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May 28, 2008

Ilona A. Jeffcoat-Sacco  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard; Dept. 408  
Bismarck, ND 58505-0480

*Re: Submission of Pedestrian Survey Report – Final  
Pillsbury-Fargo Generation Outlet Project  
Case Number PU-08-48*

Dear Ms. Jeffcoat-Sacco:

With this letter, Minnkota Power Cooperative, Inc. submits its Late-Filed Exhibit 1 – Discussion of Power Transfer Alternatives and its Late-Filed Exhibit 2 – Discussion of Routing Activities in Rush River Township, and proposed Findings of Fact, Pillsbury-Fargo Generation Outlet Project in Case Number PU-08-48.

Pursuant to § 49-22-08 of the North Dakota Century Code, the Energy Conversion and Transmission Facility Siting Act, and rules promulgated thereunder, enclosed for filing please find:

1. Original and ten (10) copies of Late-Filed Exhibit 1 – Discussion of Power Transfer Alternatives
2. Original and ten (10) copies of Late-Filed Exhibit 2 – Discussion of Routing Activities in Rush River Township.
3. Original and ten (10) copies of (Proposed) Findings of Fact

Should you have any questions with respect to this filing, please contact me.

Very truly yours,


PEARCE & DURICK

By 

Jerome C. Kettleison  
Phone: (701) 333-0104

JCK/ef  
Enclosures



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## LATE FILED EXHIBIT 1

### DISCUSSION OF POWER TRANSFER ALTERNATIVES

Based upon request of North Dakota Public Service Commission in a hearing dated May 22<sup>nd</sup>, 2008 on the Minnkota 230kV Pillsbury to Fargo Wind Generation Tie transmission line, the following discussion of possible power delivery options is submitted for review.

#### Proposed Project

Proposed project as presented at the hearing is a 61.1 mile 230kV transmission line on single circuit single pole structure that starts at the Pillsbury Wind Substation located west of Pillsbury, ND and ends at the Maple River Substation located near Fargo, ND.

The proposed project is a Wind Generation Outlet, capable of transferring power generated by proposed wind generation projects in Barnes, Griggs, and Steele Counties and transport that power output to the transmission system for use by customers.

The proposed outlet power from wind generation projects has been established at 230kV, and was the basis for designing the voltage level of the Wind Generation Tie transmission line being proposed.

Pillsbury Wind Substation is designed as a switching station to allow for isolation of circuits, monitoring of system parameters, and protection control systems. There is no capability at the Pillsbury Wind Substation to alter voltage levels to/from different system voltages.

#### Discussion Assumptions

Several assumptions have been made in order to meaningfully address Public Service Commission questions regarding power delivery, to wit:

- (a) Changes that have been reviewed and discussed herein are all at or near the point of intersection of the proposed 230kV project and the existing Minnkota 345kV bulk transmission circuit that is currently in service. Geographically this occurs in the

Case Number: PU-08-48  
230kV Wind Generation Tie

Harmony Township on the border of Sections 11 and 12. Discussions will focus on possibilities from this point to the interconnection with the Maple River Substation.

- (b) Land can be purchased, and easements obtained along the proposed corridor of discussion that would make delivery possibilities obtainable.
- (c) Cost estimates are based upon best information readily available given the short preparation time frame, the estimates are general in nature and are for the purposes of illustration only. Further analysis and detailed cost estimated should be performed before workable budgets can be established.
- (d) Assumes that interconnection process for either 345kV or 500kV would be studied and approved by applicable utility companies, as well as required by MISO.

**Discussion #1 - Double Circuit 345kV and 230kV circuits on single structures through Reed Townships**

Description

The current proposed route has the 230kV Wind Generation Outlet crossing over the existing 345kV bulk transmission line in Section 12 of Harmony Township. After crossing over, the 230kV would be set on laminated wood H-frame structures that are in alignment east-west with the 345kV structures, and set with a 140' (pole to pole) separation to the south of the existing 345kV bulk transmission line as requested in a Conditional Use Permit by Raymond Township.

A question from the Commission was posed as to a cost estimate to double circuit the transmission line for the one (1) mile through Reed Township Section 7 as proposed by Reed Township Conditional Use Permit. This will require taking 345kV line out of service, installing double circuit designed structures, and re-building the 345kV line and the proposed 230kV line.

Cost Estimate

(1)	7 double circuit 345/230 structures to replace existing 345kV structures and add 230kV circuit	\$1.2M
(2)	Replacement power for 345kV outage (coal field unit reductions are required to support outage of the Minnkota 345kV line)	\$24M
(3)	Construction incremental costs for double circuit	\$330k
(4)	Cancellation costs for H-frame structures on order	\$1.4M
	Total Double Circuit Estimated Cost	\$26.9M

Items to Consider

- (a) The reliability impacts associated with increased risk to networked bulk transmission system in event of failure with a single event having high potential to take both lines out of service.
- (b) The impact on power availability for power system ('grid') with 345kV line being out of service for 2-3 months during construction, which includes reliability impacts.
- (c) The financial impact of incremental costs of building double circuit line.
- (d) Construction delays and scheduling will impact ability to deliver wind generation power to transmission ('grid') system in 2008.

**Discussion #2 - Double Circuit 345kV and 230kV circuits on single structures through Raymond & Reed Townships**

Description

The current proposed route has the 230kV Wind Generation Outlet crossing over the existing 345kV bulk transmission line in Section 12 of Harmony Township. After crossing over, the 230kV would be set on laminated wood H-frame structures that are in alignment east-west with the 345kV structures, and set with a 140' (pole to pole) separation to the south of the existing 345kV bulk transmission line as requested in a Conditional Use Permit by Raymond Township.

A question from the Commission was posed as to a cost estimate to double circuit the entire eight (8) miles from this point to the Sheyenne River crossing in Reed Township. This will require taking 345kV line out of service, installing double circuit designed structures, and re-building the 345kV line and the proposed 230kV line.

Cost Estimate

(1)	50 double circuit 345/230 structures to replace existing 345kV structures and add 230kV circuit	\$8.5M
(2)	Replacement power for 345kV outage (coal field unit reductions are required to support outage of the Minnkota 345kV line)	\$73.2M
(3)	Construction incremental costs for double circuit	\$2.6M
(4)	Construction delay costs from material delivery & outage scheduling	\$4.2M
(5)	Cancellation costs for H-frame structures on order	\$1.4M
	<b>Total Double Circuit Estimated Cost</b>	<b>\$89.9M</b>

Items to Consider

- (a) The existing 345kV cannot be upgraded on existing structures, which are presently at maximum loading conditions.
- (b) The reliability impacts associated with increased risk to networked bulk transmission system in event of failure with a single event having high potential to take both lines out of service.
- (c) The impact on power availability for power system ('grid') with 345kV line being out of service for 4 weeks during construction, which includes reliability impacts.
- (d) The financial impact of incremental costs of building double circuit line.

