



**MONTANA-DAKOTA**

UTILITIES CO.

A Division of MDU Resources Group, Inc.

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400 North Fourth Street

Bismarck, ND 58501

(701) 222-7900

June 28, 2016

Ms. Patricia Van Gerpen  
Executive Director  
South Dakota Public Utilities Commission  
State Capitol Building  
500 East Capitol  
Pierre, SD 57501-5070

Re: Ten-Year Plan

Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc., herewith electronically submits its Ten-Year Plan in accordance with South Dakota Administrative Rules Chapter 20:10:21.

If you should have any questions, please feel free to contact me at 701-222-7856

Sincerely,

Tamie A. Aberle

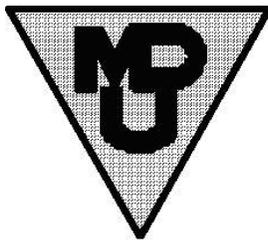
Director of Regulatory Affairs

**MONTANA-DAKOTA UTILITIES CO.**  
**TEN YEAR PLAN**  
**FOR**  
**SOUTH DAKOTA ELECTRIC PROPERTIES**

For Planning Years January 1, 2016 through December 31, 2025

Submitted to

SOUTH DAKOTA PUBLIC UTILITIES COMMISSION JUNE 28, 2016



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Exhibit A – South Dakota Electric System Map

#### **20:10:21:04 Existing Energy Conversion Facilities**

Montana-Dakota Utilities Co. (Montana-Dakota) has a 22.7 percent ownership in the 475 MW coal-fired Big Stone Plant located near Big Stone City, South Dakota. Otter Tail Power Company of Fergus Falls, Minnesota, operates the plant and reports all information required by 20:10:21:04.

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

Montana-Dakota is continually studying additional resource options to meet its customer needs. Montana-Dakota is not currently proposing to build any new energy conversion facilities in South Dakota.

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

Montana-Dakota has no transmission facilities of 250 kilovolts (kV) or more in South Dakota. Exhibit A shows the 115 kV and 46 kV transmission network which serves Montana-Dakota's South Dakota customers. The Exhibit also shows 47.5 miles of 230 kV line extending northwesterly from the Big Stone Plant. This line transmits electric energy from the Big Stone Plant to Montana-Dakota's transmission network. Montana-Dakota owns this portion of the transmission line. Otter Tail Power Company owns the remaining portion of the line extending northerly.

Montana-Dakota, Basin Electric Power Cooperative (Basin Electric) of Bismarck, North Dakota, and Western Area Power Administration (Western) of Billings, Montana, own a 230 kV transmission line extending from Miles City, Montana through Baker, Montana; Bowman, North Dakota; and Hettinger, North Dakota to New Underwood, South Dakota. Western owns the South Dakota portion of this facility.

## **20:10:21:07 Proposed Transmission Facilities**

The Mid-Continent Independent System Operator, Inc. (MISO) has established a classification of transmission expansion projects called Multi-Value Projects (MVPs). There is currently one MVP project that will connect to Montana-Dakota's transmission system which will be jointly owned by Montana-Dakota and Otter Tail Power Company that consists of a 345 kV line to a new substation south of the current Big Stone Substation and then continuing west and north to a new substation located near the existing Ellendale Junction Substation in North Dakota. Cost allocations for MVPs are shared across the entire MISO footprint on a per MWh basis. The Companies have filed and received from the Commission in Docket No. EL13-028 an energy facility permit to construct the Big Stone South to Ellendale 345 kV Transmission Line located in South Dakota. The project will begin construction in 2016 with a planned in-service date of 2019.

Montana-Dakota is currently planning a 40 mile 115 kV line from the existing Ellendale Junction substation in North Dakota to a new substation near Leola, South Dakota. This line is being developed to support existing load and improve reliability in the area. This project is expected to be completed by the end of 2017.

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

Montana-Dakota has been coordinating the planning, construction and operation of electric facilities with other utilities and agencies serving South Dakota since 1945. Montana-Dakota has interconnection agreements with Basin Electric, Western, Otter Tail Power Company, Northwestern Energy Corporation, and Minnkota Power Cooperative, Inc. These agreements provide for the interconnection of Montana-Dakota's bulk transmission facilities with the Western transmission network and MISO bulk transmission facilities.

