MONTANA-DAKOTA
UTILITIES CO.
A Subsidiary of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
701-222-7900
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July 1, 2024

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

RE: Ten-Year Plan

Dear Ms. Van Gerpen:

Montana-Dakota Utilities Co. herewith electronically submits its Ten-Year Plan in accordance with South Dakota Administrative Rules Chapter 20:10:21.

Please contact me at (701) 222-7855 or travis.jacobson@mdu.com with any questions regarding this filing.

Sincerely,

/s/ Travis R. Jacobson

Travis R. Jacobson
Director of Regulatory Affairs

Enclosure

Ten-year plan for South Dakota Electric Properties

Montana-Dakota Utilities Co.

For Planning Years January 1, 2024, through December 31, 2033

Submitted to:

South Dakota Public Utilities Commission on July 1, 2024

MONTANA-DAKOTA UTILITIES CO.
A Subsidiary of MDU Resources Group, Inc.
In the Community to Serve®

Contents

20:10:21:04 Existing Energy Conversion Facilities

Heskett – Unit 1

- Location: 2025 38th St, Mandan, ND 58554
- Type and nameplate capacity: Steam; 25 MW nameplate capacity; 22.8 MW accredited capacity in the 2021-22 MISO Planning Year.
- Net capacity and annual MWh production:
  - **2022** – 11,691 MWh
- Water source and annual acre-ft use and consumption: Missouri River
  - **2022** – 3,405 acre-ft used in a once-through cooling loop; 0.878 acre-ft consumed to make up for closed-loop losses and fire suppression.
- Fuel type, source, and annual consumption: Lignite coal from Dakota Westmoreland Beulah mine; tires from Liberty.
  - **2022** – 12,490 tons of coal; 696 tons of tires.
- Projected date of removal from service: Retired on February 24, 2022.
  - Reason – Aging unit and no longer economically viable.

Heskett – Unit 2

- Location: 2025 38th St, Mandan, ND 58554
- Type and nameplate capacity: Steam; 66 MW nameplate capacity; 65.1 MW accredited capacity in the 2021-22 MISO Planning Year.
- Net capacity and annual MWh production:
  - **2022** – 35,355 MWh
- Water source and annual acre-ft use and consumption: Missouri River
  - **2022** – 3,204 acre-ft used in a once-through cooling loop; 0.669 acre-ft consumed to make up for closed-loop losses and fire suppression.
- Fuel type, source, and annual consumption: Lignite coal from Dakota Westmoreland Beulah mine; natural gas from Montana-Dakota
  - **2022** – 34,849 tons of coal; 0 dekatherms of natural gas
- Projected date of removal from service: Retired January 30, 2022
  - Reason – Aging unit no longer economically viable.

Heskett – Unit 3

- Location: 2025 38th St, Mandan, ND 58554
- Type and nameplate capacity: Combustion Turbine; 88 MW nameplate capacity; 85.7, 91, 118.4, and 93.2 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
  - **2022** – 3,551 MWh
  - **2023** – 29,027 MWh
- Water source and annual acre-ft use and consumption: Water use and consumption for Heskett 3 is negligible. It is used for evaporative cooling and fire suppression and comes from the Missouri River.

- Fuel type, source, and annual consumption: Natural gas from Northern Border Pipeline.
    - **2022** – 70,366 dekatherms of natural gas
    - **2023** – 368,422 dekatherms of natural gas
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Lewis & Clark – Unit 2

- Location: 12234 County Road 250, Sidney, MT 59270
- Type and nameplate capacity: Reciprocating Internal Combustion Engine; 18.7 MW nameplate capacity; 14.4, 15.7, 16.7, and 15.7 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 1,539 MWh
    - **2023** – 20,889 MWh
- Water source and annual acre-ft use and consumption: Yellowstone River
    - **2022** – 0 acre-ft consumed
    - **2023** – 0 acre-ft consumed
- Fuel type, source, and annual consumption: Natural gas from Montana-Dakota.
    - **2022** – 13,768 dekatherms of natural gas
    - **2023** – 184,622 dekatherms of natural gas
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Glendive – Unit 1

