



2200 IDS Center  
80 South 8th Street  
Minneapolis, MN 55402  
OFC 612-977-8400  
FAX 612-977-8650  
URL Briggs.com

March 22, 2019

**Valerie T. Herring**  
(612) 977-8501  
vherring@briggs.com

**VIA ELECTRONIC FILING AND U.S. MAIL**

The Honorable Barbara Case  
Administrative Law Judge  
State of Minnesota Office of Administrative Hearings  
600 North Robert Street  
PO Box 64620  
St. Paul, MN 55164-0620

RE: IN THE MATTER OF THE APPLICATIONS OF XCEL ENERGY AND ITC MIDWEST FOR  
A CERTIFICATE OF NEED AND A ROUTE PERMIT FOR THE HUNTLEY-WILMARTH  
345 kV TRANSMISSION LINE PROJECT  
MPUC DOCKET NOS. E002,ET6675/CN-17-184 AND E002,ET6675/TL-17-185  
OAH DOCKET NO. 82-2500-35157

Dear Judge Case:

Enclosed for filing on behalf of Northern States Power Company, doing business as Xcel Energy, and ITC Midwest LLC (collectively, Applicants) please find the following:

- 1) Post-Hearing Brief in Support of their Certificate of Need Application, along with Proposed Findings of Fact, Conclusions of Law and Recommendation; and
- 2) Post-Hearing Brief in Support of their Route Permit Application, along with Proposed Findings of Fact, Conclusions of Law and Recommendation.

Please feel free to contact me with any questions regarding this filing.

Sincerely,

*/s/ Valerie T. Herring*

Valerie T. Herring

Enclosures

cc: Official Service Lists

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATIONS  
OF XCEL ENERGY AND ITC MIDWEST  
FOR A CERTIFICATE OF NEED FOR THE  
HUNTLEY-WILMARTH 345 kV  
TRANSMISSION LINE PROJECT

DOCKET No. E002, ET6675/CN-17-184  
OAH DOCKET No. 82-2500-35157

**POST-HEARING BRIEF OF  
NORTHERN STATES POWER COMPANY AND ITC MIDWEST LLC  
IN SUPPORT OF THEIR CERTIFICATE OF NEED APPLICATION**

## TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	1
II. PROCEDURAL HISTORY.....	4
III. THE RECORD .....	4
A. The Project.....	4
1. Facilities, Ownership, and Timing.....	4
2. Transmission Line Routes .....	6
3. Structure Designs.....	8
4. Project Costs .....	10
B. Need.....	13
1. Overview of Need .....	13
2. Minnesota’s Changing Generation Mix .....	15
3. MISO’s Analysis of Need and Alternatives.....	18
a. MTEP Reports .....	19
b. MTEP16.....	20
4. Analysis of Need under MTEP 17 and MTEP18 Models .....	26
a. The Applicants’ Analysis under MTEP17 Models and Futures .....	27
b. The Applicants’ Analysis under MTEP18 Models and Futures .....	29
c. Benefit-to-Cost Ratios for the Applicants’ Recommended Route Configurations .....	32
d. Impact of Tax Cuts and Jobs Act .....	34
e. The Applicants’ Curtailment Analysis under MTEP17 and MTEP18 .....	35
f. Environmental Externalities Analysis .....	36
5. Other Benefits of the Project.....	39
6. Alternatives Studied.....	40

## TABLE OF CONTENTS

(continued)

	Page
IV. CRITERIA FOR A CERTIFICATE OF NEED .....	45
A. Legal Requirements.....	45
1. Overview and Burden of Proof.....	45
2. Statutory Requirements.....	46
3. Minn. R. 7849.0120 Criteria .....	48
B. Specific Application of Rule Criteria and Statutes .....	51
1. Minn. R. 7849.0120(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:.....	51
a. Accuracy of the Demand Forecast. Minn. R. 7849.0120(A)(1).....	52
b. Effects of Conservation Programs. Minn. R. 7849.0120(A)(2).....	54
c. Effects of Promotional Practices. Minn. R. 7849.0120(A)(3).....	56
d. Facilities Not Requiring Certificates of Need to Meet the Future Demand. Minn. R. 7849.0120(A)(4).....	58
e. Making Efficient Use of Resources. Minn. R. 7849.0120(A)(5).....	59
2. Minn. R. 7849.0120(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: .....	59
a. Appropriateness of size, type, and timing. Minn. R. 7849.0120(B)(1).....	63
b. Cost of the proposed facility and the cost of energy to be supplied by the proposed facility. Minn. R. 7849.0120(B)(2) .....	64

## TABLE OF CONTENTS

(continued)

	Page
c.    Effects of the proposed facility upon the natural and socioeconomic environments. Minn. R. 7849.0120(B)(3) .....	66
d.    The expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives. Minn. R. 7849.0120(B)(4) .....	68
3.    Minn. R. 7849.0120(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: .....	69
a.    Relationship to Overall State Energy Needs. Minn. R. 7849.0120(C)(1) .....	69
b.    Effects on the Natural and Socioeconomic Environments. Minn. R. 7849.0120(C)(2) .....	70
c.    Effects in Inducing Future Development. Minn. R. 7849.0120(C)(3) .....	71
d.    Socially Beneficial Uses of the Output. Minn. R. 7849.0120(C)(4) .....	71
4.    Minn. R. 7849.0120(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 .....	72
C.    Minn. Stat. §§ 216B.2426 and 216B.2422, subd. 4 (Renewable Energy Facilities and Distributed Generation Alternatives) .....	74
D.    Summary of Rule and Statutory Analysis .....	79
V.    RECOMMENDED COMPLIANCE: PROJECT COST RECOVERY .....	80
VI.   CONCLUSION .....	83

## I. INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, and ITC Midwest LLC (ITC Midwest) (collectively, the Applicants) respectfully submit this Post-Hearing Brief (Brief) and accompanying Proposed Findings of Fact, Conclusions of Law, and Recommendation (Proposed Findings) to the Administrative Law Judge (ALJ) in support of a Certificate of Need for the Huntley – Wilmarth 345 kilovolt (kV) Transmission Line Project (Huntley – Wilmarth Project or Project). All parties to this proceeding agree that this Project is needed and meets the applicable statutory and rule criteria. The Applicants provide this Brief and the Proposed Findings to summarize the extensive record and the applicable law that support granting a Certificate of Need for this Project.

Over the past several decades, the mix of generation resources in Minnesota and surrounding states has dramatically shifted from relying primarily on coal and nuclear generating facilities to a more diverse generation mix that includes increasing amounts of renewable energy, in particular, wind generation.<sup>1</sup> This increased development in wind generation has put increasing pressure on portions of the transmission system to deliver this low-cost generation to customers.<sup>2</sup> When the transmission system lacks sufficient capacity to deliver all of this low-cost generation, the result is congestion.<sup>3</sup>

---

<sup>1</sup> Ex. XC-6 at 47 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>2</sup> Ex. XC-6 at 59 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>3</sup> Ex. XC-6 at 59 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

When there is congestion on the transmission system, the lowest-priced energy cannot flow freely across the electrical system.<sup>4</sup> This results in the need to utilize higher-priced generation to meet customer needs which, in turn, increases the price of electricity for both wholesale and retail customers.<sup>5</sup>

The Project is necessary to address these congestion and price concerns related to the southern Minnesota transmission system. The transmission system along the Minnesota/Iowa border is one of the most congested areas in the region's electric transmission system.<sup>6</sup> In 2016, the Huntley – Wilmarth Project was put forth as one of over 20 potential solutions to resolve this congestion as part of the Midcontinent Independent System Operator, Inc.'s (MISO) annual Transmission Expansion Plan (MTEP16) report.<sup>7</sup> After examining all 20 alternatives, MISO concluded that the Huntley – Wilmarth Project provided the highest level of economic benefits and the highest benefit-to-cost ratio, while also resolving all of the identified congestion throughout the study period.<sup>8</sup> MISO, therefore, approved the Project as a Market Efficiency Project (MEP).<sup>9</sup> As an MEP, the need for this Project is primarily justified

---

<sup>4</sup> Ex. XC-6 at 66-67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>5</sup> Ex. XC-6 at 66-67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>6</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>7</sup> Ex. XC-6 at 87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>8</sup> Ex. XC-6 at 78- 87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)). The “study period” refers to 2030 for MTEP16; 2031 for MTEP17; and 2032 for MTEP18.

<sup>9</sup> Ex. XC-6 at 87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

by the economic benefits that it will provide through reduced transmission system congestion, which will result in lower wholesale energy costs.<sup>10</sup>

The Huntley – Wilmarth Project is the first MEP put forth for consideration by the Minnesota Public Utilities Commission (Commission). The Applicants have confirmed the net economic benefits that MISO’s MTEP16 analysis demonstrated by analyzing this Project under MISO’s more recent MTEP17 and MTEP18 models.<sup>11</sup> In each model year, the Project has continued to show net economic benefits in excess of its estimated cost.<sup>12</sup> Both MISO and the Applicants have confirmed these net economic benefits under multiple different future scenarios (Futures).<sup>13</sup> These net economic benefits range from \$210 million to \$276 million (2016\$), while the cost of the Project route alternatives range from \$104.8 million to \$160.7 million (2016\$).<sup>14</sup>

The Huntley – Wilmarth Project will also reduce wind generation curtailments, thereby enhancing energy delivery, reducing system generation costs, and providing

---

<sup>10</sup> Ex. XC-6 at 7 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>11</sup> Ex. XC-24 at 11-12 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>12</sup> Ex. XC-24 at 12 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>13</sup> Ex. XC-24 at 17, 20, and 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)). “Future scenarios” or “Futures” refers to a variety of future scenarios developed by MISO, in coordination with stakeholders under which to study potential transmission projects. Each future scenario contains different assumptions as to future demand and energy levels, fuel prices, generation retirements and additions, and potential environmental regulations. Ex. XC-6 at 63 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>14</sup> Ex. XC-24 at 17, 20, and 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



environmental benefits in the form of lower emissions.<sup>15</sup> Additionally, the Project will improve the robustness of the regional transmission system such that it is able to better withstand system contingencies and more efficiently deliver energy from a diverse mix of generation resources.<sup>16</sup>

In this proceeding, there is no dispute that the Applicants have met all statutory and rule-based Certificate of Need requirements. Based on the record and the applicable law, the Applicants have proven multiple needs for the Project, have satisfied all requirements for a Certificate of Need, and the record does not show a more reasonable and prudent alternative exists that will meet the identified needs. The Applicants, therefore, request that the ALJ recommend that the Commission grant a Certificate of Need for the Project.

## **II. PROCEDURAL HISTORY**

Please see the Applicants' Proposed Findings for a recitation of the procedural history in this docket.

## **III. THE RECORD**

### **A. The Project**

#### ***1. Facilities, Ownership, and Timing***

The Applicants are requesting a Certificate of Need to construct the Huntley – Wilmarth 345 kV transmission line connecting Xcel Energy's existing Wilmarth

---

<sup>15</sup> Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>16</sup> Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

Substation north of Mankato, Minnesota, with ITC Midwest's Huntley Substation south of Winnebago, Minnesota.<sup>17</sup> The transmission line will be approximately 50 miles in length and the proposed route alternatives traverse Blue Earth, Faribault, Martin, and Nicollet counties in Minnesota.<sup>18</sup> The Project also includes the necessary modifications to the existing Huntley and Wilmarth substations to accommodate the new 345 kV transmission line.<sup>19</sup>

The facilities for the Huntley – Wilmarth Project include the following:

- An approximately 50-mile long, new 345 kV transmission line, connecting the Wilmarth Substation to the Huntley Substation, including steel pole structures and double-bundled, twisted pair conductors.<sup>20</sup>
- New substation equipment and site modifications necessary to accommodate the 345 kV transmission line at the Huntley Substation, including a 345 kV circuit breaker, potential transformers for relays, switches, dead-end structures, relay and equipment panels, a bus, and concrete foundations. The Project will not require expansion of the fenced area of the Huntley Substation.<sup>21</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Wilmarth Substation, including a dead-end structure, a 345 kV circuit breaker, a direct current (DC) battery system, bus work, transformers, miscellaneous other equipment, and concrete foundations.

---

<sup>17</sup> Ex. XC-6 at 2 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>18</sup> Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>19</sup> Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>20</sup> Ex. XC-6 at 21-22 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4-6, 9 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>21</sup> Ex. XC-6 at 23 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-23 at 6-7 (Petersen Direct) (eDocket No. [20189-146252-03](#)).

The Project will not require expansion of the fenced area of the Wilmarth Substation.<sup>22</sup>

The Applicants will jointly own the Huntley – Wilmarth transmission line as tenants in common.<sup>23</sup> Each Applicant will be responsible for the necessary modifications and maintenance of its respective substation.<sup>24</sup>

Construction of the Project is anticipated to commence in 2020, and the Project is expected to be in-service by December 2021, just before MISO's designated in-service date of January 1, 2022.<sup>25</sup>

## ***2. Transmission Line Routes***

In their separate Route Permit Application, the Applicants proposed four route alternatives for the 345 kV transmission line between the Huntley and Wilmarth substations identified from west to east as the Purple, Green, Red, and Blue routes.<sup>26</sup> In addition, the Applicants included six route segment alternatives, labeled as Segment Alternatives A through F.<sup>27</sup>

---

<sup>22</sup> Ex. XC-6 at 23 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 13-14 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>23</sup> Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>24</sup> Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>25</sup> Ex. XC-6 at 8 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>26</sup> Ex. XC-7 at ES-3, 41-43 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>27</sup> Ex. XC-7 at ES-3, 44-47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

During the proceeding, additional routes, segment alternatives, and alignment alternatives were added through the Environmental Impact Statement (EIS) scoping process by landowners, other stakeholders, or by the Applicants in response to comments from agencies, local municipalities, and landowners. In total, five route alternatives, 21 segment alternatives, and three alignment alternatives have been proposed for the Project. After reviewing all of the comments from landowners, state and federal agencies, and local municipalities, the Applicants refined each of the five routes to incorporate certain segment alternatives to minimize environmental or human impacts. The Applicants' five recommended route configurations are: (1) Purple-BB-L Route<sup>28</sup>; (2) Green Route<sup>29</sup>; (3) Red-Q Route<sup>30</sup>; (4) Blue-CC-Q Route<sup>31</sup>; and (5) Purple-E-AA1-Red-Q Route.<sup>32</sup> The names for these preferred configurations are the original color name of the route as included in the Route Permit Application plus the segment alternatives that are incorporated. For instance, the Purple-BB-L Route is the Purple Route with Segment Alternatives BB and L included. **Figure 1**, below, shows the Applicants' recommended route configurations for the Project.

---

<sup>28</sup> The Purple-BB-L Route is the Purple Route incorporating Segment Alternatives BB and L.

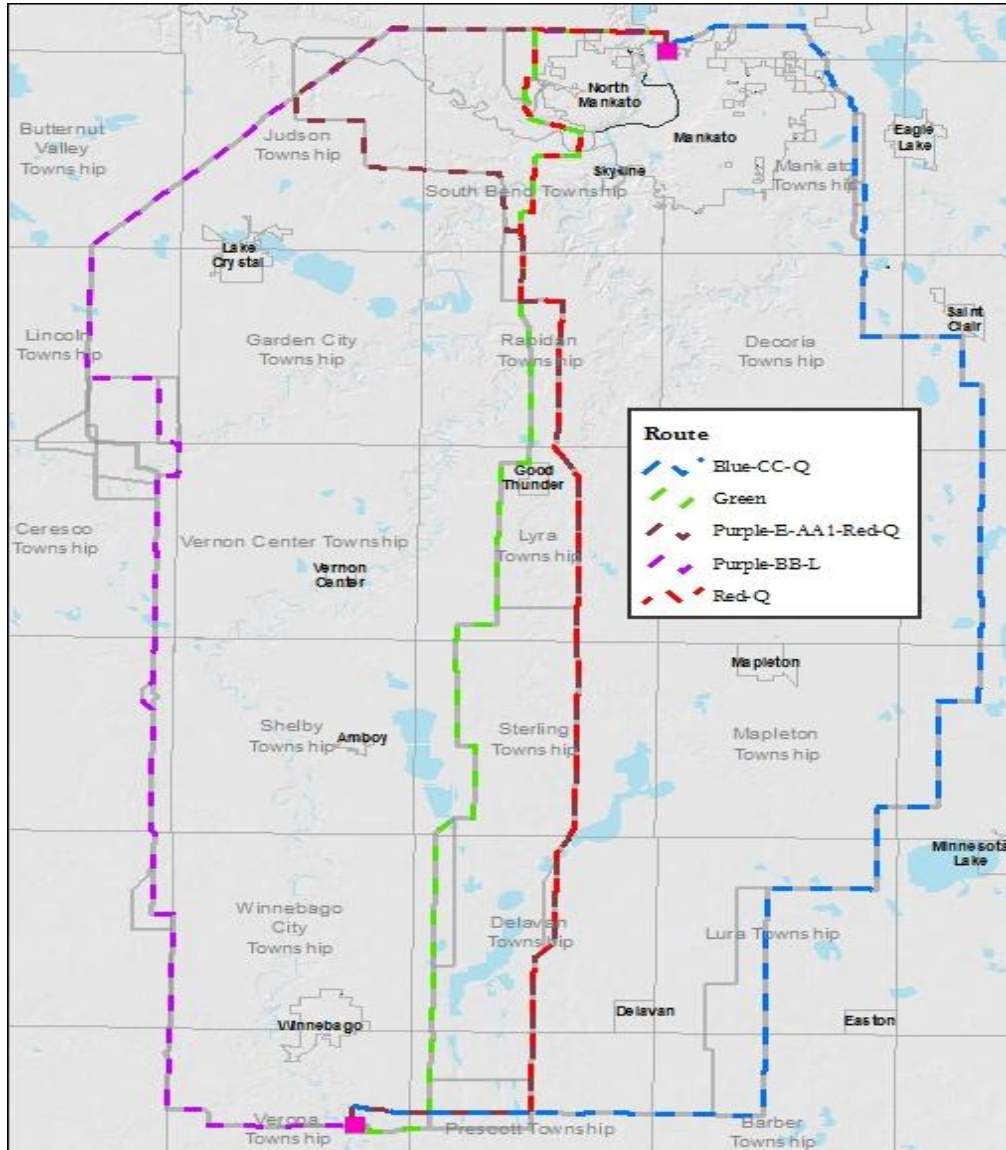
<sup>29</sup> The Applicants do not recommend any modifications to the Green Route from that proposed in their Route Permit Application.

<sup>30</sup> The Red-Q Route is the Red Route incorporating Segment Alternative Q.

<sup>31</sup> The Blue-CC-Q Route is the Blue Route incorporating Segment Alternatives CC and Q.

<sup>32</sup> The Purple-E-AA1-Red-Q Route is the Purple-E-Red Route incorporating Segment Alternative Q and Alignment Alternative AA1.

**Figure 1: The Applicants' Recommended Route Configurations**



### ***3. Structure Designs***

The cost of the Project is a key input for the economic analyses that were used to quantify the Project's net economic benefits.<sup>33</sup> This analysis is the present value (PV) benefit-to-cost analysis and was conducted by MISO in MTEP16 and by the Applicants

<sup>33</sup> Ex. DER-3 at Schedule 7 and 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

using the MTEP17 and MTEP18 models.<sup>34</sup> The benefit-to-cost ratio is dependent on the total cost of the Project over time compared to the net economic benefits that will arise from the use of lower-cost generation as a result of the Project.<sup>35</sup> The higher the cost, the lower the benefit-to-cost ratio, as the net economic benefits remain constant under each MTEP model year (i.e., MTEP16, MTEP17, and MTEP18).

As different structures have different associated costs, the Applicants proposed several different design options for each route in the Route Permit Application.<sup>36</sup> These designs ranged from higher-cost designs (double-circuit, monopole structures) to lower-cost designs (single-circuit, H-frame structures), providing the Commission with the information necessary to broadly consider the costs of the Project and the other routing criteria.<sup>37</sup> During this proceeding, the Applicants received feedback from a number of farmers and other landowners concerned about the increased agricultural and land use impacts from both the monopole design parallel to existing transmission lines and the H-frame, two-pole design.<sup>38</sup> As a result, and as discussed in the Applicants'

---

<sup>34</sup> Ex. XC-6 at 3-4 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>35</sup> Ex. DER-3 at Schedule 7 and 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>36</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>37</sup> Ex. XC-25 at 5 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>38</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 62:14-23 (Schroeder) (Feb. 27, 2019); Mankato 6:00 p.m. Pub. Hrg. Tr. at 52:13-19 (Anderson) (Feb. 27, 2019) (“The comment about the – where I’m on the existing purple route, Judson Township, and the comment about the double pole sets or the existing, adding another pole set would be the worst of both worlds, or another structure. If they can put it all on one pole, a new set, that would be much preferable to adding another existing line.”); Mankato 6:00 p.m. Pub. Hrg. Tr. at 54:5-9 (“I can’t believe that it’s even a consideration to build another line beside of an existing line. It seems like a no brainer, just put it all on one setting, one pole setting.”).

Route Permit Brief, the Applicants no longer recommend these two design options for the Project. Therefore, the two primary structure design options<sup>39</sup> remaining are: (1) single-circuit monopole; and (2) double-circuit monopole.<sup>40</sup>

#### ***4. Project Costs***

Due to the important role of costs in justifying the need for this Project, the Applicants used a more thorough cost estimation process than is typically employed before submitting an application for a Certificate of Need.<sup>41</sup> In particular, the Applicants developed costs specific to each route and structure design proposed in the Route Permit Application as well as for each route, segment alternative, and alignment alternative evaluated in the EIS.<sup>42</sup> These cost estimates allow for an evaluation of each

---

<sup>39</sup> The Applicants have identified the potential need to use specialty structures of various designs to address site-specific concerns along various routes, segment alternatives, and alignment alternatives.

<sup>40</sup> Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>41</sup> Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>42</sup> Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)). Additionally, in response to comments received from the Minnesota Department of Natural Resources and a landowner after the issuance of the Draft EIS, the Applicants developed costs specific to Segment Alternative BB (to the Purple Route) and Segment Alternative CC (to the Blue Route) necessary to address those comments, and requested those Segment Alternatives be included in the Final EIS. Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

route configuration<sup>43</sup> and design option<sup>44</sup> for the Project in terms of how each option affects the projected benefit-to-cost ratio of the Project.

The Applicants estimated the costs for the main components of a transmission line project, including: (1) transmission line structures and materials; (2) transmission line construction and restoration; (3) transmission line permitting and design; (4) transmission line right-of-way acquisition; and (5) substation materials, permitting, design, and construction.<sup>45</sup> The Applicants also identified potential risks that could result in additional costs, including unexpected weather conditions, route changes, poor soil conditions in areas where no soil data was obtained, transmission line outage constraints, or labor shortages.<sup>46</sup> Appropriate cost contingency for each of these risks was then developed by the Applicants.<sup>47</sup>

**Table 1**, below, summarizes the total Project costs for Applicants' recommended refined route configurations that range from \$121.3 million (2016\$) to \$160.2 million (2016\$). **Table 1** also escalates these costs into the year spend. These costs include all transmission line costs, right-of-way costs, risk contingencies for the transmission line,

---

<sup>43</sup> A "route configuration" includes the base route, from the original five identified in the Route Permit Application, plus any applicable Segment Alternative or Alignment Alternative as identified during the proceeding.

<sup>44</sup> "Design option" refers to the structure type or configuration used for a particular route, segment alternative, or alignment alternative.

<sup>45</sup> Ex. XC-6 at 32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>46</sup> Ex. XC-6 at 34 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>47</sup> Ex. XC-6 at 34 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



costs for substation modifications at both the Wilmarth and Huntley substations, and Allowance for Funds Used During Construction (AFUDC).<sup>48</sup>

**Table 1: Cost Estimates for Applicants' Recommended Route Configurations<sup>49</sup>**

Route Alternative	Cost (Millions) (2016\$) <sup>50</sup>	Cost (Millions) (Escalated to anticipated year spend \$) <sup>51</sup>
<b>Purple-BB-L Route</b> <i>Purple Route Modified to Use Segment Alternatives BB and L</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$140.1	\$155.8
<b>Green Route</b> <i>Single-Circuit</i> <i>Monopole Design</i>	\$121.3	\$134.9
<b>Red-Q Route</b> <i>Red Route Modified to Use Segment Alternative Q</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$141.2	\$157.1
<b>Blue-CC-Q Route</b> <i>Blue Route Modified to Use Segment Alternative Q</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$138.6	\$154.1
<b>Purple-E-AA1-Red-Q Route</b> <i>Purple-E-Red Route Modified to Use Segment Alternative Q</i> <i>and Alternative Alignment AA1</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$159.7	\$178.2

<sup>48</sup> Ex. XC-6 at 32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>49</sup> The costs for Applicants' recommended route configurations were calculated using the cost estimates for the segment alternatives provided in Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)) and Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives)(eDocket No. [20192-149943-02](#)).

<sup>50</sup> "2016 dollars" or "(2016\$)" assumes that the Project would have been constructed (and dollars spent) in 2016.

<sup>51</sup> The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.

## **B. Need**

### ***1. Overview of Need***

All of the parties to this proceeding agree that the Commission should issue a Certificate of Need for the Huntley – Wilmarth Project.<sup>52</sup> What is more, no party has provided testimony challenging the need for the Project. The Huntley – Wilmarth Project is needed to reduce the overall costs of delivering energy by addressing one of the most congested areas in the MISO electric transmission system, near the Minnesota/Iowa border.<sup>53</sup> Due to this congestion in southern Minnesota and northern Iowa, the ability of low-cost renewable energy to reach load centers, like the Twin Cities, is limited.<sup>54</sup> This increases electricity production costs and consumer costs because a higher-cost energy source closer to load must be used to replace the low-cost generation that could not be delivered due to the congestion.<sup>55</sup>

Congestion, in its most basic form, simply means that there is insufficient transmission capacity to deliver all of the lowest cost power to customers and, as a result, the electrical system is not operating as efficiently as it could be.<sup>56</sup> Transmission

---

<sup>52</sup> See Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)); Ex. MISO-1 at 26 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-24 at 12 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>53</sup> Ex. XC-6 at 61 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>54</sup> Ex. XC-6 at 61 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>55</sup> Ex. XC-6 at 66 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>56</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

system congestion is similar to a traffic jam on the highway.<sup>57</sup> When generators and consumers want to produce and consume more energy than the system has the ability to accommodate at that time, the result is that the most cost-effective energy is unable to travel along the congested path.<sup>58</sup> The Minnesota/Iowa border is one of the most congested areas in the region's electric transmission system for two main reasons: (1) the large number of wind generators in place and planned for the area; and (2) the lack of adequate transmission capacity to transport this wind power to customers.<sup>59</sup> Relieving the transmission system congestion in the Project area will improve the efficiency of the MISO energy market, which in turn will result in lower wholesale energy costs.<sup>60</sup>

In addition to reducing congestion, the Huntley – Wilmarth Project will strengthen the resilience of the regional grid and improve delivery of energy by reducing curtailments of wind generators.<sup>61</sup> Fundamentally, a reduction in curtailments means that the electrical system is operating more efficiently and allowing low-cost wind energy to reach customers.<sup>62</sup> A reduction in wind curtailments also means that there is

---

<sup>57</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>58</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>59</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>60</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>61</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>62</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

a reduction in thermal generation (i.e., any generation source powered by the combustion of fuel, including coal, natural gas, diesel, and fuel oil-based generation sources) as wind generation is able to meet a greater portion of the energy demand.<sup>63</sup>

The Project will also make the Minnesota transmission system more robust, which will allow the transmission system to better respond to different outages on the system.<sup>64</sup> A more robust transmission system also enables access to a diverse mix of generation resources, providing customers the ability to access the least expensive power available at any given time.<sup>65</sup> Additionally, the Project will bring environmental benefits through reductions in carbon dioxide (CO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and nitrogen oxide (NO<sub>x</sub>) emissions.<sup>66</sup>

## ***2. Minnesota's Changing Generation Mix***

Over the course of the past 20 years, the generation mix in Minnesota and surrounding states has dramatically shifted from relying primarily on coal and nuclear generation resources to a more diverse generation mix that includes increasing amounts of renewable energy, in particular, wind generation.<sup>67</sup> For example, wind generation in Minnesota has increased from approximately one percent of the generation mix in 2000

---

<sup>63</sup> Ex. XC-24 at 23, 93 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>64</sup> Ex. XC-6 at 8 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>65</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>66</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); *see* Ex. XC-6 at 105, Appendix I (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>67</sup> Ex. XC 6 at 47 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

to 18 percent in 2016.<sup>68</sup> During the same timeframe, Minnesota's generation from coal-fired resources has dropped from approximately 66 percent to 39 percent and natural gas generation has increased from approximately 3 percent to 15 percent.<sup>69</sup> These changes in the generation portfolio in Minnesota require additions and changes to the electrical system in the region to ensure that the added generation can be efficiently and economically delivered to load centers.<sup>70</sup>

The expansion of wind generation in Minnesota has been the result of various overlapping factors: local, state, and federal policies; favorable geographic conditions; technological improvements; and economics.<sup>71</sup> For instance, with respect to impacts of state policies on wind generation, in 2007, Minnesota established mandatory Renewable Energy Standards, which set a renewable generation target of 30 percent by 2020 for Xcel Energy and 25 percent by 2025 for other load-serving utilities in Minnesota.<sup>72</sup> With respect to federal policies, federal production tax credits and investment tax credits have also spurred growth by providing meaningful tax incentives for qualified wind projects and expenditures.<sup>73</sup>

---

<sup>68</sup> Ex. XC-6 at 48 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>69</sup> Ex. XC-6 at 48 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>70</sup> Ex. XC-6 at 47 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>71</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>72</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. XC-6 at 51-53 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>73</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. XC-6 at 53-54 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

The unique geographic conditions in southwestern and southern Minnesota, as well as most of Iowa, North Dakota, and South Dakota, have further promoted growth of new wind generators.<sup>74</sup> These areas are ideal locations for wind generation as they have higher-than-average wind speeds combined with vast areas of land suitable for accommodating new wind turbines.<sup>75</sup> Advancements in wind generation technology have significantly improved the cost and performance of today's wind turbines.<sup>76</sup> Together, these factors have made wind power one of the most economical options to generate electricity in Minnesota today.<sup>77</sup>

Each of the conditions discussed above have generated a recent, accelerated expansion in wind development nationally, and in Minnesota and Iowa, in particular.<sup>78</sup> This accelerated expansion in wind development is reflected in MISO's interconnection queue. For example, as explained in the Direct Testimony of the Applicants' witness Mr. Andrew Siebenaler, on August 1, 2018, the MISO interconnection queue contained 536 interconnection requests with a combined capacity of 91,300 megawatts (MW).<sup>79</sup> At that time, all interconnection projects in the queue proposed to be in-service on or

---

<sup>74</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>75</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>76</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>77</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>78</sup> Ex. XC-6 at 58 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>79</sup> Ex. XC-24 at 7 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

before April 1, 2023, with over 85 percent of those 536 requests being for renewable generation.<sup>80</sup> This is consistent with the rapid rate of expansion of renewable generation projects that MISO has experienced in recent years and this trend appears likely to continue.<sup>81</sup>

The exceptional growth of wind generation in Minnesota and the surrounding states has put unprecedented pressure on the transmission system to deliver the low-cost wind power to customers.<sup>82</sup> As more wind generation facilities have been constructed along the Minnesota/Iowa border over the past decade, transmission congestion in this area has increased.<sup>83</sup>

### ***3. MISO's Analysis of Need and Alternatives***

The Huntley – Wilmarth Project has undergone extensive review and analysis by both MISO and the Applicants. MISO analyzed and approved the Project in December 2016 as part of MTEP16 and the Applicants further analyzed the Project under MISO's more recent MTEP17 and MTEP18 models.<sup>84</sup> In each of these analyses, which included multiple Futures, the Project has continued to show net economic benefits in excess of its estimated costs. These analyses are discussed, in detail, below.

---

<sup>80</sup> Ex. XC-6 at 58 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>81</sup> Ex. XC-24 at 7-8 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>82</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>83</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>84</sup> Ex. XC-24 at 11 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**a. MTEP Reports**

Each year, MISO develops its transmission expansion plan, or MTEP, in collaboration with transmission owners and other stakeholders.<sup>85</sup> The MTEP is used to evaluate different transmission projects to meet local and regional reliability standards, support the achievement of state and federal energy policy requirements, and enable a competitive and efficient electricity market.<sup>86</sup> As part of the annual MTEP, a Market Congestion Planning Study (MCPS) is conducted.<sup>87</sup> This MCPS focuses exclusively on identifying where congestion on the transmission system may limit access to the lowest-cost generation resources.<sup>88</sup> Transmission improvements that may relieve this congestion and increase market efficiency under a variety of Futures are evaluated in the MCPS.<sup>89</sup> This is the study MISO undertook as part of MTEP16 to develop and evaluate the Huntley – Wilmarth Project.<sup>90</sup>

With respect to Futures, as part of each MTEP cycle, MISO and its stakeholders develop a range of future electrical system scenarios that are guided by assessments of

---

<sup>85</sup> Ex. XC-24 at 13 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>86</sup> Ex. XC-24 at 13 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>87</sup> Ex. MISO-1 at 9 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>88</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>89</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>90</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



possible future state and federal energy policy decisions.<sup>91</sup> The possible electrical system scenarios and energy policies form the basis for forecasts of resources and load that would be economical and consistent with the particular policy.<sup>92</sup> These Futures are then used to assess and identify transmission needed to reliably and efficiently deliver the necessary energy from generation resources to customers.<sup>93</sup> The Futures are designed to “bookend” the potential range of future economic and policy outcomes.<sup>94</sup>

**b. MTEP16**

In MTEP16, MISO identified the transmission system in the Mankato/Blue Earth area as having significant congestion. Specifically, MISO identified congestion on the Huntley – Blue Earth – South Bend 161 kV line during a loss of the Lakefield Generating Station – Lakefield Junction 345 kV transmission line.<sup>95</sup> Based on these findings, MISO determined that congestion on this flowgate had increased to a level that warranted further analysis and identification of potential cost-effective solutions to resolve the congestion.<sup>96</sup>

---

<sup>91</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>92</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>93</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>94</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>95</sup> Ex. MISO-1 at Schedule 1, p. 100 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-6 at 69 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>96</sup> Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

In MTEP16, MISO first developed five different Futures under which to analyze potential alternatives to resolve this congestion.<sup>97</sup> The five Futures used in MISO's MTEP16 analysis included:

- (1) *Business as Usual*: captures all current policies and trends in place at the time of Futures development and assumes they continue, unchanged, throughout the duration of the study period.
- (2) *High Demand*: captures the effects of increased economic growth resulting in low energy costs and medium to low gas prices.
- (3) *Low Demand*: captures the effects of reduced economic growth resulting in low energy costs and medium to low gas prices.
- (4) *Regional Clean Power Plan (CPP) Compliance*: assumes a MISO footprint-wide plan to comply with the CPP that will result in a significant reduction in carbon emissions.
- (5) *Sub-regional CPP Compliance*: assumes zonal and state-level compliance with the CPP that will result in significant reductions in carbon emissions.<sup>98</sup>

The Regional CPP Compliance Future was the highest weighted Future at 30 percent, with the Sub-Regional CPP Compliance Future weighted slightly lower at 25 percent.<sup>99</sup> The remaining three Futures—Business as Usual, Low Demand, and High Demand—received lower weights at 19 percent, 16 percent, and 10 percent, respectively.<sup>100</sup>

---

<sup>97</sup> Ex. XC-24 at 11 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>98</sup> Ex. MISO-1 at 10-12 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>99</sup> Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>100</sup> Ex. MISO-1 at 19 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

To determine how to relieve congestion in the Mankato/Blue Earth area, MISO first screened 23 transmission project alternatives, which were submitted by stakeholders or developed by MISO staff.<sup>101</sup> Potential projects that showed a one-year benefit-to-cost ratio equal to 0.9 or greater were carried forward for further analysis.<sup>102</sup> The initial screening was passed by 16 projects—12 of which involved different 345 kV configurations and four of which were different 161 kV configurations.<sup>103</sup>

MISO then grouped the 16 alternatives into four groups of solutions based on voltage level and design approach.<sup>104</sup> Four solutions, one from each group, were selected due to their high screening performance: (1) new Huntley – Wilmarth 345 kV transmission line; (2) new Huntley – North Rochester 345 kV transmission line; (3) Huntley – South Bend 161 kV reconductor, new South Bend – Wilmarth 161 kV line, and Wilmarth Substation expansion; and (4) new Freeborn – West Owatonna 161 kV line.<sup>105</sup> MISO’s analysis showed that the Huntley – Wilmarth Project outperformed the other alternatives on all critical metrics.<sup>106</sup> Specifically, the Project relieved 100

---

<sup>101</sup> Ex. MISO-1 at Schedule 1, p. 101 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>102</sup> Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>103</sup> Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>104</sup> Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>105</sup> Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>106</sup> Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

percent of the congestion through the end of the MTEP16 study period (2030), had the highest benefit-to-cost ratio, and provided the largest 20-year PV benefit.<sup>107</sup>

Further, to test the robustness of the Project, MISO considered two additional options that modified the Huntley – Wilmarth Project and conducted economic sensitivity and reliability analyses of the top three project alternatives.<sup>108</sup> The economic sensitivity analyses confirmed that the Project maintains high benefit-to-cost ratios when Futures are modified to reflect announced coal generation retirements (e.g., Sherco Units 1 and 2) and the physical location of future wind units.<sup>109</sup>

MISO also performed a generation interconnection queue sensitivity or “Queue Wind Sensitivity” analysis to test whether the Project’s benefits were dependent on the location of forecasted wind generation additions. The results of this analysis showed that, with the level of wind likely to be interconnected based on historical interconnection trends, the benefits of the Project increase in all Futures.<sup>110</sup> The performance of the Huntley – Wilmarth Project under MISO’s Queue Wind Sensitivity as compared to the base MTEP16 models is shown in **Table 2** below:

---

<sup>107</sup> Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>108</sup> Ex. XC-24 at 16-17 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>109</sup> Ex. XC-24 at 17 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>110</sup> Ex. XC-6 at 85-86 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

**Table 2: MTEP16 Base Case and Wind Sensitivity Results**

ID	Transmission Solution	MTEP16 Model	MISO Cost Estimate (2016\$) (Millions)	Weighted Benefit-to-Cost Ratio	20-yr Present Value Benefit (2016\$) (Millions)
I-2	Huntley – Wilmarth 345 kV new circuit	Base	\$88-108	1.51-1.86	\$210
		Queue Wind Sensitivity		1.86-2.28	\$251

Finally, MISO evaluated whether the Project would result in any reliability concerns on the transmission system conducting a “No Harm Test.”<sup>111</sup> It found that no reliability needs were created by the inclusion of the Huntley – Wilmarth Project in the MISO transmission system.<sup>112</sup>

Ultimately, MISO’s MTEP16 analysis concluded that the Project will relieve 100 percent of the identified congestion through the end of the study period and provide an anticipated \$210 million (2016\$) in PV benefits over 20 years with a weighted benefit-to-cost ratio between 1.51 and 1.86 based on MISO’s estimated costs of \$88 to \$108 million (2016\$).<sup>113</sup>

To qualify as an MEP, a transmission project must meet the following criteria: (1) greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at a voltage level of 345 kV or higher; (2) the benefit-to-cost

---

<sup>111</sup> Ex. MISO-1 at 22 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>112</sup> Ex. XC-24 at 17 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>113</sup> Ex. XC-24 at 18 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

ratio of the candidate project must meet or exceed 1.25; and (3) the total project cost must exceed \$5 million.<sup>114</sup> Based on MISO's MTEP16 analysis, on December 2016, MISO's Board of Directors determined that the Huntley – Wilmarth Project met all three MEP criteria and approved the Project as an MEP and for inclusion in Appendix A of MTEP16.<sup>115</sup>

Notably, Department of Commerce, Division of Energy Resources (DOC- DER) witness Dr. Steve Rakow testified that, to achieve a 1.25 benefit-to-cost ratio required at the time of MISO's MEP designation, 4,300 MW of new wind would need to come on line by 2030.<sup>116</sup> Dr. Rakow then reviewed MISO interconnection queue data from September 2018 and determined that a reasonable forecast for new wind generation in service by 2030 was between 14,786 MW and 9,917 MW.<sup>117</sup> Dr. Rakow compared this forecast to the amount of wind assumed in the MTEP16 Futures and concluded that this forecast exceeds the amounts predicted by MISO in four of the five MTEP16 Futures.<sup>118</sup> The only MTEP16 Future with a higher wind generation forecast was the Sub-Regional CPP future.<sup>119</sup> As a result, the MISO MTEP16 models present

---

<sup>114</sup> Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>115</sup> Ex. XC-24 at 18 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>116</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>117</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>118</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>119</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

a much more conservative forecast for the amount of wind generation in-service by 2030 than what current trends indicate. Based on this updated wind generation forecast, Dr. Rakow concluded that the amount of wind generation in-service by 2030 “will exceed by a significant margin the 4,300 MW amount necessary to achieve a 1.25 benefit/cost ratio.”<sup>120</sup>

#### ***4. Analysis of Need under MTEP 17 and MTEP18 Models***

For purposes of the Certificate of Need Application, the Applicants conducted an analysis of the Project using the more recent MISO models and Futures which, at the time, were developed for MTEP17.<sup>121</sup> Then, following submission of the Certificate of Need Application, MISO issued its models for MTEP18, and the Applicants subsequently conducted an analysis of the Project under the MTEP18 Futures.<sup>122</sup> These analyses are detailed below and show an increased 20-year PV benefit as compared to MTEP16. For MTEP17, the 20-year PV benefit was \$275.83 million (2016\$) and \$217.97 million (2016\$) in MTEP18 as compared to the \$210 million (2016\$) in MTEP16.

---

<sup>120</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>121</sup> Ex. XC-24 at 19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>122</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**a. The Applicants' Analysis under MTEP17 Models and Futures**

For MTEP17, the number of Futures was narrowed from the five Futures used in MTEP16 to three Futures—Existing Fleet (EF),<sup>123</sup> Policy Regulations (PR),<sup>124</sup> and Accelerated Alternative Technologies (AAT).<sup>125</sup> The MISO-assigned weights for each of these three Futures is as follows: 31 percent for EF; 43 percent for PR; and 26 percent for AAT.<sup>126</sup>

The Applicants' analysis using the MTEP17 Futures confirmed that the Project will relieve 100 percent of the identified congestion throughout the study period and will provide an anticipated \$275.8 million (2016\$) in PV benefits over 20 years.<sup>127</sup> The Project has a weighted benefit-to-cost ratio of 1.66 to 2.16 using the Project costs for the range of route and design alternatives proposed by the Applicants in their Route

---

<sup>123</sup> The EF Future assumes all current policies and trends in place at the time of the Futures development continue, unchanged, throughout the duration of the study period. Ex. XC-24 at 19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>124</sup> The PR Future is designed to model the effects of current economic growth with average energy costs and medium gas prices. Additionally, all current state-level renewable portfolio standards and energy efficiency resource standards are modeled in the PR Future. Ex. XC-24 at 19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>125</sup> The AAT Future models a robust economy that drives technological advancement and economies of scale resulting in a greater potential for demand response, energy efficiency, and distributed generation as well as expanded renewable generation. Ex. XC-24 at 19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>126</sup> Ex. XC-24 at 20 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>127</sup> Ex. XC-24 at 21 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



Permit Application (ranging from \$105.8 million to \$138.0 million (2016\$)).<sup>128</sup> The results of the Applicants' MTEP17 analysis are provided in **Table 3**, below:

**Table 3: MTEP17 Analysis with Route Permit Application Cost Estimates**

Project	Applicants' Project Cost Estimates (2016\$ Millions)	Expected In-Service	PV Benefit (Million 2016\$)				Benefit-to-Cost Ratios (Millions, 2016\$)			
			AAT	EF	PR	Weighted	AAT	EF	PR	Weighted
Huntley – Wilmarth 345 kV	\$105.8-\$138.0	2022	816.04	13.92	138.01	275.83	4.90-6.39	0.08-0.11	0.83-1.08	1.66-2.16

When comparing the MTEP16 and MTEP17 results, the weighted 20-year PV for the Project was higher under the MTEP17 Futures as compared to the MTEP16 Futures (\$275.8 million compared to \$210 million (2016\$)).<sup>129</sup> Additionally, the MTEP17 benefit-to-cost ratios are higher than those from the MTEP16 base case (1.66 to 2.16 compared to 1.51 to 1.86), but slightly lower than the MTEP16 Queue Wind Sensitivity case (1.66 to 2.16 compared to 1.86 to 2.28).<sup>130</sup> The increase in the economic benefit of the Project under the MTEP17 models is likely due to the increased reliance on wind generation in the MTEP17 Futures, as well as the increased weight placed on the two Futures (PR and AAT) with higher wind penetration levels.<sup>131</sup> There are

<sup>128</sup> Ex. XC-24 at 21 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>129</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>130</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>131</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

increased congestion costs in the MTEP17 Futures due to the higher average cost of natural gas present in the MTEP17 assumptions as compared to MTEP16.<sup>132</sup> In turn, the increased congestion costs present in the MTEP17 Futures increases the net economic benefits of the proposed Project because the Huntley – Wilmarth 345 kV line has sufficient capacity to transport additional low-cost wind generation to customers, resulting in lower energy costs.<sup>133</sup>

**b. The Applicants' Analysis under MTEP18 Models and Futures**

Following submission of the Certificate of Need Application, MISO issued its models for MTEP18, so the Applicants conducted an analysis of the Project under the MTEP18 Futures.<sup>134</sup> The MTEP18 models have four Futures: (1) Limited Fleet Change (LFC)<sup>135</sup>; (2) Continued Fleet Change (CFC)<sup>136</sup>; (3) Accelerated Fleet Change (AFC)<sup>137</sup>; and (4) Distributed & Emerging Technologies (DET).<sup>138</sup>

---

<sup>132</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>133</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>134</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>135</sup> The LFC Future predicts few changes to the current generation fleet with only a slight increase in renewable generation. Ex. XC-24 at 24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>136</sup> The CFC Future predicts continued additions of renewable generators and coal generation retirements at the same pace as the past decade. Ex. XC-24 at 24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>137</sup> The AFC Future predicts renewable additions and coal retirements at a rate above historical trends with renewables accounting for 30 percent of the generation fleet by 2032. Ex. XC-24 at 24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>138</sup> Ex. XC-24 at 23-24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)). The DET Future predicts that new renewable additions will largely be distributed and storage resources that are co-located at

The Applicants’ analysis using the MTEP18 models and Futures concluded that the Project will provide an anticipated \$217.97 million (2016\$) in PV benefits over 20 years with a weighted benefit-to-cost ratio of 1.30 to 1.69, using the Project costs for the range of route and design alternatives proposed by the Applicants in the Route Permit Application (costs ranging from \$105.8 million to \$138.0 million (2016\$)).<sup>139</sup> The MTEP18 analysis also confirmed that the Project will relieve 100 percent of the identified congestion throughout the study period.<sup>140</sup> The results of the Applicants’ MTEP18 analysis are summarized in **Table 4**, below.

**Table 4: MTEP18 Analysis with Route Permit Application Cost Estimates**

Applicants’ Project Cost Estimates (2016\$ Millions)	Expected In- Service Date	PV Benefit (Million 2016\$)					Benefit-to-Cost Ratios (Millions, 2016\$)				
		LFC	CFC	AFC	DET	Weighted	LFC	CFC	AFC	DET	Weighted
\$105.8-\$138.0	2022	\$23.56	\$106.72	\$665.77	\$187.63	\$217.97	0.15-0.20	0.60-0.78	4.03-5.25	1.10-1.43	1.30-1.69

A summary of the 20-year PV adjusted production cost (APC) benefits of the Project under MTEP16, MTEP17, and MTEP18 are shown in **Table 5** below.

---

the substation serving the most load. Ex. XC-24 at 24-25 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>139</sup> Ex. XC-24 at 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>140</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**Table 5: Summary of MTEP16, MTEP17, and MTEP18 Benefits**

Transmission Solution	MTEP16 20-yr Present Value Benefit (2016\$ million)	MTEP17 20-yr Present Value Benefit (2016\$ million)	MTEP18 20-yr Present Value Benefit (2016\$ million)
Huntley-Wilmarth 345 kV Project	\$210	\$275.83	\$217.97

As explained in the Direct Testimony of the Applicants’ witness Mr. Siebenaler, the APC benefits of the Project are lower under MTEP18 than they were under both MTEP17 and MTEP16 due to changes to the number and type of Futures as well as the weightings of the Futures.<sup>141</sup> Unlike MTEP17, which included only three different Futures, two of which assumed high wind penetration across the MISO footprint, the MTEP18 models expanded to four Futures.<sup>142</sup> Of these four Futures, only one assumed high wind penetration (AFC) and this Future received the lowest weighting (20 percent) of the four Futures.<sup>143</sup> The other Future in MTEP18 that assumed increased reliance on renewable generation was the DET Future, but this Future assumed this additional renewable generation would be in the form of distributed solar generation near load centers.<sup>144</sup> The two remaining Futures, the LFC and the CFC, with a combined weight of 55 percent, assume wind and solar will only serve between 10 to 15 percent of

---

<sup>141</sup> Ex. XC-24 at 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>142</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>143</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>144</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

MISO's energy needs by 2032.<sup>145</sup> These two Futures, however, do not represent realistic views of the future of renewable generation in Minnesota, Iowa, North Dakota, and South Dakota.<sup>146</sup>

The amount of installed wind capacity in Minnesota, Iowa, North Dakota, and South Dakota has increased dramatically since 2006, and continues to climb.<sup>147</sup> Moreover, utilities have announced plans to add nearly 6,000 MW of new wind generation in the Upper Midwest by 2022 and the MISO West Generator Interconnection Queue has 34,800 MW of generation that has requested to be placed in-service by 2021.<sup>148</sup> This demonstrates that the assumptions related to renewable generation additions included in the MTEP18 Futures are likely too conservative.<sup>149</sup>

**c. Benefit-to-Cost Ratios for the Applicants' Recommended Route Configurations**

As discussed, based on input from landowners, state and federal agencies, and local municipalities, the Applicants refined the routes under consideration to incorporate certain segment alternatives and provided design recommendations. The benefit-to-cost ratios for the five refined routes and proposed designs under MTEP17 and MTEP18 are detailed in **Table 6**, below:

---

<sup>145</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>146</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>147</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>148</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>149</sup> Ex. XC-24 at 29-30 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**Table 6: Benefit-to-Cost Ratio for the Applicants' Recommended Route Configurations under MTEP17 and MTEP18**

Route Alternative	Cost (Millions) (2016\$)	Weighted Benefit-to-Cost Ratio (MTEP17) <sup>150</sup>	Weighted Benefit-to-Cost Ratio (MTEP18)
<b>Purple-BB-L</b> Double-Circuit, Monopole Design	\$140.1	1.63	1.28
<b>Green</b> Single-Circuit, Monopole Design	\$121.3	1.88	1.47
<b>Red-Q</b> Double-Circuit, Monopole Design	\$141.2	1.62	1.27
<b>Blue-CC-Q</b> Double-Circuit, Monopole Design	\$138.6	1.65	1.29
<b>Purple-E-AA1-Red-Q</b> Double-Circuit, Monopole Design	\$160.2	1.43	1.12

Under MTEP17 and MTEP18, the benefit-to-cost ratio of all five of the Applicants' refined routes is above 1.0. This means that the APC savings of each route alternative is greater than its costs and thus the Project will provide net economic benefits to Minnesota customers regardless of the route selected by the Commission.<sup>151</sup> However, the higher cost route/design alternatives have lower benefit-to-cost ratios as compared to lower route/design alternatives.<sup>152</sup>

---

<sup>150</sup> Applicants provided benefit-to-cost ratios under MTEP17 and MTEP18 for the highest and lowest cost routes included in the Draft EIS. *See* Ex. XC-24 at 35 and Schedule 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)). The Applicants utilized the same methodology to calculate the benefit-to-cost ratios for the Applicants' preferred route configurations.

