



Ten-Year

# **Energy Facility Plan**

2018–2027

Prepared for the South Dakota Public Utilities Commission

*Submitted August 30, 2018*

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## Ten-Year Energy Facility Plan | 2018–2027

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Pursuant to SDCL § 49-41B-3 and ARSD ch. 20:10:21, NorthWestern Corporation d/b/a NorthWestern Energy submits this Ten-Year Energy Facility Plan for its South Dakota facilities.

### **ARSD 20:10:21:04 Existing Energy Conversion Facilities<sup>1</sup>**

NorthWestern owns a 23.4% interest in the Big Stone Plant, which is located near Big Stone City, South Dakota. The other owners of this coal-fired plant are Otter Tail Power Company and Montana-Dakota Utilities Co. (MDU). Otter Tail operates the plant and reports the information required by ARSD 20:10:21:04.<sup>2</sup>

### **ARSD 20:10:21:05 Proposed Energy Conversion Facilities**

None.

### **ARSD 20:10:21:06 Existing Transmission Facilities**

*For existing transmission facilities,<sup>3</sup> which are facilities through which electricity is being transmitted, the utility shall provide information as follows: (1) Location; (2) Type and transmission voltage; and (3) Projected date of removal from service and reason for removal.*

NorthWestern’s 115-kV transmission facilities run from Ellendale, North Dakota, to Yankton, South Dakota (north to south). A map of these facilities is attached as Exhibit A.

From	To	Type	Voltage
Ellendale Substation (Ellendale, ND)	Aberdeen A-Tap (2 miles west of Aberdeen, SD)	AC	115 kV

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<sup>1</sup> An “energy conversion facility” is a facility or facility expansion designed for or capable of generation of 100 MW or more of electricity, but does not include wind energy facilities. SDCL § 49-41B-2(6).

<sup>2</sup> Otter Tail Power Company’s 2018 Ten-Year Biennial Plan is available [HERE](#).

<sup>3</sup> A “transmission facility” is an electric transmission line and associated facilities with a design of more than 115 kV. SDCL § 49-41B-2.1.

From	To	Type	Voltage
Aberdeen A-Tap	<ul style="list-style-type: none"> <li>• Aberdeen Seibrecht Substation (Aberdeen, SD)</li> <li>• Aberdeen City Substation (Aberdeen, SD)</li> </ul>	AC	115 kV
Aberdeen Siebrecht Substation	<ul style="list-style-type: none"> <li>• Western Area Power Administration's (WAPA) Groton Substation (south of Groton, SD)</li> <li>• Aberdeen Industrial Park Substation (Aberdeen, SD)</li> <li>• Redfield Transmission Substation (Redfield, SD)</li> </ul>	AC	115 kV
Redfield Transmission Substation	WAPA Huron Substation (1 mile south of Broadland, SD)	AC	115 kV
WAPA Huron Substation (two circuits)	Huron West Park Substation (Huron, SD)	AC	115 kV
Huron West Park Substation	Mitchell NorthWest Substation (Mitchell, SD)	AC	115 kV
Mitchell NorthWest Substation	Mitchell Transmission Substation (Mitchell, SD)	AC	115 kV
Mitchell Transmission Substation	<ul style="list-style-type: none"> <li>• Interconnection with Northern States Power Company (near McCook County line, approximately 23 miles east of Mitchell, SD)</li> <li>• WAPA Letcher Substation (10 miles northeast of Mitchell, SD)</li> <li>• Tripp Junction Substation (5 miles south of Tripp, SD)</li> </ul>	AC	115 kV
Tripp Junction Substation	<ul style="list-style-type: none"> <li>• Schroeder Substation (5 miles southwest of Tripp, SD)</li> <li>• Menno Junction Substation (4 miles north of Lesterville, SD)</li> </ul>	AC	115 kV
Menno Junction Substation	WAPA Utica Junction Substation (2 miles northeast of Lesterville, SD)	AC	115 kV
WAPA Utica Junction Substation	NAPA Junction Substation (5 miles northwest of Yankton, SD)	AC	115 kV
NAPA Junction Substation	<ul style="list-style-type: none"> <li>• Yankton East Substation (1 mile east of Yankton, SD)</li> <li>• Yankton Junction Substation (4 miles west of Yankton, SD)</li> </ul>	AC	115 kV

In addition, NorthWestern is a joint owner (along with MDU and Otter Tail) of the Big Stone Plant Transmission Facilities. NorthWestern owns 18.17 miles of the Big Stone Plant-to-Gary 230-kV transmission line near Big Stone City, South Dakota.

