

August 7, 2015

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. ET2,E015/CN-14-853

Dear Mr. Wolf:

Attached are the comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) on the following matter:

Application for a Certificate of Need by Great River Energy and Minnesota Power for the Motley Area 115 kV Transmission Line Project in Morrison, Cass, and Todd Counties, Minnesota.

The petition was filed on March 19, 2015 by:

William R. Kaul
Vice President, Transmission
Great River Energy
12300 Elm Creek Blvd.
Maple Grove, MN 55369

The Department withholds a final recommendation pending the Applicants **providing additional data in reply comments**. The Department is available to answer any questions the Commission may have.

Sincerely,

/s/ MICHAEL N. ZAJICEK
Rate Analyst

MNZ/lt
Attachment

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

COMMENTS OF THE
MINNESOTA DEPARTMENT OF COMMERCE
DIVISION OF ENERGY RESOURCES

DOCKET No. ET2,E015/CN-14-853

I. EXECUTIVE SUMMARY

Great River Energy (GRE) and Minnesota Power (MP) (the Applicants) requested that the Minnesota Public Utilities Commission (Commission) approve a certificate of need (CN) for a 115 kilovolt (kV) transmission line project in the Motley area in Morrison, Cass, and Todd Counties, Minnesota (Project). GRE provides electrical energy and related services to 28 member cooperatives, including Crow Wing Power, the distribution cooperative serving the area proposed to be supplied by the proposed transmission line. MP is a joint applicant so as to capture load-serving needs in the area. The Applicants requested a CN to construct approximately 15.5 to 16.5 miles of new overhead 115 kV transmission line. The Applicants anticipate start of construction in the fall of 2016 and energization of the line in the summer of 2017.

In terms of need, the Applicants claim a need to address transmission system overloads that currently exist on the line and to add capacity to serve a proposed Minnesota Pipe Line Company (MPL) pumping station in the area. Local system overloads were first detected by the Applicants in 2008, and the Applicants state that it is now necessary to remove a large load from the 34.5 kV system and place it on a new 115 kV system. Historical data shows that the electrical peak demand in the affected load area has been growing at an average of about 1.72 percent per year.¹ The Applicants also note that due to voltage constraints the current 34.5 kV system would not be able to handle the initial energy demand of starting the pumps at the proposed² MPL pumping station. Thus, the Applicants have determined that the transmission system in the area is inadequate to serve demand.

Regarding the potential alternatives for meeting the Applicants' claimed need; the Applicants reviewed numerous alternatives including a local peaking generation alternative, distributed generation, renewable generation, various transmission solutions, upgrading

¹ Calculated using the average of the 10-year growth rate (2.52 percent) the 5-year grow rate (1.65 percent) and the weighted average annual growth rate (1.00 percent)

² At the time of the application, MPL's CN request was pending in Docket No. PL5/CN-14-320. At its July 30, 2015 agenda meeting, the Commission approved MPL's CN request.

existing facilities, different voltage levels, and a no-build alternative focusing on reactive power supply improvements and demand side management as well as others. The Applicants concluded that the alternatives are either not viable or more costly than the proposed new transmission line. In general, the Minnesota Department of Commerce, Division of Energy Resources (Department) agrees with the Applicants' analysis. However, the Department withholds a final recommendation to the Commission pending the Applicants' submittal of additional information in reply comments.

II. INTRODUCTION

A. LOCAL AREA DESCRIPTION

The Applicants indicated that the Project would benefit the 34.5kV Dog Lake-Baxter system, as well as provide power for the proposed MPL Crow Wing Power Fish Trap Lake pump station.

1. Dog Lake-Baxter System

Figure 1-3 on page 1-8 of the Petition shows that the proposed Project is primarily located in the Dog Lake-Baxter System area, and is mostly south and east of the City of Motley, following the Todd/Morrison County border, then turning east to the existing Motley substation, and continuing north to intersect with MP's existing 115 kV "24 Line". The Substations that support the affected load area are:

- the Minnesota Power Dog Lake 115/34.5 kV substation; and
- the Minnesota Power Baxter 115/34.5 kV substation.

Between these substations are nearly 47 miles of 34.5 kV sub-transmission lines, owned by multiple companies:

- MP owns approximately 39 miles of these lines; and
- GRE owns approximately 8 miles of these lines.

Regarding the lines, the Applicants explain that:³

During contingencies when the normally open switch (503-534 Tie Switch) near Tyson Food substation is closed, for example the loss of the Dog Lake 115/34.5 kV source, increased power flows from the Baxter source which could cause low voltage. Additionally, if the aforementioned tie switch is closed through for contingency purposes, the Dog Lake 115/34.5 kV transformer will pick up all of the load normally served by Baxter resulting in low voltage and near overloading of equipment.

³ Petition at page 3-2

2. Claimed Need

The Petition states that the Motley Area 115 kV Project is required to address system overloads in the 34.5 kV Dog Lake-Baxter System. The Applicants explain that the Dog Lake-Baxter System is at risk of experiencing transmission system overloads, as the growth of the peak electrical demand has surpassed the level that can be served on the current system. If a contingency happened on the Baxter Substation 115/34.5 kV transformer during peak loading times the additional load would cause low voltage. Thus the Applicants concluded that it is necessary to remove a large load, the Motley substation, from the 34.5 kV system and place it on a new 115 kV system.

Additionally, the Applicants indicated that the proposed Project would prepare the area transmission system for additional loads in the Shamineau Lake area. The need for the proposed new Shamineau Substation has been identified in the 2009 Biennial Transmission Plan, but was delayed due to a reduction in load growth. If load growth returns to historical levels the existing 34.5 kV transmission system could not reliably serve the Shamineau Lake Area.

Further, as indicated above, the Applicants stated that MPL is proposing to construct a new pump station along its oil pipeline that travels from the northwest of the area toward the southeast. The new Fish Trap Pump Station would be located at the southern terminus of the Project and would contain three 4500 horsepower electric motors that would create an electrical demand of 10 MW at full output. Further the Applicants stated that when these motors are started each motor typically draws a current 6 to 7 times its full load current for a short period, during which time the voltage on the 34.5 kV Dog Lake-Baxter System would drop. Finally the Applicants note that the current system does not have the capacity to serve 10 MW of new electrical demand expected to be needed to serve the motors at full output, and that even with a large load removed from the current system it would not be feasible to use the 34.5 kV Dog Lake-Baxter System to serve the load of the proposed pump station.

To provide relief for the 34.5 kV Dog Lake-Baxter System and to provide service to the MPL Fish Trap Pump Station the Applicants have determined that the most efficient solution is to create a new Motley Area 115 kV line that would remove the Motley substation from the 34.5 kV Dog Lake-Baxter System and also serve the load for the new Fish Trap Pump Station.