<sup>151</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>152</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

#### **d. Impact of Tax Cuts and Jobs Act**

MISO's analysis of the Project under MTEP16 and the Applicants' analysis of the benefit-to-cost ratios under MTEP17 and MTEP18 were completed using an assumed 35 percent tax rate as opposed to the 21 percent tax rate imposed by the Tax Cuts and Jobs Act of 2017.<sup>153</sup> The reduction in the corporate tax rate would not impact the capital costs of the Project or other transmission alternatives.<sup>154</sup> However, the reduction would slightly decrease the costs that are recovered from customers because the revenue requirements for the Project and all other transmission alternatives assume a particular tax rate. As a result, the reduction in the corporate tax rate would decrease the cost portion of the benefit-to-cost ratio and increase the benefit-to-cost ratio overall.<sup>155</sup> This change would impact the Project and all transmission alternatives similarly and would not change the Applicants' conclusion that, among the alternatives considered, the Huntley – Wilmarth 345 kV Project provides the highest benefit-to-cost ratio while also relieving 100 percent of the identified congestion throughout the study period.<sup>156</sup>

---

<sup>153</sup> See Ex. XC-6 at Appendix J (Certificate of Need Application) (eDocket No. [20181-139030-04](#)). The Certificate of Need Application was filed less than a month after the Tax Cuts and Jobs Act of 2017 was signed into law.

<sup>154</sup> Evid. Hrg. Tr. at 22:12-19 (Stevenson) (Feb. 11, 2019).

<sup>155</sup> Evid. Hrg. Tr. at 31:12-20 (Siebenaler) (Feb. 11, 2019).

<sup>156</sup> Evid. Hrg. Tr. at 32:10-15 (Siebenaler) (Feb. 11, 2019).

**e. The Applicants' Curtailment Analysis under MTEP17 and MTEP18**

The Huntley – Wilmarth Project will also improve the deliverability of wind generation as it will reduce curtailments, allowing the maximum amount of this low-cost renewable generation to meet customer demands.<sup>157</sup> When existing wind generation is curtailed, ratepayers lose the benefit of cost-effective renewable energy.<sup>158</sup> Instead, other generation, typically higher cost fossil fuel generation, must be relied on, thereby increasing costs and reducing the potential economic and environmental benefits of wind generation.<sup>159</sup>

To determine the effect of the Project on wind resource curtailments, the Applicants analyzed the curtailments of wind resources in the MTEP17 and MTEP18 models with the Huntley – Wilmarth 345 kV transmission line both “in[-service]” and “out-of-service.”<sup>160</sup> Based on the three MTEP17 Futures, the Applicants found that the Project reduces wind curtailments in the year 2026 by as much as 28 percent in the PR Future and, at minimum, by 8.5 percent under the EF Future.<sup>161</sup> The results showed further, depending on the Future, that the Project will reduce wind curtailments by 9 to

---

<sup>157</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>158</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>159</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>160</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>161</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



23 percent in year 2031 within Minnesota, Iowa, North Dakota, and South Dakota.<sup>162</sup>

This reduction in curtailments is beneficial because the electrical system is operating more efficiently and allowing low-cost wind energy to reach customers.<sup>163</sup> A reduction in wind curtailments also means that there is a reduction in thermal generation as wind generation is able to meet a greater portion of the energy demand.<sup>164</sup>

Based on the four MTEP18 Futures, the Applicants found that, depending on the Future, the Project reduces wind curtailment in the year 2027 by 4.6 to 18.4 percent.<sup>165</sup>

#### **f. Environmental Externalities Analysis**

The Applicants also calculated the public policy benefits associated with the reduction in CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions for the proposed Project. More specifically, in compliance with the Commission's November 25, 2014, order in Docket No. ET6675/CN-12-1053, ITC Midwest developed a template to evaluate the environmental externalities of different transmission line alternatives and submitted it to the Commission as a compliance filing on October 7, 2015, to be applied to future

---

<sup>162</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>163</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>164</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>165</sup> Ex. XC-24 at Schedule 9 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

Certificate of Need proceedings.<sup>166</sup> This is the first Certificate of Need proceeding in which ITC Midwest has populated this externalities template.<sup>167</sup>

ITC Midwest calculated the public policy benefits associated with the reduction in emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> for the proposed Project and the 161 kV alternative. The public policy benefit was calculated by first identifying the change in the avoided tons of emissions for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>168</sup> These reductions in values for MISO Local Resource Zones 1, 2, and 3 were then multiplied by the Commission-approved externality values for each study year.<sup>169</sup> Benefits for each non-simulated year in the study period were interpolated between, or extrapolated from, benefits calculated in simulated years, and a PV of benefits for each year was then calculated.<sup>170</sup>

The results of ITC Midwest's analysis demonstrated that the 345 kV Project had higher public policy benefits than the 161 kV alternative because it provides greater estimated avoided emissions reductions for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> than the 161 kV

---

<sup>166</sup> Ex. XC-18 at 2-3 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>167</sup> Ex. XC-18 at 3 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>168</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>169</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)). The Commission-approved externality values for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> were taken from the Commission's January 3, 2018, Order updating Environmental Cost Values in Docket No. E999/CI-14-643. *In the Matter of the Further Investigation into Environmental and Socioeconomic Costs Under Minn. Stat. § 216B.2422, subd. 3*, Docket No. E999/CI-14-643, ORDER UPDATING ENVIRONMENTAL COST VALUES (Jan. 3, 2018).

<sup>170</sup> Ex. XC-18 at 5 (Abing Direct) (eDocket No. [20189-146252-01](#)).

alternative.<sup>171</sup> **Table 7**, below, shows the net avoided emissions for the Project and the 161 kV alternative.

**Table 7: Annual Net Avoided Emissions<sup>172</sup>**

Annual Emissions Benefit (short tons) for MISO LRZ's 1,2,3			
Preferred Option: Huntley-Wilmarth 345 kV			
	SO <sub>2</sub>	NO <sub>x</sub>	CO <sub>2</sub>
2021	105	85	159,048
2026	57	131	339,622
2031	22	33	442,764
Alternative: Huntley-Wilmarth 161 kV			
	SO <sub>2</sub>	NO <sub>x</sub>	CO <sub>2</sub>
2021	60	54	76,280
2026	52	90	210,511
2031	20	33	316,323

As a result, after multiplying the estimated total annual avoided emissions tonnages, shown above in **Table 7**, by the Commission-approved externality values for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>, the Project was identified to have more public policy benefits than the 161 kV alternative.<sup>173</sup> The range of net benefits for the 345 kV Project is \$368 million (2016\$) to \$770 million (2016\$) as compared to \$295 million (2016\$) to \$552 million (2016\$) for the 161 kV alternative.<sup>174</sup>

<sup>171</sup> Ex. XC-18 at 6 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>172</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>173</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>174</sup> Ex. XC-18 at 6 (Abing Direct) (eDocket No. [20189-146252-01](#)).

This conclusion was supported by DOC-DER witness Mr. Matthew Landi, who agreed that the Project would result in greater reductions of emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> for years 2021, 2026, and 2031 relative to the 161 kV alternative.<sup>175</sup> Therefore, the results of the Applicants' analysis demonstrates that the Project better supports Minnesota's policy objectives of minimizing overall emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>176</sup>

### **5. *Other Benefits of the Project***

Clean Energy Organizations' (CEOs) witness Mr. Michael Goggin, in his Direct Testimony, addressed additional benefits of the Huntley – Wilmarth Project, beyond the congestion relief and renewable development addressed above.<sup>177</sup> Mr. Goggin testified that:

the Project will increase wholesale electricity market competition, provide Minnesota consumers with resilience against reliability and economic risks, and provide environmental benefits. Transmission infrastructure is a powerful tool for increasing competition in wholesale power markets and reducing the potential for generators to harm consumers by exercising market power. Just as consumers who have access to one local retailer and lack high quality roads to easily access stores in other regions would be at the mercy of the prices charged by that retailer, a weak grid makes it possible for generation owners in constrained sections of the grid to exert market power and charge excessive prices. In any market, the more supply options that are available to an area, the less likely it is that any one of those suppliers will be in a position to exert market authority.<sup>178</sup>

---

<sup>175</sup> Ex. DER-3 at 33 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>176</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>177</sup> Ex. CEOS-1 at 24-29 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>178</sup> Ex. CEOS-1 at 24-25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

Mr. Goggin also highlighted transmission's ability to facilitate the integration of renewable energy by allowing greater aggregation of diverse renewable resources across a larger footprint, resulting in a steadier output from the resources, reducing operating reserve needs, and allowing a greater dependable contribution to meeting the system's peak demand needs.<sup>179</sup> Additionally, transmission capacity protects customers and reliability by allowing more electricity to be delivered to regions that are experiencing a shortage in the event an extreme event of any kind affects any source of supply or demand on the grid.<sup>180</sup> Transmission also protects consumers against uncertainty that may affect the power system, allowing for greater flexibility in shifting from one form of generation to another as fuel prices fluctuate, power plant capacity is added and retired, and electricity demand changes.<sup>181</sup> These additional benefits further support the need for the Huntley – Wilmarth Project.

## **6. *Alternatives Studied***

The Applicants analyzed a range of alternatives to the Project as required by Minnesota Certificate of Need statutes and rules. Specifically, the Applicants analyzed the following alternatives:

---

<sup>179</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>180</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>181</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

- (1) *Size Alternatives*: higher and lower voltage transmission line options as well as double circuiting the 345 kV line with another 345 kV line to increase Project capacity;
- (2) *Type Alternatives*: other endpoints for terminals/substations, upgrading existing transmission lines, double circuiting the proposed line with existing transmission lines, DC line instead of the proposed alternating current (AC) line, different types of conductors, new generation resources, and underground transmission lines; and
- (3) *No-Build Alternatives*: load growth as well as conservation and demand-side management.
- (4) *Generation Alternatives*: renewable energy resources and distributed generation sources.<sup>182</sup>

The Applicants, ultimately, determined that none of these alternatives was a more reasonable and prudent alternative to the Project.<sup>183</sup> DOC-DER witness Mr. Landi assessed the Applicants' analysis of alternatives to the proposed Project and reached a similar conclusion.<sup>184</sup> Specifically, Mr. Landi concluded that the Applicants' analysis of alternatives demonstrated sufficient consideration of reasonable alternatives to the

---

<sup>182</sup> Ex. XC-6 at 97-124 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. DER-3 at 6-7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>183</sup> Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>184</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

proposed Project.<sup>185</sup> Further, that the Applicants demonstrated that the proposed Project is the best choice available to the Applicants to address the congestion issue identified by MISO.<sup>186</sup>

Additionally, the Applicants also analyzed the 161 kV alternative under the MTEP17 and MTEP18 models.<sup>187</sup> Like the Project, the APC saving benefits of the 161 kV alternative decreased under the MTEP18 models. Notably, the decrease for the 161 kV alternative was much more pronounced, as demonstrated in **Table 8**, below.

**Table 8: MTEP17 and MTEP18 Comparison<sup>188</sup>**

Transmission Alternative	Cost Estimate (2016\$)	MTEP17 Weighted Benefit-to-Cost Ratio	MTEP18 Weighted Benefit-to-Cost Ratio	MTEP17 20-year Present Value Benefit (\$millions)	MTEP18 20-year Present Value Benefit (\$millions)
Huntley – Wilmarth new 345 kV transmission line (Green Route, monopole design)	\$121.3	1.88	1.47	\$275.83	\$212.61
Huntley – Wilmarth new 161 kV transmission line (Green Route, monopole design)	\$80.9	2.05	1.24	\$200.7	\$119.43

Due to the significant decrease in the economic benefits of the 161 kV alternative, the Project outperforms this alternative in the 20-year PV benefit in both model years, as well as the weighted benefit-to-cost ratio in MTEP18. This is worth noting because, as

<sup>185</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>186</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>187</sup> Ex. XC-24 at 39 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>188</sup> Ex. XC-24 at 39, Table 8 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

explained in the Direct Testimony of the Applicants' witness Mr. Siebenaler, the weighted benefit-to-cost ratio metric was the only metric where the 161 kV alternative slightly outperformed the Project under MTEP17 due to its lower cost.<sup>189</sup>

When considering the performance of the 161 kV alternative with regard to relieving the identified congestion under the MTEP18 models, the 161 kV alternative initially reduces 99 percent of the congestion in 2022, but only provides 94 percent and then 85 percent congestion relief by 2027 and 2032, respectively, as more wind is added to the system.<sup>190</sup> Conversely, the Project relieves 100 percent of the identified congestion throughout the study period.<sup>191</sup>

With respect to reducing curtailments under MTEP18, the Project is more effective than the 161 kV alternative at reducing curtailments in each of the four MTEP18 Futures, discussed above. The Project reduces curtailments by between 2.6 percent and 18.4 percent, whereas the 161 kV alternative only reduces curtailments by between 1.4 percent and 12.1 percent.<sup>192</sup> Therefore, the Project is better equipped to enable wind generation to be delivered across the transmission system.

The Applicants' analysis of the 161 kV alternative demonstrates that a 161 kV transmission line simply does not have sufficient capacity necessary to relieve all of the

---

<sup>189</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>190</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>191</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>192</sup> Ex. XC-24 at 40, Schedule 9 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



identified congestion along the Minnesota/Iowa border. As more and more wind generation is added to the system, the inadequacy of this lower voltage alternative becomes even more apparent as demonstrated by the declining congestion relief of the 161 kV alternative throughout the 20-year study period.<sup>193</sup> The Applicants ultimately concluded that, given the current and anticipated expansion of wind generation in the Upper Midwest, a 161 kV alternative simply does not provide the necessary capacity to transport this energy to customers.<sup>194</sup> Rather, the capacity of the Project is needed to enable this generation to reach customers and thus realize all of the benefits of this low-cost renewable wind generation.<sup>195</sup> DOC-DER witness Mr. Landi agreed that the Project, as proposed, is a superior option to address the identified congestion issue compared to the 161 kV alternative.<sup>196</sup>

The testimony and evidence submitted into the Certificate of Need record support the conclusion that the Project is needed to reduce transmission system congestion along the Minnesota/Iowa border while, in turn, improving the efficiency of the MISO energy market resulting in lower wholesale energy costs. The record also supports that the Project will strengthen the resilience of the regional grid and improve the deliverability of energy by reducing curtailments of wind generators. The record

---

<sup>193</sup> Ex. XC-24 at 41 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>194</sup> Ex. XC-24 at 42 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>195</sup> Ex. XC-24 at 42 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>196</sup> Ex. DER-3 at 48 (Landi Direct) (eDocket No. [201811-147664-03](#)).

testimony and evidence verify that the Huntley – Wilmarth Project meets these needs and that there is not a more prudent and reasonable alternative on the record.

#### **IV. CRITERIA FOR A CERTIFICATE OF NEED**

##### **A. Legal Requirements**

###### ***1. Overview and Burden of Proof***

Minnesota statutes and rules specify the criteria the Commission should apply in determining whether to grant a Certificate of Need. While this Project is the first MEP to seek a Certificate of Need in Minnesota, Minnesota statutes and rules governing this approval contemplate the need for a transmission project that improves the robustness of the transmission system and provides economic benefits as a result.

Minnesota Statutes section 216B.243 provides that a Certificate of Need is required prior to the construction of a “large energy facility” in Minnesota, as that term is defined in Minn. Stat. § 216B.2421.<sup>197</sup> Pertinent to this proceeding, the definition of a “large energy facility” includes “any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota or that crosses a state line.”<sup>198</sup> The Huntley – Wilmarth Project constitutes a large energy facility and requires a Certificate of Need from the Commission before construction can commence.

---

<sup>197</sup> Minn. Stat. § 216B.243, subd. 3.

<sup>198</sup> Minn. Stat. § 216B.2421, subd. 2(3).

The principal legal requirements for transmission Certificates of Need are found in Minn. Stat. § 216B.243, subds. 3 and 3a, together with the Commission's criteria for Certificates of Need in Minn. R. 7849.0120 (A)-(D). In addition, Minn. Stat. § 216B.2422, subd. 4 (renewable energy preference) and Minn. Stat. § 216B.2426 (distributed generation) must be taken into account when considering this Certificate of Need request.

The Applicants bear the burden of proving the claimed need for a proposed transmission line.<sup>199</sup> The burden of proof in this proceeding is proof by a preponderance of the evidence.<sup>200</sup>

## ***2. Statutory Requirements***

Minnesota Statutes section 216B.243, subdivisions 3 and 3a prescribe the Certificate of Need statutory requirements for large energy facilities and require the Commission to take into account all of the decision criteria set forth in the statute. The statutory provisions relevant to a Certificate of Need for a high-voltage transmission line are as follows:

Subd. 3. **Showing required for construction.** 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 and unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:

---

<sup>199</sup> See Minn. Stat. § 216B.243, subd. 3.

<sup>200</sup> Minn. R. 1400.7300, subp. 5.

- (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
- (2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;
- (3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;
- (4) promotional activities that may have given rise to the demand for this facility;
- (5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;
- (6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;
- (7) the policies, rules, and regulations of other state and federal agencies and local governments;
- (8) 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;
- (9) 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;

(10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 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;

(11) whether the applicant has made the demonstrations required under subdivision 3a; and

(12) 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.<sup>201</sup>

Subd. 3a. **Use of renewable resources.** 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 sources" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.<sup>202</sup>

### ***3. Minn. R. 7849.0120 Criteria***

Minnesota Rule 7849.0120 establishes criteria mirroring the criteria established in Minn. Stat. § 216B.243, subd. 3. The Commission must evaluate each of the "factors

---

<sup>201</sup> Minn. Stat. § 216B.243, subd. 3 (1)-(12).

<sup>202</sup> Minn. Stat. § 216B.243, subd. 3a.

listed under each of the criteria set forth in part 7849.0120 . . . to the extent that the commission considers them applicable and pertinent to a facility proposed” and “[t]he commission shall make a specific written finding with respect to each of the criteria.”<sup>203</sup>

The four rule factors, together with the twelve sub-factors, set forth in Minn. R. 7849.0120 are:

A. the probably 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:

(1) the accuracy of the applicant’s forecast of demand for the type of energy that would be supplied by the proposed facility;

(2) the effects of the applicant’s existing or expected conservation programs and state and federal conservation programs;

(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;

(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and

(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

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:

(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

---

<sup>203</sup> Minn. R. 7849.0100.

(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;

(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

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;

(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;

(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and

(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

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.<sup>204</sup>

---

<sup>204</sup> Minn. R. 7849.0120.

To be granted a Certificate of Need, the Applicants must satisfy the requirements of both the statutes and rules. In many respects, the statutory criteria and the Commission's rules are essentially the same. Because the Commission must make a written finding regarding each of the rule criteria,<sup>205</sup> the Applicants present their legal analysis by first focusing on the rules and reasoning why the Huntley – Wilmarth Project satisfies the rule criteria, noting, where applicable, Minnesota statutory and rule-based criteria overlap. Notably, there is no dispute in this record regarding the satisfaction of the Certificate of Need rule and statute criteria.<sup>206</sup>

## **B. Specific Application of Rule Criteria and Statutes**

### ***1. Minn. R. 7849.0120(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:***

Minnesota Rule 7849.0120(A) requires a determination 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.” As demonstrated by the record in this proceeding, denial of a Certificate of Need for this Project would result in adverse effects on the present and future efficiency of energy supply to Minnesota electric customers and other end users. The Huntley – Wilmarth Project is designed to improve the efficiency

---

<sup>205</sup> See Minn. R. 7849.0100.

<sup>206</sup> Ex. DER-5 at 32-33 (Rakow Direct) (eDocket No. [201811-147664-04](#)).



of the regional transmission system under a range of Futures by relieving one of the most congested areas in the MISO electric transmission system along the Minnesota/Iowa border. Relieving this congestion will improve deliverability and allow customers greater access to low-cost renewable energy, resulting in lower wholesale energy costs.

**a. Accuracy of the Demand Forecast. Minn. R. 7849.0120(A)(1)**

Minnesota Rule 7849.0120(A)(1) requires consideration of the “accuracy of the applicant’s forecast of demand for the type of energy that would be supplied by the proposed facility” when determining if denial of a Certificate of Need application would have an adverse effect. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(1), which requires the Commission, in assessing need, to consider “the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based.”

As discussed above in Section III.B, the Huntley – Wilmarth Project has demonstrated economic benefits due to its ability to increase access to low cost generation under three different MISO models—MTEP16, MTEP17, and MTEP18. These models include multiple Futures to study transmission needs under a variety of policy, economic, and social futures.<sup>207</sup> Each Future contains assumptions about

---

<sup>207</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

demand and energy forecasts as well as assumptions for future fuel costs, environmental regulations, demand and energy levels, and available technology.<sup>208</sup>

The demand and energy growth included in the MTEP Futures assumptions represent an aggregated average of the Local Balancing Areas (LBA) within MISO, meaning that the load growth input into the Futures models are based on local growth projections instead of a footprint-wide average being applied across the MISO footprint.<sup>209</sup> The demand and energy growth forecasts utilized by MISO are subject to stakeholder review and no party to this proceeding has challenged the accuracy of these forecasts.<sup>210</sup>

Additionally, DOC-DER witness Dr. Rakow conducted a comprehensive analysis based on the MTEP16 model and Futures and concluded that a reasonable forecast of new wind capacity will exceed, by a significant margin, the 4,300 MW amount necessary to achieve a 1.25 benefit-to-cost ratio under the MTEP16 models.<sup>211</sup> Based on this information and the changes in the transmission system due to the closure of the coal facilities relative to load centers like the Twin Cities, Dr. Rakow concluded that the Applicants have shown that the probable result of denial would be an adverse effect on the future adequacy, reliability, or efficiency of energy supply to the

---

<sup>208</sup> Ex. MISO-1 at 7 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>209</sup> Ex. XC-6 at 74-75 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>210</sup> Ex. XC-6 at 72 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>211</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

Applicants, to the Applicants' customers, and to the people of Minnesota and neighboring states.<sup>212</sup> The Applicants, therefore, have satisfied Minn. R. 7849.0120(A)(1).

**b. Effects of Conservation Programs. Minn. R. 7849.0120(A)(2)**

Minn. R. 7849.0120(A)(2) requires consideration of “the effects of the applicant’s existing or expected conservation programs and state and federal conservation programs.” This sub-factor relates to the following Certificate of Need statutory provisions: (1) Minn. Stat. § 216B.243, subd. 3, which states that “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”; (2) Minn. Stat. § 216B.243, subd. 3(2), which requires that the Commission consider “the effect of existing or possible energy conservation programs under Sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand”; and (3) Minn. Stat. § 216B.243, subd. 3(8), which provides that the Commission, in assessing need, shall consider “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.”

---

<sup>212</sup> Ex. DER-5 at 23-24 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

In the Certificate of Need Application, the Applicants stated that because the need for the Project is driven by increased amounts of wind generation along the Minnesota/Iowa border rather than increased demand, conservation and demand-side management programs are not effective alternatives to meet the identified need in this case.<sup>213</sup> Nonetheless, the Applicants evaluated these two methods to address the congestion concerns in southern Minnesota as part of their no-build alternative analysis, discussed above in Section III.B.6.

Because the Project is intended to alleviate congestion levels in the Mankato area, the existing system needed to be evaluated to determine if flow reduction levels needed to alleviate congestion throughout the study period could be achieved without the addition of new transmission facilities.<sup>214</sup> The Applicants' various analyses demonstrated that, in order to achieve the necessary congestion alleviation throughout the study period, the total MW on the system would need to be reduced from 240 MW to over 600 MW if only the existing generation fleet remains and up to a range of more than 700 MW to more than 1,800 MW if no new facilities were constructed.<sup>215</sup>

Moreover, DOC-DER witness Dr. Rakow reviewed the Applicants' analysis of the conservation and demand-side management programs and compared the identified load reduction amounts in this docket to targeted demand-side management

---

<sup>213</sup> Ex. XC-6 at 122 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>214</sup> Ex. XC-6 at 123 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>215</sup> Ex. XC-6 at 124 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

alternatives identified in other transmission Certificate of Need proceedings.<sup>216</sup> Based on his analysis, Dr. Rakow concluded that the effects of the Applicants' existing or expected conservation programs and state and federal conservation programs cannot be expected to address the claimed need.<sup>217</sup> The Applicants, therefore, have satisfied the requirements of Minn. R. 7849.0120(A)(2) and Minn. Stat. § 216B.243, subd. 3.<sup>218</sup>

**c. Effects of Promotional Practices. Minn. R. 7849.0120(A)(3)**

Minnesota Rule 7849.0120(A)(3) requires consideration of “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.” This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(4), which requires the Commission, in assessing need, to consider “promotional activities that may have given rise to the demand for this facility.”

In the Certificate of Need Application, the Applicants stated that neither Xcel Energy nor ITC Midwest has conducted any promotional activities or events that have triggered the need for the Project.<sup>219</sup> The Project is needed due to the large amount of wind capacity in southern Minnesota and northern Iowa coupled with transmission

---

<sup>216</sup> Ex. DER-5 at 25 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>217</sup> Ex. DER-5 at 25 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>218</sup> Likewise, given the implausibility of achieving such a large load reduction in a limited area, and given that such a load reduction effort would neither fully meet the identified need nor provide the economic and environmental benefits associated with the Project, there are no “more cost-effective” load reduction measures to meet the identified need. *See* Minn. Stat. § 216B.243, subd. 3.

<sup>219</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

constraints, causing congestion on this part of the transmission system.<sup>220</sup> This congestion is projected to worsen over the next 15 years as more wind facilities come on line in this area.<sup>221</sup> Further, the expected coal generation retirements north of the Twin Cities, such as Sherco Units 1 and 2 and Clay Boswell Units 1 and 2, increase the need for power to flow from northern Iowa to the Twin Cities on the currently-congested Huntley – Blue Earth 161 kV line.<sup>222</sup>

DOC-DER witness Dr. Rakow agreed with the Applicants that the need for congestion relief is due to the large amount of generation capacity in southwestern Minnesota and northwestern Iowa and that this phenomenon was not created by the Applicants' promotional activities.<sup>223</sup> Rather, it is due to the cost of energy from wind resources in the project area relative to the cost of energy from other existing and potential resources in the MISO region and changes in existing generation resources, including the fact that wind at costs available using sites in southwestern Minnesota and northwestern Iowa, is typically a least-cost addition to a utility's resource mix.<sup>224</sup> Dr. Rakow, therefore, concluded that the promotional practices of the Applicants did not

---

<sup>220</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>221</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>222</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>223</sup> Ex DER-5 at 26 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>224</sup> Ex DER-5 at 26 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

give rise to the need for congestion relief.<sup>225</sup> Therefore, the Minn. R. 7849.0120(A)(3) criteria is satisfied.

**d. Facilities Not Requiring Certificates of Need to Meet the Future Demand. Minn. R. 7849.0120(A)(4)**

Minnesota Rule 7849.0120(A)(4) requires consideration of “the ability of current facilities and planned facilities not requiring Certificates of Need to meet the future demand.” This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider “possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation.”

The Applicants explained that MISO’s model development practices are to include in MISO’s models all projects that have been approved by MISO.<sup>226</sup> Therefore, as stated by Dr. Rakow, “the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand” have been considered because all current facilities would be in MISO’s transmission models and all planned facilities that have been approved by MISO would also be included in MISO’s transmission models.<sup>227</sup> Dr. Rakow concluded that current facilities and planned facilities not

---

<sup>225</sup> Ex DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>226</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); *see* Ex. DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>227</sup> Ex. DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

requiring certificates of need have not been shown to be able to meet the need for congestion relief, and the record supports this conclusion.<sup>228</sup> Therefore, the Applicants have satisfied Minn. R. 7849.0120(A)(4).

**e. Making Efficient Use of Resources. Minn. R. 7849.0120(A)(5)**

Minnesota Rule 7849.0120(A)(5) requires consideration of “the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources.” The Applicants presented evidence demonstrating that, in addition to providing needed congestion relief along the Minnesota/Iowa border over the 15-year study period, the Project would also reduce curtailment of wind generation and reduce system line losses, particularly during the summer peak and off-peak, high-wind periods.<sup>229</sup> Therefore, as DOC-DER witness Dr. Rakow concluded, the Project would enable MISO to use generation resources more efficiently.<sup>230</sup> The criteria of Minn. R. 7849.0120(A)(5) is satisfied.

**2. *Minn. R. 7849.0120(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:***

Minnesota Rule 7849.0120(B) requires that “a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of

---

<sup>228</sup> Ex. DER-5 at 28 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>229</sup> Ex. XC-6 at 109-12 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>230</sup> Ex. DER-5 at 28 (Rakow Direct) (eDocket No. [201811-147664-04](#)).



the evidence on the record.” This factor is consistent with Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider “possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation.”

The Applicants’ burden of proof is met by providing evidence establishing the needs and showing that the proposed project is a reasonable and prudent way to satisfy the articulated needs. The burden falls on other parties to prove that any alternative they wish to sponsor is (i) sufficiently presented in the record to be considered, and (ii) is more reasonable and prudent than the Applicants’ proposal. In making its decision, the ALJ and the Commission “shall consider” only those alternatives for which “there exists substantial evidence on the record with respect to each of the criteria listed in part 7849.0120.”<sup>231</sup> This rule requires opponents of the proposed Project to come forward and establish the existence and characteristics of a more reasonable and prudent alternative.<sup>232</sup>

---

<sup>231</sup> Minn. R. 7849.0110.

<sup>232</sup> “This regulatory scheme is simply a practical way to prevent the issuance of a certificate of need when there is a more reasonable and prudent alternative to the proposed facility without requiring the applicant to face the extraordinary difficulty of proving that there is not a more reasonable and prudent alternative.” See *In the Matter of the Application of the City of Hutchinson for a Certificate of Need to Construct a Large Nat. Gas Pipeline*, No. A03-99, 2003 WL 22234703, at \* 7 (Minn. Ct. App. Sept. 23, 2003) (interpreting parallel pipeline rule under Certificate of Need statute); see also George A. Beck, MINN. ADMIN. PROCEDURE, § 10.3.1 (2d ed. 1998); *Peterson v. Mpls. St. Ry.*, 226 Minn. 27, 33, 31 N.W.2d 905, 909 (1948) (burden of producing sufficient evidence on specific issues).

Only when the other party demonstrates a “more reasonable and prudent alternative” will a permit be denied.<sup>233</sup> If a party wants a particular alternative to be considered, that party must make sure that sufficient evidence is submitted to satisfy the Commission’s requirement that “only those alternatives proposed before the close of the public hearing and for which there exists substantial evidence on the record with respect to each of the criteria listed in part 7849.0120” be considered.<sup>234</sup>

Consistent with state requirements, the Applicants analyzed multiple alternatives for meeting the identified needs. A more reasonable and prudent alternative was not demonstrated in MISO’s MTEP16 analysis or as part of the additional study work conducted by the Applicants. MISO staff and stakeholders developed more than 20 different transmission solutions to alleviate the congestion along the Minnesota/Iowa border. These solutions were tested for their ability to address this congestion under five Futures. Following this rigorous analysis, the proposed Project consisting of a new 345 kV circuit between the Huntley and Wilmarth substations was found to provide 100 percent congestion relief throughout the study period with a high benefit-to-cost ratio under the various Futures studied. The Project also enhances the regional transmission system with a new 345 kV connection to strengthen the region’s high-voltage power delivery system.

---

<sup>233</sup> See *City of Hutchinson*, 2003 WL 22234703, at \*7.

<sup>234</sup> Minn. R. 7849.0110.

In addition to the study work conducted by MISO, the Applicants considered multiple alternatives, including: (1) size alternatives (different voltages or conductor arrays, AC/DC, and double-circuit); (2) generation alternatives; and (3) a no build alternative (including demand-side management). The Applicants also analyzed the Huntley – Wilmarth 161 kV transmission line under the MTEP18 models. After reviewing these alternatives, the Applicants concluded that none is a more reasonable and prudent alternative to the Project.

Additionally, DOC-DER witness Mr. Landi conducted a comprehensive review of the Applicants' alternatives analysis and concluded that the Applicants demonstrated sufficient consideration of reasonable alternatives to the proposed Project.<sup>235</sup> Mr. Landi also concluded that the Applicants demonstrated that the proposed Project is the best option available to the Applicants to address the congestion issue identified by MISO.<sup>236</sup> And, lastly, no party offered any alternative to meet the identified need for the Project.

Minnesota Rule 7849.0120(B) lists four specific sub-factors for consideration in determining whether a more reasonable and prudent alternative has been established. These sub-factors are discussed below.

---

<sup>235</sup> Ex. DER-3 at 2-20 (Landi Direct) (eDocket No. [201811-147664-03](#)); *see also* Ex- DER-4 at 2-7 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)) (responding to the Applicants' updated 161 kV alternative analysis).

<sup>236</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

**a. Appropriateness of size, type, and timing. Minn. R. 7849.0120(B)(1)**

Minnesota Rule 7849.0120(B)(1) requires consideration of “the appropriateness of the size, type, and timing of the proposed facilities relative to reasonable alternatives.” The appropriateness of the size and type of the Project as compared to other alternatives, including the 161 kV alternative, was discussed in Section III.B.6. As noted, the Huntley – Wilmarth 345 kV Project is appropriately sized as it has sufficient capacity to resolve 100 percent of the identified congestion throughout the study period.

With respect to timing, the extensive record of congestion issues in the Blue Earth area suggests that the proposed in-service date for the Project by the end of 2021 is reasonable and that the identified congestion issue is likely to become more severe over time. DOC-DER witness Mr. Landi agreed, concluding that the proposed in-service date of the end of 2021 is reasonable.<sup>237</sup>

The record reflects that the Applicants have appropriately considered the size, type, and timing of the Project compared to those of the reasonable alternatives and found that the Project is superior in all respects. Therefore, the Applicants have satisfied Minn. R. 7849.0120(B)(1).

---

<sup>237</sup> Ex. DER-3 at 14 (Landi Direct) (eDocket No. [201811-147664-03](#)).

**b. Cost of the proposed facility and the cost of energy to be supplied by the proposed facility. Minn. R. 7849.0120(B)(2)**

Minnesota Rule 7849.0120(B)(2) requires consideration of “the cost of the proposed facility and the cost of the energy to be supplied by the proposed facility as compared to the costs of the reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives.” As addressed in Section III.B.5, Applicants analyzed the 161 kV alternative under the MTEP17 and MTEP18 models and compared the results of their analyses with those of the Project. The Applicants’ analyses demonstrated that the Project is a superior option to address the identified congestion issue compared to the 161 kV alternative.

DOC-DER witness Mr. Landi analyzed the Applicants’ internal cost analysis of the Project and the 161 kV alternative and concluded that the proposed Project appears to be a more reasonable investment, depending on the future route chosen.<sup>238</sup> Even if the highest cost route is chosen, however, Mr. Landi noted that the overall net present value benefit of the Project would be higher than the net present value benefit of the 161 kV alternative.<sup>239</sup> This analysis, along with the fact that the 161 kV alternative is not able to fully address the congestion issue, led Mr. Landi to conclude that the Applicants reasonably determined that the 161 kV alternative is not more economical

---

<sup>238</sup> Ex. DER-3 at 25-30 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>239</sup> Ex. DER-3 at 29 (Landi Direct) (eDocket No. [201811-147664-03](#)).

than the Project.<sup>240</sup> Mr. Landi, therefore, concluded that the Applicants’ internal cost analysis indicates that that 161 kV alternative is not a more reasonable and prudent alternative to the Project.<sup>241</sup>

Further, a lower voltage 161 kV alternative would also not meet MISO’s voltage thresholds to qualify as an MEP, as greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at the 345 kV voltage level or higher. As a result, any lower voltage alternative would not qualify for an MEP’s beneficial regional cost allocation treatment. Eighty percent of the cost of an MEP is allocated to pricing zones based on the distribution of positive APC savings to the Local Resource Zones and the remaining 20 percent are allocated to each pricing zone based on MISO Load Ratio Share.<sup>242</sup> In contrast, a lower voltage alternative would likely be classified as an “Other” project under the MISO Tariff and the costs for such a project would be assigned 100 percent locally to the applicable Transmission Owner(s) pricing zone.<sup>243</sup>

Based on the analyses performed, the Applicants have satisfied the requirement of Minn. R. 7849.0120(B)(2).

---

<sup>240</sup> Ex. DER-3 at 29 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>241</sup> Ex. DER-3 at 29 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>242</sup> Ex. XC-6 at 112 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>243</sup> Ex. XC-6 at 112 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

**c. Effects of the proposed facility upon the natural and socioeconomic environments. Minn. R. 7849.0120(B)(3)**

Minnesota Rule 7849.0120(B)(3) requires consideration of “the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives.” In the Draft EIS, Minnesota Department of Commerce, Energy Environmental Review and Analysis (DOC-EERA) staff compared the natural and socioeconomic effects of the Project and alternatives, including the 161 kV alternative.<sup>244</sup>

The Draft EIS assessed, among others, the aesthetic, agricultural, and natural resource impacts of the 345 kV and 161 kV lines. Aesthetic impacts are anticipated to be greater with a 345 kV line due to the height and visibility of the structures; however, agricultural impacts are likely to be greater for a 161 kV line due to the greater number of structures required. Impacts to natural resources would likely be similar for the two voltages, but there may be resources that could be spanned by a 345 kV line that could not be spanned by a 161 kV line. In these instances, a 161 kV line would have a greater impact on the resources (i.e., a 161 kV line would require that a structure be placed in the resources).<sup>245</sup> The DOC-EERA, therefore, concluded that the human and environmental impacts of a 161 kV line would be similar to those of a 345 kV line, but that there would be differences in the type and extent of impacts due to differences in

---

<sup>244</sup> Ex. EERA-13 at Chapter 4 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>245</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

structure heights and spans; therefore, a tradeoff exists between the differing voltages and their associated structures (i.e., a larger number of smaller structures (161 kV) versus a smaller number of larger structures (345 kV)).<sup>246</sup>

The Applicants also presented an analysis of socioeconomic costs and benefits, which included the environmental impact of changes to electricity generation resulting from the Project and from the 161 kV alternative. This environmental impact compared the changes in the emissions of CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>. The Applicants concluded, and the DOC-DER concurred, that the Project provides greater reductions in both CO<sub>2</sub> and NO<sub>x</sub> emission costs compared to the 161 kV alternative. Using the most recent Commission-approved values for externalities, and the dispatch assumptions from MISO's MTEP17 model, produces indicative results showing that the Project provides \$5.3 million (2016\$) to \$21.1 million (2016\$) in annual public policy benefits from emissions reduction during the simulated study years. In comparison, the 161 kV alternative provides indicative benefits of \$2.6 million (2016\$) to \$15.1 million (2016\$) in the same years.<sup>247</sup>

Based on the above discussion, the Applicants have satisfied the requirement of Minn. R. 7849.0120(B)(3).

---

<sup>246</sup> Ex. EERA-13 at Chapter 4 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>247</sup> Ex. XC-6 at 105 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)) (citing Ex. XC-6 at Appendix I (Certificate of Need Application) (eDocket No. [20181-139030-04](#))); Ex. DER-3 at 30-41 (Landi Direct) (eDocket No. [201811-147664-03](#)).



**d. The expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives. Minn. R. 7849.0120(B)(4)**

Minnesota Rule 7849.0120(B)(4) requires consideration of “the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives.” This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(9), which requires consideration of “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.”

As addressed in Section III.B.5, above, the Project provides superior reliability benefits compared to the 161 kV alternative. For instance, the Project relieves 100 percent of the identified congestion throughout the entire study period, whereas the 161 kV alternative does not, particularly as more wind is added to the system. Moreover, the Project is more effective than the 161 kV alternative at reducing curtailments.<sup>248</sup>

DOC-DER witness Dr. Rakow reviewed the Certificate of Need Application in light of Minn. Stat. § 216B.243, subd. 3(9) and concluded that the Project would result in lower costs for electric consumers in Minnesota and enhance the deliverability of energy.<sup>249</sup> Based on the analyses conducted by both the Applicants and the DOC-DER,

---

<sup>248</sup> Ex. XC-24 at 19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>249</sup> Ex. DER-5 at 31 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

the considerations established in Minn. R. 7849.0120(B)(4), and similarly Minn. Stat. § 216B.243, subd. 3(9), have been met.

***3. Minn. R. 7849.0120(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:***

Minnesota Rule 7849.010(C) requires that “by a preponderance of 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 proposed Project will reduce congestion and allow the transmission system to operate more efficiently and more cost-effectively, and pursuant to the Commission’s routing criteria, will be routed in a manner compatible with protecting the natural and socioeconomic environments.

**a. Relationship to Overall State Energy Needs. Minn. R. 7849.0120(C)(1)**

Minnesota Rule 7849.0120(C)(1) requires consideration of “the relationship of the Project, or a suitable modification thereof, to overall state energy needs.” As discussed in Section III.B.2, over the past two decades, the generation mix in Minnesota and surrounding states has dramatically shifted from relying primarily on coal and nuclear generation resources to a more diverse generation mix that includes increasing amounts of renewable energy, in particular, wind generation.

The exceptional growth of wind generation in Minnesota and the surrounding states has put unprecedented pressure on the transmission system to deliver the low-cost wind power to customers.<sup>250</sup> As more wind generation facilities have been constructed along the Minnesota/Iowa border over the past decade, transmission congestion in this area has increased.<sup>251</sup> The Applicants have demonstrated, in this proceeding, that the Huntley – Wilmarth Project is needed to eliminate the identified congestion at the Minnesota/Iowa border and will thus facilitate the connection of additional wind generation to the transmission system. Accordingly, the Project will advance Minnesota’s energy policies and the Applicants have, thus, satisfied Minn. R. 7849.0120(C)(1).

**b. Effects on the Natural and Socioeconomic Environments.  
Minn. R. 7849.0120(C)(2)**

Minnesota Rule 7849.0120(C)(2) requires consideration of “the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the efforts of not building the facility.” As explained in Section III.B.6, the Applicants considered a no-build alternative, under which the Project would not be constructed and all other electrical transmission facilities in south central Minnesota would remain as is. There would, therefore, be no direct natural or socioeconomic impacts as a result of this alternative.

---

<sup>250</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>251</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

However, as the record demonstrates, the no-build alternative would not meet the need for the Project. After analyzing load growth, conservation, and demand-side management, the Applicants concluded that none of these no-build alternatives are effective or reasonable alternatives to the Project.<sup>252</sup> DOC-DER witness Mr. Landi agreed with the Applicants' conclusions regarding the no-build alternatives.<sup>253</sup> The Applicants have, therefore, met the requirement of Minn. R. 7849.0120(C)(2).

**c. Effects in Inducing Future Development. Minn. R. 7849.0120(C)(3)**

Minnesota Rule 7849.0120(C)(3) requires consideration of “the effects of the proposed facility, or a suitable modification thereof, in inducing future development.” In the Certificate of Need Application, the Applicants state that the Project is not necessarily intended to induce future development, but it will support future economic development (i.e., additional wind generation in the area).<sup>254</sup> Based on this, Minn. R. 7849.0120(C)(3) is, therefore, satisfied.

**d. Socially Beneficial Uses of the Output. Minn. R. 7849.0120(C)(4)**

Minnesota Rule 7849.0120(C)(4) requires consideration of “the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof,

---

<sup>252</sup> Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. XC-6 at 121-24 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>253</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>254</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

including its uses to protect or enhance environmental quality.” This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(5), which, in relevant part, requires the Commission to consider “the benefits of this facility, including its uses to protect or enhance environmental quality . . .” As discussed throughout this Brief, the Project will relieve the current transmission congestion along the Minnesota/Iowa border, increase market access to lower cost wind generation, provide net economic benefits in terms of reduced wholesale energy costs, increase the robustness of the regional grid, and support future wind generation facilities in Minnesota and Iowa.<sup>255</sup> The Project satisfies the requirements of Minn. R. 7849.0120(C)(4) and, relatedly, Minn. Stat. § 216B.243, subd. 3(5).

***4. Minn. R. 7849.0120(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***

Minnesota Rule 7849.0120(D) requires 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.” This factor relates to Minn. Stat. § 216B.243, subd. 3(7), which requires the Commission, in

---

<sup>255</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

assessing need, to consider “the policies, rules, and regulations of other state and federal agencies and local governments.”

In the Certificate of Need Application, the Applicants assured that they will secure all necessary permits and authorizations prior to commencing construction on the portions of the Project requiring such approvals.<sup>256</sup> The Applicants also stated that they will comply with the relevant environmental requirements.<sup>257</sup>

DOC-DER witness Dr. Rakow reviewed the Applicants’ information on potentially-required permits and stated that he presumed that the various agencies will review and confirm that the Applicants are in compliance before granting their permits, relying on the various agencies to enforce their requirements.<sup>258</sup> Based on his analysis,

---

<sup>256</sup> Ex. XC-6 at 12, 176-77 (Certificate of Need Application) (listing all identified “other permits, approvals, or consultations that may be required”) (eDocket No. [20181-139030-01](#)).

<sup>257</sup> *See, e.g.*, Ex. XC-6 at 127 (Certificate of Need Application) (demonstrating that the 345 kV Project will comply with applicable federal and state standards with regard to concentrations of ozone and NO<sub>x</sub>); 128 (“All of the substation modifications required for the Project will comply with the Minnesota Pollution Control Agency (MPCA) Noise Area Classification noise standards as set forth in Minnesota Rule 7030.0040.”); 129 (“The Project will be designed in compliance with local, state, and [National Electric Safety Code (“NESC”)] standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths. Appropriate standards will be met for construction and installation, and all applicable safety procedures will be followed during and after installation.”); 130-32 (demonstrating that, with regard to maximum electric field limits, the Project will comply with the Commission’s standard of 8 kV/m measured at one meter above the ground); 139 (“The power lines will be designed to meet or exceed minimum clearance requirements with respect to electric fencing as specified by the NESC.”); 158 (“[T]he Applicants will comply with Xcel Energy’s construction standards, which include requirements of NESC and [the Occupational Safety and Health Administration (“OSHA”)].”); 174 (“Waters and wetlands permits and licenses, letters of no jurisdiction, or exemptions may be required from the USACE, MnDNR, and local units of government that administer the Wetland Conservation Act.”) (eDocket No. [20181-139030-01](#)).

<sup>258</sup> Ex. DER-5 at 29 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

Dr. Rakow concluded that the record does not demonstrate that the design, construction, or operation of the proposed Project, or a suitable modification of the proposed Project, would fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments and, therefore, the record does not demonstrate that the Applicants would fail to comply.<sup>259</sup> The requirements of Minn. R. 7849.0120 (D), and by relation Minn. Stat. § 216B.243, subd. 3(7), are met in this proceeding.

**C. Minn. Stat. §§ 216B.2426 and 216B.2422, subd. 4 (Renewable Energy Facilities and Distributed Generation Alternatives)**

In addition to Minn. R. 7849.0120(B)(1), discussed above, the DOC-DER analyzed Minn. Stat. §§ 216B.246 and 216B.2422, subd. 4 in its screening analysis to assess the Applicants' consideration of alternatives to the proposed Project.<sup>260</sup> Both of these statutes require consideration of renewable energy facilities and distributed generation alternatives before a Certificate of Need is approved. Specifically, pursuant to Minn. Stat. § 216B.2426, "[t]he 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." Further, Minn. Stat. § 216B.2422, subd. 4 requires consideration of renewable energy generating facilities:

---

<sup>259</sup> Ex. DER-5 at 29 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>260</sup> Ex. DER-3 at 5 (Landi Direct) (eDocket No. [201811-147664-03](#)).

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.

As explained in the Certificate of Need Application, the Applicants considered the addition of new generation resources rather than the proposed transmission line facilities to resolve the congestion currently present near the Minnesota/Iowa border.<sup>261</sup> Fundamentally, however, the Applicants concluded that adding new generation resources to resolve congestion is not a prudent alternative given the nature of the problem.<sup>262</sup> Transmission congestion occurs when there is not enough transmission capacity to support all generation requests for transmission services at a particular time.<sup>263</sup> Thus, regardless of the type of the generation facility evaluated, fossil-fueled or renewable, the construction of additional generation facilities is not a feasible and prudent alternative to the Project because such generation would: (1) further exacerbate the congestion already present on the system unless this generation is sited north of the existing congestion; (2) result in underutilization of existing generation resources; and (3) likely be more costly than the proposed Project.<sup>264</sup>

---

<sup>261</sup> Ex. XC-6 at 118 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>262</sup> Ex. XC-6 at 118 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>263</sup> Ex. XC-6 at 118 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>264</sup> Ex. XC-6 at 118 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



To be feasible, a generation alternative to reduce this congestion would need to be of equal or lower cost to the wind generation that is currently being constrained and would need to be built on the north side of the identified path of congestion (i.e., the Huntley – Blue Earth – South Bend – Wilmarth 161 kV to 115 kV path).<sup>265</sup> The Applicants determined that generation sited to the south of the congestion point would only exacerbate the existing congestion.<sup>266</sup> Further, this new generation would also need to be able to generate, at minimum, between approximately 120 MW and 370 MW (depending on the Future) during times when congestion is present to achieve the necessary congestion reduction.<sup>267</sup>

Given these existing conditions on the transmission system, the Applicants examined the construction of new wind generation facilities on the north side of the identified congestion (i.e., north of the Wilmarth Substation).<sup>268</sup> The Applicants determined that siting new large-scale wind generation north of the area of congestion would be difficult given the existing development and other considerations in the urban areas near the City of Mankato. Moreover, there is a decrease in the average annual

---

<sup>265</sup> Ex. XC-6 at 119 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>266</sup> Ex. XC-6 at 119 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>267</sup> Ex. XC-6 at 119 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>268</sup> Ex. XC-6 at 119 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

wind speed in areas farther north from the Iowa border.<sup>269</sup> As a result, a larger quantity of wind turbines would need to be constructed north of the area of congestion to achieve the same output as similar generation sited in areas to the south.<sup>270</sup> Specifically, because of the difference in wind speeds, 15 percent to 30 percent more nameplate capacity would be needed as compared to wind generation installed further south or approximately 340 MW to 1,800 MW of nameplate wind generation capacity.<sup>271</sup>

The Applicants also noted in the Certificate of Need Application that siting additional generation near the Mankato area has not been studied using a power flow model and such additional generation may have other system consequences such as reliability violations or result in new congested elements.<sup>272</sup> And adding more wind generation to the north of congestion, while it may relieve certain system constraints, will also result in underutilization of existing and more efficient wind generation sited in southern Minnesota and northern Iowa.<sup>273</sup> The Applicants, therefore, concluded that the addition of new renewable generation alternatives would either be insufficient or not cost-effective alternatives to the Project. DOC-DER witness Mr. Landi, who

---

<sup>269</sup> Ex. XC-6 at 119-20, Figure 28 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)) (demonstrating that wind speeds north of the City of Mankato are between 6.0 and 7.0 meters per second (m/s) whereas areas closer to the Iowa border range from 7.5 to 9.0 m/s).

