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June 17, 2010

# RECEIVED

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SOUTH DAKOTA PUBLIC

**UTILITIES COMMISSION** 

Ms. Patricia Van Gerpen Executive Director South Dakota Public Utilities Commission State Capitol Building Pierre, South Dakota 57501

Subject: NorthWestern Energy-South Dakota Ten-year Biennial Plan

Dear Ms. Van Gerpen:

Pursuant to the rules of the South Dakota Public Utilities Commission Energy Facilities Plans ARSD 20:10:21, NorthWestern Energy-South Dakota, a Division of NorthWestern Corporation, hereby files its Ten-year plan. Ten copies of this Ten-year Plan are being filed with the Commission with enclosures. Notice of filing of the plan is being sent to each of the state agencies and officers designated in Section 23 of the Energy Facilities plans. Should the Commission wish additional copies of the Plan or Notices of Filing to be supplied by NorthWestern, please inform us.

Very truly yours,

Dennis L. Wagner

General Manager-South Dakota

Production & Generation

cc: Dave Gates Ray Brush Jeff Decker

enclosure(s)

### NORTHWESTERN ENERGY - SOUTH DAKOTA

Ten-year Plan June 17, 2010

Northwestern Energy, a Division of NorthWestern Corporation ("Northwestern") submits this "Ten-year Plan" pursuant to SDLC 49-41B. The plan follows the general format prescribed in ARSD 20:10:21.

20:10:21:04 Existing Energy Conversion Facilities

### **BIG STONE PLANT**

The Big Stone Plant is located near Big Stone City, Grant County, South Dakota. The Plant is a joint venture owned by Northwestern Energy, Otter Tail Power Company and Montana-Dakota Utilities Co. Northwestern's ownership and share of the output of the plant is 23.4% or 106,142 KW (MAPP accreditation). Otter Tail Power Company is, by contract, Operating agent for the three partners. The information requested in ARSD 20:10:21:04 is provided in Otter Tails' Ten-year Plan.

### NEAL #4

The Neal #4 Plant is located near Sioux City, Woodbury County, Iowa. This plant is a joint venture owned by fourteen power suppliers. MidAmerican Energy Company is the principal owner and operating agent for the plant. NorthWestern's share of ownership and capacity entitlement is 8.681% (approximately 55,900 kilowatts). NorthWestern's portion of the plant is now accredited in MAPP at about 55 MW.

- 1. Location: Near Port Neal in Woodbury County, Iowa approximately 10 miles south of Sioux City, Iowa.
- 2. Type: Coal-fired, steam-driven turbine generator.
- 3. Net Capacity: (Total Plant) 644,000 KW.
- 4. Water Source: Missouri River

Annual Use: 265,440 acre-feet Annual Consumption: 299 acre-feet 5. Fuel Type and Source: Sub-Bituminous Coal from Cordero Rojo, Belle Ayr and Jacobs Ranch in Wyoming.

# **Annual Fuel Consumption:**

2,661,027 tons in 1994 2,648,729 tons in 1995 2,539,620 tons in 1996 2,675,501 tons in 1997 2,434,376 tons in 1998 2,680,106 tons in 1999 3,134,708 tons in 2000 3,156,042 tons in 2001 2,784,759 tons in 2002 2,444,839 tons in 2003 2,840,121 tons in 2004 2,447,045 tons in 2005 2,748,751 tons in 2006 3,125,389 tons in 2007 2,686,512 tons in 2008 2,431,599 tons in 2009

6. Projected Date of removal from Service and Reason Therefore: The life expectancy of the plant is more than 30 years, which puts the projected removal from service date well beyond the range of this Ten-year-plan.

#### Covote No. 1

NorthWestern Energy is one of four power suppliers participating in the Coyote electric generating plant in the vicinity of the lignite mines near Beulah, North Dakota. With a 10% share in the ownership of the plant, NorthWestern is entitled to 10% of the plant's net capacity, or 42,700 KW (MAPP accreditation). Otter Tail Power Company has a 35% share in the ownership of the plant and is, by contract, the operating agent for the owners. The information requested in ARSD 20:10:21:04 is provided in Otter Tail's Ten-year Plan.

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

 NorthWestern proposes a simple cycle 50 MW combustion turbine addition at Aberdeen, South Dakota within our service territory during the next three years. The unit is, hopefully, to be online by the end of December 2012. These requirements were identified in 2009 Integrated Resource Plan which has been supplied to the commission. 2. NorthWestern has entered into a PPA agreement for 25 MW's of Wind Energy with BP at a Wind Farm located by Ree Heights, South Dakota. The Wind Farm went into commercial operation in December, 2009.