**Discussion #3 - Interconnecting with existing 345kV circuit and upgrading to handle power from both transmission lines**

Description

Current proposed 230kV Wind Generation Outlet would terminate at a new substation, and line voltage increased to 345kV. The existing Minnkota 345kV line would be terminated at a new substation, and newly designed 345kV line would be the outlet for this new substation and deliver power to the Maple River Substation at 345kV.

This would require the design and engineering of new 230/345 substation, 345kV line outages to reconfigure existing in service 345kV bulk transmission line, re-build existing 345kV line between new 230/345kV substation and the Maple River Substation, and upgrades to the Maple River Substation 345kV bus and transformers.

Cost Estimate

(1)	Cost of feasibility and interconnection studies for project viability	\$110k
(2)	Cost of new 230/345kV substation	\$18M
(3)	Cost of new transmission line from new substation to Maple River Substation	\$19.6M
(4)	Cost of Maple River Substation upgrades	\$5.6M
(5)	Cost of land in Harmony Township to build new substation	\$80k
(6)	Replacement power for 345kV outage	\$73.2M
(7)	Construction incremental costs for double circuit	\$2.6M

(8)	Construction delay costs from material delivery & outage scheduling	\$4.2M
(9)	Cancellation costs for H-frame structures on order	\$1.4M
Total Double Circuit Estimated Cost		\$124.8M

Items to Consider

- (a) The existing 345kV cannot be upgraded on existing structures, which are presently at maximum loading conditions.
- (b) Power output requirements for both lines will require using a double circuit design at 345kV, as ampacity required exceeds even bundled conductor specifications.
- (c) The existing 345kV system operating parameters, as well as system operating conditions at Maple River Substation, will require study for feasibility and compatibility, and will require extensive upgrading to develop workable integrated operating system.
- (d) The lead times on power transformers used in substations is currently approximately 2-3 years (depending on size, type, manufacturer), which will have a significant impact on development and usage of wind generation resources.
- (e) The reliability impacts associated with increased risk to networked bulk transmission system in event of failure with a single event having high potential to take both lines out of service.
- (f) The impact of power availability for power system ('grid') with 345kV line being out of service for 2-3 months during construction.
- (g) The financial impact of incremental costs of building double circuit line.
- (h) Construction delays and scheduling will impact ability to deliver wind generation power to transmission ('grid') system in 2008.
- (i) The reliability and planning concerns with having over 50% of generation resource being transmitted over a single generation outlet source.

**Discussion #4 - Interconnecting with existing 345kV circuit and upgrading circuits to 500kV single circuit**

Description

Current proposed 230kV Wind Generation Outlet would terminate at a new substation, and line voltage increased to 500kV. Existing 345kV line would be terminated at new substation, and line voltage also increased to 500kV. The newly designed 500kV line would be the outlet of this new substation and deliver power to Maple River Substation at 500kV. At Maple River Substation, a new 500kV bus would be designed and built, and voltage reduced to 345kV and/or 230kV.

This would require the design and engineering of new 230/345/500kV substation, 345kV line outages to reconfigure existing in service 345kV bulk transmission line, re-building existing 345kV line between new 230/345/500kV substation and Maple River Substation, the addition of 500kV bus & equipment, and upgrades to Maple River Substation 345kV & 230kV bus and transformers.

Cost Estimate

(1)	Cost of feasibility and interconnection studies for project viability	\$160k
(2)	Cost of new 230/345/500kV substation	\$40M
(3)	Cost of new transmission line from new substation to Maple River Substation	\$16.6M
(4)	Cost of Maple River Substation upgrades	\$34M
(5)	Cost of land in Harmony Township to build new substation	\$80k
(6)	Replacement power for 345kV outage	\$97.6M
(7)	Construction incremental costs for 500kV	\$3.2M
(8)	Construction delay costs from material delivery & outage scheduling	\$5.6M
(9)	Cancellation costs for H-frame structures on order	\$1.4M
	<b>Total Double Circuit Estimated Cost</b>	<b>\$198.6M</b>

Items to Consider

- (a) Existing 345kV cannot be upgraded on existing structures, which are at maximum loading in current conditions, and are not capable to re-design at 500kV.

- (b) Using 500kV technology and equipment, as well as construction methods, will significantly increase construction costs due to use of specialty personnel & equipment.
- (c) Existing 345kV system operating parameters, as well as system operating conditions at Maple River Substation, will require study for feasibility and compatibility, and will require extensive upgrading to develop workable integrated operating system.
- (d) Lead times on power transformers used in substations is currently approximately 2-3 years (depending on size, type, manufacturer), which will have a significant impact on development and usage of wind generation resources.
- (e) Reliability impacts associated with increased risk to networked bulk transmission system in event of failure with a single event having high potential to take both lines out of service.
- (f) Impact of power availability for power system ('grid') with 345kV line being out of service for 3-4 months during construction.
- (g) Financial impact of incremental costs of building double circuit line.
- (h) Construction delays and scheduling will impact ability to deliver wind generation power to transmission ('grid') system in 2008.
- (i) The reliability and planning concerns with having over 50% of generation resource being transmitted over a single generation outlet source.
- (j) The easement width for 500 kV transmission would be wider than the 345 kV line currently in place, and there may not be an ability to route a 500 kV line past existing homes without landowners being displaced. A regional transmission initiative (CapX 2020) estimates 200 feet or more for easement width will be required compared to 150 feet for 345 kV on new construction. The existing MPC 345 kV line has a 120 foot easement width.


## **Summary**

Performing any alteration to the proposed transmission line route introduces significant increases in reliability risk to the bulk networked transmission system based on risk and failure analysis. In performing risk analysis based on potential failure mechanisms, it is important to note that as additional conditions are presented such as increased distances of double circuiting lines, the increases seen in risk evaluation is not a linear increase, and that even a small amount of changes can introduce a large increase in risk potential.

In each of the discussions listed above, a key factor in scheduling and project cost comes in the outage time required on a key bulk transmission line which supplies power to the eastern North Dakota system, the only 345kV west to east transmission line in North Dakota. While the proposed project will have relatively short outages in order to complete construction, these can be scheduled with already planned power plant outages (at low load levels periods in June and September 2008) with minimal if any impact on transmission capacity as planned. In contrast, any other work requiring the existing bulk transmission 345kV line to be out of service has a significant reliability, delivery, and financial impact and line outages would have to occur in a summer peak period.

Based upon the reliability and financial impacts of the discussion listed above, it is recommended that the proposed 230kV Wind Generation Tie be approved as presented.



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## LATE-FILED EXHIBIT 2

### DISCUSSION OF ROUTING ACTIVITIES IN RUSH RIVER TOWNSHIP

#### Proposed Project

As presented at the hearing, the proposed project is a 61.1 mile 230-kV transmission line on single circuit single pole structure that starts at a new Pillsbury Wind Substation to be located west of Pillsbury, ND and ends at the Maple River Substation located near Fargo, ND.