<sup>270</sup> Ex. XC-6 at 120 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>271</sup> Ex. XC-6 at 120 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>272</sup> Ex. XC-6 at 121 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>273</sup> Ex. XC-6 at 121 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

assessed the Applicants' analysis of alternatives, agreed with the Applicants' conclusion and determined that the requirement of Minn. Stat. § 216B.2422, subd. 4 that the utility demonstrate that a renewable energy facility is not in the public interest has been met.<sup>274</sup>

With respect to Minn. Stat. § 216B.2426, the Applicants analyzed the ability of distributed rooftop solar and community solar gardens, distributed thermal resources, and distributed wind resources in the congested area to alleviate the identified congestion issue.<sup>275</sup> The Applicants concluded that the available distributed generation resources would be highly unlikely to resolve the identified congestion issue and that even if such resources could do so, each of these distributed energy resource options would be either insufficient or not cost-effective alternatives to the Project.<sup>276</sup> Mr. Landi concluded that the Applicants appropriately considered distributed generation alternatives in their consideration of alternatives to the proposed Project.<sup>277</sup> The requirements related to the consideration of renewable energy facilities and distributed generation alternatives to meet the needs of the Project have been satisfied.

---

<sup>274</sup> Ex. DER-3 at 19-20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>275</sup> Ex. DER-3 at 19, ML-6 (Landi Direct) (Applicants' Response to DOC DER IR No. 15 (May 11, 2018)) (eDocket No. [201811-147664-03](#)).

<sup>276</sup> Ex. DER-3 at 19, ML-6 (Landi Direct) (Applicants' Response to DOC DER IR No. 15 (May 11, 2018)) (eDocket No. [201811-147664-03](#)).

<sup>277</sup> Ex. DER-3 at 19-20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

#### **D. Summary of Rule and Statutory Analysis**

The foregoing analysis confirms that the Applicants have met their burden to prove by a preponderance of the evidence that the Huntley – Wilmarth Project is needed and that there is no more reasonable and prudent alternative on the record. The collective testimony and evidence in this proceeding demonstrate that the Project is needed for multiple reasons. First and foremost, the Project is needed to relieve transmission congestion along the Minnesota/Iowa border, one of the most congested areas in the region's electric transmission system. By relieving this congestion, the Project will provide net economic benefits in terms of lower wholesale energy costs. The Huntley – Wilmarth Project will also reduce wind generation curtailments, thereby enhancing energy delivery, reducing system generation costs, and providing environmental benefits in the form of lower carbon emissions. Additionally, the Project will improve the robustness of the regional transmission system such that it is able to better withstand system contingencies and more efficiently deliver energy from a diverse mix of generation resources.

The need for this Project is undisputed in this record. The Applicants, therefore, request that the ALJ find that the Applicants met their burden of proof and recommend that the Project satisfies the necessary legal requirements for the Commission to grant the Certificate of Need.

## **V. RECOMMENDED COMPLIANCE: PROJECT COST RECOVERY**

In his Direct Testimony, DOC-DER witness Mr. Mark Johnson made certain recommendations related to Project cost estimates.<sup>278</sup> Mr. Johnson recommended that (1) Xcel Energy not be allowed to recover through the Transmission Cost Recovery Rider any Project costs exceeding those estimated by the Applicants; and (2) any excess costs can be recovered in Xcel Energy's first rate case after the Project is in-service so long as Xcel Energy is able to justify that these excess costs are reasonable.<sup>279</sup> The Applicants' witness Mr. Grant Stevenson stated, in his Rebuttal Testimony, that Xcel Energy was willing to agree to Mr. Johnson's conditions, with one clarification.<sup>280</sup> Mr. Stevenson explained that, in his Direct Testimony, Mr. Johnson did not identify which costs would be used to establish a baseline for the Commission's review of Project costs.<sup>281</sup> In the Route Permit Proceeding, the Commission will determine the final route and design for the Project and may order mitigation.<sup>282</sup> For an appropriate baseline, the Applicants proposed to file, within 45 days of the written order, an updated estimate

---

<sup>278</sup> Ex. DER-1 at 11-19 (Johnson Direct) (eDocket No. [201811-147664-02](#)).

<sup>279</sup> Ex. DEC-1 at 19 (Johnson Direct) (eDocket No. [201811-147664-02](#)). Mr. Johnson narrowed his recommendation to Xcel Energy because, as explained in his Direct Testimony, the Commission does not have the same ability to hold ITC Midwest directly accountable for its Certificate of Need cost estimates as it does with traditional Minnesota rate-regulated utilities. Ex. DEC-1 at 15-16 (Johnson Direct) (eDocket No. [201811-147664-02](#)).

<sup>280</sup> Ex. XC-26 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>281</sup> Ex. XC-26 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>282</sup> Ex. XC-26 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

that accounts for any route changes or mitigation that the Commission may order. That estimate would then be the baseline to determine if there are any excess costs.<sup>283</sup>

With respect to why such a filing is necessary, Mr. Stevenson explained that, while he is confident in the Project cost estimates the Applicants have provided, it is important to confirm that the final cost estimates accurately reflect route and design changes and/or mitigation measures ordered by the Commission, due to the many route and design options that are currently under consideration in this proceeding.<sup>284</sup> Each of the cost estimates provided by the Applicants<sup>285</sup> assume one specific design and if the Commission were to select a different design, the cost estimates would need to be updated to reflect the selected design.<sup>286</sup>

Further, it is possible that the Commission could make route or alignment adjustments to these proposed routes in its order on the route permit. Likewise, an order on the route permit could include mitigation measures that were not contemplated by the Applicants in developing the Project cost estimates. These route and/or alignment adjustments and mitigation measures could impact the costs and the proposed cost estimate compliance filing would reflect these changes.<sup>287</sup> Mr. Stevenson

---

<sup>283</sup> Ex. XC-26 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>284</sup> Ex. XC-26 at 2-3 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>285</sup> See Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>286</sup> Ex. XC-26 at 3 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>287</sup> Ex. XC-26 at 3 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

also stated that, if the final Project cost estimate is different from the cost estimates that have been previously provided in this proceeding due to route adjustments or mitigation measures included in the order on the route permit, the Applicants would provide a detailed explanation for the reason for these differences.<sup>288</sup>

In his Surrebuttal Testimony, DOC-DER witness Mr. Johnson generally supported the Applicants' proposal to submit a final Project cost estimate within 45 days of the Commission's Order and recommended that the Commission accept the proposal with two clarifications.<sup>289</sup> First, Mr. Johnson recommended that the Commission provide the DOC-DER and other interested parties the opportunity to address whether they agree with Xcel Energy's final Project cost estimate.<sup>290</sup> Second, if the Commission approves Xcel Energy's proposal, Mr. Johnson recommended that the Commission require Xcel Energy to identify the costs clearly and ensure that the costs are easily trackable in future recovery in riders and rate cases.<sup>291</sup>

Xcel Energy agrees with the above clarification recommendations. Specifically, Xcel Energy commits to submit a compliance filing within 45 days of the Commission's written order providing the final Project cost estimate, with an opportunity for interested parties to comment on the information included in Xcel Energy's compliance

---

<sup>288</sup> Ex. XC-26 at 2-3 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>289</sup> Ex. DER-2 at 8-9 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

<sup>290</sup> Ex. DER-2 at 9 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

<sup>291</sup> Ex. DER-2 at 9 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

filing. Xcel Energy will identify the final Project costs clearly and ensure that the costs are easily trackable in future recovery in riders and rate cases. Any costs exceeding the final Project cost estimate can be recovered in Xcel Energy's first rate case after the Project is in-service, so long as Xcel Energy is able to justify that these excess costs are reasonable. The Applicants request that the ALJ recommend Commission approval of the treatment of and reporting on final Project cost estimates.

## **VI. CONCLUSION**

Based on the foregoing and the evidence in the record, the Applicants respectfully request that the ALJ recommend that the Commission grant a Certificate of Need to construct the approximately 50-mile 345 kV transmission line between Xcel Energy's existing Wilmarth Substation north of Mankato, Minnesota, and ITC Midwest's Huntley Substation south of Winnebago, Minnesota. The Applicants further request that the ALJ adopt the Proposed Findings submitted along with this Brief.



Dated: March 22, 2019

Respectfully submitted,

By: /s/ Valerie T. Herring

Valerie T. Herring (#336865)  
BRIGGS AND MORGAN, P.A.  
2200 IDS Center  
80 South Eighth Street  
Minneapolis, MN 55402  
(612) 977-8400

Mara K. Ascherman (#390451)  
Xcel Energy  
414 Nicollet Mall, 401-08  
Minneapolis, MN 55401  
(612) 215-4605

**ATTORNEYS FOR APPLICANT  
XCEL ENERGY**

By: /s/ Lisa M. Agrimonti

Lisa M. Agrimonti (#272474)  
FREDRIKSON & BYRON, P.A.  
200 South 6<sup>th</sup> Street, Suite 4000  
Minneapolis, MN 55402  
(612) 492-7344

**ATTORNEY FOR APPLICANT  
ITC MIDWEST LLC**

MPUC Docket No. E002, ET6675/CN-17-184  
OAH Docket No. 82-2500-35157

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION  
OF NORTHERN STATES POWER  
COMPANY AND ITC MIDWEST LLC FOR  
A CERTIFICATE OF NEED FOR THE  
HUNTLEY – WILMARTH 345 KV  
TRANSMISSION LINE PROJECT

**PROPOSED FINDINGS OF FACT,  
CONCLUSIONS OF LAW AND  
RECOMMENDATION**

## TABLE OF CONTENTS

STATEMENT OF ISSUE.....	2
SUMMARY OF RECOMMENDATIONS.....	2
FINDINGS OF FACT .....	2
I.    THE APPLICANTS AND OTHER PARTIES .....	2
II.   PROCEDURAL SUMMARY .....	6
III.  THE PROPOSED PROJECT.....	21
A.   Facilities.....	21
B.   MISO Market Efficiency Project .....	23
C.   Route Alternatives .....	24
D.   Proposed Transmission Line Structure Designs.....	28
E.   Right-Of-Way .....	31
F.   Costs .....	31
G.   Schedule .....	36
IV.  SUMMARY OF POSITIONS OF THE PARTIES.....	37
V.   PUBLIC PARTICIPATION AND COMMENTS .....	41
VI.  NEED OVERVIEW.....	42
A.   Minnesota’s Changing Generation Mix .....	44
B.   MISO’S Analysis of Need and Alternatives .....	48
1.    MISO MTEP Reports .....	48
2.    MTEP16.....	53
C.   The Applicants’ Analysis of Need .....	58
1.    The Applicants’ Analysis under MTEP17 Models and Futures .....	59
2.    Applicants’ Analysis under MTEP18 Models and Futures .....	62
3.    Benefit-to-Cost Ratios for Applicants’ Recommended Route Configurations .....	67

## TABLE OF CONTENTS

(continued)

4.	Applicants' Curtailment Analysis under MTEP17 and MTEP18.....	69
5.	Environmental Externalities Analysis.....	70
6.	Other Benefits of the Project.....	72
7.	Alternatives Studied .....	74
VII.	CRITERIA FOR A CERTIFICATE OF NEED .....	76
VIII.	APPLICATION OF STATUTORY AND RULE CRITERIA.....	81
A.	Minnesota Rule 7849.0120 Criteria.....	81
1.	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 Minnesota Rule 7849.0120 (A).....	81
2.	A More Reasonable and Prudent Alternative to the Proposed Facility Has Not Been Demonstrated by a Preponderance of the Evidence on the Record. Minnesota Rule 7849.0120 (B).....	88
3.	By a Preponderance of 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: .....	101
4.	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. Minnesota Rule 7849.0120 (D). .....	105
5.	Conclusion on Minnesota Rule 7849.0120 Criteria .....	106

## TABLE OF CONTENTS

(continued)

B.	Other Statutory Requirements .....	106
1.	The Renewable Energy Preference Statutes, Minnesota Statutes Sections 216B.243, Subdivision 3a and 216B.2422, Subdivision 4.....	106
2.	Distributed Generation, Minnesota Statutes Section 216B.2426.....	107
3.	Relationship of Proposed Line to Regional Energy Needs, Minnesota Statutes Section 216B.243, Subdivision 3(3).....	107
4.	RES Compliance, Minn. Stat. § 216B.243, Subd. 3(10) .....	108
C.	Adequacy of the EIS .....	109
IX.	OTHER ISSUES.....	110
	CONCLUSIONS .....	111
	RECOMMENDATION.....	113

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION OF  
NORTHERN STATES POWER COMPANY AND  
ITC MIDWEST LLC FOR A CERTIFICATE OF  
NEED FOR THE HUNTLEY – WILMARTH 345  
KV TRANSMISSION LINE PROJECT

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

An evidentiary hearing was held before Administrative Law Judge (ALJ) Barbara J. Case on February 11, 2019, in St. Paul, Minnesota in the above-captioned matter. Public hearings were held in Mankato on February 27, 2019, in Delavan on February 28, 2019, and in Mapleton on February 28, 2019. Written public comments were received until March 15, 2019.

Post hearing briefs were filed on March 22, 2019, and responsive briefs were filed on April 15, 2019.

The following appearances were made:

Mara K. Ascherman, Xcel Energy, and Valerie T. Herring, Briggs and Morgan, P.A., appeared on behalf of Northern States Power Company, doing business as Xcel Energy.

Lisa M. Agrimonti, Fredrikson and Byron, P.A., appeared for and on behalf of the ITC Midwest LLC (ITC Midwest). ITC Midwest in-house counsel Timothy Iannettoni was also present.

Katherine Hinderlie and Peter Madsen, Assistant Attorney Generals, appeared for and on behalf of the Minnesota Department of Commerce, Division of Energy Resources (DOC-DER).

Linda S. Jensen, Assistant Attorney General, appeared for and on behalf of the Minnesota Department of Commerce, Energy Environmental Review and Analysis (DOC-EERA).

Amelia Vohs, Attorney at Law, Minnesota Center for Environmental Advocacy (MCEA), appeared for and on behalf of Clean Grid Alliance (formerly, Wind on the Wires (WOW)) and MCEA (Clean Energy Organizations or CEOs).

Omar Bustami and Debra D. Roby, Jennings Strouss & Salmon, P.L.C., and Michael H. Kennedy, Kennedy and Kennedy, appeared on behalf of the City of North Mankato (North Mankato).

Jeffrey L. Small, Attorney at Law, appeared for and on behalf of the Midcontinent Independent System Operator, Inc. (MISO).

William E. Flynn and Kathryn E. Wendt, Ballard Spahr, L.L.P., appeared on behalf of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. (collectively, Magellan).

Tricia DeBleeckere and Charley Bruce, appeared on behalf of the Minnesota Public Utilities Commission (Commission).

### **STATEMENT OF ISSUE**

Have Xcel Energy and ITC Midwest (collectively, the Applicants) satisfied the criteria set forth in Minn. Stat. § 216B.243 and Minn. R. ch. 7849 and other applicable statutes for a Certificate of Need for the Huntley – Wilmarth 345 kilovolt (kV) Transmission Line Project (Huntley – Wilmarth Project or Project)?

### **SUMMARY OF RECOMMENDATIONS**

The ALJ concludes that the Applicants have satisfied all relevant criteria set forth in Minnesota law for a Certificate of Need for the Huntley – Wilmarth Project and that there are no statutory or other requirements that preclude granting a Certificate of Need based on the record.

Based on the information in the Certificate of Need Application, the Environmental Impact Statement (EIS), the testimony at the public hearings and evidentiary hearing, written comments, exhibits received in this proceeding, and other evidence in the record, the ALJ makes the following:

### **FINDINGS OF FACT**

#### **I. THE APPLICANTS AND OTHER PARTIES**

1. Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, headquartered in Minneapolis, Minnesota, is engaged in the business of generating, transmitting, distributing, and selling electric power and energy and related services in the states of Minnesota, North Dakota, and South Dakota.<sup>1</sup> In

---

<sup>1</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

Minnesota, Xcel Energy provides electric service to approximately 1.3 million customers.<sup>2</sup> Xcel Energy is a wholly-owned utility operating company subsidiary of Xcel Energy Inc. and operates its transmission and generation system as a single integrated system with its sister company, Northern States Power Company, a Wisconsin corporation, known together as the NSP Companies.<sup>3</sup> The NSP Companies are vertically integrated transmission-owning members of MISO.<sup>4</sup> Together, the NSP Companies are among the largest transmission-owning members of MISO with over 8,000 miles of transmission lines and approximately 550 transmission and distribution substations.<sup>5</sup>

2. ITC Midwest LLC (ITC Midwest) is a transmission-only utility that owns approximately 6,600 circuit miles of transmission lines and more than 200 transmission substations in Minnesota, Iowa, Illinois, and Missouri.<sup>6</sup> ITC Midwest is a “transmission company” pursuant to Minn. Stat. § 216B.02, subd. 10.<sup>7</sup> ITC Midwest is a public utility under Section 203 of the Federal Power Act.<sup>8</sup> As such, ITC Midwest is subject to rate and other regulatory oversight by the Federal Energy Regulatory Commission (FERC).<sup>9</sup> ITC Midwest is part of ITC Holdings Corp., the largest independent transmission company in the United States, with ITC Holdings Corp., the sole member of ITC Midwest, headquartered in Novi, Michigan, and ITC Midwest’s headquarters in Cedar Rapids, Iowa.<sup>10</sup>

3. The Department of Commerce, Division of Energy Resources (DOC- DER) is statutorily authorized to intervene in Certificate of Need proceedings and to participate in Commission matters involving utility rates and the adequacy of utility services.<sup>11</sup>

---

<sup>2</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>3</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>4</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>5</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>6</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>7</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>8</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>9</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>10</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>11</sup> Minn. Stat. §§ 216C.09(b), 216C.10(a)(9), 216B.243, subd. 7 (2012).



4. The Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) is required to conduct an environmental review and to prepare an environmental report for a proposed high voltage transmission line seeking a Certificate of Need.<sup>12</sup> The DOC-EERA can elect, as it did here, to prepare an EIS, in lieu of an environmental report in certain circumstances.<sup>13</sup>

5. In this proceeding, the Clean Energy Organizations (CEOs) comprise not-for-profit environmental organizations Clean Grid Alliance (formerly Wind on the Wires or WOW) and MCEA.<sup>14</sup> Clean Grid Alliance was founded as WOW in 2001 and currently has 43 members, including environmental organizations, wind/solar/battery developers, tribal interest organizations, and wind industry businesses.<sup>15</sup> Clean Grid Alliance works to overcome barriers to bringing utility-scale wind and solar power to Midwest markets.<sup>16</sup> MCEA works in the courts, the legislature, and state agencies to protect Minnesota’s wildlife, natural resources, and the health of its people as well as to pursue environmentally-sustainable energy policies.<sup>17</sup>

6. North Mankato is a city situated in Nicollet and Blue Earth counties in Minnesota.<sup>18</sup> North Mankato’s city limits and planned development areas are located within or in the immediate vicinity of certain route options proposed by the Applicants for the Huntley – Wilmarth Project.<sup>19</sup>

7. The Midcontinent Independent System Operator, Inc. (MISO) is a not-for-profit, member-based regional transmission Organization (RTO), which provides

---

<sup>12</sup> Minn. R. 7849.1200.

<sup>13</sup> Minn. R. 7849.1900, subp. 2.

<sup>14</sup> Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1 (May 4, 2018) (eDocket No. [20185-142771-02](#)); *see also* Notice of WOW Name Change (Sept. 26, 2018) (eDocket No. [20189-146648-04](#)).

<sup>15</sup> Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1 (May 4, 2018) (eDocket No. [20185-142771-02](#)).

<sup>16</sup> Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1 (May 4, 2018) (eDocket No. [20185-142771-02](#)).

<sup>17</sup> Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1-2 (May 4, 2018) (eDocket No. [20185-142771-02](#)).

<sup>18</sup> Petition to Intervene of the City of North Mankato at 2 (Apr. 13, 2018) (eDocket No. [20184-141969-01](#)).

<sup>19</sup> Petition to Intervene of the City of North Mankato at 2 (Apr. 13, 2018) (eDocket No. [20184-141969-01](#)).

reliability and market services over 65,800 miles of transmission in 15 states and one Canadian Province, including throughout the State of Minnesota.<sup>20</sup> MISO is governed by an independent ten-member Board of Directors and responsible for operational oversight and control, market operations, and planning of the transmission systems of its member transmission Owners.<sup>21</sup> As the reliability and Planning Coordinator for the transmission system in its footprint, MISO's planning process includes the development of the MISO's Transmission Expansion Plan (MTEP), which analyzes and approves transmission projects.<sup>22</sup>

8. Magellan Pipeline Company, L.P. (Magellan) is a federally-regulated interstate pipeline limited partnership.<sup>23</sup> It operates and maintains pipelines and related facilities for the transportation, storage, and distribution of refined petroleum products in fifteen states, including Minnesota.<sup>24</sup> Currently, Magellan's delivery network in Minnesota includes a terminal in Mankato, along with pipelines running from that terminal to Albert Lea.<sup>25</sup> Magellan Ammonia Pipeline, L.P. owns a pipeline that transports anhydrous ammonia from production lines in Oklahoma and Texas to distribution terminals in Kansas, Nebraska, Iowa, and Minnesota.<sup>26</sup> This pipeline terminates at the distribution terminal in Mankato and serves as a primary source of anhydrous ammonia to Minnesota farmers.<sup>27</sup>

---

<sup>20</sup> Petition to Intervene by the Midcontinent Independent System Operator, Inc. at 1 (Apr. 16, 2018) (eDocket No. [20184-142025-01](#)).

<sup>21</sup> Petition to Intervene by the Midcontinent Independent System Operator, Inc. at 2 (Apr. 16, 2018) (eDocket No. [20184-142025-01](#)).

<sup>22</sup> Petition to Intervene by the Midcontinent Independent System Operator, Inc. at 1-2 (Apr. 16, 2018) (eDocket No. [20184-142025-01](#)).

<sup>23</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

<sup>24</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

<sup>25</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

<sup>26</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

<sup>27</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 1-2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

## II. PROCEDURAL SUMMARY

9. On March 3, 2017, the Applicants notified the Commission by letter, pursuant to Minn. Stat. § 216B.246, subd. 3(a), that they intend to construct, own, and maintain the Huntley – Wilmarth Project to be located in south central Minnesota.<sup>28</sup>

10. On June 30, 2017, the Applicants submitted, for the Commission's approval, a Notice Plan for the Certificate of Need Application to construct the Huntley – Wilmarth Project, pursuant to Minn. R. 7829.2550.<sup>29</sup>

11. On July 14, 2017, the Applicants submitted a Request for Exemptions from certain Certificate of Need Application requirements, pursuant to Minn. R. 7849.0200, subp. 6.<sup>30</sup>

12. On July 19, 2017, the Commission issued a Notice of Comment Period on the Applicants' request for exemptions from certain Certificate of Need filing requirements, requesting initial comments by August 3, 2017, and reply comments by August 10, 2017.<sup>31</sup>

13. On July 20, 2017, the DOC-DER filed Comments recommending the Commission approve the Applicants' proposed Notice Plan with modifications.<sup>32</sup> The DOC-DER recommended that the Applicants add the *Maple River Messenger* and a statewide newspaper to the list of newspapers through which notification of the Project will be published.<sup>33</sup> The DOC-DER also recommended granting the requested variance to Minn. R. 7829.2550, allowing direct notices to occur no more than 60 days and no less than two weeks prior to the filing of the Certificate of Need Application, and to

---

<sup>28</sup> Ex. XC-1 (Notice of Intent) (eDocket No. [20173-129654-01](#)).

<sup>29</sup> Ex. XC-2 (Notice Plan) (eDocket No. [20176-133380-01](#)).

<sup>30</sup> Ex. XC-3 (Request for Exemptions) (eDocket No. [20177-133882-01](#)).

<sup>31</sup> Notice of Comment Period on Request for Exemptions from Certain Filing Requirements (July 19, 2017) (eDocket No. [20177-134016-01](#)).

<sup>32</sup> DOC-DER Comments on the Applicants' Notice Plan Petition (July 20, 2017) (eDocket No. [20177-134081-01](#)).

<sup>33</sup> DOC-DER Comments on the Applicants' Notice Plan Petition (July 20, 2017) (eDocket No. [20177-134081-01](#)).

Minn. R. 7829.2500, removing the requirement that the notice in the statewide newspaper must be published at the time the Certificate of Need Application is filed.<sup>34</sup>

14. On August 3, 2017, the DOC-DER submitted Comments recommending that the Commission approve all exemptions requested by the Applicants from the Certificate of Need Application requirements.<sup>35</sup>

15. On August 9, 2017, the Applicants submitted Reply Comments to the DOC-DER's Comments on the Notice Plan and Exemption Request, agreeing to add the *Maple River Messenger* and a statewide newspaper (the *Star Tribune*) to the list of newspapers through which notification of the Project will be published.<sup>36</sup>

16. On August 9, 2017, North Mankato submitted a Memorandum<sup>37</sup> outlining concerns regarding certain preliminary route segments for the Project, along with a City Resolution No. 47-17 requesting the Applicants to remove these route segments from their Route Permit Application.<sup>38</sup>

17. On August 11, 2017, the Commission issued a Notice that the Applicants' Notice Plan and Exemption Request petitions will be heard at the Commission's August 24, 2017, agenda meeting.<sup>39</sup>

18. On August 17, 2017, the Commission Staff issued Briefing Papers on the Applicants' Notice Plan and Exemption Request petitions.<sup>40</sup>

---

<sup>34</sup> DOC-DER Comments on the Applicants' Notice Plan Petition (July 20, 2017) (eDocket No. [20177-134081-01](#)).

<sup>35</sup> DOC-DER Comments on the Applicants' Exemption Request (Aug. 3, 2017) (eDocket No. [20178-134493-01](#)).

<sup>36</sup> Ex. XC-4 (Applicants' Reply Comments to the DOC-DER's Comments on the Notice Plan and Exemption Request Petitions) (eDocket No. [20178-134590-01](#)).

<sup>37</sup> Ex. NM-20 (Memorandum by the City of North Mankato) (eDocket No. [20178-134576-03](#)).

<sup>38</sup> Ex. NM-19 (Resolution No. 47-17 by the City of North Mankato) (eDocket No. [20178-134576-01](#)).

<sup>39</sup> Notice of Commission Meeting (Aug. 11, 2017) (eDocket No. [20178-134648-03](#)).

<sup>40</sup> Commission Staff Briefing Papers on Notice Plan and Exemption Request from Certain Certificate of Need Filing Requirements (Aug. 17, 2017) (eDocket No. [20178-134789-01](#)).

19. On September 1, 2017, the Commission issued an Order approving the Notice Plan, as modified and with the requested variance, and the Exemption Request from certain filing requirements for the Certificate of Need Application.<sup>41</sup>

20. On October 13, 2017, the City of Mankato submitted Comments on certain preliminary route options for the Project with exhibits.<sup>42</sup>

21. On January 5, 2018, the Applicants submitted a Notice Plan Compliance Filing, demonstrating that the Applicants have fulfilled all of the elements under the Commission-approved Notice Plan, including direct mail notices to landowners, mailing addresses, tribal governments, and federal, state, and local government agencies/offices as well as newspaper notices published between December 13, 2017, and December 18, 2017, in local and statewide newspapers.<sup>43</sup>

22. On January 17, 2018, the Applicants filed their Application for a Certificate of Need for the Huntley – Wilmarth Project, requesting that the Commission combine the Certificate of Need and Route Permit proceedings pursuant to Minn. Stat. § 216B.243, subd. 4.<sup>44</sup>

23. On January 19, 2018, the Commission issued a Notice of Comment Period on Certificate of Need Application Completeness, stating that the initial comment period will close on February 2, 2018, and the reply comment period will close on February 14, 2018.<sup>45</sup>

24. On February 2, 2018, the DOC-DER submitted Completeness Comments, recommending that the Commission determine that the Certificate of Need

---

<sup>41</sup> Commission Order Approving the Notice Plan Petition As Modified With Variance and the Exemption Request Petition (Sept. 1, 2017) (eDocket No. [20179-135212-01](#)).

<sup>42</sup> City of Mankato's Comments on preliminary route options for the Project and Exhibits A-E (Oct. 13, 2017) (eDocket Nos. [201710-136468-01](#), [201710-136468-02](#), [201710-136468-03](#), [201710-136468-04](#), [201710-136468-05](#), [201710-136468-06](#)).

<sup>43</sup> Ex. XC-5 (Notice Plan Compliance Filing) (eDocket No. [20181-138688-01](#)).

<sup>44</sup> Ex. XC-6 (Filing Letter) (eDocket No. [20181-139029-01](#)), Application Summary (eDocket No. [20181-139028-01](#)), Certificate of Need Application (eDocket No. [20181-139030-01](#)), Exhibits A-N (eDocket Nos. [20181-139030-02](#), [20181-139030-03](#), [20181-139030-04](#), [20181-139030-05](#), [20181-139030-06](#), [20181-139030-07](#)), and Filing Fee (eDocket No. [20181-139050-01](#)).

<sup>45</sup> Notice of Comment Period on Certificate of Need Application Completeness (Jan. 19, 2018) (eDocket No. [20181-139101-01](#)).

Application is substantially complete and refer the matter to the Office of Administrative Hearings (OAH) for a contested case proceeding.<sup>46</sup>

25. On February 6, 2018, North Mankato submitted Comments on the Completeness of the Certificate of Need and Route Permit Applications, stating North Mankato's objection to all portions of the Red and Green routes that conflict with North Mankato's Comprehensive Development Plan.<sup>47</sup>

26. On February 23, 2018, the Commission issued a Notice of Commission Meeting, scheduling the Certificate of Need Application and the Route Permit Application for the March 8, 2018, agenda meeting.<sup>48</sup>

27. On March 1, 2018, the Commission Staff issued Briefing Papers on the Completeness of the Certificate of Need Application.<sup>49</sup>

28. On March 28, 2018, the Commission issued an Order Finding Applications Complete and Notice of and Order for Hearing, accepting the Certificate of Need and Route Permit applications as substantially complete; authorizing joint hearings and combined environmental review for the Applications; authorizing the DOC-EERA to establish an advisory task force; granting variances to Minn. R. 7849.0200, subp. 5 and 7849.1400, subp 3; and referring the applications to the OAH for contested case proceedings.<sup>50</sup>

29. On March 29, 2018, the Commission issued a Notice of Public Information and Environmental Impact Statement Scoping Meetings, informing that four public meetings will be held in Mankato (two meetings), Winnebago (one meeting), and Mapleton (one meeting) as well as notifying of a public comment period from March 29, 2018, through May 4, 2018.<sup>51</sup> The Notice requested comments on the

---

<sup>46</sup> DOC-DER Comments on Certificate of Need Application Completeness (Feb. 2, 2018) (eDocket No. [20182-139696-01](#)).

<sup>47</sup> Ex. NM-21 (North Mankato Comments on Completeness) (eDocket No. [20182-139840-01](#)).

<sup>48</sup> Notice of Commission Meeting (Feb. 23, 2018) (eDocket No. [20182-140425-05](#)).

<sup>49</sup> Commission Staff Briefing Papers on Completeness of the Certificate of Need Application (Mar. 1, 2018) (eDocket No. [20183-140645-01](#)).

<sup>50</sup> Ex. PUC-2 (Order Finding Applications Complete and Notice of and Order for Hearing) (eDocket No. [20183-141450-02](#)).

<sup>51</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings (eDocket No. [20183-141503-02](#)).



environmental impacts, mitigation methods, alternative route options, and any other ways to meet the stated need for the Project that should be studied in the EIS.<sup>52</sup>

30. On April 2, 2018, the DOC-EERA published a Notice in the *EQB Monitor* informing that the Commission and DOC-EERA will hold public information and EIS scoping meetings for the Project, including information about the Project, opportunities for participation in the process, and meeting times and locations.<sup>53</sup>

31. On April 6, 2018, Xcel Energy, ITC Midwest, and the DOC-DER filed Notices of Appearance.<sup>54</sup>

32. Between April 13, 2018, and June 5, 2018, North Mankato, MISO, CEOs, and Magellan filed Notices of Appearance and Interventions.<sup>55</sup>

33. On April 17, 2018, DOC-EERA issued a Notice that the April 18, 2018, Public Information and Environmental Impact Statement Scoping Meetings to be held in Winnebago and Mapleton were postponed due to a winter weather advisory issued by the National Weather Service.<sup>56</sup>

34. On April 17, 2018, the Commission and the DOC-EERA held two public information and EIS scoping meetings in Mankato, Minnesota.<sup>57</sup>

35. On April 24-25, 2018, the Commission issued a Notice of Rescheduled Public Information and Environmental Impact Statement Scoping Meetings, to be held

---

<sup>52</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings) (eDocket No. [20183-141503-02](#)).

<sup>53</sup> *EQB Monitor* Notice of Public Hearing (Aug. 2, 2018) (eDocket No. [20188-145502-01](#)).

<sup>54</sup> ITC Midwest Notice of Appearance (Apr. 6, 2018) (eDocket No. [20184-141747-01](#)); Xcel Energy Notice of Appearance (Apr. 6, 2018) (eDocket No. [20184-141756-02](#)); DOC-DER Notice of Appearance (Apr. 6, 2018) (eDocket No. [20184-141760-01](#)).

<sup>55</sup> North Mankato Notice of Appearance (Apr. 13, 2018) (eDocket No. [20184-141968-01](#)); MISO Notice of Appearance (Apr. 16, 2018) (eDocket No. [20184-142027-01](#)); CEOs Notice of Appearance (Apr. 27, 2018) (eDocket No. [20184-142491-01](#)); Magellan Notice of Appearance (May 4, 2018) (eDocket No. [20184-142491-01](#)).

<sup>56</sup> Ex. EERA-4 (Notice of Meeting Postponed) (eDocket No. [20184-142065-01](#)).

<sup>57</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings) (eDocket No. [20183-141503-02](#)).

in Winnebago and Mapleton on May 9, 2018.<sup>58</sup> The Notice also extended the public comment period from March 26, 2018, through May 18, 2018.<sup>59</sup>

36. On May 4, 2018, ALJ Case issued Orders Granting Intervention to North Mankato<sup>60</sup> and MISO.<sup>61</sup>

37. On May 9, 2018, the Commission and the DOC-EERA held public information and EIS scoping meetings in Winnebago, Minnesota, and Mapleton, Minnesota.<sup>62</sup>

38. On May 17, 2018, ALJ Case issued an Order Granting Intervention to the CEOs.<sup>63</sup>

39. On May 18, 2018, the Applicants submitted their comments on the scope of the EIS being prepared for the Project, proposing four additional route segments to be included in the EIS.<sup>64</sup>

40. Comments on the scope of the EIS were filed by Carol A. Overland on May 18, 2018,<sup>65</sup> and North Mankato on May 21, 2018.<sup>66</sup> On May 24, 2018, the DOC-EERA filed written comments on the scope of the EIS received from governmental

---

<sup>58</sup> Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings) (eDocket No. [20184-142365-02](#)).

<sup>59</sup> Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings) (eDocket No. [20184-142365-02](#)).

<sup>60</sup> Order Granting Intervention to the City of North Mankato (May 4, 2018) (eDocket No. [20185-142763-02](#)).

<sup>61</sup> Order Granting Intervention to the Midcontinent Independent System Operator, Inc. (May 4, 2018) (eDocket No. [20185-142763-01](#)).

<sup>62</sup> Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings) (eDocket No. [20184-142365-02](#)).

<sup>63</sup> Order Granting Intervention to the CEOs (May 17, 2018) (eDocket No. [20185-143125-01](#)).

<sup>64</sup> Ex. XC-12 (Applicants' Comments on the Scope of the EIS) (eDocket No. [20185-143207-02](#)).

<sup>65</sup> Carol A. Overland's Comments on Scope of EIS (eDocket No. [20185-143209-02](#)).

<sup>66</sup> Ex. NM-22 (City of North Mankato's Comments on the Scope of the EIS) (eDocket No. [20185-143213-02](#)).



agencies,<sup>67</sup> the Applicants,<sup>68</sup> local government units,<sup>69</sup> and public citizens.<sup>70</sup> The DOC-EERA also filed oral citizen comments received during the public information and EIS scoping meetings held on April 17, 2018, in Mankato and on May 9, 2018, in Winnebago and Mapleton.<sup>71</sup>

41. On May 23, 2018, the Commission filed the Speak Up report of comments received through that venue, including two written comments.<sup>72</sup>

42. On May 25, 2018, ALJ Case issued the First Prehearing Order, establishing procedural timelines and the schedule of proceedings.<sup>73</sup>

43. On July 17, 2018, the DOC-EERA issued its Decision on the Scope of the EIS, including one new route (Purple-E-Red), thirteen new segment alternatives, and three new alignment alternatives for consideration.<sup>74</sup> One of the six segment alternatives proposed by the Applicants in the Route Permit Application (Segment C) was not carried forward for analysis in the EIS.<sup>75</sup>

44. On July 18, 2018, the DOC-EERA issued a Notice of its EIS Scoping Decision<sup>76</sup> and mailed letters to landowners who may be affected by a routing

---

<sup>67</sup> Ex. EERA-6A (Written Comments Received from State and Federal Agencies on the Scope of the EIS) (eDocket No. [20185-143325-02](#)).

<sup>68</sup> Ex. EERA-6B (Applicants' Comments on the Scope of the EIS) (eDocket No. [20185-143325-04](#)).

<sup>69</sup> Ex. EERA-6C (Written Comments Received from Local Units of Government on the Scope of the EIS) (eDocket No. [20185-143325-06](#)).

<sup>70</sup> Ex. EERA-6E (Written Comments Received from Citizens on the Scope of the EIS, A-L) (eDocket No. [20185-143325-10](#)); Ex. EERA-6F (Written Comments Received from Citizens on the Scope of the EIS, M-Z) (eDocket No. [20185-143325-12](#)).

<sup>71</sup> Ex. EERA-6D (Oral Comments Received from Citizens on the Scope of the EIS) (eDocket No. [20185-143325-08](#)).

<sup>72</sup> Speak Up Report of Comments Received Through Speak Up (May 23, 2018) (eDocket No. [20185-143279-01](#)).

<sup>73</sup> First Prehearing Order (May 25, 2018) (eDocket No. [20185-143342-01](#)).

<sup>74</sup> Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-02](#)).

<sup>75</sup> Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-02](#)).

<sup>76</sup> Ex. EERA-11 (DOC-EERA Notice of EIS Scoping Decision) (eDocket No. [20187-144999-01](#)).

alternative for the proposed Project, providing information on the Project, the route permitting process, and future opportunities for participation in the process.<sup>77</sup>

45. On July 20, 2018, ALJ Case issued an Order granting intervention to Magellan,<sup>78</sup> a Protective Order,<sup>79</sup> and a Second Prehearing Order<sup>80</sup> detailing procedural requirements and modifying the schedule of proceedings.

46. On July 24, 2018, ALJ Case issued an Amended Second Prehearing Order.<sup>81</sup>

47. On July 30, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had made a scoping decision on the EIS for the Project.<sup>82</sup>

48. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Public Information and Environmental Impacts Scoping Meeting in the *Fairmont Sentinel* on April 5, 2018, in the *Faribault County Register* on April 2, 2018, in *The Lake Crystal Tribune* on April 4, 2018, in *The Mankato Free Press* on April 5, 2018, in *The Maple River Messenger* on April 5, 2018, in the *Minnesota Lake Tribune* on April 5, 2018, and in the *St. Peter Herald* on April 5, 2018.<sup>83</sup>

49. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Rescheduled Public Information and Environmental Impacts Scoping Meeting in the *Fairmont Sentinel* on April 26, 2018, in the *Blue Earth Faribault County Register* on April 30, 2018, in the *Lake Crystal Tribune* on April 25, 2018, in *The Mankato Free Press* on April 26, 2018, in *The Maple River Messenger* on April 26, 2018, and in the *Minnesota Lake Tribune* on April 26, 2018.<sup>84</sup>

---

<sup>77</sup> Ex. EERA-12 (DOC-EERA Mailed Notice of Scoping Decision to New Landowners) (eDocket No. [20187-144997-02](#)).

<sup>78</sup> Order Granting Intervention to Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. (July 20, 2018) (eDocket No. [20187-145058-01](#)).

<sup>79</sup> Protective Order (July 20, 2018) (eDocket No. [20187-145058-03](#)).

<sup>80</sup> Second Prehearing Order (July 20, 2018) (eDocket No. [20187-145058-02](#)).

<sup>81</sup> Amended Second Prehearing Order (July 24, 2018) (eDocket No. [20187-145151-01](#)).

<sup>82</sup> Notice of EIS Scoping Decision for the Huntley to Wilmarth 345 kV Transmission Line Project (Aug. 1, 2018) (eDocket No. [20188-145453-02](#)).

<sup>83</sup> Ex. XC-13 (Affidavits of Publication) (eDocket No. [20188-145549-04](#)).

<sup>84</sup> Ex. XC-13 (Affidavits of Publication) (eDocket No. [20188-145549-06](#)).

50. On August 6, 2018, the Applicants submitted a proof of mailing on April 2, 2018, of the Notice of Public Information and Environmental Impacts Scoping Meeting to residents and landowners who may be impacted by the Project.<sup>85</sup>

51. On August 6, 2018, the Applicants submitted proof of mailing on May 1, 2018, of a Notice that the Public Information and Environmental Impacts Scoping Meetings originally scheduled for April 18, 2018 in Winnebago, Minnesota, and Mapleton, Minnesota, were rescheduled for May 9, 2018.<sup>86</sup>

52. On August 7, 2018, the Applicants submitted proof of mailing of the complete Certificate of Need and Route Permit applications for the Project on April 3, 2018, to the Martin County Library.<sup>87</sup>

53. On September 6, 2018, the Applicants filed the Direct Testimony and Schedules of Thomas G. Hillstrom, Kyle S. Neidermire, Andrew Siebenaler, Grant D. Stevenson, Benjamin Abing, and Thomas C. Petersen.<sup>88</sup>

54. On September 6, 2018, MISO filed the Direct Testimony of Dr. Zheng Zhou.<sup>89</sup>

55. On September 6, 2018, the CEOs filed the Direct Testimony and Schedules of Michael Goggin.<sup>90</sup>

56. On September 26, 2018, CEOs filed a Notice that, as of September 11, 2018, Wind on the Wires changed its name to Clean Grid Alliance.<sup>91</sup>

---

<sup>85</sup> Ex. XC-14 (Affidavit of Mailing) (eDocket No. [20188-145548-03](#)).

<sup>86</sup> Ex. XC-14 (Affidavit of Mailing) (eDocket No. [20188-145548-05](#)).

<sup>87</sup> Ex. XC-15 (Affidavit of Mailing to the Library) (eDocket No. [20188-145597-02](#)).

<sup>88</sup> Ex. XC-19 (Hillstrom Direct) (eDocket No. [20189-146251-01](#)); Ex. XC-22 (Neidermire Direct) (eDocket No. [20189-146251-03](#)); Ex. XC-24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. XC-25 (Stevenson Direct) (eDocket No. [20189-146251-07](#)); Ex. XC-18 (Abing Direct) (eDocket No. [20189-146252-01](#)); Ex. XC-23 (Petersen Direct) (eDocket No. [20189-146252-03](#)).

<sup>89</sup> Ex. MISO-1 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>90</sup> Ex. CEOS-1 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>91</sup> Notice of WOW Name Change (Sept. 26, 2018) (eDocket No. [20189-146648-04](#)).

57. On November 7, 2018, the DOC-DER filed the Direct Testimony and Schedules of Mark A. Johnson, Matthew Landi, and Dr. Steve Rakow.<sup>92</sup>

58. On December 7, 2018, the DOC-EERA filed the Draft EIS for the Project, noting that the report was issued in draft form so that it may be improved by public comment and indicating that comments on the Draft EIS would be accepted through January 28, 2019.<sup>93</sup> On December 10, 2018, the DOC-EERA filed a revised summary and amended Table S-5 for the Draft EIS.<sup>94</sup>

59. On December 10, 2018, the DOC-EERA issued a Notice of Availability of Draft EIS and Public Information Meetings, informing that three public meetings will be held in Mankato (one meeting), Delavan (one meeting), and Mapleton (one meeting) as well as stating that comments on the Draft EIS will be accepted through January 28, 2019.<sup>95</sup> The Notice requested that comments focus on what information

---

<sup>92</sup> Ex. DER-1 (Johnson Direct) (eDocket No. [201811-147664-02](#)); Ex. DER-3 (Landi Direct) (eDocket No. [201811-147664-03](#)); Ex. DER-5 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>93</sup> Ex. EERA-13 (Draft EIS) (Abstract, Table of Contents, Acronyms, Summary) (eDocket No. [201812-148307-02](#)); (Chapter 1 Introduction) (eDocket No. [201812-148307-04](#)); (Chapter 2 Regulatory Framework) (eDocket No. [201812-148307-06](#)); (Chapter 3 Overview of Project) (eDocket No. [201812-148307-08](#)); (Chapter 4 Alternatives to Project) (eDocket No. [201812-148307-10](#)); (Chapter 5 Affected Environment) (eDocket Nos. [201812-148307-12](#), [201812-148307-14](#)); (Chapter 6 Route Alternatives) (eDocket No. [201812-148307-16](#)); (Chapter 7 Route Segments and Alignment Alternatives) (eDocket No. [201812-148307-18](#)); (Chapter 8 Cumulative Potential Effects) (eDocket No. [201812-148307-20](#)); (References) (eDocket No. [201812-148310-02](#)); (Appendix A Scoping Decision) (eDocket No. [201812-148310-04](#)); (Appendix B Spatial Data Sources) (eDocket No. [201812-148310-06](#)); (Appendix C1 Generic Route Permit Template) (eDocket No. [201812-148310-08](#)); (Appendix C2 Route Permit Example) (eDocket No. [201812-148310-10](#)); (Appendix D Agricultural Impact Mitigation Plan) (eDocket No. [201812-148310-12](#)); (Appendix E Property Value Supplement) (eDocket No. [201812-148310-14](#)); (Appendix F EMF Supplement) (eDocket No. [201812-148310-16](#)); (Appendix G Archaeological and Historic Resources Data) (eDocket No. [201812-148310-18](#)); (Appendix H Blandings Turtle Fact Sheet) (eDocket No. [201812-148310-20](#)); (Appendix I Map Book Sheets 1-86) (eDocket Nos. [201812-148312-02](#), [201812-148312-04](#), [201812-148312-06](#), [201812-148312-08](#), [201812-148312-10](#), [201812-148312-12](#), [201812-148312-14](#), [201812-148312-16](#)); (Appendix J Route Analysis Tables) (eDocket No. [201812-148312-18](#)); (Appendix K Rare Species Table) (eDocket No. [201812-148312-20](#)).

<sup>94</sup> Ex. EERA-14 (Draft EIS, Revised Summary and Amended Table S-5) (eDocket No. [201812-148353-01](#)).

<sup>95</sup> Ex. EERA-15 (Mailed Notice of DEIS Availability and Public Information Meetings to Project Mailing List) (eDocket No. [201812-148339-02](#)); Ex. EERA-16 (Mailed Notice of DEIS Availability and Public Information Meetings to Landowners) (eDocket No. [201812-148339-02](#)).

needs to be clarified or included in the Draft EIS to ensure that the Final EIS is complete and accurate.<sup>96</sup>

60. On December 12, 2018, ALJ Case issued the Third Prehearing Order, detailing procedural requirements and modifying the schedule of proceedings.<sup>97</sup>

61. On December 18, 2018, the Applicants filed the Rebuttal Testimony and Schedules of Grant D. Stevenson and Thomas G. Hillstrom.<sup>98</sup>

62. On December 18, 2018, Magellan filed comments providing additional information regarding the proposed routes for the Project.<sup>99</sup>

63. On December 18, 2018, the DOC-DER filed the Rebuttal Testimony and Attachments of Matthew Landi.<sup>100</sup>

64. On December 20, 2018, the DOC-EERA submitted a proof of publication of the Notice of Availability of Draft EIS and Public Information Meetings in the *Fairmont Sentinel* on December 10, 2018; in the *Faribault County Register* on December 10, 2018; in *The Lake Crystal Tribune* on December 12, 2018; in *The Mankato Free Press* on December 9, 2018; and in the *Minnesota Lake Tribune* on December 13, 2018.<sup>101</sup>

65. On December 20, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had released the Draft EIS for the Project.<sup>102</sup>

66. On January 9, 2019, the Commission issued a Notice of Public Hearings, informing that public meetings will be held in Mankato (two meetings) on January 30, 2019, Delavan (one meeting) on January 31, 2019, and Mapleton (one meeting) on

---

<sup>96</sup> Ex. EERA-15 (Mailed Notice of DEIS Availability and Public Information Meetings to Project Mailing List) (eDocket No. [201812-148339-02](#)); Ex. EERA-16 (Mailed Notice of DEIS Availability and Public Information Meetings to Landowners) (eDocket No. [201812-148339-02](#)).

<sup>97</sup> Third Prehearing Order (Dec. 12, 2018) (eDocket No. [201812-148413-01](#)).

<sup>98</sup> Ex. XC-26 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)); Ex. XC-20 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>99</sup> Letter of Magellan (Dec. 18, 2018) (eDocket No. [201812-148559-01](#)).

<sup>100</sup> Ex. DER-4 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)).

<sup>101</sup> Ex. EERA-17 (Affidavit of Publication) (eDocket No. [201812-148626-02](#)).

<sup>102</sup> Ex. EERA-18 (Notice of Availability of Draft EIS and Public Information Meetings) (eDocket No. [201812-148625-01](#)).

