



A Touchstone Energy® Cooperative 

July 1, 2020

Secretary to the Commission  
North Dakota Public Service Commission  
State Capitol Building  
Bismarck, North Dakota 58505

Dear Sir:

In accordance with Section 49-22-04 of the North Dakota Century Code, Minnkota Power Cooperative herewith files the enclosed Ten-Year Plan with the North Dakota Public Service Commission.

Any questions concerning the contents of the enclosed document should be directed to me.

Sincerely,

MINNKOTA POWER COOPERATIVE, INC.

Jamie Overgaard  
Rates, Load and Planning Manager

Enclosure

# TEN-YEAR PLAN



## Grand Forks, North Dakota

Prepared for the North Dakota Public Service Commission  
Pursuant to Section 49-22-04 of the  
North Dakota Century Code

MPC  
RATES, LOAD AND PLANNING DEPARTMENT

July 2020

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## **MINNKOTA POWER COOPERATIVE, INC.**

# **TEN-YEAR PLAN**

## **INTRODUCTION**

Minnkota Power Cooperative, Inc. (Minnkota) was organized on March 28, 1940 and incorporated under the laws of the State of Minnesota. It is the wholesale electric power supplier for 11 rural electric cooperatives located in the eastern one-third of North Dakota and the northwestern part of Minnesota. Minnkota serves approximately 136,000 end-use customers in a 34,500 square mile service area that includes 33 counties in the Red River Valley and adjoining areas.

Minnkota owns and operates the Milton R. Young 1 plant, a 250,000 kW lignite-fired steam generator located near Center, North Dakota, Minnkota owns or leases another 34,000 kW of smaller diesel units located throughout its service area. Minnkota schedules a firm allocation of 109,000 kW with the Western Area Power Administration on behalf of Minnkota and NMPA. Minnkota, as operating agent for the Northern Municipal Power Agency (NMPA), which consists of 12 municipals, 10 located in northwestern Minnesota and two located in eastern North Dakota, also operates NMPA's 128,100 kW from NMPA's share of Coyote plant output.

Minnkota purchases 355,000 kW from Square Butte Electric Cooperative's Milton R. Young 2 plant. On December 31, 2009 Square Butte Electric Cooperative sold its 463 mile  $\pm$  250 kilovolt D.C. transmission line to Minnesota Power. As part of the sale of the D.C. line, Minnkota began receiving an increasing allocation of Young 2 electrical output through a separate Purchase Power Agreement with Minnesota Power, beginning in mid-2014 when a new 345 kV transmission line from Center to Grand Forks was completed. Minnkota's allocation, currently at 50% from Square Butte Electric Cooperative and 28.02% from Minnesota Power, will increase in varying increments until 2026, at which point Minnkota will receive 100 percent of the electrical energy produced by Young 2.

Minnkota's wind portfolio consists of owned turbines, two 900 kW wind turbines, one located near Valley City and one located near Petersburg, North Dakota, as well as a mix of 20 and 25-year Purchase Power Agreements for a total of 468,130 kW. The Purchase Power Agreements are comprised of 139,500 kW from wind located near Langdon, ND, 229,380 kW from wind projects located near Pillsbury, ND, and a more recent Purchase Power Agreement from Oliver Wind III, placed into service January 1, 2017, as a 25-year Power Purchase Agreement for 99,250 kW from a wind project located west of Center, ND.

**SECTION A: Existing Energy Conversion Facilities**

1. See Exhibit I

OTP will be responsible for Form EIA-923 for the Coyote facilities.

**SECTION B: Energy Conversion Facilities Under Construction**

None

**SECTION C: Proposed Energy Conversion Facilities on Which Construction is Intended Within The Ensuing Five Years**

Minnkota's largest generation resource continues to be the Milton R. Young Station. Recognizing the ever increasing pressure on utilities to reduce carbon dioxide (CO<sub>2</sub>) emissions, Minnkota has been leading the development of Project Tundra. The goal of Project Tundra is to install carbon capture and storage technologies at the Young Station to capture and permanently store the CO<sub>2</sub> more than a mile underground in geologic formations. The carbon capture system will utilize Fluor Corporation's Econamine FG Plus<sup>SM</sup> technology and will be sized to capture more than 90% of the CO<sub>2</sub> emissions from Unit 2. A total of about 4 Million tonnes/year of CO<sub>2</sub> would be captured and permanently sequestered from the atmosphere, which is the equivalent of permanently removing about 800,000 vehicles from the road.

Another driver for Minnkota's pursuit of Project Tundra is to create a new benchmark – a large-scale demonstration at an existing plant that can be commercially and economically replicated across the region, the country, and the world. Minnkota recognizes that carbon regulations present a longer-term risk to maintaining affordable and reliable resources that emit CO<sub>2</sub>. If constructed, Project Tundra could help provide continued reliability and affordability of electricity from the power plant, while also preserving prior plant infrastructure investment. Using a technology-driven solution can help to reduce risk to our member-owners given the uncertainty of future CO<sub>2</sub> regulations.

Project Tundra has received important bi-partisan support, and has partnered with federal and State of North Dakota partners to advance its research and development. Leveraging approximately \$30 Million in state and federal funding, the Project Tundra team is currently performing detailed engineering and design (Front-End Engineering & Design, or FEED) for the carbon capture system, and a series of subsurface investigations to characterize the geologic storage facilities that will safely and permanently sequester the CO<sub>2</sub> deep beneath the Young Station and the adjacent lignite mine. Minnkota currently expects that the engineering work will be completed in early 2021, with permit preparation and submission being also being completed around the same time. Project construction could begin as soon as 2022.

Minnkota is currently seeking outside investment in the project, entities that can

harness applicable tax credits for carbon capture projects, so that the financial risk to Minnkota members can be limited. Ultimately, Project Tundra can result in ~345 MW net of near “zero carbon” power for sale to our members with limited or no increase in cost, while still enabling continued use of North Dakota’s abundant, reliable and low-cost lignite coal resources as well as ensuring the capital investment in the Young Station can continue to be utilized. More details of Project Tundra can be found at [www.projecttundrand.com](http://www.projecttundrand.com)

**SECTION D: Proposed Energy Conversion Facilities During the Next Ten-Year Time Period**  
None

**SECTION E: Existing Transmission Facilities (Electric)**

Minnkota’s North Dakota Electric transmission facilities<sup>1</sup> are listed in the table below. See Exhibit III for a map of Minnkota’s transmission facilities.

Minnkota does not have plans to retire any transmission facilities in the ensuing ten years.