### **Future Combustion Turbines**

- 1. General anticipated location and reasons for such selection: The most likely locations will be inside our service territory connected to either the 34.5 or 115 kV voltage system. The sites will be chosen to maximize the cost-effective reliability of the system.
- 2. Probable type and nameplate capacity: Simple Cycle combustion Turbine, 50 MW nameplate capacity per unit.
- 3. Projected annual production in megawatthours: Annual system generation is expected to be 13,000 MWH.
- 4. Proposed water source and point of withdrawal, estimated maximum and rate of withdrawal, estimated maximum and annual use and consumption in acre feet: Water used for NOx control injection: City water supply preferred point of withdrawal undetermined, estimated maximum 7 acrefeet/year, annual use (normal) 3 acre feet/year, 0.2 acre-feet/day average rate of withdrawal (when running) 0.1 acre-feet/day, estimated maximum annual use and consumption 7 acre-feet/year.
- 5. Proposed fuel type and source, estimated maximum and annual consumption of fuel, and if known, proposed means for transporting fuel to the facility: Natural gas or Fuel Oil, maximum fuel consumption (13,000 MWH) 156,000 MMBtu Natural gas, Pipeline.
- 6. Proposed plans for waste disposal and monitoring of emissions and wastes, as known: Waste water to evaporation pond. Automated fuel flow data loggers will be required.
- 7. Description of anticipated associated facilities: Aberdeen or Mitchell, South Dakota.
- 8. Projected operating life from fuel source in this state: N/A.
- 9. Projected date of removal from service: Beyond the scope of the report.
- 10. Total estimated Capital: \$560,000 in 2010, \$30.2 million in 2011, \$19.9 million in 2012 and \$4.4 million in 2013 for a total of \$55 million.

# 20:10:21:06 Existing Transmission Facilities

### <u>Type 115 KV - AC</u>

- a. Ellendale Substation about one mile west of Ellendale, North Dakota to "A" tap about two miles west of Aberdeen, South Dakota 37.9 miles total. Approximately 33 miles of this line are in the State of South Dakota.
- b. "A" tap about two miles west of Aberdeen to the Seibrecht Substation about one mile south of Aberdeen 7.5 miles.
- c. "A" tap about two miles west of Aberdeen to the Aberdeen City Substation in Aberdeen, South Dakota 3.2 miles.
- d. Seibrecht Substation to the Western Area Power Administration's Groton Substation located south of Groton, South Dakota 25.9 miles.
- e. Seibrecht Substation to Redfield Substation located in Redfield, South Dakota 36.8 miles.
- f. Seibrecht Substation to Aberdeen Industrial Park Substation located in Aberdeen, South Dakota 5.3 miles.
- g. Redfield Substation to Western Area Power Administration Huron Substation approximately one mile south of Broadland, South Dakota 30.1 miles.
- h. Western Area Power Administration Broadland Substation to West Park Substation located near the northwest edge of Huron, South Dakota the original circuit 9.1 miles.
- i. Western Area Power Administration Broadland Substation to West Park Substation second circuit 10.3 miles.
- j. West Park Substation to Mitchell Substation located in Mitchell, South Dakota 55 miles.
- k. Mitchell Substation to Northern States Power Company's Grant Substation located west of Sioux Falls - 47 miles. NorthWestern owns 23.3 miles of the line from Mitchell Substation to the Northern States Power Company's interconnection point at the McCook County line.

- 1. Mitchell Substation to the Tripp Junction Substation located 5.5 miles south of Tripp, South Dakota 41.5 miles.
- m. Tripp Junction Substation to Menno Junction Substation located four miles north of Lesterville, South Dakota 21.8 miles.
- n. Menno Junction Substation to WAPA Utica Jct. Sub located one mile north and one mile east of Lesterville 3.3 miles.
- o. WAPA Utica Jct. Sub to Yankton Jct. Sub located four miles northwest of Yankton, SD 15.9 miles.

# Type 230 KV - AC

Big Stone Plant Substation near Big Stone City, South Dakota to Blair Substation near Gary, South Dakota - 33 miles. NorthWestern owns 18.2 miles of the line from the Big Stone Plant Substation south, with the Otter Tail Power Company owning the remainder of the line to the Blair Substation.

# Projected Date of Removal

The projected removal date of these lines is beyond the period covered by this Plan.

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

NorthWestern proposes three additional transmission at 115 KV during the period covered by this Plan.