- Location: 336 FAS 335, Glendive, MT 59330
- Type and nameplate capacity: Combustion Turbine: Base; 34.8 MW or 34.2 MW nameplate capacity for natural gas and diesel respectively; 30.4, 31.1, 35.3, and 31.3 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 750 MWh
    - **2023** – 791 MWh
- Water source and annual acre-ft use and consumption: Glendive City Water Supply; used for fogging/power augmentation during URGE testing.
    - **2022** – 0.003 acre-ft consumed
    - **2023** – 0.002 acre-ft consumed
- Fuel type, source, and annual consumption: Natural gas from Montana-Dakota, No. 2 diesel from Cross Petroleum.
    - **2022** – 9,884 dekatherms of natural gas; 23,457 gallons of diesel
    - **2023** – 14,256 dekatherms of natural gas; 0 gallons of diesel
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Glendive – Unit 2

- Location: 336 FAS 335, Glendive, MT 59330
- Type and nameplate capacity: Combustion Turbine; 40.7 MW nameplate capacity; 31.9, 38.3, 44.5, and 34.5 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 1,510 MWh
    - **2023** – 1,936 MWh
- Water source and annual acre-ft use and consumption: Glendive City Water Supply; used for fogging/power augmentation during URGE testing.
    - **2022** – 0.008 acre-ft consumed
    - **2023** – 0.007 acre-ft consumed
- Fuel type, source, and annual consumption: Natural gas from Montana-Dakota, No. 2 diesel from Cross Petroleum.
    - **2022** – 12,389 dekatherms of natural gas; 47,255 gallons of diesel
    - **2023** – 21,545 dekatherms of natural gas; 10,465 gallons of diesel
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Glen Ullin Station 6 (ORMAT)

- Location: 4090 62nd Ave, Glen Ullin, ND 58631
- Type and nameplate capacity: Waste Heat; 7.5 MW nameplate capacity; 2.9, 2.6, 4.4, and 3.8 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 13,884 MWh
    - **2023** – 38,008 MWh
- Glen Ullin Station 6 does not use or consume water.
- Glen Ullin Station 6 is a renewable Combined Heat and Power unit. It takes waste heat from a Northern Border compression station and converts it to electricity.
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Miles City

- Location: 4642 E Leighton Boulevard, Miles City, MT 59301
- Type and nameplate capacity: Combustion Turbine: Base; 23.2 MW or 23.8 MW nameplate capacity for natural gas or diesel respectively; 18.1, 23.4, 27.5, and 22.7 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 583 MWh
    - **2023** – 312 MWh

- Water source and annual acre-ft use and consumption: Glendive City Water Supply; used for fogging/power augmentation during URGE testing.
    - **2022** – 0.002 acre-ft consumed
    - **2023** – 0.004 acre-ft consumed
- Fuel type, source, and annual consumption: Natural gas from Montana-Dakota, No. 2 diesel from Cross Petroleum.
    - **2022** – 4,917 dekatherms of natural gas; 33,264 gallons of diesel
    - **2023** – 2,929 dekatherms of natural gas; 0 gallons of diesel
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Cedar Hills

- Location: 8104 163rd Ave SW, Rhame, ND 58651
- Type and nameplate capacity: Wind; 19.5 MW nameplate capacity; 5.2, 3, 13.3, and 5.2 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 64,546 MWh
    - **2023** – 52,440 MWh
- Cedar Hills is a wind farm and does not have any water or fuel consumption.
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Diamond Willow

- Location: 326 10th St SE, Baker, MT 59313
- Type and nameplate capacity: Wind; 30 MW nameplate capacity; 6, 3.4, 21.7, and 7.3 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 91,105 MWh
    - **2023** – 82,375 MWh
- Diamond Willow is a wind farm and does not have any water or fuel consumption.
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Thunder Spirit

- Location: 206 3rd Ave NE, Hettinger, ND 58639
- Type and nameplate capacity: Wind; 155.5 MW nameplate capacity; 36.7, 25.6, 104.5, and 41.5 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 557,567 MWh
    - **2023** – 488,369 MWh