Transmission Line	Voltage (kV)	AC/DC	In Service Dates	Notes
Wahpeton - Frontier - Maple River	230	AC	1968	Tapped by Frontier Substation in 2007
Maple River - Winger	230	AC	1970	6.3 mi. in ND, rest in MN
Prairie - Winger	230	AC	1970	9.2 mi. in ND, rest in MN
Prairie - Drayton	230	AC	1970	
Center 230 - Square Butte	230	AC	1971	
Center 230 – Rough rider - Mandan	230	AC	1971	Tapped by Roughrider substation in 2016
Center - Jamestown (Fried)	345	AC	1981	Center-Maple River line originally completed in 1970 at 230 kV. Uprated to 345 kV in 1981.
Jamestown (Fried) - Buffalo	345	AC	1981	
Buffalo - Bison - Maple River	345	AC	1981	Tapped by Bison Substation in 2014
Pillsbury - Maple River	230	AC	2008	
Center - Prairie (CGF)	345	AC	2014	

**SECTION F: Existing Transmission Facilities (Pipeline)**

None

**SECTION G: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years**

<sup>1</sup> See definition of Electric transmission facility in North Dakota Century Code 49-22.

Minnkota does not have any other defined plans for construction of 230 kV transmission in North Dakota. However, a number of plans are in development for improvement of Minnkota's 69 and 115 kV transmission, which will benefit the cost, and/or reliability of service to North Dakota customers. A number of other ideas are included to meet various needs such as aging infrastructure, blink mitigation, long term outage risk, and transmission tariff costs. Some of those alternatives include tapping the 115 kV and 230 kV systems to provide new sources to lower voltage transmission.

**SECTION H: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Pipeline)**

Project Tundra will likely require a natural gas pipeline to be constructed. It has not been determined if Minnkota or a third party will own and construct.

**SECTION I: Proposed Transmission Facilities during the Next Ten-Year Time Period (Electric and Pipeline)**

Minnkota does not have additional plans for proposed Transmission Facilities beyond the next five years.

**SECTION J: Regional coordination**

Minnkota participates heavily in a variety of regional transmission planning and operating coordination groups and organizations. Descriptions of some of Minnkota's primary coordination venues are listed below.

- Midcontinent Independent System Operator (MISO): In 2015, Minnkota signed multiple agreements with MISO under which MISO now provides various planning coordination, tariff administration, and operating services to Minnkota. These agreements deepened an already healthy and mutually beneficial relationship between the parties. The services provided under these agreements replace services previously provided to Minnkota through the Midcontinent Area Power Pool, which was dissolved by its members in 2015, as well as other contractors. Minnkota also receives reliability coordination services from MISO and is a MISO market participant.
  - Specific to its role as a Planning Coordinator, MISO provides an open forum for Minnkota to submit planned transmission projects through the MISO Transmission Expansion Planning (MTEP) process. The projects receive independent evaluation by MISO and are presented in Sub-regional Planning Meetings (SPM) and on MISO's website, both of which are open and available to the public. The meetings are well attended by many of Minnkota's neighboring transmission owners, as well. More information on the SPM meetings and the MTEP process can be found at [www.misoenergy.org](http://www.misoenergy.org).
- Midwest Reliability Organization (MRO): Minnkota is a member of the MRO, which is a non-profit organization of regional utilities established to develop

regional reliability standards and ensure compliance with standards of the North American Electric Reliability Corporation (NERC) as well as its own. Further information about MRO is available on-line at [www.midwestreliability.org](http://www.midwestreliability.org).

- Manitoba Hydro US Coordinating Committee (MHCC): Minnkota is a member of the MHCC, which is comprised of the owners of the Manitoba Hydro – US transmission interface. The MHCC is responsible for various tasks related to the interface including transmission studies, operating procedures, review of modifications, transfer capability determination, and protection system coordination. Minnkota also participates in various working groups which report to the MHCC.
- Minnkota Ad Hoc Coordination: Minnkota actively manages queues for customers requesting the interconnection of new large generators and for transmission service reservations over Minnkota’s transmission system. All studies are distributed to and reviewed by ad hoc groups which are formed for the purpose of reviewing those studies. Those ad hoc groups include neighboring utilities and Regional Transmission Organizations (RTOs) such as MISO and Southwest Power Pool (SPP). Minnkota also participates in ad hoc review of studies performed by its neighboring transmission service providers.
- Minnesota Transmission Owners (MTO): Minnkota is a sponsoring utility for the MTO group, which is a collaborative effort between a number of Minnesota-based utilities and three Minnesota government agencies. The group fulfills the utilities’ statutory obligations for transmission planning in the state of Minnesota. These obligations include the development of the Minnesota Biennial Transmission Plan, as well as studies associated with Minnesota mandates regarding generation portfolio requirements. Further information about the MTO group is available at [www.minnelectrans.com](http://www.minnelectrans.com).
- Minnkota also participates actively in many committees and working groups which are hosted by MISO, SPP, MRO, the North American Transmission Forum (NATF), and others.

## **SECTION K: Environmental information**

Minnkota is a borrower from the Rural Utilities Services of Washington, D.C. In accordance with national policy, the policies, plans, and programs of the Rural Utilities Services and its borrowers are conducted so as to meet national environmental goals in accordance with Federal and State requirements.

The Rural Utilities Services includes in its loan contracts, a provision to the effect that the borrower shall observe all applicable Federal and State requirements for the protection of the environment. Environmental Statements are required by the Rural Utilities Services in connection with all loans and other agency actions that will significantly affect the environment.

For all of Minnkota's transmission lines of 230 kV and above, knowledgeable

consultants prepare an environmental analysis. This analysis is the basis for routing transmission lines in accordance with Federal and State guidelines.

These guidelines are also used in routing lower voltage transmission lines, although lower voltage lines are usually quite short and therefore, have a lesser impact on the environment. It is Minnkota's policy to route transmission lines in such a location as to cause the least amount of damage and interference to the private landowner while at the same time selecting a route that is in the best interest of the general public.

Minnkota cooperates with other area electric utilities so that its high voltage transmission lines are portions of joint projects. This significantly reduces the total number of miles of transmission line otherwise required to be constructed. In the actual route selection, attempts are made to follow the established criteria and to place the lines in such a manner as to be the least visible to the general public. This includes such things as, where feasible, avoiding heavily traveled roads, screening road crossings, and placing the line behind hills or trees. Special wildlife areas and other formally classified areas are avoided in line routing.