The proposed project is a wind generation outlet capable of transferring power generated by proposed wind generation projects in Barnes, Griggs, and Steele Counties to the transmission system for use by customers.

To move power from wind generation projects, the proposed outlet has been established at 230-kV, and was the basis for designing the voltage level of the proposed transmission line.

The proposed Pillsbury Substation is being designed as a switching station to allow for isolation of circuits, monitoring of system parameters, and protection control systems. There is no capability at the proposed Pillsbury Substation to alter voltage levels to/from different system voltages.

#### Background

Minnkota and its agents have been communicating with landowners and have currently secured a significant number of easements or options for easements. In many regards, there can theoretically be almost an infinite number of routes that a utility could pursue to build a project such as this. However, at some point, a route has to be chosen that substantially meets the requirements of the state of North Dakota. Minnkota believes that the proposed route does meet the applicable statutory requirements.

Minnkota filed its original route permit on March 18, 2008 and an amended application on April 17, 2008 due to a route change in the vicinity of Rush River Township.

As mentioned in the amended application from April 17, 2008, Minnkota found that there was an airport in the area of the original route and, in trying to avoid the airport, Minnkota determined that the route was also congested by communication towers and the city of Amenia. In exploring other options, local landowners suggested that Minnkota obtain an easement over the Rush River Watershed District ditch, a public use facility. In reviewing

alternate routes, Minnkota continued to analyze the route selection criteria, exclusion and avoidance areas, as well as landowners' willingness to have a transmission line sited on their property.

Minnkota found that the Rush River Watershed District was willing to allow the line on their property and secured 3.5 miles of line easements on the District property. Money paid to the District for the easement would be used to assist the District in maintaining the ditch, thereby reducing the special assessments to the landowners abutting the ditch.

As Minnkota continued landowner contacts along the amended route, Minnkota obtained a complete set of signed survey permissions, with the exception of Craig Olson in the Northwest corner of Section 13 in Rush River Township who granted verbal survey permission. Further, many of the landowners from Rush River had attended the Watershed District Meetings and had not voiced concerns with the proposed route. Therefore, in view of what appeared to be agreeable landowners, this route reasonably appeared to be a viable.

Attachment 1 is the current map showing landowner permissions for the entire route with specific detail for landowners in Rush River Township. Currently, the Project has over 70% of the land under easement or option for easement including approximately 50% in the Rush River Township.

At the Commission's Hearing on May 22, 2008, the Commissioners heard some concerns over the proposed route filed on April 17, 2008 and directed that Minnkota, through a late-filed exhibit, document its review of other options in the township.

#### **Discussion Regarding Requested Alternative Routes**

Beginning on May 23, 2008, the day following the hearing, the applicant and its agents began looking for an alternative route from the Northeast corner of Section 4 at pole number 358 to the east side of section 14 to pole number 399. By May 27, 2008, Minnkota had received positive verbal feedback from a significant number of landowners following a new route. This route is displayed in Attachment 2 and is generally described as follows: Starting at the northeastern corner of the Northeast Quarter of Section 4 and moving south along the eastern section line of Section 4 and Section 9 then crossing over from the southeast corner of the Southeast Quarter of Section 9 into the Northeast Quarter of Section 15 continuing in a southerly fashion down the western section line ½ mile to the center of Section 15. From there the line would be placed on the north side of the center of the Section and continue east through Section 14 until it crosses to the western edge of section 13 where it would then meet up with pole number 399 from the route, proposed in the amended application filed on April 17, 2008.

#### **Analysis of alternative route**

- 1.) Environmental concerns – This revised route does not appear to have any greater environmental impacts than the amended route based on a windshield survey of the revised route, and review of aerial photography, topographic maps, and Minnkota's corridor data related to exclusion and avoidance areas. Minnkota has not been able to complete cultural, biological or wetland surveys along the revised route segment.

However, it is not anticipated that sensitive cultural, biological or wetland resources would be impacted based on the general lack of sensitive resources identified during recent surveys in this general area. Minnkota has initiated efforts to survey the revised route and will file survey results with the PSC and applicable agencies as soon as survey reports have been completed.

- 2.) Easements – Minnkota has not yet been able to secure any new easements along this proposed new route. However, it is estimated there appears to be approximately a 90% verbal agreement to the placement of the line along this revised route.
- 3.) This proposed new route segment in Rush River Township would require additional tree removal in Section 15 and Section 14. Current landowner contacts in these sections indicate that they are willing to have Minnkota remove the trees to construct the power line.
- 4.) This proposed route segment in Rush River Township does move the line a full one mile away from Section 2 of Rush River Township.
- 5.) This proposed new route allows Minnkota to utilize the majority of easements that it has already acquired. Any other significant changes from the route considered in amended application or this route would probably add additional costs to the line, and cause delay in the project.