- Thunder Spirit is a wind farm and does not have any water or fuel consumption.
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Coyote

- Location: 6240 13th St, Beulah, ND 58523
- Type and nameplate capacity: Steam; 427 MW is the total nameplate capacity, but Montana-Dakota only has a 25% share, bringing Montana-Dakotas nameplate capacity to 107 MW with an accredited capacity of 99.7, 84, 109.3, and 96.6 MW in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 571,389 MWh (Montana-Dakota's 25% share)
    - **2023** – 650,039 MWh (Montana-Dakota's 25% share)
- Water source and annual acre-ft use and consumption: Missouri River. Data provided by Otter Tail Power Company.
    - **2022** – 3,578 acre-ft consumed
    - **2023** – 4,082 acre-ft consumed
- Fuel type, source, and annual consumption: Lignite coal from Coyote Creek Mine. Data provided by Otter Tail Power Company.
    - **2022** – 1,857,049 tons of coal
    - **2023** – 2,164,150 tons of coal
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Big Stone

- Location: Big Stone City, SD
- Type and nameplate capacity: Steam; 475 MW is the total nameplate capacity, but Montana-Dakota only has a 22.7% share, bringing Montana-Dakota's nameplate capacity to 108 MW with an accredited capacity of 108.7, 97.9, 83.7, and 106 MW in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 430,748 MWh (Montana-Dakota's 22.7% share)
    - **2023** – 353,842 MWh (Montana-Dakota's 22.7% share)
- Water source and annual acre-ft use and consumption: Big Stone Lake. Data provided by Otter Tail Power Company.
    - **2022** – 3,148 acre-ft consumed
    - **2023** – 2,645 acre-ft consumed
- Fuel type, source, and annual consumption: Sub-bituminous coal from Peabody Energy. Data provided by Otter Tail Power Company.
    - **2022** – 1,282,505 tons of coal
    - **2023** – 1,056,230 tons of coal
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Portable Generator Unit 2

- Location: Currently in Sidney, MT 59270
- Type and nameplate capacity: 1,825 kW nameplate capacity; 1.7, 1.8, 1.5, and 2 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 8,422 kWh (Units 2 and 3 combined)
    - **2023** – 12,110 kWh (Units 2 and 3 combined)
- Water source and annual acre-ft use and consumption: The portable generators do not use or consume water.
- Fuel type, source, and annual consumption: No. 2 diesel from Agland Co-op.
    - **2022** – 454 gallons of diesel
    - **2023** – 235 gallons of diesel
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

Portable Generator Unit 3

- Location: Currently in Poplar, MT 59255
- Type and nameplate capacity: 1,825 kW nameplate capacity; 1.8, 1.8, 1.6, and 1.9 MW accredited capacity in the summer, fall, winter, and spring seasons of the 2024-25 MISO Planning Year.
- Net capacity and annual MWh production:
    - **2022** – 8,422 kWh (Units 2 and 3 combined)
    - **2023** – 12,110 kWh (Units 2 and 3 combined)
- Water source and annual acre-ft use and consumption: The portable generators do not use or consume water.
- Fuel type, source, and annual consumption: No. 2 diesel from Metz Fuel & Service, In.
    - **2022** – 160 gallons of diesel
    - **2023** – 760 gallons of diesel
- Projected date of removal from service: Montana-Dakota currently has no plans to remove this unit from service.

20:10:21:05 Proposed Energy Conversion Facilities

Montana-Dakota is currently in the process of building a simple-cycle combustion turbine generation resource (88 MW), which will help meet future energy and demand requirements from its customers in an economic and reliable fashion. Heskett 4 will be located in North Dakota beside the current Heskett 3 simple cycle combustion turbine which gives Montana-Dakota the ability to utilize existing air permit emissions, land, natural gas pipelines, and interconnection facilities. The site is designed to be able to convert Heskett 3 and 4 into a combined cycle facility with the addition of heat recovery boilers and a steam turbine generator in the future if needed. Heskett 4 is expected to be brought online in 2024.