Minnkota cooperates with State and Federal agencies in the route selection process. These agencies review and comment on the Environment Impact Statement. Private land use and potential use is considered to either avoid irrigable areas or place the structures in such a way that they will cause the least interference to irrigation. Transmission line structures are placed in non-tillable areas where possible and span lengths are maximized to reduce the total number of structures to cause the least interference to irrigation and other farming activities.

Environmental considerations are placed in their proper perspective along with such other vital factors such as service reliability, cost, and safety. Minnkota considers all these factors in constructing, operating, and maintaining its electric transmission system.

**SECTION L: Projected demand for service**

1. Minnkota's 2010 peak demand was 839,209 kW as compared to the 2020 peak demand of \* 847,917 kW. Minnkota has projected a 2030 peak demand of 1,109,000 kW. Minnkota also has a load control program to flatten and or shift demand peaks. In the winter Minnkota can shed up to 385 kW and in the summer up to 85 kW.
2. Minnkota's generating capacity presently installed or committed plus firm contract commitments are as follows:

	<u>MPC share nameplate</u>	<u>MISO accredited capacity factor</u>	<u>MISO accredited capacity kW</u>
Western Area Power Administration (including reserves)	109,000	100.0%	109,000
Milton R. Young 1	250,000	96.0%	240,000
Milton R. Young 2 (Minnkota share)	355,000	89.0%	316,000
Coyote (NMPA share)	128,100	85.0%	108,900
Miscellaneous Generators	34,000	100.5%	34,200
Petersburg Wind	900	21.5%	200
Valley City Wind	900	21.5%	200
Langdon Wind PPA	99,000	21.5%	21,300
Langdon Wind II PPA	40,500	21.5%	8,700
Ashtabula PPA- I	99,000	21.5%	21,300
Ashtabula PPA - II	49,500	21.5%	10,600
Ashtabula II PPA	69,000	21.5%	14,800
**Oliver III PPA	<u>99,250</u>	<u>21.5%</u>	<u>21,300</u>
	1,334,150		906,500

Minnkota has adequate generating capacity to serve its forecasted peak demands over the next 10-year time frame.

3. Minnkota's load centers are the three distribution cooperatives in eastern North Dakota and the eight distribution cooperatives in northwestern Minnesota.

Minnkota coal resources will last for at least 70 years with the present level of generation. There are no transportation problems since all the base loaded plants are mine mouth plants.

\* Minnkota 2020 Miso load peak (year to date)

## **EXHIBIT I**

U.S. Department of Energy Form EIA-923  
(Supersedes U.S. Department of Energy Form EIA-767)  
(Supersedes FERC Form 67)

NOTICE: This report is mandatory under the Federal Energy Administration Act of 1974 (Public Law 93-275). Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For further information concerning sanctions and data protections see the provision on sanctions and the provision concerning confidentiality of information in the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction.**

**SCHEDULE 1. IDENTIFICATION**

Is this a regulated utility plant

Yes  No

Is this a combined heat and power plant

Yes  No

Enter the total plant efficiency of the combined heat and power plant

%

**Survey Contact**

Contact Landon Schneider Submit Date 13-MAR-20  
Title Accountant  
Address 5301 32nd Avenue South  
City/State/Zip Grand Forks ND 58201  
Email lschneider@minnkota.com Phone (701) 795-4262 Fax

**Supervisor of Contact Person for Survey**

Contact Kay Schraeder  
Title Accountant  
Address 5301 32nd Avenue South  
City/State/Zip Grand Forks ND 58201  
Email kschraeder@minnkota.com Phone (701) 795-4266 Fax (701) 795-4215

**Report For**

Company Name Minnkota Power Coop, Inc  
Plant Name Milton R Young  
Plant ID 2823 Plant County Oliver  
Plant Address 3401 24th Street S.W.  
Plant City Center Plant State ND

For contact detail go to <http://www.eia.doe.gov/oss/forms.html#eia-923>

**SCHEDULE 6. NONUTILITY ANNUAL SOURCE AND DISPOSITION OF ELECTRICITY**

(Instructions for SCHEDULE 6 are on page 13)

SCHEDULE 6 collects calendar year data (no monthly detail).

Report all generation in **megawatthours (MWh)** rounded to a whole number.

- |                                |                                           |
|--------------------------------|-------------------------------------------|
| (1) Gross Generation (Annual)  | (4) Station Use                           |
| (2) Other Incoming Electricity | (5) Direct Use                            |
|                                | (6) Total Facility Use (4 + 5)            |
|                                | (7) Retail Sales to Ultimate Customers    |
|                                | (8) Sales for Resale (MWh)                |
|                                | (9) Provided Tolling Agreement (MWh)      |
|                                | (10) Other Outgoing Electricity           |
| (3) Total Sources (1 + 2)      | (11) Total Disposition (6 + 7 + 8+ 9+ 10) |

**Total Sources must equal Total Disposition (3 = 11)**

**Plants that cannot separate Station Use and Direct Use may enter zero in Station Use and the sum of Station Use and Direct Use in the Direct Use field.**

Types of Other Incoming Electricity  
List all of the types of incoming electricity included in (2)  
Other Incoming Electricity

Types of Other Outgoing Electricity  
List all of the types of outgoing electricity in item (10)  
Other Outgoing Electricity

**SCHEDULE 7. PART A. ANNUAL REVENUES FROM SALES FOR RESALE TOAL**

Complete Schedule 7, Part A, only if a positive value was entered on Schedule 6, Item (8): "Sales for Resale."

Sales for Resale are energy supplied to electric utilities, cooperatives, municipalities, federal and state electric agencies, power marketers, or other entities, for resale to end-use consumers.

Report in thousand dollars. For example \$1,987,234 should be entered as 1,987

Annual Revenues from Sales for Resale (in thousand dollars)

**SCHEDULE 7. PART B. ANNUAL RETAIL SALES, REVENUES AND NUMBER OF CUSTOMERS FROM RETAIL SALES**

Report by state and end-use customer sectors (Residential, Commercial, industrial and Transportation).

Complete an individual Schedule 7, Part B, for each state where customers are located, only if a positive value was entered on Schedule 6, Item (7), "Retail Sales to Ultimate Customers."

**Annual Retail Sales, Revenue, and Number of Customers:**

- Retail sales are sold directly to an end-use customer (i.e., the energy is consumed by the customer, onsite, and is not resold to other customers).
- Enter annual retail sales, revenue, and number of customers for each state where customer(s) are located.
- Report Annual Retail Sales in megawatthours (Mwh), by sector.
- Report Annual Revenue in thousand dollars, by sector.
- Report Number of Customers, by sector.

