

**PUBLIC DOCUMENT  
TRADE SECRET DATA EXCISED**



500 West Russell Street  
Sioux Falls, SD 57101

July 1, 2014

**—Via Electronic Filing—**

Patricia Van Gerpen  
Executive Director  
South Dakota Public Utilities Commission  
Capitol Building, 1<sup>st</sup> Floor  
500 East Capitol Avenue  
Pierre, SD 57501

RE: NORTHERN STATES POWER COMPANY  
BIENNIAL 10-YEAR PLAN

Dear Ms. Van Gerpen:

In accordance with S.D. Admin. R. Chapter 20:10:21 and S.D. Codified Laws § 49-41B-3, Northern States Power Company, doing business as Xcel Energy, hereby submits its Biennial 10-Year Plan for Major Generation and Transmission Facilities in the State of South Dakota.

Pursuant to ARSD § 20:10:01:41, the Company respectfully requests confidential treatment of the information provided in this report. The Company addresses the Commission's five factors for consideration of confidential data as follows:

(1) An identification of the document and the general subject matter of the materials or the portions of the document for which confidentiality is being requested:

The estimated production and purchase price of the Courtenay, Odell, Pleasant Valley, and Border Winds Projects included in the attached biennial 10-year plan is considered confidential, trade secret information

(2) The length of time for which confidentiality is being requested and a request for handling at the end of that time. This does not preclude a later request to extend the period of confidential treatment:

The Company requests that the data contained in this report be treated as confidential forever.

(3) The name, address, and phone number of a person to be contacted regarding the confidentiality request:

Eric M. Pauli  
Manager, South Dakota Community Relations  
Xcel Energy  
500 West Russell Street  
Sioux Falls, SD 57104

(4) The statutory or common law grounds and any administrative rules under which confidentiality is requested. Failure to include all possible grounds for confidential treatment does not preclude the party from raising additional grounds in the future:

We request confidential treatment on the grounds that the material is proprietary and trade secret information, the disclosure of which would result in material damage to the Company's financial or competitive position. The claim for confidential treatment is based on ARSD § 20:10:01:39(4) and SDCL § 1-27-30. The information contained meets the definition of "trade secret" under SDCL § 37-29-1(4)(1), the South Dakota Uniform Trade Secrets Act, which is defined as information that, "derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and ... is the subject of efforts that are reasonable under the circumstances to maintain its secrecy." The information also meets the definition of "proprietary information" under SDCL § 1-27-28, which is defined as "information on pricing, costs, revenue, taxes, market share, customers, and personnel held by private entities and used for that private entity's business purposes."

(5) The factual basis that qualifies the information for confidentiality under the authority cited:

The noted documents qualify for confidential treatment because they contain proprietary business information for which the Company does not disclose to the public. The Courtenay, Odell, Pleasant Valley and Border Winds projects were the subject to a competitive bidding process. The disclosure of the production and pricing information related to these contracts could adversely affect the Company's competitive position in the future to the detriment of our customers.

Notice of the filing has been given to each state agency and officer entitled to notice as designated in section 20:10:21:23 (see attached service list).

Please feel free to contact me at [eric.pauli@xcelenergy.com](mailto:eric.pauli@xcelenergy.com) or (605) 339-8303 if you have any questions regarding this report.

Sincerely,

A handwritten signature in cursive script that reads "Eric Pauli".

ERIC M. PAULI  
MANAGER  
South Dakota Community Relations

Enclosures  
c: Service List (WITHOUT ENCLOSURES)

## CERTIFICATE OF SERVICE

I, Theresa Sarafolean, hereby certify that I have this day served notice of the foregoing document on the attached list of persons by delivery by hand or by causing to be placed in the U.S. mail at Minneapolis, Minnesota.

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

Dated this 1st day of July, 2014

/s/

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Theresa Sarafolean  
Administrative Assistant

South Dakota Biennial 10-Year Plan Service List

Patricia Van Gerpen  
Executive Director  
South Dakota Public Utilities Commission  
Capitol Building, 1<sup>st</sup> Floor  
500 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of Education and  
Cultural Affairs  
700 Governors Drive  
Pierre, SD 57501

South Dakota Aeronautics Commission  
Becker Hansen Building  
700 East Broadway Avenue  
Pierre, SD 57501

South Dakota State Engineer  
Joe Foss Building  
523 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of Agriculture  
Joe Foss Building  
523 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of Game, Fish, and Parks  
523 East Capitol Avenue  
Pierre, SD 57501

South Dakota Office of the Attorney General  
500 East Capitol Avenue  
Pierre, SD 57501

South Dakota State Geologist  
Akeley – Lawrence Science Center, USD  
414 East Clark Street  
Vermillion, SD 57069

South Dakota Department of Commerce and Regulation  
118 West Capitol Avenue  
Pierre, SD 57501

South Dakota Office of the Governor  
500 East Capitol Avenue  
Pierre, SD 57501

South Dakota Governor's Office of Economic  
Development  
711 East Wells Avenue  
Pierre, SD 57501

South Dakota Department of Health  
600 East Capitol Avenue  
Pierre, SD 57501

South Dakota Office of Tribal Government Relations  
Capitol Lake Plaza  
711 East Wells Avenue  
Pierre, SD 57501

South Dakota Department of Labor  
700 Governors Drive  
Pierre, SD 57501

South Dakota Legislative Research Council  
Capitol Building, 3<sup>rd</sup> Floor  
500 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of Environment and  
Natural Resources  
Joe Foss Building  
523 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of School and Public Lands  
500 East Capitol Avenue  
Pierre, SD 57501

South Dakota Department of Transportation  
Becker Hansen Building  
700 East Broadway Avenue  
Pierre, SD 57501

**10-YEAR PLAN FOR  
MAJOR GENERATION AND  
TRANSMISSION FACILITIES**

**TO THE**

**SOUTH DAKOTA  
PUBLIC UTILITIES COMMISSION**

**SUBMITTED BY  
NORTHERN STATES POWER COMPANY,  
A MINNESOTA CORPORATION  
JULY 2014**



**Northern States Power Company d/b/a Xcel Energy**  
**2014 South Dakota Ten-Year Plan**  
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Xcel Energy Transmission Lines	Appendix A	

Northern States Power Company, doing business as Xcel Energy (Xcel Energy or the Company), submits the following information to the South Dakota Public Utilities Commission as required by S.D. Admin. R. §§ 20:10:21:02 to 20:10:21:21 and SDCL § 49-41B-3.<sup>1</sup>

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<sup>1</sup> The rules incorporate and put into effect the requirements outlined under S.D. Codified Laws § 49-41B-3

**20:10:21:04 EXISTING ENERGY CONVERSION FACILITIES**

Xcel Energy has one existing energy conversion facility in South Dakota. The table below provides the required information on this facility.

