

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

For Planning Years July 1, 2009 through June 30, 2019

Submitted to  
NORTH DAKOTA PUBLIC SERVICE COMMISSION  
July 1, 2009



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UTILITIES CO.**

A Division of MDU Resources Group, Inc.

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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 415 MW Coyote Station near Beulah in which Montana-Dakota has a 25 percent ownership interest, the 103 MW Heskett Station in Mandan, which is wholly owned by Montana-Dakota and a 10 MW gas turbine located in Williston. Energy Information Administration Form No. EIA-923, "Power Plant Operations Report" for the R.M. Heskett Station for the year 2009 is attached as Appendix A.<sup>1</sup> Otter Tail Power Company of Fergus Falls, Minnesota operates the Coyote Station and reports all information required by Schedule A.

None of the existing energy conversion facilities are committed to be retired in the next ten years.

## SCHEDULE B

### ENERGY CONVERSION FACILITIES UNDER CONSTRUCTION

Montana-Dakota is constructing a waste heat recovery unit on the Northern Border Pipeline near Glen Ullin, with a nameplate capacity of 7.5 MW and an expected completion date of July 2009. This unit will provide renewable energy to Montana-Dakota customers to meet various state renewable portfolio standards and objectives. The Commission issued a Certificate of Public Convenience and Necessity for the Glen Ullin waste heat recovery unit in Case No. PU-08-358.

## SCHEDULE C

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

Montana-Dakota will complete construction of the Cedar Hills wind farm in 2010. Cedar

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<sup>1</sup> The information historically provided by Form EIA-767 is now provided by Form EIA-923.

Hills is a 19.5 MW wind farm located five miles west of Rhame. Cedar Hills will provide renewable energy for Montana-Dakota customers to meet various state renewable portfolio standards and objectives. The Commission issued a Certificate of Public Convenience and Necessity for the Cedar Hills wind project in Case No. PU-08-942.

Montana-Dakota is participating with four other Midwestern utilities in acquiring permits and approvals for a second unit at the existing Big Stone plant near Big Stone City, South Dakota. This unit, Big Stone II, rated at 500-580 MW, is planned for commercial operation in 2015. Big Stone II is the lowest cost resource alternative and the company's share in the unit (up to 133 MW) is the next planned addition to its base load generation resources within the next five years.

#### SCHEDULE D

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

Montana-Dakota is continually studying additional resource options to meet its customer needs. These options include additional gas turbine generators and renewable energy projects.

#### SCHEDULE E

##### EXISTING TRANSMISSION FACILITIES (ELECTRIC)

Exhibit A, enclosed in the back of this North Dakota Ten Year Plan, is a system map of North Dakota showing the location of existing transmission facilities.

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

## SCHEDULE G

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

NONE

## SCHEDULE I

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

NONE

## SCHEDULE J

### REGIONAL COORDINATION

Montana-Dakota has been coordinating planning, construction, and operation of electric facilities with other utilities and agencies serving North Dakota since 1945. Montana-Dakota has agreements for joint planning and common use of area facilities with Basin Electric Power Cooperative (Basin Electric) and Western Area Power Administration (Western).

Montana-Dakota and Western have an agreement that provides for mutual wheeling and coordinates construction of transmission facilities. The current agreement is in effect through the year 2015. Montana-Dakota originally entered into this agreement with Western's predecessor, the United States Bureau of Reclamation, in 1945 and the agreement has been renewed several times since then. Over the years since, cooperation among Montana-Dakota, Western, and rural electric cooperatives has resulted in numerous interconnections between Montana-Dakota's and Western's systems, avoiding duplication of hundreds of miles of transmission facilities.

Montana-Dakota has an agreement with Basin Electric that provides for joint planning and common use of transmission facilities. This agreement, first signed in 1972, is perpetual until terminated by one of the parties with a five year notice required prior to termination. Joint

planning involving Montana-Dakota and Basin Electric and its member cooperatives continues to provide maximum utilization and benefit of existing and new transmission facilities. Load flow studies provided for under this agreement assure that adequate facilities will be provided to meet expected long-range demands.

Montana-Dakota has interconnection agreements with Otter Tail Power Company, NorthWestern Energy Corporation, and Minnkota Power Cooperative, Inc. These agreements, along with the Basin Electric and Western agreements, provide for the interconnection of Montana-Dakota's bulk transmission facilities with the Mid-Continent Area Power Pool (MAPP) and Midwest Independent Transmission System Operators (Midwest ISO or MISO) bulk transmission facilities.

Montana-Dakota, Otter Tail Power Company, and NorthWestern Energy Corporation own the 415 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 415 MW Coyote generating plant 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 service required of it and its partners using fewer facilities.

Montana-Dakota is a transmission owning member of the Midwest ISO. The Midwest ISO 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 is actively participating in the planning processes performed by MISO, who 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 participating in the Midwest Contingency Reserve Sharing Group (Midwest CSRG) in which the participants share their contingency (capacity) reserve as of January 1, 2007. The Midwest CSRG is scheduled to sunset the end of 2009 at

which time MISO will implement a replacement group for sharing of contingency reserves.