Montana-Dakota and Western historically had an agreement that provided for mutual wheeling and coordinated construction of transmission facilities. This agreement expired on January 1, 2016.

Western and Basin Electric joined the Southwest Power Pool (SPP) in October 2015 and with the expiration of the Western Transmission Service Agreement (TSA) on January 1, 2016, Montana-Dakota has taken Network Integrated Transmission Service (NITS) from SPP to serve

approximately one-half of its customer load in western North Dakota and eastern Montana. Montana-Dakota has offset NITS charges by receiving credits for our transmission facilities that are used to facilitate SPP transmission service. Analysis has shown greater value for Montana-Dakota to remain a MISO member and take SPP transmission service to replace the Western TSA over a complete withdrawal from MISO. Montana-Dakota is concerned with the pancaking of transmission services by taking both SPP and MISO transmission services for the same load and is continuing to explore measures that will minimize customer cost impacts.

Montana-Dakota and Basin Electric have mutually agreed to terminate the Interconnection and Common Use Agreement which provided for common use of transmission facilities. Montana-Dakota and Basin Electric have elected to take transmission service from each transmission owner's applicable transmission service provider. Montana-Dakota and Basin Electric have entered into a new facility sharing agreement for those Montana-Dakota transmission facilities in the SPP footprint that do not qualify for facility credits under the SPP tariff. This new facility sharing agreement is effective January 1, 2016 and runs through December 31, 2020 at which point it will continue from year to year until terminated by either party with twelve months written notice.

Montana-Dakota, Otter Tail Power Company, and Northwestern Energy Corporation own the 475 megawatt (MW) Big Stone generating station near Big Stone, South Dakota, and associated bulk transmission facilities. Montana-Dakota owns 22.7 percent of the Big Stone Plant. In addition, Montana-Dakota is a participant in another joint venture with Minnkota Power Cooperative, Inc. (agent for Northern Municipal Power Agency), Otter Tail Power Company, and Northwestern Energy Corporation. This is the 427 MW Coyote generating station near Beulah, North Dakota, and associated bulk transmission facilities. Montana-Dakota currently owns 25 percent of the Coyote Station. These cooperative efforts permit Montana-Dakota to realize economic benefits from construction and operation of a large generating station and to provide the electric generation required of it and its partners through fewer facilities.

Montana-Dakota is a transmission owning member of MISO. MISO is a FERC-authorized Regional Transmission Organization (RTO). MISO commenced tariff administration for the operational control of the transmission systems of its members in February 2002. MISO commenced its energy market on April 1, 2005. The MISO Ancillary Services Market started on January 6, 2009 at which time Montana-Dakota became a Local Balancing Authority within MISO. Montana-Dakota actively participates in the planning processes performed by MISO, which has the obligation to coordinate the planning of transmission facilities. Two of the

planning processes mandated by FERC are generator interconnection and delivery service. The third process is related to expansion planning through the MISO Transmission Expansion Plan. As part of the market operation, Montana-Dakota's generating units are dispatched by MISO.

Montana-Dakota is also a member of the Midwest Reliability Organization (MRO), which is a Cross-Border Regional Entity representing the upper Midwest of the United States and Canada. The MRO is one of eight regional entities in North America operating under authority through a delegation agreement with the North American Electric Reliability Corporation (NERC). The primary focus of the MRO is developing and ensuring compliance with regional and international standards and performing assessments of the grid's ability to meet the demands for electricity.

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

Montana-Dakota's membership in MISO provides coordination in operating facilities and assistance in developing joint facilities. If Montana-Dakota has any proposed facilities in sections 20:10:21:05 and 20:10:21:07 these facilities would be part of the MISO Transmission Expansion Plan.

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

Montana-Dakota submits to MISO its transmission plans for inclusion into the MISO Transmission Expansion Plan.

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

Montana-Dakota has several agreements with other electric utilities in its service area. These are described in Section 20:10:21:08. In addition, Montana-Dakota is a member of MISO, which coordinates the joint operation and planning of electric facilities over the Region and permits Montana-Dakota to participate in the benefits and economics derived from large bulk electric systems. Montana-Dakota is also a member of the MRO.