State					
Items	Residential	Commercial	Industrial	Transportation	Total
Retail Sales (Mwh)					
Revenue (\$ 000's)					
Number of Customers					



**SCHEDULE 8. PART B. FINANCIAL INFORMATION RELATED TO COMBUSTION BY-PRODUCTS**

Complete an individual Schedule 8, Part B, annually, for each organically fueled thermoelectric power plant with a total steam turbine capacity greater than, or equal to, 100 megawatts.

- Data reported in Schedule 8, Part B must correspond to the combustion by-product data reported on Schedule 8, Part A.
- If actual data are not available, provide an estimate value.
- Report all values in thousand dollars, to the nearest thousand.

**Operation and Maintenance (O&M) Expenditures During Year (Thousand Dollars)**

Type	(1) Fly Ash	(2) Bottom Ash	(3) Flue Gas Desulfurization	(4) Water Pollution Abatement	(5) Other Pollution Abatement	(6) Total (1 + 2 + 3 + 4 + 5)
Collection	1,134	1,600	13,080	278	0	16,092
Disposal	719	608	691	22	0	2,040
Other					2,622	2,622

**Capital Expenditures for New Structures and Equipment During Year, Excluding Land and Interest Expense (Thousand Dollars)**

Type	(7) Air Pollution Abatement	(8) Water Pollution Abatement	(9) Solid/Contained Waste	(10) Other Pollution Abatement
Amount	811			

**Byproduct Sales Revenue During Year (Thousand Dollars)**

Type	(11) Fly Ash	(12) Bottom Ash	(13) Fly and Bottom Ash Sold Intermingled	(14) Flue Gas Desulfurization	(15) Other Byproduct Revenue	(16) Total (11+12+13+14+15)
Amount		420				420



**SCHEDULE 8. PART C. AIR EMISSIONS CONTROL INFORMATION**

**Annual Operations**

Environmental Equipment and/or Technology Type					Status	Hours in Service	NOx Emission Rate (lbs/MMBtu)		Particulate Matter Control				Sulfur Dioxide Control				Mercury Control		Acid Gas Control
Types	PM Control ID	SO2 CONTROL ID	NOX Control ID	Mercury Control			Entire Year	May through September	Emission Rate (0.01 lb/MMBtu)	Removal Efficiency Rate at AOF	Tested Efficiency Particulate Removal (at 100% Load)	Test Date MM-YYYY	Removal Efficiency Rate at AOF	Removal Tested Efficiency (at 100% Load)	Test Date MM-YYY	Quantity of FGD Sorbent Used (nearest 0.1 thousand tons)	FGD Unit Electrical Energy Consumption	Removal Efficiency (nearest 0.1% by weight)	Emission Rate (0.01 lbs / Tbtu)
SP		FGD1		MC1	OP	3204							97.1	12-2019	19.4	124189	3.10		
SP		FGD2		MC2	OP	7044							94.3	12-2019	31.2	27687	3.60		

**FGD Operation and Maintenance Expenditures During Year, Excluding Electricity (Thousand Dollars)**

Flue Gas Desulfurization Unit ID	Feed Materials and Chemicals	Land and Supervision	Waste Disposal	Maintenance, Material and All Other Costs	Total
FGD1	\$3,918	\$783	\$242	\$314	\$5,257
FGD2	\$5,887	\$1,001	\$449	\$1,179	\$8,516

**SCHEDULE 8. PART D. COOLING SYSTEM INFORMATION, MONTHLY OPERATIONS**

Complete an individual Schedule 8, Part D for each thermoelectric power plant (organically fueled, nuclear and combined cycle) with a total steam capacity greater than, or equal to, 100 megawatts.

- **Complete a separate schedule for each reporting month.**
- Complete a separate row for each cooling system.
- If actual data are not available, provided an estimated value.
- If the source of cooling water is a well or municipal water system, do not complete the Cooling Water Temperature sections.

Cooling System ID	Cooling System Type	Cooling System Status	Annual Amt of Hours Chlorine in added to Service Per month (1000 lbs)	Average Monthly Rate of Cooling Water (to nearest 0.1 gallons per minute)				Cooling Water Temperature (degrees Fahrenheit)					Volume Cooling Water (to nearest 0.001 million gallons per month)						
				Div	Withdrawal	Discharge	Consumption	Method of Measure	Avg at Intake	Max at Intake	Avg at Discharge	Max at Discharge	Method of Measure	Div	Withdrawal	Discharge	Consumption		
<b>Report Month 1</b>																			
CS1	OC	OP	744	.798	0	118000	118000	0	4	47	52	63	69	1	0	5267.5	5267.5	0	
<b>Report Month 2</b>																			
CS1	OC	OP	654	.639	0	103647	103647	0	4	46	53	63	71	1	0	4064	4064	0	
<b>Report Month 3</b>																			
CS1	OC	OP	692	.956	0	109753	109753	0	4	52	66	68	81	1	0	4556.9	4556.9	0	
<b>Report Month 4</b>																			
CS1	OC	OP	678	.782	0	111035	111035	0	4	62	73	78	92	1	0	4513.6	4513.6	0	
<b>Report Month 5</b>																			
CS1	OC	OP	742	1.621	0	117683	117683	0	4	68	76	86	94	1	0	5239.2	5239.2	0	
<b>Report Month 6</b>																			
CS1	OC	OP	647	1.874	0	105954	105954	0	4	80	86	97	100	1	0	4110	4110	0	

**SCHEDULE 8. PART D. COOLING SYSTEM INFORMATION, MONTHLY OPERATIONS**

Complete an individual Schedule 8, Part D for each thermoelectric power plant (organically fueled, nuclear and combined cycle) with a total steam capacity greater than, or equal to, 100 megawatts.

- **Complete a separate schedule for each reporting month.**
- Complete a separate row for each cooling system.
- If actual data are not available, provided an estimated value.
- If the source of cooling water is a well or municipal water system, do not complete the Cooling Water Temperature sections.