3. Proposed Project

Overall, the Applicants propose to construct approximately 15.5 to 16.5 miles of 115 kV transmission lines. The elements of the Project as explained on page 1-5 and 1-6 of the Petition are:

- construct either of two proposed route options for the initial segment, connecting the Minnesota Power "24 line" 115 kV transmission line northeast of Motley, MN, and extend generally north-south to the existing Crow Wing Power 34.5 kV Motley Substation. A motor-operated three-way switch would be installed to interconnect

the new transmission line to the “24 line.” The West Route would entail constructing approximately 4 miles of new 115 kV transmission line and the East Route would entail constructing approximately 5 miles of new 115 kV transmission line;

- construct approximately 10.5 miles generally north-south single-circuit 115 kV transmission line between the Crow Wing Power Motley Substation and the proposed new Crow Wing Power Fish Trap Lake Substation;
- convert the Dog Lake Substation to a more reliable ring bus design;
- construct approximately 0.5 miles of 115 kV transmission line segment to loop MP’s “24 Line” 115 kV Transmission line into and out of the Dog Lake Substation;
- convert Crow Wing Power’s Motley Substation from 34.5 kV to 115 kV and install a manual three-way switch to provide 115 kV service to the substation;
- construct the new Crow Wing Power Fish Trap Lake 115 kV Substation to serve the electric load of MPL’s proposed Fish Trap Pump Station; and
- install a manual three-way switch along Highway 10 to allow for the future Shamineau Substation to interconnect to the proposed 115 kV transmission line without having to take an outage on the 115 kV transmission line.

The proposed Project is located in Morrison, Cass, and Todd Counties.

B. *PROCESS BACKGROUND*

1. *Notice Plan*

On October 1, 2014, Great River Energy (GRE), on behalf of itself and Minnesota Power (Applicants) filed a *Notice Plan Petition for the Application of Great River Energy and Minnesota Power for a Certificate of Need for the Motley Area 115 kV Transmission Line Project in Morrison, Cass and Todd Counties, Minnesota* (Notice Petition). The Notice Petition provides the Applicants’ proposed Notice Plan to communicate its intent to construct a 115 kilovolt (kV) transmission line and construct/modify substations in the Motley area in Morrison, Cass, and Todd counties. As required by Minnesota Rules Part 7849.2550, the Notice Petition provided a plan to notify potentially affected members of the public about the proposed Project.

In response to the Notice Petition, comments were filed by the Department on October 21, 2014. Reply comments were filed by GRE on November 10, 2014.

On January 30, 2015, the Commission issued its *Order Approving Notice Plan, Approving Exemption Request, and Granting Variances* approving the Notice Petition with modification.

On April 17, 2015, GRE submitted the Applicants’ *Compliance Filing Affidavit of Newspaper Notifications Announcing Project and Pending Application*.

On July 14, 2015, GRE submitted the Applicant’s *Notice Plan Compliance Filing for the Motley Area Project Certificate of Need Application*.

2. Exemption

On October 30, 2014, the Applicants submitted their *Exemption Request Petition for the Application of Great River Energy and Minnesota Power for a Certificate of Need for the Motley Area 115 kV Transmission Line Project in Morrison, Cass, and Todd Counties, Minnesota* (Exemption Petition) in order to obtain exemption from certain data requirements of Minnesota Rules Chapter 7849.

In response to the Exemption Petition, comments were filed by the Department on November 14, 2014.

On January 30, 2015, the Commission issued an Order approving the Exemption Petition conditioned on GRE providing alternative data as specified.

3. Completeness

On March 19, 2015, the Applicants filed their *Application for a Certificate of Need and Route Permit by Great River Energy and Minnesota Power for the Motley Area 115 kV Transmission Line Project in Morrison, Cass and Todd Counties, Minnesota* (Petition). The Petition requested that the Commission approve a CN to construct the proposed Project near the Motley area in Morrison, Cass, and Todd counties.

Comments on completeness were filed by the Department on April 2, 2015. On May 27, 2015 the Commission issued its *Order Accepting Application as Complete, Directing Use of Alternative Permitting Process, and Granting Variance* determining that the Petition was complete.

C. PLANNING BACKGROUND

Overall the relationship between CN proceedings and other steps in the regulatory process is summarized Attachment 3. Attachment 3 shows that the planning process is the first step. The overall goal of the planning process is to identify the size, type, and timing of the need. Then, the CN process verifies that the need exists and determines the overall best project to meet the need. Transmission projects are subject to two planning processes, that of the Midcontinent Independent Transmission System Operator (MISO) and Commission's biennial transmission planning process.

1. MISO Process

GRE submitted the Motley area project for consideration as part of the 2014 MISO Transmission Expansion Plan 2014 (MTEP 14) process. MP has submitted the Dog Lake project for consideration as part of the MTEP 14 process as well. The MTEP 14 processes should have concluded in December 2014. The Applicants' are finalizing revenue sharing agreements for both transmission and distribution facilities. In response to the Department's information requests the Applicants stated that only a minor part of the Motley area project would be subject to the transmission revenue sharing agreement as a

jointly-used facility while the entirety of the Dog Lake Substation would be subject to revenue sharing.

Select data regarding the proposed Project in MTEP 14 and draft MTEP 15 is provided in Attachment 2.

2. *Minnesota Process*

The Applicants were part of the Minnesota Transmission Owners that prepared the 2009 *Minnesota Biennial Transmission Projects Report* (2009 Report) (Docket No. E999/M-09-602), which was approved by the Commission on May 28, 2010. The 2009 Report discussed a need for improvement in the affected load area. The 2013 *Minnesota Biennial Transmission Projects Report* (2013 Report) (Docket No. E999/M-13-402) also included this project under tracking number 2009-NE-N6. Thus, transmission system deficiencies were reported in the most recent biennial transmission plan.

III. DEPARTMENT ANALYSIS

Minnesota Statutes §216B.2421, subd. 2 (3) defines a large energy facility (LEF) as “any high voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota.” Since the proposed Project is approximately 15.5 to 16.5 miles long and is being constructed to 115 kV standards it qualifies as a LEF. Second, Minnesota Statutes §216B.243, subd. 2 states that “no large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the Commission...” Therefore, a CN must be approved by the Commission before the proposed Project could be sited or constructed.

There are several factors to be considered by the Commission in making a determination in CN proceedings. In a general manner, these factors are located in different sections of Minnesota Statutes. Some of the general, statutory criteria are reflected in a more specific way in Minnesota Rules part 7849.0120. However, some statutory criteria do not appear to be reflected in rules. To clarify the analysis, the Department grouped all of the statutory and rule criteria into five broad categories and allocated each of the statutory and rule criteria to one of the categories. The broad categories are:

- need analysis;
- link to planning process;
- analysis of alternatives;
- socio-economic analysis; and
- policy analysis.

The Department addresses each of the statutory and rule criteria below. A cross-index matching the statutory and rule criteria to the section where each is addressed along with a summary of Department’s analysis is provided as Attachment 1.

A. *NEED ANALYSIS*

Overall, the need analysis is governed by Minnesota Rules 7849.0120 A which states that a CN must be granted upon determining that:

The probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states.

The rule then proceeds to list five distinct criteria. The Department presents the analysis of the need for the Project in two parts. The first part is designed to address the accuracy of the forecast underlying the claimed need. The second part is designed to address any broader reliability needs claimed by GRE. Each part is addressed separately below.

1. *Forecast Analysis*

a. *Accuracy of the Forecast*

Regarding accuracy of the forecast, Minnesota Rules 7849.0120 A (1) states that the Commission is to consider "the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility." Regarding the accuracy of the Applicants' forecast of demand, the Petition stated at page 5-23 "The load duration curve shows that the system was at risk of experiencing thermal overloads in the [sic] 2013 for about 19 hours of the year." Thus, the actual load for the area exceeds the level at which reliable service can be provided.

