35	MW	Chippewa River, WI
Cornell	Hydro	33	MW	Chippewa River, WI
St. Croix Falls	Hydro	26	MW	St. Croix River, WI
Chippewa Falls	Hydro	24	MW	Chippewa River, WI
Red Wing	Refuse	18	MW	Red Wing, MN
Wilmarth	Refuse	17	MW	Mankato, MN
Hennepin Island	Hydro	14	MW	Minneapolis, MN

Dells	Hydro	13	MW	Chippewa River, WI
Big Falls	Hydro	9	MW	Flambeau River, WI
Cedar Falls	Hydro	7	MW	Red Cedar River, WI
Menomonie	Hydro	5	MW	Red Cedar River, WI
Apple River	Hydro	3	MW	Apple River, WI
Ladysmith	Hydro	3	MW	Flambeau River
Superior Falls	Hydro	2	MW	Montreal River, WI
Thornapple	Hydro	2	MW	Flambeau River, WI
Trego	Hydro	2	MW	Namekagon River, WI
Riverdale	Hydro	1	MW	Apple River, WI
Saxon	Hydro	1	MW	Montreal River, WI
White River	Hydro	1	MW	White River, WI
Hayward	Hydro	0	MW	Namekagon River, WI
	Total	9,097	MW	

2. Approved Power Purchase Agreements

Table M-2. Power Purchases

Resource	Type	MW	Location	In-Service
Apple River	Solar	100	Apple River, WI	2025
Louise Solar	Solar	50	Mower Cty, MN	2025
Fillmore County Solar	Solar	45	Filmore Cty, MN	2025

3. Summary of Advance Determination of Prudence Filings

In its Order dated February 21, 2024 in Case No. PU-23-366, the Commission approved the amendment of the Advance Determination of Prudence (ADP) requirement found in their January 14, 2009 Order Adopting Settlement in Case No. PU-07-776. Specifically, the February 21, 2024 Order approved the removal of the ADP filing requirement for the construction or acquisition of a generation facility at least 50 MW or a transmission facility at least 50 miles in length. An ADP may now be filed if the Company chooses to do so, or alternatively the Commission may request an ADP be filed by its own motion or order. There are currently no ADP applications pending before the Commission.

4. Report on the Effects of Wind Generation on Baseload Plants

In the Commission's orders on the Company's applications for Advance Determination of Prudence for the Nobles and Merricourt Wind Projects dated August 12, 2009 in Case Nos. PU-08-907 and PU-08-908, the Commission included the following order point:

2. NSP will report to the extent possible, as part of its annual 10-year plan, all reductions in the energy produced at its base load generation units that would not have occurred except for the existence of wind generation. The report will include the time of the event, length of the event, base load plant affected, and the amount of energy not produced at the base load plant during the event.

Order Point 2 Compliance

The Company performed an analysis of the NSP system performance over 8,784 hours from the first hour on May 1, 2022 through the last hour on April 30, 2023. To establish a criteria as to what would constitute reductions in energy production, we looked at the set points for each unit established in our Energy Management System. Units have an economic maximum and an economic minimum set point that comprise the normal dispatch range. For the purposes of this study, we assumed that any time a unit was not operating at its economic maximum, it was "backed down". We then attributed the cause of the reduced baseload production each hour to load, wind, market dispatch, or some combination based on the net energy position for the NSP system over the hour.

As an example, let's assume load is 500 MWs, wind is 100 MWs and Sherco Unit 1 is the only baseload resource online with a maximum capability of 680 MWs. By itself, the NSP system would only need 400 MWs from Sherco to serve load. If the unit were in fact dispatched to 400 MWs by MISO, we would attribute 180 MWs of backed down generation to our load (680 – 500), and 100 MWs to the wind. If MISO backed the unit down further to 300 MWs, the additional 100 MW reduction would be attributed to market dispatch. There are also times when baseload units remain loaded above the level necessary to serve the NSP system load net of wind generation due to the market wide demand for energy.

It is important to note that the cause of reductions in baseload energy production cannot be determined with certainty given the regional dispatch of generation in MISO. Wind generation may play a role in MISO market dispatch decisions, but the Company does not have enough information to determine definitively the cause of these decisions. Nevertheless, the analysis described above provides a reasonable framework for assessing the impact of wind on the NSP system.

The results show that the total amount of energy not produced that could have been produced during the study period if no baseload generation was backed down was 5,412,745 MWhs. Wind production contributed to 3,304,396 MWh or 61% of MWhs backed down. Changes in customer load accounted for 53,806 MWh or 1% of the MWhs backed down. MISO Market Dispatch was responsible for 2,054,544 MWh or 38% of the MWhs backed down. There were many hours where baseload generation was backed down due to a combination of market dispatch, wind production, and customer loads.

Out of the 365 days evaluated, there were 288 cycles in which wind generation contributed to backing down base load generation. We define a cycle as the period of time over which the base load generation was backed down. As an example, on August 16, 2022, base load generation was backed down for two consecutive hours in part due to wind generation. On August 22, 2022, base load generation was backed down for three consecutive hours in part due to wind generation. These were each counted as a cycle.