



# MONTANA-DAKOTA

UTILITIES CO.

A Division of MDU Resources Group, Inc.

400 North Fourth Street  
Bismarck, ND 58501  
(701) 222-7900

June 30, 2016

Executive Secretary  
North Dakota Public Service  
Commission  
State Capitol Building  
Bismarck, ND 58505-0480

Re: Ten-Year Plan

Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc., herewith submits ten (10) copies of its North Dakota Ten-Year Plan in accordance with NDCC 49-22-04. Notice of the filing of this plan is given, pursuant to Article 69-06-02-02 of the North Dakota Administrative Code, to the state agencies and officers as designated in Article 69-06-01-05 of the Administrative Code and denoted on the attached Service List. The report can be found at the Public Service Commission's website: <http://www.psc.nd.gov/> .

Sincerely,

Tamie A. Aberle  
Director of Regulatory Affairs

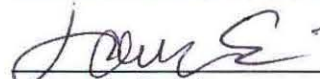
Enclosure  
cc: Service List (without enclosure)

Montana-Dakota Utilities Co., a Division of )  
MDU Resources Group, Inc. Ten-Year Plan ) CERTIFICATE OF SERVICE  
Submitted on June 30, 2016 )

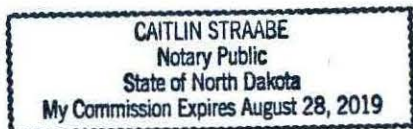
I, Laura L. Erickson, being first duly sworn on oath, certifies that the following list contains the names and last address of each designated state agency and/or state official given notice of filing of Montana-Dakota Utilities Co.'s (Montana-Dakota) Ten-Year Plan pursuant to the Rules and Regulations of the North Dakota Public Service Commission. I hereby certify that I have, by depositing this Certificate of Service with the United States Postal Service, caused notice to be given all such required state agencies and state officials that Montana-Dakota has filed its Ten-Year Plan for North Dakota Electric Properties with the North Dakota Public Service Commission.

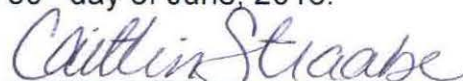
Name  
See Exhibit A Attached

Last Known Address  
See Exhibit A Attached

  
\_\_\_\_\_  
Laura L. Erickson

Subscribed and sworn to before me this 30<sup>th</sup> day of June, 2016.



  
\_\_\_\_\_  
Caitlin Straabe, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 09/28/2019

**Montana-Dakota Utilities Co.  
2016 North Dakota Ten-Year Plan For North Dakota Electric Properties  
Service List – Notice of Filing**

Aeronautics Commission P.O. Box 5020 Bismarck, ND 58502-5020	North Dakota Parks & Recreation Department 1600 East Century Avenue, Suite 3 P.O. Box 5594 Bismarck, ND 58505-5594
Attorney General State Capitol Building Dept 125 600 East Boulevard Avenue Bismarck, ND 58505	North Dakota Department of Mineral Resources Geological Survey 600 East Boulevard Avenue Bismarck, ND 58505-0840
Department of Agriculture State Capitol Building Dept 602 600 East Boulevard Avenue Bismarck, ND 58505-0200	Department of Career & Technical Education State Capitol Building, 15 <sup>th</sup> Floor Dept 270 600 East Boulevard Avenue Bismarck, ND 58505-0610
Energy Development Impact Office P.O. Box 5523 Bismarck, ND 58506-5523	State Water Commission 900 East Boulevard Avenue Dept 770 Bismarck, ND 58502-0850
Department of Labor 600 East Boulevard Avenue Dept 406 Bismarck, ND 58505-0340	ND State Land Department P.O. Box 5523 Bismarck, ND 58506-5523
North Dakota Department of Commerce Economic Development & Finance 1600 East Century Avenue, Suite 2 Bismarck, ND 58503	Indian Affairs Commission 1 <sup>st</sup> Floor Judicial Wing Rm 117 600 East Boulevard Avenue Bismarck, ND 58505
Department of Health State Capitol Building 2 <sup>nd</sup> Floor Judicial Wing 600 East Boulevard Avenue Bismarck, ND 58505-0200	North Dakota Department of Commerce Community Services 1600 East Century Avenue, Suite 2 Bismarck, ND 58503
Department of Human Services State Capitol Judicial Wing Dept 325 600 East Boulevard Avenue Bismarck, ND 58505-0250	Governor's Office State Capitol Building 600 East Boulevard Avenue Bismarck, ND 58505-0001
North Dakota Department of Transportation 608 East Boulevard Avenue Bismarck, ND 58505-0700	State Historical Society Heritage Center 612 East Boulevard Avenue Bismarck, ND 58505
Job Service of North Dakota P.O. Box 5507 Bismarck, ND 58506-5507	Soil Conservation Committee State Capitol Building 600 East Boulevard Avenue Bismarck, ND 58505
Game & Fish Department 100 North Bismarck Expressway Bismarck, ND 58501-5095	