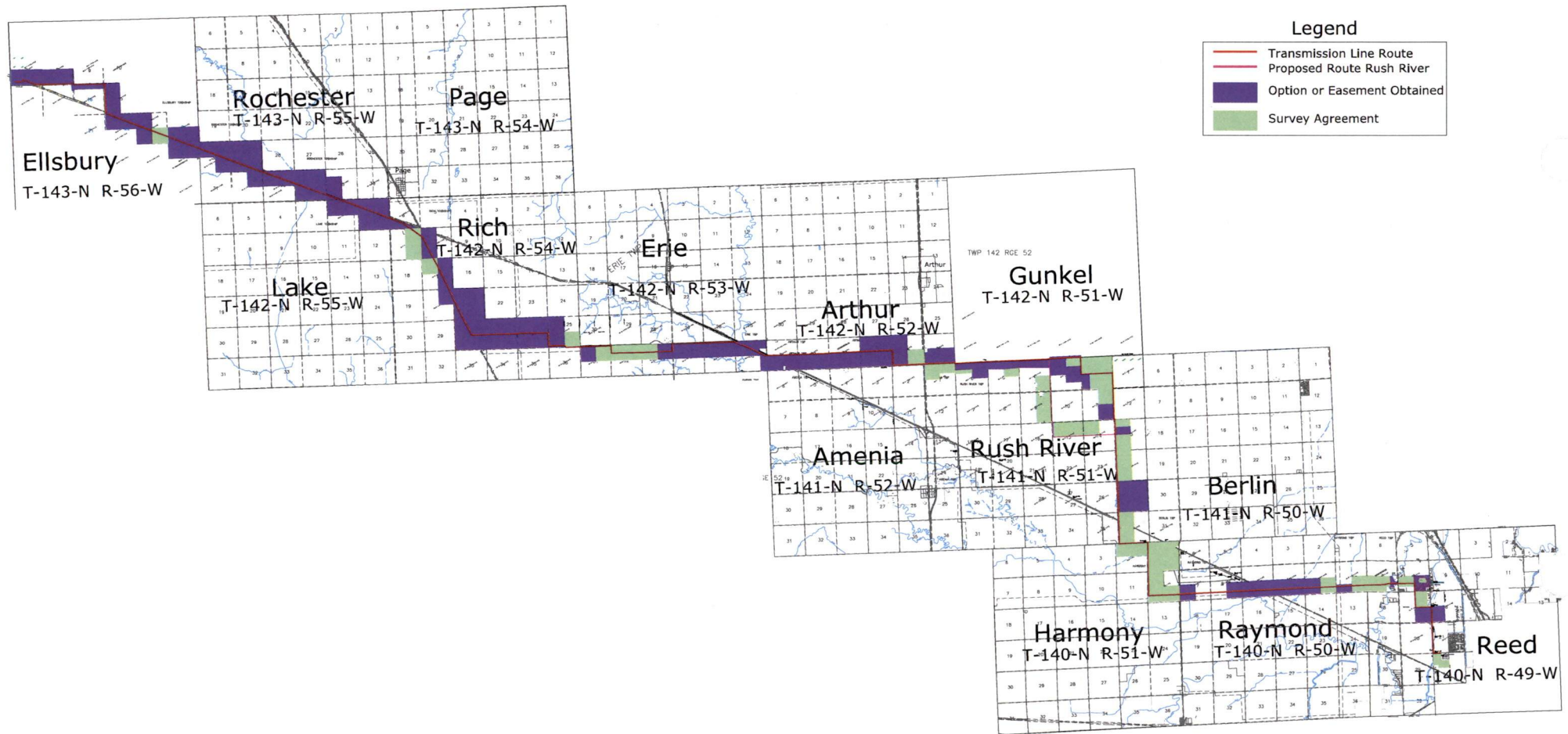
### **Summary**

Both the amended route and the proposed alternative segment presented in this late filing are viable routes that meet or exceed the requirements of the state of North Dakota for transmission line routing. Minnkota believes that the proposed route segment change in the Rush River Township discussed herein satisfies the Commission's requirements of Minnkota for this late-filed exhibit. More importantly, the route segment change appears to be a feasible solution and affords Minnkota an opportunity to satisfy more landowners.

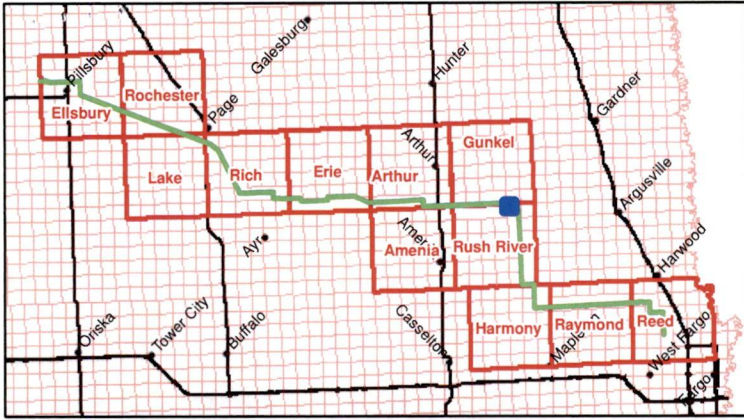
For this reason, Minnkota recommends that the Commission approve this new route segment as part of the route conditioned upon the final environmental and cultural surveys yet to be performed.

Attachment 1 – Map of Easements along complete route

Attachment 2 – Map of Easements along proposed new route.







Addition Information  
 141-51-02

**Kadmas** Field Maps  
**Lee &**  
**Jackson**  
 Engineers Surveyors  
 Planners

Dean Mostad  
 701-391-3687

1 inch equals 500 feet  
● Proposed Pole Location  
— Centerline of Route



**STATE OF NORTH DAKOTA**  
**PUBLIC SERVICE COMMISSION**

**Minnkota Power Cooperative  
230-KV Generation Outlet Line  
Application**

**Case No. PU-08-48**

**FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER**

May , 2008

**Appearances**

Commissioners Tony Clark, Susan E. Wefald and Kevin Cramer.

Jerome C. Kettleison, Attorney at Law, Pearce & Durick 314 East Thayer Avenue, Bismarck, North Dakota 58501, on behalf of the Applicant, Minnkota Power Cooperative.

Gerad Paul, Staff Attorney, Minnkota Power Cooperative, Inc., 1822 Mill Road, P.O. Box 13200, Grand Forks, North Dakota 58501 on behalf of Applicant, Minnkota Power Cooperative.

William W. Binek, Chief Counsel, Public Service Commission, Capitol, Bismarck, North Dakota 58505, on behalf of the Public Service Commission.

Allen C. Hoberg, Administrative Law Judge and Director, Office of Administrative Hearings, 1701 N. 9 Street, Bismarck, ND 58501-1882, as Procedural Hearing Officer.

**Preliminary Statement**

On February 5, 2008, Minnkota Power Cooperative (Minnkota) with its then co-partner, Otter Tail Power Company, filed a Letter of Intent (LOI) with the North Dakota Public Service Commission ("Commission") indicating that it planned to file applications for both a certificate of corridor compatibility and a route permit for the proposed transmission facilities. It further requested that the Commission shorten the prescribed one year between the submission of the LOI and the filing of an application for both the certificate of corridor compatibility and route permit.

On February 13, 2008, the Commission acknowledged the Letter of Intent, shortened the one year waiting period between filing a letter of intent and a siting application to one day, and assessed a filing fee of \$100,000 due upon the filing of an application.

On February 25 and 26, 2008, Minnkota held public hearings for area residents in the early evening at Page, North Dakota and Mapleton, North Dakota. Approximately 60 members of the public attended the meetings.

On March 18, 2008, Minnkota filed an Application with the North Dakota Public Service Commission for a Waiver of Procedure and Timelines, and Consolidated Certificate of Corridor Compatibility and a Route Permit authorizing construction of 230 kV Generation Outlet and a new substation referred to as the Pillsbury-Fargo Generation Outlet Project.

Minnkota requests that the Commission waive procedures set forth in N.D.C.C. Sections 49-22-08 and 49-22-08.1 to allow for a single consolidated hearing for Corridor Certificate and Route Permit.

On April 9, 2008, RES Americas Development, Inc. and PEAK Wind Development, LLC filed a Petition to Intervene.

On April 17, 2008, Minnkota filed an Amendment to the Application to the Public Service Commission of North Dakota for Waiver of Procedures and Timelines and Consolidated Certificate of Corridor Compatibility and Route Permit, Pillsbury- Fargo Generation Outlet Project indicating the withdrawal of Otter Tail Power Company as an applicant and as an owner of the line; expanding the corridor in the area of Amenia, North Dakota; and increasing the length of the line from 56.6 miles to 61.6 miles.

On April 18, 2008, Minnkota filed its objections to the Petition for Intervention by RES Americas Development, Inc. and PEAK Wind Development, LLC on April 9, 2008.