January 31, 2019.<sup>103</sup> The Notice also stated that the public comment period was open from January 9, 2019, through February 21, 2019.<sup>104</sup>

67. On January 15, 2019, the Commission submitted proof of mailing on January 9, 2019 the Notice of Public Hearing to residents and landowners who may be impacted by the Project.<sup>105</sup>

68. On January 15, 2019, the DOC-EERA submitted materials to be used in the January 2019 public meetings regarding the Draft EIS.<sup>106</sup>

69. On January 23, 2019, the Commission submitted a memorandum issued to State Agencies on January 15, 2019, requesting participation in record development and attendance at the January 2019 public hearings.<sup>107</sup>

70. On January 25, 2019, the Applicants submitted comments on the Draft EIS.<sup>108</sup>

71. On January 28, 2019, the Applicants filed the Surrebuttal Testimony and Schedules of Thomas G. Hillstrom.<sup>109</sup>

72. On January 28, 2019, the DOC-DER filed the Surrebuttal Testimony of Mark A. Johnson.<sup>110</sup>

73. On January 28, 2019, North Mankato filed the Surrebuttal Testimony of Michael Fischer.<sup>111</sup>

---

<sup>103</sup> Ex. PUC-5 (Notice of Public Hearings) (eDocket No. [20191-148999-01](#)).

<sup>104</sup> Ex. PUC-5 (Notice of Public Hearings) (eDocket No. [20191-148999-01](#)).

<sup>105</sup> Ex. PUC-5 (Certified Mail Receipts for Public Hearing Notice) (eDocket No. [20191-149245-01](#)).

<sup>106</sup> Meeting Materials (Jan. 15, 2019) (eDocket No. [20191-149224-01](#)).

<sup>107</sup> Letter to State Agencies (Jan. 23, 2019) (eDocket No. [20191-149500-01](#)).

<sup>108</sup> Applicants' Comments on Draft EIS (Jan. 25, 2019) (eDocket No. [20191-149611-02](#)).

<sup>109</sup> Ex. XC-21 (Hillstrom Surrebuttal) (eDocket No. [20191-149655-02](#)).

<sup>110</sup> Ex. DER-2 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

<sup>111</sup> Ex. NM-17 (Fischer Surrebuttal) (eDocket No. [20191-149696-01](#)).



74. On January 24, 2019, MISO submitted its proposed exhibit list, and on January 28, 2019, the Applicants, North Mankato, the CEOs, and the DOC-DER submitted proposed exhibit lists as well.<sup>112</sup>

75. On January 29, 2019, the Commission issued a Press Release postponing the public hearings scheduled for January 30 and 31, 2019, due to extreme weather and rescheduling the meetings for February 6 and February 7, 2019, pursuant to the January 9, 2019, Notice of Public Hearings.<sup>113</sup>

76. On February 1, 2019, the Applicants submitted a letter requesting that the Final EIS include analysis of two additional route segment alternatives for the Project.<sup>114</sup> The Applicants proposed Segment Alternative BB for the Purple Route and Segment Alternative CC for the Blue Route in response to comments filed by the MnDNR on January 28, 2019, regarding the Draft EIS and a landowner.<sup>115</sup>

77. On February 4, 2019, ALJ Case issued the Fourth Prehearing Order, stating that the public hearings will be held on February 6 and 7, 2019, at the times and places set forth in the Commission's January 29, 2019, Notice.<sup>116</sup>

78. On February 5, 2019, the Commission issued a Press Release postponing the February 6 and 7, 2019, public hearings due to dangerous driving conditions.<sup>117</sup>

79. On February 5, 2019, the DOC-EERA filed written comments on the scope of the EIS received from governmental agencies,<sup>118</sup> the Applicants,<sup>119</sup> local

---

<sup>112</sup> MISO's Exhibit List (Jan. 24, 2019) (eDocket No. [20191-149527-01](#)); Applicants' Exhibit List (Jan. 28, 2019) (eDocket No. [20191-149684-04](#)); North Mankato's Exhibit List (Jan. 28, 2019) (eDocket No. [20191-149704-01](#)); CEOs Exhibit List (Jan. 28, 2019) (eDocket No. [20191-149677-02](#)); DOC-DER Exhibit List (Jan. 28, 2019) (eDocket No. [20191-149664-01](#)).

<sup>113</sup> Press Release (Jan. 29, 2019) (eDocket No. [20191-149768-01](#)).

<sup>114</sup> Ex. XC-27 (Applicants' Letter Regarding New Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>115</sup> Ex. XC-27 (Applicants' Letter Regarding New Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>116</sup> Fourth Prehearing Order (Feb. 4, 2019) (eDocket No. [20192-149979-01](#)).

<sup>117</sup> Press Release (Feb. 5, 2019) (eDocket No. [20192-150013-01](#)).

<sup>118</sup> Ex. EERA-20A (State and Federal Agencies' Comments on the Draft EIS) (eDocket No. [20192-150008-01](#)).

<sup>119</sup> Ex. EERA-20B (Applicants' Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

government units,<sup>120</sup> and public citizens.<sup>121</sup> The DOC-EERA also filed oral citizen comments received during public Draft EIS meetings held on January 9, 2019, in Mankato (two meetings), January 10, 2019, in Delavan (one meeting), and January 10, 2019, in Mapleton (one meeting).<sup>122</sup>

80. On February 8, 2019, ALJ Case issued the Fifth Prehearing Order, stating that the postponed public hearings would be held on February 27 and 28, 2019, and the evidentiary hearing would be held on February 11, 2019, and requesting supplemental testimony from the Applicants, the DOC-DER, and MISO in response to questions in Appendix A of the Order.<sup>123</sup>

81. On February 8, 2019, the Applicants submitted a Letter providing information in advance of the evidentiary hearing regarding the four witnesses that Applicants intended to offer to respond to questions included in Appendix A of the Fifth Prehearing Order.<sup>124</sup>

82. On February 11, 2019, the Commission submitted proof of publication of public hearings that were scheduled for January 30 and 31, 2019.<sup>125</sup>

83. On February 11, 2019, an evidentiary hearing was held before ALJ Case in the large hearing room of the Commission's office in St. Paul, Minnesota.

84. On February 11, 2019, ALJ Case issued the Sixth Prehearing Order, modifying the schedule of proceedings, including extending the deadline for public comments to March 15, 2019.<sup>126</sup>

85. On February 13, 2019, the Commission issued a Notice of Rescheduled Public Hearings, stating that the public hearings will be held in Mankato (two meetings)

---

<sup>120</sup> Ex. EERA-20C (Local Units of Government Comments on the Draft EIS) (eDocket No. [20192-150008-05](#)).

<sup>121</sup> Ex. EERA-20D (Written Citizens' Comments on the Draft EIS) (eDocket Nos. [20192-150008-07](#)).

<sup>122</sup> Ex. EERA-20E (Oral Citizens' Comments on the Draft EIS) (eDocket No. [20192-150008-09](#)).

<sup>123</sup> Fifth Prehearing Order (Feb. 8, 2019) (eDocket No. [20192-150117-01](#)).

<sup>124</sup> Letter (Feb. 8, 2019) (eDocket No. [20192-150137-02](#)).

<sup>125</sup> Affidavit of Publication (Feb. 11, 2019) (eDocket No. [20192-150181-02](#)).

<sup>126</sup> Sixth Prehearing Order (Feb. 11, 2019) (eDocket No. [20192-150163-01](#)).



on February 27, 2019, in Delavan (one meeting) on February 28, 2019, and in Mapleton (one meeting) on February 28, 2019.<sup>127</sup>

86. On February 21, 2019, the Commission filed public comments it received on the Project.<sup>128</sup>

87. On February 22, 2019, the Commission filed public comments it received through the Speak Up platform.<sup>129</sup>

88. Public hearings were held at the AmericInn in Mankato at 1:00 p.m. and 6:00 p.m. on February 27, 2019.<sup>130</sup> Public hearings were held at the Delavan High School in Delavan at 1:00 p.m. and at the Maple River High School in Mapleton at 6:00 p.m. on February 28, 2019.<sup>131</sup>

89. On March 5 and 12, 2019, the Commission filed additional public comments it received on the Project.<sup>132</sup>

90. On March 7, 2019, the DOC-DER filed the Sur-surrebuttal Testimony of Mr. Johnson addressing the questions posed in the Appendix A to the Fifth Prehearing Order.<sup>133</sup>

91. On March 7, 2019, MISO filed the Supplemental Testimony of Dr. Zhou addressing the questions posed in the Appendix A to the Fifth Prehearing Order.<sup>134</sup>

92. On March 15, 2019, the Commission filed additional public comments it received on the Project.<sup>135</sup>

---

<sup>127</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150163-01](#)).

<sup>128</sup> Public Comments Batch Two (eDocket No. [20192-150495-02](#)).

<sup>129</sup> Reply Comments – Speak Up (eDocket No. [20192-150531-01](#)).

<sup>130</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-02](#)).

<sup>131</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-02](#)).

<sup>132</sup> Sonnek Public Comment (Mar. 5, 2019) (eDocket No. [20193-150861-01](#)); Peterson Public Comment (Mar. 12, 2019) (eDocket No. [20193-151023-01](#)).

<sup>133</sup> Ex. DER-6 (Johnson Sur-Surrebuttal) (eDocket No. [20193-150903-02](#)).

<sup>134</sup> Zhou Supplemental Testimony (Mar. 7, 2019) (eDocket No. [20193-150905-01](#)).

<sup>135</sup> Public Comments (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

93. On March 18 and 19, 2019, the Commission filed public comments it received on the Project.<sup>136</sup>

94. On March 20, 2019, the Commission filed public comments it received through the Speak Up platform.<sup>137</sup> An additional public comment received by the Commission was filed on March 21, 2019.<sup>138</sup>

### **III. THE PROPOSED PROJECT**

#### **A. Facilities**

95. In their Certificate of Need Application, the Applicants are requesting a Certificate of Need to construct the Huntley – Wilmarth 345 kV Transmission Line Project, which consists of a new 345 kV transmission line connecting Xcel Energy's existing Wilmarth Substation north of Mankato, Minnesota, with ITC Midwest's Huntley Substation south of Winnebago, Minnesota.<sup>139</sup> The transmission line will be approximately 50 miles in length and the proposed route alternatives will traverse Blue Earth, Faribault, Martin, and Nicollet counties in Minnesota.<sup>140</sup> The Project also includes the necessary modifications to the existing Huntley and Wilmarth substations to accommodate the new 345 kV transmission line.<sup>141</sup>

96. Xcel Energy and ITC Midwest will own the Huntley – Wilmarth transmission line jointly as tenants in common.<sup>142</sup> Each Applicant will be responsible for the necessary modifications and maintenance of its substation.<sup>143</sup> The equipment and improvements inside the Wilmarth Substation, located on the northern edge of the City of Mankato, will be owned solely by Xcel Energy.<sup>144</sup> The equipment and

---

<sup>136</sup> Reynolds Comment (Mar. 18, 2019) (eDocket No. [20193-151164-02](#)); Eimer Comment (Mar. 18, 2019) (eDocket No. [20193-151185-02](#)); Duncanson Comment (Mar. 19, 2019) (eDocket No. [20193-151201-01](#)).

<sup>137</sup> Public Comments – Speak Up (Mar. 20, 2019) (eDocket No. [20193-151223-01](#)).

<sup>138</sup> Elkins Comment (Mar. 21, 2019) (eDocket No. [20193-151253-02](#)).

<sup>139</sup> Ex. XC-6 at 2 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>140</sup> Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>141</sup> Ex. XC-6 at 2 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>142</sup> Ex. XC-6 at 2 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>143</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>144</sup> Ex. XC-6 at 2 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

improvements inside the Huntley Substation, located approximately three miles south of the City of Winnebago, will be owned solely by ITC Midwest.<sup>145</sup>

97. As the Project Manager, Xcel Energy will be responsible for the construction and maintenance of the proposed 345 kV transmission line.<sup>146</sup> Each party will be responsible for the necessary modifications and maintenance of its substation.<sup>147</sup>

98. The facilities for the Huntley – Wilmarth Project include the following:

- An approximately 50-mile long, new 345 kV transmission line, connecting the Wilmarth Substation to the Huntley Substation, including steel pole structures and double-bundled, twisted pair conductors.<sup>148</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Huntley Substation, including a 345 kV circuit breaker, potential transformers for relays, switches, dead-end structures, relay and equipment panels, a bus, and concrete foundations. The Project will not require expansion of the fenced area of the Huntley Substation.<sup>149</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Wilmarth Substation, including a dead-end structure, a 345 kV circuit breaker, a DC battery system, bus work, transformers, miscellaneous other equipment, and

---

<sup>145</sup> Ex. XC-6 at 2-3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>146</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)); Ex. XC-23 at 6 (Petersen Direct) (eDocket No. [20189-146252-03](#)).

<sup>147</sup> Ex. XC-6 at 3 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-03](#)); Ex. XC-23 at 6 (Petersen Direct) (eDocket No. [20189-146252-03](#)).

<sup>148</sup> Ex. XC-6 at 21-22 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 4-6, 9 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>149</sup> Ex. XC-6 at 23 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-23 at 6-7 (Petersen Direct) (eDocket No. [20189-146252-03](#)).

concrete foundations. The Project will not require expansion of the fenced area of the Wilmarth Substation.<sup>150</sup>

## **B. MISO Market Efficiency Project**

99. As discussed in detail below, the Huntley – Wilmarth Project was studied, reviewed, and approved by the MISO Board of Directors as a Market Efficiency Project (MEP) in December 2016 in MISO’s annual Transmission Expansion Plan (MTEP16) report.<sup>151</sup>

100. To qualify as an MEP, a transmission project must meet the following criteria at the time of designation: (1) greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at a 345 kV voltage level or higher; (2) the benefit-to-cost ratio of the candidate project must meet or exceed 1.25; and (3) the total project cost must exceed \$5 million.<sup>152</sup>

101. The Project is the first MEP approved by MISO that has been brought forward for Commission consideration in this state.<sup>153</sup> As an MEP, the primary need for this Project is different than other transmission projects in Minnesota that have been reliability or generation outlet projects.<sup>154</sup> An MEP is needed to reduce transmission system congestion, which will improve the efficiency of MISO’s energy market, resulting in lower wholesale energy costs.<sup>155</sup>

102. Given the unique nature of this project, the Applicants developed route- and design-specific cost estimates for the numerous routes, route alternatives, and alignment alternatives enumerated below in order to allow the Commission to evaluate

---

<sup>150</sup> Ex. XC-6 at 23 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 13-14 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>151</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>152</sup> Ex. XC-6 at 5-6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>153</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>154</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>155</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

each of the options in terms of how these selections affect the projected benefit-to-cost ratio of the Project.<sup>156</sup>

103. This information allows a full evaluation of costs related to both structure design and route considerations and provides an opportunity for balancing the economic need for the Project with the goal of minimizing the Project's potential impacts on the human and natural environments.<sup>157</sup>

### **C. Route Alternatives**

104. In the Route Permit Application, the Applicants proposed four route alternatives identified from west to east as the Purple, Green, Red, and Blue routes.<sup>158</sup> In addition, the Applicants included six route segment alternatives, labeled as Segment Alternatives A-F.<sup>159</sup> These original route and segment alternatives are depicted in **Figure 1** below.

---

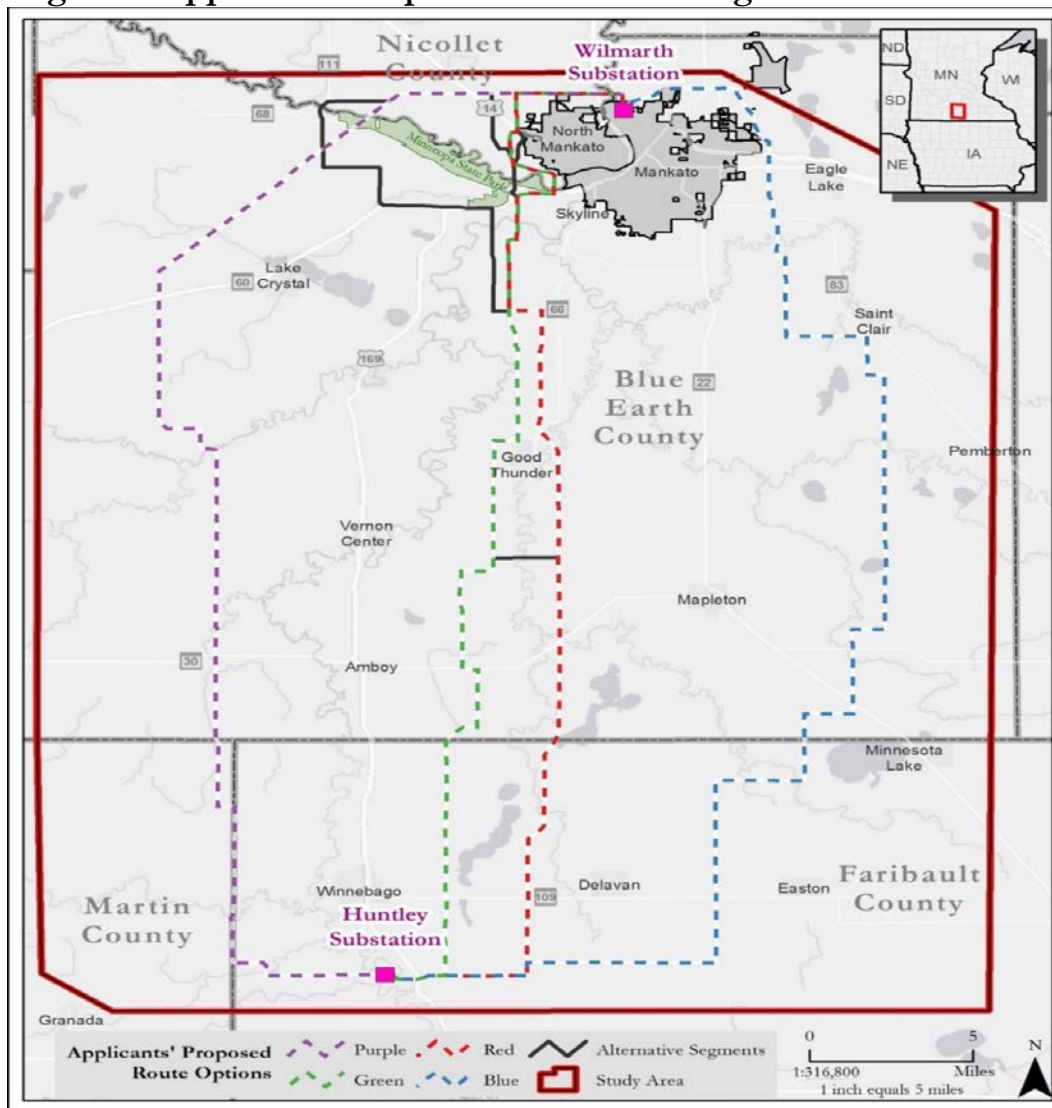
<sup>156</sup> Ex. XC-6 at 31-32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>157</sup> Ex. XC-6 at 27-29 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)); Ex. XC-25 at 5 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>158</sup> See Ex. XC-7 at ES-3 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>159</sup> Ex. XC-6 at 4-5, 18 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

Figure 1: Applicants' Proposed Routes and Segment Alternatives<sup>160</sup>



105. Public comments received during the scoping process for the EIS resulted in additional route, segment, and alignment alternatives for the Project. Accordingly, the Draft EIS included 1 new route (Purple-E-Red) (for a total of 5 routes), 13 new segment alternatives (for a total of 19 segment alternatives), and 3 new alignment alternatives.<sup>161</sup>

<sup>160</sup> Ex. XC-6 at 5, 19 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>161</sup> Ex. EERA-13 at S-5 (eDocket No. [201812-148307-02](#)). One of the six segment alternatives proposed by the Applicants in the Route Permit Application (Segment Alternative C) was not carried forward for analysis in the EIS. Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-02](#)).

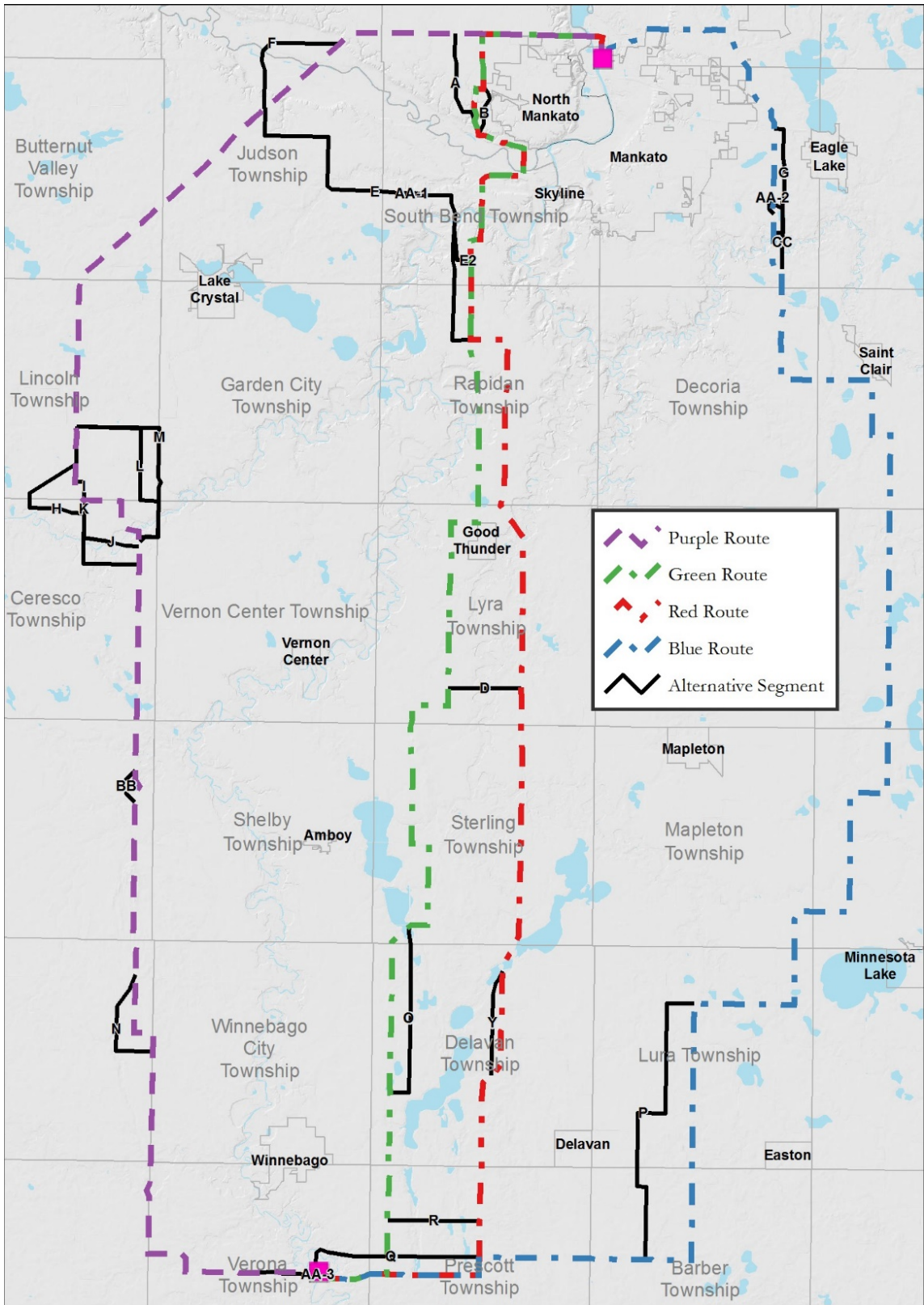
106. In response to comments received from the MnDNR and a landowner, the Applicants proposed, on February 1, 2019, that the Final EIS also evaluate Segment Alternative BB to the Purple Route and Segment Alternative CC to the Blue Route.<sup>162</sup> **Figure 2** shows all of the route, segment alternatives, and alignment alternatives under consideration in this proceeding.

---

<sup>162</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).



## Figure 2: Routes and Segment Alternatives Included in the EIS





## **D. Proposed Transmission Line Structure Designs**

107. The Applicants proposed to mainly use steel pole structures, in either a single-pole (monopole) or a two-pole (H-frame) design.<sup>163</sup> The monopole structures will be a single-circuit design if they accommodate only the new 345 kV transmission line.<sup>164</sup> The monopole structures can be a double-circuit design in areas where the route follows existing transmission line corridors and will accommodate both the new 345 kV line and an existing transmission line on the same structure.<sup>165</sup> The H-frame structures will be only a single-circuit design.<sup>166</sup> Thus, the three typical structure design options for the Project are: (1) single-circuit monopole, (2) double-circuit monopole, and (3) single-circuit H-frame.<sup>167</sup>

108. Certain Project areas may require multiple pole or other specialty structures.<sup>168</sup> Examples of such areas include locations where the route changes direction, along highways, or in environmentally-sensitive locations.<sup>169</sup> For instance, three-pole structures may be used on all proposed routes to accommodate large angles where the transmission line route changes direction.<sup>170</sup>

109. The proposed structures will typically range in height from approximately 75 feet to 170 feet, depending on structure type and topography.<sup>171</sup> The typical span

---

<sup>163</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>164</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>165</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>166</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>167</sup> Ex. XC-6 at 22 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>168</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>169</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>170</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>171</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

lengths between structures will be 900 to 1,000 feet.<sup>172</sup> In some circumstances, design requirements or topography may require longer or shorter spans.<sup>173</sup>

110. A monopole structure is typically installed on concrete foundation while an H-frame structure can be installed either on two concrete foundations or embedded in the ground in steel culverts.<sup>174</sup>

111. The proposed conductors for the Project will consist of double bundled, twisted pair Dove (2-556.5 kcmil) Aluminum Conductor Steel Reinforced cables, or cables with comparable capacity.<sup>175</sup> The 345 kV bundled twisted pair conductors will have a capacity equal to or greater than 3,000 amps.<sup>176</sup>

112. The proposed structure design options for each route are summarized in **Table 1**, below.

---

<sup>172</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>173</sup> Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>174</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>175</sup> Ex. XC-6 at 22 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 9 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>176</sup> Ex. XC-6 at 22 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 9 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

**Table 1: Proposed Design Options by Route<sup>177</sup>**

Proposed Route	Design Option
Purple Route	All Single-Circuit, H-frame, including parallel to the existing 345 kV transmission line starting west of Lake Crystal to the Wilmarth Substation, with the exception of crossings of: (1) Minneopa State Park, and (2) the Nelson Waterfowl Production Area (WPA). In these areas, the line will be double-circuited with the existing transmission line in the existing transmission line easement areas.
	All Single-Circuit Monopole, including parallel to the existing 345 kV transmission line starting west of Lake Crystal to the Wilmarth Substation, with the exception of crossings of: (1) Minneopa State Park, and (2) the Nelson WPA. In these areas, the line will be double-circuited with the existing transmission line in the existing transmission line easement areas.
	Single-Circuit Monopole on the southern portion of the route and Double-Circuit, Monopole with the existing 345 kV line starting west of Lake Crystal to the Wilmarth Substation.
Green Route	Single-Circuit, H-frame
	Single-Circuit, Monopole
Red Route	Double-Circuit, Monopole and Single-Circuit, H-frame
	Double-Circuit, Monopole and Single-Circuit, Monopole
Blue Route	Double-Circuit, Monopole and Single-Circuit, H-frame
	Double-Circuit, Monopole and Single-Circuit, Monopole
Purple-E-Red Route	Double-Circuit, Monopole and Single-Circuit, Monopole

<sup>177</sup> Ex. XC-25 at 5-6 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

## **E. Right-Of-Way**

113. The typical right-of-way width for the Project will be 150 feet regardless of which type of pole structure option is used.<sup>178</sup> All permanent structures will be contained within the 150-foot right-of-way.<sup>179</sup>

## **F. Costs**

114. The cost of the Project is a key input for the economic analyses that was used to measure the Project's economic benefits. This analysis is the present value (PV) benefit-to-cost analysis using Adjusted Production Cost (APC) savings. This analysis was conducted by MISO in MTEP16 and by the Applicants using MTEP17 and MTEP18 models.<sup>180</sup>

115. The MISO tariff measures an MEP's benefit by the APC savings realized through the project under each of the MTEP future scenarios or Future.<sup>181</sup> APC savings are calculated as the difference in total production cost adjusted for import costs and export revenues with and without the proposed project in the transmission system.<sup>182</sup> Data from three simulation years are used as a basis for evaluating the project's impact.<sup>183</sup> A 20-year benefit is calculated by linearly interpolating and extrapolating from these three years.<sup>184</sup> The total project benefit is determined by calculating the PV of annual benefits for the multi-year and multi-future evaluation.<sup>185</sup>

116. The total costs used in the benefit-to-cost calculation take into account the capital costs of the project, revenue requirements, discount rate, and inflation rate.<sup>186</sup>

---

<sup>178</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>179</sup> Ex. XC-6 at 20 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>180</sup> See Ex. XC-24 at 11-34 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>181</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>182</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>183</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>184</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>185</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>186</sup> Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

For each year in the 20-year analysis, an annual cost is calculated.<sup>187</sup> The capital cost is multiplied by the inflation rate for that given year and the revenue requirements for the year.<sup>188</sup> The annual cost value is then converted to a present value annual cost by dividing the annual cost by the discount rate applicable for that given year.<sup>189</sup> These annual values are then summed to produce a 20-year PV cost.<sup>190</sup>

117. The PV benefit-to-cost ratio are then calculated for each Future by dividing the PV costs from the PV benefits. The weighted average benefit-to-cost ratios are then calculated by applying weights based on the weighting given to that particulate Future in that MTEP model year.<sup>191</sup>

118. In approving the Huntley – Wilmarth Project as an MEP in MTEP16, MISO estimated the capital costs for the Project between \$88 million and \$108 million (2016\$).<sup>192</sup> MISO develops a planning cost estimate to evaluate projects on a common basis.<sup>193</sup> For this Project, MISO testified that personnel used a cost database and estimated the line length to be the straight-line distance between the Wilmarth and Huntley substations multiplied by 20 percent.<sup>194</sup> MISO stated that it then prepared a scoping cost estimate using Google Earth to determine a possible route as the basis for cost assumptions.<sup>195</sup> MISO testified that based on feedback from Xcel Energy related to the route length, MISO increased the line length and increased its cost estimate to \$88 to \$108 million (2016\$) which MISO used to recommend the Project to the MISO Board of Directors.<sup>196</sup>

119. Due to the importance of costs in evaluating determining the need for the Project, the Applicants used a more thorough cost estimation process than is typically

---

<sup>187</sup> Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)); Evid. Hrg. Tr. at 28:14 – 29:1 (Siebenaler) (Feb. 11, 2019).

<sup>188</sup> Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>189</sup> Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>190</sup> Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>191</sup> Evid. Hrg. Tr. at 30:7 – 30:17 (Siebenaler) (Feb. 11, 2019).

<sup>192</sup> Ex. XC-6 (Certificate of Need Application) at 30-31 (eDocket No. [20181-139030-01](#)); Ex. MISO-1 at 15-16 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>193</sup> Zhou Supplemental Testimony at 3 (Mar. 7, 2019) (eDocket No. [20193-150905-01](#)).

<sup>194</sup> Zhou Supplemental Testimony at 3 (Mar. 7, 2019) (eDocket No. [20193-150905-01](#)).

<sup>195</sup> Zhou Supplemental Testimony at 3 (Mar. 7, 2019) (eDocket No. [20193-150905-01](#)).

<sup>196</sup> Zhou Supplemental Testimony at 3 (Mar. 7, 2019) (eDocket No. [20193-150905-01](#)).

employed by the Applicants prior to submitting a Certificate of Need application to the Commission.<sup>197</sup> Specifically, the Applicants developed costs that are specific to each route and structure design proposed in the Route Permit Application.<sup>198</sup> These cost estimates allow for an evaluation of each route and design option for the Project in terms of how each option affects the projected benefit-to-cost ratio of the Project.<sup>199</sup>

120. In general, H-frame structures are the least expensive type of structure, followed by single-pole, single-circuit structures and then single-pole, double-circuit structures. While H-frame structures are generally the least expensive, they have greater impacts on agricultural and other land use due to the two-pole design.<sup>200</sup>

121. The Applicants estimated costs for the main components of a transmission line project, including (1) transmission line structures and materials; (2) transmission line construction and restoration; (3) transmission line permitting and design; (4) transmission line right-of-way acquisition; and (5) substation materials, permitting, design, and construction.<sup>201</sup>

122. The Applicants also identified potential risks that could result in additional costs. These risks include unexpected weather conditions, route changes, poor soil conditions in areas where no soil data was obtained, transmission line outage constraints, or labor shortages among others.<sup>202</sup>

123. Applicants then developed an appropriate cost contingency for each of these risks.<sup>203</sup> The contingency is the estimated cost of a risk occurring multiplied by the probability of that risk occurring.<sup>204</sup> Not all risks that were identified were included

---

<sup>197</sup> Ex. XC-6 at 30-32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>198</sup> Ex. XC-6 at 30-32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>199</sup> Ex. XC-6 at 30-32 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>200</sup> Ex. XC-22 at 6 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>201</sup> Ex. XC-6 at 32-34 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>202</sup> Ex. XC-6 at 34 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>203</sup> Ex. XC-6 at 34 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>204</sup> Evid. Hrg. Tr. at 23:13 – 25:17 (Stevenson) (Feb. 11, 2019).

as contingencies in the Project costs.<sup>205</sup> For this Project, approximately one-fifth of the risk values identified became part of the contingency in the cost estimate.<sup>206</sup>

124. Based on this cost estimation process, the Applicants' calculated total Project costs for the route and design options proposed in the Route Permit Application range from \$105.8 million (2016\$) to \$138.0 million (2016\$).<sup>207</sup> These costs are listed in **Table 2**.

**Table 2: Total Project Costs (2016\$)**<sup>208</sup>

Design Option	Route Option			
	Purple Route (West Route) (Millions)	Green Route (Middle Route) (Millions)	Red Route (Middle Route) (Millions)	Blue Route (East Route) (Millions)
Single-Circuit H-frame		\$109.0		
Single-Circuit Monopole		\$121.3		
Single-Circuit Parallel H-frame	\$105.8			
Single-Circuit Parallel Monopole	\$121.7			
Double-Circuit Monopole and Single-Circuit H-frame			\$135.2	\$123.7
Double-Circuit Monopole and Single-Circuit Monopole	\$137.9		\$138.0	\$135.8

125. The Applicants also developed cost estimates for the new route alternative, segment alternatives, and alignment alternatives proposed during scoping and included in the Draft EIS.<sup>209</sup> Of these alternatives, the lowest cost alternative is the

<sup>205</sup> Evid. Hrg. Tr. at 25:12-17 (Stevenson) (Feb. 11, 2019).

<sup>206</sup> Evid. Hrg. Tr. at 25:7-11 (Stevenson) (Feb. 11, 2019).

<sup>207</sup> Ex. XC-6 at 34-35 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>208</sup> Ex. XC-6 at 35 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>209</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

Purple Route, single-circuit H-frame design with Segment Alternatives F and J at \$104.8 million (2016\$).<sup>210</sup> The highest cost alternative is the Purple-E-Red Route, double-circuit design with Segment Alternatives E, Y, and Q at \$160.7 million (2016\$).<sup>211</sup>

126. In briefing, the Applicants proposed recommended route configurations for the five route alternatives by including certain segment alternatives and specific designs.<sup>212</sup> These revisions were made to reduce the environmental and human impacts. The costs for each of the Applicants' recommended route configurations are shown in **Table 3**, below.

---

<sup>210</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>211</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>212</sup> *See* Applicants' Route Permit Brief at 22-29.



**Table 3: Cost Estimates for  
Applicants' Recommended Route Configurations<sup>213</sup>**

<b>Route Alternative</b>	<b>Cost (Millions) (2016\$)<sup>214</sup></b>	<b>Cost (Millions) (Escalated to anticipated year spend \$)<sup>215</sup></b>
<b>Purple-BB-L Route</b> <i>Purple Route Modified to Use Segment Alternatives BB and L</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$140.1	\$155.8
<b>Green Route</b> <i>Single-Circuit</i> <i>Monopole Design</i>	\$121.3	\$134.9
<b>Red-Q Route</b> <i>Red Route Modified to Use Segment Alternative Q</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$141.2	\$157.1
<b>Blue-CC-Q Route</b> <i>Blue Route Modified to Use Segment Alternative Q</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$138.6	\$154.1
<b>Purple-E-AA1-Red-Q Route</b> <i>Purple-E-Red Route Modified to Use Segment Alternative Q and Alignment Alternative AA1</i> <i>Double-Circuit</i> <i>Monopole Design</i>	\$159.7	\$178.2

## **G. Schedule**

127. The Project is expected to be placed in service in December 2021, immediately prior to MISO's designated in-service date of January 1, 2022.<sup>216</sup>

<sup>213</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. [20192-149943-02](#)).

<sup>214</sup> "2016 dollars" or "(2016\$)" assumes that the Project would have been constructed (and dollars spent) in 2016.

<sup>215</sup> The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.

<sup>216</sup> Ex. XC-6 at 39-40 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

Construction of the Project is anticipated to commence in 2020.<sup>217</sup> The Applicants provided a preliminary Project schedule, subject to change, as shown in **Table 4**, below.

**Table 4: Anticipated Project Schedule<sup>218</sup>**

Activity	Estimated Dates
Minnesota Certificate of Need and Route Permit Issued	Second Quarter, 2019
Survey and Transmission Line Design Begins	Second Quarter, 2019
Land Acquisition Begins	Third Quarter, 2019
Other Federal, State, and Local Permits Issued	First Quarter, 2020
Start Right-of-Way Clearing	Second Quarter, 2020
Start Project Construction	Second Quarter, 2020
Project In-Service	December 2021

#### IV. SUMMARY OF POSITIONS OF THE PARTIES

128. No party to the Certificate of Need proceeding contests that the Huntley-Wilmarth Project satisfies all relevant statutory and rule criteria necessary to obtain a Certificate of Need.<sup>219</sup>

129. The DOC-DER submitted Direct Testimony for Dr. Steve Rakow, who addressed the need for the Huntley – Wilmarth Project; for Mr. Matthew Landi, who addressed alternatives for the Project; and for Mr. Mark A. Johnson, who addressed cost estimates and cost recovery for the Project.<sup>220</sup> The DOC-DER also submitted Rebuttal Testimony for Mr. Landi, who responded to the Applicants’ Direct Testimony regarding the Applicants’ updated alternatives analysis and updated internal and external cost analyses.<sup>221</sup>

130. Dr. Rakow provided the DOC-DER analysis of need for the proposed Project, and testified that the need in this case consists of the need to reduce congestion

<sup>217</sup> Ex. XC-6 at 39-40 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>218</sup> Ex. XC-6 at 39-40 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>219</sup> See, e.g., Ex. DER-5 at 8-32 (Rakow Direct) (eDocket No. [201811-147664-04](#)); Ex. MISO-1 at 17-26 (Zhou Direct); Ex. CEOS-1 at 2-26 (Goggin Direct);

<sup>220</sup> See Ex. DER-1 (Johnson Direct) (eDocket No. [201811-147664-02](#)); Ex. DER-3 (Landi Direct) (eDocket No. [201811-147664-03](#)); Ex. DER-5 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>221</sup> Ex. DER-4 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)).

due to the amount of new wind generation in Minnesota and Iowa.<sup>222</sup> Dr. Rakow then compared the amount of wind capacity forecasted to be added in Minnesota and Iowa to the levels of wind assumed by MISO to be added when MISO analyzed the Project under the MTEP16 Futures.<sup>223</sup> Dr. Rakow determined that the amount of future wind capacity is significant, because MISO's analysis for MTEP16 indicates that the Project reaches the 1.25 benefit-to-cost ratio required to qualify as an MEP only when wind is modeled at least at 4.3 gigawatts (GW) level.<sup>224</sup> Based on his analysis of the MISO interconnection queue for generation projects that are likely to be completed and placed in service in Minnesota and Iowa, Dr. Rakow concluded "that a reasonable forecast of new wind capacity will exceed by significant margin the 4,300 MW amount necessary to achieve a 1.25 benefit/cost ratio"<sup>225</sup> and therefore "the Applicants have shown 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,"<sup>226</sup> as specified in Minn. R. 7849.0120(A)(1). Dr. Rakow recommended that the Commission approve the proposed Project.<sup>227</sup>

131. Mr. Johnson testified that the Applicants' cost estimates for the proposed Project, as updated in the Direct Testimony of Applicants' witness Mr. Stevenson, reflect the best information available to decide whether the Project is reasonable compared to any alternatives.<sup>228</sup> Mr. Johnson recommended that the Commission, after the cost for the final route alternative is determined, require: (1) Xcel Energy to wait

---

<sup>222</sup> Ex. DER-5 at 5 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>223</sup> Ex. DER-5 at 8-13 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>224</sup> Ex. DER-5 at 13 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>225</sup> Ex. DER-5 at 23 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>226</sup> Ex. DER-5 at 23-24 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>227</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)); *see* Mapleton 6:00 p.m. Pub. Hrg. Tr. at 47 (Rakow) (Feb. 28, 2019) ("[T]ypically between a half and 80, 85 percent of projects lined up that want to get built actually do come into service. So when Xcel Energy was telling you about 10,000 to 15,000 megawatts, that's correct, there's that much in the queue. If you multiplied it by two, that's the lower end of what you should expect to see. And another thing that is going on is the Commission has a completely different process that feeds into this one, it's called resource planning, where the Commission goes in and weighs should utilities build wind projects, should they build solar, should it be new combustion turbines with natural gas and so forth. And it's difficult to get the models that are used in those processes to stop selecting wind projects. And the reason is wind projects are cheaper than anything from the existing. It's cheaper to build a wind project when you add on the transmission costs that produce energy from the coal plants that we already have.").

<sup>228</sup> Ex. DER -1 at 5-6 (Johnson Direct) (eDocket No. [201811-147664-02](#)).

until the first rate case after the Project is in service to attempt to recover from Minnesota ratepayers any actual costs that are higher than the final cost estimate in the Certificate of Need proceeding, and (2) Xcel Energy to justify the reasonableness of recovering any actual costs that are higher than the final cost estimate in the Certificate of Need proceeding.<sup>229</sup>

132. In rebuttal, Xcel Energy agreed to Mr. Johnson's conditions, with one clarification.<sup>230</sup> Xcel Energy noted that Mr. Johnson did not identify which costs would be used to establish a baseline for the Commission's review of the Project's costs.<sup>231</sup> In the Route Permit proceeding, the Commission will determine the final route and design for the Project and may order mitigation.<sup>232</sup> For an appropriate baseline, Xcel Energy proposed to file, within 45 days of the written Route Permit order, an updated cost estimate that accounts for any route changes or mitigation that the Commission may order.<sup>233</sup> That cost estimate would then be the baseline to determine if there are any excess costs.<sup>234</sup>

133. In surrebuttal, Mr. Johnson did not object to Xcel Energy's clarification to these conditions.<sup>235</sup>

134. DOC-DER witness Mr. Landi recognized in his Direct Testimony that the Applicants' analysis of statutorily-required alternatives,<sup>236</sup> including reasonable size, type, timing, no-build, renewable, and distributed generation options, was appropriate and sufficient.<sup>237</sup> Mr. Landi also agreed with the Applicants' conclusion that none of the alternatives considered was a more reasonable and prudent alternative to the proposed Project.<sup>238</sup> Mr. Landi stated that the Applicants had demonstrated that the proposed project is the best choice available to address the congestion issue identified

---

<sup>229</sup> Ex. DER-1 at 19 (Johnson Direct) (eDocket No. [201811-147664-02](#)).

<sup>230</sup> Ex. XC-25 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>231</sup> Ex. XC-25 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>232</sup> Ex. XC-25 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>233</sup> Ex. XC-25 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>234</sup> Ex. XC-25 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>235</sup> Ex. DER-2 at 8 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

<sup>236</sup> See Minn. R. 7849.0120 B(1); Minn. Stat. § 216B.2422, subd. 4; Minn. Stat. § 216B.2426.

<sup>237</sup> Ex. DER-3 at 5-20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>238</sup> Ex. DER-3 at 13 (Landi Direct) (eDocket No. [201811-147664-03](#)).

by MISO.<sup>239</sup> Regarding the 161 kV alternative, Mr. Landi concluded that the Applicants had appropriately determined that the proposed Project outperformed the 161 kV alternative with respect to 20-year NPV benefit, curtailment reductions, reduced system losses, congestion relief, externalities benefits, and cost to Minnesota ratepayers.<sup>240</sup>

135. In his Rebuttal Testimony, Mr. Landi maintained his recommendations from his Direct Testimony, but responded to the Applicants' Direct Testimony in order to help ensure that the record before the Commission and the ALJ is reasonably complete and accurate.<sup>241</sup>

136. MISO submitted Direct Testimony for Dr. Zhou, who supported approving a Certificate of Need for the proposed Project.<sup>242</sup> Dr. Zhou testified that the Project provides economic benefits to the MISO North/Central region under a variety of future scenarios, does not cause any reliability concerns, and performs better than the alternatives considered by MISO in MTEP16.<sup>243</sup>

137. The CEOs submitted Direct Testimony for Mr. Michael Goggin, who testified that the Huntley – Wilmarth Project is needed to reduce transmission congestion and wind curtailment and to allow greater amounts of low-cost wind energy resources to reach Minnesota and regional customers.<sup>244</sup> Consequently, the Project will encourage development of new wind and solar resources, lower the cost of electricity for Minnesota consumers, increase the competitiveness of the region's electricity market, enhance environmental and public health in Minnesota, and improve the robustness of the transmission system so that the state and region can reliably and affordably meet their electricity needs and state renewable energy standards (RES).<sup>245</sup>

138. Magellan submitted a letter from Mr. Jimmy Puckett, Magellan Corrosion Supervisor, to provide ALJ Case with additional information regarding the Project.<sup>246</sup> In particular, Magellan stated through its counsel that Magellan does not oppose the Project, does not seek any system alternative, and does not reject any proposed route

---

<sup>239</sup> Ex. DER-3 at 5-20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>240</sup> Ex. DER-3 at 46-48 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>241</sup> Ex. DER-4 at 2 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)).

<sup>242</sup> See Ex. MISO-1 at 26 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>243</sup> Ex. MISO-1 at 22, 27-28 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>244</sup> Ex. CEOS-1 at 2-4 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>245</sup> Ex. CEOS-1 at 1-4 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>246</sup> See Magellan Letter (Dec. 18, 2018) (eDocket No. [201812-148559-01](#)).

for the transmission line.<sup>247</sup> Rather, Magellan wants to lay the groundwork to ensure that proper measures are taken to mitigate against the risk of interference with Magellan's petroleum and anhydrous ammonia pipelines in the event that the Green, Red, or Blue Route is selected (the Purple Route has no impact on Magellan's pipelines or other facilities).<sup>248</sup>

## **V. PUBLIC PARTICIPATION AND COMMENTS**

139. Public hearings were held on February 27, 2019, at 1:00 p.m. and 6:00 p.m. at the AmericInn, 240 Stadium Road, Mankato, Minnesota; on February 28, 2019, at 1:00 p.m. at the Delavan High School Gym, 300 Second Street, Delavan, Minnesota; and on February 28, 2019, at 6:00 p.m. at Maple River High School, 101 Sixth Avenue Northeast, Mapleton, Minnesota.<sup>249</sup>

140. At the afternoon public hearing in Mankato, Mr. Christopher Frederick addressed a possible increase in renewable penetration in Minnesota due to interest at the state legislature and the possible need for the Applicants and MISO to update the analyses to include more renewables.<sup>250</sup>

141. Linda Johnson, a property owner, at the evening public hearing held in Mankato, voiced her opposition to the construction of a new transmission line and questioned the need for the Project.<sup>251</sup>

142. Lucas Nelson, a policy associate at the Center for Rural Affairs, spoke at the 1:00 p.m. public hearing in Delavan.<sup>252</sup> Mr. Nelson discussed the opportunities in Minnesota to connect rural communities to economic opportunities through wind generation, particularly via tax revenue generated by wind resources.<sup>253</sup> In supporting the need for the Project, Mr. Nelson stated that one of the biggest hurdles to new wind generation is the lack of transmission structure and that the Project provides essential

---

<sup>247</sup> Magellan Letter (Dec. 18, 2018) (eDocket No. [201812-148559-01](#)).

<sup>248</sup> Magellan Letter (Dec. 18, 2018) (eDocket No. [201812-148559-01](#)).

<sup>249</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-02](#)).

<sup>250</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 66-68 (Frederick) (Feb. 27, 2019).

<sup>251</sup> Mankato 6:00 p.m. Pub. Hrg. Tr. at 28-30 (Johnson) (Feb. 27, 2019).

<sup>252</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 40 (Nelson) (Feb. 28, 2019).

<sup>253</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 40-42 (Nelson) (Feb. 28, 2019).



new upgrades to transmission infrastructure that allow for new wind generation to connect to the regional grid.<sup>254</sup>

143. Layne Hopkins, a property owner, at the evening public hearing in Mapleton, raised questions as to whether the Project is needed due to the number of surrounding solar gardens and the decommissioning of several wind turbines.<sup>255</sup>

## **VI. NEED OVERVIEW**

144. The Huntley – Wilmarth Project is primarily designed to reduce transmission system congestion.<sup>256</sup> Congestion on the transmission system affects the cost of energy, deliverability of energy, and the efficiency of the system.<sup>257</sup> Transmission lines serve as the highways of the electric grid in that they facilitate the movement of large volumes of energy from where it is generated, such as wind turbines or coal or natural gas-fired generation stations, to where it is needed.<sup>258</sup> There are limits to the amount of energy that can be transmitted on a particular transmission line at a given point in time.<sup>259</sup> These limits take different forms such as thermal limits, voltage limits, and stability limits.<sup>260</sup>

145. With zero congestion, the lowest-priced generators, often wind generators, are first used to meet the needs or demands of the electrical customers.<sup>261</sup> When there is congestion on the transmission system, however, the lowest-priced energy cannot flow freely across the electrical system.<sup>262</sup> As a result, more expensive generators are ordered to operate or increase output (redispatched) to replace the wind energy that could not be delivered to the end user.<sup>263</sup> Predictably, this redispatch to

---

<sup>254</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 40-41 (Nelson) (Feb. 28, 2019).

<sup>255</sup> Mapleton 6:00 p.m. Pub. Hrg. Tr. at 19-26 (Hopkins) (Feb. 28, 2019).