NorthWestern does not project the retirement of any transmission facilities rated 115-kV or above within the next 10-year time period.

### **ARSD 20:10:21:07 Proposed Transmission Facilities (Electric)**

NorthWestern plans to construct a 3.3-mile 115-kV transmission line in Aberdeen, South Dakota, in 2019, referred to as the Aberdeen Loop project. The construction of this line will create a closed loop of two existing radial 115-kV lines, and will solve local reliability needs in the Aberdeen area.

The second phase of this project, scheduled for construction in 2020, will be a rebuild of NorthWestern's current A-Tap switchyard, located on the west side of Aberdeen. This construction will include new substation structures, breakers, and relay equipment to coordinate the looped 115-kV facility. The combined estimated cost of the two projects is approximately \$10 million.

### **ARSD 20:10:21:08 Coordination of Plans**

*The utility shall provide a statement describing how the utility's plan or plans coordinate with those of other utilities serving the region.*

In South Dakota, NorthWestern is both a transmission customer and transmission-owning member of the Southwest Power Pool (SPP), located in Zone 19, a.k.a. the Upper Missouri Zone (UMZ). NorthWestern transferred functional control of a large portion of its South Dakota electric transmission facilities to SPP on October 1, 2015, and updates the qualifying facilities under the SPP Tariff annually.

NorthWestern has been coordinating and planning with other systems since 1950, resulting in interconnections, interchange contracts, and the joint construction of facilities. This joint planning effort with neighboring utilities continues today, as NorthWestern is an active participant in the UMZ Coordination Group (UMZCG), which comprises entities with load and transmission facilities registered under Zone 19. NorthWestern also actively participates in the SPP Integrated Transmission Planning (ITP) process, which analyzes reliability, economic, and policy needs within the region and along the seams of neighboring Regional Transmission Organizations (RTOs).

## **ARSD 20:10:21:09 Single Regional Plans**

*The utility shall state whether the proposed facilities comprise all or part of a single regional plan.*

The Aberdeen Loop project was identified as a local reliability need in NorthWestern's local planning efforts, and not one that originated from SPP's regional ITP process. The benefit of this project will be realized by NorthWestern's customers, while having little benefit to the SPP region at this time. In SPP, this type of project is classified as a Sponsored Upgrade. For a Sponsored Upgrade, SPP studies the project and issues a Notice To Construct (NTC), but the cost of the project is not allocated to other members of SPP. NorthWestern has worked closely with SPP through the steps of the Sponsored Upgrade process. Both the Markets and Operations Policy Committee (MOPC) and the SPP Board of Directors have approved the project, with construction starting in 2019.

## **ARSD 20:10:21:10 Submission of Regional Plan**

*If proposed facilities comprise all or part of a regional plan, the utility shall submit the plan.*

As mentioned in Section 20:10:21:09, the Aberdeen Loop project has been studied and approved by SPP, but is not part of the group of projects that originated from SPP's ITP process.

## **ARSD 20:10:21:11 Utility Relationships**

*The utility shall describe any relationship of the utility to other utilities and regional associations, power pools, and networks.*

As discussed in Section 20:10:21:08, NorthWestern is a member of SPP. NorthWestern actively participates in the SPP ITP process and also monitors the SPP committees, working groups, and task forces. NorthWestern is an active participant in the UMZCG. UMZCG goals include not only ensuring consistent interpretation of the SPP Tariff across Zone 19, but also finding solutions to needs within the zone that yield the highest benefit–cost ratio. The UMZCG has, at a minimum, been meeting monthly to develop the scope of the group and discuss current SPP-related issues.