On, April 21, 2008, the Commission acknowledged the withdrawal of Otter Tail Corporation as an applicant and issued a Notice of Filing and Notice of Hearing in Case No. PU-08-48, Minnkota Power Cooperative, Inc.'s proposed 230 kV Generation Outlet Line in Barnes, Cass and Steele Counties, North Dakota. The Commission deemed the application complete, conditioned upon the filing of a map showing proposed final transmission line structure locations with said map filed by Minnkota on or before May 15, 2008. The Commission issued a Notice of Filing and Notice of Hearing, scheduling a public hearing for May 22, 2008 at 10 a.m. CDT at the City Auditorium in Casselton, North Dakota. The notice identified the following issues to be considered:

1. Will the location, construction, and operation of the proposed electric transmission facility produce minimal adverse effects on the environment, natural resources, and upon the welfare of the citizens of North Dakota?
2. Is the proposed electric transmission facility compatible with the environmental preservation and the efficient use of resources?

3. Will the proposed electric transmission facility corridor and route minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion?
4. Is it appropriate for the Commission to waive the procedures as requested in the application including the request for a single consolidated application for Corridor Certificate and Route Permit?

On April 23, 2008, the Commission denied the intervention request of RES Americas Development, Inc. and PEAK Wind Development, LLC, filed April 9, 2008.

On May 5, 2008, RES Americas Development, Inc., PEAK Wind Development, LLC., and Burchill Farms Incorporated filed a Petition to Intervene and Request for Shortened Notice and Response Period Expedited Consideration and Expedited Discovery.

On May 8, 2008, Minnkota Power Cooperative entered its objections to intervention by RES Americas Development, Inc., PEAK Wind Development, LLC and Burchill Farms Incorporated.

On May 9, 2008, the North Dakota Public Service Commission, by Allen C. Hoberg, Administrative Law Judge, entered its Order denying intervention by RES Americas, Inc., PEAK Wind Development, LLC, and Burchill Farms Incorporated, filed May 5, 2008.

On May 15, 2008, the map showing proposed final transmission line structure locations was filed with the Commission. The total distance of the line as determined in the final pole placement was found to be 61.1 miles.

A public hearing on Minnkota's application and amendments to the application and request for waiver of procedures and timelines was held as scheduled on May 22, 2008 in Casselton, North Dakota. Discussion was had and testimony was received as to the availability of alternative routes in the area of Section 2, Rush River Township, Cass County. Certain landowners testified that they objected to the proposed route as it crossed near or on their properties in part because of claimed adverse impacts to the health of their cattle. In late-filed Exhibit 2, Minnkota addressed its evaluation of alternative routes in the area of Section 2, Rush River Township, North Dakota and demonstrated that it was able to find an alternative route that was approvable subject to final environmental and other analysis. In the late-filed exhibit, Minnkota indicates there are no apparent exclusions or avoidance areas within the alternative route. The route further meets selection and policy criteria subject to the completion of environmental and other analysis.

At the public hearing, testimony was received concerning Minnkota's request that the Commission act to supercede a provision in a conditional use permit granted by Reed

Township, Cass County, North Dakota as the route crossed part of Section 7 of Reed Township. The condition required that as the Generation Outlet traveled across Reed Township, it be double circuited in conjunction with a 345 kV transmission line owned by Minnkota and which is parallel to the 230 kV line which is the subject of this application. At the conclusion of the hearing, the Commission directed that Minnkota prepare and file a late-filed exhibit exploring double circuiting of the existing 345 kV transmission line owned by Minnkota with the 230 kV Generation Outlet across Raymond Township and Section 7 of Reed Township. In the late-filed exhibit, Minnkota reported that double circuiting the 345 kV line across Raymond Township and across Section 7 in Reed Township as an alternate was cost prohibitive and resulted in system reliability concerns. It was determined that to double circuit the 345 kV line it would be necessary to remove all the 345 structures and rebuild them, which would result in significant outages for the 345 kV line.

Having allowed all interested persons an opportunity to be heard and having heard, reviewed and considered all testimony and evidence presented, the Commission makes the following:

### **Findings of Fact**

1. Minnkota is a generation and transmission cooperative that supplies wholesale electricity to eleven member-owned distribution cooperatives, three in eastern North Dakota and eight in western Minnesota. Minnkota is headquartered in Grand Forks, North Dakota. Minnkota is the operating agent for Northern Municipal Power Agency (NMPA), which serves twelve municipal utilities in the same geographic region. Approximately one-half of Minnkota's electric load is located in North Dakota. Together, the Minnkota/NMPA Joint System currently serves more than 280,000 people.

2. Minnkota proposes to construct a substation to be located in Section 7 of Ellsberry Township, Barnes County, North Dakota near Pillsbury, North Dakota and a Generation Outlet from the substation to the Maple River substation near Fargo, North Dakota. The purpose of the substation and Generation Outlet is to transmit the energy generated by proposed wind farm projects in Barnes, Steele and Griggs Counties to the transmission grid at the Maple River Substation near Fargo, North Dakota.

3. The proposed Generation Outlet will be designed and constructed to meet or surpass all relevant state codes, as well as the National Electric Safety Code (NESC), the Rural Utilities Service (RUS), and Minnkota's standards.

4. The total estimated cost of construction of the Minnkota proposed Generation Outlet is \$36,000,000.

5. Minnkota requests waivers of procedures and time schedules, which requests are justified based upon substation and the generation outlet causing minimal adverse impacts on the environment, the lack of objection to the proposed corridor by State local and governmental bodies and agencies; and the objective to have the project in operation

by December 31, 2008

6. Minnkota filed an amendment to its request for corridor certificate and route permit on April 15, 2008. The route as originally recommended in the area north and east of Amenia, North Dakota ran along the railroad and generally followed the route of the Cenex pipeline which was sited by the commission in 1991. Input from landowners and the Amenia Township Board and the presence of an airport communication towers and the proximity to the City of Amenia along with an analysis of exclusion areas and avoidance areas along the route caused Minnkota to revise its plan and generally move north and east to the area of the Rush River Watershed Resource District and then to proceed with a route to the east and then south. The Rush River Watershed Resource District was willing to accommodate the Generation Outlet on property owned by the District and generally adjacent to a drainage structure. For three and one-half miles, the Generation Outlet continues east to west on Watershed Resource District property. The line turns south at 180<sup>th</sup> Avenue SE, crosses Section 2 of Rush River Township at its midpoint, and then proceeds south on 161<sup>th</sup> Avenue SE. There were fewer avoidance and exclusion areas along the route selected than along the original route and the township patrons were generally accepting of the route as proposed. Residents of Rush River Section 2 testified as to their desire that the line be placed at least 1-2 miles from their farm. The amended route after an analysis of exclusions avoidance areas and the selection criteria is an approvable route.