**Angus C. Anson**

1	Location	Minnehaha County, South Dakota	
2	Type Nameplate Capacity	Simple Cycle Combustion Turbine  119.7 MW (unit 2) 119.7 MW (unit 3) 166.3 MW (unit 4)	
3	Net Capacity	2012 Summer	94 MW (unit 2) 94 MW (unit 3) 150 MW (unit 4)
		Winter	109 MW (unit 2) 109 MW (unit 3) 172 MW (unit 4)
		2013 Summer	90 MW (unit 2) 90 MW (unit 3) 147 MW (unit 4)
		Winter	109 MW (unit 2) 109 MW (unit 3) 168 MW (unit 4)
	Annual Production	2012: 2013:	112,729 MWh (total) 40,067 MWh (total)
4	Water Source and Annual Consumption	Ground Water  2012: 2013:	  42.27 acre-ft 16.97 acre-ft
5	Fuel Type Source Annual Consumption	Natural Gas Northern Natural Gas Co. <sup>2</sup> 2012: 1,390,441.00 MMBtu 2013: 508,070.00 MMBtu	Fuel Oil 2012: 100,277.00 gal 2013: 160,017.01 gal
6	Projected Retirement Date	Unit 2 & 3: Unit 4:	5.8 Years 21.4 Years

<sup>2</sup> The natural gas fuel is purchased from independent third party suppliers and delivered through the Northern Natural Gas interstate pipeline system.

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**20:10:21:05 PROPOSED ENERGY CONVERSION FACILITIES**

		<b>Manitoba Hydro Purchased Power Agreement</b>	<b>Courtenay Purchased Power Agreement</b>	<b>Odell Purchased Power Agreement</b>
1	Location	Manitoba, Canada	Jamestown, ND	Lakefield, Minnesota
2	Why Selected	Renegotiation of Existing PPA	Competitive RFP bid	Competitive RFP bid
3	Type Nameplate Capacity	Hydro 375 MW On-Peak 350 MW Seasonal Diversity Exchange	Wind 200 MW	Wind 200 MW
4	Estimated Production	1,287,000 Annual MWh	<b>[TRADE SECRET BEGINS...  ...TRADE SECRET ENDS]</b>	<b>[TRADE SECRET BEGINS...  ...TRADE SECRET ENDS]</b>
5	Water Source	Nelson, Winnipeg, Saskatchewan and Laurie Rivers	NA	NA
6	Fuel Type	Predominately Hydro <sup>3</sup>	Wind	Wind
7	Disposal Plans	Not Applicable	Not Applicable	Not Applicable
8	Associated Facilities	Existing Transmission Path	Ottertail Power's Jamestown North Dakota substation	New Lakefield Junction-Wilmarth 345 kW line
9	Operating life with SD Fuels	Not Applicable	Not Applicable	Not Applicable
10	Projected End of Life	April 30, 2025 <sup>4</sup>	2035	2035
11	Estimated Cost	≈ \$3 Billion	<b>[TRADE SECRET BEGINS...  ...TRADE SECRET ENDS]</b>	<b>[TRADE SECRET BEGINS...  ...TRADE SECRET ENDS]</b>
12	Projected In-Service Date	2015	2015	2015

<sup>3</sup> The contract is for system resources. Under medium water conditions approximately 98% of Manitoba Hydro generation is hydroelectric resources.

<sup>4</sup> April 30, 2025 is the contract end date of our PPA with Manitoba Hydro.

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		<b>Pleasant Valley Wind Facility</b>	<b>Border Winds Wind Facility</b>
1	Location	Mower and Dodge Counties, MN	Northeastern Rolette County, North Dakota
2	Why Selected	Competitive RFP bid	Competitive RFP bid
3	Type Nameplate Capacity	Wind 200 MW	Wind 150 MW
4	Estimated Production	≈ 802,415 Annual MWh	≈ 598,000 Annual MWh
5	Water Source	NA	NA
6	Fuel Type	Wind	Wind
7	Disposal Plans	Not Applicable	Not Applicable
8	Associated Facilities	Great River Energy's Pleasant Valley substation	Harvey-Glenboro 230 kV line in North Dakota
9	Operating life with SD Fuels	Not Applicable	Not Applicable
10	Projected End of Life	December 31, 2040	December 31, 2040
11	Estimated Cost	[ <b>TRADE SECRET BEGINS... ...TRADE SECRET ENDS]</b> ]	[ <b>TRADE SECRET BEGINS... ...TRADE SECRET ENDS]</b> ]
12	Projected In-Service Date	2015	2015

*2017-2019 Generation Acquisition.* As part of the Competitive Resource Acquisition Plan (CAP), the Company also filed with the Minnesota Public Utilities Commission (Minnesota Commission) on April 15, 2013 for the addition of a 460 MW natural gas fired combustion turbine facilities to be located at the Black Dog plant site in Burnsville Minnesota and near the Hankinson North Dakota area (Red River Valley).

As part of the CAP docket a number of other proposals were submitted as alternatives to our Black Dog and Red River Valley Peaking facility proposals. These alternate proposals included a Purchase Power Agreement (PPA) proposal from Calpine to increase the output of the existing Mankato Energy Center by 345 MW; a PPA proposal from Invenergy to increase the output of the existing Cannon Falls Generating Plant by 179 MW; a PPA proposal from Invenergy to construct a new 358 MW natural gas fired combustion turbine facility; a PPA proposal from Geronimo Energy to construct 100 MW of new distributed solar facilities; and a proposal from Great River Energy to provide 100-200 MW of accredited capacity from 2016 to 2018.

On May 23, 2014 the Commission selected the Geronimo Energy solar proposal. In addition, the Commission requested contract and project terms be negotiated with the three parties submitting natural gas projects. Terms and related cost impacts are currently being finalized and evaluated. These will be submitted to the Minnesota Commission on or before September 21, 2014. The Minnesota Commission will evaluate the potential development of gas projects at that time.

## **20:10:21:06 EXISTING TRANSMISSION FACILITIES**

Listed below are our existing transmission facilities operating at 115 kV or above in South Dakota. They are all located in the eastern portion of the state. A map showing the location of our transmission lines is included as Appendix B. Currently none of these facilities are projected to be removed from service.