<sup>256</sup> Ex. DER-5 at 9 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>257</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>258</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>259</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>260</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>261</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>262</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>263</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

avoid congestion increases the price of electricity for both wholesale and retail customers.<sup>264</sup>

146. The Minnesota/Iowa border is one of the most congested areas in the region's electric transmission system for two main reasons: (1) the large number of wind generators in place and planned for this area, and (2) the lack of adequate transmission capacity to transport this wind power to customers.<sup>265</sup>

147. Specifically, MISO identified that there is congestion on the Huntley-Blue Earth – South Bend 161 kV line during a loss of the Lakefield Generating Station – Lakefield Junction 345 kV transmission line.<sup>266</sup> This means that this line cannot carry the lower-cost renewable generation to load centers while maintaining system reliability; thus, it becomes necessary for higher cost generation to be “redispatched” (i.e., increase output) or to commence operation.<sup>267</sup> Relieving the transmission system congestion in the Project area will improve the efficiency of the MISO energy market, which in turn will result in lower wholesale energy costs.<sup>268</sup>

148. Besides reducing congestion, the Project will provide several additional benefits. The Project will strengthen the resilience of the regional grid and improve delivery of energy by reducing curtailments of wind generators.<sup>269</sup> Fundamentally, a reduction in curtailments means that the electrical system is operating more efficiently and allowing low cost wind energy to reach customers.<sup>270</sup> A reduction in wind curtailments also means that there is a reduction in thermal generation as wind generation is able to meet a greater portion of the energy demand.<sup>271</sup>

149. The Project will also make the Minnesota transmission system more robust, which will allow the transmission system to better respond to different outages on the system.<sup>272</sup> A more robust transmission system also enables access to a diverse

---

<sup>264</sup> Ex. XC-6 at 6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>265</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>266</sup> Ex. XC-6 at 69 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>267</sup> Ex. XC-6 at 69 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>268</sup> Ex. XC-24 at 4 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>269</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>270</sup> Ex. XC-24 at 23, 93 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>271</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>272</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



mix of generation resources, providing customers the ability to access the least expensive power available at any given time.<sup>273</sup>

150. The Project will also bring environmental benefits through reductions in CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions.<sup>274</sup>

### **A. Minnesota's Changing Generation Mix**

151. Over the course of the past 20 years, the generation mix in Minnesota and surrounding states has dramatically shifted from relying primarily on coal and nuclear generation resources to a more diverse generation mix that includes increasing amounts of renewable energy, in particular, wind generation.<sup>275</sup>

152. In 2000, wind generation accounted for one percent of Minnesota's generation mix.<sup>276</sup> By 2016, this percentage rose to 18 percent.<sup>277</sup> At the same time, the state's percentage of generation from coal-fired resources has dropped from approximately 66 percent to 39 percent and natural gas generation has increased from approximately 3 percent to 15 percent.<sup>278</sup>

153. These changes in the generation portfolio in Minnesota require additions and changes to the electrical system in the region to ensure that the added generation can be efficiently and economically delivered to load centers.<sup>279</sup>

154. The expansion of wind generation in Minnesota has been the result of various overlapping factors: local, state, and federal policies, favorable geographic conditions, technological improvements, and economics.<sup>280</sup>

---

<sup>273</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>274</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); *see* Ex. XC-6 at 105 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-6 at Appendix I (Certificate of Need Application) (eDocket No. [20181-139030-04](#)); Ex. XC-18 at 8-9 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>275</sup> Ex. XC-6 at 47 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>276</sup> Ex. XC-6 at 48 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>277</sup> Ex. XC-6 at 48 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>278</sup> Ex. XC-6 at 48 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>279</sup> Ex. XC-6 at 47 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>280</sup> Ex. XC-6 at 50 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

155. In 2007, Minnesota established mandatory RESs, which set a renewable generation target of 30 percent by 2020 for Xcel Energy and 25 percent by 2025 for other load-serving utilities in Minnesota.<sup>281</sup>

156. Federal production tax credits and investment tax credits have also spurred growth by providing meaningful tax incentives for qualified wind projects and expenditures.<sup>282</sup>

157. The unique geographic conditions in southwestern and southern Minnesota as well as most of Iowa, North Dakota, and South Dakota have further promoted growth of new wind generators.<sup>283</sup> These areas are ideal locations for wind generation as they have higher-than-average wind speeds combined with vast areas of land suitable for accommodating new wind turbines.<sup>284</sup> Advancements in wind generation technology have significantly improved the cost and performance of today's wind turbines.<sup>285</sup> Together, these factors have made wind power the most economical option to generate electricity in Minnesota today.<sup>286</sup>

158. The unprecedented level of interconnection requests for wind generators in the area of the Project has continued since the Project's approval by MISO in MTEP16.<sup>287</sup>

159. Moreover, and in accordance with MISO model development practices, the Project has been included in all economic, reliability, and interconnection models that have been developed since the Project's approval as part of MTEP16.<sup>288</sup> Interconnection of these generators is conditioned on, but not necessarily dependent on, the completion of the Project.<sup>289</sup> Starting with the February 2016 Definitive

---

<sup>281</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>282</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>283</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>284</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>285</sup> Ex. XC-24 at 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>286</sup> Ex. XC-24 at 6-7 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>287</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>288</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>289</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

Planning Phase (DPP) cycle,<sup>290</sup> the Huntley – Wilmarth Project has been considered in-service at the beginning of 2022.<sup>291</sup>

160. The Applicants provided further information that demonstrates the continued growth of wind generation in Minnesota and Iowa.<sup>292</sup> As explained in the Direct Testimony of the Applicants' witness Mr. Andrew Siebenaler, on August 1, 2018, the MISO interconnection queue contained 536 interconnection requests with a combined capacity of 91,300 megawatts (MW).<sup>293</sup> At that time, all projects in the queue proposed to be in-service on or before April 1, 2023, with over 85 percent of those 536 requests being for renewable generation.<sup>294</sup> Utilities have publicly announced a total of 6,000 MW of new wind resources coming online in the Upper Midwest by 2022.<sup>295</sup>

161. In his analysis, DOC-DER witness Dr. Rakow determined, based on MISO DPP data from various years and regions, that it would be reasonable to conclude that on average about 80 to 85 percent of wind projects that enter a DPP Study Group would eventually sign an interconnection agreement and go in service.<sup>296</sup> Applying the 80 percent factor to the seven DPP Study Groups established between February 2015 and April 2018, Dr. Rakow estimated a total of 14,786 MW of expected additional wind generation in Minnesota and Iowa from these seven Study Groups alone.<sup>297</sup>

162. As of the end of the second quarter of 2018, 9,130 MW of additional wind generation capacity were under construction or in advanced development in Iowa,

---

<sup>290</sup> The DPP is the phase of the MISO interconnection process where interconnection studies occur to identify the facilities needed to interconnect a new generator to the transmission system. There are three phases to the DPP during which MISO studies the impact of the interconnection customer's request on the reliability of the transmission system and whether upgrades to the system are required to accommodate the request. Generation interconnections in the final phase of the DPP are likely to be constructed. Ex. XC-6 at 62-63 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>291</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>292</sup> See Ex. XC-24 at 6-10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>293</sup> Ex. XC-24 at 7 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>294</sup> Ex. XC-6 at 58 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>295</sup> Ex. XC-24 at 9-10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>296</sup> Ex. DER-5 at 20 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>297</sup> Ex. DER-5 at 16-17, 20, 22 (Rakow Direct) (eDocket No. [201811-147664-04](#)); see Mapleton 6:00 p.m. Pub. Hrg. Tr. at 46-47 (Rakow) (Feb. 28, 2019).

Minnesota, South Dakota, and North Dakota, with 6,003 MW of that wind capacity in Iowa and Minnesota.<sup>298</sup> Moreover, the area served by the Project is on track to exceed wind levels that MISO projected for 2030 even before the Huntley – Wilmarth Project would come online in 2020.<sup>299</sup> And, as explained by CEO witness Mr. Michael Goggin, MISO’s Generator Interconnection queue indicates that many more wind projects are likely coming to Iowa and Minnesota beyond those currently under construction or in advanced development.<sup>300</sup>

163. The exceptional growth of wind generation in Minnesota and the surrounding states has put unprecedented pressure on the transmission system to deliver the low-cost wind power to customers.<sup>301</sup> As more wind generation facilities have been constructed along the Minnesota/Iowa border over the past decade, transmission congestion in this area has increased.<sup>302</sup>

164. Further, the expected coal generation retirements north of the Minneapolis/St. Paul area, such as the Sherburne County Generation Station (Sherco) Unit 1 (682 MW) and Unit 2 (682 MW), located northwest of the Twin Cities metro area, and Clay Boswell Units 1 and 2, increase the need for power to flow from northern Iowa to the Twin Cities on the currently congested Huntley – Blue Earth 161 kV line.<sup>303</sup>

165. As detailed below, the Huntley – Wilmarth Project has undergone extensive review and analysis by both MISO and the Applicants. MISO analyzed and approved the Project as an MEP in December 2016 as part of MTEP16 and the Applicants further analyzed the Project under MISO’s more recent MTEP17 and MTEP18 models.<sup>304</sup> In each of these analyses, which included multiple Futures, the Project has continued to show net economic benefits in excess of its estimated costs.<sup>305</sup>

---

<sup>298</sup> Ex. CEOS-1 at 14 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>299</sup> Ex. CEOS-1 at 15 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>300</sup> Ex. CEOS-1 at 15 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>301</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>302</sup> Ex. XC-24 at 10 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>303</sup> Ex. XC-6 at 13, 84 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>304</sup> Ex. XC-24 at 11 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>305</sup> Ex. XC-6 at 87-93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 11-12, 18-34 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

## B. MISO'S Analysis of Need and Alternatives

### 1. MISO MTEP REPORTS

166. The Project is a culmination of MISO studies and analyses that, since 2009, identified transmission facilities in the Blue Earth County area near Mankato as a congested flowgate in the MISO system.<sup>306</sup>

167. Each year, MISO develops its transmission expansion plan or MTEP in collaboration with transmission owners and other stakeholders.<sup>307</sup> MISO adheres to the planning principles outlined in FERC Order Nos. 890<sup>308</sup> and 1000<sup>309</sup> in developing the MTEP.<sup>310</sup> These FERC Orders require an open and transparent regional transmission planning process and include the requirement to plan for public policy objectives and for coordinated inter-regional planning and cost allocation.<sup>311</sup> Consistent with these orders, the MTEP is used to evaluate different transmission projects to meet local and regional reliability standards, support the achievement of state and federal energy policy requirements, and enable a competitive and efficient electricity market to benefit all customers.<sup>312</sup>

---

<sup>306</sup> Ex. XC-6 at 69-87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)). A flowgate is defined as a facility or group of facilities that may act as a constraint to power transfer on the Bulk Electric System. Ex. XC-6 at 69 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>307</sup> Ex. XC-6 at 67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>308</sup> *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241, order on reh'g, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g and clarification*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228 (2009), *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009) (collectively, "FERC Order No. 890").

<sup>309</sup> *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, 136 FERC ¶ 66,051 (2011), *order on reh'g*, Order No. 1000-A, 139 FERC ¶ 61,132 (2012), *order on reh'g and clarification*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012) (collectively, "FERC Order No. 1000").

<sup>310</sup> Ex. XC-6 at 67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>311</sup> Ex. XC-6 at 67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. MISO-1 at 5-6 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>312</sup> Ex. XC-6 at 67 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 13 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

168. As part of the annual MTEP, a Market Congestion Planning Study (MCPS) is conducted.<sup>313</sup> This MCPS focuses exclusively on identifying where congestion on the transmission system may limit access to the lowest-cost generation resources.<sup>314</sup> Transmission improvements that may relieve this congestion and increase market efficiency under a variety of Futures are evaluated in the MCPS.<sup>315</sup> This is the study MISO undertook as part of MTEP16 to develop and evaluate the Huntley – Wilmarth Project.<sup>316</sup>

169. The two types of projects that would result from the MCPS are the MEP and the “Other” type project, which can include lower cost or lower voltage economically justified projects.<sup>317</sup> MEPs, such as the Huntley – Wilmarth Project, are defined in the MISO Open Access Transmission, Energy and Operating Markets Tariff (Tariff) as:

Network Upgrades proposed by the Transmission Provider, Transmission Owner(s), [Independent Transmission Companies], Market Participant(s), or regulatory authorities as providing market efficiency benefits to one or more Market Participant(s), but not determined by the Transmission Provider to be Multi Value Projects and provide sufficient market efficiency benefits as determined by the Transmission Provider to justify inclusion into the MTEP.<sup>318</sup>

170. To qualify as an MEP, a transmission project must meet the following criteria at the time of designation: (1) greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at a voltage level of 345

---

<sup>313</sup> Ex. MISO-1 at 9 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>314</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>315</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>316</sup> Ex. XC-24 at 14 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>317</sup> Ex. XC-6 at 68 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>318</sup> Ex. XC-6 at 68 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); MISO, FERC Electric Tariff, Module A, §1.M (48.0.0).



kV or higher; (2) the benefit-to-cost ratio of the candidate project must meet or exceed 1.25; and (3) the total project cost must exceed \$5 million.<sup>319</sup>

171. To calculate the benefit-to-cost ratio of a project, MISO utilizes APC savings to measure the economic benefits.<sup>320</sup> APC savings are calculated as the difference in total production costs of the generation fleet adjusted for import costs and export revenues with and without the proposed transmission project.<sup>321</sup> These calculations—with and without the proposed transmission project—are sometimes referred to as the Base Case and Change Case.<sup>322</sup>

172. PROMOD IV is a computer program that performs an hourly security-constrained economic dispatch to simulate the electric market.<sup>323</sup> The data from these PROMOD IV simulations are used to calculate APC savings.<sup>324</sup> Hourly APC values are summed for the entire 8,760 hours in a year to produce a year APC for each Base and Change case. APC savings are calculated for each MISO Future<sup>325</sup> for three non-consecutive years in the future.<sup>326</sup>

---

<sup>319</sup> Ex. XC-6 at 5-6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>320</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>321</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>322</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>323</sup> Ex. XC-6 at 64 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>324</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>325</sup> As part of its annual transmission planning process, MISO, in coordination with stakeholders, develops a variety of future scenarios or "Futures" under which to study potential transmission projects. Each Future contains different assumptions as to future demand and energy levels, fuel prices, generation retirements and additions, and potential environmental regulations. The purpose of developing a variety of Futures is to provide reasonable bookends to account for uncertainty such that actual events will fall somewhere between the defined Futures most of the time and, in certain occasions, wholly within one Future. Ex. XC-6 at 63 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>326</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

173. Savings are then determined by subtracting the Change Case APC from the Base Case APC for each Future and year to produce a “Delta.”<sup>327</sup> A positive Delta indicates an APC savings and therefore positive benefits from a proposed project.<sup>328</sup> Likewise, a negative Delta is indicative of a negative benefit and an increase in APC due to a proposed project.<sup>329</sup>

174. The calculated values are single-year APC savings.<sup>330</sup> To determine a benefit-to-cost ratio for a project, a 20-year PV analysis of the benefits and costs must be conducted for each Future.<sup>331</sup> To determine the benefits for the 17 years that are not simulated, the years between three years of modeled values are interpolated and the out years are extrapolated from the input data.<sup>332</sup> These yearly benefit values are then converted to PV along with the estimated annual costs of the project using a PV calculation tool.<sup>333</sup>

175. The costs utilized in the benefit-to-cost ratio are the estimated capital costs for the transmission project multiplied by the inflation rate and the revenue requirements for that year.<sup>334</sup> The annual cost values are then converted to a PV by dividing the annual cost by the discount rate. These annual values are then summed to produce a 20-year PV cost.<sup>335</sup>

---

<sup>327</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>328</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>329</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>330</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>331</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>332</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>333</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>334</sup> Evid. Hrg. Tr. at 28:17-21 (Siebenaler) (Feb. 11, 2019).

<sup>335</sup> Evid. Hrg. Tr. at 28:23-29:1 (Siebenaler) (Feb. 11, 2019).



176. After each Future's benefit and the estimated project cost are translated into a PV amounts, the benefit-to-cost ratios are calculated for each Future by dividing the PV costs from the PV benefits.<sup>336</sup>

177. These benefit-to-cost ratios for each Future are then weighted based on the weightings agreed to by the MISO stakeholders as part of the MTEP process.<sup>337</sup> The weighting is intended to represent the likelihood that a Future will occur.<sup>338</sup> This produces a weighted benefit-to-cost ratio that is used to evaluate a proposed project's economic impact to the MISO North/Central region.<sup>339</sup>

178. While any transmission project that has a greater than 1.0 benefit-to-cost ratio has APC savings that exceed its costs, in initially approving an MEP, MISO utilizes the 1.25 threshold for the benefit-to-cost ratio to account for uncertainty as to both the benefits and costs of a particular project.<sup>340</sup> MISO analyzes projects under a set of Futures that attempt to provide reasonable bookends of the future but these are still assumptions and may not entirely match the future reality.<sup>341</sup> Likewise, the costs of a project may increase from the time it is approved given that MISO does not perform a detailed cost estimation process as part of MTEP.<sup>342</sup> The 1.25 benefit-to-cost ratio appropriately accounts for these uncertainties while not setting the thresholds so high that projects with net benefits are not approved.<sup>343</sup>

179. If a potential project is found to be economically justifiable, but does not meet all of the MEP criteria, it can still be approved as an "Other" type project based

---

<sup>336</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>337</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>338</sup> Ex. XC-6 at 75-76 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. MISO-1 at 15-16 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>339</sup> Ex. DER-3 at Schedule ML-7 (Landi Direct) (Applicants' Response to DOC-DER IR No. 17) (eDocket No. [201811-147664-03](#)).

<sup>340</sup> Ex. XC-24 at 18 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>341</sup> Ex. XC-24 at 18 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>342</sup> Ex. XC-24 at 18-19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>343</sup> Ex. XC-6 at 68 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 18-19 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

on an economic justification.<sup>344</sup> The full costs of “Other” projects are paid by customers in the transmission pricing zone where the facility is located.<sup>345</sup>

## 2. MTEP16

180. MISO’s Board of Directors approved the Project as an MEP and for inclusion in Appendix A of MTEP16 in December 2016.<sup>346</sup> Approval of a MISO MTEP by the Board of Directors certifies MISO’s plan for meeting the transmission needs of all stakeholders, subject to any required approvals by federal or state regulatory authorities.<sup>347</sup>

181. Specifically, the MTEP16 analysis concluded that the Project will relieve 100 percent of the identified congestion and provide an anticipated \$210 million (2016\$) in PV benefits over 20 years with a weighted benefit-to-cost ratio between 1.51 and 1.86 based on MISO’s estimated costs of \$88 to \$108 million (2016\$).<sup>348</sup> Under MISO’s generation interconnection queue sensitivity that included more precise forecasted wind generator locations in the MTEP16 models, the Project would provide an anticipated \$251 million (2016\$) in PV benefits over 20 years with a weighted benefit-to-cost ratio between 1.86 and 2.28 based on MISO’s estimated costs of \$88 to \$108 million (2016\$).<sup>349</sup>

182. In MTEP16, MISO first developed five different Futures under which to analyze potential alternatives to resolve this congestion.<sup>350</sup> The five Futures and assigned weightings used in MISO’s MTEP16 analysis included:

(1) *Business as Usual (BAU)*: captures all current policies and trends in place at the time of Futures development and assumes they continue, unchanged, throughout the duration of the study period. All applicable United States Environmental Protection Agency (EPA) regulations are

---

<sup>344</sup> Ex. XC-6 at 68 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>345</sup> Ex. XC-6 at 68 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>346</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>347</sup> Ex. MISO-1 at 21 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>348</sup> Ex. XC-6 at 61, 86, Table 14 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 17-18 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>349</sup> Ex. XC-6 at 61, 86, Table 14 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 16-17 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>350</sup> Ex. XC-24 at 11 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

modeled. Demand and energy growth are modeled at 0.9 percent. All current state-level renewable portfolio standards (RPS) and Energy Efficiency Resource Standard (EERS) mandates are modeled. Assumes retirement of 12.6 GW of coal generation. Weighted at 19 percent.

(2) *High Demand (HD)*: captures the effects of increased economic growth resulting in higher energy costs and medium gas prices. Demand and energy growth are modeled at 1.6 percent. All applicable EPA regulations are modeled. All current state-level RPS and EERS mandates are modeled. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Weighted at 10 percent.

(3) *Low Demand (LD)*: captures the effects of reduced economic growth resulting in low energy costs and medium to low gas prices. Demand and energy growth are modeled at 0.2 percent. All applicable EPA regulations are modeled. All current state-level RPS and EERS mandates are modeled. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Weighted at 16 percent.

(4) *Regional Clean Power Plan (CPP) Compliance (RCPP)*: assumes a MISO footprint-wide plan to comply with the CPP that will result in a significant reduction in carbon emissions. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Also assumes 14 GW of additional coal unit retirements, coupled with \$25/ton carbon costs, and state mandates for renewables. Includes declining costs for wind and solar generation. Demand and energy growth are modeled at 0.9 percent. Weighted at 30 percent.

(5) *Sub-regional CPP Compliance (SRCPP)*: assumes zonal or state-level compliance with the CPP that will result in significant reductions in carbon emissions. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Also assumes 20 GW of additional coal unit retirements, coupled with \$40/ton carbon costs, and state mandates for renewables. Demand and energy growth are modeled at 0.9 percent. Weighted at 25 percent.<sup>351</sup>

183. MTEP16 identified the transmission system in the Mankato/Blue Earth area as having significant congestion, including the Huntley – Blue Earth – South Bend

---

<sup>351</sup> Ex. XC-6 at 72-79 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 14-15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 10-12 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

– Wilmarth 161 kV line.<sup>352</sup> MTEP16 concluded that congestion on this flowgate had increased to a level that warranted further analysis and identification of potential cost-effective solutions.<sup>353</sup>

184. MTEP16 initially considered 23 transmission project alternatives that could possibly solve the congestion in the Iowa/Minnesota area, which were screened for net benefits.<sup>354</sup> Projects that showed a one-year benefit-to-cost ratio equal to 0.9 or greater were carried forward for further analysis.<sup>355</sup> The initial screening was passed by 16 projects, which were different 345 kV configurations (12 projects) and 161 kV configurations (4 projects).<sup>356</sup>

185. MISO then grouped the 16 alternatives into four groups of solutions based on voltage level and design approach.<sup>357</sup> The alternatives within each group were then ranked.<sup>358</sup> The four groups are listed below:

Group 1: projects (above 300 kV) that directly strengthened the Huntley/Lakefield to Wilmarth path.

Group 2: projects (above 300 kV) that strengthened the southeast transmission corridor into the Twin Cities.

Group 3: projects (less than 300 kV) that directly strengthened the Huntley/Lakefield to Wilmarth path.

---

<sup>352</sup> Ex. XC-6 at 78 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 17 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>353</sup> Ex. XC-6 at 78 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 17 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>354</sup> Ex. XC-6 at 78-79 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 17-18 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>355</sup> Ex. XC-6 at 79 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>356</sup> Ex. XC-6 at 79-80 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 15 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 18 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>357</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>358</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

Group 4: projects (less than 300 kV) that strengthened the southeast transmission corridor into the Twin Cities.<sup>359</sup>

186. Four solutions, one from each group, were selected due to their high screening performance.<sup>360</sup> These transmission solutions were: (1) new Huntley – Wilmarth 345 kV transmission line; (2) new Huntley – North Rochester 345 kV transmission lines; (3) Huntley – South Bend 161 kV re-conductor, new South Bend – Wilmarth 161 kV line, and Wilmarth Substation expansion; and (4) new Freeborn – West Owatonna 161 kV line.<sup>361</sup>

187. MTEP16 analysis showed that the Huntley – Wilmarth Project outperformed the other alternatives on all critical metrics.<sup>362</sup> Specifically, the Huntley – Wilmarth Project relieved 100 percent of the congestion through the end of the study period (2030), had the highest benefit-to-cost ratio, and provided the largest 20-year PV benefit.<sup>363</sup>

188. Further, to test the robustness of the Project, MISO considered two additional options that modified the Huntley – Wilmarth Project and conducted economic sensitivity and reliability analyses of the top three project alternatives.<sup>364</sup>

189. MISO completed two economic sensitivity analyses based on the physical location of the future wind units and interconnection points assumed to be in the Futures and announced generation retirements.<sup>365</sup> The first of these economic sensitivity analyses included a look at the impacts of the retirement and replacement of the large Sherburne County Generation Station (Sherco) Units 1 and 2 located

---

<sup>359</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>360</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 18 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>361</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. MISO-1 at 18 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>362</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. 24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>363</sup> Ex. XC-6 at 81 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. 24 at 16 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>364</sup> Ex. XC-24 at 16-17 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>365</sup> Ex. XC-6 at 84 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

northwest of the Twin Cities metro area.<sup>366</sup> The second sensitivity tested whether the Project’s benefits were sensitive to the location of forecasted wind generation additions meant to meet resource requirements external to MISO.<sup>367</sup> The result of these sensitivities, shown in **Table 5**, below, demonstrate that the Project maintains a high benefit-to-cost ratio under the generation location variations studied, with increased projected benefits in the Sherco replacement sensitivity.<sup>368</sup>

**Table 5: Sensitivity Analysis**<sup>369</sup>

ID	MISO Cost Estimate (2016 \$M)	Sensitivities	Benefit-to-Cost Ratios						20-yr PV Benefit (\$M)
			BAU	HD	LD	RCPP	SRCPP	Weighted	
I-02	\$100.9	Base Case	0.51	1.29	0.12	1.71	6.72	2.44	\$344
		Sherco Retirement/ Replacement	0.70	1.84	0.30	1.71	6.72	2.55	\$360
		External RRF Wind in IA Removal	0.51	1.29	0.12	0.91	4.50	1.64	\$232

190. MISO also performed a generation interconnection queue sensitivity or “Queue Wind Sensitivity” analysis to test whether the Project’s benefits were dependent on the location of forecasted wind generation additions.<sup>370</sup> The results of this analysis showed that, with the level of wind likely to be interconnected based on historical interconnection trends, the benefits of the Project increase in all Futures.<sup>371</sup>

191. The performance of the Huntley – Wilmarth Project under MISO’s Queue Wind Sensitivity as compared to the base MTEP16 models is shown in **Table 6**, below:

<sup>366</sup> Ex. XC-6 at 84 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>367</sup> Ex. XC-6 at 85 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>368</sup> Ex. XC-6 at 85 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>369</sup> Ex. XC-6 at 85 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>370</sup> Ex. XC-6 at 85-86 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>371</sup> Ex. XC-6 at 86 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



**Table 6: Huntley – Wilmarth Project MTEP16 Results<sup>372</sup>**

ID	Transmission Solution	Model	MISO Cost Estimate (2016\$) (Millions)	Benefit to Cost Ratios						20-yr PV Benefit (2016\$) (Millions)
				BAU	HD	LD	RCP	SRCP	Weighted	
I-2	Huntley – Wilmarth 345 kV new circuit	Base	\$88-108	0.43-0.52	1.16-1.42	0.10-0.13	1.32-1.62	3.63-4.45	1.51-1.86	\$210
		Queue Wind Sensitivity		1.39-1.71	2.40-2.95	0.69-0.85	2.45-3.01	2.03-2.49	1.86-2.28	\$251

192. As part of its MTEP16 analysis, MISO also conducted a reliability analysis to ensure that the Huntley – Wilmarth Project does not degrade system reliability.<sup>373</sup> The reliability analysis is referred to as a “No-Harm” test.<sup>374</sup> In this analysis, MISO found that the Project causes no harmful reliability impacts on the transmission system in the MISO footprint or neighboring transmission system.<sup>375</sup>

193. Based on this study work, the MISO Board of Directors approved the Huntley – Wilmarth Project as an MEP and for inclusion in Appendix A of MTEP16.<sup>376</sup>

### **C. The Applicants’ Analysis of Need**

194. Following the approval by the MISO Board of Directors in December 2016 of a 345 kV transmission line between the Huntley and Wilmarth substations as an MEP, MISO and its stakeholders have continued to examine recent developments and trends in the energy policy, demand growth, and fuel prices.<sup>377</sup> MISO and its stakeholders incorporated this examination into the development of new and updated Futures for its MTEP17 report and for its MTEP18 report.<sup>378</sup>

<sup>372</sup> Ex. XC-6 at 86 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>373</sup> Ex. MISO-1 at 21 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>374</sup> Ex. MISO-1 at 22 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-6 at 86 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>375</sup> Ex. MISO-1 at 23 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>376</sup> Ex. MISO-1 at 21 (Zhou Direct) (eDocket No. [20189-146240-01](#)); Ex. XC-6 at 86-87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>377</sup> Ex. XC-6 at 87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>378</sup> Ex. XC-24 at 19, 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

195. To further demonstrate need for the Project, the Applicants conducted additional analyses of the Project using the models and Futures developed by MISO for MTEP17 and MTEP18.<sup>379</sup> Results based on MTEP17 modeling were included in the Application and results based on MTEP18 modeling were included in Mr. Siebenaler's Direct Testimony.<sup>380</sup>

1. *THE APPLICANTS' ANALYSIS UNDER MTEP17 MODELS AND FUTURES*

196. For MTEP17, MISO, in coordination with stakeholders, narrowed the number of Futures from the five Futures used in MTEP16 to three Futures – Existing Fleet (EF), Policy Regulations (PR), and Accelerated Alternative Technologies (AAT).<sup>381</sup> As with MTEP16, MISO also assigned weights to each of these Futures through a stakeholder process.<sup>382</sup>

197. MISO's MTEP17 analysis used the following three Futures and assigned the following weightings:

- (1) *EF*: a baseline future in which the existing generation fleet is mostly unchanged, with the exception of age-related retirements. This Future has no carbon regulations, uses the low-point gas price forecast, and has low demand (0.3 percent) and energy (0.3 percent) growth rates. Sufficient renewable resources are added to meet all current state-level RPSs. This Future assumes that renewable tax credits continue until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 31 percent.

---

<sup>379</sup> Ex. XC-24 at 19-34 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>380</sup> During the discovery process, Applicants determined that the MTEP17 analysis contained in the Certificate of Need Application was not based on the final June 2017 MTEP17 models but rather an earlier version of these models. Applicants also determined that there was a minor error in the PV calculator used by the Applicants to calculate the benefit-to-cost ratios. As part of discovery and in the Direct Testimony of Mr. Siebenaler, Applicants provided revised MTEP17 results based on the final MTEP17 models, which were released on June 6, 2017. Additionally, Applicants corrected for the error in the PV calculator. The Applicants filed revised tables and exhibits incorporating the updated MTEP17 data. Because each of these corrections is minor, none of the corrections affects the Applicants' conclusion that the economic benefits of the Project outweigh its costs. Ex. XC-24 at 19-20 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>381</sup> Ex. XC-6 at 87 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>382</sup> Ex. XC-6 at 91-92 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



(2) *PR*: has a carbon reduction target of 25 percent. This carbon reduction target is met through increased renewable resources as well as age and economic-related coal retirements. The mid-point gas price forecast was used in this Future, along with a 50/50 forecast for demand and energy growth rates (0.7 percent). This Future assumes that renewable tax credits continue until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 43 percent.

(3) *AAT*: a high-renewable Future with a carbon reduction target of 35 percent. Coal units are economically retired to meet this carbon reduction target. High renewable development has been implemented using a maturity cost curve reflecting technological advancement and economies of scale associated with a large renewable build out. Demand and energy growth rates are the highest in this Future (1.0 percent). The high-point gas price forecast is used. This Future assumes that renewable tax credits continue until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 26 percent.<sup>383</sup>

198. The Applicants' analysis using the MTEP17 Futures confirmed that the Project will relieve 100 percent of the identified congestion throughout the study period (to 2031 for MTEP17) and will provide an anticipated \$275.8 million (2016\$) in PV benefits over 20 years.<sup>384</sup> The Project has a weighted benefit-to-cost ratio of 1.66 to 2.16 using the Project costs for the range of route and design alternatives proposed by the Applicants in their Route Permit Application (ranging from \$105.8 million to \$138.0 million (2016\$)).<sup>385</sup>

199. The results of the Applicant's MTEP17 analysis are provided in **Table 7**, below.

---

<sup>383</sup> Ex. XC-6 at 87-92 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 19-20 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>384</sup> Ex. XC-24 at 21 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>385</sup> Ex. XC-24 at 21 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**Table 7: MTEP17 Analysis with Current Project Cost Estimates<sup>386</sup>**

Project	Applicants' Project Cost Estimates (2016\$ Millions)	Expected In-Service	PV Benefit (Million 2016\$)				Benefit-to-Cost Ratios (Millions, 2016\$)			
			AAT	EF	PR	Weighted	AAT	EF	PR	Weighted
Huntley – Wilmarth 345 kV	\$105.8-\$138.0	2022	816.04	13.92	138.01	275.83	4.90-6.39	0.08-0.11	0.83-1.08	1.66-2.16

200. As compared to MTEP16 Futures, the weighted 20-year PV for the Project was higher under the MTEP17 Futures (\$275.8 million (MTEP 2017) compared to \$210 million (MTEP16) (2016\$)).<sup>387</sup> In addition, the MTEP17 benefit-to-cost ratios are higher than those from the MTEP16 base case (1.66 to 2.16 (MTEP17) compared to 1.51 to 1.86 (MTEP16)), but slightly lower than the MTEP16 Queue Wind Sensitivity case (1.66 to 2.16 compared to 1.86 to 2.28).<sup>388</sup> The benefit-to-cost numbers in these MTEP17 results include the Applicants' updated cost estimates for the routes and designs presented in the Route Permit Application.<sup>389</sup>

201. The increase in the economic benefit of the Project under the MTEP17 models is likely due to the increased reliance on wind generation in the MTEP17 Futures, as well as the increased weight placed on the two Futures (PR and AAT) with higher wind penetration levels.<sup>390</sup> There are increased congestion costs in the MTEP17 Futures due to the higher average cost of natural gas present in the MTEP17 assumptions as compared to MTEP16.<sup>391</sup> In turn, the increased congestion costs present in the MTEP17 Futures increases the economic benefits of the proposed Project because the Huntley – Wilmarth 345 kV line has sufficient capacity to transport additional low cost wind generation to customers resulting in lower energy costs.<sup>392</sup>

<sup>386</sup> Ex. XC-6 at 92 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>387</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>388</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>389</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>390</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>391</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>392</sup> Ex. XC-24 at 22 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

202. Due to natural gas-fired generation being the most flexible resource type available in the MISO footprint, it is the natural balance to variations in availability of intermittent resources, such as wind generation.<sup>393</sup> Because of this balance between the two resource types, congestion costs increase as natural gas prices increase.<sup>394</sup>

## 2. *APPLICANTS' ANALYSIS UNDER MTEP18 MODELS AND FUTURES*

203. Following submission of the Certificate of Need Application, MISO issued its models for MTEP18.<sup>395</sup> The MTEP18 models have four Futures: (1) Limited Fleet Change (LFC); (2) Continued Fleet Change (CFC); (3) Accelerated Fleet Change (AFC); and (4) Distributed & Emerging Technologies (DET).<sup>396</sup> The key assumptions and weightings for the MTEP18 Futures Comparisons are provided in **Table 8**, below.

---

<sup>393</sup> Ex. XC-24 at 22-23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>394</sup> Ex. XC-22 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>395</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>396</sup> Ex. XC-24 at 23-24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

**Table 8: MTEP18 Futures Comparisons: Key Assumptions and Weightings<sup>397</sup>**

MTEP18 Future	Limited Fleet Change (LFC)	Continued Fleet Change (CFC)	Accelerated Fleet Change (AFC)	Distributed & Emerging Technologies (DET)
<b>Demand and Energy</b>	Low (10/90) High LRZ9 Industrial	Base (50/50)	High (90/10) Low LRZ9 Industrial	Base + EV <i>Energy: 1.1%</i> <i>Demand: 0.6%</i>
<b>Fuel Prices</b>	Gas: Base -30% Coal: Base -3%	Base	Gas: Base +30% Coal: Base	Base
<b>Demand Side Additions By Year 2032</b>	EE: - GW DR: 2 GW	EE: - GW DR: 3 GW	EE: 5 GW DR: 4 GW	EE: 2 GW DR: 3 GW Storage: 2 GW
<b>Renewable Additions By Year 2032 (% Wind and Solar Energy)</b>	10%	15%	30%	20%
<b>Generation Retirements By Year 2032</b>	Coal: 9 GW Gas/Oil: 17 GW	Coal: 17 GW Gas/Oil: 17 GW	Coal: 17 GW Gas/Oil: 17 GW	Coal: 17 GW Gas/Oil: 17 GW Nuclear: 2 GW
<b>CO2 Reduction Constraint From Current Levels by 2032</b>	None	None	20%	None
<b>Siting Methodology</b>	MTEP Standard	MTEP Standard	MTEP Standard	“Localized”
<b>Weighting</b>	25%	30%	20%	25%

204. Each of these four MTEP18 Futures compares in terms of renewable generation additions as follows:

- (1) *Limited Fleet Change*: predicts few changes to the current generation fleet with only a slight increase in renewable generation.

<sup>397</sup> Ex. XC-24 at 24-26 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

(2) *Continued Fleet Change*: predicts continued additions of renewable generators and coal generation retirements at the same pace as the past decade.

(3) *Accelerated Fleet Change*: predicts renewable additions and coal retirements at a rate above historical trends with renewables accounting for 30 percent of the generation fleet by 2032.

(4) *Distributed & Emerging Technologies*: predicts that new renewable additions will largely be distributed and storage resources that are co-located at the substation serving the most load.<sup>398</sup>

205. The Applicants' analysis using the MTEP18 models and Futures concluded that the Project will provide an anticipated \$217.97 million (2016\$) in PV benefits over 20 years with a weighted benefit-to-cost ratio of 1.30 to 1.69, using the Project costs for the range of route and design alternatives proposed by the Applicants in the Route Permit Application (costs ranging from \$105.8 million to \$138.0 million (2016\$)).<sup>399</sup> The MTEP18 analysis also confirmed that the Project will relieve 100 percent of the identified congestion throughout the study period (to 2032 for MTEP18).<sup>400</sup>

206. The results of the Applicants' MTEP18 analysis are summarized in **Table 9**, below.

**Table 9<sup>401</sup>: MTEP18 Analysis with Current Project Cost Estimates**

Applicants' Project Cost Estimates (2016\$ Millions)	Expected In-Service Date	PV Benefit (Million 2016\$)					Benefit-to-Cost Ratios (Millions, 2016\$)				
		LFC	CFC	AFC	DET	Weighted	LFC	CFC	AFC	DET	Weighted
\$105.8-\$138.0	2022	\$23.56	\$106.72	\$665.77	\$187.63	\$217.97	0.15-0.20	0.60-0.78	4.03-5.25	1.10-1.43	1.30-1.69

<sup>398</sup> Ex. XC-24 at 24 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>399</sup> Ex. XC-24 at 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>400</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>401</sup> Ex. XC-24 at 27, Table 3 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

207. Although the APC benefits of the Project declined slightly in MTEP18 as compared to MTEP17 due to changes to the number and type of Futures as well as the weightings of the Futures, the Applicants noted that none of the reasons for the decline call into question the need for the Project.<sup>402</sup> Even for the highest cost route/design from the scoping process (Purple-E-Red), the benefit-to-cost ratio remains well above 1.0 under MTEP18.<sup>403</sup>

208. More specifically, unlike MTEP17, which included only three different Futures and two of which assumed high wind penetration across the MISO footprint, the MTEP18 models expanded to four Futures.<sup>404</sup> Of these four Futures in MTEP18, only one assumed high wind penetration (Accelerated Fleet Change) and this Future received the lowest weighting (20 percent) of the four Futures.<sup>405</sup> The other Future in MTEP18 that assumed increased reliance on renewable generation was the Distributed and Emerging Technologies Future but this Future assumed this additional renewable generation would be in the form of distributed solar generation added near load centers. The two remaining Futures, with a combined weight of 55 percent, are the Limited Fleet Change and the Continued Fleet Change.<sup>406</sup> These two heavily-weighted Futures assume that wind and solar will only serve between 10 to 15 percent of MISO's energy needs by 2032.<sup>407</sup>

209. MTEP Futures are intended to encompass a broad range of different policy and economic outcomes.<sup>408</sup> This allows MISO to develop plans for the transmission system that account for a wide variety of generation assumptions.<sup>409</sup> This broad array of Futures is also important considering MISO's large footprint that reaches from Louisiana to Canada, Montana to Indiana.<sup>410</sup> The MISO footprint includes a variety of topology as well as varying amounts of renewable generation development.<sup>411</sup>

---

<sup>402</sup> Ex. XC-24 at 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>403</sup> Ex. XC-24 at 27 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>404</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>405</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>406</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>407</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>408</sup> Ex. XC-24 at 28 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>409</sup> Ex. XC-24 at 28-29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>410</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>411</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

The southern region of MISO has experienced considerably less wind generation development in recent years than the MISO North Central region.<sup>412</sup> Thus, the two Futures in MTEP18 with limited wind generation expansion do not represent realistic views of the future of renewable generation in Minnesota, Iowa, North Dakota, and South Dakota.<sup>413</sup>

210. MISO's analysis of the benefit-to-cost ratios under MTEP16 and the Applicants' analysis of the benefit-to-cost ratios under MTEP17 and MTEP18 were completed using an assumed 35 percent tax rate.<sup>414</sup>

211. Less than a month before the Applicants submitted their Certificate of Need Application, the Tax Cuts and Jobs Act (TCJA) of 2017 was passed, reducing the corporate tax rate from 35 percent to 21 percent.<sup>415</sup> The Applicants' MTEP18 analysis was performed using a 35 percent tax rate to ensure consistency when comparing results from MTEP16, MTEP17, and MTEP18.

212. The reduction in the corporate tax rate would not impact the capital costs of the Project or other transmission alternatives.<sup>416</sup> However, the reduction would reduce slightly the costs that are recovered from customers because the revenue requirements for the Project and all other transmission alternatives assume a particular tax rate. As a result the reduction in the corporate tax rate would decrease the cost portion of the benefit-to-cost ratio.<sup>417</sup> This change would impact the Project and all transmission alternatives similarly and would not change Applicants' conclusion that among the alternatives considered, the Huntley – Wilmarth Project provides the highest benefit-to-cost ratio while also relieving 100 percent of the identified congestion throughout the study period.<sup>418</sup>

---

<sup>412</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>413</sup> Ex. XC-24 at 29 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>414</sup> See Ex. XC-6 at Appendix J (Certificate of Need Application) (eDocket No. [20181-139030-04](#)).

<sup>415</sup> The official title of the TCJA is “[a]n Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018.” Public Law No. 115-97 (Dec. 22, 2017).

<sup>416</sup> Evid. Hrg. Tr. at 22:12-19 (Stevenson) (Feb. 11, 2019).

<sup>417</sup> Evid. Hrg. Tr. at 31:12-20 (Siebenaler) (Feb. 11, 2019).

<sup>418</sup> Evid. Hrg. Tr. at 32:10-15 (Siebenaler) (Feb. 11, 2019). The “study period” refers to 2030 for MTEP16, 2031 for MTEP17, and 2032 for MTEP18.

3. *BENEFIT-TO-COST RATIOS FOR APPLICANTS' RECOMMENDED ROUTE CONFIGURATIONS*

213. In their Route Permit brief, the Applicants proposed revisions to the five route alternatives that incorporate certain segment alternatives to minimize human and environmental impacts:

- *The Purple Route:* incorporate Segment Alternative BB to reduce crossings of Willow Creek and to limit forest clearing. Also incorporate Segment Alternative L in order to avoid current and future WPAs near the Watonwan River area. The Applicants' recommended route configuration for the Purple Route is referred to as the Purple-BB-L Route.
- *The Green Route:* the Applicants do not recommend any modifications to the Green Route;
- *The Red Route:* incorporate double-circuited Segment Alternative Q in order to reduce agricultural impacts. The Applicants' recommended route configuration is referred to as the Red-Q Route;
- *The Blue Route:* incorporate Segment Alternative CC in order to avoid conflict with a planned new house as well as double-circuited Segment Alternative Q in order to reduce agricultural impacts. The Applicants' recommended route configuration for the Blue Route is referred to as the Blue-CC-Q Route; and
- *The Purple-E-Red Route:* incorporate Segment Alternative E and Alignment Alternative AA1 in order to increase distance from residences. The Purple-E-Red Route will also incorporate double-circuited Segment Alternative Q in order to reduce agricultural impacts. The Applicants' recommended route configuration is referred to as the Purple-E-AA1-Red-Q Route.<sup>419</sup>

214. Based on concerns from landowners expressed at the public hearings regarding the increased agricultural impacts associated with both the H-frame design

---

<sup>419</sup> See Route Permit Findings of Fact, Conclusions of Law, and Recommendation at Section IV.F.



and the monopole design parallel to existing transmission lines, the Applicants recommended that these two designs no longer be considered by the Commission.<sup>420</sup>

215. The Applicants provided benefit-to-cost ratios for their five recommended route configurations under MTEP17 and MTEP18. These benefit-to-cost ratios are detailed in **Table 10**, below.

**Table 10: Benefit-to-Cost Ratio for the Applicants' Recommended Route Configurations under MTEP17 and MTEP18**

Route Alternative	Cost (\$Millions) (2016\$)	Weighted Benefit-to-Cost Ratio (MTEP17) <sup>421</sup>	Weighted Benefit-to-Cost Ratio (MTEP18)
<b>Purple-BB-L</b> Double-Circuit, Monopole Design	\$140.1	1.63	1.28
<b>Green</b> Single-Circuit, Monopole Design	\$121.3	1.88	1.47
<b>Red-Q</b> Double-Circuit, Monopole Design	\$141.2	1.62	1.27
<b>Blue-CC-Q</b> Double-Circuit, Monopole Design	\$138.6	1.65	1.29
<b>Purple-E-AA1-Red-Q</b> Double-Circuit, Monopole Design	\$160.2	1.43	1.12

<sup>420</sup> See, e.g., Mankato 1:00 p.m. Pub. Hrg. Tr. at 62:14-20 (Schroeder) (Feb. 27, 2019) (“I would be 100 percent for the line, your new line to go on the existing purple and put one pole up and put both lines on one pole. It’s much easier to farm around one pole than it is the H poles. And the thing is, you know, if you want to make something look better, I mean, put the one pole up and get rid of the H poles.”); Mapleton 6:00 p.m. Pub. Hrg. Tr. at 28-29 (Lachmiller) (Feb. 28, 2019) (“Why can’t you run them more on the existing lines so you aren’t interrupting anybody? I’ve already farmed around them for 60 years, so updating an old line to a single pole instead of a double H would be beneficial to a lot of farmers.”).

<sup>421</sup> Applicants provided benefit-to-cost ratios under MTEP17 and MTEP18 for the highest and lowest cost routes included in the Draft EIS. See Ex. XC-24 at 35 and Schedule 6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)). The Applicants utilized the same methodology to calculate the benefit-to-cost ratios for the Applicants’ recommended route configurations.

216. Under MTEP17 and MTEP18, the benefit-to-cost ratio of all five of the Applicants' recommended routes is above 1.0.<sup>422</sup> This means that the APC savings of each route alternative is greater than its costs and thus the Project will provide net economic benefits to Minnesota customers in terms of lower wholesale energy costs regardless of the route selected by the Commission.<sup>423</sup> However, the higher cost route and design alternatives reduce the net APC savings the Project will provide.<sup>424</sup>

#### 4. *APPLICANTS' CURTAILMENT ANALYSIS UNDER MTEP17 AND MTEP18*

217. The Project will also improve the deliverability of wind generation as it will reduce curtailments, allowing the maximum amount of this low-cost renewable generation to meet customer demands.<sup>425</sup> When existing wind generation is curtailed, ratepayers lose the benefit of cost-effective renewable energy.<sup>426</sup> Instead, other generation, typically higher cost fossil fuel generation, must be relied on, thereby increasing costs and reducing the potential economic and environmental benefits of wind generation.<sup>427</sup>

218. To determine the effect the Project will have on wind resource curtailments, Applicants analyzed the curtailments of wind resources in the MTEP17 and MTEP18 models with the 345 kV Huntley – Wilmarth line “in[-service]” and “out-of-service.”<sup>428</sup> PROMOD reports curtailment data for all wind resources in the MISO footprint as well as surrounding areas.<sup>429</sup> To ensure wind resources studied were close to the Project, wind resource data was filtered by location to Minnesota, North Dakota, South Dakota, and Iowa.<sup>430</sup>

219. Based on the three MTEP17 Futures, the Applicants found that the Huntley – Wilmarth Project reduces wind curtailments in the year 2026 by as much as

---

<sup>422</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>423</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>424</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

<sup>425</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>426</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>427</sup> Ex. XC-6 at 93 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>428</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>429</sup> Ex. XC-6 at 94 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>430</sup> Ex. XC-6 at 94 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

28 percent in the PR Future and, at minimum, by 8.5 percent under the EF Future.<sup>431</sup> For the year 2031, this analysis showed that the Project will reduce wind curtailments by 9 to 23 percent, depending on the Future.<sup>432</sup>

220. Based on the four MTEP18 Futures, the Applicants found that, depending on the Future, the Project reduces wind curtailments in the year 2027 by 4.6 to 18.4 percent and by 7.6 to 16.4 percent in 2032.<sup>433</sup>

## 5. ENVIRONMENTAL EXTERNALITIES ANALYSIS

221. In compliance with the Commission's November 25, 2014, order in Docket No. ET6675/CN-12-1053, ITC Midwest developed a template to evaluate the environmental externalities of different transmission line alternatives.<sup>434</sup> ITC Midwest developed the initial template and submitted it to the Commission as a compliance filing on October 7, 2015, to be applied to future Certificate of Need proceedings.<sup>435</sup> This is the first Certificate of Need proceeding in which ITC Midwest has populated this externalities template.<sup>436</sup>

222. This externalities template was used to calculate the public policy benefits associated with the reduction in emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> for the proposed Project and a 161 kV alternative.<sup>437</sup>

223. The public policy benefit was calculated by first identifying the change in the avoided tons of emissions for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>438</sup> These reductions in values for resources in MISO Local Resource Zones 1, 2, and 3 were then multiplied by the Commission-approved externality values for each study year.<sup>439</sup>

---

<sup>431</sup> Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>432</sup> Ex. XC-24 at 23 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>433</sup> Ex. XC-24 at Schedule 9 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>434</sup> Ex. XC-18 at 2 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>435</sup> Ex. XC-18 at 3 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>436</sup> Ex. XC-18 at 3 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>437</sup> See Ex. XC-6 at Appendix I (Appendix) (eDocket No. [20181-139030-01](#)).

<sup>438</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>439</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)).

224. The Commission-approved externality values for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> were taken from the Commission's January 3, 2018, Order Updating Environmental Cost Values in Docket No. E999/CI-14-643.<sup>440</sup>

225. ITC Midwest calculated the public policy benefits associated with the reduction in emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> for the proposed Project and the 161 kV alternative. The public policy benefit was calculated by first identifying the change in the avoided tons of emissions for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>441</sup> These reductions in values for MISO Local Resource Zones 1, 2, and 3 were then multiplied by the Commission-approved externality values for each study year.<sup>442</sup> Benefits for each non-simulated year in the study period were interpolated between, or extrapolated from, benefits calculated in simulated years, and a PV of benefits for each year was then calculated.<sup>443</sup>

226. The results of ITC Midwest's analysis demonstrated that the 345 kV Project had higher public policy benefits than the 161 kV alternative because it provides greater estimated avoided emissions reductions for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> than the 161 kV alternative.<sup>444</sup> **Table 11**, below, shows the net avoided emissions for the two alternatives.