Cooling System ID	Cooling System Type	Cooling System Status	Annual Amt of Hours Chlorine in added to Service Per month (1000 lbs)	Average Monthly Rate of Cooling Water (to nearest 0.1 gallons per minute)						Cooling Water Temperature (degrees Fahrenheit)					Volume Cooling Water (to nearest 0.001 million gallons per month)			
				Div	Withdrawal	Discharge	Consumption	Method of Measure	Avg at Intake	Max at Intake	Avg at Discharge	Max at Discharge	Method of Measure	Div	Withdrawal	Discharge	Consumption	
<b>Report Month 7</b>																		
CS1	OC	OP	744	1.959	0	118000	118000	0	4	87	92	105	111	1	0	5267.5	5267.5	0
<b>Report Month 8</b>																		
CS1	OC	OP	744	2.309	0	118000	118000	0	4	84	91	102	110	1	0	5267.5	5267.5	0
<b>Report Month 9</b>																		
CS1	OC	OP	674	2.422	0	110461	110461	0	4	72	83	87	102	1	0	4467	4467	0
<b>Report Month 10</b>																		
CS1	OC	OP	679	2.338	0	107612	107612	0	4	50	61	54	79	1	0	4380.9	4380.9	0
<b>Report Month 11</b>																		
CS1	OC	OP	720	1.081	0	118000	118000	0	4	50	55	68	73	1	0	5097.6	5097.6	0
<b>Report Month 12</b>																		
CS1	OC	OP	712	.694	0	112925	112925	0	4	49	56	65	75	1	0	4824.1	4824.1	0

**SCHEDULE 8. PART D. COOLING SYSTEM INFORMATION, MONTHLY OPERATIONS**

Complete an individual Schedule 8, Part D for each thermoelectric power plant (organically fueled, nuclear and combined cycle) with a total steam capacity greater than, or equal to, 100 megawatts.

- **Complete a separate schedule for each reporting month.**
- Complete a separate row for each cooling system.
- If actual data are not available, provided an estimated value.
- If the source of cooling water is a well or municipal water system, do not complete the Cooling Water Temperature sections.

Cooling System ID	Cooling System Type	Cooling System Status	Annual Hours of Service Per month	Annual Amt of Chlorine added to Cooling Water (1000 lbs)	Average Monthly Rate of Cooling Water (to nearest 0.1 gallons per minute)				Cooling Water Temperature (degrees Fahrenheit)					Volume Cooling Water (to nearest 0.001 million gallons per month)				
					Div	Withdrawal	Discharge	Consumption	Method of Measure	Avg at Intake	Max at Intake	Avg at Discharge	Max at Discharge	Method of Measure	Div	Withdrawal	Discharge	Consumption
<b>Report Month 1</b>																		
CS2	OC	OP	744	1.017	0	250000	250000	0	4	45	52	59	69	1	0	11160	11160	0
<b>Report Month 2</b>																		
CS2	OC	OP	515	1.087	0	173051	173051	0	4	43	51	55	72	1	0	5347.3	5347.3	0
<b>Report Month 3</b>																		
CS2	OC	OP	743	3.047	0	249664	249664	0	4	50	63	66	82	1	0	11130	11130	0
<b>Report Month 4</b>																		
CS2	OC	OP	720	2.095	0	241935	241935	0	4	62	73	78	92	1	0	10451.6	10451.6	0
<b>Report Month 5</b>																		
CS2	OC	OP	652	2.936	0	218918	218918	0	4	68	77	83	96	1	0	8557.5	8557.5	0
<b>Report Month 6</b>																		
CS2	OC	OP	720	3.687	0	241935	241935	0	4	80	86	97	106	1	0	10451.6	10451.6	0

**SCHEDULE 8. PART D. COOLING SYSTEM INFORMATION, MONTHLY OPERATIONS**

Complete an individual Schedule 8, Part D for each thermoelectric power plant (organically fueled, nuclear and combined cycle) with a total steam capacity greater than, or equal to, 100 megawatts.

- **Complete a separate schedule for each reporting month.**
- Complete a separate row for each cooling system.
- If actual data are not available, provided an estimated value.
- If the source of cooling water is a well or municipal water system, do not complete the Cooling Water Temperature sections.

Cooling System ID	Cooling System Type	Cooling System Status	Annual Amt of Hours Chlorine in added to Service Per month (1000 lbs)	Average Monthly Rate of Cooling Water (to nearest 0.1 gallons per minute)				Cooling Water Temperature (degrees Fahrenheit)					Volume Cooling Water (to nearest 0.001 million gallons per month)					
				Div	Withdrawal	Discharge	Consumption	Method of Measure	Avg at Intake	Max at Intake	Avg at Discharge	Max at Discharge	Method of Measure	Div	Withdrawal	Discharge	Consumption	
<b>Report Month 7</b>																		
CS2	OC	OP	744	3.316	0	250000	250000	0	4	87	92	105	112	1	0	11160	11160	0
<b>Report Month 8</b>																		
CS2	OC	OP	744	3.603	0	250000	250000	0	4	84	91	103	112	1	0	11160	11160	0
<b>Report Month 9</b>																		
CS2	OC	OP	178	1.213	0	59644	59644	0	4	78	82	90	102	1	0	635.2	635.2	0
<b>Report Month 10</b>																		
CS2	OC	OP	56	0	0	18817	18817	0	4	41	46	42	52	1	0	63.2	63.2	0
<b>Report Month 11</b>																		
CS2	OC	OP	655	2.185	0	219926	219926	0	4	48	54	61	80	1	0	8636.5	8636.5	0
<b>Report Month 12</b>																		
CS2	OC	OP	744	1.771	0	250000	250000	0	4	48	56	63	74	1	0	11160	11160	0

**SCHEDULE 9. COMMENTS**  
 (Instructions for SCHEDULE 9. are on page 20.)

<b>Schedule</b>	<b>Part</b>	<b>Item</b>	<b>Comments</b>
8	C	OT	B1 OT FLUX AGENT
8	C	OT	B2 OT FLUX AGENT
8	C	OT	B1 OXIDIZE HALIDE
8	C	OT	B2 OXIDIZE HALIDE
8	D	10	B2 OFFLINE MAJOR OUTAGE

**Generator Retirement Dates**

<b>Generator Id</b>	<b>Retirement Month</b>	<b>Retirement Year</b>	<b>Comments</b>
<b>Changes in Ownership (Provide name of purchaser and date sold.)</b>			

**ERRORS**

<b>Purchase Type</b>	<b>Fuel</b>	<b>Schedule</b>	<b>Prime Mover</b>	<b>Equipment ID</b>	<b>Rpt Month</b>	<b>Supplier</b>	<b>Error Number &amp; Description</b>	<b>Ranges</b>	<b>Override Comment</b>
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**EXHIBIT II**

Federal Energy Regulatory Commission Form FERC-714  
(Supersedes FERC Form 12)

FERC Form 714: Annual Report v3.1.0 | Minnesota Power Cooperative, Inc. - 2019

File Edit Run Data Checks Options Window Help

**Part I - Schedule 1. Identification and Certification (1)**

1. Respondent Identification:  
 Code: 12658 Name: Minnesota Power Cooperative, Inc.

2. Respondent Type: (Please check appropriate box and fill in name)  
 Part I. Dispatching Authority Area (Complete Parts L and R)  
 Unit dispatch is not based on the economic dispatch of thermal units (i.e., a system lambda is not calculated)  
 Part II. Planning Area (Complete Parts L and R)  
 Minnesota Power Cooperative, Inc.