### **A. Type 115 kV – AC**

1. Lawrence Substation in Sioux Falls to the Lincoln County Substation south of Sioux Falls – 11 miles.
2. Lincoln County Substation south of Sioux Falls to the Louise Substation (southwest side of Sioux Falls) – 3 miles.
3. Louise Substation (southwest corner of Sioux Falls) to the Cherry Creek Substation (west side of Sioux Falls) – 7 miles.
4. Cherry Creek Substation to the Grant Substation west of Sioux Falls – 24 miles.
5. Grant Substation west of Sioux Falls to Northwestern Energy (Northwestern) at Mitchell – 24 miles to Wolf Creek Interconnection owned by Xcel Energy; the remainder is owned by Northwestern.
6. Lawrence Substation in Sioux Falls to the Western Area Power Administration (WAPA) Substation in Sioux Falls – 1 mile.
7. Lawrence Substation in Sioux Falls to the Split Rock Substation approximately 5 miles northeast of Sioux Falls (circuit #1) – 2.5 miles.
8. Split Rock Substation to the Pathfinder Substation approximately 4 miles northeast of Sioux Falls - 0.8 miles.
9. Pathfinder Substation to the Pipestone Substation in Pipestone, Minnesota. Approximately 34.5 miles of this line are in the state of South Dakota – 43 miles total.
10. Lawrence Substation in Sioux Falls to the Split Rock Substation approximately 5 miles northeast of Sioux Falls (circuit #2). Approximately 1 mile of this line is double-circuited with the Split Rock-Magnolia 161 kV line; 2.2 miles total.
11. Split Rock Substation to the West Sioux Falls Substation – 17.3 miles.
12. West Sioux Falls Substation to the Cherry Creek Substation – 3.5 miles.

13. Split Rock Substation to Cherry Creek – 16.5 miles.
14. Split Rock to Angus C. Anson generating plant – 0.28 miles.
15. Split Rock to Angus C. Anson generating plant # 2 – 0.43 miles.
16. Brookings County to Yankee #1 – 3.7 miles of this line are in South Dakota; 13 miles total.
17. Brookings County to Yankee #2 – 6.5 miles of this line are in South Dakota; 13 miles total.

**B. Type 161 kV – AC**

1. Split Rock Substation approximately 5 miles northeast of Sioux Falls to ITC Midwest, LLC (ITC Midwest) interconnection near Luverne, Minnesota.<sup>5</sup> Approximately 1 mile of this line is double-circuited with the second Lawrence- Split Rock 115 kV line. Approximately 11 miles of this line are in the state of South Dakota - 20 miles total.

**C. Type 230 kV – AC**

1. Split Rock Substation to the WAPA Sioux Falls Substation – 1 mile.

**D. Type 345 kV – AC**

1. Split Rock Substation northeast of Sioux Falls to the WAPA’s 345 kV line to Watertown. This is a 5.1 mile line with 2.5 miles double circuit but one circuit is not energized.
2. Split Rock Substation northeast of Sioux Falls to the WAPA’s 345 kV line to Sioux City. This is a double-circuit line – 5.1 miles with the Split Rock-Nobles line.
3. Split Rock-Nobles County-Lakefield Junction. 345 kV line  
Approximately 10 miles of this line are in the state of South Dakota – 90.8 miles total. 5.1 miles are double circuit with the Split Rock-Sioux City line.
4. Brookings County-White 345 kV line #1. This is a 0.4 mile line.
5. Brookings County-White 345 kV line #2. This is a 0.4 mile line.

**20:10:21:07 PROPOSED TRANSMISSION FACILITIES**

**A. Sioux Falls Northern 115 kV Line**

The existing load in the city of Sioux Falls is near the limits of 69 kV and needs to be converted to 115 kV. The Sioux Falls Northern 115 kV Line converts multiple 69 kV lines to 115 kV and moves half of the load on the 69 kV to the more robust 115 kV

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<sup>5</sup> In early 2008, ITC Midwest purchased all of the high voltage electric transmission facilities of Interstate Power and Light Company (Alliant Energy) in Iowa, Minnesota and Illinois.

system in the city. This project has an estimated in service date of June 1<sup>st</sup>, 2015. The project includes the following:

- Relocate the current Sioux Falls 69 kV distribution substation across the street with a new 115 kV distribution substation named Falls substation.
- Rebuild the existing Lawrence to Sioux Falls double circuit 69 kV line to a new double circuit 115 kV line from the new Falls substation to Lawrence and Split Rock substations. One half of the new double circuit 115 kV line will be operated at 69 kV and converted in the future when necessary. This line is approximately 7 miles long and located in the city of Sioux Falls.
- Rebuild the existing Sioux Falls to West Sioux Falls 69 kV line to a new 115 kV line from the new Falls substation to West Sioux Falls substation. This line is approximately 3 miles long and located in the city of Sioux Falls.
- This project has an estimated cost of \$51 million, which includes all Distribution and Transmission costs.

We have no plans to retire these facilities within the next 10 years.

## **B. CapX2020 Proposals**

A group of investor-owned, cooperative and municipal utilities in Minnesota, eastern North Dakota, eastern South Dakota, and western Wisconsin (CapX2020 Utilities), completed a high-level visionary study looking at the bulk transmission needs in their combined market areas over the next 15 years. This analysis, known as the CapX2020 Vision Study, identified the possible need for 345 kV lines from western South Dakota to the Twin Cities.

From this Vision Study the CapX2020 Utilities developed more specific proposals for the first group of new high voltage lines needed, referred to as Group 1 projects. The Group 1 projects include three 345 kV projects, and one 230 kV project. The approximate lengths and general location of the proposed 345 kV and 230 kV lines are as follows:

- A 230 mile, 345 kilovolt line between Brookings, South Dakota, and the southeast Twin Cities, plus a related 30 mile, 345 kilovolt line between Marshall, Minnesota, and Granite Falls, Minnesota (Brookings Project) at a total estimated cost between \$625 and \$650 million;
- A 250 mile, 345 kilovolt line between Fargo, North Dakota, and Alexandria, St. Cloud and Monticello, Minnesota (Fargo Project) with a total estimated cost between \$620 and \$645 million;
- A 150 mile, 345 kilovolt line between the southeast Twin Cities, Rochester, Minnesota, and La Crosse, Wisconsin (La Crosse Project) with a total estimated cost between \$475 and \$525 million; and

- A 68 mile, 230 kilovolt line between Bemidji and Grand Rapids, Minnesota (Bemidji Project) with a total cost of \$115 million.

The first segment of the Fargo Project was placed in service in 2011 and the remainder of the project is currently under construction. The Bemidji Project was completed and went into service in September of 2012. The Brookings and La Crosse Projects are under construction, and will be placed into service over the next year with total project(s) completion in 2015.

Xcel Energy and Great River Energy, on behalf of the other participating CapX2020 Utilities, filed a CON application for the three 345 kV projects (Brookings, Fargo and La Crosse Projects) with the Minnesota Commission on August 16, 2007. The Minnesota Commission approved CONs for all three 345 kV projects.

A portion of the Brookings project is proposed to be constructed in South Dakota. The Company and Great River Energy, on behalf of the other owners of the Brookings Project filed a Route Permit application with the Minnesota Commission on December 29, 2008 (Docket No. ET-2/TL-08-1474). The Minnesota Commission issued the final Route Permit for the Minnesota portion of this Project in May 2011 and the South Dakota Commission granted the Facility Permit for the South Dakota portion of the Brookings Project in June 2011. This project was also approved by Midcontinent Independent System Operator, Inc., (MISO) and designated as a Multi Value Project (MVP) in December 2011.