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

For Planning Years July 1, 2016 through June 30, 2026

Submitted to  
NORTH DAKOTA PUBLIC SERVICE COMMISSION  
June 30, 2016



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400 North 4th Street  
Bismarck, North Dakota 58501

## INTRODUCTION

Enclosed are data comprising the Montana-Dakota Utilities Co. (Montana-Dakota) "Ten Year Plan" for North Dakota Electric Properties filed in compliance with NDCC §49-22-04 and NDAC §69-06-02-01 and 02.

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## SCHEDULE A

### EXISTING ENERGY CONVERSION FACILITIES

The existing energy conversion facilities subject to this filing and located in North Dakota are the 427 MW Coyote Station near Beulah in which Montana-Dakota has a 25 percent ownership interest, the 191 MW Heskett Station in Mandan, which is wholly owned by Montana-Dakota, the 5.3 MW waste heat recovery unit located near Glen Ullin, the 19.5 MW Cedar Hills wind project located near Rhame and the 107.5 MW Thunder Spirit wind project located near Hettinger. Otter Tail Power Company of Fergus Falls, Minnesota operates the Coyote Station and reports all information required by Schedule A.

No energy conversion facilities are committed to be retired in the next ten years.

## SCHEDULE B

### ENERGY CONVERSION FACILITIES UNDER CONSTRUCTION

NONE

## SCHEDULE C

### PROPOSED ENERGY CONVERSION FACILITIES ON WHICH CONSTRUCTION IS INTENDED WITHIN THE ENSUING FIVE YEARS

Montana-Dakota is studying the development of a combined cycle generating resource to economically and reliably meet its future customer energy and demand requirements. Montana-Dakota is looking to develop this resource through partnerships, if available, to achieve greater economies of scale and efficiencies through the construction of a larger energy generating facility.

Location and timing of this energy conversion facility has not been determined at this time.

## SCHEDULE D

### PROPOSED ENERGY CONVERSION FACILITIES DURING THE NEXT TEN-YEAR TIME PERIOD

Montana-Dakota routinely studies additional resource options to meet its customer needs. These options are addressed in Montana-Dakota's Integrated Resource Plan (2015 IRP) filed with the Commission on July 1, 2015 and designated as Case No. PU-15-454.

## SCHEDULE E

### EXISTING TRANSMISSION FACILITIES (ELECTRIC)

Exhibit A is a system map of North Dakota showing the location of existing transmission facilities.

There are no retirements of any North Dakota transmission facilities planned within the next ten years.

## SCHEDULE G

### PROPOSED TRANSMISSION FACILITIES ON WHICH CONSTRUCTION IS INTENDED WITHIN THE ENSUING FIVE YEARS (ELECTRIC)

The Midcontinent Independent System Operator, Inc. (MISO) has established a classification of transmission expansion projects called Multi-Value Projects (MVPs). Cost allocation for MVPs will be shared across the entire MISO footprint on a per MWh basis. There is currently one approved MVP project that will connect to Montana-Dakota's transmission system. This MVP project consists of a new substation near the existing Ellendale Junction Substation and a 345 KV line extending from Ellendale which will interconnect to a substation near the Big Stone Plant in South Dakota. Montana-Dakota will be a 50 percent owner of this MVP line along with Otter Tail Power which is scheduled to be placed in-service by December, 2019.

The Companies filed and received from the Commission in Case No. PU-13-840 a corridor certificate and route permit for the Big Stone South to Ellendale MVP line. Montana-Dakota and Otter Tail Power are completing right of way acquisition and work is scheduled to start on the project in 2016.

Montana-Dakota is currently planning a 40 mile 115 kV line from the existing Ellendale Junction substation 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.

## SCHEDULE I

### PROPOSED TRANSMISSION FACILITIES DURING THE NEXT TEN YEAR TIME PERIOD (ELECTRIC)

NONE

## SCHEDULE J

### REGIONAL COORDINATION

Montana-Dakota has been coordinating the planning, construction, and operation of electric facilities with other utilities and agencies serving North Dakota since 1945. Montana-Dakota has interconnection agreements with Basin Electric Power Cooperative (Basin Electric), Western Area Power Administration (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 is a transmission owning member of the MISO. The MISO is a FERC-authorized Regional Transmission Organization (RTO). The MISO commenced tariff administration for the operational control of the transmission systems of its members in February 2002. The 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 the MISO. Montana-Dakota actively participates in the planning processes performed by the 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. A third process is related to expansion planning through the MISO Transmission Expansion Plan.