---

<sup>440</sup> Ex. XC-18 at 4-5 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>441</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>442</sup> Ex. XC-18 at 4 (Abing Direct) (eDocket No. [20189-146252-01](#)). The Commission-approved externality values for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> were taken from the Commission's January 3, 2018, Order updating Environmental Cost Values in Docket No. E999/CI-14-643. *In the Matter of the Further Investigation into Environmental and Socioeconomic Costs Under Minn. Stat. § 216B.2422, subd. 3*, Docket No. E999/CI-14-643, ORDER UPDATING ENVIRONMENTAL COST VALUES (Jan. 3, 2018).

<sup>443</sup> Ex. XC-18 at 5 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>444</sup> Ex. XC-18 at 6 (Abing Direct) (eDocket No. [20189-146252-01](#)).

**Table 11: Annual Net Avoided Emissions<sup>445</sup>**

<b>Annual Emissions Benefit (short tons) for MISO LRZ's 1,2,3</b>			
<b>Preferred Option: Huntley-Wilmarth 345 kV</b>			
	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO<sub>2</sub></b>
<b>2021</b>	105	85	159,048
<b>2026</b>	57	131	339,622
<b>2031</b>	22	33	442,764
<b>Alternative: Huntley-Wilmarth 161 kV</b>			
	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO<sub>2</sub></b>
<b>2021</b>	60	54	76,280
<b>2026</b>	52	90	210,511
<b>2031</b>	20	33	316,323

227. After multiplying the estimated total annual avoided emissions tonnages, shown above in **Table 11**, by the Commission-approved externality values for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>, the Project was identified to have more public policy benefit than the 161 kV alternative.<sup>446</sup> The range of net benefits for the 345 kV Project is \$368 million (2016\$) to \$770 million (2016\$) as compared to \$295 million (2016\$) to \$552 million (2016\$) for the 161 kV alternative.<sup>447</sup>

228. This conclusion was supported by DOC-DER witness Mr. Landi, who agreed that the Project would result in greater reductions of emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> for years 2021, 2026, and 2031 relative to the 161 kV alternative.<sup>448</sup> Therefore, the results of the Applicants' analysis demonstrates that the Project better supports Minnesota's policy objectives of minimizing overall emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>449</sup>

## 6. OTHER BENEFITS OF THE PROJECT

229. CEOs witness Mr. Michael Goggin analyzed other benefits of the Project in addition to congestion relief, renewable development, and enhancements to

<sup>445</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>446</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>447</sup> Ex. XC-18 at 6 (Abing Direct) (eDocket No. [20189-146252-01](#)).

<sup>448</sup> Ex. DER-3 at 33 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>449</sup> Ex. XC-18 at 7 (Abing Direct) (eDocket No. [20189-146252-01](#)).

environmental quality.<sup>450</sup> Mr. Goggin concluded that the Project will increase wholesale electricity market competition, while also providing Minnesota consumers with resilience against reliability and economic risks.<sup>451</sup>

230. Mr. Goggin explained that transmission infrastructure is instrumental in increasing competition in wholesale power markets and reducing the potential for generators to harm consumers by exercising market power.<sup>452</sup> A weak grid makes it possible for generation owners in constrained parts of the grid to exert market power and charge excessive prices.<sup>453</sup> In any market, the more supply options that are available to an area, the less likely it is that any one of those suppliers will be in a position to exert market power.<sup>454</sup>

231. Mr. Goggin also explained that transmission facilitates the integration of renewable energy by allowing greater aggregation of diverse renewable resources across a larger footprint, resulting in a steadier output from the resources, reducing operating reserve needs, and allowing a greater dependable contribution to meet the system's peak demand needs.<sup>455</sup>

232. Additionally, Mr. Goggin stated that transmission capacity protects consumers and reliability by enabling more electricity to be delivered to regions that are experiencing a shortage when extreme events of any type affect any source of supply or demand on a part of the grid.<sup>456</sup> Transmission also protects consumers against the multitude of uncertainties that affect the power system by allowing greater flexibility in shifting from one form of generation to another as fuel prices fluctuate, power plant capacity is added and retired, and electricity demand changes.<sup>457</sup>

---

<sup>450</sup> Ex. CEOS-1 at 24-29 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>451</sup> Ex. CEOS-1 at 24 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>452</sup> Ex. CEOS-1 at 24 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>453</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>454</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>455</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>456</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>457</sup> Ex. CEOS-1 at 25 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

## 7. *ALTERNATIVES STUDIED*

233. The Applicants analyzed a range of alternatives to the Project as required by Minnesota Certificate of Need statutes and rules. Specifically, the Applicants analyzed the following alternatives:

- (1) *Size Alternatives*: higher and lower voltage transmission line options as well as double circuiting the 345 kV line with another 345 kV line to increase Project capacity;
- (2) *Type Alternatives*: other endpoints for terminals/substations, upgrading existing transmission lines, double circuiting the proposed line with existing transmission lines, direct current (DC) line instead of the proposed alternating current (AC) line, different types of conductors, new generation resources, and underground transmission lines; and
- (3) *No-Build Alternatives*: load growth as well as conservation and demand-side management.
- (4) *Generation Alternatives*: renewable energy resources and distributed generation sources.<sup>458</sup>

234. The Applicants, ultimately, determined that none of these alternatives was a more reasonable and prudent alternative to the Project.<sup>459</sup> DOC-DER witness Mr. Landi assessed the Applicants' analysis of alternatives to the proposed Project and reached a similar conclusion.<sup>460</sup> Specifically, Mr. Landi concluded that the Applicants' analysis of alternatives demonstrated sufficient consideration of reasonable alternatives to the proposed Project.<sup>461</sup> Further, that the Applicants demonstrated that the proposed Project is the best choice available to the Applicants to address the congestion issue identified by MISO.<sup>462</sup>

---

<sup>458</sup> Ex. XC-6 at 97-124 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. DER-3 at 6-7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>459</sup> Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>460</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>461</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>462</sup> Ex. DER-3 at 20 (Landi Direct) (eDocket No. [201811-147664-03](#)).



235. Additionally, the Applicants also analyzed the Huntley – Wilmarth 161 kV transmission line under the MTEP17 and MTEP18 models.<sup>463</sup> Like the Project, the APC saving benefits of the 161 kV alternative decreased under the MTEP18 models. Notably, the decrease for the 161 kV alternative was much more pronounced, as demonstrated in **Table 12**, below.

**Table 12: MTEP17 and MTEP18 Alternatives Comparison<sup>464</sup>**

Transmission Alternative	Cost Estimate (2016\$)	MTEP17 Weighted Benefit-to-Cost Ratio	MTEP18 Weighted Benefit-to-Cost Ratio	MTEP17 20-year Present Value Benefit (\$millions)	MTEP18 20-year Present Value Benefit (\$millions)
Huntley – Wilmarth new 345 kV transmission line (Green Route, monopole design)	\$121.3	1.88	1.47	\$275.83	\$212.61
Huntley – Wilmarth new 161 kV transmission line (Green Route, monopole design)	\$80.9	2.05	1.24	\$200.7	\$119.43

236. Due to the significant decrease in the economic benefits of the 161 kV alternative, the Project outperforms this alternative in the 20-year PV benefit in both model years, as well as the weighted benefit-to-cost ratio in MTEP18. This is worth noting because, as explained in the Direct Testimony of the Applicants’ witness Mr. Siebenaler, the weighted benefit-to-cost ratio metric was the only metric where the 161 kV alternative slightly outperformed the Project under MTEP17 due to its lower cost.<sup>465</sup>

237. When considering the performance of the 161 kV alternative with regard to relieving the identified congestion under the MTEP18 models, the 161 kV alternative initially reduces 99 percent of the congestion in 2022, but only provides 94 percent and then 85 percent congestion relief by 2027 and 2032, respectively, as more wind is added to the system.<sup>466</sup> Conversely, the Project relieves 100 percent of the identified congestion throughout the entire study period.<sup>467</sup>

<sup>463</sup> Ex. XC-24 at 39 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>464</sup> Ex. XC-24 at 39, Table 8 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>465</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>466</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>467</sup> Ex. XC-24 at 40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).



238. With respect to reducing curtailments under MTEP18, the Project is more effective than the 161 kV alternative at reducing curtailments in each of the four MTEP18 Futures, discussed above. The Project reduces curtailments by between 2.6 percent and 18.4 percent, whereas the 161 kV alternative only reduces curtailments by between 1.4 percent and 12.1 percent.<sup>468</sup>

239. The Applicants ultimately concluded that, given the current and anticipated expansion of wind generation in the Upper Midwest, a 161 kV alternative simply does not provide the necessary capacity to transport this energy to customers.<sup>469</sup> Rather, the capacity of the Project is needed to enable this generation to reach customers and thus realize all of the benefits of this low-cost renewable wind generation.<sup>470</sup> DOC-DER witness Mr. Landi agreed that the Project, as proposed, is a superior option to address the identified congestion issue compared to the 161 kV alternative.<sup>471</sup>

## **VII. CRITERIA FOR A CERTIFICATE OF NEED**

240. Minnesota Statutes section 216B.243 dictates that a Certificate of Need is required for a “large energy facility” as that term is defined in Minn. Stat. § 216B.2421. A large energy facility includes “any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota or that crosses a state line.”<sup>472</sup> The Huntley –Wilmarth Project constitutes a large energy facility and requires a Certificate of Need from the Commission before construction can take place.

241. The Applicants bear the burden of proving the need for a proposed transmission line and demonstrating that the statutory criteria have been met.<sup>473</sup>

242. Minnesota Statutes section 216B.243, subdivisions 3 and 3a prescribe the Certificate of Need statutory requirements for large energy facilities and generally follow the criteria included in Minn. R. 7849.0120. The provisions relevant to a Certificate of Need for a high voltage transmission line are:

---

<sup>468</sup> Ex. XC-24 at 40, Schedule 9 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>469</sup> Ex. XC-24 at 42 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>470</sup> Ex. XC-24 at 42 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>471</sup> Ex. DER-3 at 48 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>472</sup> Minn. Stat. § 216B.2421, subd. 2(3).

<sup>473</sup> See Minn. Stat. § 216B.243, subd. 3.

**Subd. 3. Showing required for construction.** 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 and unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:

- (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
- (2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;
- (3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;
- (4) promotional activities that may have given rise to the demand for this facility;
- (5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;
- (6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;
- (7) the policies, rules, and regulations of other state and federal agencies and local governments;

- (8) \*\*\*\*<sup>474</sup>
- (9) 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;
- (10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 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;
- (11) whether the applicant has made the demonstrations required under subdivision 3a;
- (12) \*.\*. <sup>475</sup>

**Subd. 3a. Use of renewable resource.** 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,

---

<sup>474</sup> Subdivision 3(8) is inapplicable to the proposed transmission facilities as they provide transmission, not generation. See Minn. Stat. § 216B.243, subd. 3(8) ("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").

<sup>475</sup> Subdivision 3(12) is inapplicable because it relates solely to generating plants: "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." Minn. Stat. § 216B.243, subd. 3(12).

solar, and geothermal energy and the use of trees or other vegetation as fuel.

243. Minnesota Rule 7849.0120 provides that a Certificate of Need for a high voltage transmission line shall be granted if it is determined that specific criteria are met:

- (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:
  - (1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;
  - (2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;
  - (3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices that have occurred since 1974;
  - (4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand;
  - (5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;
- (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:
  - (1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
  - (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;

- (3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives;
- (4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

(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;
- (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;
- (3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development;
- (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

(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.

244. In addition, Minn. R. 7849.1200 requires the DOC-EERA to prepare an environmental report evaluating the proposal and any alternatives.

## VIII. APPLICATION OF STATUTORY AND RULE CRITERIA

### A. Minnesota Rule 7849.0120 Criteria

1. *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 MINNESOTA RULE 7849.0120 (A).*

245. Applicants have demonstrated that a denial of a Certificate of Need for this Project would result in adverse effects upon the present and future efficiency of energy supply to the Minnesota electric customers and other end users.<sup>476</sup> The Project is designed to improve the efficiency of the regional transmission system under a range of future scenarios by relieving one of the most congested areas in the MISO electric transmission system, along the Minnesota/Iowa border.<sup>477</sup> Relieving this congestion will improve deliverability and allow customers greater access to low-cost renewable energy and result in lower wholesale energy costs.<sup>478</sup>

- a. *Accuracy of the Applicant's Forecast of Demand for the Type of Energy that Would be Supplied by the Proposed Facility. Minnesota Rule 7849.0120 (A)(1).*

246. Minnesota Rule 7849.0120 (A)(1) requires consideration of “the accuracy of the applicant’s forecast of demand for the type of energy that would be supplied by the proposed facility” when determining if denial of a Certificate of Need application would have an adverse effect.

247. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(1), which requires the Commission, in assessing need, to consider “the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based.”

248. The Huntley-Wilmarth Project is primarily an economic project and is needed to relieve congestion on the regional electric system allowing greater and more efficient access to lower cost renewable energy. The economic benefits from this

---

<sup>476</sup> Ex. XC-6 at 11 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>477</sup> Ex. XC-6 at 11 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>478</sup> Ex. XC-6 at 11 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

increased access to renewable generation were demonstrated by MISO in MTEP16 and by the Applicants using MISO's MTEP17 and MTEP18 models.<sup>479</sup>

249. MISO's MTEP models include multiple future scenarios to study transmission needs under a variety of policy, economic, and social futures. Each future contains assumptions about demand and energy forecasts as well as assumptions for future fuel costs, environmental regulations, demand and energy levels, and available technology.

250. The demand and energy growth included in the MTEP Futures assumptions represent an aggregated average of the Local Balancing Areas (LBA) within MISO, meaning that the load growth input into the Futures models are based on local growth projections instead of a footprint-wide average being applied across the board.<sup>480</sup> This is intended to capture the local growth and area trends to better capture subregional differences and typically include both positive and negative growth rates.<sup>481</sup> These LBA values are aggregated into a Local Resource Zone level, then aggregated again to a MISO footprint level and represent a 10-year compound annual growth rate.<sup>482</sup>

251. The demand and energy growth forecasts utilized by MISO are subject to stakeholder review and no party to this proceeding has challenged the accuracy of these forecasts.

252. In addition, DOC-DER witness Dr. Rakow reasoned that the "type of energy" to be supplied by the Project is "congestion relief."<sup>483</sup> Dr. Rakow conducted a comprehensive analysis based on the MTEP16 model and Futures and concluded that a reasonable forecast of new wind capacity will exceed by a significant margin the 4,300 MW amount necessary to achieve a 1.25 benefit-to-cost ratio to qualify as an MEP. Based on this information and the changes in the transmission system due to closure of the coal facilities relative to load centers such as the Twin Cities, Dr. Rakow concluded that the Applicants have shown that the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to

---

<sup>479</sup> Ex. XC-24 at 11-12 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>480</sup> Ex. XC-6 at 74 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>481</sup> Ex. XC-6 at 74-75 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>482</sup> Ex. XC-6 at 75 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>483</sup> Ex. DER-5 at 9 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states.<sup>484</sup>

253. Thus, the Applicants have satisfied Minn. R. 7849.0120 (A)(1).

*b. Effects of the Applicant's Existing or Expected Conservation Programs. Minnesota Rule 7849.0120 (A)(2).*

254. Minnesota Rule 7849.0120 (A)(2) requires consideration of “the effects of the applicant’s existing or expected conservation programs and state and federal conservation programs.”

255. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3, which states that “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.”

256. Similarly, Minn. Stat. § 216B.243, subd. 3(2) requires that the Commission consider the effect of existing or possible energy conservation programs under Sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand.

257. Also, Minn. Stat. § 216B.243, subd. 3(8) provides that the Commission, in assessing need, shall consider 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.

258. These statutory requirements are contained in this rule subpart.

259. The Applicants stated that because the need for the Project is driven by increased amounts of wind generation along the Minnesota/Iowa border rather than increased demand, conservation and demand-side management programs are not effective alternatives to meet the identified need.<sup>485</sup>

260. The Applicants did perform a shift factor analysis to determine how reductions in load would impact the identified congestion. The Applicants’ various analyses demonstrated that, in order to achieve the necessary congestion alleviation, the total MW on the system would need to be reduced from 240 MW to over 600 MW if

---

<sup>484</sup> Ex. DER-5 at 23-24 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>485</sup> Ex. XC-6 at 122 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



only the existing generation fleet remains and up to a range of more than 700 MW to more than 1,800 MW if new facilities were constructed.<sup>486</sup>

261. Moreover, DOC-DER witness Dr. Rakow reviewed the Applicants' analysis of the conservation and demand-side management programs and compared the identified load reduction amounts in this docket to targeted demand-side management alternatives identified in other transmission Certificate of Need proceedings.<sup>487</sup> Based on his analysis, Dr. Rakow concluded that the effects of the Applicants' existing or expected conservation programs and state and federal conservation programs cannot be expected to address the claimed need.<sup>488</sup>

262. Thus, the Applicants have satisfied Minn. R. 7849.0120 (A)(2) and Minn. Stat. § 216B.243, subd. 3.<sup>489</sup>

*c. Effects of Promotional Practices of the Applicant That May Have Given Rise to the Increase in the Energy Demand. Minnesota Rule 7849.0120 (A)(3).*

263. Minnesota Rule 7849.0120 (A)(3) requires consideration of

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.<sup>490</sup>

264. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(4), which requires the Commission, in assessing need, to consider “promotional activities that may have given rise to the demand for this facility.”

---

<sup>486</sup> Ex. XC-6 at 124 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>487</sup> Ex. DER-5 at 25 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>488</sup> Ex. DER-5 at 25 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>489</sup> Likewise, given the implausibility of achieving such a large load reduction in a limited area, and given that such a load reduction effort would neither fully meet the identified need nor provide the economic and environmental benefits associated with the Project, there are no “more cost-effective” load reduction measures to meet the identified need. *See* Minn. Stat. § 216B.243, subd. 3.

<sup>490</sup> ITC Midwest was granted an exemption from the content requirements for promotional activities data (Minn. R. 7849.0240, subp. 2(B)) because ITC Midwest does not directly serve end-users of electric service and has not engaged in promotional activities that could have given rise to the need for the proposed Project. *See* Ex. PUC-1 (Commission Order Approving Notice Plan and Granting Variances) (eDocket No. [20179-135212-01](#)).

265. The Applicants stated that neither Xcel Energy nor ITC Midwest has conducted any promotional activities or events that have triggered the need for the Project.<sup>491</sup> Rather, the Project is needed due to the large amount of wind capacity in southern Minnesota and northern Iowa coupled with transmission constraints, causing congestion on this part of the transmission system. This congestion is projected to worsen over the next 15 years as more wind facilities come on line in this area. Further, the expected coal generation retirements north of the Minneapolis/St. Paul area, such as Sherco Units 1 and 2, and Clay Boswell Units 1 and 2, increase the need for power to flow from northern Iowa to the Twin Cities on the currently congested Huntley – Blue Earth 161 kV line.<sup>492</sup>

266. DOC-DER witness Dr. Rakow agreed with the Applicants that the need for congestion relief is due to the large amount of generation capacity in southwestern Minnesota and northwestern Iowa and that this phenomenon was not created by the Applicants' promotional activities.<sup>493</sup> Rather, it is due to the cost of energy from wind resources in the Project area relative to the cost of energy from other existing and potential resources in the MISO region and changes in existing generation resources, including the fact that wind at costs available using sites in southwestern Minnesota and northwestern Iowa, is typically a least cost addition to a utility's resource mix.<sup>494</sup> Dr. Rakow, therefore, concluded that the promotional practices of the Applicants did not give rise to the need for congestion relief.<sup>495</sup>

267. Thus, the Applicants have satisfied Minn. R. 7849.0120 (A)(3).

*d. The Ability of Current Facilities and Planned Facilities Not Requiring a Certificate of Need to Meet the Future Demand. Minnesota Rule 7849.0120 (A)(4).*

268. Minnesota Rule 7849.0120 (A)(4) requires consideration of “the ability of current facilities and planned facilities not requiring Certificates of Need to meet the future demand.”<sup>496</sup>

---

<sup>491</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>492</sup> See, e.g., Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>493</sup> Ex DER-5 at 26 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>494</sup> Ex DER-5 at 26 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>495</sup> Ex DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>496</sup> Under Minn. Stat. § 216B.2421, there are two types of facilities that could meet future demand yet not require a Certificate of Need: (1) a transmission line that is: (a) less than 100 kV, (b) between 100

269. Alternatives not requiring a Certificate of Need can be either generation or transmission facilities.<sup>497</sup>

270. This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider “possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation.”

271. The Applicants explained that MISO’s model development practices are to include in MISO’s models all projects that have been approved by MISO.<sup>498</sup> Therefore, as DOC- DER witness Dr. Rakow explains, “the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand” have been considered since all current facilities would be in MISO’s transmission models and all planned facilities that have been approved by MISO would also be included in MISO’s transmission models.<sup>499</sup> Dr. Rakow concluded that current facilities and planned facilities not requiring certificates of need have not been shown to be able to meet the need for congestion relief, and the record supports this conclusion.<sup>500</sup>

272. The Applicants also considered generation that does not require a Certificate of Need, such as distributed generation.<sup>501</sup> Applicants explained that to alleviate the congestion, any new generation resource would need to be operating at sufficient levels and at a low enough cost to replace the low-cost generation resources that are being limited by the congestion.<sup>502</sup> The distributed generation would also need to be located in such a manner as to not require additional power flows in the direction of the identified congestion (i.e., they would need to be located north of the

---

kV and 200 kV, but less than 10 miles long and not crossing a state border, or (c) above 200 kV, but less than 1,500 feet long; and (2) a generation facility with a capacity that is less than 50 MW.

<sup>497</sup> See Minn. Stat. §§ 216B.169 and 216B.2421, subd. 2.

<sup>498</sup> Ex. DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)); see Ex. XC-6 at 95 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>499</sup> Ex. DER-5 at 27 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>500</sup> Ex. DER-5 at 28 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>501</sup> Ex. DER-3 at Schedule ML-6 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 15) (eDocket No. [201811-147664-03](#)).

<sup>502</sup> Ex. DER-3 at Schedule ML-6 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 15) (eDocket No. [201811-147664-03](#)).

congestion).<sup>503</sup> Given these constraints, distributed generation resources are not sufficient to meet the identified needs.<sup>504</sup>

273. Moreover, as discussed elsewhere in Section VIII.A.1.b, and Section VIII.A.3.b below, the Applicants evaluated a “no-build” alternative that considered the ability of Xcel Energy’s conservation and load management programs to meet the identified need, further demonstrating that current facilities are not sufficient to meet the identified needs.<sup>505</sup>

274. The record thus demonstrates that no current or planned generation or transmission alternatives that does not require a Certificate of Need is capable of addressing the identified needs.

275. Thus, the Applicants have satisfied Minn. R. 7849.0120 (A)(4).

*e. The Effect of the Proposed Facility, or a Suitable Modification Thereof, In Making Efficient Use of Resources. Minnesota Rule 7849.0120 (A)(5).*

276. Minnesota Rule 7849.0120 (A)(5) requires consideration of “the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources.”

277. The Applicants presented evidence demonstrating that, in addition to providing needed congestion relief along the Minnesota/Iowa border over the 15-year study period, the Project would also reduce curtailment of wind generation in each of the MTEP17 and MTEP18 Future scenarios and would reduce system line losses, particularly during the summer peak and during off-peak, high-wind periods.<sup>506</sup>

278. As DOC-DER witness Dr. Rakow indicates, the Applicants have demonstrated that the Project would reduce curtailment of wind generation and would

---

<sup>503</sup> Ex. DER-3 at Schedule ML-6 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 15) (eDocket No. [201811-147664-03](#)).

<sup>504</sup> Ex. DER-3 at Schedule ML-6 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 15) (eDocket No. [201811-147664-03](#)).

<sup>505</sup> Ex. XC-6 at 121-24 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)); Ex. DER-3 at 6-7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>506</sup> Ex. XC-6 at 109-12 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

reduce line losses. Thus, the Project would enable MISO to use generation resources more efficiently.<sup>507</sup>

279. CEOs witness Mr. Goggin stated that wind curtailment in MISO is significantly higher than all other independent system operators and that, without the Project in place, North Dakota, South Dakota, Minnesota, and Iowa would see a large amount of wind curtailment in 2031.<sup>508</sup>

280. The Applicants have thus satisfied Minn. R. 7849.0120 (A)(5).

*f. Conclusion Regarding Minnesota Rule 7849.0120 (A).*

281. As discussed above, the Applicants have satisfied each of the five sub-factors of Minn. R. 7849.0120 (A).

2. *A MORE REASONABLE AND PRUDENT ALTERNATIVE TO THE PROPOSED FACILITY HAS NOT BEEN DEMONSTRATED BY A PREPONDERANCE OF THE EVIDENCE ON THE RECORD. MINNESOTA RULE 7849.0120 (B).*

282. Minnesota Rule 7849.0120 (B) requires that “a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record.”

283. This factor relates to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider “possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation.”

284. The Applicants’ burden of proof is met by providing evidence establishing the needs and showing that the proposed project is a reasonable and prudent way to satisfy the articulated needs. The burden falls on other parties to prove that any alternative they wish to sponsor is: (i) sufficiently presented in the record to be considered, and (ii) more reasonable and prudent than the applicant’s proposal. In making its decision, the Administrative Law Judge and the Commission “shall consider” only those alternatives for which “there exists substantial evidence on the record with

---

<sup>507</sup> Ex. DER-5 at 28 (Rakow Direct) (eDocket No. [201811-147664-04](#)) (citing Ex. XC-6 at 109-11 (Certificate of Need Application) (eDocket No. [20181-139030-01](#))).

<sup>508</sup> Ex. CEOS-1 at 6 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

respect to each of the criteria listed in part 7849.0120.”<sup>509</sup> This rule requires opponents of the proposed Project to come forward and establish the existence and characteristics of a more reasonable and prudent alternative.<sup>510</sup>

285. Only when the other party demonstrates a “more reasonable and prudent alternative,” will a permit be denied.<sup>511</sup> If a party wants a particular alternative to be considered, that party must make sure that sufficient evidence is submitted to satisfy the Commission’s requirement that “only those alternatives proposed before the close of the public hearing and for which there exists substantial evidence on the record with respect to each of the criteria listed in part 7849.0120” be considered.<sup>512</sup>

286. Consistent with state requirements, the Applicants analyzed multiple alternatives for meeting the identified needs. A more reasonable and prudent alternative was not demonstrated in MISO’s MTEP16 analysis or as part of the additional study work conducted by the Applicants.<sup>513</sup>

287. As the Applicants noted, MISO staff and stakeholders developed more than 20 different transmission solutions to alleviate the congestion along the Minnesota/Iowa border.<sup>514</sup> These solutions were tested for their ability to address this congestion under five Futures. Following this rigorous analysis, the proposed Project consisting of a new 345 kV circuit between the Huntley and Wilmarth substations was found to provide 100 percent congestion relief throughout the study period with a high benefit-to-cost ratio under the various Futures studied.<sup>515</sup> The Project also enhances

---

<sup>509</sup> Minn. R. 7849.0110.

<sup>510</sup> “This regulatory scheme is simply a practical way to prevent the issuance of a certificate of need when there is a more reasonable and prudent alternative to the proposed facility without requiring the applicant to face the extraordinary difficulty of proving that there is not a more reasonable and prudent alternative.” See *In the Matter of the Application of the City of Hutchinson for a Certificate of Need to Construct a Large Nat. Gas Pipeline*, No. A03-99, 2003 WL 22234703, at \* 7 (Minn. Ct. App. Sept. 23, 2003) (interpreting parallel pipeline rule under Certificate of Need statute); see also George A. Beck, MINN. ADMIN. PROCEDURE, § 10.3.1 (2d ed. 1998); *Peterson v. Mpls. St. Ry.*, 226 Minn. 27, 33, 31 N.W.2d 905, 909 (1948) (burden of producing sufficient evidence on specific issues).

<sup>511</sup> See *City of Hutchinson*, 2003 WL 22234703, at \*7.

<sup>512</sup> Minn. R. 7849.0110.

<sup>513</sup> Ex. DER-3 at 49 (Landi Direct)(eDocket No. [201811-147664-03](#)).

<sup>514</sup> Ex. MISO-1 at 18 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>515</sup> Ex. MISO-1 at 18-20 (Zhou Direct) (eDocket No. [20189-146240-01](#)).



the regional transmission system with a new 345 kV connection to strengthen the region's high-voltage power delivery system.<sup>516</sup>

288. Second, in addition to the study work conducted by MISO, Applicants analyzed multiple alternatives including:

(1) *Size Alternatives*: higher and lower voltage transmission line options as well as double circuiting the 345 kV line with another 345 kV line to increase Project capacity, including a detailed analysis of a 161 kV Huntley – Wilmarth alternative transmission line;

(2) *Type Alternatives*: other endpoints for terminals/substations, upgrading existing transmission lines, double circuiting proposed line with existing transmission lines, DC line instead of the proposed AC line, different type of conductors, new generation resources, and underground transmission lines; and

(3) *No-Build Alternatives*: load growth as well as conservation and Demand Side Management.<sup>517</sup>

289. In addition, just as the Applicants analyzed the Project under the MTEP17 and MTEP18 models, the Applicants also analyzed the Huntley – Wilmarth 161 kV transmission line under the MTEP17 and MTEP18 models.<sup>518</sup> Applicants determined that none of the analyzed alternatives was a more reasonable and prudent alternative to the Project, as proposed.<sup>519</sup>

290. In addition, DOC-DER witness Mr. Landi conducted a comprehensive review of the Applicants' alternatives analysis and concluded that the Applicants demonstrated sufficient consideration of reasonable alternatives to the proposed Project.<sup>520</sup> Mr. Landi also concluded that the Applicants demonstrated that the

---

<sup>516</sup> Ex. XC-24 at 5 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>517</sup> The Applicants' analysis of the no-build alternative is discussed in Section VIII.A.3.b of the Application of Statutory and Rule Criteria Section, below.

<sup>518</sup> Ex. XC-24 at 39 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>519</sup> Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>520</sup> Ex. DER-3 at 49 (Landi Direct)(eDocket No. [201811-147664-03](#)).

proposed Project is the best choice available to the Applicants to address the congestion issue identified by MISO.<sup>521</sup>

291. Lastly, no party offered any alternative to meet the identified need for the Project.

292. Based on the record evidence, there is not a more reasonable and prudent alternative to the proposed Project, as explained in more detail, below.

- a. *Appropriateness of the Size, Type, and Timing of the Proposed Facility Compared to those of Reasonable Alternatives. Minnesota Rule 7849.0120 (B)(1).*

293. Minnesota Rule 7849.0120 (B)(1) requires consideration of “the appropriateness of the size, type, and timing of the proposed facilities relative to reasonable alternatives.” Each of these three categories of alternatives is discussed below.

- i. SIZE APPROPRIATE

- (i) VARIOUS VOLTAGE AND UPSIZING ALTERNATIVES

294. For size alternatives, the Applicants considered higher (765 kV and 500 kV) and lower (230 kV, 161 kV, 138 kV, 115 kV, and 69 kV) voltage transmission line options as well as the option of double-circuiting the 345 kV line with another 345 kV line to increase Project capacity.<sup>522</sup>

295. The Applicants excluded 765 kV, 500 kV, 230 kV, and 138 kV lines from further study because there are no existing transmission lines of any of these voltages in the Project area, and thus their construction would require significant substation upgrades and would be cost-prohibitive.<sup>523</sup>

---

<sup>521</sup> Ex. DER-3 at 2-20 (Landi Direct) (eDocket No. [201811-147664-03](#)); *see also* Ex. DER-4 at 2-7 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)) (responding to Applicants’ updated 161 kV alternative analysis).

<sup>522</sup> Ex. XC-6 at 98-101 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>523</sup> Ex. XC-6 at 99 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



296. The Applicants excluded 69 kV and 115 kV alternatives from further analysis since these lines would not have sufficient capacity to relieve all existing system congestion and would not be robust enough to support future renewable generation.<sup>524</sup>

297. Also, the Applicants concluded that upsizing the Project to a double-circuit 345 kV/345 kV line would not provide any additional economic or electrical benefits as compared to the proposed single-circuit 345-kV solution.<sup>525</sup> Because the proposed single 345 kV line already mitigates 100 percent of the identified congestion on the Minnesota/Iowa border through 2031, adding additional transmission capacity would only increase the cost of the Project without any identifiable amount of additional benefit at this time or in the future forecast horizon.<sup>526</sup>

(ii) HUNTLEY – WILMARTH 161 KV  
ALTERNATIVE

298. In their Application, the Applicants analyzed in detail a new Huntley – Wilmarth 161 kV alternative using MTEP17 models and Futures.<sup>527</sup> In order to do so, the Applicants used for the 161 kV line the shortest proposed route (Green Route) between the Huntley and Wilmarth substations. To compare benefit-to-cost ratios between the 161 kV line and the proposed 345 kV line, costs for both lines were estimated using the Green Route and a single-circuit steel monopole design.<sup>528</sup>

299. During the proceeding, the Applicants revised the MTEP17-based analysis of the 161 kV alternative to account for minor errors in the PV calculator and

---

<sup>524</sup> Ex. XC-6 at 100-01 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>525</sup> Ex. XC-6 at 113 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>526</sup> Ex. XC-6 at 113 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>527</sup> Ex. XC-6 at 102-13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)). The Applicants further note that MISO examined five different 161 kV alternatives as part of MTEP16. The two best performing 161 kV alternatives were project ID I-15 and ID I-19. Project ID I-15 consisted of reconductoring the existing 161 kV transmission lines between the Huntley and South Bend substations, then constructing a new 161 kV circuit from the South Bend Substation to the Wilmarth Substation, making the necessary substation expansion and upgrades to accommodate those upgrades. Project ID I-19 was a new 161 kV circuit between the Freeborn and the West Owatonna substations. MISO determined that unlike the Huntley – Wilmarth Project, none of the 161 kV alternatives provided 100 percent congestion relief throughout the 15-year study period and none of the 161 kV alternatives had as high a benefit-to-cost ratio or 20-year NPV benefit as the Project. *Id.* at 102; *see also* Ex. MISO-1 at 23-25 (Zhou Direct) (eDocket No. [20189-146240-01](#)) (discussing why the five 161 kV alternatives evaluated by MISO were not selected).

<sup>528</sup> Ex. XC-6 at 106 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

MTEP17 models that served as the basis for the Application. The Applicants emphasized that each of the corrections was very minor and did not affect the Applicants' conclusion that the economic benefits of the Project outweigh its costs.<sup>529</sup>

300. The Applicants' analysis of the 161 kV alternative is discussed in detail in Section VI.C.7, above.

301. The Applicants concluded that, fundamentally, the 161 kV alternative simply does not provide the sufficient capacity necessary to relieve all of the identified congestion along the Minnesota/Iowa border or to transport the current and forecasted wind generation to customers and therefore is not a reasonable or prudent alternative to the 345 kV line.<sup>530</sup>

(iii) DOC-DER ANALYSIS OF SIZE  
ALTERNATIVES

302. DOC-DER witness Mr. Landi agreed in his Direct Testimony that the Applicants' analysis and conclusions regarding the size alternatives were appropriate and reasonable.<sup>531</sup>

303. With respect to the Applicants' analysis of the 161 kV alternative using the MTEP17 assumptions and data, Mr. Landi concluded that the Applicants had appropriately determined that the proposed Project outperformed the 161 kV alternative on all analyzed metrics. Compared to the 161 kV alternative, the Project has higher 20-year NPV benefits, larger curtailment reductions, larger system loss reductions, larger congestion relief, higher externalities benefits, and lower cost to Minnesota ratepayers.<sup>532</sup>

304. With respect to the Applicants' analysis of the 161 kV alternative using the MTEP18 assumptions and data, Mr. Landi concluded that the Project remains the best option to address the identified congestion issue. Among other things, while the expected benefits of both the proposed Project and the 161 kV alternative decreased using the MTEP18 rather than MTEP17 assumptions, the proposed Project is still

---

<sup>529</sup> Ex. XC-24 at 20-21, 39-40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>530</sup> Ex. XC-6 at 112-13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 41 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>531</sup> Ex. DER-3 at 46-49 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>532</sup> Ex. DER-3 at 46-49 (Landi Direct) (eDocket No. [201811-147664-03](#)); *see also* Ex. DER-1 at 6-10 (Johnson Direct) (eDocket No. [201811-147664-02](#)) (analyzing and agreeing with Applicants' description of cost allocation for MEPs and non-MEPs under the MISO tariff).

superior to the 161 kV alternative overall. Moreover, Mr. Landi noted that, according to the Applicants' analysis, only the proposed Project currently exceeds a weighted benefit-to-cost ratio of 1.25, which is the minimum benefit-to-cost ratio to qualify as an MEP under MISO's tariff.<sup>533</sup>

ii. TYPE APPROPRIATE

305. For type alternatives, the Applicants and MISO analyzed the following alternatives: (1) transmission line projects using other endpoints for terminals/substations; (2) upgrading or rebuilding existing transmission lines; (3) double-circuiting the proposed line with existing transmission lines (4) using DC line instead of the proposed AC line; (5) using different type of conductors; (6) adding new generation resources; and (7) constructing underground transmission lines.<sup>534</sup>

306. The Applicants determined that none of these type alternatives was a more reasonable and prudent alternative to the proposed Project, either because: (1) the alternative did not address the need (either in full or in part) to resolve the identified transmission congestion along the Minnesota/Iowa border; (2) did not provide comparable economic benefits as the Project; and/or (3) would actually exacerbate the existing congestion or result in the underutilization of existing generation resources.<sup>535</sup>

307. Mr. Landi agreed in his Direct Testimony that the Applicants' analysis and conclusions regarding the various type alternatives demonstrated that these alternatives were not viable, based on the Applicants' concerns over reliability of the alternative and/or the cost effectiveness of the alternative considered.<sup>536</sup>

iii. TIMING APPROPRIATE

308. The "timing" of a project for purposes of Minn. R. 7849.0120 (B)(1) refer to the proposed on-line date for the project.<sup>537</sup>

---

<sup>533</sup> Landi Rebuttal at 5, 7 (eDocket No. [201812-148557-01](#)) (citing Ex. XC-24 at 39, Table 8 (Siebenaler Direct) (eDocket No. [20189-146251-05](#))).

<sup>534</sup> Ex. XC-6 at 113-21 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>535</sup> Ex. XC-6 at 113-21 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>536</sup> Ex. DER-3 at 12-13 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>537</sup> Ex. DER-3 at 13-14 (Landi Direct) (eDocket No. [201811-147664-03](#)).

309. The Applicants noted that the extensive record of the congestion issues in the Blue Earth area suggest that the proposed in-service date of December 2021 for the Project is reasonable, and that the identified congestion issue is likely to become more severe over time.<sup>538</sup> The DOC-DER also concluded with the Applicants that the proposed in-service date of December 2021 is reasonable.<sup>539</sup>

iv. CONCLUSION ON SIZE, TYPE, AND TIMING ALTERNATIVES

310. As summarized above, the record reflects that the Applicants have appropriately considered the size, type, and timing of the Project compared to those of the reasonable alternatives and found that the Project is superior in all respects.

311. Thus, the Applicants have satisfied Minn. R. 7849.0120 (B)(1).

b. *The Cost of the Proposed Facility and the Cost of the 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. Minnesota Rule 7849.0120 (B)(2).*

312. Minnesota Rule 7849.0120 (B)(2) requires consideration of “the cost of the proposed facility and the cost of the energy to be supplied by the proposed facility as compared to the costs of the reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives.”

313. For the cost estimate for the 161 kV alternative, the Applicants used the shortest proposed route (Green Route) between the Huntley and Wilmarth substations. To compare benefit-to-cost ratios between the 161 kV alternative and the proposed 345 kV line, costs for both lines were estimated using the Green Route and a single-circuit steel monopole design.<sup>540</sup> The Applicants’ presented the benefit-to-cost ratio using models and assumptions from MTEP17 and MTEP 18, which is **Table 12**, above.

314. As can be seen in **Table 12**, above, similar to the Project, the APC saving benefits of the 161 kV alternative decreased under the MTEP18 models. However, the decrease for the 161 kV alternative was much more pronounced. Indeed, due to the significant decrease in the economic benefits of the 161 kV alternative, the 345 kV line outperforms this alternative in the 20-year PV benefit in both model years as well as

---

<sup>538</sup> Ex. XC-6 at 58 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>539</sup> Ex. DER-3 at 13-14 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>540</sup> Ex. XC-6 at 106 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

the weighted benefit-to-cost ratio in MTEP18. This is noteworthy because the weighted benefit-to-cost ratio metric was the only metric where the 161 kV alternative slightly outperformed the 345 kV Project under MTEP17 due to its lower cost.<sup>541</sup>

315. Moreover, as discussed above, the Applicants noted that the Project relieves 100 percent of the identified congestion throughout the entire study period, whereas the 161 kV alternative does not, especially as more wind is added to the system. Similarly, the 345 kV Project is more effective than the 161 kV line at reducing curtailments. Thus, the inability of the 161 kV alternative to fully relieve the identified congestion and the additional curtailments would contribute to higher costs of energy by the 161 kV alternative as compared to the Project.<sup>542</sup>

316. Furthermore, the Applicants explained that, although the 161 kV alternative may have a lower overall cost in 2016 dollars, the 161 kV alternative would nevertheless result in a far greater allocation of costs to Minnesota ratepayers than would the 345 kV Project. As an MEP, the proposed Project is more beneficial to Minnesota energy consumers because, as an MEP, the costs of the Project would be spread across the region.<sup>543</sup> More specifically, 80 percent of the costs of an MEP are allocated more broadly to Local Resource Zones based on the distribution of benefits and the remaining 20 percent are allocated to each pricing zone based on its MISO load share.<sup>544</sup>

317. In contrast, the lower voltage alternative would likely be classified as an “Other” project under the MISO tariff and the costs for such Other project would be assigned 100 percent locally to the applicable transmission owner pricing zone and not all beneficiaries of the Project will pay for the limited benefits provided by its construction.<sup>545</sup>

318. Thus, even though the region may benefit from the 161 kV alternative, the majority of the costs would be borne by the transmission owner’s customers. The Project, on the other hand, will be paid for by all who benefit from the savings the Project provides.<sup>546</sup>

---

<sup>541</sup> Ex. XC-24 at 39-40 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>542</sup> Ex. XC-24 at 40-41 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>543</sup> Ex. XC-6 at 37-39, 105-06 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>544</sup> Ex. XC-6 at 37-39, 105-06 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>545</sup> Ex. XC-6 at 112 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>546</sup> Ex. XC-6 at 105-06 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

319. DOC-DER witness Mr. Landi analyzed the Applicants' internal cost analysis of the Project and the 161 kV alternative and concluded that the proposed Project appears to be a more reasonable investment, depending on the future route chosen. Even if the highest cost route, Purple-E-Red, were chosen, however, Mr. Landi noted that the overall NPV benefit of the Project would be higher than the NPV benefit of the 161 kV alternative. This analysis, along with the fact that the 161 kV alternative is not able to fully address the congestion problem, led Mr. Landi to conclude that the Applicants reasonably determined that the 161 kV alternative is not more economical than the Project. Thus, concluded Mr. Landi, the Applicants' internal cost analysis indicates that the 161 kV alternative is not a more reasonable and prudent alternative to the Project.<sup>547</sup>

320. Thus, the Applicants have satisfied Minn. R. 7849.0120 (B)(2).

*c. The Effects of the Proposed Facility Upon the Natural and Socioeconomic Environments Compared to the Effects of Reasonable Alternatives. Minnesota Rule 7849.0120 (B)(3).*

321. Minnesota Rule 7849.0120 (B)(3) requires consideration of "the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives."

322. The DOC-EERA prepared an EIS for the Project that compares the natural and socioeconomic effects of the Project and alternatives, including the 161 kV alternative.<sup>548</sup>

---

<sup>547</sup> Ex. DER-3 at 29-30 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>548</sup> See Ex. EERA-13 (Huntley to Wilmarth 345 kV Transmission Line Draft EIS ("Draft EIS"), Abstract, Table of Contents, Acronyms, Summary) (eDocket No. [201812-148307-02](#)); (Chapter 1 Introduction) (eDocket No. [201812-148307-04](#)); (Chapter 2 Regulatory Framework) (eDocket No. [201812-148307-06](#)); (Chapter 3 Overview of Project) (eDocket No. [201812-148307-08](#)); (Chapter 4 Alternatives to Project) (eDocket No. [201812-148307-10](#)); (Chapter 5 Affected Environment) (eDocket Nos. [201812-148307-12](#), [201812-148307-14](#)); (Chapter 6 Route Alternatives) (eDocket No. [201812-148307-16](#)); (Chapter 7 Route Segments and Alignment Alternatives) (eDocket No. [201812-148307-18](#)); (Chapter 8 Cumulative Potential Effects) (eDocket No. [201812-148307-20](#)); (References) (eDocket No. [201812-148310-02](#)); (Appendix A Scoping Decision) (eDocket No. [201812-148310-04](#)); (Appendix B Spatial Data Sources) (eDocket No. [201812-148310-06](#)); (Appendix C1 Generic Route Permit Template) (eDocket No. [201812-148310-08](#)); (Appendix C2 Route Permit Example) (eDocket No. [201812-148310-10](#)); (Appendix D Agricultural Impact Mitigation Plan) (eDocket No. [201812-148310-12](#)); (Appendix E Property Value Supplement) (eDocket No. [201812-148310-14](#)); (Appendix F EMF Supplement) (eDocket No. [201812-148310-16](#)); (Appendix G Archaeological and Historic Resources Data) (eDocket No. [201812-148310-18](#)); (Appendix H Blandings Turtle Fact Sheet) (eDocket No. [201812-148310-20](#)); (Appendix I Map Book Sheets 1-86) (eDocket Nos. [201812-](#)



323. The DOC-EERA reasoned that the human and environmental impacts of a 161 kV line would be similar to those of a 345 kV line.<sup>549</sup> However, there would be differences in the type and extent of impacts due to differences in structure heights and spans.<sup>550</sup> Structures for a 161 kV line are typically 70 to 100 feet tall, with a span of about 700 feet. Structures for a 345 kV line are 75 to 170 feet tall, with a span of about 1,000 feet.<sup>551</sup> Thus, there is a tradeoff between the voltages and their associated structures—a larger number of smaller structures (161 kV) versus a smaller number of larger structures (345 kV).<sup>552</sup>

324. Aesthetic impacts are likely to be greater with a 345 kV line because the structures are relatively taller and more visible than 161 kV structures.<sup>553</sup> Meanwhile, agricultural impacts are likely to be slightly greater for a 161 kV line due to the greater number of structures required due to shorten span lengths.<sup>554</sup> More structures in more fields would lead to greater impediments to agricultural management.<sup>555</sup> Impacts to natural resources would likely be similar for the two voltages; however, there may be resources that could be spanned by a 345 kV line that could not be spanned by a 161 kV line.<sup>556</sup> In these instances, a 161 kV line would have a greater impact on the resource, i.e., a 161 kV line would require that a structure be placed in the resource.<sup>557</sup>

325. The Applicants also presented an analysis of socioeconomic costs and benefits (externalities analysis), which included the environmental impact of changes to electricity generation resulting from the Project and from the 161 kV alternative. This environmental impact compares the changes in the emissions of CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>, which result from changes in electricity generation from electrical generating units (EGUs) in MISO Local Resource Zones 1, 2, and 3 that are induced by the proposed

---

[148312-02](#), [201812-148312-04](#), [201812-148312-06](#), [201812-148312-08](#), [201812-148312-10](#), [201812-148312-12](#), [201812-148312-14](#), [201812-148312-16](#)); (Appendix J Route Analysis Tables) (eDocket No. [201812-148312-18](#)); (Appendix K Rare Species Table) (eDocket No. [201812-148312-20](#)).

<sup>549</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>550</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>551</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>552</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>553</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>554</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>555</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>556</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>557</sup> Ex. EERA-13 at 4-19 (Draft EIS) (eDocket No. [201812-148307-10](#)).

Project and the 161 kV alternative. The Applicants concluded, and the DOC-DER concurred, that the Project provides greater reductions in both CO<sub>2</sub> and NO<sub>x</sub> emission costs compared to the 161 kV alternative. Using the most recent Commission-approved values for Externalities, and the dispatch assumptions from MISO's MTEP17 PROMOD cases, produces indicative results showing that the Project provides \$5.3 million to \$21.1 million in annual public policy benefits from emissions reduction during the simulated study years. In comparison, the 161 kV alternative provides indicative benefits of \$2.6 million to \$15.1 million in the same years.<sup>558</sup>

326. CEOs witness Mr. Michael Goggin stated that the new wind resources that can be built and operated with minimal congestion and curtailment due to the Project will help lower the cost of electricity in Minnesota.<sup>559</sup> Mr. Goggin explained that adding wind generation to the MISO wholesale electricity market always reduces the market clearing price, because wind generation is among the lowest-cost resource available in the market due to its zero-fuel and other variable costs.<sup>560</sup> The impact on market prices can be significant because the most expensive power plant that is needed to meet electricity demand sets the market clearing price for all generation bought and sold in the wholesale market.<sup>561</sup>

327. Thus, the Applicants have satisfied Minn. R. 7849.0120 (B)(3).

*d. The Expected Reliability of the Proposed Facility Compared to the Expected Reliability of Reasonable Alternatives. Minnesota Rule 7849.0120 (B)(4).*

328. Minnesota Rule 7849.0120 (B)(4) requires consideration of “the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives.”

329. This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(9), which requires consideration of “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.”

---

<sup>558</sup> Ex. XC-6 at 105 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)) (citing Ex. XC-6 at Appendix I (Certificate of Need Application) (eDocket No. [20181-139030-04](#))); Ex. DER-3 at 30-41 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>559</sup> Ex. CEOS-1 at 11 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>560</sup> Ex. CEOS-1 at 11 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>561</sup> Ex. CEOS-1 at 11 (Goggin Direct) (eDocket No. [20189-146255-02](#)).



330. As discussed above, the Project provides superior reliability benefits compared to the 161 kV alternative as it will add another 345 kV line to the regional electric grid thereby enhancing the resiliency of this system.<sup>562</sup> Unlike the 161 kV alternative, the 345 kV Project will also relieve 100 percent of the identified congestion throughout the study period. Accordingly, the Project provides greater reliability benefits than does the 161 kV alternative.

331. Similarly, DOC-DER witness Dr. Rakow reviewed the Application in light of Minn. Stat. § 216B.243, subd. 3(9), and concluded that the Project would result in lower costs for electric consumers in Minnesota and enhance the deliverability of energy.<sup>563</sup>

332. Thus, the Applicants have satisfied Minn. R. 7849.0120 (B)(4).

*e. Conclusion Regarding Minnesota Rule 7849.0120 (B).*

333. As discussed above, the Applicants have satisfied each of the four sub-factors of Minn. R. 7849.0120 (B).

334. No other party submitted a more reasonable and prudent alternative to the proposed Project that satisfies the requirements of Minn. R. 7849.0110 and 7849.0120.