With regard to the Fargo Project, in April 2009, a Route Permit for the Monticello to St. Cloud segment of the Monticello-Fargo project was filed in Minnesota. In October 2009, a Route Permit application for the St. Cloud to Fargo segment of the Monticello-Fargo project was filed in Minnesota. The Route Permit was approved in June 2011.

With regard to the Bemidji Project, in March 2008, Otter Tail and Minnkota Power Cooperative filed a CON the project with the Minnesota Commission. A Route Permit application for this project was filed June 2008. In July 2009, the Minnesota Commission unanimously approved the Bemidji project CON. The Minnesota Commission gave route approval in 2010.

With regard to the La Crosse, Project, a Route Application was filed with the Minnesota Commission in January 2010. A Route Permit application was filed later in 2010 in Wisconsin for the La Crosse project and approved in early 2012. None of these projects have a current retirement date estimated and are presumed to have an approximate 40-year life.

The CapX2020 projects will benefit South Dakota by improving transmission infrastructure and reliability, alleviating the existing constraints on deliveries, and expand transmission capability to allow expanded generation investment, especially wind generation.

More information about the CapX2020 initiative is available at [www.capx2020.com](http://www.capx2020.com).

### **C. MISO MVP Portfolio**

A 70 mile, 345 kilovolt line between Brookings County, South Dakota and Big Stone City, South Dakota at a total estimate cost of approximately \$230 million.

The MISO MVP Portfolio is a collection of 17 individual projects and associated underbuild approved by the MISO Board of Directors in December 2011. The portfolio was designed to facilitate the delivery of the required renewable energy to meet renewable portfolio standards and goals across the MISO system as well as increase system reliability, transfer capability and decrease market congestion. The portfolio cost is approximately \$5.2 billion (2011 dollars) which equate to benefit to cost ratios of 1.8 - 5.8 depending on the future assumptions. The portfolio was constructed over several years linking together several planning efforts including past MISO Transmission Expansion Plan (MTEP) studies and the Regional Generator Outlet Study (RGOS). Xcel Energy and Otter Tail Power Company are joint partners in the Big Stone South to Brookings County 345 kV project with Xcel Energy the development manager. A Facility Permit was granted to Otter Tail Power in January 2007 for approximately 40 miles west of Big Stone City to just north of Gary, SD. Xcel Energy filed a Facility Permit with the South Dakota Public Utilities Commission (Commission) in June of 2013 for an additional 40 miles from just north of Gary to the existing Brookings County Substation. On February 18, 2014, the Commission granted a Facility Permit for this project. The project in-service date is 2017.

### **20:10:21:08 COORDINATION OF PLANS**

Xcel Energy is a member of the Midwest Reliability Organization (MRO). The purpose of which is to ensure the reliability and security of the bulk power system covering the states of Wisconsin, Iowa, Minnesota, Nebraska, and most of South Dakota as well as the Canadian provinces of Saskatchewan and Manitoba. As such, the members of the non-profit organization meet to discuss reliability and security issues. There are numerous committees that develop standards, guidelines, and reporting procedures for everything from load shedding to vegetation management. More information about the organization can be found at: <http://www.midwestreliability.org>.

The Company is also a participant in the Minnesota Transmission Assessment & Compliance Team (MN-TACT) along with several other utilities covering Minnesota, Western Wisconsin and parts of North and South Dakota. The purpose of this analysis is to develop an understanding of the transmission system topology, behavior and operation. This analysis is performed to meet NERC Transmission Planning Standards TPL-001 thru TPL-004.

All major transmission planning performed by the Company is now coordinated through MISO on a regional basis, consistent with the Federal Energy Regulatory Commission (FERC) orders (a) dated May 19, 2000 (FERC Docket No. EC00-60-000) authorizing the transfer of functional control of our high voltage transmission system to the MISO; (b) dated December 20, 2001<sup>6</sup> finding the MISO to be the first FERC-approved regional transmission organization (RTO); and dated February 15, 2007 (Order No. 890), requiring RTOs and their member utilities to use coordinated regional planning.<sup>7</sup> MISO issues an annual MTEP after coordinated planning and stakeholder review. Prior to 2007, these plans were issued biennially. The current MTEP 2013 series of projects was approved by the MISO Board of Directors in December of 2013 and is available at the MISO website at [www.misoenergy.org](http://www.misoenergy.org).

As a result of complying with the FERC Order No. 890 rules, MISO has implemented its own Sub-Regional Planning Meetings. We participate in the Western Region meetings. This group provides a forum for stakeholder input and coordination of plans and we actively participate in this. This joint planning is intended to maximize use of existing facilities and minimize the amount of new facilities.

Another example of this coordination by the utilities is the formalization of the Minnesota Transmission Owners (MTO) organization. The MTO consists of all transmission owning utilities in Minnesota. The MTO was formed to submit coordinated biennial transmission planning reports to the Minnesota Commission as required by Minn. Stat. § 216B.2425. Some MTO utilities also serve eastern North Dakota and eastern South Dakota. The MTO group is presently developing coordinated short-term regional plans and longer term vision plans for the bulk transmission needs throughout the upper Midwest and the transmission required to

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<sup>6</sup> FERC Docket Nos. RT01-87-000, RT01-001, ER02-106-000 and ER02-108-000.

<sup>7</sup> *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 FR 12266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241 (2007) (Order No. 890), *order on reb'g*, 73 Fed. Reg. 2984 (Jan. 16, 2008), FERC Stats. & Regs. ¶ 31,261 (2008) (Order No. 890-A); *order on reb'g* 123 FERC ¶ 61,299 (Order No. 890B) (June 23, 2008). MISO's Order No. 890 regional transmission planning process was conditionally accepted for filing in *Midwest Independent Transmission System Operator, Inc.*, 123 FERC ¶ 61,164 (May 15, 2008).

meet the various states' Renewable Energy Standards. The MTO group also performs an annual 10-year assessment of the members' utility systems for compliance with the North American Electric Reliability Corporation Transmission Planning (TPL) standards. The MTO utilities also coordinate their planning with the CapX2020 planning processes and the MTEP processes.

We also participate in Interconnection-wide transmission planning, currently being facilitated under the Eastern Interconnection Planning Collaborative (EIPC) effort, funded by the Department of Energy. The EIPC effort is focused on a high level look at the transmission needs east of the Rocky Mountains (excluding parts of Texas).

In addition, the Company prepares its own resource plan and submitted a copy of that plan to the Commission consistent with the Settlement Stipulation and Commission Order in Docket No. EL09-009.

### **20:10:21:09 SINGLE REGIONAL PLANS**

As described in the previous section, the Company continues to work with MISO and other coordinated regional utility groups to evaluate potential transmission needs in the future and to develop coordinated regional plans as required to meet those needs.