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 MW Big Stone generating station near Big Stone City, 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 ownership in a large generating station and to provide the electrical generation required of it and its partners using fewer facilities.

Montana-Dakota is also a member of the Midwest Reliability Organization (MRO). The MRO is one of eight regional entities in North America operating under authority from regulators in the United States and Canada 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.

## SCHEDULE K

### ENVIRONMENTAL INFORMATION

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.

## SCHEDULE L

### PROJECTED DEMAND FOR SERVICE

The load data reported in this plan are the result of Montana-Dakota's *2016-2035 Electric Load Forecast* dated December 31, 2015.

#### 1. Projected Peak Load for 2016-2026

The demand forecast was developed using an econometric model whose methodology is documented in detail in Attachment A of the 2015 IRP.

The summer peak is the highest hourly demand value for the summer months in the given year. The winter peak is the highest hourly demand value for the winter season occurring at the end of the given year or the beginning of the following calendar year. The projected demands shown in MW below represent the load at the customer level plus the demand due to system losses. System losses include energy losses on the transmission and distribution systems and energy that is unaccounted for such as power theft or stray currents. The summer peak demand given is net of energy efficiency and prior to any reduction in load due to demand response.

a. Montana-Dakota Integrated System

PROJECTED PEAK DEMAND (MW)

YEAR	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
SUMMER	634.2	647.5	660.1	672.7	683.0	693.3	703.2	712.4	721.3	730.3	739.3
WINTER	605.2	624.2	641.8	659.6	673.0	686.9	699.7	711.3	722.4	733.6	744.7

GROWTH RATE (%)

YEAR	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
SUMMER	--	2.1	1.9	1.9	1.5	1.5	1.4	1.3	1.2	1.2	1.2
WINTER	--	3.1	2.8	2.8	2.0	2.1	1.9	1.7	1.6	1.6	1.5

Historically, for the period 2010-2015 the summer peak demand increased at an average rate of 2.7 percent per year while the winter peak demand increased at an average rate of 3.0 percent per year. The projected average growth rates for the period 2016-2026 are 1.5 percent for the summer peak and 2.0 percent for the winter peak.

b. North Dakota

PROJECTED PEAK DEMAND (MW)

YEAR	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
SUMMER	440.1	452.4	463.9	475.3	483.6	492.1	500.2	507.2	514.0	520.9	528.0
WINTER	419.9	436.1	451.0	466.0	476.6	487.6	497.7	506.4	514.8	523.3	531.9

**GROWTH RATE (%)**

YEAR	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
SUMMER	--	2.8	2.5	2.5	1.7	1.8	1.6	1.4	1.3	1.3	1.4
WINTER	--	3.9	3.4	3.3	2.3	2.3	2.1	1.7	1.7	1.7	1.6

**2. Projected Energy for 2016-2026**

The projected annual energy requirements, shown in gigawatt-hours (GWh), for Montana-Dakota's Integrated System are as follows:

Year	Annual Energy (GWh)	Year	Annual Energy (GWh)
2016	3,463.6	2022	3,992.1
2017	3,570.0	2023	4,056.7
2018	3,668.6	2024	4,119.2
2019	3,768.1	2025	4,181.7
2020	3,843.1	2026	4,244.1
2021	3,920.8		