20:10:21:06 Existing Transmission Facilities

Montana-Dakota and Otter Tail Power Company jointly own a 345 kV transmission line extending from Big Stone, South Dakota to Ellendale, North Dakota. A jointly owned substation with Otter Tail Power Company, Twin Brooks, was added to this transmission line in May 2020.

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 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 (WAPA) 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. WAPA owns the South Dakota portion of this facility.

20:10:21:07 Proposed Transmission Facilities

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

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, WAPA, 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 WAPA transmission network and Midcontinent Independent System Operator (MISO) bulk transmission 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 the Federal Energy Regulatory Commission (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, MISO dispatches Montana-Dakota’s generating units.

Montana-Dakota and WAPA historically had an agreement that provided for mutual wheeling and coordinated construction of transmission facilities. This agreement expired on January 1, 2016. WAPA and Basin Electric joined the Southwest Power Pool (SPP) in October 2015 and with the expiration of the WAPA Transmission Service Agreement (TSA) on January 1, 2016, Montana-Dakota began taking Network Integrated Transmission Service (NITS) from SPP in South Dakota, in western North Dakota, and eastern Montana which totals approximately one half of its interconnected system customer load. Montana-Dakota has offset NITS charges by receiving credits for its transmission facilities that are used to facilitate SPP transmission service.

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 also a member of the Midwest Reliability Organization (MRO), which is a Cross-Border Regional Entity representing the Midwestern United States and Canada. The MRO is one of six 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 (MTEP).

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

Montana-Dakota Utilities Co.'s Environmental Policy states that:

> *The 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 be a good steward of the environment while providing high quality and reasonably priced products and services; and*
> - *To comply with or surpass 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 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 provides comments to 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.

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 demand response and energy efficiency. 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 2021 in North Dakota and September 2021 in Montana; both plans are on file with the Public Utilities Commissions. Montana-Dakota will be filing an IRP in July of 2024.

Currently, Montana-Dakota has approximately 36.2 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	
LED Lighting	MT
Commercial Programs	
Lighting	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 (6.62% in 2023) 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

None.

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)*
2024	27.0	26.9	572.8	569.3
2025	27.3	27.0	576.3	571.4
2026	27.5	27.2	580.0	573.8
2027	27.7	27.4	583.8	576.5
2028	28.0	27.6	587.5	578.9
2029	28.2	27.7	591.2	581.5
2030	28.4	27.9	595.0	583.9
2031	28.8	28.2	599.3	587.3
2032	29.0	28.4	603.5	590.7
2033	29.4	28.7	607.8	594.1

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

Montana-Dakota also serves a large, 180 MW data center load near Ellendale, North Dakota. There is another large data center load with a signed and executed Electric Service Agreement for an additional 225 MW just north of the first data center. These loads are not reported in the above table.

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

Year	Total Annual Energy (MWh)	Percentage of Change
2024	153,600	-
2025	154,355	0.49%
2026	155,388	0.67%
2027	156,414	0.66%
2028	157,391	0.62%
2029	158,449	0.67%
2030	159,538	0.69%
2031	160,899	0.85%
2032	162,293	0.87%
2033	163,680	0.85%