Based on this information the Department concludes that the accuracy of the forecast of demand is not relevant to a determination of need because the area already experienced historical demand greater than the ability of the infrastructure to provide reliable service. The existing level of demand indicates that transmission and/or distribution improvements are needed regardless of the forecast of future demand. In summary, the Department concludes that the rule subcriterion regarding forecast accuracy has been met.

b. *Relation to State Energy Needs*

Also related to forecast analysis is Minnesota Rules 7849.0120 C (1) which states that the Commission is to consider "the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs." Regarding overall state energy needs, clearly the transmission line in question is related to local needs generally and local reliability in particular rather than overall state energy needs. Therefore, a discussion of state energy needs is not directly relevant.

On page 5-23 of the Petition the Applicants' stated that "The system analysis showed that the existing transmission system serving the affected load area can reliably serve loads up to 20.12 MW level." However, in 2014 there were about 19 hours when the peak load of

the affected load area exceeded the critical load level. When this happens load is at risk of experiencing inadequacies; both low voltage and line overload concerns. Thus, the area has experienced demand greater than reliable supply capability and some improvements need to be implemented soon. Therefore, while the proposed Project is not directly related to the overall state energy needs, it is necessary to restore reliable service in the local area. This is consistent with the goals of the Minnesota Energy Security and Reliability Act that that encourages reliable electricity service, among other things. In summary, the Department concludes that this subcriterion has been met.

2. Reliability Analysis

Minnesota Statutes §216B.243, subd. 3 (9) states that in assessing need, the Commission shall evaluate “with respect to a high-voltage transmission line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota.” Regarding “enhanced regional reliability, access, or deliverability” due to the transmission line in question, the claimed need is for serving local load. Therefore, the proposed transmission line would provide enhanced reliability in the area where it is being built, by restoring service to local loads to acceptable levels. However, beyond this benefit, the Department concludes that the proposed line would have little further impact, positive or negative, with regard to this subcriterion.

B. LINK TO PLANNING PROCESS

1. Renewable Preference

Regarding renewable preference, there are two sections of Minnesota Statutes that apply to CNs. First, Minnesota Statutes §216B.243, subd. 3a states that:

The Commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the Commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

Second, Minnesota Statutes §216B.2422, subd. 4 states that:

The Commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the Commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest.

In response, the Department notes that the proposed Project will not interconnect any particular generation resource. Moreover, the proposed Project is not needed to transmit power from a new generation resource. Rather, the proposed Project will transmit electricity from the existing grid generally to the local area. Therefore, it could reasonably be stated that these renewable preference statutes do not apply.

It is the Department's experience that hydro and geothermal resources are not reasonable alternatives. The capital and operation and maintenance (O&M) costs to build a hydro facility would be significantly more than the proposed transmission option while geothermal resources are very difficult to access and are very deep compared to other areas in the US in addition to being significantly more expensive than the proposed Project. The Applicants stated that renewable generation in general is not a viable alternative to transmission for the Project because none of these resources could be co-located with the pump station or provide the needed reliability that the transmission system upgrade provides.⁴ Wind and solar are not reasonable alternatives because wind and solar are intermittent resources and any generation alternative should be dispatchable so as to meet the timing of the needs. While the lack of dispatchability may be discounted for solar due to its presumed high correlation with the peak, the Department's experience with solar is that such projects are expensive. The Applicants stated in their filing that the installation costs of wind and solar would be more expensive than the proposed Project. It is the Department's experience that biomass projects are also prohibitively expensive and would likely not deliver the reliability required for a pump station.

In summary, the Department concludes that renewable generation is not a reasonable alternative and this statutory criterion has been met.

2. Demand-side Management

Regarding Demand-Side Management (DSM), Minnesota Statutes §216B.243, subd. 3 states:

No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures.

⁴ See DOC Attachment 4

Also, Minnesota Statutes §216B.243, subd. 3(8) states that the Commission shall evaluate:

...any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically;

These statutes are reflected in Minnesota Rules 7849.0120 A (2) which requires the Commission to consider “the effects of the applicant's existing or expected conservation programs and state and federal conservation programs.”

On page 6-8 of the Petition, the Applicants state:

effective conservation measures in the affected load area have helped to defer the need for additional reliability improvements. However, the proposed Project is largely driven by the addition of a new large, high load factor electric load... As such, conservation and energy efficiency is particularly inadequate in the Dog Lake-Baxter system and Project area... Additionally, peak demand in the affected load area already exceeds system capacity.

The Department agrees with the Applicants that while energy conservation is a tool to help in meeting future needs, it will not be able to address issues related to meeting existing demand at the levels indicated.

In summary, energy conservation will not be able to address issues related to meeting existing demand at the levels indicated by the Applicants. Therefore, the Department concludes that this criterion has been met.

C. ANALYSIS OF ALTERNATIVES

Overall, the analysis of alternatives is governed by Minnesota Rules 7849.0120 B which states that a CN must be granted upon determining that:

...a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record.

The rule then proceeds to list four distinct criteria. The Department breaks down the analysis of alternatives to the proposed Project into four broad areas:

- alternatives analysis
- reliability analysis;
- distributed generation (DG) analysis; and
- integrated gasification combined cycle (IGCC) preference.

Each area is addressed separately below.

1. *Alternative Analysis*

a. *Non-CN Facilities Analysis*

Minnesota Rules 7849.0120 A (4) states that the Commission is to consider “the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand.” Regarding the effects of facilities not requiring CNs, these could be considered to be DG or transmission-related facilities not requiring a CN under Minnesota Statutes §216B.2421, subd. 2. The non-CN alternatives were evaluated considering:

- the proposed Project would provide approximately 13.25 MW of incremental load-serving capacity beyond the 2017 load level;
- the Applicants performed a study indicating 13.25 MW of peaking generation would be necessary to generate equivalent load-serving capability;
- the proposed solution would have to be competitive with the proposed Project’s initial capital cost of approximately \$16 - \$17 million.

i. *Transmission*

Regarding the use of non-CN transmission, this would consist of rebuilding the 34.5 kV system to a higher capacity without increasing the voltage. Regarding such an alternative the Petition stated that the Applicants investigated rebuilding the 34.5 kV transmission lines in this area instead of upgrading them to 115 kV. However, the Applicants concluded that this alternative would not be feasible as even with a rebuilt system the voltage would collapse on contingency nor would it be able to support a new large industrial load such as the new Fish Trap Pump Station. Thus rebuilding the system is not an option as it would not solve the current system issues.

The Applicants also explored upgrading using distribution voltage to address the system inadequacies. This option would transfer load between distribution substations. However, the loads would remain on the 34.5 kV transmission network. Thus, transferring loads between substations would not improve overall loading or the low voltage concerns on the transmission network. Furthermore since no other distribution substations separate from the Dog Lake-Baxter system are in close proximity, this alternative would require the construction of lengthy distribution lines to transfer loads, and thus would result in weaker voltage and increased energy loss on a high impedance distribution system. Thus the Applicants determined that distribution alternatives were not a viable alternative.

ii. *Peaking and Distributed Generation*

As mentioned above, approximately 13.5 MW of generation would have to be installed to alleviate the overload on the 34.5 system to meet current loads. The Applicants noted several problems with using peaking resources or distributed generation.