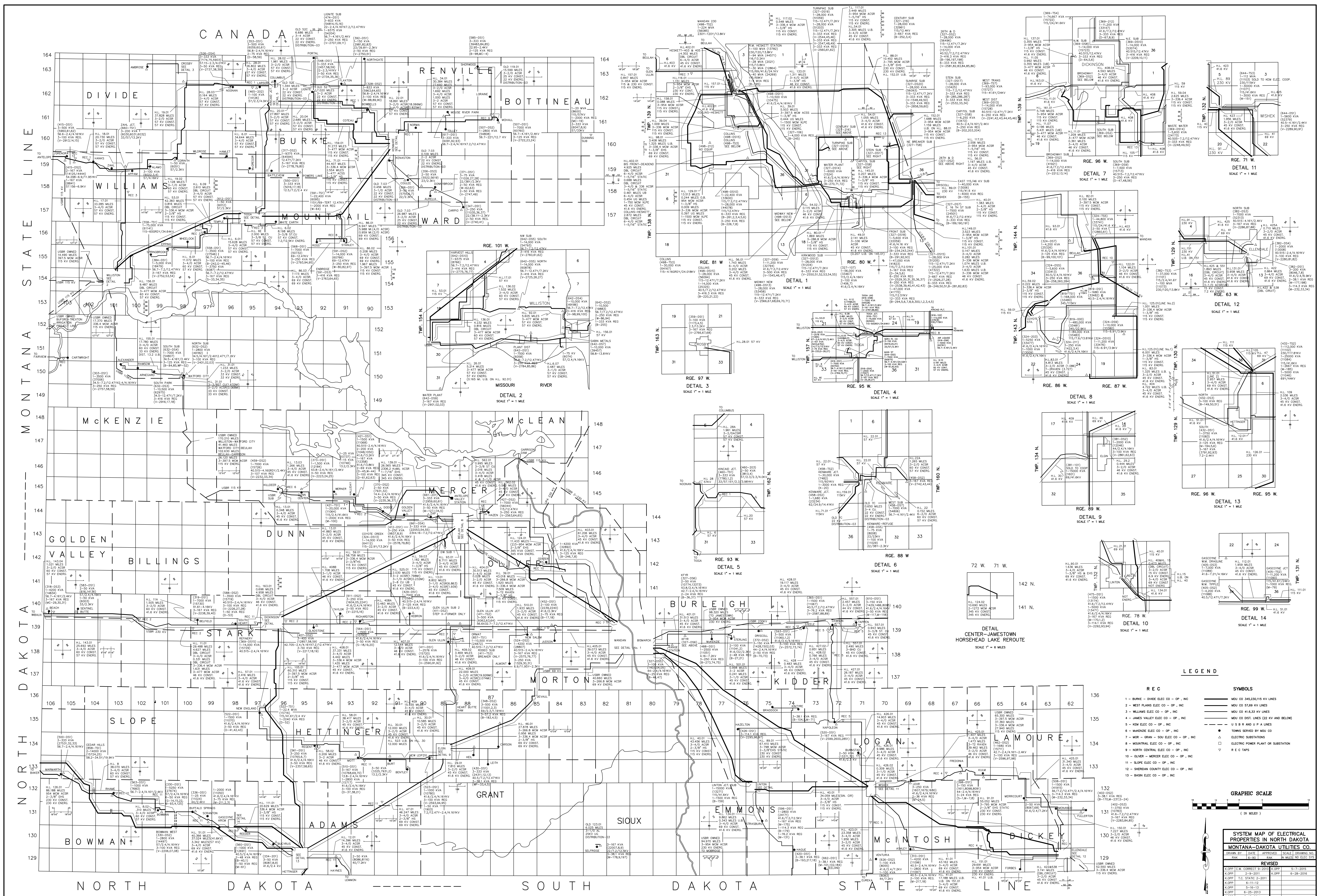
Historically, for the period 2010-2015, Montana-Dakota experienced an average annual increase of 4.2 percent for energy consumption. The projected average growth rate for the period 2016-2026 is 2.0 percent.

**3. Load Centers**

Montana-Dakota's load centers for the Integrated System, defined as areas with 10 MW or more of load in a limited geographical area, are, in North Dakota, Bismarck-Mandan, Dickinson, Stanley, Tioga, Watford City, and Williston and in Montana, Baker, Glendive, Sidney, and Miles City.

Exhibit A

North Dakota Electric System Map



**LEGEND**

**SYMBOLS**

- 1 - BURKE - WIDE ELEC CO - OP, INC
- 2 - WEST PLAINS ELEC CO - OP, INC
- 3 - WILLIAMS ELEC CO - OP, INC
- 4 - JAMES VALLEY ELEC CO - OP, INC
- 5 - JAMES VALLEY ELEC CO - OP, INC
- 6 - WARD ELEC CO - OP, INC
- 7 - MORAN - GRAN - 500 ELEC CO - OP, INC
- 8 - MONTREAL ELEC CO - OP, INC
- 9 - NORTH CENTRAL ELEC CO - OP, INC
- 10 - BURKE - WARD ELEC CO - OP, INC
- 11 - BURKE ELEC CO - OP, INC
- 12 - SHERIDAN COUNTY ELEC CO - OP, INC
- 13 - BASH ELEC CO - OP, INC

**SYMBOLS**

- MOU CO 345,320,115 KV LINES
- MOU CO 575.9 KV LINES
- MOU CO 41.8,33 KV LINES
- MOU CO DIST. LINES (22 KV AND BELOW)
- 5 & 6 R AND P P L LINES
- TRANS. SERVED BY MOU CO
- MOU - GRAN - 500 ELEC CO - OP, INC
- ELECTRIC PLANT OR SUBSTATION
- R & E TAPS

**GRAPHIC SCALE**

( IN MILES )

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

**REVISION**

DATE	BY	REVISION
10/1/2010	...	...
10/1/2011	...	...
10/1/2012	...	...
10/1/2013	...	...
10/1/2014	...	...