Montana-Dakota is a member of the MAPP Regional Transmission Committee, which coordinates the regional transmission planning with MISO through its Transmission Planning Subcommittee. Montana-Dakota is active in the Northern MAPP and Missouri Basin Subregional Planning Groups of the Transmission Planning Subcommittee. The objective of these subregional planning groups is to provide coordinated planning of transmission systems in North Dakota, South Dakota, and western Minnesota for Montana-Dakota, Otter Tail Power, Minnkota Power Cooperative Inc., Great River Energy, NorthWestern Energy Corporation, Minnesota Power Inc., and Xcel Energy. The groups in turn coordinate with other subregional planning groups in MAPP to provide a coordinated regional transmission plan for MAPP.

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. MRO is organized consistent with the Energy Policy Act of 2005 and the bilateral principles between the United States and Canada.

## 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 complies with all federal, state and local environmental regulations and requirements at its wholly-owned and jointly-owned generating facilities.

## SCHEDULE L

### PROJECTED DEMAND FOR SERVICE

The load data reported in this plan are the result of Montana-Dakota's *2009-2028 Electric Load Forecast* dated December 31, 2008.

#### 1. Projected Peak Load for 2009-2019

The demand forecast was developed using an econometric model whose methodology is documented in detail in Attachment A of the Montana-Dakota Utilities Co. Integrated Resource Plan submitted to the North Dakota Public Service Commission on July 1, 2009.

The summer peak is the highest monthly peak demand forecast for the summer months in the given year. The winter peak is the highest of the monthly peak demand forecast 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 reflects the demand reduction due to customer loads under demand side management (DSM) which includes interruptible large power service. This service is offered to large customers who allow their loads to be subject

to possible interruptions in exchange for a reduced rate. Currently, Montana-Dakota has 6.5 MW of interruptible loads on its Integrated System.

a. Integrated System

PROJECTED DEMAND (MW)

YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SUMMER	500.0	502.9	509.1	530.9	542.7	555.1	563.4	571.8	580.3	588.1	596.1
WINTER	400.0	402.3	407.3	428.0	438.2	448.9	455.6	462.3	469.1	475.3	481.7

GROWTH RATE (%)

YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SUMMER	--	0.6	1.2	4.3	2.2	2.3	1.5	1.5	1.5	1.3	1.4
WINTER	--	0.6	1.2	5.1	2.4	2.4	1.5	1.5	1.5	1.3	1.3

Historically, for the period 2003-2008 the summer peak demand increased at an average rate of 1.5 percent per year while winter peak demand increased at an average rate of 3.7 percent per year. The projected average growth rates for the period 2009-2019 are 1.8 percent for the summer peak and 1.9 percent for the winter peak.

b. North Dakota

PROJECTED DEMAND (MW)

YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SUMMER	347.9	349.8	354.1	358.0	363.6	369.3	375.0	380.9	386.8	392.2	397.8
WINTER	283.7	285.4	288.9	292.1	296.6	301.3	306.0	310.7	315.6	320.0	324.5

GROWTH RATE (%)

YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SUMMER	--	0.5	1.2	1.1	1.6	1.6	1.5	1.6	1.5	1.4	1.4
WINTER	--	0.6	1.2	1.1	1.5	1.6	1.6	1.5	1.6	1.4	1.4

## 2. Projected Energy for 2009-2019

The annual sales forecasts by sector were summed up to arrive at the total annual sales, which represents the load at the customer level. The energy due to system losses was then calculated and added to the annual sales for the system projected energy.

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

Year	Annual Energy (GWh)	Year	Annual Energy (GWh)
2009	2,571.1	2015	2,974.1
2010	2,623.0	2016	3,018.6
2011	2,666.9	2017	3,063.9
2012	2,750.9	2018	3,103.5
2013	2,849.8	2019	3,143.7
2014	2,919.0		

Historically, for the period 2003-2008, Montana-Dakota has experienced an average annual increase of 3.5 percent for energy consumption. The projected average growth rate for the period 2009-2019 is 2.0 percent.

Based on the above forecast, Montana-Dakota's existing and committed generation resources along with DSM are adequate to serve its projected load obligations through the year 2011.

Montana-Dakota is constantly reviewing its capacity addition requirements as well as the feasibility of the potential DSM programs under the IRP process. Montana-Dakota expects the following DSM programs to be implemented or continue to be implemented in 2010:

1. Residential air conditioner cycling program (with no incentive)
2. ENERGY STAR<sup>®</sup> appliance rebates
3. ENERGY STAR<sup>®</sup> residential air conditioner rebates
4. Refrigerator round-up program
5. Interruptible Demand Response rates
6. High-efficiency commercial motor rebates
7. High-efficiency commercial air conditioner
8. Commercial lighting retrofit rebates
9. Residential new construction bundle rebates
10. Residential lighting program

Implementing the ten DSM programs will provide Montana-Dakota an estimated total Integrated System demand reduction of 22.7 MW and a total Integrated System energy savings of 171,526 MWh over the projected life of the programs.