7. The Commission requested that Minnkota file a late-filed exhibit exploring an alternative route in the northeast portion of Rush River Township because of landowner concerns voiced at the May 22, 2008 hearing before the Commission in the area of Section 2. Minnkota has submitted the late-filed exhibit and has recommended that the Commission approve an alternate route in the northeast portion of Rush River Township as follows: At the northeast corner of Section 4, Rush River Township at Pole No. 358, the Generation Outlet proceeds south along the easterly section line of Section 4 and Section 9; then from the southeast corner of Section 9 into Section 15, continuing down a westerly section line one-half mile to the center of Section 15, from there the line would proceed on the north side of the center of the section in an easterly direction through Section 14 until it crosses to the western edge of Section 13, where it would then meet with Pole No. 399 on the Line Structure Location Drawings filed on May 15, 2008. The recommendation in late-filed Exhibit 2 is contingent upon Minnkota completing cultural, biological, and wetlands surveys along the alternative route. There do not appear to be any greater environmental impacts along the alternate route than in the amended route based on a windshield survey of the revised route, and review of aerial photographs, topographic maps, and Minnkota's corridor data related to exclusion areas, avoidance areas, selection criteria and policy criteria. Minnkota does not anticipate sensitive cultural, biological or wetland resources would be impacted based on the general lack of sensitive resources identified during recent surveys for this project. Minnkota has initiated efforts to survey the alternative route and will file survey results with the Commission and applicable agencies as soon as survey reports have been completed. The proposed new route does impact trees in Sections 15 and 14. The landowners in the area of the alternative route indicate they are willing to have Minnkota remove the trees to construct the alternative route. The alternative route

segment in Rush River Township moves the line a full one mile west from Section 2 where most of the landowners resided who voiced their concerns at the public hearing. The alternative route as proposed by Minnkota utilizes the majority of easements it has already acquired. The landowners along the alternative route appear generally accepting of the alternative route. Any other significant change in the route considered in the Amended Application would add additional cost to the line and cause delay to the project. Minnkota recommends that the Commission approve this new alternative route segment subject to finalizing environmental and cultural surveys.

8. The Commission finds the alternative route as described in 7 above results in minimal adverse impacts and is not impacted by exclusion areas or avoidance areas. The alternative route is approved subject to completion of cultural, biological and wetlands analysis.

9. The majority of the proposed Generation Outlet will be constructed using directly embedded mono-poles steel structures except that H-frame structures will be used on much of the east end of the project where the route is located adjacent to existing 345-kV transmission line facilities. The mono-pole steel structures will be approximately 90-130 feet in height with an average span between each structure of 600 feet. The H frame structures will be approximately 70 feet in height with an average span of approximately 1000 feet under some circumstances. The requirement in a condition to the conditional use permit issued by the Reed Township Supervisors that the Generation Outlet as it crosses Reed Township be double circuited would result in the use of equipment yet to be specifically determined and not identified or engineered. The existing poles on the 345 kV line are fully subscribed and would have to be torn down and replaced in order to accommodate both the 345 kV line and the new 230 kV Generation Outlet. It would be three times as costly as the planned separate poles, if existing poles could be used. Replacement of the 345 kV poles, depending on the sequence of design and construction, will result in an increase in cost of 25 times the planned cost. Minnkota asks that it be permitted to proceed with a separate set of poles to cross Section 7 of Reed Township as planned and that it not be required to double circuit the 345 kV line which runs in the same area. Minnkota asks that the condition to the conditional use be superceded and pre-empted, pursuant to N.D.C.C. § 49-22-16(2).

10. The Commission finds that the condition to the conditional use permit as granted by the Reed Township Supervisors is unreasonably restrictive as it applies to this project because of reliability concerns and because of a significant increase in costs.

11. Section 49-22-16(3), N.D.C.C. provides that an applicant for a route permit from the Commission shall obtain all permits that may be required to construct and operate the transmission facility. Minnkota has applied for and been granted such permits set out in Exhibit 6 offered in this proceeding, to include a conditional use permit permitting Minnkota to cross Section 7 of Reed Township with the Generation Outlet subject to the contested double circuit condition, and has obtained other permits as indicated in Exhibit 6 in this proceeding, except township level variances that relate to set back requirements that vary from township to township and depend in part on the request of the landowner whose

land is being crossed. Permits will be applied for when final requests by landowners as to pole placement in the effected area and Minnkota will begin work in that area only after the setback is approved by the township or County Board involved.

12. On April 1, 2008, the Barnes County Board of County Commissioners approved earlier findings by the Barnes County Planning and Zoning Board, granted Minnkota a conditional use permit for the proposed Generation Outlet and substation. Eight Townships in Cass County granted conditional use permits across affected portion of Cass County which use permits are listed in Exhibit 6 in this proceeding. The condition in the conditional use permit granted in Reed Township, which Minnkota asks the Commission to pre-empt and supercede is contained within Exhibit 6.

13. The state and federal departments and agencies which have permit or regulatory approval authority relating to the construction and operation of the proposed facility are as follows:

- a. State and local agencies
  - (1) North Dakota Public Service Commission
  - (2) North Dakota Department of Health
  - (3) North Dakota State Historical Society, State Historic Preservation Office
  - (4) North Dakota Department of Transportation
  - (5) Barnes County
  - (6) Cass County Townships top include: Lake Township, Rich Township, Arthur Township, Rush River Township, Gunkel Township, Harmony Township, Raymond Township and Reed Township
- b. Federal
  - (1) United States Fish and Wildlife Service
  - (2) United States Army Corps of Engineers

14. Chapter 69-06-08, N.D. Admin. Code, sets forth certain criteria to guide the Commission in evaluating the suitability of granting an application for a certificate of corridor compatibility and route permit. The criteria as set forth in Section 69-06-08-02, N.D. Admin. Code, are classified as Exclusion Areas, Avoidance Areas, Selection Criteria and Policy Criteria. A transmission facility route shall not be sited within an Exclusion Area. A transmission facility route shall not be sited within an Avoidance Area unless the applicant shows under the circumstances there are no reasonable alternatives. In determining whether an Avoidance Area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative routes. In accordance with the Commission's Selection Criteria, the Generation Outlet route shall be approved if it is demonstrated that no significant adverse impacts will result from the location, construction and maintenance of the transmission facility. In accordance with the Commission's Policy Criteria, preference may be given to an applicant demonstrating certain benefits of the transmission facility.

15. Minnkota evaluated a corridor width of 6 miles, except in an area near Amenia, where the corridor width was increased to about 7 miles in order to accommodate a route change. Increasing the width of the corridor in the area of Amenia is approved by the Commission. Minnkota evaluated the corridor for exclusions, avoidances, selection and policy criteria.

16. At no point along the corridor do exclusion areas and avoidance areas make up more than 50% of the width of the corridor.

17. The route as finally designated by Minnkota within the corridor for the Generation Outline does not include geographical areas listed as an Exclusion Area.

