



June 30, 2011

VIA OVERNIGHT DELIVERY & EMAIL

RECEIVED

JUN 30 2011

Mr. Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
State Capitol Building  
600 E. Boulevard Ave., Dept. 408  
Bismarck, ND 58505

PUBLIC SERVICE COMMISSION

**RE: Minnesota Power's Ten Year Plan – July 2011**

Dear Mr. Nitschke:

Enclosed are ten paper copies of Minnesota Power's North Dakota Ten-Year Plan pursuant to N.D.C.C. § 49-22-04. Notice of the filing of this plan will be given pursuant to N.D. Admin. Code 69-06-02-02 to the state agencies and officers as designated in N.D. Admin. Code 69-06-01-05. A copy of Minnesota Power's Ten Year Plan will also be filed with the Morton and Oliver county auditors.

If you have any questions, or need additional information, please contact me at the number listed above.

Sincerely,

David R. Moeller

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Enc.

c: Oliver County Auditor  
Morton County Auditor

1 **PU-11-381** Filed: 6/30/2011 Pages: 8  
**2011 Ten year plan**

Minnesota Power & Light

David Moeller

# **TEN-YEAR PLAN**

**Minnesota Power**  
**An operating division of ALLETE, Inc.**  
**Duluth, Minnesota**

Prepared for the North Dakota Public Service Commission  
Pursuant to Section 49-22-04 of the  
North Dakota Century Code

**July 2011**

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## **Minnesota Power's**

# **TEN-YEAR PLAN**

## **INTRODUCTION**

Minnesota Power, an operating division of ALLETE, Inc., provides retail electric service to northeastern Minnesota and wholesale service to 16 municipal customers in Minnesota and two private utilities in Wisconsin. Minnesota Power has historically maintained an energy resource portfolio of coal, hydro, and biomass. In an effort to meet Minnesota's Renewable Energy Standard (Minn. Stat. § 216B.1691) and diversify its energy resource portfolio, Minnesota Power has been implementing a renewable development plan that began with 98.6-MW of purchased wind energy from the Oliver I and II Wind Energy Centers in Oliver County, North Dakota. Minnesota Power also currently purchases 227,500 kW from Square Butte Electric Cooperative's Milton R. Young Unit 2 plant that is delivered via Minnesota Power's +/- 250kV direct current transmission line ("DC Line") that runs between the Square Butte Substation in Center, North Dakota and Minnesota Power's Arrowhead Substation near Duluth, Minnesota.

## Minnesota Power's Ten-Year Plan

### SECTION A: Existing Energy Conversion Facilities

Bison 1—81.8 MW

Hydro Operations—114.6 MW

- St. Louis River System—85.6 MW
  - Knife Falls Hydro Electric Station—1.9 MW
  - Scanlon Hydro Electric Station—1.4 MW
  - Thomson Hydro Electric Station—71.3 MW
  - Fond du Lac Hydro Electric Station—11.0 MW
- Winton Hydro Electric Station—4.0 MW
- Prairie River Hydro Electric Station—0.5 MW
- Mississippi River System—24.5 MW
  - Little Falls Hydro Electric Station—4.4 MW
  - Blanchard Hydro Electric Station—16.5 MW
  - Sylvan Hydro Electric Station—1.9 MW
  - Pillager Hydro Electric Station—1.7 MW

Hibbard Energy Center—54.2 MW (summer), 47.2 MW (winter)

Boswell Energy Center Units 1 and 2—138 MW

Boswell Energy Center Unit 3—350.5 MW

Boswell Energy Center Unit 4—585 MW (468 MW Minnesota Power capacity)

Laskin Energy Center Units 1 and 2—110 MW

Cloquet Energy Center—22.1 MW

Taconite Harbor Energy Center—225 MW

Taconite Ridge Wind Energy Center—25 MW

(Non-regulated) Rapids Energy Center—30.8 MW

Purchases

- Square Butte—Young 2—227.5 MW in 2011
- Oliver County Wind Energy Centers I and II—98.6 MW
- Wing River Wind—2.5 MW
- Manitoba Hydro—50 MW

Minnesota Power's 2010 Integrated Resource Plan ("2010 IRP") in MPUC Docket No. E015/ RP-09-1088 (available on the MPUC's eDockets website: <https://www.edockets.state.mn.us/EFiling/search.jsp>) provides further information on these generation facilities and is available upon request. The MPUC recently approved the 2010 IRP in an order dated May 6, 2011. Minnesota Power's next IRP filing is due July 1, 2013.