For peaking generation the Applicants asserted that, while peaking generation might be cheaper to build if their estimate of \$1,000/kW held up, it would certainly be more expensive to operate and maintain. Further the reliability of a peaking resource would be less than that of transmission lines and additional generation would not improve the transmission system reliability of the already stressed 34.5 kV system. Finally the operation of these generators to address system inadequacies at non-peak hours may be required, resulting in higher energy costs than what the transmission system could provide. Thus a rebuild of the system would also be necessary, adding further expense.

As for distributed generation the Applicants stated that to install the number of generators necessary to meet the pump station demand and the inadequacies in the area would be more costly than the proposed Project, in addition to having higher O&M costs. Further the Applicants stated that the large motors required for the pumping station and other large industrial loads require large amounts of power at startup, and distributed generators would not be capable of providing that amount of power. Finally distributed generation would not eliminate the need for new 115 kV transmission lines to deliver power to the Fish Trap Pump Station. Distributed generation would not address the system's current overloaded state either.

Since neither peaking nor distributed generation would adequately address the system overloads, and would most likely be more costly than the proposed Project, the Department did not pursue these alternatives further.

iii. Summary of Non-CN Facilities Analysis

The Applicants compared a lower voltage rebuild, peaking generation, and distributed generation to the proposed Project. The lower voltage 34.5 kV rebuild would collapse upon contingency and would be unable to serve the Fish Trap Pump Station, while attempting to transfer loads to other systems would be more costly than the proposed Project. Second, peaking generation would require the Motley substation to be converted to 115 kV as well as the added generation, most likely resulting in slightly lower capital costs but much higher energy and O&M costs, and would not improve transmission system reliability. Finally distributed generation fails for the same reasons as peaking generation, and an inability to provide enough power for the startup of large motors at industrial loads in the area. Therefore, the Department concludes that this criterion has been met.

b. Size, Type, and Timing

Minnesota Rules 7849.0120 B (1) states that the Commission is to consider "the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives." For generation resources, the issue of the correct size, type, and timing of resource additions is best determined within the resource plan process. In this transmission proceeding the Department concludes that 'size' refers to the quantity of power transfers that the transmission infrastructure improvement enables, 'type' refers to the transformer nominal voltages, rated capacity, Surge Impedance Loading (SIL), and

nature (AC or DC) of power transported, and 'timing' refers to the on-line date for the transmission infrastructure improvements.⁵

First, the Department concludes that the size of the Applicants' proposed Project is reasonable. GRE stated on page 6-2 of the Petition that the proposed Project could serve about 13.25 MW of incremental load growth beyond the 2017 level. Table 5-11 on page 5-22 of the Petition indicated that the Applicants forecast annual peak demand load growth of about 0.225 MW annually. Thus, the proposed Project could serve growth for the foreseeable future by removing a large load from the system, while also providing service to the new MPL Pumping Station. High voltage transmission lines are estimated to have a service life of 40 years. The proposed Project's ability to serve load would be limited to the line's service life, but due to the necessity to remove both a large load from the 34.5 kV Dog Lake-Baxter system and serve the new MPL Pumping Station the Department concludes that this is reasonable.

Second, the Department concludes that the Applicants' proposed type is reasonable. Regarding transformer nominal voltages, the Applicants stated that the goal was to remove a large load from the 34.5 kV Dog Lake-Baxter system while supporting the start-up voltage and energy demands of the new MPL Pumping Station. The Department concludes that it is reasonable for the Applicants to use 115 kV to support the future peak demand in the area. Regarding the nature of power transported, alternating current (AC) is appropriate for the relatively short distances involved with the proposed Project. By contrast, direct current (DC) is appropriate for moving larger quantities of power longer distances with no substations in between the beginning and the end.⁶

Regarding rated capacity, page 6-5 of the Petition indicated that the reasons the conductor (477 thousand circular mil aluminum conductor steel reinforced (ACSR)) to be installed as part of the proposed Project was selected are as follows:

477 ACSR would provide 141.6 MVA of capacity and 477 ACSS [aluminum conductor steel-supported] would provide 226.5 MVA of capacity. ACSS typically costs approximately 10 percent more than ACSR conductor... Two-composite conductor alternatives can offer substantial increases in capacity and the ability to span greater distances between poles by use of innovative modern composites, but at a significantly increased cost and lower efficiency. The modern materials and manufacturing process required for these composite conductors result in a material cost that is 300-500 percent higher compared to standard ACSR and ACSS. Composite conductors also experience higher losses because they are operated at higher temperatures. As a result, this type of conductor is used only in special circumstances, where long

⁵ The discussion of size, type, and timing is based upon the *Direct Testimony and Exhibit of Samir Ouanes*, filed April 11, 2002 in Docket No. E002/CN-01-1958.

⁶ For further data see the Applicants' discussion of the DC alternative in section 6.8 of the Petition.

spans are required. In the case of this Project circumstances do not warrant use of this type of conductor.

The Applicants explained in response to DOC IR 1⁷ that ACSR was chosen over ACSS (aluminum conductor steel-supported) as it would provide capacity for the 115 kV system in the area for the expected life of the transmission facility and is the least cost choice. While ACSS would allow for more capacity, the capacity it would add would likely not be needed.

Third, the Department concludes that the Applicants' proposed timing is reasonable. On page 5-22 of the Petition the Applicants stated that "The system analysis showed that the existing transmission system serving the affected load area can reliably serve loads up to 20.12 MW level." However, in 2014 there were about 30 hours when the peak load of the affected load area exceeded the critical load level. When this happens load is at risk of experiencing inadequacies without the proposed Project area; both low voltage and line overload concerns. Thus, some transmission improvements need to be implemented as soon as possible and future load growth will need to be addressed as well. Further the Applicants have stated that serving the new MPL Pump Station would be impossible without this upgrade, and thus it is necessary for the timely construction of that project as well. The proposed Project puts transmission improvements in place as soon as is reasonably possible and enables further transmission system improvements to address future load growth in a timely manner.

In summary, the Department concludes that this subcriterion has been met.

c. Cost Analysis

a.i. Alternatives Studied

Minnesota Rules 7849.0120 B (2) states that the Commission is to consider "the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives."

The Applicants started by developing indicative cost estimates for three alternatives⁸:

1. Option 1: Dog Lake Substation-Fish Trap Lake Substation, \$18.7 million cost;
2. Option 2: Dog Lake Substation-Ward Substation-Fish Trap Lake Substation, \$21.8 million cost; and
3. Option 3: "47" Transmission Line-Ward Substation-Fish Trap Lake Substation, cost \$ 19.8 million.

a.i.1. Analysis of Alternatives

The Applicants noted that there were potential problems with each of the alternatives.

⁷ See DOC Attachment 5

⁸ See DOC Attachment 6

The Applicant's analysis of Option 1 determined that:

- portions of the project would impact existing and proposed urban development in the City of Motley;
- it would require a second river crossing;
- it would require an extended outage on Minnesota Power's existing 34.5 kV "503 Line" to facilitate construction of the new 115 kV transmission line; and
- it would not facilitate the upgrade of Crow Wing Power's Motley Substation from 34.5 kV to 115 kV.