### **20:10:21:10 SUBMISSION OF REGIONAL PLANS**

Regional Plans, by virtue of their geographic coverage, involve a collaborative effort of multiple utilities. As the CapX2020 effort has shown, we and the other utilities in this region are actively analyzing and developing coordinated regional plans. This analysis includes the active participation of the MTO and the MISO planning efforts. This effort is part of the MTEP regional planning process. As specific plans for additional facilities are developed, they will be submitted with subsequent 10-year plans.

The MTEP is subject to review and approval by MISO's independent Board of Directors. Proposals to construct specific MTEP approved facilities in South Dakota would be submitted for Commission approval as required.

### **20:10:21:11 UTILITY RELATIONSHIPS**

Northern States Power Company-Minnesota (NSPM) is an operating company subsidiary of Xcel Energy Inc., a public utility holding company, and we are affiliated with three other regulated public utilities: Northern States Power Company-Wisconsin

(NSPW), Public Service Company of Colorado, and Southwestern Public Service Company. NSPM is a member of MISO, the first FERC-approved RTO. As an RTO, MISO provides regional tariff administration services and operates a Day-ahead and Real-time regional wholesale energy market pursuant to its Open Access Transmission and Energy Markets Tariff (TEMT). MISO implemented a regional planning reserve market 2009, pursuant to Module E of the TEMT.<sup>8</sup> MISO is also the Regional Reliability Coordinator for the NSPM and NSPW integrated electric generation and transmission system (NSP System).

We are also a member of the MRO which is the Regional Entity responsible for enforcement of mandatory electric reliability standards adopted by the North American Electric Reliability Corporation.

We also contract with WAPA for certain transmission services needed to serve our retail loads in South Dakota.

## **20:10:21:12 EFFORTS TO MINIMIZE ADVERSE EFFECTS**

The Company uses a multi-step effort to minimize adverse effects resulting from siting, constructing, operating and maintaining large electric generating plants and high voltage transmission lines. These efforts relate to long-range planning and coordination, environmental site and route analysis, and to ensure the effects of construction and operation practices are minimized.

High voltage transmission facility plans are coordinated with MISO, other area power suppliers and load serving entities in order to develop, whenever possible, joint use facilities. Coordination with others can reduce the number of facilities by providing for joint ownership and operation of facilities.

Once the need for generation or transmission is identified, an initial site or route search is begun by defining a broad study area to locate the facility. A broad range of information about the physical, biological and cultural environment within the study area is then collected. As information on such factors as land use, air and water quality, plants and animals, transportation and social services, and local and regional employment becomes available, various siting criteria are used to define preferred and alternate routes and sites. We prefer to develop a project with the cooperative assistance of state and local agency officials, neighboring transmission utilities (such as Northwestern, WAPA, Missouri River Energy Services and ITC Midwest), and affected landowners in order to assure the widest possible considerations of

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<sup>8</sup> Effective September 9, 2009, MISO began to provide a regional ancillary services market (ASM).

information, concerns and options. It is our policy to ensure compliance with all local, state and federal regulatory requirements in the development and location of proposed projects.

Because of the detail involved in a major generation or transmission project, we continue to refine site and route engineering once permits have been granted. This allows us to adjust for new developments that may arise during construction, such as the need for changes in locations, land use or construction techniques, and allows any concerns to be addressed and mitigated without undue delay and expense. We are committed to working with affected landowners to mitigate environmental and land use problems which may arise as a result of construction and maintenance activities.

### **20:10:21:13 LOAD MANAGEMENT EFFORTS**

The Company's load management efforts in South Dakota reduce peak demands, especially during the summer months, which can help delay or avoid more expensive electric generation and purchased power needs.

On January 1, 2012 we launched a demand side management (DSM) program in South Dakota, approved in the Order in Docket No. EL11-013. The DSM portfolio includes load management, conservation, and consumer education programs aimed at both residential and commercial customers.

Commercial programs in the DSM portfolio include:

- Lighting Efficiency (conservation)
- Business Saver's Switch (load management)
- Peak and Energy Control (load management)

Residential programs in the DSM portfolio include:

- Ground Source Heat Pumps (conservation)
- Residential Home Lighting (conservation)
- Residential Saver's Switch (load management)
- Consumer Education

Since their launch, these programs have reduced peak demand by about 4.6 MW and have conserved almost 12 GWh. It is forecasted that in the next two years (2014-2015) the programs will achieve an additional 4 MW in peak reduction and 10.6 GWh in energy conservation. The annual budget for these programs is \$775,041.

## **20:10:21:14 LIST OF REPORTS RELATED TO PROPOSED FACILITIES**

MTEP09 Report: December 2009

Minnesota Transmission Assessment and Compliance Team 2010 Transmission Assessment: April 2010

MTEP10 Report: November, 2010

Minnesota Transmission Assessment and Compliance Team 2011 Transmission Assessment: July 2011

MTEP11 Report: November 2011

Multi-Value Project Portfolio: December 2010

Xcel Energy 10-Year Plan Load-Serving Study: December 2011

Minnesota Transmission Assessment and Compliance Team 2012 Transmission Assessment: July 2012

MTEP12 Report: November 2012

Minnesota Transmission Assessment and Compliance Team 2013 Transmission Assessment: July 2013

MTEP13 Report: November 2013

## **20:10:21:15 CHANGES IN STATUS OF FACILITIES**

### **A. Sherco Unit 3 Upgrade**

Sherco Unit 3 returned to service in September of 2013 following an extended outage due to significant vibration damage. The 22 MW uprate project is performing better than anticipated.

On July 1, 2013 the Company filed a Life cycle Management Study for Sherco Units 1 and 2 with the Minnesota Commission.<sup>9</sup> The North Dakota filing, which included analysis reflecting zero externalities and no CO<sub>2</sub> costs, was filed on July 23, 2013. The study considers the costs of life extension, installation of environmental control

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<sup>9</sup> Minnesota Commission Docket No. E002/RP-13-368

systems, and replacement alternatives. The Minnesota Commission has directed the company to provide further analysis in the next Resource Plan filing, which was ordered to be filed by January 2, 2015.

### **B. Bay Front Boiler #5 Gasification Project**

The Bay Front Plant is located in Northern Wisconsin and is owned by Northern States Power Company - Wisconsin. Two of the units at the plant have already been reconfigured to run on biomass. A third unit, Boiler #5 is currently fueled by coal and petroleum coke. However, due to this boiler's age, location, and pending changes to environmental permit compliance requirements, it will not be cost-effective to continue to operate this boiler on those fuels. As a result, we are exploring various options to reconfigure this unit to run on biomass.