3. Respondent Mailing Address (limit 6 lines):  
 Minnesota Power Cooperative, Inc.  
 5301 53rd Avenue South  
 Grand Forks, ND 58201

4. Contact Person:  
 Name: Dan Trebb  
 Title: Energy Stakeholder  
 E-mail address: dtrebb@minnkota.com  
 Telephone #: 701-795-4424 Ext:

5. Certifying Official:  
 Name: Todd Sailer  
 Title: Energy Supply Senior Manager  
 Date: 03/09/2020

This Report is an  Original  Filing  Revised

Copy Previous Data Save Close Next Schedule

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**Part III - Schedule 1. Electric Utilities That Compose the Planning Area (B)**

Line # (A)	Electric Utility Name (B)	Electric Utility Coincident Peak Demand (MW)	
		Summer (C)	Winter (D)
1	Beltrami Electric Coop.	72	108
2	Cass County Electric Coop.	215	241
3	Cavalier Rural Electric Coop.	7	7
4	Clearwater Park Electric Coop.	14	21
5	Northern Municipal Power Agency	79	79
6	Hodas Electric Coop.	178	190
7	North Star Electric Coop.	16	29
8	PAH Electric Coop.	21	29
9	Red Lake Electric Coop.	21	29
10	Red River Electric Coop.	24	35
11	Roseau Electric Coop.	23	36
12	Will Rice Electric Coop.	45	71
13		0	0
14		0	0
15		0	0
16		0	0
17		0	0
18		0	0
19		0	0
20		0	0
21		0	0
22		0	0
23		0	0
24		0	0
25		0	0
26		0	0
27		0	0
28		0	0
29		0	0
30		0	0

Allow for the entry of negative values.

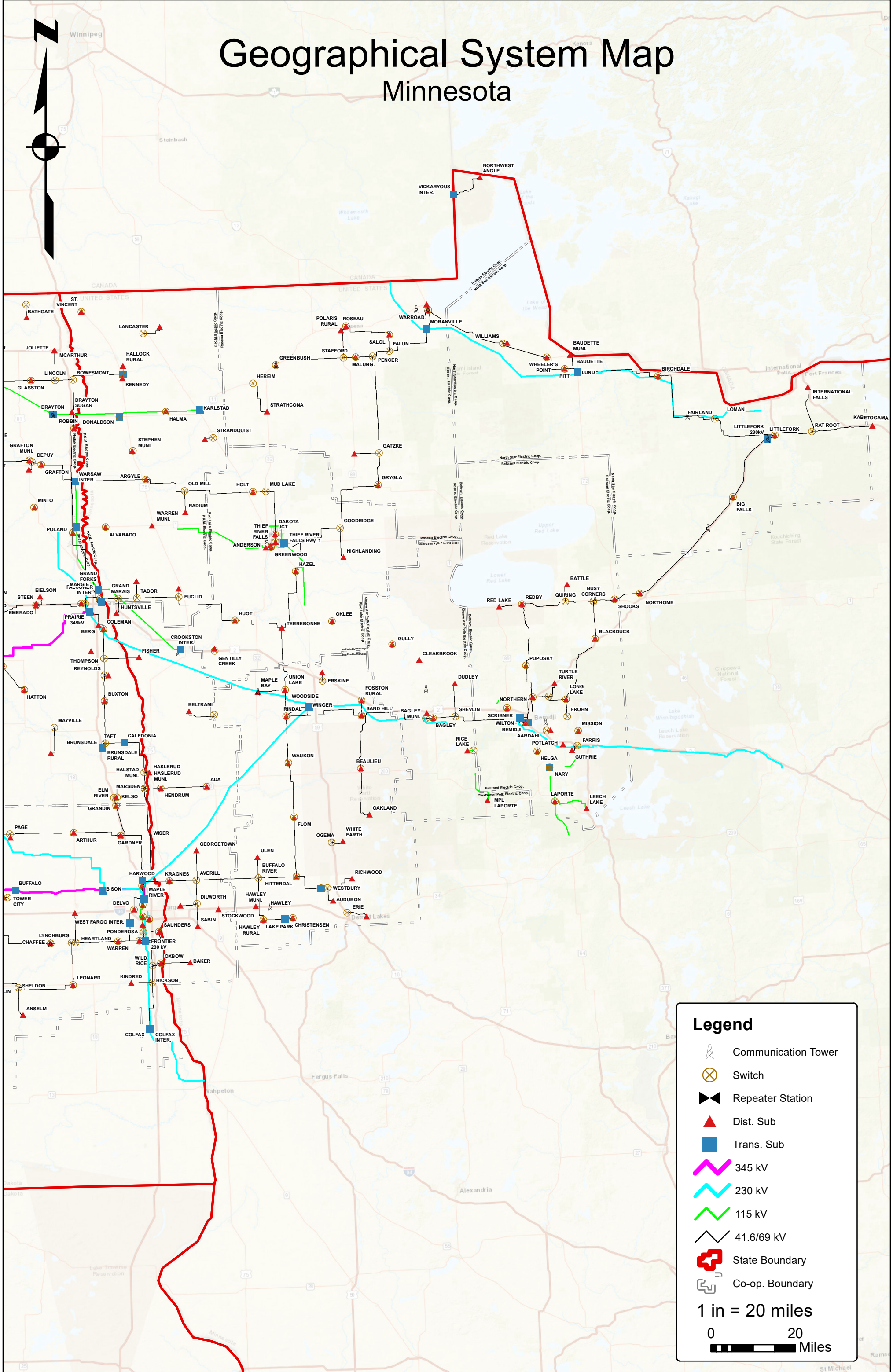
Copy Previous Data Add Confirmation Page Clear Data Import Data Save Close Previous Schedule Next Schedule