Thus, while the Applicants found that Option 1 would alleviate the system overloads Option 1 was considered to be inferior to the proposed Project due to impacts to urban development, the requirement for an extended outage, and the lack of an upgrade for Crow Wing Power's Motley Substation. Furthermore Option 1 would be more expensive than the proposed Project. The Department concludes that Option 1 has not been shown to be preferable to the proposed Project as it would have a higher negative impact on the surrounding area, higher cost, and not facilitate the upgrade of Crow Wing Power's Motley Substation.

The Applicant's analysis of Option 2 determined that:

- additional length and need to underbuild nearly 16 miles of 34.5 kV 3-phase transmission line would result in a higher cost than the proposed Project;
- it would require a second river crossing; and
- it would not facilitate the upgrade of Crow Wing Power's Motley Substation from 34.5 kV to 115 kV or construction of the future Shamineau Substation.

Thus, the Applicants found that Option 2 would be inferior to the proposed Project due to increased costs, the requirement for a second river crossing, and the inability of the project to facilitate the upgrade of Crow Wing Power's Motley Substation or construction of the future Shamineau Substation. The Department concludes that Option 2 is inferior to the proposed project.

The Applicant's analysis of Option 3 determined that:

- additional length and need to underbuild nearly 12 miles of 34.5 kV 3-phase transmission line would result in a higher cost than the proposed Project;
- it would require a second river crossing; and
- it would not facilitate the upgrade of Crow Wing Power's Motley Substation from 34.5 kV to 115 kV or construction of the future Shamineau Substation.

Thus, the Applicants found that Option 3 would be inferior to the proposed Project for the same reasons as Option 2. The Department concludes that Option 3 is inferior to the proposed Project.

a.iii. Conclusion

The Applicants' analysis demonstrated that while some alternatives may be cheaper, they are unable to adequately address the issues while enabling future projects.

d. Natural and Socioeconomic Environment Analysis

i. Introduction

Minnesota Rules 7849.0120 B (3) states that the Commission is to consider "the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives." The proposed Project would move power from the transmission grid generally to the local area. Therefore, the impact on air emissions would be roughly proportional to the line losses of each alternative. Thus, the Commission's externality costs and the cost of future CO₂ regulation should be added to the prior analysis of alternatives. However, it appears that the Applicants did not add such costs to its analysis.

ii. Recommendation

The Department recommends that, in reply comments the Applicants should add the Commission's externality costs and the future cost of CO₂ regulation values to the economic analysis of alternatives presented in the Petition.

2. Reliability Analysis

Minnesota Rules 7849.0120 B (4) states that the Commission is to consider "the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives." The proposed Project is proposed to improve reliability. As discussed above, the Applicants' petition considered several alternatives such as generation, demand-side management, different voltages, non-CN alternatives, DC lines, and a no-build alternative. The Department concludes that each of the alternatives would result in equivalent or inferior reliability. In particular, on a MW-for-MW basis, generation is less reliable than transmission.⁹ Therefore, the Department concludes that this subcriterion has been met.

3. DG Analysis

Minnesota Statutes §216B.2426 states that "the commission shall ensure that opportunities for the installation of distributed generation, as that term is defined in section 216B.169, subdivision 1, paragraph (c), are considered in any proceeding under section 216B.2422, 216B.2425, or 216B.243." In turn, Minnesota Statutes §216B.169 subd. 1 (c) states:

⁹ For example, in the Petition page 6-2 the Applicants' stated that new generation, in general, is less reliable than transmission.

For the purposes of this section, the following terms have the meanings given them... (c) “High-efficiency, low-emissions, distributed generation” means a distributed generation facility of no more than ten megawatts of interconnected capacity that is certified by the commissioner under subdivision 3 as a high-efficiency, low-emissions facility.

In turn, Minnesota Statutes §216B.169 subd. 3 states:

The commissioner shall certify a power supply or supplies as eligible to satisfy customer requirements under this section upon finding: (1) the power supply is renewable energy or energy generated by high-efficiency, low-emissions, distributed generation; and (2) the sales arrangements of energy from the supplies are such that the power supply is only sold once to retail consumers.

As discussed elsewhere in these comments the Applicants currently have a load-serving deficit in the local area. Thus, any DG already certified by the Commissioner of the Department of Commerce would be embedded in the load data and cannot meet the claimed need. Any DG certified by the Commissioner of the Department of Commerce in the future would impact the rate of growth by off-setting future customer load. However, due to the Applicants’ current load-serving deficit in the local area, the question of whether and how much DG might be certified by the Commissioner of the Department of Commerce in the future is not relevant to this Petition. Finally, any Commissioner-certified DG could participate in this proceeding and offer an alternative. Therefore, the Department concludes that this statutory criterion has been met.

4. IGCC Preference

Minnesota Statutes §216B.1694, subd. 2 (a) (5) states that an ‘innovative energy project’:

...shall, prior to the approval by the commission of any arrangement to build or expand a fossil-fuel-fired generation facility, or to enter into an agreement to purchase capacity or energy from such a facility for a term exceeding five years, be considered as a supply option for the generation facility, and the commission shall ensure such consideration and take any action with respect to such supply proposal that it deems to be in the best interest of ratepayers.

This statute does not apply since the proposed facility in question is a transmission line rather than a generating facility.

D. SOCIOECONOMIC ANALYSIS

Overall, the socioeconomic analysis is governed by Minnesota Rules 7849.0120 C, which states that a CN must be granted upon determining that:

...by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health.

The rule then proceeds to list four distinct criteria. The Department relies on the Environmental Report (ER) for its analysis of impacts on the socioeconomic and natural environments in a CN proceeding. As of the date of the submission of these comments, the ER is not yet complete. Therefore, the Department recommends that the Commission consider the ER that will be filed by the Department of Commerce, Energy Environmental Review and Analysis unit in the decision in this matter.

E. POLICY ANALYSIS

There are several remaining criteria in statutes and rules that are applicable to CNs but do not closely fit into the need, planning, alternatives, and socioeconomic categories discussed above. Therefore, these criteria are grouped into a final category of policy considerations. In this policy section the Department addresses criteria related to:

- policies of other agencies;
- promotional practices;
- Renewable Energy Standard (RES) and Solar Energy Standard (SES) compliance;
- environmental cost planning; and
- transmission planning compliance.

1. Policies of Other Agencies

Minnesota Rules 7849.0120 D states that a CN must be granted on determining that:

...the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

The Department briefly reviewed the information on potentially required permits provided in Table 2-1 of the Petition. Regarding the permits required by other agencies, the Department presumes that the various agencies will review and confirm that the Applicants are in compliance prior to granting their permits. The Department relies upon the agencies to

enforce their requirements. Of course, should any permits be denied, the proposed Project will not be constructed, regardless of the Commission's decision regarding the Petition.

Based upon the above discussion, the Department concludes that the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments. Thus, the record does not demonstrate the Applicants will fail to comply.

2. Promotional Practices

Minnesota Rules 7849.0120 A (3) states that the Commission is to consider "the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974." Regarding the effects of promotional practices, the Petition at page 5-30 states that the Applicants:

... have not engaged in any promotional practices to encourage the use of more power. Just the opposite, as described in Section 5.8, Applicants have spent significant sums of money promoting conservation and demand side management.

The Department is not aware of any promotional activities that may have triggered the need for the proposed Project. Therefore, the Department concludes that this subcriterion has been met.