### **C. Monticello**

In November 2008, the Company filed an application with the Nuclear Regulatory Commission (NRC) to amend the operating license at our Monticello Nuclear Generating Station to allow operation at an increased thermal power. NRC approval of operation at the increased thermal power, also known as “extended power uprate” (EPU) will allow us to increase the current generating capacity of 600 MW by approximately 71 MW. The NRC Staff approved the EPU license amendment in December 2013. As part of the amendment the NRC requires us to ascend to the new power level in increments while monitoring plant performance to ensure that it is operating as expected. The Company began its power ascension plan following receipt of the NRC’s approval. Due to recently-discovered data anomalies, however, the Company returned the unit to its originally-licensed output level while those issues are being investigated. We expect to restart ascension in August and anticipate operation at the full increased thermal power limit, producing 671 MWe by the end of 2014.

### **D. Prairie Island**

On March 30, 2012, we submitted a Change of Circumstance filing to the Minnesota Commission addressing our proposed reduction in size and a delay in the federal review process. We later conducted additional cost-benefit analyses which demonstrated while the project appeared to be cost-effective, the potential benefits had diminished and risks were continuing to increase. In addition, we determined that utilizing the new fuel assemblies to extend the time between outages, rather than operate at higher output levels, would reduce the total benefits of the project compared to not proceeding with the project. At a regularly scheduled meeting on December 20, 2012, the Commission voted to terminate the CON for the Prairie

Island EPU prospectively.<sup>10</sup> In its February 2013 Order, the Minnesota Commission concluded that it was in the public interest to discontinue the Project and that no party had shown cause to continue.

### **E. Black Dog Repowering**

Black Dog Units 3 and 4 were installed in 1955 and 1960, respectively, and are currently near the end of their economic and engineering life. Changes to environmental permit compliance requirements will likely result in these units ceasing coal-fired generation before April 15, 2015. The Company has proposed to replace Black Dog Units 3 and 4 with a new peaking unit as part of the CAP, mentioned above.

### **F. Louise Substation**

In 2011 the Company added a new substation at the intersection of 85<sup>th</sup> Street and Louise Avenue in southwestern Sioux Falls. The new substation relieves loading on the adjacent Lincoln County Substation. A new 28 MVA transformer and two new 13.8kV feeders provide needed new capacity and voltage support to the growing southwest side of Sioux Falls.

## **20:10:21:16 PROJECTED ELECTRIC DEMAND**

The NSP System serves customers in South Dakota, North Dakota, Minnesota, Wisconsin and Michigan. The forecast of our native energy requirements and peak demand for the State of South Dakota jurisdiction is shown in Table Xcel Energy-SD-1. We produce its long-range “median” forecasts of native energy requirements, summer peak, and winter peak demand. We plan to meet the needs of the integrated NSPM/NSPW generation and transmission system. For planning purposes, we also develop a bandwidth (called semi-high and semi-low scenarios) to supplement our “median” forecasts. These two scenarios are intended to describe uncertainty in a business-as-usual context: a relatively narrow range of US economic growth with no basic change in the relationship between the regional and national economies. Table Xcel Energy-1 through Table Xcel Energy-3 show the long-range system forecast of native energy requirements, summer peak, and winter peak demand for the NSP System. Table Xcel Energy-SD-1 shows the South Dakota portion of the NSP System forecast.

The forecast for the NSP System is based on forecasts of 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

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<sup>10</sup> Minnesota Commission Docket No. E002/CN-08-509 (Feb. 27, 2013).

independently for the five states included in the NSP System. The native energy requirements are determined by applying a loss factor on total sales. The NSP System peak is apportioned to jurisdictions based on the native energy requirements by state and the load factor by state. Consequently, the summer and winter “peak loads” provided in Table Xcel Energy-SD-1 represent the South Dakota jurisdiction customer demand at time of total System seasonal peak demand. This “coincident” demand is appropriate for generating capacity requirement forecasting.

It is important to note, however, that a “non-coincident” peak demand must be used in evaluating transmission capacity requirements. This is because the transmission system must be able to supply the full local customer demand at all times. Due to load diversity caused by weather variations within the multi-state NSP System, peak customer demands in our South Dakota service areas can be as much as 10 percent higher than the demands registered during the hour in which the total System peak demand occurs. It is these local “non-coincident” peak demands that determine the need for transmission improvements required for load serving functions.

## **20:10:21:17 CHANGES IN ELECTRIC ENERGY**

Table Xcel Energy-SD-1 shows the projected volume and percentage increase in energy demand for our South Dakota service territory for each year.

**Table Xcel Energy-SD-1**  
**Northern States Power Company**  
**State of South Dakota**  
**Forecast of Electric Energy Requirements and Peak Demand**

	Summer Peak (MW)	Winter Peak (MW)	Energy (GWh)	Change In Energy (GWh)	% Change In Energy
2014	422	321	2,114		
2015	428	326	2,135	21	1.0%
2016	437	332	2,170	35	1.7%
2017	445	338	2,205	35	1.6%
2018	452	342	2,233	28	1.3%
2019	459	346	2,269	36	1.6%
2020	467	354	2,313	44	1.9%
2021	476	360	2,352	40	1.7%
2022	484	364	2,382	30	1.3%
2023	492	369	2,421	38	1.6%
2024	500	374	2,467	46	1.9%
2025	508	379	2,509	42	1.7%
2026	516	385	2,544	34	1.4%
2027	524	390	2,589	45	1.8%
2028	532	396	2,642	53	2.1%
2029	540	401	2,691	49	1.9%
2030	548	407	2,730	39	1.5%
2031	557	412	2,781	50	1.8%
2032	566	418	2,838	57	2.1%

**Average Annual Growth Rate, 2014-2032:**

<b>% growth:</b>	<b>1.5%</b>	<b>1.4%</b>	<b>1.6%</b>
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**Notes:**

- 1). Peak Load is *coincident* to the Xcel Energy system peak.
- 2). Winter Peak = MISO Winter Peak season, 2014 is 2014 - 2015 winter peak.
- 3). Peak Load forecast growth from 2024 - 2032 is based on average summer and winter ND peak growth rates from 2014 through 2023.

**Table Xcel Energy-1**  
**Northern States Power Company**  
**State of South Dakota**  
**NSP System Net Energy Requirements (MWh)**

<b>Year</b>	<b>Semi-Low (MWh)</b>	<b>Median (MWh)</b>	<b>Semi-High (MWh)</b>
2014	43,668,397	44,444,441	45,223,312
2015	43,451,536	44,416,954	45,389,861
2016	43,442,515	44,576,176	45,718,406
2017	43,397,807	44,670,551	45,946,863
2018	43,429,893	44,833,182	46,263,118
2019	43,514,782	45,051,567	46,597,411
2020	43,563,071	45,223,792	46,882,346
2021	43,431,115	45,199,960	46,983,461
2022	43,448,218	45,337,242	47,232,484
2023	43,243,012	45,269,624	47,264,505
2024	43,198,436	45,320,067	47,466,798
2025	43,119,576	45,365,687	47,633,741
2026	43,030,445	45,430,878	47,829,653
2027	43,104,551	45,640,152	48,178,182
2028	43,668,079	46,356,594	49,019,765
2029	43,707,877	46,537,611	49,387,792
2030	43,874,771	46,893,828	49,880,383
2031	44,048,780	47,244,838	50,409,958
2032	44,300,392	47,644,199	51,002,135