**EXHIBIT III**

Minnkota Power Cooperative Electric System Maps

# Geographical System Map Minnesota



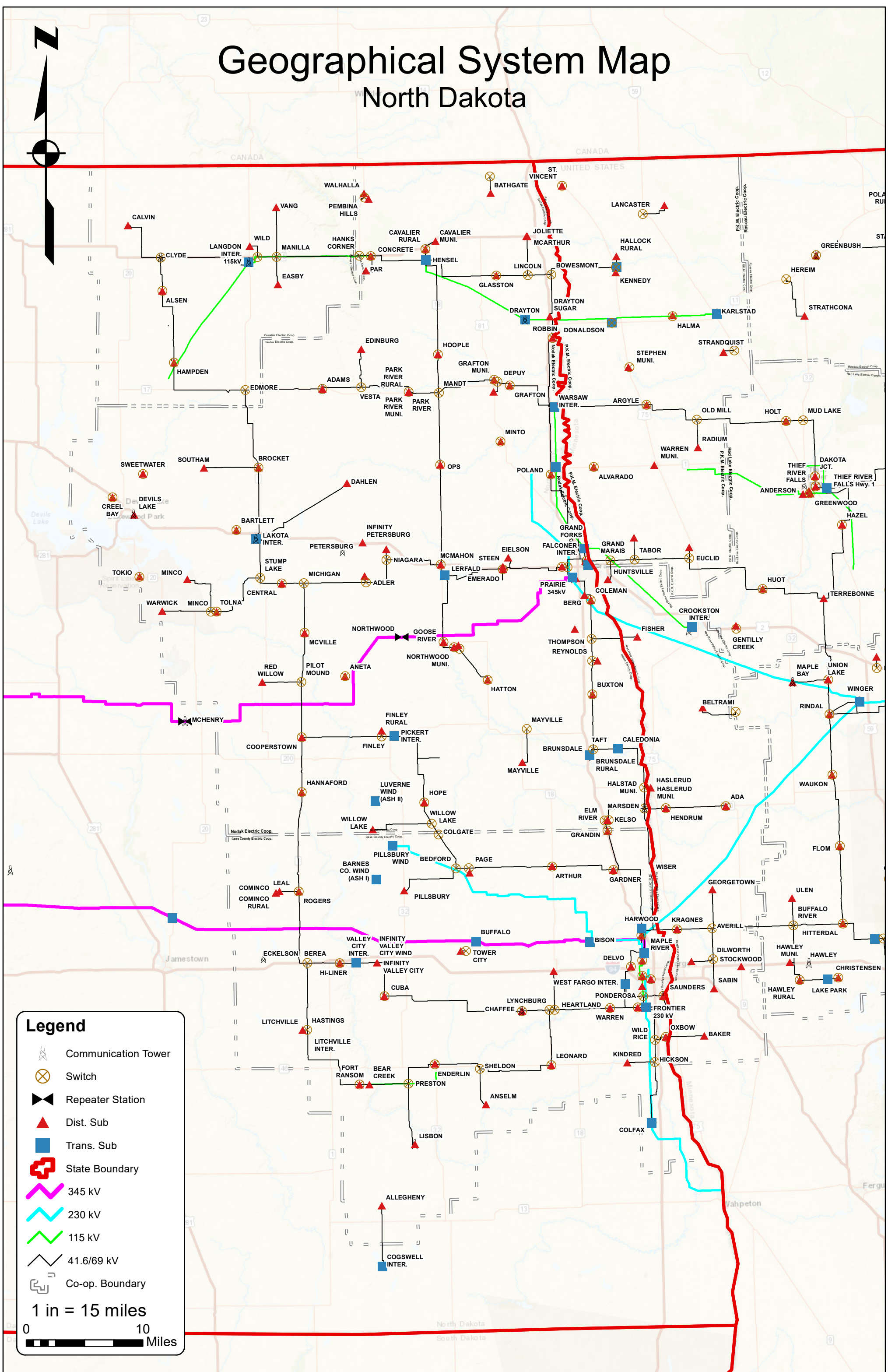
**Legend**

- Communication Tower
- Switch
- Repeater Station
- Dist. Sub
- Trans. Sub
- 345 kV
- 230 kV
- 115 kV
- 41.6/69 kV
- State Boundary
- Co-op. Boundary