335. MISO,<sup>564</sup> the CEOs,<sup>565</sup> and the DOC-DER<sup>566</sup> also concluded that there is no reasonable alternative to the Project on the record.

336. Accordingly, there is no other reasonable and prudent alternative to the Huntley – Wilmarth 345 kV Project on the record.

337. Therefore, Minn. R. 7849.0120 (B) is satisfied.

---

<sup>562</sup> See Ex. XC-6 at 10 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. EERA-13 at 6-2 (Draft EIS) (“The project is anticipated to positively impact the reliability of the electrical transmission grid in southern Minnesota.”) (eDocket No. [201812-148307-16](#)).

<sup>563</sup> Ex. DER-5 at 31 (Rakow Direct) (eDocket No. [201811-147664-04](#)); Ex. DER-3 at 41-49 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>564</sup> See Ex. MISO-1 at 23-25 (Zhou Direct) (eDocket No. [20189-146240-01](#)).

<sup>565</sup> Ex. CEOS-1 at 6-7 (Goggin Direct) (eDocket No. [20189-146255-02](#)).

<sup>566</sup> Ex. DER-3 at 48-49 (Landi Direct) (eDocket No. [201811-147664-03](#)).

3. *BY A PREPONDERANCE OF 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:*

338. Minnesota Rule 7849.0120 (C) requires that “by a preponderance of 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.”

339. The Applicants state that the proposed Project will reduce congestion and allow the transmission system to operate more efficiently and more cost-effectively, and pursuant to the Commission’s routing criteria will be routed in a manner compatible with protecting the natural and socioeconomic environments.<sup>567</sup>

340. Additionally, the Applicants’ externalities analysis demonstrates that the Project will result in net avoided emissions of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>568</sup>

a. *The Relationship of the Proposed Facility, or Suitable Modification Thereof, to Overall State Energy Needs. Minnesota Rule 7849.0120 (C)(1).*

341. Minnesota Rule 7849.0120 (C)(1) requires consideration of “the relationship of the Project, or a suitable modification thereof, to overall state energy needs.”

342. The Applicants presented testimony demonstrating that, over the past 20 years, the generation mix in Minnesota and surrounding states has dramatically shifted from relying primarily on coal and nuclear generation resources to a more diverse generation mix that includes increasing amounts of renewable energy, in particular, wind generation. For instance, wind generation in Minnesota has increased from approximately one percent of the generation mix in 2000 to 18 percent in 2016. During the same timeframe, Minnesota’s generation from coal-fired resources has dropped from approximately 66 percent to 39 percent and natural gas generation has increased from approximately three percent to 15 percent. The expansion of wind generation in Minnesota has been the result of various overlapping factors: local, state, and federal

---

<sup>567</sup> Ex. XC-6 at 1, 153-178 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>568</sup> Ex. XC-18 at 6 (Abing Direct) (eDocket No. [20189-146252-01](#)).

policies, favorable geographic conditions, technological improvements, and economics.<sup>569</sup>

343. As discussed above, the Applicants have demonstrated that the Project is needed to eliminate the identified congestion at the Minnesota/Iowa border, and will thus facilitate the connection of additional wind generation to the transmission system.

344. Accordingly, the Project will advance Minnesota's energy policies and the Applicants have therefore satisfied Minn. R. 7849.0120 (C)(1).

*b. 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. Minnesota Rule 7849.0120 (C)(2).*

345. Minnesota Rule 7849.0120 (C)(2) requires consideration of "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."

346. Under the no-build alternative, the Project would not be constructed and all other electrical transmission facilities in south central Minnesota would remain as is.<sup>570</sup>

347. There would be no direct natural or socioeconomic impacts as a result of this alternative. The no-build alternative would avoid the potential environmental impacts of the Project, as those impacts are described in the EIS.<sup>571</sup>

348. That said, as discussed in the EIS<sup>572</sup> and demonstrated by the Applicants,<sup>573</sup> the no-build alternative would not meet the need for the Project. The

---

<sup>569</sup> Ex. XC-24 at 5-6 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>570</sup> Ex. EERA-13 at 4-10 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>571</sup> Ex. EERA-13 at 4-10 (Draft EIS) (eDocket No. [201812-148307-10](#)); *see generally* Ex. EERA-13 at Chapter 5 Affected Environment (eDocket Nos. [201812-148307-12](#), [201812-148307-14](#)); Ex. EERA-13 at Chapter 6 Route Alternatives (eDocket No. [201812-148307-16](#)); Ex. EERA-13 at Chapter 7 Route Segments and Alignment Alternatives (eDocket No. [201812-148307-18](#)); Ex. EERA-13 at Chapter 8 Cumulative Potential Effects (eDocket No. [201812-148307-20](#)); Ex. EERA-13 at References (eDocket No. [201812-148310-02](#)).

<sup>572</sup> Ex. EERA-13 at 4-10 (Draft EIS) (eDocket No. [201812-148307-10](#)).

<sup>573</sup> Ex. XC-6 at 122-24 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

Applicants analyzed load growth, conservation, and demand-side management and concluded that none of these no-build options are effective or reasonable alternatives to the proposed Project.<sup>574</sup>

349. Congestion on the electrical transmission grid would continue and likely worsen, access to lower-cost generation would be impaired, and the economic benefits offered by this Project would not materialize. Additionally, the no-build alternative would adversely impact the efficiency of existing wind generators, leading to additional curtailment of wind turbines.<sup>575</sup>

350. Moreover, Mr. Landi agreed that the Applicants' analysis and conclusions regarding the no-build alternatives were appropriate and reasonable.<sup>576</sup>

351. The primary way to address potential impacts of a transmission line project is during the Minnesota routing process. The Commission is charged with selecting a route for the transmission line that minimizes adverse human and environmental impacts while ensuring electric power system reliability and integrity.<sup>577</sup>

352. The Applicants filed a Route Permit application for the Project and these two approval processes are being considered by the Commission under a joint process.<sup>578</sup> Based on the review conducted in the Route Permit proceeding, the Project's anticipated design and proposed routing do not present any environmental issues that would preclude construction of the facilities.<sup>579</sup>

353. Thus, the Applicants have satisfied Minn. R. 7849.0120 (C)(2).

---

<sup>574</sup> Ex. XC-6 at 122-24 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-24 at 38 (Siebenaler Direct) (eDocket No. [20189-146251-05](#)).

<sup>575</sup> Ex. EERA-13 at 4-10 (Draft EIS) (eDocket No. [201812-148307-10](#)); Ex. DER-3 at 14-16 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>576</sup> Ex. DER-3 at 14-16 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>577</sup> Minn. Stat. § 216E.02, subd. 1.

<sup>578</sup> Ex. PUC-2 at 7 (Commission Order Finding Applications Complete) (eDocket No. [20183-141450-02](#)).

<sup>579</sup> See Ex. XC-6 at 153 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

c. *The Effects of the Proposed Facility, or a Suitable Modification Thereof, in Inducing Future Development. Minnesota Rule 7849.0120 C(3).*

354. Minnesota Rule 7849.0120 (C)(3) requires consideration of “the effects of the proposed facility, or a suitable modification thereof, in inducing future development.”

355. The Applicants state that the Project is not necessarily intended to induce future development, but it will support future economic development (for example, additional wind generation in the area).<sup>580</sup>

356. Thus, the Applicants have satisfied Minn. R. 7849.0120 (C)(3).

d. *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. Minnesota Rule 7849.0120 (C)(4).*

357. Minnesota Rule 7849.0120 (C)(4) requires consideration of “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.”

358. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(5), which, in relevant part, requires the Commission to consider “the benefits of this facility, including its uses to protect or enhance environmental quality....”

359. The Applicants state that, as an MEP, this Project is designed to reduce wholesale energy costs by addressing one of the most congested areas in the MISO electric transmission system, along the Minnesota/Iowa border.<sup>581</sup>

360. As discussed above, the Project will relieve the current transmission congestion in this area, increase market access to lower cost wind generation, provide economic benefits in terms of reduced wholesale energy costs, increase the robustness of the regional grid, and support future wind generation facilities in Minnesota and Iowa.<sup>582</sup>

---

<sup>580</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>581</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>582</sup> Ex. XC-6 at 13 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

361. Thus, the Applicants have satisfied Minn. R. 7849.0120 (C)(4).

4. *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. MINNESOTA RULE 7849.0120 (D).*

362. Minnesota Rule 7849.0120 (D) requires 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.”

363. This factor relates to Minn. Stat. § 216B.243, subd. 3(7), which requires the Commission, in assessing need, to consider “the policies, rules, and regulations of other state and federal agencies and local governments.”

364. The Applicants state that they will secure all necessary permits and authorizations prior to commencing construction on the portions of the Project requiring such approvals.<sup>583</sup>

365. DOC-DER witness Dr. Rakow reviewed the information on potentially-required permits provided in the Application. Dr. Rakow stated that he will rely upon the other agencies to enforce their requirements and that if any permits should be denied, then the Project would not be constructed, regardless of the Commission’s decision regarding the Application.<sup>584</sup> Accordingly, Dr. Rakow concludes that the record does not demonstrate that the Applicants would fail to comply with the relevant policies, rules, and regulations of other state and federal agencies and local governments.<sup>585</sup>

366. Based on the foregoing, the Applicants have satisfied Minn. R. 7849.0120 (D).

---

<sup>583</sup> Ex. XC-6 at 12, 176-77 (Certificate of Need Application) (listing all identified “other permits, approvals, or consultations that may be required”) (eDocket No. [20181-139030-01](#)).

<sup>584</sup> Ex. DER-5 at 29 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>585</sup> Ex. DER-5 at 29 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

5. CONCLUSION ON MINNESOTA RULE 7849.0120 CRITERIA

367. As discussed in detail above, the Applicants have satisfied each of the relevant factors and sub-factors set forth in Minn. R. 7849.0120 (A) through (D) necessary to determine that a Certificate of Need must be granted.

368. The remaining sections consider the other statutory and regulatory requirements that are necessary for the issuance of a Certificate of Need.

**B. Other Statutory Requirements**

1. *THE RENEWABLE ENERGY PREFERENCE STATUTES, MINNESOTA STATUTES SECTIONS 216B.243, SUBDIVISION 3A AND 216B.2422, SUBDIVISION 4.*

369. Minnesota Statutes section 216B.243, subdivision 3(11) requires the Commission to evaluate “whether the applicant has made the demonstrations required under subdivision 3a.”

370. Minnesota Statutes sections 216B.243, subdivision 3a and 216B.2422, subdivision 4 are the renewable energy preference statutes.

371. Minnesota Statutes section 216B.243, subdivision 3a is applicable when a transmission facility transmits electric power generated by means of a nonrenewable energy source.

372. Minnesota Statutes section 216B.2422, subdivision 4 is applicable to new or refurbished “nonrenewable energy facilit[ies].”

373. The Commission has previously found that the renewable generation preference statutes are no bar to granting certificates of need for transmission lines where the proposed transmission line does not immediately interconnect to a new generation source and will not interconnect with a specific generation source.<sup>586</sup>

374. DOC-DER witness Dr. Rakow noted that the interconnection of numerous generators is conditional upon the completion of the Project.<sup>587</sup> Thus, the incremental impact of the Project would be to enable the transmission of energy from

---

<sup>586</sup> *In the Matter of the Application of Otter Tail Power Co. for Certificate of Need for Appleton-Canby 115 kV High Voltage Transmission Line*, Docket No. E-017/CN-06-677, ORDER GRANTING CERTIFICATE OF NEED at 9 (Apr. 18, 2007).

<sup>587</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)).



all new resources, including renewable resources.<sup>588</sup> Many of the new resources are expected to be renewable because some of the best wind resources in Minnesota and the nation are located in the project area.<sup>589</sup> Further, as discussed above, the Project would reduce congestion and related curtailments of wind energy in the project area.<sup>590</sup> Accordingly, Dr. Rakow concludes that the proposed Project is an integral part of generating and delivering power generated by means of renewable energy sources and in light of other generation changes occurring in Minnesota and elsewhere in the MISO system. Therefore, the consideration established by Minn. Stat. § 216B.243, subd. 3(11) has been met.<sup>591</sup>

375. Therefore, the Project satisfies the renewable energy preference statutes, Minn. Stat. §§ 216B.243, subd. 3a and 216B.2422, subd. 4.

## 2. *DISTRIBUTED GENERATION, MINNESOTA STATUTES SECTION 216B.2426*

376. Minnesota Statutes section 216B.2426 relates to whether the applicant has considered the opportunities for installation of distributed generation. The statute provides that “[t]he 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.”

377. This statute is satisfied because the Applicants have considered the addition of generation resources instead of transmission facilities and concluded that generation was not a reasonable alternative.<sup>592</sup>

## 3. *RELATIONSHIP OF PROPOSED LINE TO REGIONAL ENERGY NEEDS, MINNESOTA STATUTES SECTION 216B.243, SUBDIVISION 3(3)*

378. Minnesota Statutes section 216B.243, subdivision 3(3) states that, in considering need, the Commission shall evaluate “the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy

---

<sup>588</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>589</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>590</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>591</sup> Ex. DER-5 at 32 (Rakow Direct) (eDocket No. [201811-147664-04](#)).

<sup>592</sup> Ex. DER-3 at Schedule ML-6 (Landi Direct) (Applicants’ Response to DOC-DER IR No. 15) (eDocket No. [201811-147664-03](#)).



and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425.”

379. After being approved by MISO in MTEP16, the proposed Huntley-Wilmarth Project was included in the 2017 Biennial Transmission Projects Report.<sup>593</sup> The report stated that the Project was found to alleviate the observed congestion at the Minnesota/Iowa border; met the MISO present value cost-to-benefit ratio required for MEPs; and MISO found that the Project does not create unintended reliability issues for the transmission system.<sup>594</sup>

4. *RES COMPLIANCE, MINN. STAT. § 216B.243, SUBD. 3(10)*

380. Minnesota Statutes section 216B.243, subdivision 3(10) states that the Commission shall evaluate “whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 7.”

381. Under Minn. Stat. § 216B.1691, subd. 2, Xcel Energy is required to obtain 25 percent of its current sales from renewable energy sources.<sup>595</sup>

382. Xcel Energy’s most recent RES compliance filing was made on June 1, 2018, for compliance with 2017 RES requirements in Docket No. E999/PR-18-78.<sup>596</sup> In that docket, Xcel Energy explained that by May 1, 2018, Xcel Energy retired approximately 7.4 million renewable energy credits, representing 25 percent of annual retail sales for calendar year 2017, thereby demonstrating compliance with the Minnesota RES requirements identified in Minn. Stat. § 216B.1691.<sup>597</sup>

---

<sup>593</sup> See *2017 Biennial Transmission Projects Report*, Docket No. E999/M-17-377, REPORT at 119 (Nov. 1, 2017).

<sup>594</sup> *2017 Biennial Transmission Projects Report*, Docket No. E999/M-17-377, REPORT at 119 (Nov. 1, 2017).

<sup>595</sup> Minn. Stat. § 216B.1691, subd. 2.

<sup>596</sup> *In the Matter of Comm’n Consideration and Determination of Compliance with RES for Year 2017*, Docket No. E999/PR-18-78, XCEL ENERGY TRADE SECRET COMPLIANCE FILING – REC RETIREMENT AND GREEN PRICING REPORT (June 1, 2018).

<sup>597</sup> *In the Matter of Comm’n Consideration and Determination of Compliance with RES for Year 2017*, Docket No. E999/M-18-78, XCEL ENERGY REFILED COMPLIANCE FILING at 2 (June 25, 2018).

383. The DOC-DER reviewed Xcel Energy's filing and determined that Xcel Energy was in compliance with the 2017 RES requirement.<sup>598</sup>

384. In addition, Minn. Stat. § 216B.2425, subd. 7, requires that “[e]ach 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.”

385. The Minnesota Transmission Operators, of which Xcel Energy is part, submitted its 2017 Biennial Transmission Projects Report in Docket No. E999/M-17-377.<sup>599</sup> Chapter 8 of the report discussed the necessary transmission upgrades required to meet upcoming RESs.<sup>600</sup>

386. On June 12, 2018, the Commission issued its Order Accepting Report, Granting Variance and Setting Additional Requirements in Docket No. E999/M-17-377, where the Commission ultimately accepted the 2017 report.<sup>601</sup>

387. Applicants are therefore in compliance with applicable provisions of Minn. Stat. §§ 216B.1691 and 216B.2425, subd. 7, satisfying Minn. Stat. § 216B.243, subd. 3(10).

### **C. Adequacy of the EIS**

388. Minnesota Rule 7849.7030 requires the DOC-EERA to prepare an environmental report for a high voltage transmission line seeking a Certificate of Need.

389. When a Certificate of Need application and a Route Permit application are both pending before the Commission, the DOC-EERA may elect to combine the environmental reviews required for each application.<sup>602</sup>

---

<sup>598</sup> *In the Matter of Comm’n Consideration and Determination of Compliance with RES for Year 2017*, Docket No. E999/PR-18-12, COMMENTS OF THE DOC-DER at 2 (June 28, 2018).

<sup>599</sup> *2017 Biennial Transmission Projects Report*, Docket No. E999/M-17-377, REPORT (Nov. 1, 2017).

<sup>600</sup> *2017 Biennial Transmission Projects Report*, Docket No. E999/M-17-377, REPORT at 142 (Nov. 1, 2017).

<sup>601</sup> *2017 Biennial Transmission Projects Report*, Docket No. E999/M-17-377, ORDER ACCEPTING REPORT, GRANTING VARIANCE, AND SETTING ADDITIONAL REQUIREMENTS at 6 (June 12, 2018).

<sup>602</sup> Minn. R. 7849.1900.

390. For this Project, the DOC-EERA elected to combine the environmental reviews for the Certificate of Need and Route Permit applications and to prepare an EIS.<sup>603</sup>

391. The Commission is required to assess the adequacy of the EIS.<sup>604</sup>

392. The evidence on the record demonstrates that the EIS is adequate because the EIS: (1) addresses the issues and alternatives raised in scoping to a reasonable extent considering the availability of information and the time limitations for considering the permit application; (2) provides responses to the timely and substantive comments received during the Draft EIS review process; and (3) was prepared in compliance with the procedures in Minn. R. 7850.1000-7850.5600.<sup>605</sup>

## **IX. OTHER ISSUES**

393. In his Direct Testimony, DOC-DER witness Mr. Johnson made several recommendations related to Project cost estimates. Mr. Johnson recommended that (1) Xcel Energy not be allowed to recover through the Transmission Cost Recovery Rider any Project costs exceeding those estimated by the Applicants in this proceeding; and (2) any excess costs can be recovered in Xcel Energy's first rate case after the Project is in-service so long as Xcel Energy is able to justify that these excess costs are reasonable.<sup>606</sup>

394. Xcel Energy agreed to these proposed conditions in Rebuttal but requested the ability to file a final Project cost estimate 45 days following the Commission's Route Permit Order. This final Project cost estimate would incorporate the final design and route selected by the Commission as well as any mitigation measures.<sup>607</sup> Xcel Energy stated that, if the final Project cost estimate is different from the cost estimates that have been previously provided in this proceeding due to route adjustments or mitigation measures included in the Order on the Route Permit, the Applicants would provide a detailed explanation for the reason for these differences.<sup>608</sup>

---

<sup>603</sup> See Ex. EERA-10 at 5-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-02](#)).

<sup>604</sup> Minn. R. 7850.2500, subp. 10.

<sup>605</sup> Minn. R. 7850.2500, subp. 10(A)-(C).

<sup>606</sup> Ex. DER-1 at 11-19 (Johnson Direct) (eDocket No. [201811-147664-02](#)).

<sup>607</sup> Ex. XC-26 at 2 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

<sup>608</sup> Ex. XC-26 at 2-3 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)).

395. In Surrebuttal, the DOC-DER agreed with Xcel Energy as to the appropriateness of filing a final Project cost estimate 45 days after the Commission's Route Permit Order. The DOC-DER further recommended that the Commission provide the DOC-DER and other interested parties the opportunity to address whether they agree with Xcel Energy's final Project cost estimate.<sup>609</sup> Finally, if the Commission approves Xcel Energy's proposal, the DOC-DER recommended that the Commission require Xcel Energy to identify the costs clearly and ensure that the costs are easily trackable in future recovery in riders and rate cases.<sup>610</sup>

**Based on the foregoing Findings of Fact and the record in this proceeding, the ALJ makes the following:**

### **CONCLUSIONS**

1. Any of the forgoing Findings more properly designated as Conclusions are hereby adopted as such.
2. The Commission and the ALJ have jurisdiction to consider the Applicants' Application for a Certificate of Need.
3. The Applicants, the DOC-EERA, and the Commission provided all notices required under Minnesota statutes and rules for a Certificate of Need proceeding.
4. Public hearings were conducted in the proposed Project areas for the Project. The public was given an opportunity to appear at the hearings or to submit written comments.
5. The Applicants and DOC-EERA have complied with all applicable substantive and procedural requirements for a Certificate of Need.
6. The record in this proceeding demonstrates that the Applicants have satisfied the criteria set forth in Minn. Stat. § 216B.243 and Minn. R. 7849.0120.
7. The record in this proceeding demonstrates that the Project will address multiple needs.

---

<sup>609</sup> Ex. DER-2 at 9 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

<sup>610</sup> Ex. DER-2 at 9 (Johnson Surrebuttal) (eDocket No. [20191-149630-02](#)).

8. No party or person has demonstrated by a preponderance of the evidence that there is a more reasonable and prudent alternative on the record to address those needs met by the Project.

9. The record in this proceeding also demonstrates that the Applicants have satisfied other relevant statutory criteria set forth in Minn. Stat. § 216B.1691 (renewable energy standards) and Minn. Stat. § 216B.2426 (distributed generation).

10. The Final EIS and record created in the matter adequately (1) address the issues and alternatives raised in scoping to the reasonable extent considering the availability of information at the time limitations for considering the permit application; (2) provide responses to the timely and substantive comments received during the draft EIS review process; and (3) was prepared in compliance with the procedures in Minn. R. 7850.1000-7850.5600.

11. Xcel Energy commits to submit a compliance filing within 45 days of the Commission's written Route Permit order addressing the final Project cost estimate, with an opportunity for interested parties to comment on the information included in Xcel Energy's compliance filing. Xcel Energy will identify the final Project costs clearly and ensure that the costs are easily trackable for future recovery in riders and rate cases. Any costs exceeding the final Project cost estimate can be recovered in Xcel Energy's first rate case after the Project is in-service, so long as Xcel Energy is able to justify that these excess costs are reasonable.

12. The citations to exhibits in the Findings of Fact are not intended to indicate that all evidentiary support in the record has been cited.

**Based on these Findings of Fact and Conclusions, the ALJ makes the following:**

**RECOMMENDATION**

The ALJ recommends that the Commission conclude that all relevant statutory and rule criteria necessary to obtain a Certificate of Need for the Huntley – Wilmarth 345 kV Project have been satisfied and that there are no statutory or other requirements that preclude granting a Certificate of Need based on the record.

The ALJ further recommends the following special condition:

Xcel Energy shall submit a compliance filing within 45 days of the Commission's written order addressing the final Project cost estimate, with an opportunity for interested parties to comment on the information included in Xcel Energy's compliance filing. Xcel Energy will identify the final Project costs clearly and ensure that the costs are easily trackable for future recovery in riders and rate cases. Any costs exceeding the final Project cost estimate can be recovered in Xcel Energy's first rate case after the Project is in-service, so long as Xcel Energy is able to justify that these excess costs are reasonable.

THIS REPORT IS NOT AN ORDER AND NO AUTHORITY IS GRANTED HEREIN. THE MINNESOTA PUBLIC UTILITIES COMMISSION WILL ISSUE THE ORDER OF AUTHORITY WHICH MAY ADOPT OR DIFFER FROM THE FOLLOWING RECOMMENDATION.

Based on the foregoing Findings of Fact, Conclusions of Law, and the record in this proceeding, the Administrative Law Judge makes the Recommendations set forth above in this Report.

Dated on \_\_\_\_\_

\_\_\_\_\_  
Barbara J. Case  
Administrative Law Judge

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION TO DOCKET No. E002, ET6675/TL-17-185  
THE MINNESOTA PUBLIC UTILITIES OAH DOCKET No. 82-2500-35157  
COMMISSION FOR A ROUTE PERMIT FOR  
THE HUNTLEY-WILMARTH 345 kV  
TRANSMISSION LINE PROJECT

**POST-HEARING BRIEF OF  
NORTHERN STATES POWER COMPANY AND ITC MIDWEST LLC  
IN SUPPORT OF THEIR ROUTE PERMIT APPLICATION**

## TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	1
II. PROCEDURAL HISTORY .....	10
III. PROJECT SUMMARY .....	11
A. Proposed Project .....	11
B. Certificate of Need Application.....	14
IV. PROPOSED ROUTES.....	16
A. Routes Proposed and Evaluated in the Draft EIS.....	16
B. Overview of Five Routes.....	20
C. The Applicants' Recommended Route Configurations.....	22
1. Purple Route.....	24
2. Green Route.....	26
3. Red Route.....	27
4. Blue Route .....	28
5. Purple-E-Red Route.....	29
V. OVERVIEW OF THE PROJECT AREA .....	32
VI. STATUTORY AND RULE ROUTING CRITERIA.....	34
A. Power Plant Siting Act (PPSA) Factors.....	34
B. Minn. R. 7850.4100 Factors .....	36
VII. APPLICATION OF RELEVANT FACTORS .....	38
A. Routing Factors – Minimal Potential Impacts and No Variation by Route Alternative.....	38
B. Routing Factors – Impacts Vary Significantly by Route Alternative .....	40
1. Effects on Human Settlement .....	41
2. Land-Based Economies – Agriculture .....	53
3. Natural Environment – Forested Areas .....	57
4. Corridor Sharing – Using Existing Rights-of-Way.....	60
5. Project Costs .....	63



## TABLE OF CONTENTS

(continued)

	<b>Page</b>
C. Consideration of Issues Presented by State Agencies and Local Units of Government.....	68
1. Minneopa State Park .....	68
2. MnDNR Recommendations .....	72
D. Summary of Analysis of Distinguishing Routing Factors .....	75
VIII. CONCLUSION .....	78

## **I. INTRODUCTION**

Northern States Power Company, doing business as Xcel Energy, and ITC Midwest LLC (ITC Midwest) (together, the Applicants) respectfully submit this Post-Hearing Brief and accompanying Proposed Findings of Fact, Conclusions of Law, and Recommendation (Findings of Fact) in support of their request for a Route Permit for the proposed Huntley – Wilmarth Transmission Line Project (Huntley – Wilmarth Project or Project). The Huntley – Wilmarth Project involves the construction of a new, approximately 50-mile, 345 kilovolt (kV) transmission line between Xcel Energy’s existing Wilmarth Substation north of Mankato, Minnesota, and ITC Midwest’s Huntley Substation south of Winnebago, Minnesota. The Project also includes the necessary modifications to the Wilmarth and Huntley substations to accommodate the new 345 kV line.

Based on the full record developed in this proceeding, Applicants recommend that the Commission select one of two routes, the Green Route or a modified Purple Route (described in more detail below). Both routes meet the state routing criteria and are constructible. With respect to cost, the Green Route is the least cost option and therefore maximizes the net economic benefits from the Project. The modified Purple Route is more costly, but still provides substantial net economic benefits and has fewer environmental and human impacts.

### **Project Need**

The Project was approved as an economic Market Efficiency Project (MEP) by the Midcontinent Independent System Operator, Inc. (MISO) in its 2016 annual Transmission Expansion Plan (MTEP16). As an MEP, the Project is needed to reduce transmission system congestion, which will improve the efficiency of MISO's energy markets and provide economic benefits through lower wholesale energy costs. The Applicants' separate Post-Hearing Brief and Findings of Fact for the Certificate of Need Application discuss the need for the Project in more detail.

The Project is the first MEP to be brought forward for Commission consideration in Minnesota. While the Commission routinely considers and balances various factors in making its routing determination, as an MEP, this Project presents an opportunity for the Commission to consider a new way of evaluating one of its routing factors—a route's costs—through the lens of how those costs affect the projected net benefits of an economic project.

### **Proposed Routes and Designs**

To provide the Commission with route options across the cost spectrum that also minimize potential human and environmental impacts, the Applicants' Route Permit Application included four route alternatives (Purple, Green, Red, and Blue), six segment alternatives, and multiple structure design options for the Project, with costs

ranging from \$105.8 million (2016\$) to \$138 million (2016\$).<sup>1</sup> As a result of the scoping process for the Environmental Impact Statement (EIS) and in response to further comments received from agencies and landowners, one additional route (Purple-E-Red) and several new segment and alignment alternatives were added for Commission consideration. In total, five routes, 21 segment alternatives, and three alignment alternatives, as well as three primary design alternatives were proposed in this proceeding. The costs for these route and design alternatives range from \$104.8 million (2016\$) to \$160.7 million (2016\$).

### **Applicants' Recommended Route Configurations and Designs**

The Applicants examined all potential design options, analyzed all routes, including segment and alignment alternatives, evaluated the Draft EIS, and reviewed comments received from the public, federal and state agencies, and local government units. As a result of this comprehensive review of the record, the Applicants propose that certain designs no longer be considered and that certain segment and alignment alternatives be incorporated into the five main routes.

During this proceeding, many farmers expressed concerns about the increased agricultural impacts of two structure designs: (1) H-Frame structures (with two poles 20 to 30 feet apart) and (2) the single-circuit, monopole design constructed adjacent to the existing H-frame Lakefield Junction – Wilmarth 345 kV line. Based on this

---

<sup>1</sup> “2016 dollars” or “(2016\$)” assumes that the Project would have been constructed (and dollars spent) in 2016.

feedback as well as an examination of the data related to the increased number of structures in farm fields from these two designs, the Applicants recommend that these two designs no longer be considered to ensure agricultural impacts are minimized for the Project.

The Applicants also refined each of the five route options included in the Draft EIS by incorporating segment and alignment alternatives that best minimize potential human and environmental impacts. The Applicants' recommended route configuration for the five route options are as follows:

- *The Purple Route:* Based on comments from the Minnesota Department of Natural Resources (MnDNR), the Purple Route should incorporate Segment Alternative BB to reduce the number of crossings of Willow Creek and to limit forest clearing. The Purple Route should also incorporate Segment Alternative L to avoid current and future Waterfowl Production Areas (WPA) near the Watonwan River area that are in the process of being added to the federal refuge system. The U.S. Fish and Wildlife Service (USFWS) stated it will not allow a new transmission line to cross these current and future WPA parcels. Segment Alternative L also minimizes residences within 200 feet to 500 feet of the anticipated alignment and avoids a native plant community that is present on other segment alternatives in this area. The Applicants' recommended

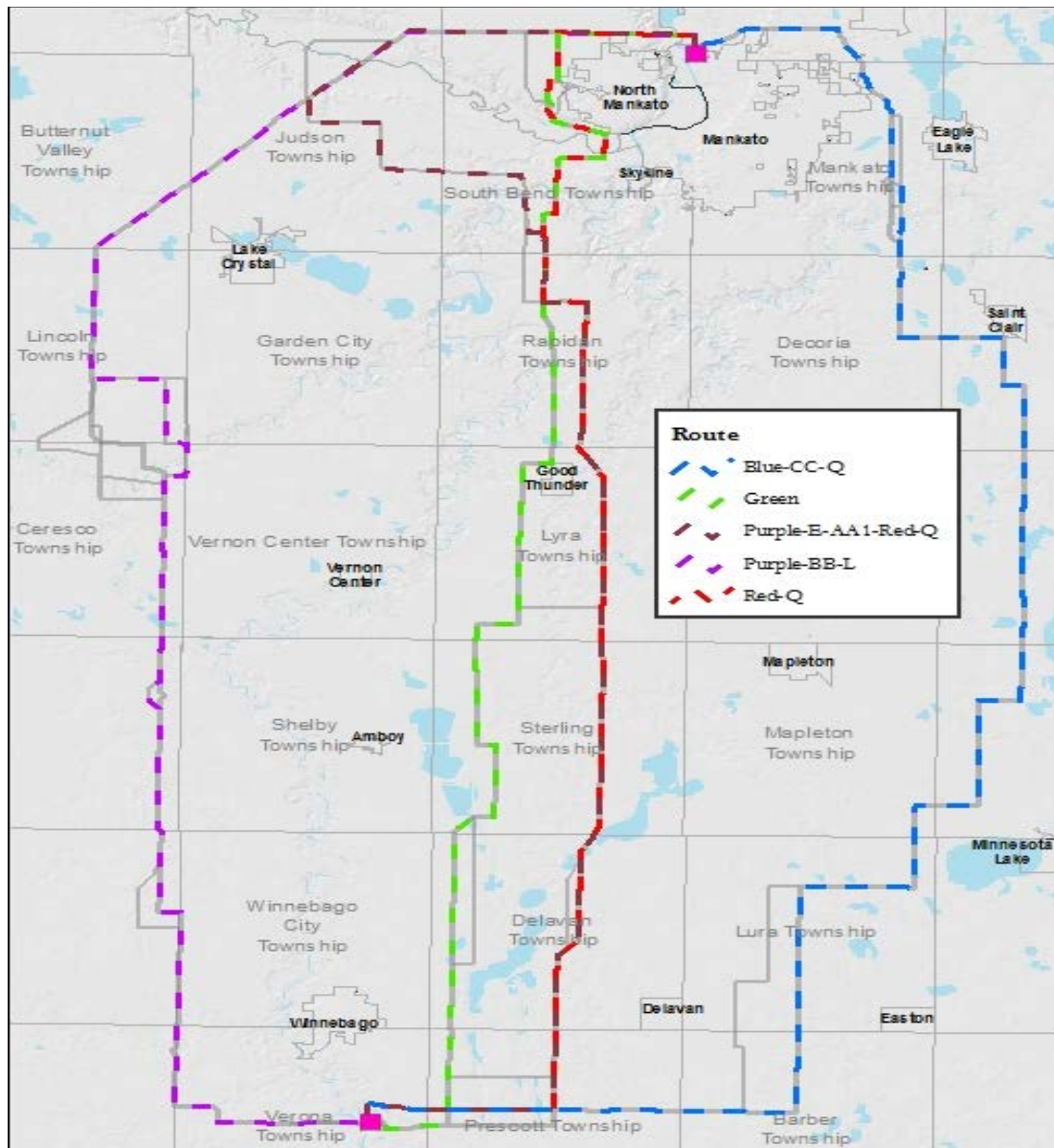
configuration for the Purple Route incorporates Segment Alternatives BB and L, and is referred to as the **Purple-BB-L Route**;

- *The Green Route:* The Applicants do not recommend any modifications to the Green Route;
- *The Red Route:* Based on public comments in this proceeding and information in the Draft EIS, the Red Route should incorporate the double-circuit Segment Alternative Q to reduce agricultural impacts by reducing the number of structures in this segment. The Applicants' recommended configuration for the Red Route incorporates Segment Alternative Q, and is referred to as the **Red-Q Route**;
- *The Blue Route:* Based on public comments in this proceeding and information in the Draft EIS, the Blue Route should incorporate Segment Alternative CC to avoid conflict with a new house that a landowner stated is being constructed within the right-of-way. The Blue Route should also incorporate the double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Blue Route incorporates Segment Alternatives CC and Q, and is referred to as the **Blue-CC-Q Route**;
- *The Purple-E-Red Route:* Based on public comments in this proceeding and information in the Draft EIS, the Purple-E-Red Route should include

Alternative Alignment AA1 to increase the route's distance from existing residences. The Purple-E-Red Route should also incorporate the double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Purple-E-Red Route incorporates Segment Alternative Q and Alternative Alignment AA1, and is referred to as the **Purple-E-AA1-Red-Q**.

The costs for these refined route configurations range from \$121.3 million (2016\$) for the Green Route to \$160.2 million (2016\$) for the Purple-E-AA1-Red-Q. The benefit-to-cost ratios for these route configurations range from 1.43 to 1.88 under MTEP17 models and from 1.12 to 1.47 under the MTEP18 models, respectively. The Applicants' recommended route configurations are shown below in **Figure 1**.

**Figure 1**  
**Applicants' Recommended Route Configurations**



### **Distinguishing Routing Criteria**

The Commission's route selection for a transmission line is guided by the factors set forth in the Power Plant Siting Act (PPSA), Minnesota Statutes section 216E.03, and the Commission's rules, Minnesota Rules 7850.4000 to 7850.4100. The statutory



and rule criteria outline numerous factors that the Commission must consider in selecting a route. While the five routes perform similarly under many of the Commission's routing factors, there are five factors that distinguish the different impacts of the five routes. Based on the specific characteristics of the Project area and the analysis contained in the Route Permit Application and the Draft EIS, the Applicants identified these distinguishing factors as: (1) effects on human settlement<sup>2</sup>; (2) effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining<sup>3</sup>; (3) effects on the natural environment, including effects on air and water quality resources and flora and fauna<sup>4</sup>; (4) use of existing transportation, pipeline, and electrical transmission systems or rights-of-way<sup>5</sup>; and (5) cost of constructing, operating, and maintaining the facility which are dependent on design and route.<sup>6</sup>

An examination of all of the routing criteria demonstrates that all five routes are permissible but that none of the routes outperform all the other routes with regard to all of the criteria. Further, every route results in a benefit-to-cost ratio under both MTEP17 and MTEP18 of greater than 1.0, and thus provides net economic benefits and meets the economic-based need for the Project. Accordingly, the Applicants

---

<sup>2</sup> Minn. R. 7850.4100(A).

<sup>3</sup> Minn. R. 7850.4100(C).

<sup>4</sup> Minn. R. 7850.4100(E).

<sup>5</sup> Minn. R. 7850.4100(J).

<sup>6</sup> Minn. R. 7850.4100(L).

recognize that analysis of the routing criteria can lead to selection of different routes, depending on how the Commission decides to apply its routing factors.

In approving a route for the Project, the PPSA and the Commission's rules outline routing factors that the Commission "shall be guided by"<sup>7</sup> or "shall consider"<sup>8</sup> but does not dictate a particular application or "weighting." Thus, the Commission has the discretion regarding how best to consider all of the criteria based on the specific circumstances.<sup>9</sup>

The policy choice of whether to maximize the net economic benefits of the Project rests with the Commission. In considering the cost factor, the route selected will impact the net economic benefits the Project provides. For example, the Green Route with a monopole design is the least expensive of the remaining options (\$121.3 million (2016\$)) and therefore would provide the highest net economic benefits. However, the low cost of the Green Route comes with trade-offs including more homes within 200 feet of the anticipated alignment; potential for greater impacts to agriculture, forested land, and future development; and has the least amount of corridor sharing with existing transmission lines.

---

<sup>7</sup> Minn. Stat. § 216E.03, subd. 7.

<sup>8</sup> Minn. R. 7850.4100.

<sup>9</sup> Minn. Stat. § 216E.02, subd. 7(b); Minn. R. 7850.4000 and 7850.4100.

In contrast, the Purple-BB-L Route for the Project would be more costly (\$140.1 million (2016\$))<sup>10</sup> and would provide reduced net economic benefits. However, the Purple-BB-L Route has the fewest number of existing residences within 500 feet; avoids future development areas of the city of North Mankato; follows existing transmission line corridors for more than half of its length; includes the fewest acres of forested land within its right-of-way; and minimizes agricultural impacts with its double-circuit design.

In this Brief, the Applicants will provide support for these recommendations based on the performance of the five routes as to the five distinguishing routing factors mentioned above. A comprehensive review and analysis of all of the Commission's routing factors is contained in the Applicants' accompanying proposed Findings of Fact.

## **II. PROCEDURAL HISTORY**

The Applicants notified the Commission of their intent to construct and operate the Huntley – Wilmarth Project on March 3, 2017, and filed a Certificate of Need Application on January 17, 2018, and a Route Permit Application on January 22, 2018.

---

<sup>10</sup> Another consideration related to cost is MISO's variance analysis process. Under Attachment FF of the MISO Tariff, if the cost of the Project exceeds or is expected to exceed 25 percent or more the Project's baseline cost (\$108 million (2016\$)), MISO is required to initiate a new variance analysis process. Any route with a cost estimate of \$135 million or greater would trigger a MISO variance analysis. After conducting an evaluation in its variance process, MISO can: (1) take no action; (2) institute a mitigation plan to alleviate grounds for a variance; or (3) cancel the Project. In the variance process, Applicants will support the route selected by the Commission and will recommend that the Project move forward given its economic benefits and the Commission's application of its routing factors.

The Commission found the applications complete in its March 28, 2018, Order, which also combined the Route Permit and Certificate of Need applications into one proceeding. The Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) issued its Scoping Decision on July 17, 2018, and its Draft EIS on December 7, 2018.

An evidentiary hearing was held before Administrative Law Judge (ALJ) Barbara J. Case in St. Paul, Minnesota, on February 11, 2019. Public meetings were held in the Project area to solicit comments on the scope of the EIS in April and May of 2018; to solicit comments on the Draft EIS in January 2019; and to solicit comments on route permit conditions and routing in February 2019. A complete procedural history is included in the Applicants' proposed Findings of Fact.

### **III. PROJECT SUMMARY**

#### **A. Proposed Project**

The Project consists of a new 345 kV transmission line connecting Xcel Energy's existing Wilmarth Substation north of Mankato, Minnesota, with ITC Midwest's Huntley Substation south of Winnebago, Minnesota. The transmission line will be approximately 50 miles in length and the proposed route alternatives will traverse Blue Earth, Faribault, Martin, and Nicollet counties in Minnesota. The Project also includes

the necessary modifications to the existing Huntley and Wilmarth substations to accommodate the new 345 kV transmission line.<sup>11</sup>

Xcel Energy and ITC Midwest will own the Huntley – Wilmarth transmission line jointly as tenants in common. Each Applicant will be responsible for the necessary modifications and maintenance of its substation. The equipment and improvements inside the Wilmarth Substation, located on the northern edge of the City of Mankato, will be owned solely by Xcel Energy. The equipment and improvements inside the Huntley Substation, located approximately three miles south of the City of Winnebago, will be owned solely by ITC Midwest. As the Project Manager, Xcel Energy will be responsible for the construction, maintenance, and operation of the proposed 345 kV transmission line.<sup>12</sup>

The right-of-way is the area required for the safe construction and operation of the transmission line. The typical right-of-way width for the Project will be 150 feet. All permanent structures will be contained within the 150 feet right-of-way.<sup>13</sup>

The route width of a transmission line is typically wider than the right-of-way to provide some flexibility in constructing the line. The route width allows the Applicants

---

<sup>11</sup> Ex. XC-7 at ES-3, 1, 7 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>12</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)); Ex. XC-23 at 6 (Petersen Direct) (eDocket No. [20189-146252-04](#)).

<sup>13</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-26 (Draft EIS) (eDocket No. [201812-148307-08](#)).

to address any landowner concerns and engineering issues that may arise after a route permit is issued. The typical route width for the Project is 1,000 feet.<sup>14</sup>

The facilities required for the Huntley – Wilmarth Project include the equipment needed for the construction of the line as well as for the modification of the two substations. This equipment includes the following:

- An approximately 50-mile long, new 345 kV transmission line, connecting the Wilmarth Substation to the Huntley Substation, including steel pole structures and double-bundled, twisted pair conductors.<sup>15</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Huntley Substation, including a 345 kV circuit breaker, potential transformers for relays, switches, dead-end structures, relay and equipment panels, a bus, and concrete foundations.<sup>16</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Wilmarth Substation, including a dead-end structure, a 345 kV circuit breaker, a DC battery system, bus work, transformers, miscellaneous other equipment, and concrete foundations.<sup>17</sup>

---

<sup>14</sup> Ex. XC-7 at 9-10 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>15</sup> Ex. XC-25 at 4-6, 9 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>16</sup> Ex. XC-23 at 6-7 (Petersen Direct) (eDocket No. [20189-146252-04](#)).

<sup>17</sup> Ex. XC-25 at 13-14 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

## **B. Certificate of Need Application**

The Applicants filed their Certificate of Need Application for the Huntley – Wilmarth Project on January 17, 2018, and the Commission authorized joint hearings and a combined environmental review for the Certificate of Need and Route Permit applications in its March 28, 2018 Order.<sup>18</sup>

The Huntley – Wilmarth Project was studied, reviewed, and approved by MISO's Board of Directors as an MEP in December 2016 in MISO's annual Transmission Expansion Plan (MTEP16) report.<sup>19</sup> An MEP is needed to reduce transmission system congestion, which will improve the efficiency of MISO's energy markets and provides economic benefits through lower wholesale costs.<sup>20</sup> To qualify as an MEP, a transmission project must meet the following criteria at the time of designation: (1) greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at a 345 kV voltage level or higher; (2) the benefit-to-cost ratio of the candidate project must meet or exceed 1.25; and (3) the total project cost must exceed \$5 million.<sup>21</sup>

---

<sup>18</sup> Ex. PUC-2 (Order Finding Applications Complete and Notice of and Order for Hearing) (eDocket No. [20183-141450-01](#)).

<sup>19</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>20</sup> Ex. XC-7 at ES-1, 21(Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 5, 7 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>21</sup> Ex. XC-6 at 5-6 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)).

The MISO Tariff measures a MEP's economic benefit by the Adjusted Production Cost (APC) savings realized by the project under each of the MTEP future scenarios.<sup>22</sup> APC savings are calculated as the difference in total production cost adjusted for import costs and export revenues with and without the proposed project in the transmission system.<sup>23</sup> MISO evaluates different projects based on its benefit-to-cost ratio.<sup>24</sup> This ratio is dependent on the cost<sup>25</sup> of the Project compared to the APC savings that the Project will provide over time.<sup>26</sup> Since the APC savings are constant and do not vary by route, routes with higher costs have lower benefit-to-cost ratios than routes with lower costs.<sup>27</sup>

Given the unique nature of this Project, the Applicants developed robust route- and design-specific cost estimates for the route alternatives, segment alternatives, and alignment alternatives proposed during this proceeding.<sup>28</sup> These detailed cost estimates allow a full evaluation of costs related to both structure design and route considerations and provides an opportunity for balancing the economic need for the Project with the

---

<sup>22</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>23</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>24</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>25</sup> The total costs used in the benefit-to-cost calculation take into account the capital costs of the project, revenue requirements, discount rate, and inflation rate. Ex. DER-3 at Schedule 10 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>26</sup> Ex. DER-3 at Schedule 7 (Landi Direct) (eDocket No. [201811-147664-03](#)).

<sup>27</sup> Ex. XC-6 at 1 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>28</sup> Ex. XC-25 at 11 (Stevenson Direct) (eDocket No. [20189-146251-07](#)); Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).



goal of minimizing the Project's potential impacts on human and natural environments.<sup>29</sup>

## **IV. PROPOSED ROUTES**

### **A. Routes Proposed and Evaluated in the Draft EIS**

The Applicants spent the later part of 2016 and much of 2017 developing routes for the Project.<sup>30</sup> The Applicants first established a Project Study Area (36 miles long and 29 miles wide) between the two substation endpoints and then identified routing constraints and routing opportunities using mapping data.<sup>31</sup> Routing constraints in the Project area include population centers in the north (for example, North Mankato, Mankato, Belgrade Township); Minneopa State Park; wildlife and waterfowl protection areas; rivers, lakes, and other water resources; and other environmentally-sensitive areas. Routing opportunities include existing infrastructure corridors for transmission lines and roads as well as field and property lines.<sup>32</sup>

The Applicants conducted several field visits in early 2017 to confirm mapping data and to gain a better understanding of the Project area.<sup>33</sup> Later in 2017, the Applicants also met with local government units and federal and state agencies and held

---

<sup>29</sup> Ex. XC-6 at 27-29 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)); Ex. XC-22 at 5 (Neidermire Direct) (eDocket No. [20189-146251-03](#)); Ex. XC-25 at 5 (Stevenson Direct) (eDocket No. [20189-146251-07](#)).

<sup>30</sup> Ex. XC-7 at ES-5, 19 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>31</sup> Ex. XC-7 at ES-5, 19 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>32</sup> Ex. XC-7 at ES-5, 25-31 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 3-5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>33</sup> Ex. XC-19 at 5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

public open houses in Mapleton and Mankato to gather feedback on initial route options.<sup>34</sup> Based on the information and feedback collected, the Applicants refined and developed their final route options for the Route Permit Application.<sup>35</sup>

The Applicants proposed four route alternatives in the Route Permit Application, identified from the west to east as the Purple, Green, Red, and Blue routes.<sup>36</sup> In addition, the Applicants included six route segment alternatives in the Application, labeled as Segment Alternatives A through F.<sup>37</sup>

These route alternatives included multiple design options, with costs ranging from \$105.8 million (2016\$) to \$138 million (2016\$). Designs with H-frame and monopole structures routed parallel to existing transmission lines have lower costs and therefore higher benefit-to-cost ratios, but greater potential for impacts on human and natural environments. Conversely, a double-circuit design with an existing transmission line has higher costs and a slightly lower benefit-to-cost ratio, but can reduce potential impacts.

As a result of the scoping process for the EIS, a fifth route alternative, Purple-E-Red, was added.<sup>38</sup> Additionally, the scoping process resulted in removing Route

---

<sup>34</sup> Ex. XC-19 at 5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>35</sup> Ex. XC-7 at ES-5, 25-31 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 3-5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>36</sup> Ex. XC-7 at 41-43 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 24-25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>37</sup> Ex. XC-7 at 44-47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>38</sup> Ex. EERA-10 at 8 (DOC-EERA EIS Scoping Decision) (eDocket No. [20187-144971-01](#)).

Segment C from consideration and adding 14 new route segments (E2, G-R, Y), for a total of 19 route segment alternatives.<sup>39</sup> The DOC-EERA scoping decision also included three new alignment alternatives (AA-1 to AA-3).<sup>40</sup>

After the Draft EIS was issued, the Applicants proposed Segment Alternative BB and Segment Alternative CC to be evaluated in the final EIS, based on comments received from the MnDNR and a landowner.<sup>41</sup> Segment Alternative BB reduces the number of crossings of Willow Creek from three to one, reducing impacts on forested land, and Segment Alternative CC moves the Blue Route away from a parcel on the originally-proposed right-of-way where a landowner has indicated that he is in the process of building a new house.<sup>42</sup>

**Figure 2** below shows the five route alternatives, 21 segment alternatives, and three alignment alternatives evaluated for the Project.<sup>43</sup>

---

<sup>39</sup> Ex. EERA-10 at 8-10 (DOC-EERA EIS Scoping Decision) (eDocket No. [20187-144971-01](#)).