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

The Corporate Environmental Policy of MDU Resources Group, Inc., the parent corporation of Montana-Dakota, states that:

*Our company will operate efficiently to meet the needs of the present without compromising the ability of future generations to meet their own needs. Our environmental goals are:*

- *To minimize waste and maximize resources;*
- *To support environmental laws and regulations that are based on sound science and cost-effective technology; and*
- *To comply with or exceed all applicable environmental laws, regulations and permit requirements.*

Montana-Dakota maintains good relations with local, state, and federal agencies involved with environmental protection and land use planning in its service area.

Transmission and energy conversion facilities will be designed and located in such a manner as to maximize operational efficiency and economic benefits and to minimize impacts on agriculture, extractable resources, health and safety, plant and animal life, communications, and the visual effect on the surrounding area. Transmission and energy conversion facilities will be sited in compliance with the federal, state, and local laws and with the Public Service Commission's rules and regulations.

Montana-Dakota strives to maintain compliance and operate in an environmentally proactive manner, while taking into consideration the cost to customers. Montana-Dakota actively monitors federal and state legislative and regulatory activity related to environmental issues, including air emissions, greenhouse gases (GHG), waste disposal, and water discharges. The Company has also established memberships in relevant trade organizations to assist in monitoring the potential impact of proposed legislation and regulation to the Company's operations.

The U.S. Environmental Protection Agency (EPA) has finalized significant air emissions,

wastewater discharge and coal ash management regulations for coal-fired electric generating facilities. The culmination of all various environmental requirements may result in the retirement of existing coal-fired baseload units earlier than otherwise would occur.

Montana-Dakota is currently monitoring the litigation of the EPA’s finalized Clean Power Plan (CPP) Rule that would regulate GHG emissions at existing fossil-fired generation units. Until the U.S. Supreme Court decides the case, it is not known what will be the final form of the rule.

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

Montana-Dakota uses an Integrated Resource Planning method that analyzes both supply-side options and demand-side management (DSM) programs. This planning method evaluates various means of providing electric energy to Montana-Dakota customers. Examples of supply-side options include central generating stations or alternate energy sources, while DSM programs include load management and conservation. Montana-Dakota first implemented Integrated Resource Planning in 1987 with the first integrated resource plan (IRP) being published in October 1989, and the most recent IRP was published in July 2015; both plans are on file with the Public Utilities Commission.

Currently, Montana-Dakota has approximately 24 MW of demand response on its Integrated System which comprises the service territories in Montana, North Dakota, and South Dakota. Based on analysis presented in the IRP, Montana-Dakota has implemented and will continue to add additional customers to the programs below:

DSM programs	Programs by State
Residential Programs	
A/C Energy Efficient Programs	MT
Thermal Storage with ASHP	MT
Lighting	MT
Commercial Programs	
Lighting	MT
Motors	MT
Variable Speed Drives	MT
A/C Energy Efficient Programs	MT

Partnership Program	MT
Commercial Demand Response	MT,ND,SD
Interruptible Rate Demand Response	MT,ND

The effects of load management programs in South Dakota are, however, expected to be relatively small for the reported ten-year period. This is because the number of customers served by Montana-Dakota in South Dakota is a small percentage (6.7% in 2015) of those served on the Integrated System. In addition, a high percentage of these are residential customers located in small communities with no industry and few large commercial establishments.

#### **20:10:21:14 LIST OF REPORTS**

None

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

The Big Stone Plant was required to comply with the Regional Haze Rule under the EPA Clean Air Act. The facility was required to install the Best Available Retrofit Technologies (BART) as identified in the South Dakota State Implementation Plan (SIP). The BART for the Big Stone Plant was to install the following; semi-dry flue gas desulfurization for SO<sub>2</sub>, selective catalytic reduction with separated over-fire air for NO<sub>x</sub> control, and baghouse for particulate matter. The project was completed and in-service on December 31, 2015.