1 in = 20 miles

0 20 Miles

# Geographical System Map North Dakota

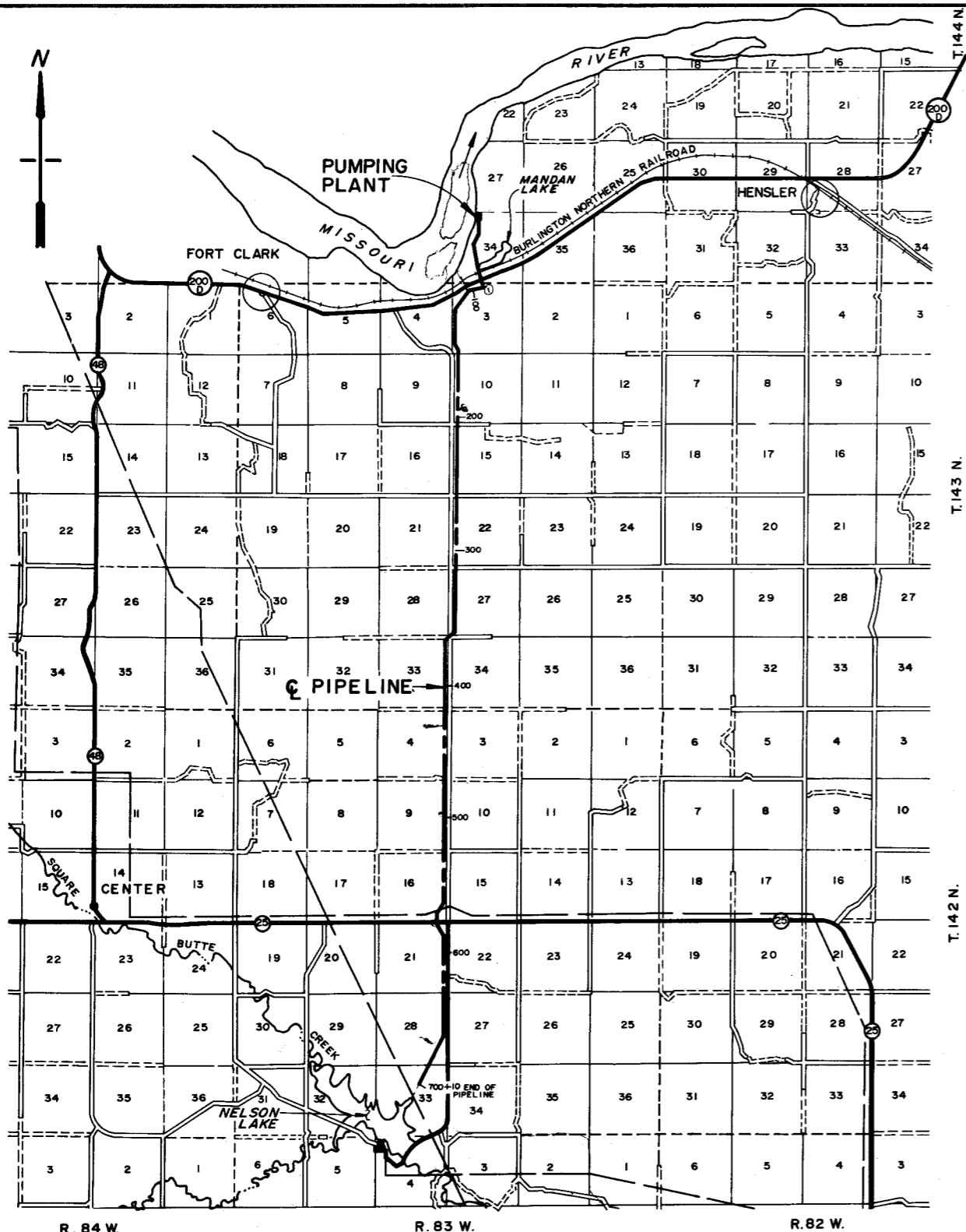


**Legend**

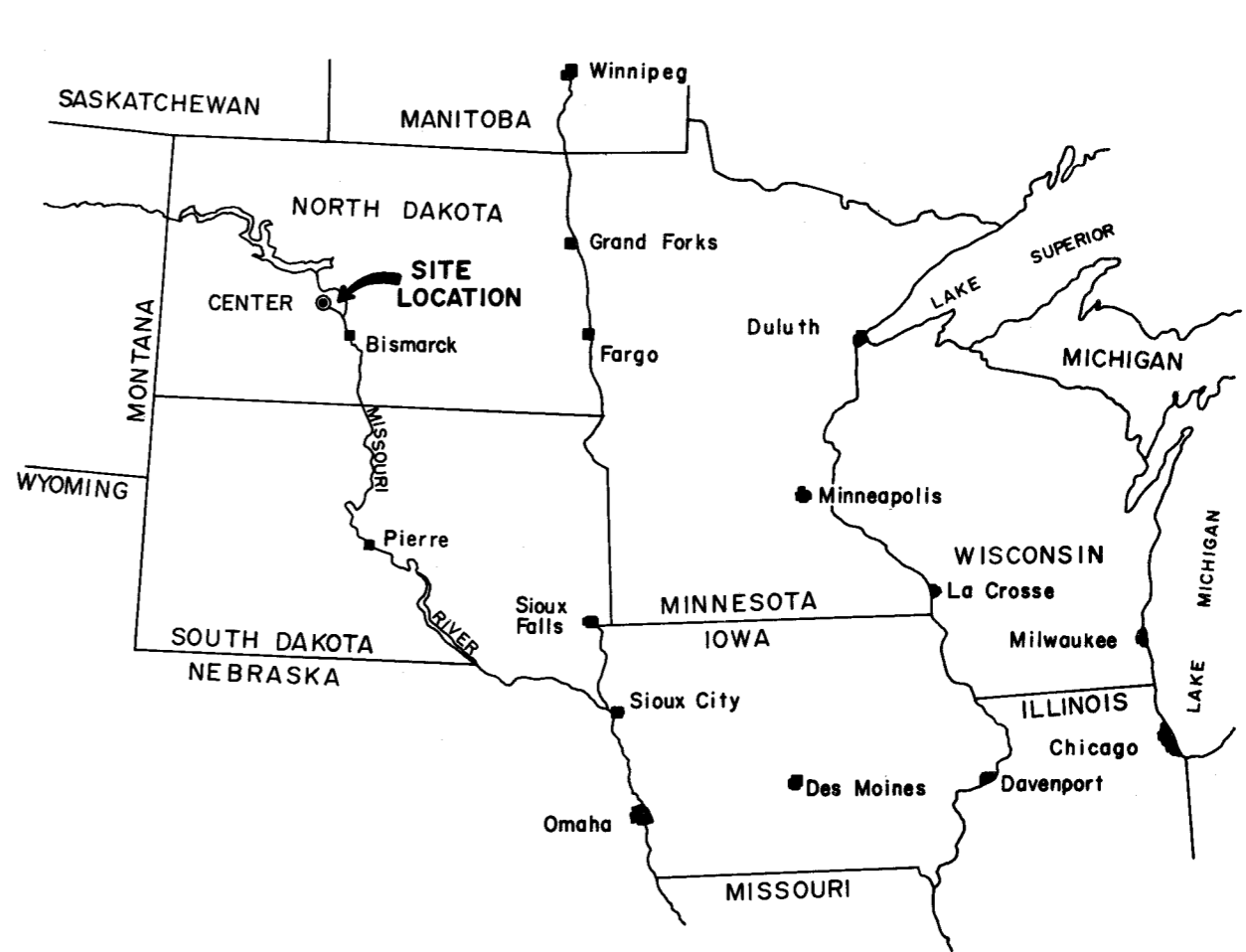
- Communication Tower
- Switch
- Repeater Station
- Dist. Sub
- Trans. Sub
- State Boundary
- 345 kV
- 230 kV
- 115 kV
- 41.6/69 kV
- Co-op. Boundary

1 in = 15 miles

0 10 Miles



**SITE LOCATION**  
(OLIVER COUNTY)  
SCALE IN MILES



**LOCATION MAP**  
SCALE IN MILES

DESIGN AND DRAFTING DWG. <i>James W. Chambers</i> DATE 11-21-73 CHK. <i>Mervin L. Litchner</i> DATE 12/27/73		(SEAL) PREPARED UNDER RESPONSIBLE SUPERVISION OF <i>James W. Chambers</i> MICHIGAN PROFESSIONAL REGISTRATION NO. <i>1515</i> PROFESSIONAL REGISTRATION NO. <i>1515</i> AT OFFICES OF <b>COMMONWEALTH ASSOCIATES INC.</b> 209 E. WASHINGTON AVE., JACKSON, MICH.	OWNER AND LOCATION <b>SQUARE BUTTE ELECTRIC COOPERATIVE</b> GRAND FORKS, NORTH DAKOTA <b>MILTON R. YOUNG STATION</b> CENTER, NORTH DAKOTA		TITLE <b>NELSON LAKE MAKEUP SYSTEM</b> <b>LOCATION &amp; SITE MAP</b>		
APPROVED <i>Mervin L. Litchner</i> DATE 12/27/73	JOB NO. <b>0971-005-032</b>		DRAWING NO. <b>1</b>	SHEET <b>1</b>	REV.		
REV. DATE	DESCRIPTION	BY	APPROVED	REV. DATE	DESCRIPTION	BY	APPROVED