18. The location and route designated by Minnkota for its proposed transmission facility does not include any geographical areas listed as an Avoidance Area, except as follows:

a. There are ten occupied residences in the corridor within 500 feet of the route. The route is over 500 feet from all other occupied residences. A waiver has been obtained for each residence within 500 feet of the route of the generation outlet. The waivers are listed on exhibit filed herein, to include aerial photos showing the house location and distance from the proposed Generation Outlet..

b. The proposed route will result in the loss of a minimal amount of woodlands. Those woodlands primarily consist of field or farmstead windbreaks and river crossings. Structure placement was requested by landowners to minimize impacts to farmers. Consistent with the rules and regulations of the Commission, Minnkota has agreed that it will replace any destroyed trees or woody vegetation on a two-for-one basis with saplings that are two or more years old. The Commission finds no reasonable alternative that would further avoid impacts to these woodlands. Minnkota will ensure that the width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 125 feet or less unless otherwise approved by the NDPSC.

c. Minnkota conducted a wetland delineation of the proposed route. There are numerous wetlands (Avoidance Areas) within the proposed corridor and crossed by the proposed route. Two wetlands in Cass County are impacted by pole placement along the proposed route and the Commission finds no reasonable alternative that would avoid the wetland impacts. One of those wetlands is located in section 20 of Reed Township and is a Water of the U.S. subject to the jurisdiction of the U.S. Army Corps of Engineers ("Corps of Engineers") under Section 404 of the Clean Water Act. The other impacted wetland is located in section 17 of Rich Township and is an isolated wetland and not subject to Corps of Engineers jurisdiction. The Corps of Engineers has issued Nationwide Permit 12 for the construction of utility line facilities in Waters of the U.S. Minnkota will comply with Nationwide Permit 12 conditions..

19. Minnkota has conducted a Class I Cultural Resources Inventory (CRI) of North Dakota State Historic Preservation Office (SHPO) files within the corridor and route

of the transmission facility. A Class III CRI pedestrian survey of transmission structure locations and the route has been completed and a survey report was filed with the Commission on May 27, 2008. Transmission facility locations will avoid any cultural resources identified during the survey. The Class III CRI of the transmission route determined that no cultural resources are anticipated to be impacted or indirectly impacted by the project.

20. The proposed corridor between the point of origin (Pillsbury substation) and the point of termination (Maple River substation) was evaluated for exclusion areas, avoidance areas, selection criteria and policy criteria. Based on the analysis of the corridor, it was determined that the best location for the new Generation Outlet would generally follow the existing Cenex pipeline which was sited by the Commission in 1991; to follow the railroad right-of-way where possible; to utilize a drain in Arthur and Rush River Townships and to parallel the existing Minnkota 345 kV transmission line.

21. Minnkota submitted substantial evidence to demonstrate that the proposed transmission facility would not have any significant impact on the Selection Criteria set forth in Section 69-06-08-01(3), N.D. Admin. Code.

22. The Commission finds that the final route as shown in Exhibit 1 to the public hearing and the alternative route in the area of Section 2, Rush River Township is substantially the same as the route as published with the Notice of Hearing and Notice of Filing in this proceeding and that the final route and the alternative route represent minimal environmental impacts and minimal impact to landowners compared to the route as originally submitted. The applicant is granted a permit to construct the Generation Outlet Project on the route as submitted and as identified by the alternative route described herein.

23. Seven of the individuals who testified at the public hearing on May 22, 2008 indicated a fear of the electro magnetic field generated by the generation outlet and of what they refer to as stray voltage as it might effect either themselves or other persons in the vicinity or how it might effect their cattle. All of the homes occupied by individuals in the area are more than 500 feet from the generation outlet route. The testimony heard at the hearing was insufficient to cause the Commission to consider the impact of EMF or stray voltage to be anything more than minimal as to people or cattle in the area. There are no dairy cattle in the area where the complaints were raised. The alternative route described herein effectively addresses the complaint of the seven individuals who testified at the hearing. The alternative route passes more than one mile from the area described.

24. Minnkota submitted substantial evidence to demonstrate its commitment to maximize the benefits of the proposed transmission facility as far as is possible to meet the Policy Criteria set forth in Section 69-06-08-01(4), N.D. Admin. Code.

25. The proposed 61.1 mile Generation Outlet will parallel the existing 345-kV line owned and operated by Minnkota for a portion of the route cuts across Section 7 of Reed Township. Minnkota proposes placing the new 230-kV Generation Outlet 173 feet

south of the centerline of the existing Minnkota transmission line. Transmission pole placements will generally mirror existing pole placements to the extent practicable to minimize potential visual, avian and structural impacts (i.e., the new poles will be approximately the same height, or shorter than, existing poles, the new poles will be placed at the same spacing and parallel to the existing poles, and the lines will be at approximately the same elevation). In a few locations, the proposed structure location will deviate for the pole placement of the existing poles, primarily to minimize impacts on wetlands.

26 A majority of the route for the proposed 61.1 mile Generation Outlet is located within a highly rural area. There is no information to indicate that any new residential construction is contemplated within the corridor or route.

27. The route for the proposed 61.1 mile Generation Outlet crosses areas that are primarily agricultural land. There are several areas within the proposed route where tree and shrub growth may require right-of-way clearing. Significant amounts of grading are not contemplated for preparation of the proposed Generation Outlet right of way.

28. The proposed 61.1 mile Generation Outlet is not anticipated to result in any negative impacts to public services such as local services, electric service, roads, traffic, water supply or telephone and other communication services.

29. Electromagnetic fields are present around any electrical device. Minnkota provided substantial evidence showing that Generation Outlet electromagnetic fields which will be generated by the proposed 61.1 mile transmission line are not anticipated to result in any human health effects or any effect on farm animals because of their low level and distance from any residences. Dr. Duane Dahlberg, a member of the public who testified at the public hearing about health effects of electromagnetic fields and stray voltage, is found to have presented no credible testimony concerning health risks posed by this Generation Outlet. The Commission finds there are no significant health risks associated this Generation Outlet based on evidence provided by the applicant in its application and finds that any credible health related concerns will be managed and maintained at an acceptable minimum by the placement of the Generation Outlet more than 500 feet from an inhabited residence.

30. The route of Minnkota's proposed transmission facility is located approximately 500 feet to the nearest occupied residence except in the areas identified for which waivers have been signed by owners. At that distance, noise from the proposed transmission facility is expected to be below rural background levels.

31. No impact to the recreational resources in the area of the proposed corridor and route are anticipated by the proposed transmission facility. The project substation will be a fenced and locked facility.

32. Land use is not expected to change as a result of construction of the proposed transmission facility. Several transmission lines (a 230 kV and a 345 kV) are

already present within the corridor. The majority of the area under or adjacent to the transmission line will still be used for agricultural purposes following construction of the line.

33. No impact to geologic and groundwater resources are anticipated as a result of the proposed transmission line.

34. Temporary impacts to vegetation will occur in the right of way area and around each structure location during construction of the Generation Outlet Line. Permanent impact to vegetation will occur at each structure location.

35. Minnkota has contacted the railroad where the Generation Outlet proposes to cross it. The railroad has indicated approval.

36. Raptors, waterfowl and other bird species may be affected by the construction and placement of the proposed 230-kV Generation Outlet Line. To help avoid potential impacts to avian species along the proposed route during construction and operation of the transmission line, Minnkota will utilize H-frame structures placed in parallel with the poles of the existing Minnkota structures so that conductors of the existing and new lines are easier for birds to see and avoid. The proposed H-frame design will utilize suspension insulation with a clearance of approximately 84 inches in order to eliminate the potential for electrocution of raptors.