**Average Annual Growth Rate, 2014-2032:**

**% growth:**                      **0.1%**                                      **0.4%**                                      **0.6%**

**Notes:**        Semi-Low and Semi-High Scenarios reflect an 80%/20% Confidence Level  
NSP System Net Energy Requirements have been adjusted for DSM  
(Demand Side Management)

**Table Xcel Energy-2**  
**Northern States Power Company**  
**State of South Dakota**  
**NSP System Net Summer Peak (MW)**

<b>Year</b>	<b>Semi-Low (MW)</b>	<b>Median (MW)</b>	<b>Semi-High (MW)</b>
2014	8,287	8,608	8,947
2015	8,201	8,629	9,065
2016	8,182	8,687	9,208
2017	8,164	8,744	9,337
2018	8,167	8,802	9,459
2019	8,153	8,844	9,549
2020	8,118	8,864	9,626
2021	8,102	8,894	9,698
2022	8,111	8,958	9,809
2023	8,067	8,950	9,867
2024	8,046	8,961	9,929
2025	8,003	8,954	9,930
2026	7,966	8,975	10,001
2027	7,957	8,992	10,070
2028	7,994	9,087	10,186
2029	7,986	9,085	10,247
2030	7,979	9,138	10,333
2031	7,991	9,186	10,405
2032	8,015	9,241	10,513

**Average Annual Growth Rate, 2014-2032:**

<b>% growth:</b>	<b>-0.2%</b>	<b>0.4%</b>	<b>0.8%</b>
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**Notes:** Semi-Low and Semi-High Scenarios reflect an 80%/20% Confidence Level  
Net Peak Demand Adjusted for DSM

**Table Xcel Energy-3**  
**Northern States Power Company**  
**State of South Dakota**  
**NSP System Net Winter Peak (MW)**

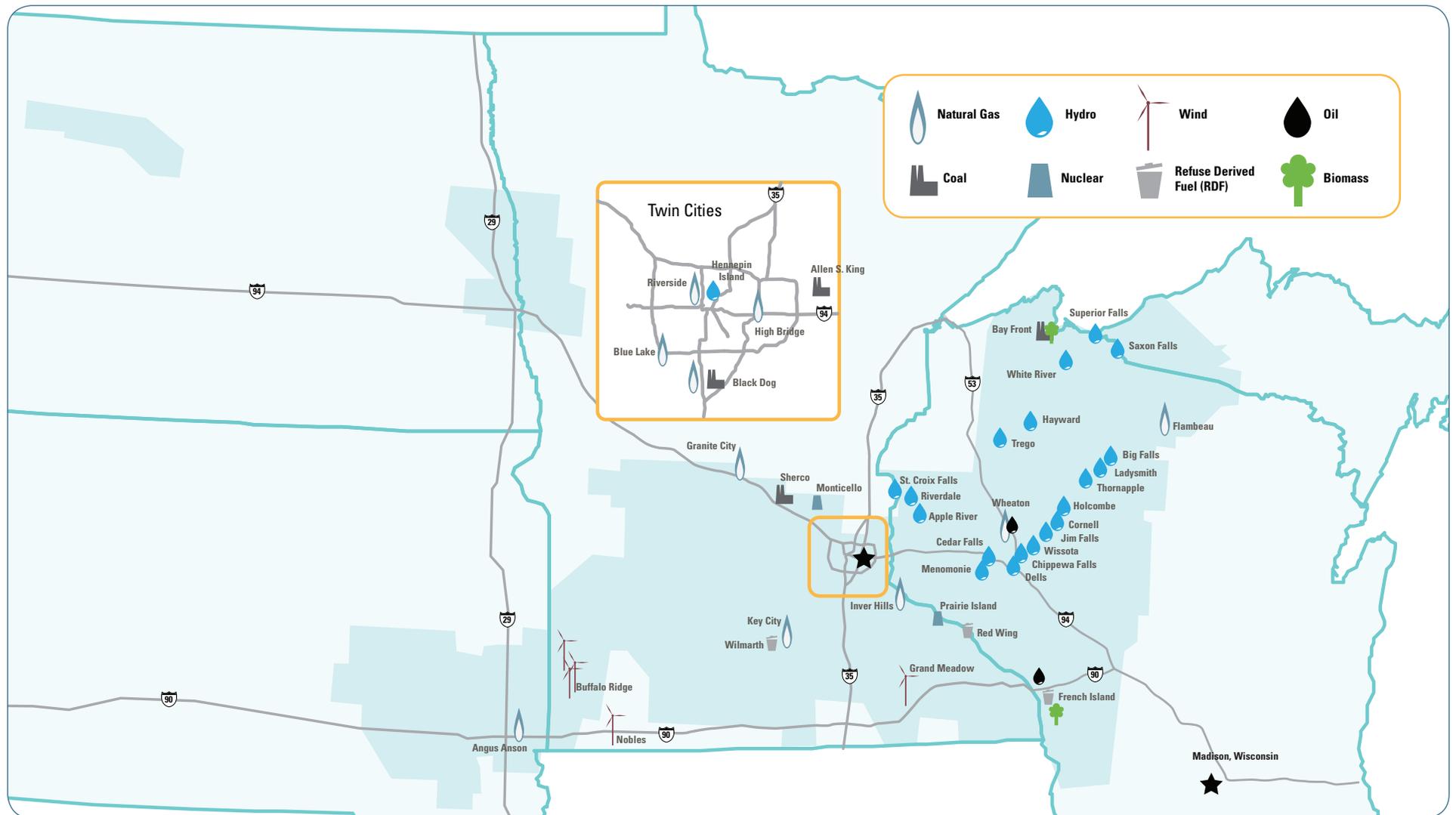
<b>Year</b>	<b>Semi-Low (MW)</b>	<b>Median (MW)</b>	<b>Semi-High (MW)</b>
2014	6,288	6,571	6,867
2015	6,185	6,569	6,978
2016	6,135	6,599	7,078
2017	6,113	6,641	7,172
2018	6,066	6,662	7,254
2019	6,032	6,685	7,327
2020	5,997	6,684	7,403
2021	5,966	6,716	7,463
2022	5,920	6,738	7,526
2023	5,890	6,724	7,567
2024	5,814	6,702	7,587
2025	5,790	6,701	7,636
2026	5,727	6,685	7,617
2027	5,688	6,684	7,686
2028	5,694	6,731	7,763
2029	5,686	6,734	7,794
2030	5,653	6,751	7,852
2031	5,653	6,788	7,916
2032	5,629	6,811	7,969