#### **SECTION B: Energy Conversion Facilities Under Construction**

Minnesota Power began construction in fall 2009 of its Bison I Wind Project (PU-09-151) in Morton and Oliver counties. The Bison I Wind Project will be 81.8 MW in size. In 2010, 16 2.3MW wind turbine generators were placed in-service. By year-end 2011 the remaining 15 3.0MW wind turbine generators will be in-service.

#### **SECTION C: Proposed Energy Conversion Facilities on Which Construction is Intended Within The Ensuing Five Years**

Minnesota Power intends to construct at least 390 MW of wind projects in North Dakota. Minnesota Power has initiated the permitting processes for the 105 MW Bison 2 Wind Project (PU-11-57) and the 105 MW Bison 3 Wind Project (PU-11-162). Subject to NDPSC and MPUC approvals, Minnesota Power intends to have both projects in-service by year-end 2012 before the current expiration of the federal Production Tax Credit. Minnesota Power will make individual applications to the NDPSC for approval of additional North Dakota wind facilities when the timing is determined.

#### **SECTION D: Proposed Energy Conversion Facilities During the Next Ten-Year Time Period**

See response to Section C.

#### **SECTION E: Existing Transmission Facilities (Electric)**

On December 31, 2009, Minnesota Power acquired Square Butte Electric Cooperative's +/- 250kV direct current transmission line ("DC Line") that runs 465 miles between the Square Butte Substation in Center, North Dakota and Minnesota Power's Arrowhead Substation near Duluth, Minnesota.

In 2009, Minnesota Power placed in-service a 230kV AC transmission line (PU-09-587), approximately 22 miles in length that is required to transmit wind generation from the Bison I Wind Project substation to the proposed point of interconnection within the existing Square Butte Substation near Center, North Dakota. This transmission line will also be utilized as a generator outlet for future Minnesota Power wind projects.

#### **SECTION F: Existing Transmission Facilities (Pipeline)**

None

**SECTION G: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years**

To facilitate development of additional wind projects in North Dakota, Minnesota Power may construct additional transmission facilities that would interconnect with the 230kV AC transmission line and eventually to the Square Butte Substation. Depending on obtaining landowner agreements, Minnesota Power may in 2011 seek the NDPSC's approval for an additional 10 mile western extension of the 230 kV AC transmission line.

Minnesota Power is also planning to upgrade the capacity of the DC Line to assure deliverability of the Bison I Wind Project. To accomplish this upgrade, Minnesota Power has entered into a transmission service agreement with Square Butte (subject to installation of a \$5.6 million transmission system improvement project at the Square Butte substation) to increase the DC Line capacity from 500MW to 550MW by 2013.

Minnesota Power is a project participant in the CapX2020 transmission initiative, which includes the Twin Cities – Fargo 345 kV Project that would begin near Fargo, North Dakota and terminate at Monticello, Minnesota.

Minnesota Power, along with other regional utilities and the Midwest ISO, is studying various transmission options to deliver hydroelectric power from Manitoba Hydro to Minnesota Power's control area to support a recently executed 250 MW Power Purchase Agreement that would begin in 2020. These transmission options may be routed through North Dakota and may be subject to North Dakota legislative assembly approval under NDCC Section 49-22-09.1.

**SECTION H: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Pipeline)**

None

**SECTION I: Proposed Transmission Facilities During the Next Ten-Year Time Period (Electric and Pipeline)**

See response to Section G. Minnesota Power may need to construct additional transmission facilities to deliver wind from project sites to the Square Butte Substation.

**SECTION J: Regional coordination**

Minnesota Power's 2010 Integrated Resource Plan in MPUC Docket No. E015/RP-09-1088 (available on the MPUC's eDockets website: <https://www.edockets.state.mn.us/EFiling/search.jsp>) contained extensive transmission and regional coordination information in Appendix F and is available upon request.

**SECTION K: Environmental information**

Minnesota Power's 2010 Integrated Resource Plan in MPUC Docket No. E015/RP-09-1088 (available on the MPUC's eDockets website: <https://www.edockets.state.mn.us/EFiling/search.jsp>) contained extensive environmental information in Appendix E and is available upon request.

**SECTION L: Projected demand for service**

Minnesota Power's 2010 Integrated Resource Plan in MPUC Docket No. E015/RP-09-1088 (available on the MPUC's eDockets website: <https://www.edockets.state.mn.us/EFiling/search.jsp>) contained extensive demand and energy forecasting information and is available upon request. Minnesota Power also files annually with the MPUC an Annual Forecast Report in accordance with MPUC rules and that can be made available upon request.