37. No rare or unique resources have been identified in the route. It is not anticipated that the proposed generation outlet facility will impact rare and unique resources.

38. Minnkota plans to submit the transmission line final plan and profile to the Commission within 30 days of the preconstruction meeting.

From the foregoing Findings of Fact, the Commission now makes its:

#### **Conclusions of Law**

1. The Commission has jurisdiction over this proceeding under Chapter 49-22, N.D.C.C.

2. The Generation Outlet transmission line proposed by Minnkota is a transmission facility as defined in Section 49-22-03(12), N.D.C.C.

3. The proposed project is of such length design, location and purpose that it will produce minimal adverse effects, as defined under Section 49-22-05.2, N.D.C.C.

4. The Application submitted by Minnkota meets the corridor and route evaluation criteria required by Chapter 49-22, N.D.C.C.

5. The location, construction, and operation of the proposed transmission facility will produce only minimal adverse effects of the environment and upon the welfare of the citizens of North Dakota.

6. The proposed transmission facility is compatible with the environmental preservation.

7. The proposed transmission corridor and route will allow for the transmission of environmentally-friendly wind power.

8. The proposed transmission facility corridor and route will minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion.

9. The requested waivers of procedures and time schedules are justified based upon: the minimal impacts on the environment and the welfare of the citizens of North Dakota; the lack of objection to the proposed Generation Outlet by federal, state and local government bodies and agencies or by the vast majority of landowners along the route; and the objective to have area wind farms in operation by December 31, 2008.

10. The condition to the Conditional Use Permit required by Reed Township, Cass County is unreasonably restrictive as it applies to this case. The condition is hereby superceded.

From the foregoing Findings of Fact and Conclusions of Law, the Commission now makes its:

### **Order**

The Commission orders:

1. Minnkota's application for a waiver of procedures and time schedules is granted.

2. Certificate of Compatibility for a Transmission Facility Corridor No. \_\_\_ is issued to Minnkota, designating a corridor for its proposed transmission facility route as shown on the attached map.

3. Route Permit for Construction of a Transmission Facility No. \_\_\_ is issued to Minnkota granting authority to construct the transmission facility substantially as presented, but the route will include the alternative route in Section 2 of Rush River Township as set out on the map attached hereto.

4. Minnkota shall conduct a preconstruction conference prior to commencement of any construction, and must include a Minnkota representative, its construction supervisor, and a representative of Commission staff add to and ensure that Minnkota fully understands the conditions set forth in this order.

5. Minnkota shall comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed transmission facility, and shall obtain all other necessary approvals and permits not already obtained before commencing construction in that area, and shall provide copies of all approvals and permits to the Commission such applicable phase.

6. Minnkota shall inform the Commission of its intent to start construction on the transmission facility prior to the commencement of construction, and, once construction has started, Minnkota shall keep the Commission updated of construction activities on a monthly basis.

7. Minnkota shall construct and operate the transmission facility in the manner described in its Application and at the hearing, and in accordance with all applicable safety requirements.

8. Minnkota shall promptly report to the Commission the presence in the permit area of any critical habitat of threatened or endangered species, or of bald or golden eagles that Minnkota becomes aware of and that were not previously reported to the Commission.

9. Minnkota understands that all cultural resource mitigation plans must be submitted to the North Dakota State Historic Preservation Office (SHPO) for approval prior to the start of any fieldwork and construction activity. Furthermore, Minnkota understands and agrees that if any cultural resource, paleontological, archeological, historical, or grave site is discovered during construction, it must be marked, preserved and protected from further disturbances until a professional examination can be made by the State Historical Society, a report of such examination is filed with the Commission, and clearance to proceed is given by the Commission.

10. All pre-existing roads and lanes used during construction must be restored to a condition that will accommodate their previous use and areas used as temporary roads during construction must be restored to their original condition.

11. Construction must be suspended when weather conditions are such that construction activities will cause irreparable damage, unless adequate protection measures approved by the Commission are taken.

12. Reclamation along the right-of-way shall be continuous and coordinated with construction.

13. Reclamation, fertilization and reseeding is to be done by Minnkota according to the Natural Resource Conservation Service and USFWS recommendations for CRP, native prairie and other non-cropped lands unless otherwise specified by the landowner and approved by the Commission.

14. Minnkota's obligation for reclamation and maintenance of the right-of-way shall continue throughout the life of the Generation Outlet Line.

15. Minnkota understands and agrees that the width of clear cuts through any wooded areas and shelter belts shall be minimized to the fullest extent possible under applicable rules and regulations.

16. Minnkota shall work with landowners and residents to mitigate any increase in television and residential radio interference that results from the path of the transmission line.

17. Minnkota shall repair or replace all fences and gates removed or damaged during all phases construction and operation of the proposed transmission facility.

18. Minnkota shall obtain approval from the Commission or from Commission staff prior to any material changes in structure locations.

19. Minnkota agrees to provide the Commission with a copy of the facility alignment drawings with alignment data showing the facility as built (hardcopy and electronic versions), and an electronic version of the as-built facility that can be imported into ESRI GIS mapping software, and Minnkota will provide these filings within 3 months of the completion of the construction.

20. Minnkota understands and agrees that the authorizations granted by the corridor certificate and route permit are subject to modification by order of the Commission if deemed necessary to further protect the public or the environment.

### **Tree and Shrub Mitigation Specifications**

#### **Inventory**

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species of noxious weeds (e.g., *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number and species of trees and shrubs.
2. In windbreaks, shelterbelts and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.

3. In native growth areas, trees anticipated to be cleared that are 1-inch diameter at breast height ("dbh") or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by Minnkota, filed with the North Dakota Public Service Commission (NDPSC) and approved prior to the start of construction shall define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

### **Clearing for Construction**

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be minimized to the fullest extent possible under applicable rules and regulations.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replace shall be noted on the inventory.

### **Replacement**

10. Prior to tree/shrub replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the NSPSC for approval.
11. Tree replacement shall be on a 2 to 1 basis, with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings.

12. Trees and shrubs shall be replaced by the same species or similar species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.
13. Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations.
14. At the conclusion of the project, documentation identifying the actual number, variety, type, location and date of the replacement plantings shall be filed with the NDPSC.
15. Tree/shrub replacements shall be inspected once a year for three years, on about the anniversary of the plantings, and, on or shortly before October 1 of each year, a report shall be submitted to the NDPSC documenting the condition of replacement planting and any woodlands work completed. If after three years from the anniversary of the plantings the survival rate is less than 75%, the NDPSC may order additional planting(s).

#### PUBLIC SERVICE COMMISSION

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**Susan E. Wefald**  
President

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**Tony Clark**  
Commissioner

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**Kevin Cramer**  
Commissioner