**20:10:21:16 Projected Electric Demand (Megawatts)**

Year	South Dakota		Montana-Dakota Integrated System	
	Summer Peak Demand (MW)*	Winter Peak Demand (MW)	Summer Peak Demand (MW)*	Winter Peak Demand (MW)
2016	30.8	29.4	634.3	605.2
2017	30.8	29.7	647.5	624.2
2018	30.9	30.0	660.2	641.8
2019	31.0	30.4	672.7	659.6
2020	31.1	30.7	682.9	673.1
2021	31.3	31.0	693.3	686.9
2022	31.5	31.3	703.2	699.7
2023	31.8	31.7	712.5	711.3
2024	32.0	32.1	721.3	722.4
2025	32.3	32.4	730.3	733.6

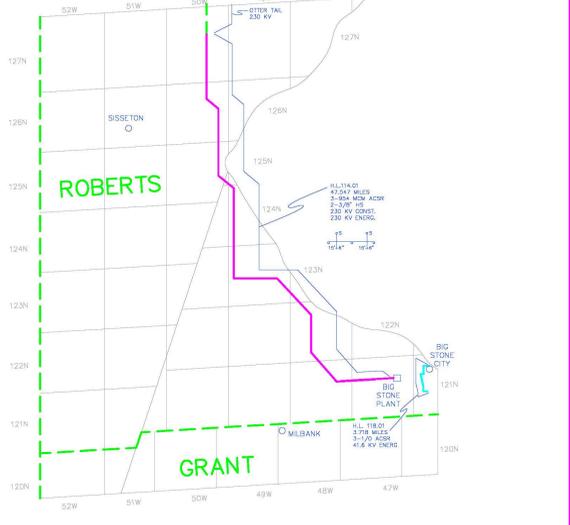
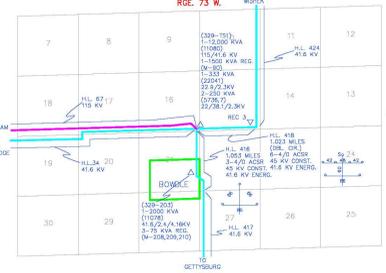
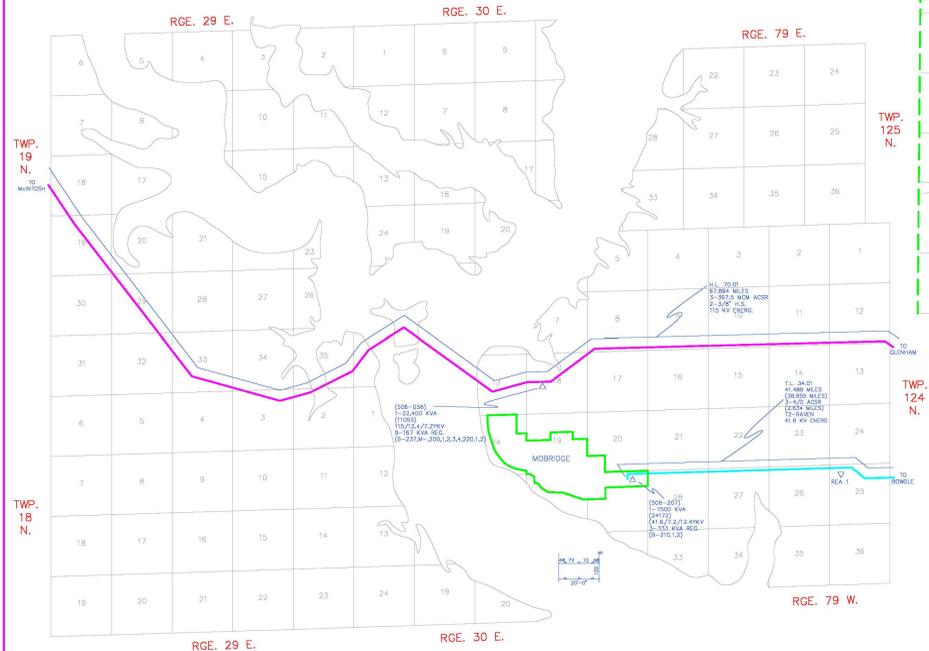
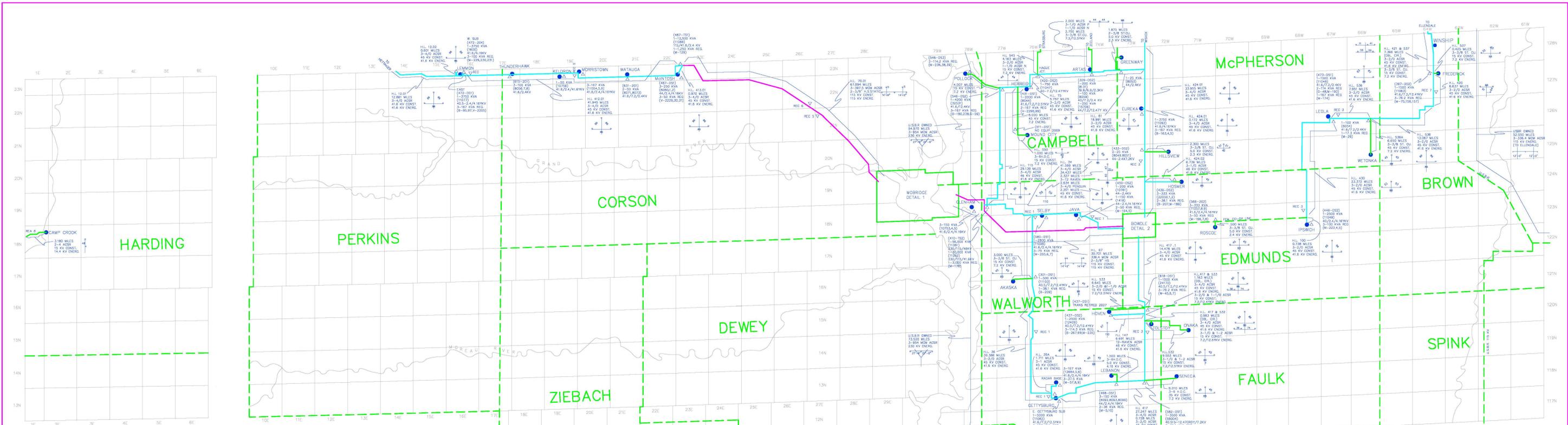
\*Montana-Dakota Integrated System and South Dakota Summer Peak Demands are represented as net of Energy Efficiency