### 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, in North Dakota are Bismarck-Mandan, Beulah, Dickinson, and Williston and in Montana are Glendive, Sidney, and Miles City.

APPENDIX A

Form EIA-923



**Schedule 8 Part B. Financial Information**

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

Type	Fly Ash	Bottom Ash	Flue Gas Desulfurization	Water Pollution Abatement	Other Pollution Abatement	Total
Collection	150	78				228
Disposal						
Other						

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

Type	Air Pollution Abatement	Water Pollution Abatement	Solid/Contained Waste	Other Pollution Abatement
Amount	36.6	None	39.5	None

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

Type	Fly Ash	Bottom Ash	Fly and Bottom Ash Sold Intermingled	Flue Gas Desulfurization Byproducts	Other Byproduct Revenue	Total
Amount	0	0	0	na	na	0

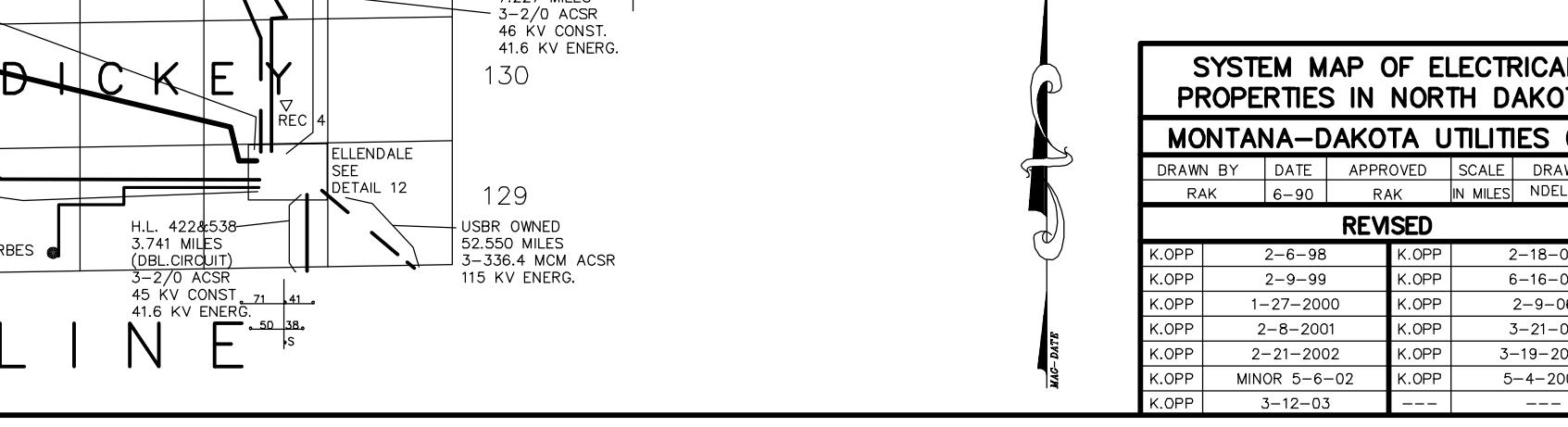
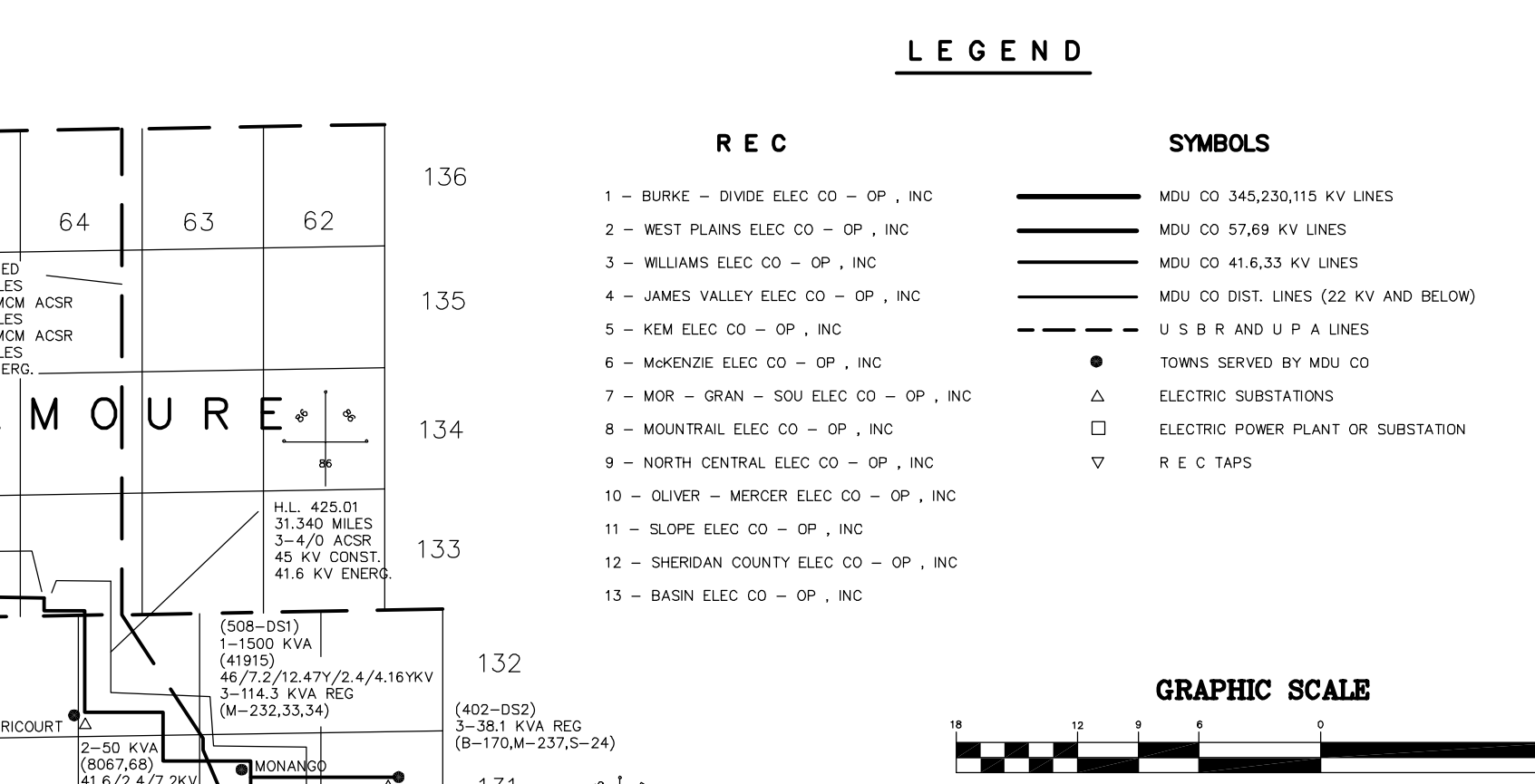
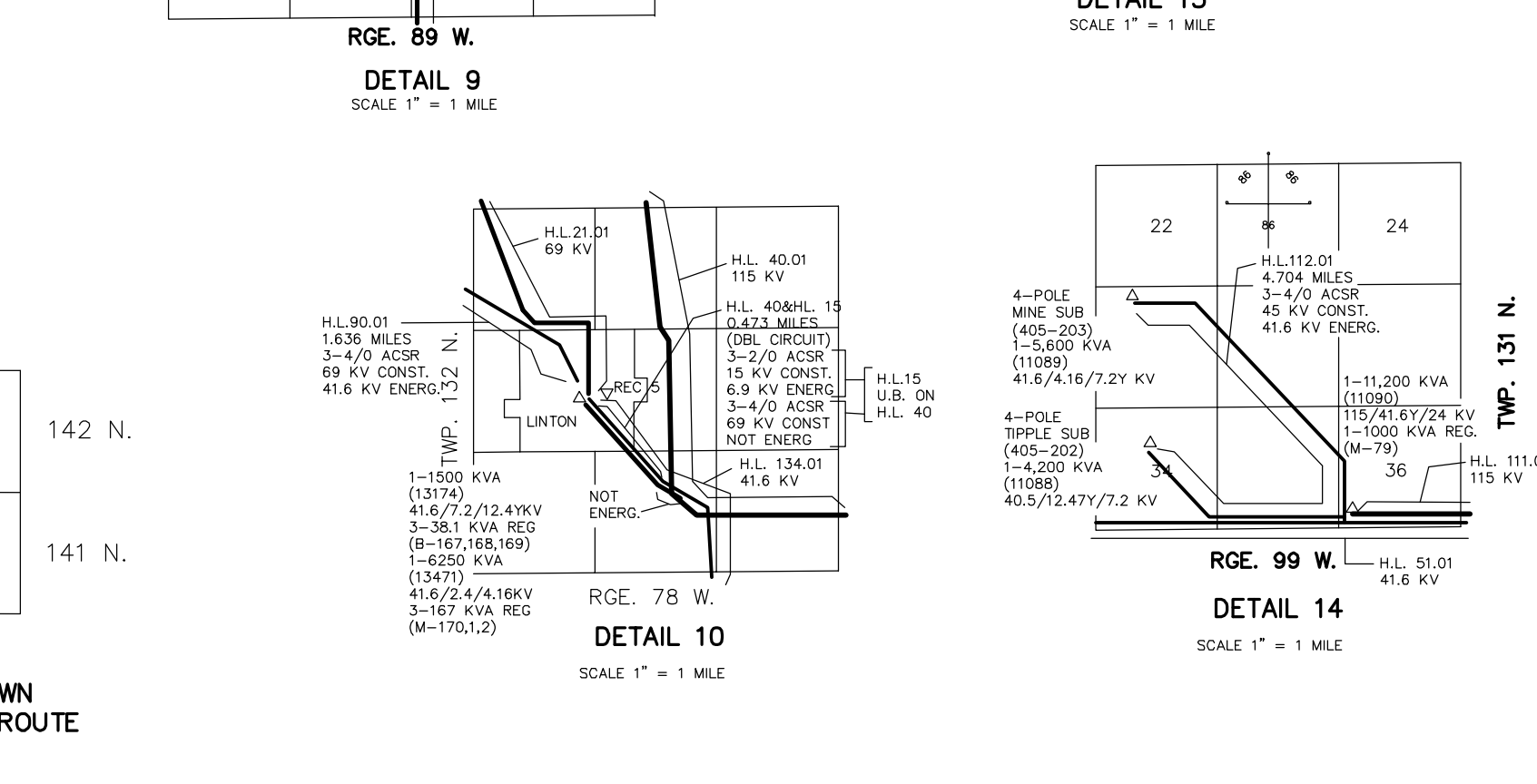
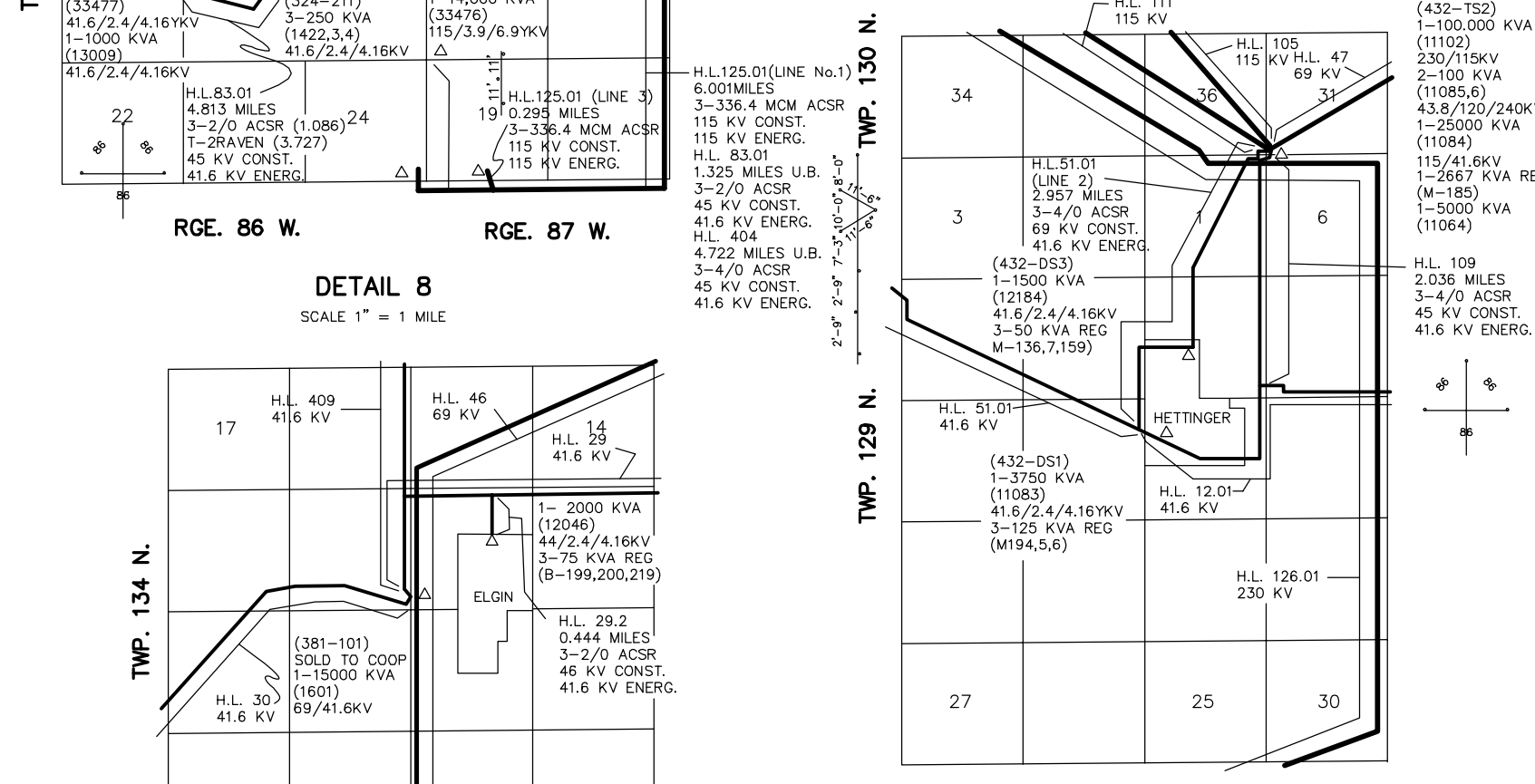
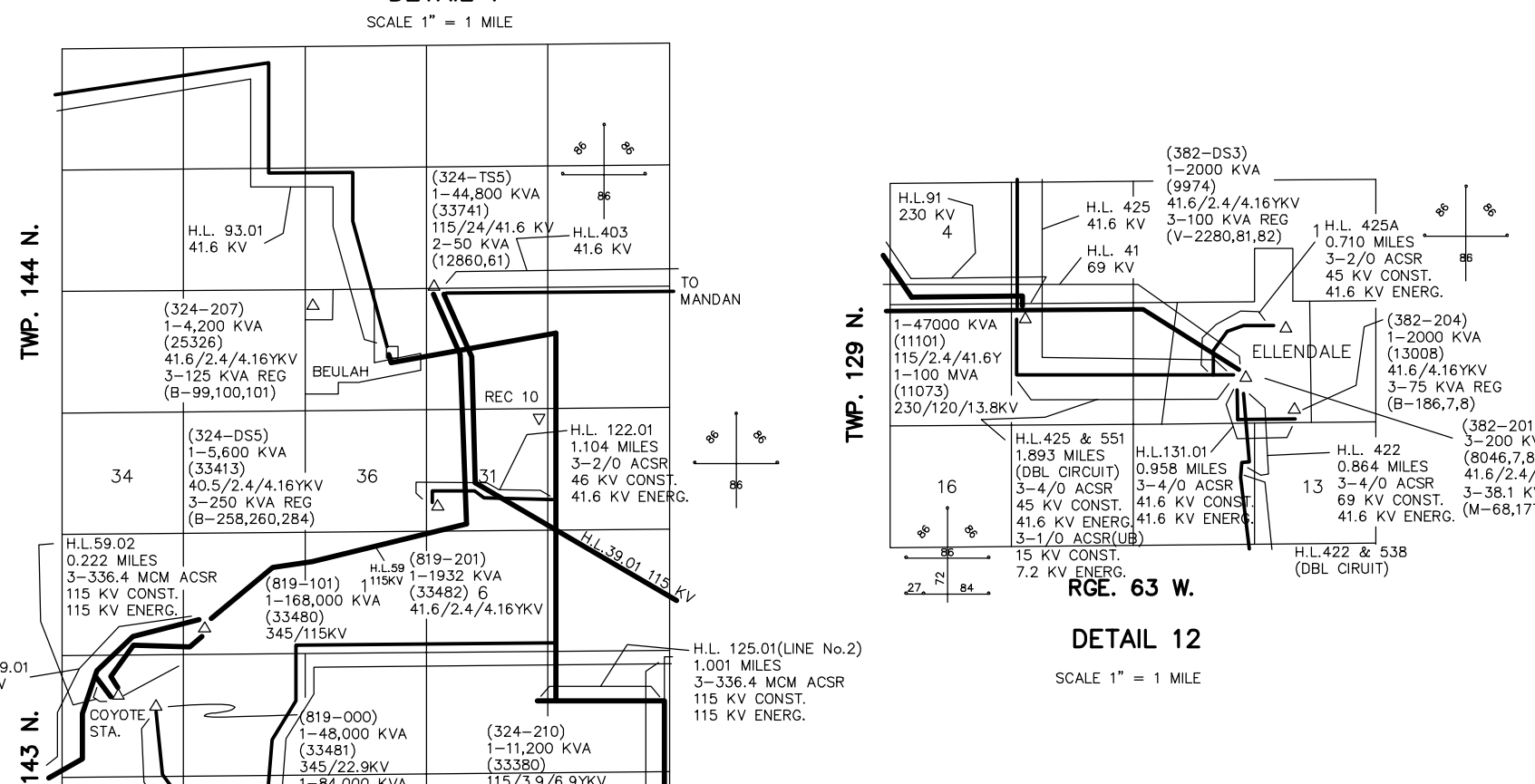
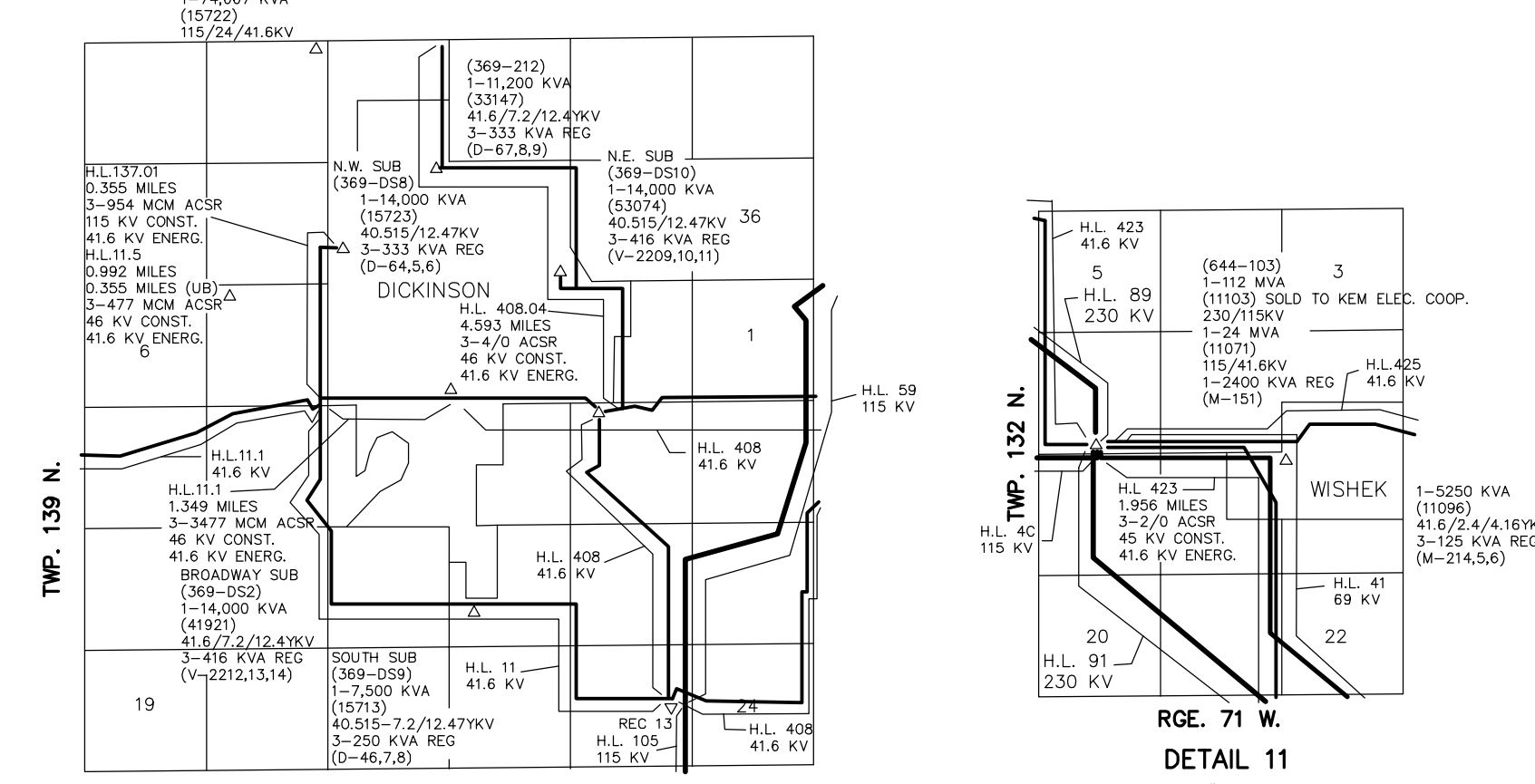