## ARSD 20:10:21:12 Efforts to Minimize Adverse Effects

*The utility shall provide a detailed statement describing methodology used and efforts of the utility to identify, minimize, or avoid adverse environmental, social, economic, health, public safety, and historic or aesthetic preservation effects.*

NorthWestern's policy is to provide cost-effective, reliable, and stably-priced energy while being good stewards of the natural resources and complying with environmental regulations. We apply the following environmental principles in our day-to-day business:

1. Our business practices reflect a respect for, and a commitment to, sustainability and the long-term quality of the environment.
2. One of our priorities is being good stewards of natural and cultural resources at our hydroelectric projects.
3. We comply with the spirit as well as the letter of environmental laws and regulations.
4. Environmental issues and impacts are an integral part of our planning, operating, and maintenance decisions.
5. We promote our customers' efforts to conserve energy.
6. We support providing energy through non-carbon emitting and renewable resources when consistent with our statutory requirement to provide cost-effective energy.
7. We strive to minimize the generation of wastes and promote the reuse or recycling of materials.
8. We seek to continually improve our environmental compliance and stewardship.
9. We embrace a team culture where positive environmental stewardship and compliance are encouraged, mentored, and rewarded.
10. Our contractors and consultants must comply with this policy when working for or representing NorthWestern.

Promoting safety is an important part of NorthWestern's public service commitment. Our goal is to prevent all incidents by doing our best to warn the public of the potential dangers of working or playing near electric and natural gas lines and facilities. Below is a list of measures we take to protect and educate the public:

1. The public must be protected from hazards generated by NorthWestern's operations and construction activities. NorthWestern's operating personnel take the appropriate safeguards to minimize and prevent, if possible, any hazards to the general public. Tailboards include a discussion of any public hazards that could be created by work activities.
2. Contractors and equipment rental shops are targeted for education due to their high exposure and potential for digging up natural gas lines or contacting overhead power lines.
3. First Responders are another specific audience that is targeted to ensure that they are educated about how to respond to natural gas or electrical emergencies.

4. NorthWestern offers a variety of educational materials to support our efforts and commitment to public safety. Our public website maintains an extensive safety section for all types of audiences.<sup>4</sup>
5. We offer electric and natural gas safety education programs targeted to third and fourth/fifth grade students.

#### **ARSD 20:10:21:13 Efforts Relating to Load Management**

*The utility shall provide a statement describing its efforts toward efficient load management.*

NorthWestern works with customer requests by utilizing load-research monitoring equipment in an effort to explain usage patterns and causes. NorthWestern also offers time-of-use rates and off-peak rates with curtailment programs to assist commercial or irrigation customers and control demand.

#### **ARSD 20:10:21:14 List of Reports**

*The utility shall provide a list of all reports or studies filed or proposed to be filed with federal or other state agencies relating to the proposed facilities.*

NorthWestern does not anticipate filing any reports for the Aberdeen Loop project.

#### **ARSD 20:10:21:15 Changes in Status of Facilities**

*The utility shall provide a list of changes in status of the utility's facilities during the past two years or since submission of its last previous 10-year plan.*

In the fall of 2015, NorthWestern completed construction on the 115-kV Yankton East Project, near Yankton, South Dakota. The project included a new 115-kV switchyard, a new 11-mile 115-kV transmission line, and upgrades to the existing Yankton East Substation. The new 115-kV switchyard, located northwest of Yankton, was cut into an existing NorthWestern-owned 115-kV line. The new 11-mile line was then fed by the new switchyard, with the line running across an area north of Yankton, and over into the Yankton East Substation.

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<sup>4</sup> <http://www.northwesternenergy.com/safety/safety>



## ARSD 20:10:21:16 Projected Electric Demand

The utility shall provide a statement of the projected demand, both in-state and out-of-state, for the electric service to be rendered by the utility for each of the ensuing 10 years.<sup>5</sup>

### Projected Electric Demand | South Dakota Service Territory

Year	Peak Demand (MW)	Increase	Increase (MW)
<b>2018</b>	336	0.1%	0.2
<b>2019</b>	343	1.9%	6.5
<b>2020</b>	347	1.2%	4.2
<b>2021</b>	347	0.1%	0.4
<b>2022</b>	347	0.1%	0.3
<b>2023</b>	348	0.1%	0.3
<b>2024</b>	348	0.0%	0.2
<b>2025</b>	348	0.1%	0.4
<b>2026</b>	348	0.1%	0.3
<b>2027</b>	349	0.1%	0.3

These projections are based upon historical trends and known changes for a 50/50 forecast for NorthWestern's South Dakota service territory based on guidance from SPP.

## ARSD 20:10:21:17 Changes in Electric Energy

The utility shall present a table showing the increase or decrease of projected electric energy demand and allocation by volume and percentage for each year relative to the prior year.