**Average Annual Growth Rate, 2014-2032:**

**% growth:**                    **-0.6%**                    **0.2%**                    **0.8%**

**Notes:**      Winter Peak = Winter Peak season, 2013 is 2013-2014 winter peak.  
Semi-Low and Semi-High Scenarios reflect an 80%/20% Confidence Level  
Peak Adjusted for DSM

# Upper Midwest Generation Resources



**2014 South Dakota Communities Served**

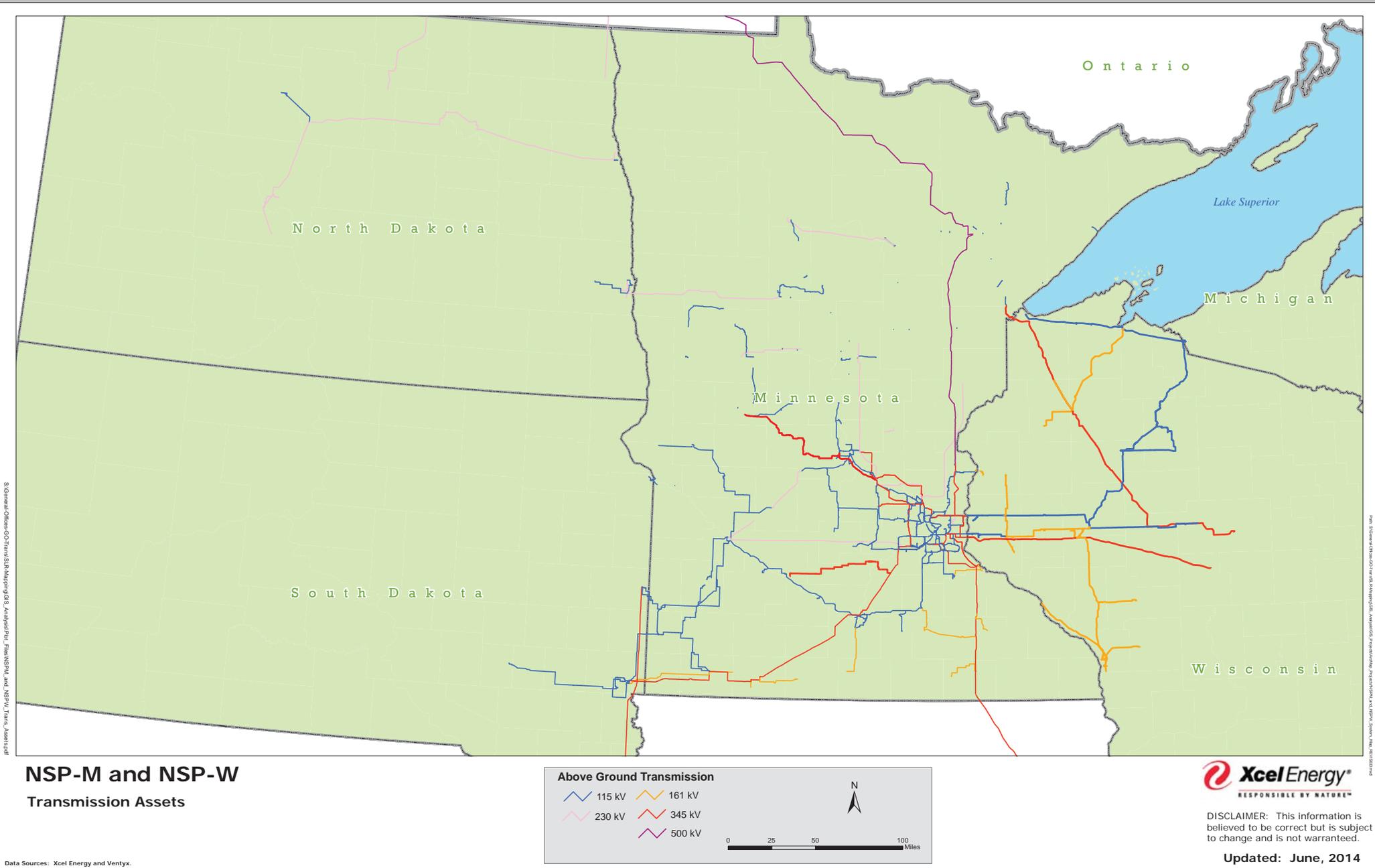
E- Electricity U- Unincorporated EU- Electric &amp; Unincorporated

Alexandria <b>E</b>	Fedora <b>EU</b>	Perry Twp <b>E</b>
Artesian <b>E</b>	Forestburg <b>EU</b>	Ramona <b>E</b>
Baltic <b>E</b>	Fulton <b>E</b>	Renner <b>EU</b>
Benton Twp <b>E</b>	Garretson <b>E</b>	Roswell <b>E</b>
Brandon <b>E</b>	Germantown Twp <b>E</b>	Salem <b>E</b>
Brandon Twp <b>E</b>	Grant Twp <b>E</b>	Sanborn County <b>E</b>
Bridgewater <b>E</b>	Hanson County <b>E</b>	Sherman <b>E</b>
Bridgewater Twp <b>E</b>	Harrisburg <b>E</b>	Sioux Falls <b>E</b>
Canisota <b>E</b>	Howard Twp <b>E</b>	Sioux Falls Twp <b>E</b>
Canova <b>E</b>	La Valley Twp <b>E</b>	Split Rock Twp <b>E</b>
Canton <b>E</b>	Lake County <b>E</b>	Spring Valley Twp <b>E</b>
Canton Twp <b>E</b>	Lennox <b>E</b>	Springdale Twp <b>E</b>
Carthage <b>E</b>	Lincoln County <b>E</b>	Sverdrup Twp <b>E</b>
Centerville <b>E</b>	Logan Twp <b>E</b>	Tea <b>E</b>
Centerville Twp <b>E</b>	Lyons Twp <b>E</b>	Turner County <b>E</b>
Chancellor <b>E</b>	Mapleton Twp <b>E</b>	Union Twp <b>E</b>
Crooks <b>E</b>	Marion <b>E</b>	Valley Springs Twp <b>E</b>
Delapre Twp <b>E</b>	McCook County <b>E</b>	Vilas <b>E</b>
Dell Rapids <b>E</b>	Miner County <b>E</b>	Wall Lake Twp <b>E</b>
Dell Rapids Twp <b>E</b>	Minnehaha County <b>E</b>	Wayne Twp <b>E</b>
Dolton <b>E</b>	Monroe <b>E</b>	Wellington Twp <b>E</b>
Dolton Twp <b>E</b>	Monroe Twp <b>E</b>	Winfred <b>EU</b>
Ellis <b>EU</b>	Moody County <b>E</b>	Worthing <b>E</b>
Emery <b>E</b>	Palisade Twp <b>E</b>	

Note: We have expanded our list of communities served to incorporate townships.

# NSP Transmission Lines - 115kV and Above

## 2014



Data Sources: Xcel Energy and Ventyx.