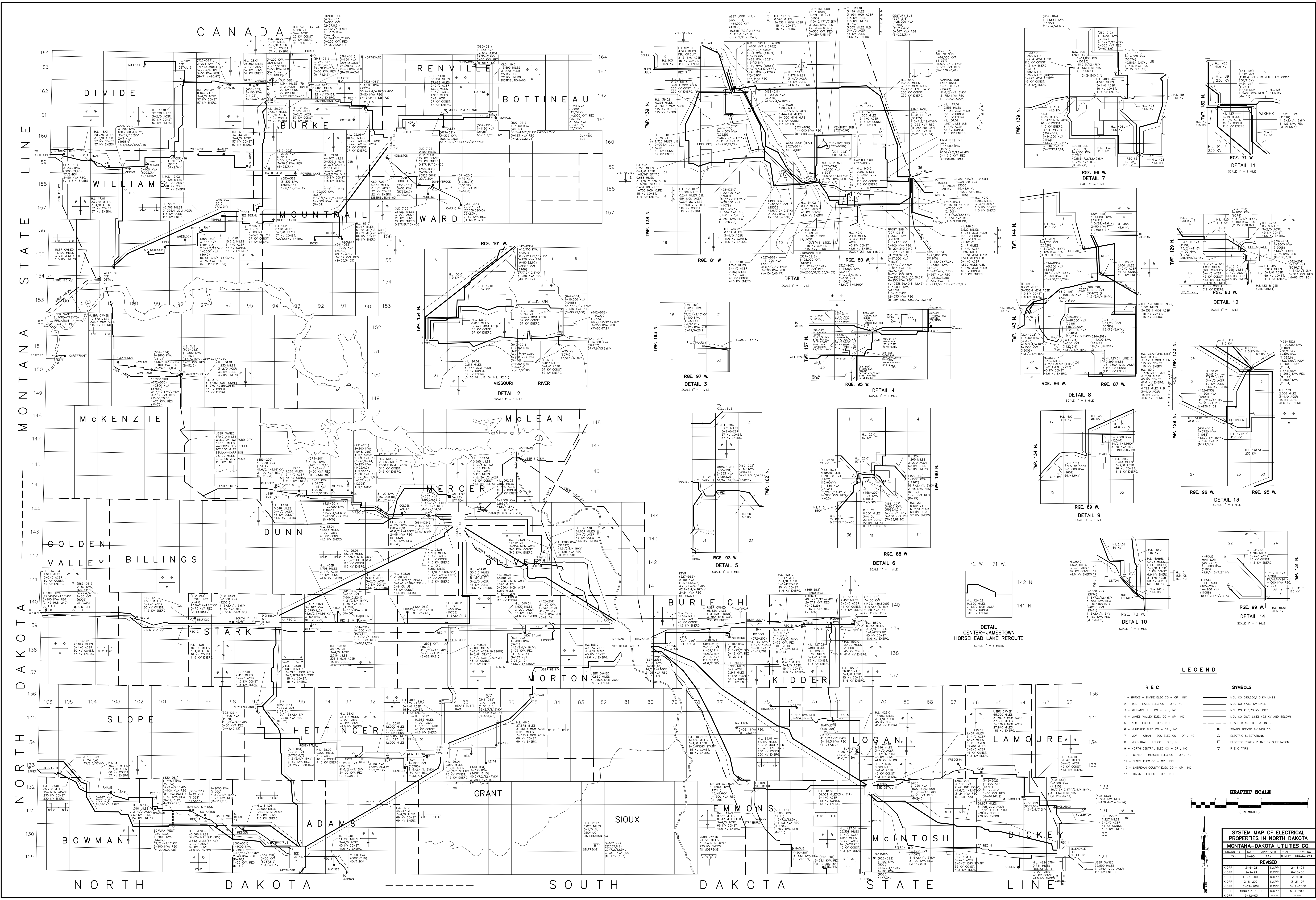
Schedule 8 Part C. Boiler Information Nitrogen Oxide Emission Controls			
__X__ No NOx Controls for Unit B1			
Boiler ID	NOx Control In-Service (hours)	NOx Emission Rate (lbs/MMBtu)	
		Entire Year	May through September
B1	na		
B2	7193	0.360	0.302