20:10:21:18 Map of Service Area

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

Exhibit A

HARDING
PERKINS
CORSON
DEWEY
ZIEBACH
CAMPBELL
WALWORTH
POTTER
MCPHERSON
EDMUNDS
FAULK
MARSHALL
BROWN
SPINK
DAY
ROBERTS
GRANT
MARSHALL
SULLY
HUGHES
STANLEY
GRAND RIVER
MOREAU RIVER
OAHE DAM
LAKE OAHE 1420 KV
U.S.B.R. 230 KV
U.S.B.R. OWNED 34.870 MILES 3-954 MCM ACSR 230 KV ENERG.
USBR OWNED 75.520 MILES 3-336.4 MCM ACSR 115 KV ENERG. (TO ELLENDALE)
TO BIG STONE PLANT SEE DETAIL
TO ELLENDALE
TO WINNER
TO MUNTOSH
TO GLENHAM
TO MOBRIDGE
TO BOWDLE
TO WEBER
TO GETTYSBURG
TO MILBANK
TO TWIN BROOKS SWITCH (661-TS03)
TO IPSWICH
TO WETONKA
TO LEOLA
TO FREDERICK
TO ROSCUE
TO AKASKA
TO JAVA
TO GLENHAM
TO HERBERT
TO POLLOCK
TO ARTAS
TO GREENWAY
TO HILLSVIEW
TO HOSMER
TO ONAKA
TO OLSTOY
TO SENECA
TO HOVEN
TO LEBANON
TO GETTYSBURG
TO RADAR BASE
TO MOUND CITY
TO SELBY
TO BOWDLE DETAIL 2
TO MOBRIDGE DETAIL 1
TO CAMP CROOK
TO KELDRON
TO THUNDERHAWK
TO MORRISTOWN
TO WATAUGA
TO McINTOSH
TO LEMMON
TO ARTAS
TO HAGUE DIST (420-052)
TO HERBERT
TO POLLOCK
TO GLENHAM
TO JAVA
TO SELBY
TO AKASKA
TO HOVEN
TO GETTYSBURG
TO RADAR BASE
TO LEBANON
TO SENECA
TO OLSTOY
TO ONAKA
TO HILLSVIEW
TO HOSMER
TO ROSCUE
TO IPSWICH
TO WETONKA
TO LEOLA
TO FREDERICK
TO WINNER
TO ELLENDALE
TO MILBANK
SISSETON
BIG STONE PLANT
BIG STONE CITY
OTTER TAIL 230 KV
TWIN BROOKS SWITCH (661-TS03)
REA B
REA 1
REC 1
REC 2
REC 3
REC 4
REC 5
REC 6
REC 7
(487-TS1) 1-12,500 KVA (11066) 115/12.47/2.4 KV 1-1,250 KVA REG. (W-129)
(456-DS1) 1-150 KVA (8382A) 40.515/7.2-12.47Yx2.4/41.6YKV
(615-DS1) 3-50 KVA (8070,73,74) 40-2.4/7.2KV
(509-DS2) 3-167 KVA (15740,41,42) 40.515/2.4/4.16Yx7.2/12.47YKV
(630-DS1) 3-250 KVA (8071,80,83) 41.6,7.2/2.4KV
(546-DS2) 1-4200 KVA (12571) 115/12.47KV 1-167 KVA REG. (R-180,238,0-59)
(546-DS3) 1-2500 KVA (12572) 22-2.4/4.16YKV,7.2/12.47YKV 1-2307,08,09) 115/12.47KV
(309-DS2) 1-200 KVA (8131) 44-7.2/12.47KV
(414-DS1) 1-25 KVA (8072) 44,2.4KV
(365-DS1) 1-3750 KVA (11093) 41.6,4.16YKV 1-167 KVA REG. (V-2325,26,27)
(435-DS2) 1-25 KVA (8049,8051) 44-2.4/7.2KV
(450-DS2) 1-200 KVA (8132) 44-2.4KV 1-150 KVA (1418) 44-2.4/4.16YKV 2-50 KVA REG. (W-143)
(410-DS1) 1-750 KVA (10753,4,5) 41.6,2.4/4.16KV
(410-TS2) 1-56,000 KVA (11081) 230,115/46KV 1-10,000 KVA (11082) 230,115/41.6KV 1-3,000 KVA REG. (W=1195)
(580-DS1) 1-2800 KVA (11098) 41.6,2.4/4.16YKV 1-167 KVA REG. (R-158,M-205,07)
(301-DS1) 1-842 KVA (11097) 43-7.2/12.47KV 1-38.1 KVA REG. (R-209)
(437-DS2) 1-2500 KVA (12409) 44-7.2/12.47KV 1-114.3 KVA REG. (R-267,69,M-235)
(437-DS1) TRANS REMED 2007
(406-DS2) 1-1000 KVA (11084) 41.6,2.4/4.16KV 1-167 KVA REG. (M-57,8,9)