### Aberdeen Industrial Park Sub - Aberdeen City Sub

- 1. General anticipated location and reasons for such selection: The line is anticipated to be located on the north and east sides of Aberdeen, load growth in the industrial park area (and in the rest of Aberdeen) requires expansion of the existing 115 kV supply and reinforcement of the existing 34.5 kV subtransmission system.
- 2. Probable type and proposed transmission voltage: Single pole davit arm and horizontal post construction -- 115 kV.

- 3. Description of anticipated associated facilities: Bays for a Circuit Breaker and disconnects at the expanded Aberdeen City substation; circuit breaker and disconnects at the Aberdeen Industrial Park Substation.
- 4. Projected date of removal from service: Beyond the scope of this report.
- 5. Total estimated capital cost: Line \$1,600,000; associated substation facilities \$500,000.

# Yankton East Plant – 115kV Sub

- General anticipated location and reasons for such selection: The line is anticipated to be an interconnection with WAPA's 115 KV line on the east side of Yankton. The line is located about ½ mile from the plant. Load growth in the Yankton area requires expansion of the existing 115 kV supply and reinforcement of the existing 34.5 kV subtransmission system.
- 2. Probable type and proposed transmission voltage: Single pole horizontal post construction -- 115 kV.
- 3. Description of anticipated associated facilities: Two Circuit Breakers and bay, 115/34.5 kV transformer, fuses and disconnects at the Yankton East Plant Substation.
- 4. Projected date of removal from service: Beyond the scope of this report.
- 5. Total estimated capital cost: Line \$1,108,000; associated substation facilities \$4,350,000.

# New WAPA Letcher Sub – Mitchell Transmission Sub

- General anticipated location and reasons for such selection. The line is anticipated to be an interconnection with WAPA's new Letcher 230/115 KV Sub. The line will be approximately 14.5 miles long south of the WAPA Sub (Sec. 1, R60W, 104N) to the Mitchell Transmission Sub.
- 2. Probable type and proposed transmission voltage: single pole davit arm 115 KV

- 3. Description of anticipated associated facilities: Two 115KV Circuit Breakers and bays and disconnects at WAPA Letcher Sub and Mitchell Transmission Sub.
- 4. Projected date of removal from service: Beyond the scope of this report.
- 5. Total estimated Capital cost: Line \$3,987,500; associated substation facilities \$2,723,000.

# 20:10:21:08 Coordination of Plans

NorthWestern coordinates its plans with other utilities serving the region through joint ventures, as described in the Energy Conversion Facilities section, through joint transmission studies and through the MAPP regional models.

# 20:10:21:09 Single Regional Plans

In the future it is expected that a single regional plan will be developed by the Dakotas-Montana Power Suppliers Group.

# 20:10:21:11 Submission of Regional Plan

Montana-Dakota Utilities, Northern States Power, Otter Tail Power, Minnkota Power Cooperative, Minnesota Power and Northwestern Public Service formed the Dakotas-Montana Power Suppliers Group in 1979. The objective of the Group is to provide regional planning coordination to the respective State regulatory bodies.

# 20:10:21:11 Utility Relationships

NorthWestern is a participant in the Mid-Continent Area Power Pool (MAPP). All major transmission and generation planning performed by NorthWestern is coordinated on a regional basis through MAPP.

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

NorthWestern complies with all laws and regulation governing Environmental Impact Statements, applications, permits, rules and procedures pertaining to energy conversion facilities and transmission facilities in attempts to identify, minimize or avoid all adverse effects.

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

NorthWestern has several means available to assist in load control or reduction. Programs include customer load research, off Peak Irrigation rates, time of day commercial rates and a proposed Demand Side Management (DSM) program. The DSM program is intended to assist both residential and commercial customers as described below.

### Residential DSM Programs

For the residential customer, NorthWestern's DSM program intends to utilize home energy audits and customer education strategies. The home energy audits can be mail-in or may consist of a home visit by an energy audit professional. The in-home visits are followed up with the generation of a report regarding the recommendations for home energy efficiency improvements. Customer education to heighten awareness of energy efficiency can be accomplished through a number of opportunities including, but not limited to, the company's website, bill inserts, advertising campaigns, and through personal communication with our customers at area fairs, home shows, agriculture-related events, or weatherization events hosted in our local offices.

# Commercial DSM Programs

There are several DSM options available for commercial customers. For customers with a demand of 300kw or less, an audit focused on identifying conservation opportunities will assist the customer in reducing their demand. There are also several lighting programs available to commercial customers to encourage reduction of lighting load. Future programs may include an electric motor program, Demand Response program and customer initiated programs that promote conservation and renewable energy resources.