Schedule 8 Part D. Cooling System Information, Annual Operations									
Cooling System ID	Cooling System Status	Annual Amount of Chlorine added to Cooling Water (100lbs)	Average Annual Rate of Cooling Water (0.1 cu ft/sec)			Maximum Cooling Water Temperature at Intake		Maximum Cooling Water Temperature at Discharge Outlet	
			Withdrawal	Discharge	Consumption	Winter Peak Month	Summer Peak Month	Winter Peak Month	Summer Peak Month
C12	OP	0	77.6	77.5	0.1	47.4°F	72.3°F	88.5°F	103.4°F

Schedule 8 Part E. Flue Gas Particulate Collection Information						
Flue Gas Particulate Collector ID	FGP Collector Status	Hours In-Service	Typical Particulate Emissions Rate (nearest 0.01 lb/MMBtu)	Removal Efficiency of Particulate Matter (nearest 0.1% by weight)		
				At Annual Operating Factor	At 100% Load or Tested Efficiency	Date of Most Recent Efficiency Test (eg, 12-2005)
ESP1	OP	7844.2	0.05	99.0	99.7	Aug-05
ESP2	OP	7136.4	0.02	97.0	99.9	Aug-05

Exhibit A

North Dakota Electric System Map



**LEGEND**

**REC**

- BURKE - DIVER ELEC CO - OP, INC
- WEST PLAINS ELEC CO - OP, INC
- MILLERS ELEC CO - OP, INC
- JAMES VALLEY ELEC CO - OP, INC
- W. S. R. AND P. A. LINES
- WARRIENE ELEC CO - OP, INC
- MOR - GRAN - SOU ELEC CO - OP, INC
- MONTREAL ELEC CO - OP, INC
- NORTH CENTRAL ELEC CO - OP, INC
- OLIVER - MERCER ELEC CO - OP, INC
- BLAIR ELEC CO - OP, INC
- SHERIDAN COUNTY ELEC CO - OP, INC
- BLAIR ELEC CO - OP, INC

**SYMBOLS**

- MUO CO 245,250,115 KV LINES
- MUO CO 55.9 KV LINES
- MUO CO 41.8 KV LINES
- MUO CO DIST. LINES (22 KV AND BELOW)
- 5 S R AND P. A. LINES
- TOWNS SERVED BY MUO CO
- ELECTRIC SUBSTATIONS
- ELECTRIC PLANT OR SUBSTATION
- R. E. TAPS

**GRAPHIC SCALE**

( IN MILES )

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

**REVISED**

K.C.P.P.	2-6-88	K.C.P.P.	2-18-04
K.C.P.P.	3-9-89	K.C.P.P.	1-6-05
K.C.P.P.	1-27-2000	K.C.P.P.	3-8-06
K.C.P.P.	3-8-2007	K.C.P.P.	3-29-07
K.C.P.P.	3-21-2008	K.C.P.P.	3-19-2008
K.C.P.P.	MND 5-6-02	K.C.P.P.	5-4-2009
K.C.P.P.	3-12-10	K.C.P.P.	