(406-DS3) 1-5000 KVA (11082) 41.6,12.5KV 1-167 KVA REG. (M-181,2,3)
(468-DS1) 1-750 KVA (8092,8099) 44,2.4/4.16KV 1-250 KVA (8100) 43.8-2.4/4.16KV 3-36 KVA REG. (M-5,10,35)
(582-DS1) 1-3500 KVA (58004) 41.6,12.47GRDY/7.2KV 1-361 KVA REG. (R-167,194,M-187)
(618-DS1) 1-1500 KVA (24170) 40.5/7.2/12.47KV 1-38.1 KVA REG. (R-40,8,7)
(473-DS1) 1-7500 KVA (11067) 41.6/7.2/2.4KV 2-114 KVA REG (R-268) 1-114.3 KVA REG (R-268)
(414-TS1) NO EQUIP 1-19-22
(309-DS2) 1-200 KVA (8131) 44-7.2/12.47KV
(473-TS2) 1-75,000 KVA (10925) 115/41.6KV
(635-DS1) 1-100 KVA (8054) 41.6,7.2/2.4KV 1-1.5 KVA REG (W-29)
(473-DS2) 1-3250 KVA (68146) 41.6/115-12.47Y/7.2KV 3-114.3 KVA REG. (V-2322,23,24)
(446-DS2) 1-2500 KVA (11049) 41.6/2.4/4.16YKV 1-114.3 KVA REG. (M-223,4,5)
(968-DS2) 1-1680 KVA (11211) 42.705-2.4/4.16Y/2.4KV 2-50 KVA REG. (W-166,7,8)
(473-TS1) 1-75,000 KVA (10925) 115/41.6KV
(397-DS2) 1-1500 KVA (11092) 41.6/7.2/12.4KV 1-114.3 KVA REG. (W-75,156,157)
(433-DS1) 1-1500 KVA (11094) 41.6/7.2/12.4KV 1-114.3 KVA REG. (W-129,30,31)
(437-TS1) 1-12,500 KVA (11066) 115/12.47/2.4 KV 1-1,250 KVA REG. (W-129)
(510-DS1) NO EQUIP 2009
(473-DS1) NO SEC ABOVE 12/7
(414-DS1) 1-25 KVA (8072) 44,2.4KV
(433-DS2) 1-25 KVA (8049,8051) 44-2.4KV
(397-DS1) 1-1500 KVA (11092) 41.6/7.2/12.4KV 1-114.3 KVA REG. (W-75,156,157)
(446-DS1) 1-1500 KVA (11049) 41.6/2.4/4.16YKV 1-114.3 KVA REG. (M-223,4,5)
(506-DS6) 1-500 KVA (11096) 115/12.4/7.2YKV 3-250 KVA REG. (V-2331,32,33,34,35,36,37,38,39)
(LKR-DS1) 1-500 KVA (11095) 115/12.47/7.2YKV 1-250 KVA REG. (V-2335,52)
(LKR-DS7) 1-75,000 KVA (24172) 41.6,7.2/12.4YKV 3-333 KVA REG. (V-2328,29,30)
(329-DS2) 1-2000 KVA (11078) 41.6,2.4/4.16KV 1-114.3 KVA REG. (W-208,209,210)
(329-TS2) 1-75,000 KVA (10960?) 115-41.6GRDY/24.01BKV
H.L. 212.02 0.594 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 212.01 12.897 MILES 3-336 MCM ACSR 1-3/8" HS 41.6 KV CONST. 41.6 KV ENERG.
H.L. 70.01 67.894 MILES 3-397.5 MCM ACSR 2-3/8" H.S. 115 KV ENERG.
H.L. 413.01 0.979 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 545 4.183 MILES 3-4/0 ACSR 1-1/0 ACSR N 15 KV CONST. 7.2 KV ENERG.
H.L. 75.01 1.875 MILES 3-336.4 MCM ACSR 69 KV CONST. 41.6 KV ENERG.
H.L. 61.01 20.348 MILES 3-336.4 MCM ACSR 69 KV CONST. 41.6 KV ENERG.
H.L. 424.03 0.172 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 424.01 34.895 MILES 3-336 MCM ACSR 69 KV CONST. 41.6 KV ENERG.
H.L. 424.02 6.736 MILES 3-1/0 ACSR 46 KV CONST. 41.6 KV ENERG.
H.L. 2.300 MILES 3-3/8 ST. CU 5.0 KV CONST. 2.3 KV ENERG.
FEM_CO-OP_LINE 500 MILES 3-3/8 ST. CU 5.0 KV CONST. 2.4 KV ENERG.