#### Customer Load Research

If the customer requests ways to control their demand NorthWestern will temporarily install load research metering to monitor their usage patterns. After several weeks of monitoring, data is provided to the customer. A report showing intervals as small as 15 minutes is provided to the customer. The usage patterns are discussed with the customer as well as possible causes.

#### Irrigation

Time of use rates are available to irrigation customers. Customers are given a low cost rate to run their systems over-night as opposed to daytime operation. In addition, NorthWestern has the ability to curtail usage during the day if customers choose to run on excessively hot days. The rate design and curtailment ability help the Company control its demand.

# Time of use rate

Similar to the Irrigation rates, an on-peak / off-peak rate is available to commercial customers who can limit their use to mostly off-peak time periods.

Reduction of use and peak demand will help lower the customer's bill, in addition to lowering company peaks. By reducing the company peaks, generation construction can be reduced or delayed. This in turn reduces or delays future rate increases to customers.

# 20:10:21:14 List of Reports

Not applicable.

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

Any changes in status of the energy conversion facilities should be described by the Project Managers in their Ten-year plans.

# 20:10:21:16 Projected Electric Demand

The projected annual peak demand for our total system, which is entirely in-state, is shown below.

|             | Demand      | Increase | Increase |
|-------------|-------------|----------|----------|
| <u>Year</u> | <u>(MW)</u> | (Pct.)   | (MW)     |
| 2010        | 325         | 1.0      | 2        |
| 2011        | 327         | 1.0      | 2        |
| 2912        | 329         | 1.0      | 1        |
| 2013        | 330         | 1.0      | 2        |
| 2014        | 332         | 1.0      | 2        |
| 2015        | 334         | 1.0      | 1        |
| 2016        | 335         | 1.0      | 2        |
| 2017        | 337         | 1.0      | 2        |
| 2018        | 339         | 1.0      | 1        |
| 2019        | 340         | 1.0      | 2        |
| 2020        | 342         | 1.0      | 2        |
|             |             |          |          |

These projections are based upon the 2009 Integrated Resource Plan Report adjusted for 2009 actuals. This forecast is based upon an econometric analysis techniques. End-use forecasts were used for comparison purposes.

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

The projected energy requirements by volume (MWH) and the percentage increase for each year are shown below.

|             | Annual Energy | Increase      |
|-------------|---------------|---------------|
| <u>Year</u> | <u>(MWH)</u>  | <u>(Pct.)</u> |
|             |               |               |
| 2010        | 1,589,000     | 1.0           |
| 2011        | 1,605,000     | 1.0           |
| 2012        | 1,621,000     | 1.0           |
| 2013        | 1,637,000     | 1.0           |
| 2014        | 1,659,000     | 1.0           |
| 2015        | 1,670,000     | 1.0           |
| 2016        | 1,687,000     | 1.0           |
| 2017        | 1,704,000     | 1.0           |
| 2018        | 1,721,000     | 1.0           |
| 2019        | 1,738,000     | 1.0           |
| 2020        | 1,755,000     | 1.0           |

This forecast is based upon an econometric analysis techniques. End-use forecasts were used for comparison purposes.

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

(See attached map)

# 20:10:21:19 Individual Utility Plans

This Ten-year Plan is submitted by NorthWestern Energy, a division of NorthWestern Corporation. If additional information or clarification is required, contact:

Dennis L. Wagner General Manager-South Dakota Production & Generation NorthWestern Energy 600 Market St. W. Huron, South Dakota 57350-1500

Telephone: 605-353-7503

### NOTICE OF FILING

Please take notice that on June 17, 2010 NorthWestern Energy-South Dakota, a Division of NorthWestern Corporation filed a Biennial Ten-year Plan with the South Dakota Public Utilities Commission pursuant to the rules of the South Dakota Public Utilities Commission Energy Facilities Plans ARSD 20:10:21. Notice of the filing of this plan is given as required by section 23 to the following designated governmental agencies or bodies:

- 1. aeronautics Commission;
- 2. agriculture Department;
- 3. attorney General;
- 4. commerce and Consumer affairs department;
- 5. cultural preservation office;
- 6. economic and tourism development department;
- 7. education and cultural affairs department;
- 8. energy policy office;
- 9. engineer, state;
- 10. environmental protection department;
- 11. game, fish and parks department;
- 12. geologist, state;
- 13. Governor:
- 14. health department;
- 15. indian affairs commission;
- 16. labor department;
- 17. legislative research council;
- 18. natural resource development department;
- 19. planning bureau;
- 20. public safety department
- 21. school and public lands; and
- 22. transportation department.

NORTHWESTERN ENERGY

Dennis L. Wagner, General Manager-South Dakota

Production & Generation