3. Renewable Energy Standard Compliance

a. Compliance with Minnesota Statutes §216B.1691

Minnesota Statutes §216B.243, subd. 3 (10) states that the Commission shall evaluate "whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691." In turn, Minnesota Statutes §216B.1691, subd. 2 states:

Each electric utility shall make a good faith effort to generate or procure sufficient electricity generated by an eligible energy technology to provide its retail consumers, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, so that commencing in 2005, at least one percent of the electric utility's total retail electric sales to retail customers in Minnesota is generated by eligible energy technologies and seven percent of the electric utility's total retail electric sales to retail customers in Minnesota by 2010 is generated by eligible energy technologies.

Minnesota Statutes §216B.1691, subd. 2a (a) states:

Except as provided in paragraph (b), each electric utility shall generate or procure sufficient electricity generated by an eligible energy technology to provide its retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, so that at least the following standard percentages of the electric utility's total retail electric sales to retail customers in Minnesota are generated by eligible energy technologies by the end of the year indicated:

- (1) 2012 12 percent
- (2) 2016 17 percent
- (3) 2020 20 percent
- (4) 2025 25 percent.

On April 17, 2015 the Commission issued its *Notice of Renewable Energy Certificate (REC) Retirement Process for Minnesota RES and Green Pricing Programs* (Notice). The Notice required entities subject to Minnesota Statute §216B.1691 (RES Statute) to file by June 1, 2015 a report detailing their compliance with the RES Statute for the year 2014. These filings were made in Docket No. E999/PR-15-12. The Department's June 5, 2015 letter indicated that the Applicants complied with the RES in 2014.

Minnesota Statutes §216B.1691, subd. 2f (a) states:

In addition to the requirements of subdivisions 2a and 2b, each public utility shall generate or procure sufficient electricity generated by solar energy to serve its retail electricity customers in Minnesota so that by the end of 2020, at least 1.5 percent of the utility's total retail electric sales to retail customers in Minnesota is generated by solar energy. At least ten percent of the 1.5 percent goal must be met by solar energy generated by or procured from solar photovoltaic devices with a nameplate capacity of 20 kilowatts or less.

Minnesota Power is subject to Minnesota Statutes §216B.1691, subd. 2f (a), while GRE is not. According to Minnesota Power's June 1, 2015 SES report, Minnesota Power is in the process of complying with the SES through various means. The Department's July 23, 2015 comments¹⁰ on the utilities' reports recommended that the Commission find the utilities' SES Reports in compliance with the Commission's related Orders

Therefore, the Department concludes that the Applicants have met this statutory criterion.

¹⁰ See Docket No. E999/M-15-462.

b. C-BED Projects

Minnesota Statutes §216B.1612 (c) states that “the Commission shall consider the efforts and activities of a utility to purchase energy from C-BED projects when evaluating its good faith effort towards meeting the renewable energy objective under section 216B.1691.” To review the Applicants’ efforts towards procuring energy from C-BED projects, the Department referred to GRE’s 2014 resource plan petition (Docket No. E002/RP-14-813) and Minnesota Power’s 2013 resource plan petition (Docket No. E015/RP-13-53). These documents indicate that the Applicants have C-BED projects already acquired or contracted to be on their systems. Therefore, the Department concludes that the Applicants have met this statutory criterion.

4. Environmental Cost Planning

Minnesota Statutes §216B.243, subd. 3 (12) states that the Commission shall evaluate “if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk.” In this case, the Applicants are proposing a transmission line, not a generating plant. Moreover, this line is not proposed to interconnect a new generating plant. Therefore, this statute does not apply.

5. Transmission Planning Compliance

Minnesota Statutes §216B.243, subd. 3 (10) states that the Commission shall evaluate “whether the applicant or applicants are in compliance with applicable provisions of ... 216B.2425, subdivision 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7.” In turn, Minnesota Statutes §216B.2425, subd. 7 states:

Each entity subject to this section shall determine necessary transmission upgrades to support development of renewable energy resources required to meet objectives under section 216B.1691 and shall include those upgrades in its report under subdivision 2.

The most recent biennial transmission plan (Docket No. E999/M-13-402) at page 116 summarizes the renewable energy standard (RES) analysis as follows:

As can be seen, the Minnesota RES utilities have sufficient capacity acquired to meet the Minnesota RES needs through 2025. When considering the RES needs, including other jurisdictions outside of Minnesota, the Minnesota RES utilities have enough capacity to meet RES needs beyond 2020.

Thus, there is sufficient time to allow events to develop before CN petitions are necessary for RES-related transmission projects. Therefore, the Department concludes that this statutory criterion has been met.

6. *Carbon Dioxide Emissions*

Minnesota Statutes, §216H.03 states that:

. . . on and after August 1, 2009, no person shall: (1) construct within the state a new large energy facility that would contribute to statewide power sector carbon dioxide emissions; . . .

The proposed Project is a transmission line, is expected to reduce system losses, and thus the quantity of generation necessary to serve load and resulting CO₂ emissions. Therefore, Department concludes that the proposed Project will not contribute to, and in fact will reduce, statewide power sector CO₂ emissions.

IV. DEPARTMENT RECOMMENDATION

The Department requests that, in reply comments the Applicants add the Commission's externality costs and future costs of CO₂ regulation values to the economic analysis of alternatives presented in the Petition.