H.L. 417.1 14.478 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 417 & 533 1.163 MILES (OBL. OR 1) 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG. 3-2/0 & 3-1/0 ACSR 46 KV CONST. 7.2/12.5KV ENERG.
H.L. 417 & 532 0.983 MILES (OBL. OR 1) 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG. 3-1/0 & 1-2 ACSR 15 KV CONST. 7.2/12.5KV ENERG.
H.L. 533 9.553 MILES 3-1/0 & 1-2 ACSR 15 KV CONST. 7.2/12.5KV ENERG.
H.L. 417 27.247 MILES 3-4/0 ACSR 0.728 MILES 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 67 30.777 MILES 336.4 MCM ACSR 2-3/8" HS 69 KV CONST. 115 KV ENERG.
H.L. 533 6.645 MILES 3-2/0 &1-1/0 ACSR 46 KV CONST. 7.2/12.5KV ENERG.
H.L. 147 6.091 MILES 1/0 RAVEN ACSR 46 KV CONST. 41.6 KV ENERG.
H.L. 1.500 MILES 3-6H.D.C. 5.0 KV CONST. 4.16 KV ENERG.
H.L. 6.010 MILES 3-6 H.D.C. 5.0 KV CONST. 7.2 KV ENERG.
H.L. 54 41.605 MILES 3-336 MCM ACSR 39.081 MILES 3-1/0 RAVEN 2.634 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 115 2.420 MILES 3-4/0 ACSR 46 KV CONST. 41.6 KV ENERG.
H.L. 550 1.300 MILES 3-6H.D.C. 15 KV CONST. 4.16 KV ENERG.
H.L. 36A 1.711 MILES 3-1 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 36 39.396 MILES 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 416 0.056 MILES 0.056 MILES UB 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 418.01 0.042 MILES 0.042 MILES U.B. 3-336 MCM ACSR 69 KV CONST. 41.6 KV ENERG.
H.L. 424.01 41.6 KV
H.L. 67 115 KV
H.L. 34 41.6 KV
H.L. 417 41.6 KV
H.L. 430.01 23.405 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 430.02 0.141 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 536.01 7.951 MILES 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 536 13.087 MILES 3-4/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 536A 8.650 MILES 3-3/8 ST. CU 45 KV CONST. 7.2 KV ENERG.
H.L. 537 0.435 MILES 3-3/8 ST. CU 45 KV CONST. 7.2 KV ENERG.
H.L. 420 6.837 MILES 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 421 & 537 7.366 MILES (OBL. OR 1) 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG. 3-3/8 ST. CU 45 KV CONST. 7.2 KV ENERG.
H.L. 100 0.738 MILES 3-2/0 ACSR 45 KV CONST. 41.6 KV ENERG.
H.L. 167.01 24.736 MILES 3-336 MCM ACSR 1-3/4 ZPCB 115 KV CONST. 115 KV ENERG.
H.L. 114.01 47.547 MILES 3-954 MCM ACSR 2-3/8" HS 69 KV CONST. 230 KV ENERG.
H.L. 154.01 152.520 MILES 2-72 477 MCM ACSR 2-3/8" HS 345 KV CONST. 345 KV ENERG.
H.L. 118.01 3.718 MILES 3-1/0 ACSR 41.6 KV ENERG.
H.L. 154.01 152.646 MILES 2-72 477 MCM ACSR 2-3/8" HS 345 KV CONST. 345 KV ENERG.
H.L. 72 72.48
H.L. 424.01 41.6 KV
H.L. 34 41.6 KV
H.L. 417 41.6 KV
H.L. 424.02 41.6 KV
H.L. 533 46 KV
H.L. 147 46 KV
H.L. 533 46 KV
H.L. 533 15 KV
H.L. 533 46 KV
H.L. 533 15 KV
H.L. 533 46 KV
H.L. 533 15