### Projected Electric Usage | South Dakota Service Territory

Year	Electric Energy (MWh)	Annual Load Growth
<b>2018</b>	1,725,630	5.2%
<b>2019</b>	1,779,959	3.1%
<b>2020</b>	1,832,021	2.9%
<b>2021</b>	1,846,017	0.8%
<b>2022</b>	1,860,013	0.8%

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<sup>5</sup> NorthWestern also provides electric service in Montana. NorthWestern's Montana and South Dakota facilities are not physically connected and are not in the same Interconnection. Therefore, this report does not include data for its Montana operations.

Year	Electric Energy (MWh)	Annual Load Growth
2023	1,874,009	0.8%
2024	1,888,004	0.7%
2025	1,902,000	0.7%
2026	1,915,996	0.7%
2027	1,929,991	0.7%

**ARSD 20:10:21:18 Map of Service Area**

The utility shall include a map or maps indicating the specific geographic location of the utility's service area or areas.

A map of NorthWestern's South Dakota service territory is below.

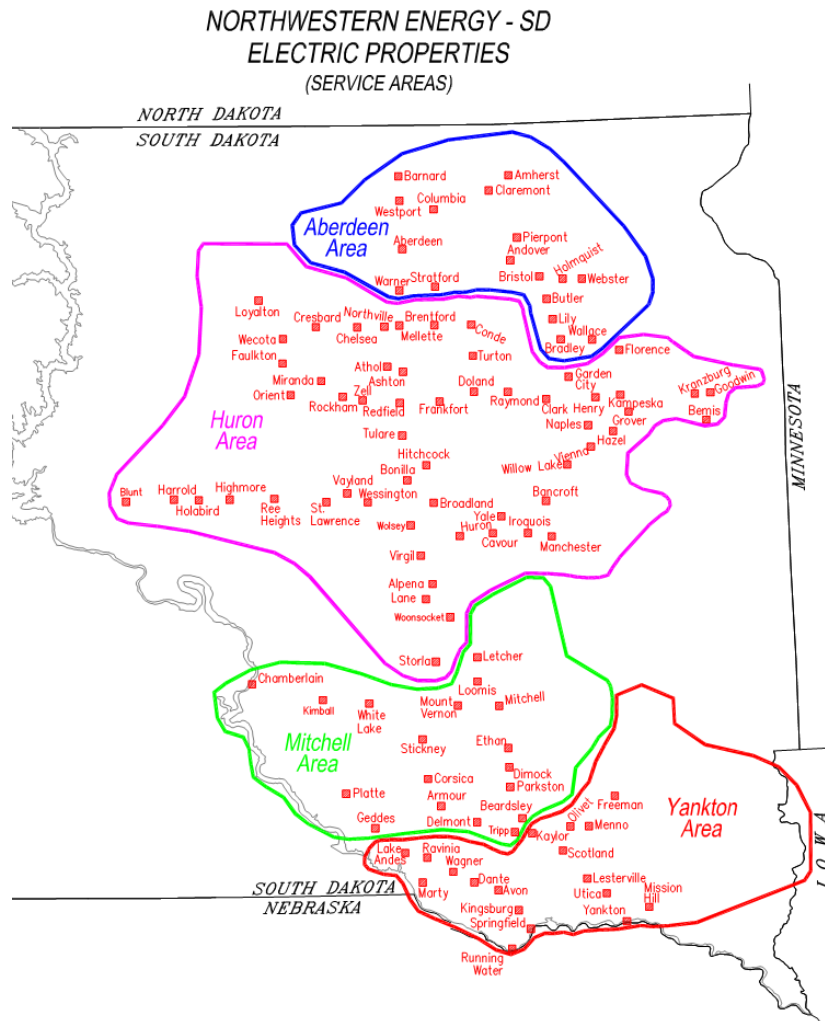
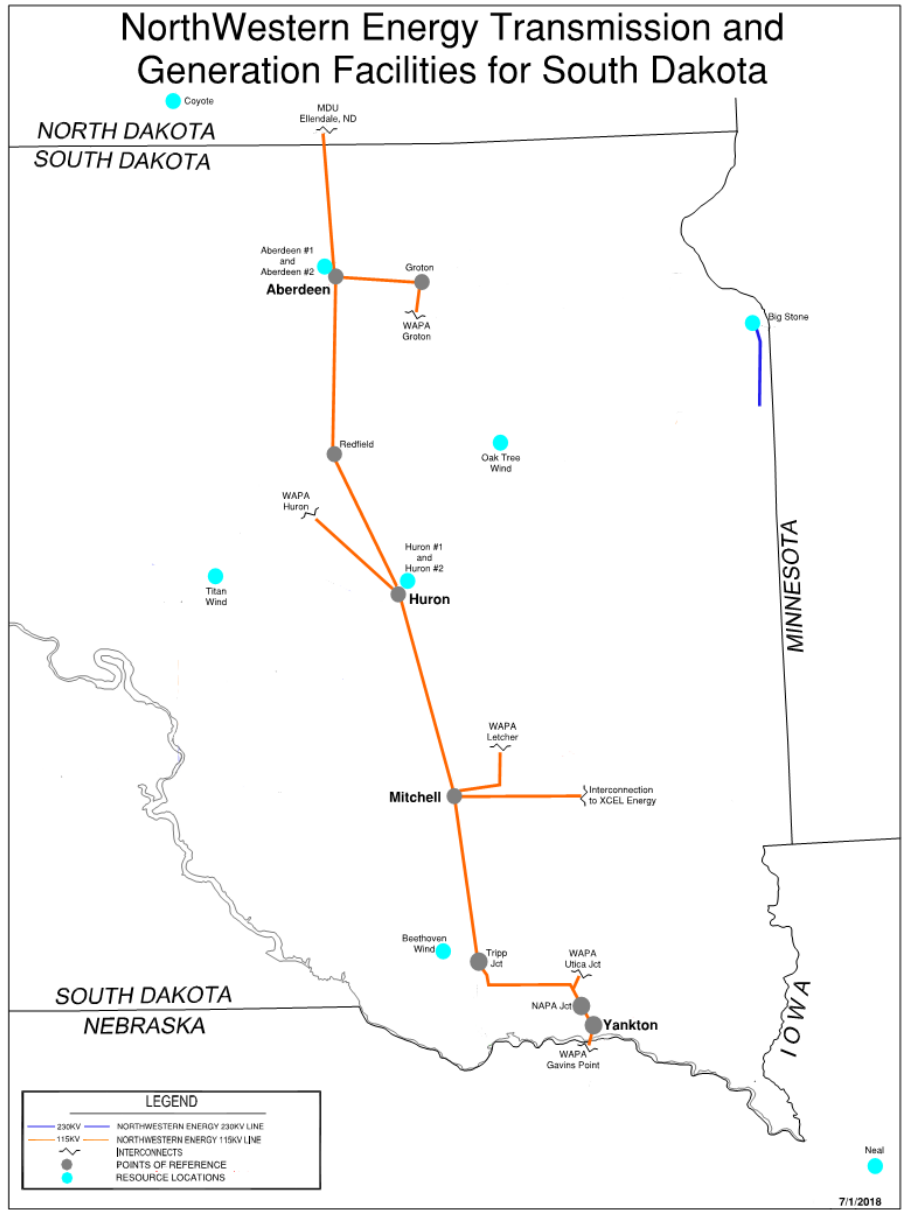


Exhibit A Map of Existing Transmission Facilities



## Certificate of Service

I hereby certify that, in accordance with ARSD 20:10:21:23, I have this day served electronic notice of NorthWestern Energy's plan filing to the following state agencies and officers:

- (1) Aeronautics Commission  
bandc@state.sd.us
- (2) Department of Agriculture  
agmail@state.sd.us
- (3) Attorney General  
marty.jackley@state.sd.us
- (4) Department of Revenue  
andy.gerlach@state.sd.us
- (5) Governor's Office of Economic Development  
Joe.Fiala@sdreadytowork.com
- (6) Department of Education and Cultural Affairs  
mary.stadicksmith@state.sd.us
- (7) State Engineer  
kristi.honeywell@state.sd.us
- (8) Department of Game, Fish and Parks  
wildinfo@state.sd.us  
parkinfo@state.sd.us
- (9) State Geologist  
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- (10) Office of the Governor  
tony.huizen@state.sd.us (Chief of Staff)
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Dated this 30<sup>th</sup> day of August, 2018.

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