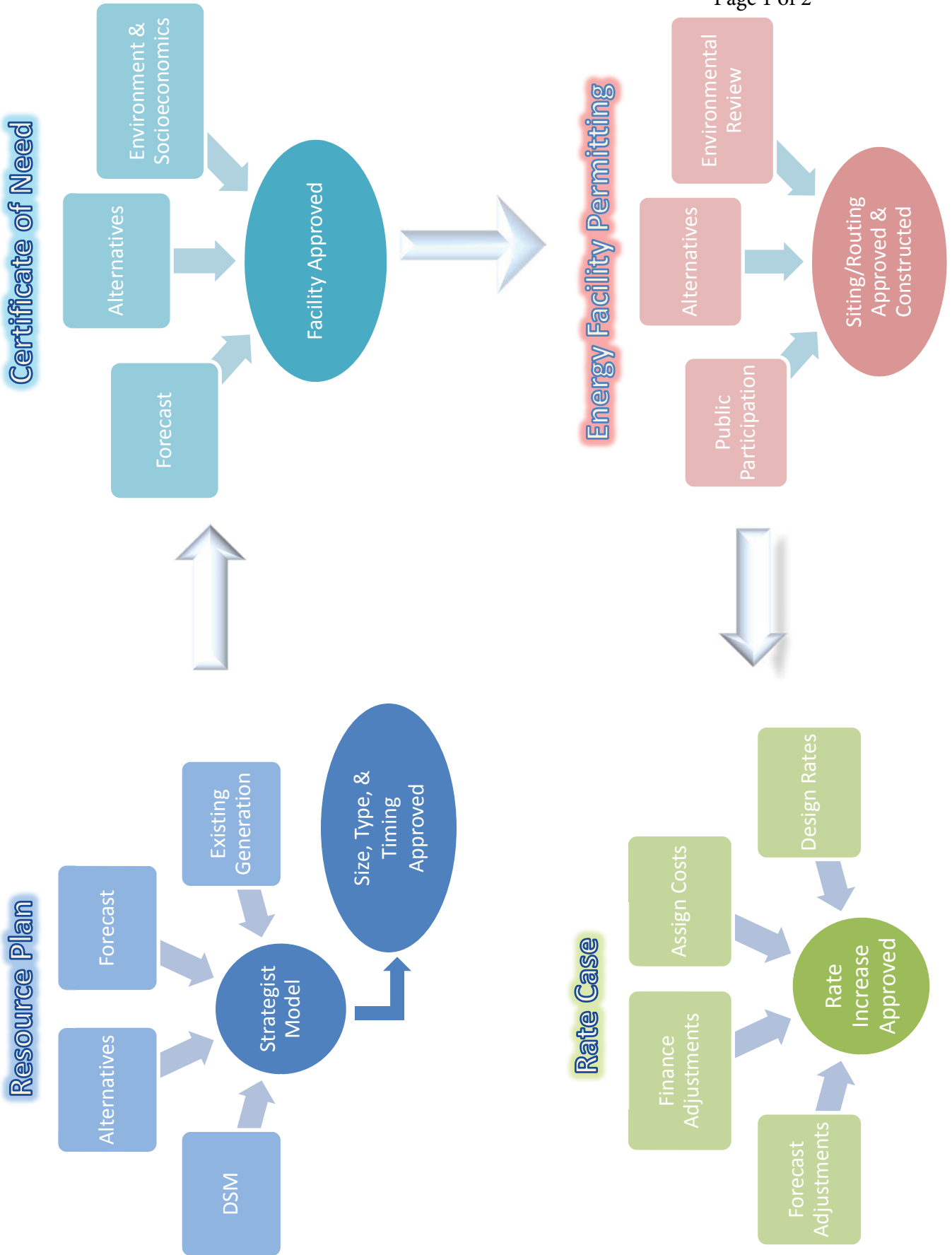
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Rules and Statutes Addressed in the Comments		
Statute or Rule Citation	Department Comment	Location
<p>7849.0120 CRITERIA. A certificate of need must be granted to the applicant on determining that:</p>		
<p>A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:</p>		
<p>(1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;</p>	actual load for the area exceeds the level at which reliable service can be provided	III.A.1.a
<p>(2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;</p>	conservation will not be able to address issues related to meeting existing demand at the levels indicated by the Applicants	III.B.2
<p>(3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;</p>	The Department is not aware of any promotional activities that may have triggered the need for the proposed Project	III.E.2
<p>(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and</p>	the lower voltage 34.5 kV rebuild could not meet the claimed due to engineering considerations, the DG alternative has far higher costs	III.C.1.a
<p>(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;</p>	addressed in environmental report	III.D
<p>B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:</p>		
<p>(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;</p>	this subcriterion has been met	III.C.1.b
<p>(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;</p>	that the internal cost of the proposed Project and the internal cost of energy to be supplied by the proposed Project are less than the alternatives	III.C.1.c
<p>(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and</p>	in reply comments the Applicants should add the Commission's externality costs and internal cost of CO ₂ regulation values to the economic analysis of alternatives	III.C.1.d
<p>(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;</p>	the proposed Project is proposed to improve reliability ... each of the alternatives would result in equivalent or inferior reliability	III.C.2

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:		
(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;	the proposed project is not directly related to overall state energy needs, it is necessary to restore reliable service in the local area	III.A.1.b
(2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;	the Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments	III.D
(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and	the Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments	III.D
(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and	the Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments	III.D
D. the record does not demonstrate that the design construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.	the record does not demonstrate that the Applicants will fail to comply	III.E.1
Minnesota Statutes §216B.243, subd. 3 (9)	the proposed line would have little further impact, positive or negative,	III.A.2
Minnesota Statutes §§216B.243 subd. 3a & 216B.2422, subd. 4	these renewable preference statutes do not apply	III.B.1
Minnesota Statutes §216B.2426	the question of whether and how much DG might be certified by the Commissioner of the Department of Commerce in the future is not relevant to this Petition	III.C.3
Minnesota Statutes §216B.1694, subd. 2 (a) (5)	this statute does not apply	III.C.4
Minnesota Statutes §216B.243 subd. 3 (10) Compliance with §216B.1691	the Department's July 23, 2015 letter concludes that the Applicants complied with the RES in 2015	III.E.3.a
Minnesota Statutes §216B.1612 (c)	GRE has met this statutory criterion	III.E.3.b
Minnesota Statutes §216B.243, subd. 3 (12)	this statute does not apply	III.E.4
Minnesota Statutes §216B.243, subd. 3 (10) Compliance with §216B.2425, subd. 7	there is sufficient time to allow events to develop before CN petitions are necessary for RES-related transmission projects	III.E.5
Minnesota Statutes §§216H.03	the proposed Project will not contribute to, and in fact will reduce, statewide power sector CO ₂ emissions	III.E.6

Target Appendix	Member PrjID	Facility ID	Record Date	Facility Type	Expected ISD	From Sub	To Sub	Ckt	Max kV	Min kV	Facility Rating	Facility Description	State	Miles Upg.	Miles New	Plan Status	Estimated Cost
A in MTEP13	NERC Alert Low	8148	3/31/2014	LNup	12/31/2014	Dog Lake	24 Line Tap	1	115		98	NERC facility ratings alert mitigation	MN	0.65	0	Planned	\$61,638.24

PrjID	Project Name	Project Description	Min Expected ISD	Max Expected ISD	Sum of Estimated Cost	System_Need	Alternatives	State	Min Plan Status	Preliminary Allocation FF	Preliminary Share Status	Other_Type	Max kV	Min kV	Miles New	Miles Upgrade	Facility Count
7998	Dog Lake Substation Expansion	Add breakers and extend a short 115 kV line to the existing Dog Lake Substation to sectionalize the Verndale - Dog Lake - Scearcyville three terminal line	12/31/2017	12/31/2017	\$3,090,000.00	The project is being driven by an additional load-serving tap and line extension on the segment between Scearcyville and the Dog Lake Tap. A new load-serving tap is being developed by GRE to serve the Fish Trap Pumping Station, which will add approximately 14 miles of additional 115 kV line exposure for the three load-serving taps currently served from the Verndale - Dog Lake - Scearcyville transmission line and also increase the total load served by the line to over 30 MW. The Dog Lake Substation Expansion will sectionalize the line to reduce outage exposure.		MN	Proposed	Other		Reliability	115				4



RESOURCE PLAN (Minn. Stat. 216B.2422, Minn. Rules 7843)

- DOES identify generic size, type, and timing of plants needed.
- DOES NOT identify specific power plants that would supply the deficit.
- Filed by every electricity provider (or its wholesale provider) with 100 MW of capacity and supplying electric service to 10,000 Minnesota customers.
- Consists of a 15-year forecast of projected power needs, existing energy supplies, and generic new additions to provide power to those projected customers.
- Results in a Commission determination of any projected deficits in supply on a generic basis i.e., identifies the size (how many MW), type (whether baseload, intermediate, peaking, wind, etc), and timing (which year) of resource needs.
- May substitute for a certificate of need process in circumstances prescribed by Minnesota Statute.