**20:10:21:17 Changes in Electric Energy (Megawatt-hours)**

Year	South Dakota Total Annual Energy (MWH)	Percentage of Change
2016	168,096	--
2017	169,901	1.1%
2018	171,711	1.1%
2019	173,542	1.1%
2020	175,344	1.0%
2021	177,173	1.0%
2022	178,984	1.0%
2023	180,903	1.1%
2024	182,872	1.1%
2025	184,722	1.0%

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

Enclosed is Exhibit A which shows Montana-Dakota's South Dakota Service Area.



**LEGEND**

- REC**
- 1 - CAM-WAL ELEC. CO-OP, INC.
  - 2 - DAHE ELEC. CO-OP, INC.
  - 3 - TEM ELEC. CO-OP, INC.
  - 4 - GRAND ELEC. CO-OP, INC.
  - 5 - USBR AND LIPA LINES
  - 6 - MOR-GRAN-SOU ELEC. CO-OP, INC.
  - 7 - NORTHERN ELEC. CO-OP, INC. (ABERDEEN)
  - 8 - SOUTHEAST ELEC. CO-OP, INC.
- SYMBOLS**
- TOWNS SERVED BY MOU CO
  - ▲ ELECTRIC SUBSTATIONS
  - ELECTRIC POWER PLANT OR SUBSTATION
  - ▽ REC TAPS

**SYSTEM MAP OF ELECTRICAL PROPERTIES IN SOUTH DAKOTA**  
**MONTANA-DAKOTA UTILITIES CO.**

DRAWN BY	DATE	APPROVED	SCALE	DRAWING NO.
RAK	3-28-09	RAK	1"=6M.	SD ELEC SYS

**REVISED**

K.O.P.P.	NO CHANGE	3-14-07	K.O.P.P.	1-28-2012
K.O.P.P.	2-8-2008		K.O.P.P.	1-31-2013
K.O.P.P.	3-9-2009		K.O.P.P.	1-28-2014
K.O.P.P.	2-1-2010		K.O.P.P.	3-10-2015
K.O.P.P.	C.W. CORRECTIONS 8-2010		K.O.P.P.	8-24-2016
K.O.P.P.	NO CHANGE	1-24-11		
K.O.P.P.	10.0.0	3-2011		