CERTIFICATE OF NEED (Minn. Stat. 216B.243, Minn. Rules 7849, 7851, 7853, and 7855)

- DOES identify specific large energy facilities.
- Filed by every electric provider (or its wholesale provider) for generation facilities above 50 MW and transmission facilities above 100 kV and 10 miles long or above 200 kV and 1,500 feet long.
- Consists of forecast of resource needs (the deficit to be addressed) and alternative projects to provide power to customers (supply).
- Starts with a resource plan-determined size, type, and timing of a need, confirms a specific need exists, and evaluates the economic, environmental, and social consequences of the alternatives to fulfill the need.
- Results in a Commission determination of the specific facility needed to fulfill demand (if any).

ROUTING AND SITING (Minn. Stat. 216E, Minn. Rules 7850, 7852, and 7854)

- Determines the location for new large energy facilities.
- Filed by every electric provider (or its wholesale provider) for generation facilities above 50 MW and transmission facilities above 100 kV and 1,500 feet long.
- May take place without a certificate of need for transmission facilities above 100 kV and between 1,500 feet and 10 miles in length.
- For other facilities, may take place simultaneously (at the same time as the certificate of need) or sequentially (after the certificate of need).
- Consists of a specific facility and one or more alternative locations.
- Starts with a certificate of need-determined facility and evaluates the economic, environmental, and social consequences of the alternative locations for the facility.
- Results in Commission determination of the specific location for a specific facility.

RATE CASE (Minn. Stat. 216B.16, Minn. Rules 7825)

- Determines the charges applied to customer bills for all utility services.
- Filed by every investor-owned retail electricity provider.
- Generally, new large energy facilities may only be included in a rate case only after they are constructed.
- Consists of one year's data on sales, utility costs, and customer rates on a forecasted or historic basis.
- Starts with the costs incurred and evaluates the prudence of the utility's costs.
- Results in specific rates being charged to specific customer classes.

Please indicate whether or not Hydro, Geothermal, and bioelectric generation would be a viable alternative and state reasons why these options were not selected.

Reply:

Generation is not a viable alternative to transmission for the Project. The proposed pump station requires reliable energy service 365 days/yr, 24 hrs/day. None of the renewable resources could be co-located with the pump station and provide the reliability that the transmission system and associated generation plants can provide.

Non-co-located renewable generation will provide some of the energy that the pump station consumes. If a dedicated renewable facility were to be constructed extant from the pump station, it would still require the construction of transmission facilities to deliver the energy.

Response by: Mark Strohfus, Great River Energy List sources of information: _____
Title: Environmental Project Lead _____
Department: Environmental Services _____
Telephone: 763-445-5210 _____

State of Minnesota
DEPARTMENT OF COMMERCE
DIVISION OF ENERGY RESOURCES

Nonpublic
Public

Utility Information Request

Docket Number: ET2,E015/CN-14-853 Date of Request: 7/17/2015

Requested From: Great River Energy (GRE) Response Due: 7/27/2015
and Minnesota Power (MP)

Analyst Requesting Information: Michael Zajicek

Type of Inquiry: []..... Financial []..... Rate of Return []..... Rate Design
[]..... Engineering []..... Forecasting []..... Conservation
[]..... Cost of Service []..... CIP []..... Other:

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
1	<p>The Applicants indicated that GRE was proposing to use 477 ACSR conductor for the Motley Area 115 kV Project.</p> <p>Please explain why ACSR was selected for the project as opposed to ACSS and explain the long term impact on system reliability of using ACSR vs ACSS.</p> <p>Reply:</p> <p>477 ACSR is the minimum conductor size Great River Energy uses for 115 kV lines. The loads along the proposed line are projected to be about 95 Amps at 115 kV. 477 ACSR can handle 711 Amps during the summer months and 477 ACSS can handle 1137 Amps during the summer months.</p> <p>At projected loads, the proposed ACSR conductor would use about 13% of the conductor's capacity at peak and have 616 Amps for spare. The projected load does not require the higher ACSS capacity. ACSR conductor does not sag as much as ACSS because it has a maximum operating temperature of 212 °F versus 392 °F. Less sag means the transmission line can be built with shorter poles, and the cost of poles is proportional to length. ACSS conductor also requires more expensive hardware because it needs to be rated for the higher maximum operating temperature. ACSR is meets the Project needs at the least cost.</p>

Response by: Paul Woodruff, Great River Energy List sources of information: _____
Title: Sr Engineer _____
Department: Transmission Line Services _____
Telephone: 763-445-5911 _____

State of Minnesota
DEPARTMENT OF COMMERCE
DIVISION OF ENERGY RESOURCES

Nonpublic
Public

Utility Information Request

Docket Number: ET2,E015/CN-14-853 Date of Request: 7/17/2015

Requested From: Great River Energy (GRE) Response Due: 7/27/2015
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Analyst Requesting Information: Michael Zajicek

Type of Inquiry: []..... Financial []..... Rate of Return []..... Rate Design
 []..... Engineering []..... Forecasting []..... Conservation
 []..... Cost of Service []..... CIP []..... Other:

If you feel your responses are trade secret or privileged, please indicate this on your response.

Request No.	
4	<p>Reference: Minnesota Rules 7849.0120 B (2) states that the Commission is to consider "the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives."</p> <p>The Applicants indicated that the following three alternative routes were considered:</p> <ol style="list-style-type: none">1) Dog Lake Substation-Fish Trap Lake Substation;2) Dog Lake Substation-Ward Substation-Fish Trap Lake Substation; and3) "47" Transmission Line-Ward Substation-Fish Trap Lake Substation.

Response by: Chuck Lukkarila, Great River Energy List sources of information: _____
Title: Sr Project Manager _____
Department: Transmission Engineering _____
Telephone: 763-445-5968 _____

Please provide the estimated costs for:

The Dog Lake Substation-Fish Trap Lake Substation Alternative; \$18.7 million
The Dog Lake Substation-Ward Substation-Fish Trap Lake Substation Alternative; \$21.8 million and
The “47” Transmission Line-Ward Substation-Fish Trap Lake Substation Alternative \$19.8 million

Response by: Chuck Lukkarila, Great River Energy
Title: Sr Project Manager
Department: Transmission Engineering
Telephone: 763-445-5968

List sources of information:

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce
Comments**

Docket No. ET2,E015/CN-14-853

Dated this 7th day of August 2015

/s/Sharon Ferguson

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-853_Official
Katie	Clark Sieben	katie.clark.sieben@state.mn.us	DEED	332 Minnesota St, #E200 1st National Bank Bldg Saint Paul, MN 55101	Electronic Service	No	OFF_SL_14-853_Official
Randall	Doneen	randall.doneen@state.mn.us	Department of Natural Resources	500 Lafayette Rd, PO Box 25 Saint Paul, MN 55155	Electronic Service	No	OFF_SL_14-853_Official
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_14-853_Official
Travis	Germundson	travis.germundson@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_14-853_Official
Rick	Heuring	RHeuring@GREnergy.com	Great River Energy	12300 Elm Creek Blvd Maple Grove, MN 55369	Electronic Service	No	OFF_SL_14-853_Official
Ray	Kirsch	Raymond.Kirsch@state.mn.us	Department of Commerce	85 7th Place E Ste 500 St. Paul, MN 55101	Electronic Service	No	OFF_SL_14-853_Official
Stacy	Kotch	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul, MN 55155	Electronic Service	No	OFF_SL_14-853_Official
Karen	Kromar	karen.kromar@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_14-853_Official
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_14-853_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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