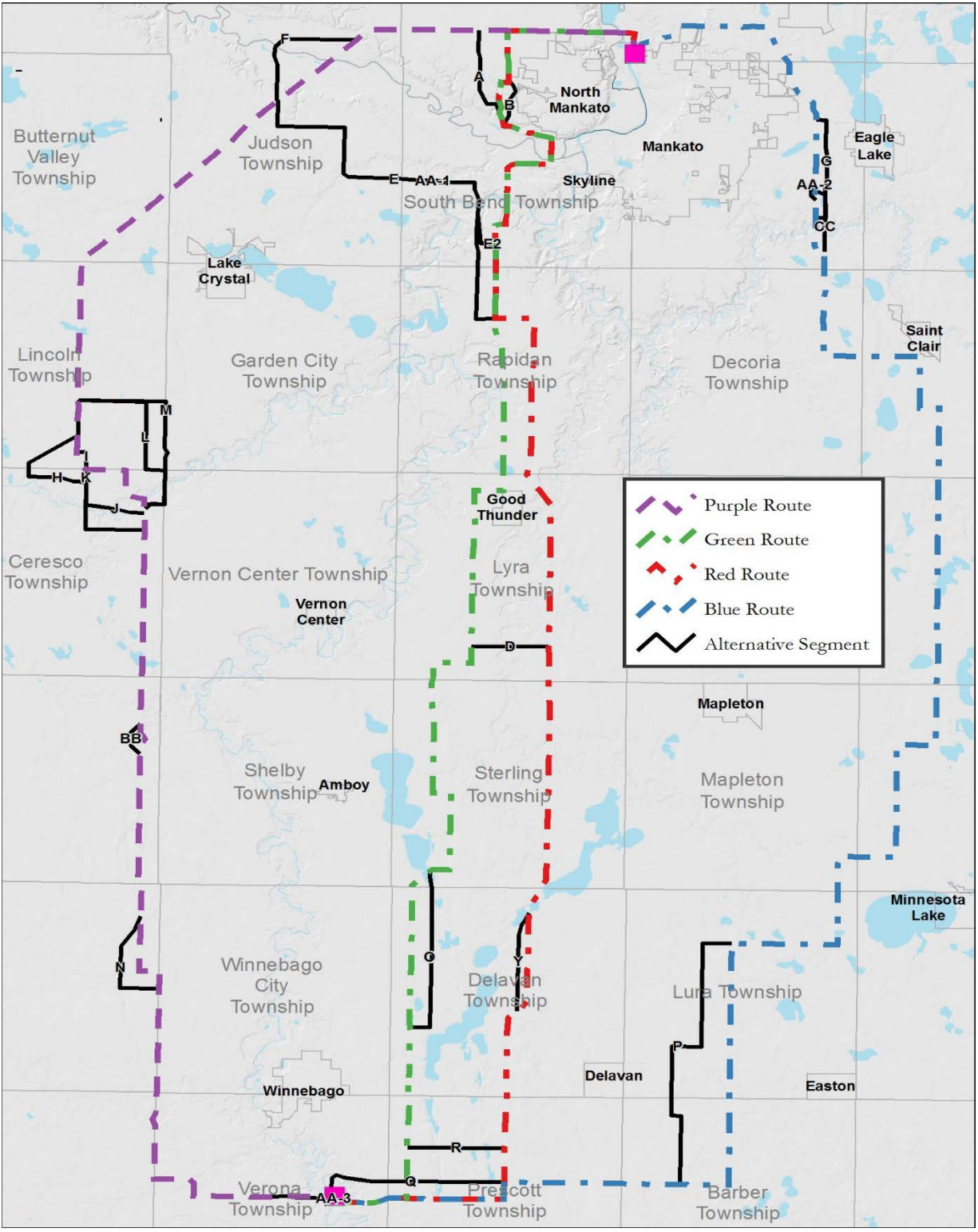
<sup>40</sup> Ex. EERA-10 at 8-10 (DOC-EERA EIS Scoping Decision) (eDocket No. [20187-144971-01](#)).

<sup>41</sup> Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>42</sup> Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>43</sup> Ex. EERA-13 at 3-2, Map 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)).

**Figure 2**  
**All Proposed Routes, Segment Alternatives, and Alignment Alternatives**



## **B. Overview of Five Routes**

The Purple Route minimizes route length in future developmental areas of North Mankato by proceeding further to the west from the Wilmarth Substation before turning to the south. The Purple Route crosses a short section of Minneopa State Park entirely within the existing easement of the Lakefield Junction – Wilmarth 345 kV transmission line.<sup>44</sup> The Purple Route crosses the Watonwan River in an area that includes existing WPA land and a parcel that is in the process of being transferred to the USFWS to be added to an existing WPA (the Pheasants Forever Parcel).<sup>45</sup> Segment Alternatives H through M address crossing of the Watonwan River. The Purple Route is approximately 51.6 miles long.<sup>46</sup>

The Green Route and the Red Route were developed to provide an option with the most direct path to the south from the Wilmarth Substation to the Huntley Substation. While the Green and Red routes avoid crossing of the Minneopa State Park, they traverse along the western fringe of North Mankato in areas that are designated as future residential and/or industrial development in North Mankato's Comprehensive Development Plan.<sup>47</sup> After the northern common segment of the Green and Red routes depart near Rapidan Township, the main difference between them is that the Red Route follows the existing Huntley – South Bend 161 kV

---

<sup>44</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>45</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>46</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>47</sup> Ex. NM-1 at 9-14 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

transmission line for approximately 24 miles, while the Green Route follows mainly roads and property lines.<sup>48</sup> The Red Route is proposed to be double-circuited with the existing transmission line, while the Green Route was designed to be single-circuited and therefore a more economical option.<sup>49</sup> The Green Route is approximately 45.3 miles long and the Red Route is approximately 46.5 miles long.<sup>50</sup>

The Blue Route exits the Wilmarth Substation to the east and therefore avoids crossing of the Minneopa State Park and the Minnesota River.<sup>51</sup> On the other hand, the Blue Route is constrained by the close proximity to the development areas in the eastern fringe of Mankato and the Mankato Regional Airport.<sup>52</sup> The Blue Route is approximately 57.1 miles long.<sup>53</sup>

The Purple-E-Red Route is a combination of the Purple and Red routes, as connected by Route Segment E, and was added by the Advisory Task Force.<sup>54</sup> This route uses those portions of the Purple and Red routes that follow existing transmission lines, and as a result, a larger portion of the Purple-E-Red Route is double-circuit design

---

<sup>48</sup> Ex. XC-7 at 41-42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>49</sup> Ex. EERA-13 at 3-4 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 12-17 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41-42, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>50</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>51</sup> Ex. XC-19 at 18 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>52</sup> Ex. EERA-13 at 3-4 to 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 18-19, 30-31 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 42, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>53</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>54</sup> Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-02](#)).

in an existing transmission line corridor (approximately 32 miles).<sup>55</sup> The Purple-E-Red Route is approximately 54.1 miles long.<sup>56</sup>

The Applicants' proposed Findings of Fact include a more detailed description of each route, segment, and alignment alternative considered for the Project.

### **C. The Applicants' Recommended Route Configurations**

The Applicants recognize that five route alternatives, 21 segment alternatives, and three alignment alternatives provide a large number of routing choices, especially when combined with the additional structure design and configuration options. The Applicants examined all potential route and segment combinations; evaluated the Draft EIS; and reviewed comments received from the public, federal and state agencies, and local government units by mid-March 2019. Based on this review and analysis, the Applicants narrowed the structure design options. The Applicants also refined each of the five route options by incorporating segment and alignment alternatives that best minimize potential impacts.

First, the Applicants acknowledge that H-frame structures have more impacts on agriculture than monopole structures because of the two-pole design, which places at least one pole in farm land even when following property division lines. During the public hearings, several farmers expressed concern about the greater agricultural

---

<sup>55</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-7 at 23 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>56</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).



impacts associated with H-frame designs.<sup>57</sup> Although monopole structures are somewhat more expensive than H-frame structures, the Applicants believe this incremental cost is reasonable given the reduction in impacts on agriculture.<sup>58</sup> Therefore, the Applicants recommend that H-frame structures no longer be considered for any route alternative.

Second, the Applicants similarly determined that the Purple Route has higher impacts on agriculture if a single-circuit monopole design is used adjacent to existing transmission lines. Since approximately 50 percent of the Purple Route follows existing transmission lines, mainly the Lakefield Junction – Wilmarth 345 kV line, the difference between using a single-circuit, parallel design and a double-circuit design becomes significant.<sup>59</sup> Therefore, the Applicants recommend that if the Purple Route is selected, that it is constructed as a double-circuit design with existing transmission lines on the same pole. If a low-cost, single-circuit route is desired, the Green Route provides an

---

<sup>57</sup> See, e.g., Mankato 1:00 p.m. Pub. Hrg. Tr. at 62:14-20 (Schroeder) (Feb. 27, 2019) (“I would be 100 percent for the line, your new line to go on the existing purple and put one pole up and put both lines on one pole. It’s much easier to farm around one pole than it is the H poles. And the thing is, you know, if you want to make something look better, I mean, put the one pole up and get rid of the H poles.”); Mapleton 6:00 p.m. Pub. Hrg. Tr. at 28-29 (Lachmiller) (Feb. 28, 2019) (“Why can’t you run them more on the existing lines so you aren’t interrupting anybody? I’ve already farmed around them for 60 years, so updating an old line to a single pole instead of a double H would be beneficial to a lot of farmers.”).

<sup>58</sup> See Ex. EERA-13 at 5-47, 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>59</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 62:14-23 (Schroeder) (Feb. 27, 2019); Mankato 6:00 p.m. Pub. Hrg. Tr. at 52:13-19 (Anderson) (Feb. 27, 2019) (“The comment about the – where I’m on the existing purple route, Judson Township, and the comment about the double pole sets or the existing, adding another pole set would be the worst of both worlds, or another structure. If they can put it all on one pole, a new set, that would be much preferable to adding another existing line.”); Mankato 6:00 p.m. Pub. Hrg. Tr. at 54:5-9 (“I can’t believe that it’s even a consideration to build another line beside of an existing line. It seems like a no brainer, just put it all on one setting, one pole setting.”).



option for a monopole, single-circuit design with notably less impact on agriculture and \$2 million (2016\$) lower cost than the Purple Route parallel monopole design.<sup>60</sup> The Green Route follows mostly roads and property/field divisions.<sup>61</sup>

Third, the Applicants compared each proposed segment/alignment alternative relative to the corresponding base route section and selected from the two options the one that better minimizes potential impacts. As a result of this analysis, the Applicants determined their recommended configurations for the five routes, which are discussed below.

### ***1. Purple Route***

The area near the Watonwan River along the Purple Route contains high value wildlife habitat.<sup>62</sup> The original Purple Route traverses a parcel of land that is currently owned by Pheasants Forever and that is adjacent to the southern boundary of an existing Waterfowl Protection Area (WPA).<sup>63</sup> This Pheasants Forever parcel is in the process of being transferred to the USFWS to be added to the existing WPA.<sup>64</sup> The Applicants will likely not be able to obtain an easement over the Pheasants Forever parcel to construct the Purple Route and USFWS staff has indicated that they would

---

<sup>60</sup> Ex. EERA-13 at 6-17 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>61</sup> Ex. EERA-13 at 6-6 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>62</sup> Ex. XC-19 at 24 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>63</sup> Ex. XC-19 at 24 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>64</sup> Ex. XC-19 at 24 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

not support a route through this parcel.<sup>65</sup> As a result, Segment Alternatives H through M were developed to allow the Purple Route to avoid this parcel.<sup>66</sup> These segments were developed as a result of a field visit conducted by the Applicants and the MnDNR in consultation with the DOC-EERA.<sup>67</sup>

Segment Alternative I is also no longer permissible because it crosses land recently purchased and integrated into the existing Nelson WPA.<sup>68</sup> Based on the high probability of additional land being acquired by the USFWS, as well as higher cost, the Applicants do not support Segment Alternatives H, I, J, and K, and instead prefer Segment Alternative L or M for the Watonwan River crossing.<sup>69</sup>

Segment Alternatives L and M do not cross WPA land and have relatively similar costs and impacts, although Segment Alternative L is shorter than Segment Alternative M and has approximately six fewer acres of forested land in its right-of-way.<sup>70</sup> The MnDNR has also commented that Segment Alternative M would impact a native plant community consisting of very mature basswood and bur oaks.<sup>71</sup> Based on this analysis, the Applicants recommend Segment Alternative L.

---

<sup>65</sup> Ex. EERA-13 at 3-12 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 24-25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>66</sup> Ex. XC-19 at 24 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>67</sup> Ex. XC-19 at 24 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>68</sup> Ex. XC-20 at 12-13 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>69</sup> Ex. XC-20 at 12-14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>70</sup> Ex. EERA-13 at 7-25 to 7-31 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>71</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

In their comments on the Draft EIS, the MnDNR requested that additional segment alternatives be considered for the Purple Route to minimize the number of crossings of Willow Creek from three to one.<sup>72</sup> In response, the Applicants developed Segment Alternative BB which reduces the crossings of Willow Creek from three to one.<sup>73</sup> Segment Alternative BB also reduces the amount of forest clearing from 3.2 acres to 0.5 acres, but increases the Purple Route costs by \$430,000 (2016\$) due to the slightly longer length and additional structures.<sup>74</sup> The Applicants recommend Segment Alternative BB be incorporated into the Purple Route.

The Applicants do not recommend incorporating any other proposed segment or alignment alternatives to the Purple Route because they do not minimize potential impacts. The Applicants' recommended configuration of the Purple Route is a double-circuited monopole design, with Segment Alternatives BB and L. The Applicants' recommended configuration is referred to as the Purple-BB-L Route.

## ***2. Green Route***

The Applicants reviewed the proposed Segment Alternatives A, B, D, and O that apply to the Green Route and do not recommend incorporating any of these segments

---

<sup>72</sup> Ex. EERA-20A at 2-3 (MnDNR Comments on Draft EIS) (eDocket No. [20191-150008-01](#)).

<sup>73</sup> Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>74</sup> Ex. XC-27 at 2-3 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

into the Green Route. The Applicants' recommended configuration is the original single-circuited, monopole Green Route as proposed in the Route Permit Application.

### ***3. Red Route***

The Applicants evaluated Segment Alternative Y and do not recommend incorporating it into the Red Route. The Applicant's recommended Red Route alignment at Segment Alternative Y deviates from the existing transmission line for approximately three miles.<sup>75</sup> The Applicant's proposed route allows the Red Route to avoid the Smith Wildlife Management Area.<sup>76</sup> The MnDNR supports the original Red Route over Segment Alternative Y in this area.<sup>77</sup> While Segment Alternative Y has one fewer home within 200 feet of the route, Applicants note that the Red Route would be across 405<sup>th</sup> Avenue from nearby homes and believe the Red Route is preferable to Segment Alternative Y due to avoidance of lands adjacent to Rice Creek and the Smith Wildlife Management Area.<sup>78</sup> The Applicants do note however, that a written comment filed by a landowner supports Segment Alternative Y.<sup>79</sup>

Segment Alternative Q was proposed during scoping for the EIS to provide an alternative option to connect to the Huntley Substation through existing transmission

---

<sup>75</sup> Ex. EERA-13 at 7-52-7-55 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>76</sup> Ex. EERA-13 at 7-55 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>77</sup> MnDNR Comments at 1 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>78</sup> Ex. EERA-13 at 7-54 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>79</sup> Reynolds Comment (Mar. 15, 2019) (eDocket No. [20193-151164-02](#)).

corridors.<sup>80</sup> Segment Alternative Q minimizes aesthetic impacts because it is double-circuited with an existing transmission line and minimizes agricultural impacts by reducing the number of monopole structures by 37 compared to the corresponding portions of the Red and Blue routes.<sup>81</sup> However, this segment alternative costs \$3.2 million (2016\$) more because it is double-circuited.<sup>82</sup> The Applicants recommend incorporating Segment Alternative Q to the Red Route because it minimizes aesthetic and agricultural impacts.

The Applicants do not recommend incorporating any other segment or alignment alternatives to the Red Route because they do not minimize potential impacts. The Applicants' recommended configuration of the Red Route is referred to as the Red-Q Route.

#### **4. *Blue Route***

Besides Segment Alternative Q discussed above, the Applicants recommend incorporating Segment Alternative CC to the Blue Route. Segment Alternative CC was proposed by the Applicants to move the Blue Route away from a house that a landowner has indicated is under construction within the current right-of-way.<sup>83</sup> Segment Alternative CC reduces the number of stream crossings from two to one,

---

<sup>80</sup> Ex. EERA-13 at 3-16 to 3-17 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 28-29 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>81</sup> Ex. EERA-13 at 7-46 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>82</sup> Ex. EERA-13 at 7-45 to 7-48 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>83</sup> Mankato 1:00 p.m. Draft EIS Pub. Hrg. Tr. at 36 (Woitas) (January 9, 2019); Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

decreases the amount of forest clearing from 9.1 acres to 7.0 acres, and reduces the Blue Route costs by \$410,000 (2016\$) due to the slightly shorter length.<sup>84</sup>

The Applicants do not recommend incorporating any other segment or alignment alternatives to the Blue Route because they do not minimize impacts. The Applicants' recommended configuration of the Blue Route is referred to as Blue-CC-Q Route.

### ***5. Purple-E-Red Route***

The Applicants recommend incorporating Alignment Alternative AA-1 into the Purple-E-Red Route to provide another alignment option for Segment Alternative E by traveling on the south side of Highway 169 instead of the north side.<sup>85</sup> The Applicants recommend incorporating Alignment Alternative AA-1 to the Purple-E-Red Route because it minimizes impacts on existing residences. Alignment Alternative AA-1 places the transmission line at a greater distance from residences on the north side of the highway, but closer to businesses on the south side of the highway.<sup>86</sup>

Similar to the Red and Blue routes, the Applicants recommend that Segment Alternative Q be incorporated in the Purple-E-Red Route to minimize agricultural impacts.

---

<sup>84</sup> Ex. XC-27 at 3-4 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

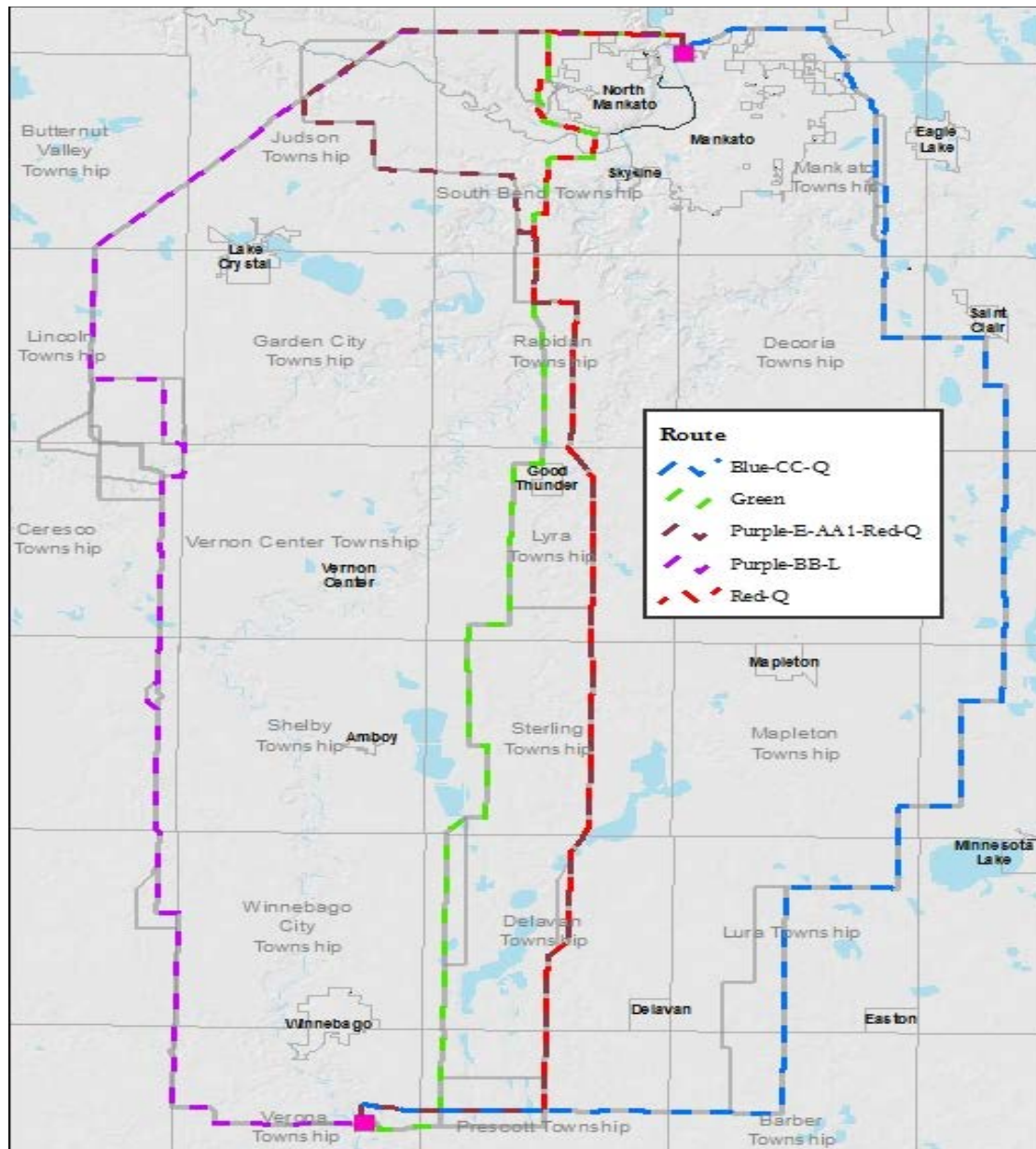
<sup>85</sup> Ex. EERA-13 at 7-56 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>86</sup> Ex. EERA-13 at 3-19 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. EERA-13 at 7-57 (Draft EIS) (eDocket No. [201812-148307-17](#)).

The Applicants do not recommend incorporating any other segment or alignment alternatives to the Purple-E-Red Route because they do not minimize potential impacts. The Applicants' recommended configuration for the Purple-E-Red Route is referred to as Purple-E-AA1-Red-Q.

**Figure 3** below shows the Applicants' recommended route configuration for each of the five routes.

**Figure 3**  
**Applicants' Recommended Route Configurations**



The Applicants' Findings of Fact include additional analysis of impacts from each route segment and alignment alternative, including those not discussed here.



## V. OVERVIEW OF THE PROJECT AREA

Land use in the Project area varies from the north to the south. The northern Project area is primarily urban and suburban and is centered on the cities of Mankato and North Mankato.<sup>87</sup> In contrast, the southern Project area is rural in nature with an agriculture-based economy.<sup>88</sup> Corn and soybean crop production, livestock operations, and associated industries drive the local agricultural economy.<sup>89</sup> The predominant land cover type in Blue Earth, Nicollet, Martin, and Faribault counties is agricultural. Roughly 90 percent of the soil in the Project area is identified as prime farmland.<sup>90</sup> During the public hearings, many landowners noted the importance of farming and agriculture to the livelihood of many residents within the Project area.<sup>91</sup>

The four counties in the Project area have small populations compared to the State of Minnesota as a whole, comprising less than three percent (2.5 percent) of the state's total population.<sup>92</sup> Mankato has a population of approximately 42,000 people and North Mankato approximately 14,000 people.<sup>93</sup>

Manufacturing and service industries (restaurants, hotels, repair shops, and convenience and retail stores) are concentrated in the urban and suburban areas located

---

<sup>87</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>88</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>89</sup> Ex. EERA-13 at 5-2 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>90</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>91</sup> Ex. XC-7 at 93 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>92</sup> Ex. XC-7 at 88-89 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>93</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

in the northern part of the Project area.<sup>94</sup> The North Mankato/Mankato area is a regional hub for health care, arts, and culture.<sup>95</sup> The Mankato Clinic is one of the largest private clinics in the state, with more than 100 physicians.<sup>96</sup> The Mankato area also has four colleges—Bethany Lutheran College, Rasmussen College, South Central College, and Minnesota State University, Mankato.<sup>97</sup>

The five route options are located within the Minnesota River Watershed. Major rivers in the Project area include the Minnesota, Watonwan, Blue Earth, and LeSueur rivers. There are also several sizable lakes in the Project area, many being greater than 160 acres. Some of the lakes in the Project area include Rice Lake, Lake Crystal, Loon Lake, Mills Lake, Lily Lake, Lura Lake, and Minnesota Lake.<sup>98</sup>

Numerous natural amenities—including Minneopa State Park, lakes, rivers, parks, WPAs, and WMAs—attract local and regional recreational users along all five route options. These areas are also important to the identity of the area and provide opportunities for various recreational activities for residents such as fishing, hunting, and snowmobiling.<sup>99</sup>

---

<sup>94</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>95</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>96</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>97</sup> Ex. XC-7 at 93-94 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>98</sup> Ex. XC-7 at 125 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>99</sup> Ex. XC-7 at 94 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)).

The topography of the Project area is generally flat, with areas of rolling plains. The vegetation cover is uniformly low, making the topography in some areas susceptible to visual disruptions. The landscape in the area is already dotted with various structures, including residences, farmsteads, communication towers, distribution lines, transmission lines, wind turbines, and solar panels.<sup>100</sup>

Vegetation in the area is dominated by agricultural and low intensity urban land use; tallgrass prairie remnants are rare and isolated. Agricultural areas within the Project area include active row crop fields interspersed with wind breaks, woodlots, fence rows, and grassland swales associated with drainage ditches. There is minimal forestland in the area, mainly located in forested riparian areas at larger streams and rivers, and no commercial forestry operations have been identified along the five route options.<sup>101</sup>

The wildlife species that inhabit the Project area are typical of those found in agricultural, rural, exurban, and suburban areas. These species are well-adapted for the dominant agricultural and developed habitats in the Project area.<sup>102</sup>

## **VI. STATUTORY AND RULE ROUTING CRITERIA**

### **A. Power Plant Siting Act (PPSA) Factors**

The PPSA requires that route permit determinations “be guided by the state’s goals to conserve resources, minimize environmental impacts, minimize human

---

<sup>100</sup> Ex. XC-7 at 87-88 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>101</sup> Ex. XC-7 at 117, 137 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>102</sup> Ex. XC-7 at 138 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure.”<sup>103</sup> The statute then identifies twelve factors to guide the Commission's route designations:

- (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high-voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
- (2) environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;
- (3) evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;
- (4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;
- (5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
- (6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
- (7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivision 1 and 2;
- (8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;

---

<sup>103</sup> Minn. Stat. § 216E.03, subd. 7.

(9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(10) evaluation of future needs for additional high-voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

(11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and

(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.<sup>104</sup>

Further, Minn. Stat. § 216E.03, subd. 7(e) provides that the Commission also “must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons.”

## **B. Minn. R. 7850.4100 Factors**

In addition to the PPSA, the Commission and the ALJ are governed by Minnesota Rule 7850.4100, which mandates consideration of the following factors when determining whether to issue a route permit for a high voltage transmission line:

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

B. effects on public health and safety;

---

<sup>104</sup> Minn. Stat. § 216E.03, subd. 7.

- C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;
- D. effects on archaeological and historic resources;
- E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;
- F. effects on rare and unique natural resources;
- G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;
- H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;
- I. use of existing large electric power generating plant sites;<sup>105</sup>
- J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;
- K. electrical system reliability;
- L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;
- M. adverse human and natural environmental effects which cannot be avoided; and
- N. irreversible and irretrievable commitments of resources.

To be granted a Route Permit, the Applicants must demonstrate that the factors listed in both the statutes and rules have been satisfied. In many respects, the statutory criteria and the Commission's rules are essentially the same. Three of the statutory factors listed in Minn. Stat. § 216E.03, subd. 7(b), however, are not directly reflected in the factors listed in Minn. R. 7850.4100. These three statutory criteria are: analysis of

---

<sup>105</sup> This factor is not applicable because it applies only to power plant siting.

direct and indirect economic impacts (5), evaluation of route alternatives (7), and consideration of issues raised by other state and federal agencies and local entities (12).

## **VII. APPLICATION OF RELEVANT FACTORS**

The Draft EIS included a comprehensive review and analysis of the relevant routing factors listed in the Commission's statutes and rules as applied to each route, segment, and alignment alternative under consideration. In assessing the Project's potential impacts, the Draft EIS categorized the routing factors into two separate groups: (1) factors for which the potential impacts are anticipated to be minimal and not to vary significantly among route alternatives, and (2) factors for which the potential impacts are anticipated to vary significantly among route alternatives. This distinction is important: if there are only minimal potential impacts on a routing factor and these impacts do not vary by route alternative, then the factor should not play a key role in the Commission's route selection.

### **A. Routing Factors – Minimal Potential Impacts and No Variation by Route Alternative**

For the following factors, the Draft EIS concluded that the potential impacts are anticipated to be minimal and not to vary notably by route alternative:

- *Human Settlements*: noise, property values, electronic interference, and cultural values;
- *Public Health and Safety*: electric and magnetic fields, implantable medical devices, stray voltage, induced voltage, and air quality;

- *Land-Based Economies*: forestry, mining, recreation, and recreation and tourism;
- *Natural Environment*: fauna and all water resources (surface waters, wetlands, floodplains, and groundwater).
- *Rare and Unique Natural Resources*; and
- *Electric System Reliability*.<sup>106</sup>

Although the Draft EIS discussed at length the Project's potential impacts on water resources and made some distinctions among route alternatives,<sup>107</sup> the final conclusion was that potential impacts on water resources are anticipated to be minimal, do not vary significantly by route, and can be mitigated by conditions included in the Commission' generic route permit template.<sup>108</sup>

The Applicants note that the assessment of the Project's potential impacts on the natural environment is complex, as the same route alternative may perform relatively well on one environmental factor and relatively poorly on another, compared to the other route alternatives. For example, the Blue Route has the least amount of upland forests within its right-of-way, but the largest amount of forested wetlands. Although the Draft EIS did not find notable variation in impacts on water resources,

---

<sup>106</sup> Ex. EERA-13 at 6-39 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>107</sup> For the discussion on water resources, see Ex. EERA-13 at 5-64 to 5-70 (Draft EIS) (eDocket No. [201812-148307-11](#)) and Ex. EERA-13 at 6-21 to 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>108</sup> Ex. EERA-13 at 6-39 (Draft EIS) (eDocket No. [201812-148307-15](#)).



the Applicants believe that impacts to forested wetland is an important consideration and have included it in the Applicants' more detailed discussion on the Project's potential impacts on the natural environment.

For the remaining factors, since the impacts on the routing criteria listed above are minimal and do not vary notably by the route alternative, these criteria should not be a key factor for the Commission to consider in route selection. Therefore, this Brief does not discuss them further (except for impacts on forested wetlands). Instead, the Applicants focus on the routing factors that do have notable variations among route alternatives and therefore should be the key considerations in making the route selection. As mentioned above, the Applicants' Findings of Fact include a detailed discussion of all routing factors.

#### **B. Routing Factors – Impacts Vary Significantly by Route Alternative**

The Draft EIS concluded that potential impacts are anticipated to vary among route alternatives for the following routing criteria:

- *Human Settlements*: displacement, aesthetics, zoning and land-use compatibility, and public services;
- *Land-Based Economies*: agriculture;
- *Natural Environment*: flora (forested land cover);
- *Use of Existing Rights-of-Way*; and

- *Costs*.<sup>109</sup>

The sections below analyze each route with respect to their impacts on these distinguishing routing criteria.

### ***1. Effects on Human Settlement***

Minnesota Rule 7850.4100(A) requires consideration of the proposed routes' effects on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.

#### *a. Proximity to Residences – Displacement and Aesthetics*

There are currently no permanent residences, businesses, churches, schools, daycares, or nursing homes within the rights-of-way of the Applicants' recommended route configurations. The Purple-BB-L Route has one seasonal residence, a hunting trailer, within the right-of-way approximately 500 feet west of the Huntley Substation.<sup>110</sup> This trailer is used sporadically during the year, is not currently connected to a well or septic system, and is located approximately 30 feet from an existing 345 kV/161 kV

---

<sup>109</sup> Ex. EERA-13 at 6-39 (Draft EIS) (eDocket No. [201812-148307-15](#)). The Draft EIS also included archeological and historic resources in its list of routing factors that vary significantly by route alternative. While there are some differences among the route alternatives regarding potential impacts on archeological and historic resources, most identified cultural resources are located at a significant distance from the routing alternatives. In addition, the Draft EIS concluded that the Project's impacts on archeological and historic resources are anticipated to be minimal with proper mitigation measures. As a result, the Applicants do not believe that this is a distinguishing factor for route selection.

<sup>110</sup> Ex. EERA-20B at 2-3 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

transmission line right-of-way.<sup>111</sup> The Applicants believe that they will be able to work with the landowner to find an acceptable solution within the Purple-BB-L Route, for example, by using strategic structure placement within the route width, using special structures to reduce easement width, and/or moving the trailer within the property.<sup>112</sup>

Aesthetic and visual resources include the physical features of a landscape such as land, water, vegetation, animals, and structures. Determining the relative scenic value or visual importance of these features in a given area is a complex process that depends on what individuals may perceive as aesthetically pleasing.<sup>113</sup> Aesthetic impacts from a transmission line can be minimized by selecting a route that is located further away from residences or share existing infrastructure corridors, such as existing transmission lines, roads, and railroads. Since using existing rights-of-way corridors is also an independent routing factor, it is discussed separately below.

**Table 1** and **Figure 4** below show proximity to residences for the Applicants' recommended route configurations. The Blue-CC-Q and Purple-BB-L routes have the fewest number of residences within 1,000 feet of the proposed alignment followed by Purple-E-AA1-Red-Q. The Green and Red-Q routes have the highest number of residences within 1,000 feet of their proposed alignment. The Purple-BB-L and Blue-

---

<sup>111</sup> Ex. EERA-20B at 2-3 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>112</sup> Ex. EERA-20B at 2-3 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)); Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)); Mankato 1:00 p.m. Pub. Hrg. Tr. at 31-33 (Davis) (Feb. 27, 2019).

<sup>113</sup> Ex. EERA-13 at 5-4 (Draft EIS) (eDocket No. [201812-148307-11](#)).

CC-Q routes have a particularly low number of residences that are within 200 feet from the right-of-way—4 and 3 residences, respectively. The number of residences close to the Green and Red-Q routes is two to three times higher than the number of residences close to the Blue-CC-Q, Purple-BB-L, and Purple-E-AA1-Red-Q routes.<sup>114</sup>

**Table 1: Applicants’ Recommended Route Configurations  
Proximity to Residences<sup>115</sup>**

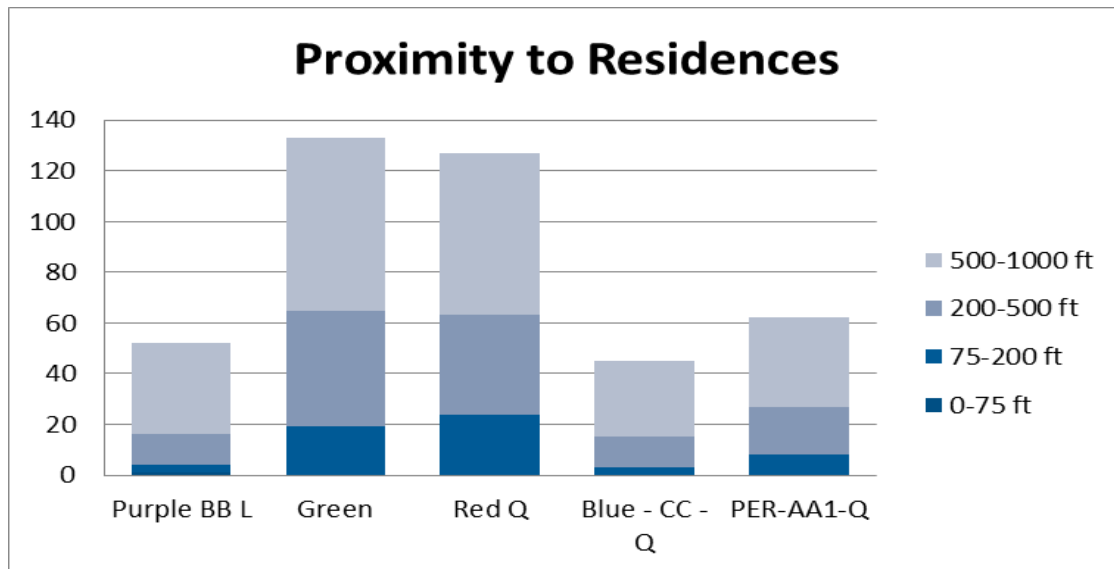
Residences Distance from Anticipated Alignment	Route Alternatives				
	Purple- BB-L	Green	Red-Q	Blue - CC - Q	Purple- E-AA1- Red-Q
Residences within 0-75 feet	1*	0	0	0	0
Residences within 75-200 feet	3	19	24	3	8
Residences within 200-500 feet	12	46	39	12	19
Residences within 500-1000 feet	36	68	64	30	35
Total	52	133	127	45	62

*Note:* the one residence in the table within 75 feet of the Purple Route is a seasonal trailer, discussed above.

<sup>114</sup> Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>115</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

**Figure 4: Applicants' Recommended Route Configurations  
Proximity to Residences<sup>116</sup>**



In summary, the Blue-CC-Q and the Purple-BB-L routes have the fewest number of residences within 200 feet, 500 feet, and 1,000 feet of their anticipated alignment.

*b. Land-Use Compatibility – Impacts to Future Development*

The Commission's routing factors do not explicitly state that land use compatibility or future development are factors in considering human settlement impacts. However, as noted by the Draft EIS, impacts to a communities' land-use and future development plans are impacts to human settlement and can be evaluated under this criteria.<sup>117</sup>

<sup>116</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>117</sup> Ex. EERA-13 at 5-15 (Draft EIS) (eDocket No. [201812-148307-11](#)).

*c. North Mankato's Development Plans*

According to North Mankato's Comprehensive Development Plan, areas of new residential development are planned to occur north and southwest of the city.<sup>118</sup> The Comprehensive Development Plan also includes areas zoned for future heavy industrial development, including the Northport Industrial Park, located north of U.S. Highway 14, near Lookout Drive.<sup>119</sup>

The Purple, Red, Purple-E-Red, and Green routes all proceed westward from the Wilmarth Substation, double-circuited with or parallel to existing transmission lines. In doing so, they pass through a portion of land north of North Mankato that is planned for future residential development. Potential impacts from the Purple, Red, Purple-E-Red, and Green routes on future residential development in this area are anticipated to be minimal, since the new line will follow an existing transmission line already in place.<sup>120</sup>

The Purple and Purple-E-Red routes continue following existing transmission lines to the west of North Mankato and have no further potential impact on the City's development plans.<sup>121</sup> Similarly, the Blue Route that proceeds eastward from the Wilmarth Substation does traverse any areas designated for future development by North Mankato.

---

<sup>118</sup> Ex. EERA-13 at 5-23 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>119</sup> Ex. EERA-13 at 5-17 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>120</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>121</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

The Red and Green routes proceed to the south through North Mankato's Northport Industrial Park, which is planned for future heavy industrial development and future commercial/industrial mixed uses. The Red and Green routes then continue proceeding further southward through land west and southwest of the City that is planned for future residential development.<sup>122</sup>

North Mankato has filed testimony and comments in this proceeding. North Mankato opposes those portions of the Red and Green routes at the point where the routes turn south from the existing transmission line at Belgrade Township and end where the Red and Green routes meet Segment Alternative E.<sup>123</sup> The City states that these route options interfere with the City's near- and long-term growth plans described in the Comprehensive Development Plan adopted in 2015.<sup>124</sup> The Red and Green routes and Segment Alternatives A and B traverse through the planned North Ridge Residential Development Area and North Mankato South Boundary Residential Area.<sup>125</sup> According to North Mankato, 183 new homes will be added within 500 feet of the proposed Red and Green routes.<sup>126</sup> North Mankato does not oppose the Purple, Purple-E-Red, or Blue routes.<sup>127</sup>

---

<sup>122</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>123</sup> Ex. NM-1 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>124</sup> Ex. NM-1 at 5 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>125</sup> Ex. NM-1 at 9 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>126</sup> Ex. NM-1 at 14 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>127</sup> Ex. NM-1 at 18-19 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

The Draft EIS concluded that the impacts from the Red and Green routes on North Mankato's planned future development are anticipated to be significant and adversely influence residential growth in this area.<sup>128</sup> The Applicants recognize the potential impacts of the Red and Green routes on North Mankato's future residential development, but do not believe these impacts can be characterized as significant.<sup>129</sup> The City's development plans are still conceptual and the exact timing, scope, and nature of the development are uncertain.<sup>130</sup> The Applicants also note that most of the future residential development area is outside the City limits; it has not yet been annexed.<sup>131</sup> Additionally, the Applicants do not believe that the construction of a transmission line would prevent future development in its vicinity—development can and does occur near and around transmission lines.<sup>132</sup>

*d. Mankato's Development Plans*

The Blue Route proceeds eastward from the Wilmarth Substation and then southward between the cities of Mankato and Eagle Lake in a planned development area known as the Greater East Mankato Infill Service District.<sup>133</sup> Some development of this area has already begun and planned future land uses include a mix of residential,

---

<sup>128</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>129</sup> Ex. XC-20 at 3-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B Table at 1, 8 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>130</sup> Ex. XC-20 at 4 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>131</sup> Ex. XC-20 at 6 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>132</sup> Ex. XC-20 at 2-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B, Table at 1, 8 (Applicants' Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>133</sup> Ex. EERA-13 at 5-23 (Draft EIS) (eDocket No. [201812-148307-11](#)).



commercial, and public uses; open spaces; and extensions of public infrastructure to serve the area.<sup>134</sup>

The Draft EIS concludes that the placement of the Blue Route within the Greater East Mankato Infill Service District could potentially influence or preclude the City's planned land use development in this area, particularly residential development. The Draft EIS characterizes these potential impacts as moderate to significant.<sup>135</sup>

Mankato submitted Comments on the Draft EIS, stating that the Blue Route is in direct conflict with the adopted land use and growth plans of Mankato, complicates possible future expansion of the Mankato Regional Airport, and will likely impact forested wetland areas located between Mankato and the City of Eagle Lake.<sup>136</sup> The City of Mankato noted that the area between Mankato and Eagle Lake has and will have in the near future the fastest growing population in the Project area.<sup>137</sup> This area has already experienced significant public and private infrastructure investment reflecting the urban development.<sup>138</sup> The City of Mankato stated that the Draft EIS should be amended to state that the Blue Route's impacts on aesthetics, displacement, zoning and

---

<sup>134</sup> Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>135</sup> Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>136</sup> Ex. EERA-20C at 4-14 (Mankato's January 28, 2019, Comments on the Draft EIS) (eDocket No. [20192-150008-06](#)).

<sup>137</sup> Ex. EERA-20C at 4-14 (Mankato's January 28, 2019, Comments on the Draft EIS) (eDocket No. [20192-150008-06](#)).

<sup>138</sup> Ex. EERA-20C at 4-14 (Mankato's January 28, 2019, Comments on the Draft EIS) (eDocket No. [20192-150008-06](#)).

land use, public services, and flora are “moderate to significant and likely unable to be mitigated.”<sup>139</sup>

The Applicants recognize that the Blue Route may impact Mankato’s future residential and urban development. However, similarly to North Mankato, the exact timing, scope, and nature of the future development are still unknown today. It is also common for urban development to take place in close proximity to transmission lines.<sup>140</sup>

*e. Mankato Regional Airport and Eastwood Solar Farm*

The Mankato Regional Airport is a public airport located approximately five miles northeast of Mankato.<sup>141</sup> Transmission line structures and conductors can conflict with the safe operation of an airport if they are too tall for the applicable safety zones.<sup>142</sup> The Mankato Regional Airport is subject to zoning and development guidelines, such as the Mankato Regional Airport Zoning Ordinance, Federal Aviation Administration (FAA) guidelines, and Minnesota Department of Transportation guidelines, which all regulate the height of structures in close proximity to airports.<sup>143</sup>

---

<sup>139</sup> Ex. EERA-20C at 4-14 (Mankato’s January 28, 2019, Comments on the Draft EIS) (eDocket No. [20192-150008-06](#)).

<sup>140</sup> Ex. XC-20 at 3 (Hillstrom Rebuttal) (eDocket No. [201812-148564-06](#)).

<sup>141</sup> Ex. EERA-13 at 5-30 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>142</sup> Ex. EERA-13 at 5-30 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>143</sup> Ex. EERA-13 at 5-30 to 5-31 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 111 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

The Blue Route is located within approximately one mile of the Mankato Regional Airport.<sup>144</sup> The Applicants' proposed structure heights would comply with the existing regulations and limitations that apply to the Mankato Regional Airport.<sup>145</sup> Therefore, the Draft EIS concluded that the Blue Route's impacts on the Mankato Regional Airport, as it exists today, are anticipated to be minimal.<sup>146</sup>

The Draft EIS concluded that the Blue Route has the potential to impact future expansion of the Mankato Regional Airport and these impacts could require significant mitigation measures. However, any such impacts are currently uncertain given that there are no definitive expansion plans for the airport.<sup>147</sup>

The Eastwood Solar Farm is a 5.5 megawatt solar-powered generating facility located on the eastern edge of Mankato.<sup>148</sup> According to the Draft EIS, it is possible that the Blue Route may generate shadows on the PV cells of the solar farm, potentially impeding its output and efficiency.<sup>149</sup> However the Draft EIS concludes that the Blue Route's impacts on the Eastwood Solar Farm are anticipated to be minimal to

---

<sup>144</sup> Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>145</sup> Ex. XC-7 at 111 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 31 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>146</sup> Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>147</sup> Ex. EERA-13 at 5-32 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>148</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>149</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

moderate.<sup>150</sup> The Applicants similarly believe any impacts on the solar facility are unlikely.<sup>151</sup>

*f. Analysis of the Applicants' Recommended Route Configurations*

To provide another way to analyze the Project's impacts on local land use and development, the Applicants measured the length of each route alternative within the Mankato/North Mankato Area Planning Organization's (MAPO) urbanized area and planning boundary. MAPO is responsible for the coordination, development, and implementation of the metropolitan transportation planning program for an area that includes the cities of Mankato, North Mankato, Eagle Lake, and Skyline; Blue Earth and Nicollet counties; and Belgrade, Lime, South Bend, LeRay and Mankato townships.

The Applicants believe that measuring lengths of each route within the MAPO urbanized area planning boundary is an appropriate comparison of future development impacts because this boundary is recognized by the regional planning organization. The urbanized area planning boundary map is included in the City of Mankato's January 28, 2019, letter and is also referenced in Mankato's January 28, 2019, resolution.<sup>152</sup>

**Figure 5** below shows the number of miles within the MAPO urbanized area and planning boundary for the Applicants' recommended route configurations.

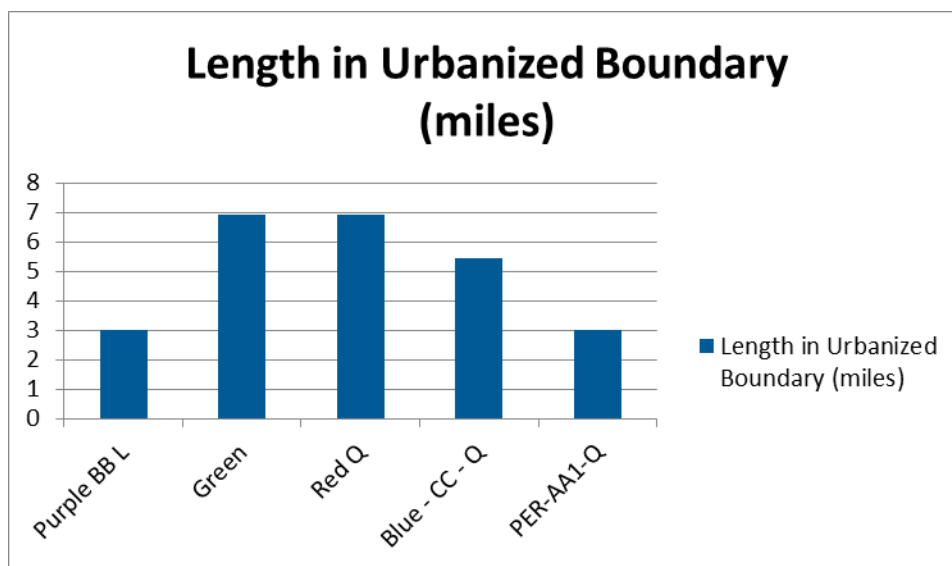
---

<sup>150</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>151</sup> Ex. EERA-20B, Table at 1 (Applicants' Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>152</sup> City of Mankato Comments at 8, 10-11 (Jan. 28, 2019) (eDocket No. [20191-149695-01](#)).

**Figure 5: Length in Urbanized Planning Boundary<sup>153</sup>**



The Red-Q and Green routes pass through seven miles of MAPO urbanized planning area. Approximately 3.1 miles can be double-circuited within an existing transmission line, while approximately 3.7 miles would establish a new transmission corridor through North Mankato's future development areas. The Blue-CC-Q Route travels through 5.4 miles of MAPO urbanized planning area. Approximately 3.2 miles would follow an existing transmission line, while approximately 2.2 miles would establish a new transmission corridor through Mankato's future development area. The Purple-BB-L and Purple-E-AA1-Red-Q routes pass through three miles of MAPO urbanized planning area, however, they follow an existing transmission line for their entire length. Therefore, these routes' potential impacts on North Mankato's future planning, if any, are minimal.

---

<sup>153</sup> See City of Mankato Comments at 8, 10 (Jan. 28, 2019) (eDocket No. [20191-149695-01](#)).

Based on Applicants' analysis, the Purple-BB-L and Purple-E-AA1-Red-Q routes best minimize potential impacts to planned future land uses.

## ***2. Land-Based Economies – Agriculture***

Minnesota Rule 7850.4100(C) requires consideration of the Project's effects on land-based economies, specifically agriculture, forestry, tourism, and mining. As noted above, impacts on agriculture is a differentiating factor between the route alternatives.

Agriculture is the main land-based economic resource in the Project area, with roughly 90 percent of the soil identified as prime farmland (e.g., prime farmland or farmland of statewide importance).<sup>154</sup> Transmission lines may cause permanent agricultural impacts when transmission line structures are located in crop, pasture, and other agricultural land. The footprint of the transmission line structures cannot be used for agricultural production, which may impact farm income.<sup>155</sup> However, typically a more significant impact is that structures can impede the use of farm equipment and limit the management options for agricultural operations.<sup>156</sup> Each structure must be carefully avoided during tillage, planting, spraying, and harvesting of fields.<sup>157</sup> In

---

<sup>154</sup> Ex. EERA-13 at 5-47, 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 72, 113 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>155</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>156</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>157</sup> Ex. EERA-13 at 5-47, 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 116 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

addition, transmission line structures in agricultural fields could potentially impede the use of irrigation systems.<sup>158</sup>

Potential impacts on agricultural production depend on the amount of farmland in a route's right-of-way, the structure used (a two-pole, H-frame vs. monopole), and the line configuration (parallel vs. double-circuit). Depending on the structure and configuration, the Project may increase or decrease the current amount of structures currently placed in farmland in the Project area.<sup>159</sup>

When the Applicants were analyzing their recommended route configurations, they chose several segment alternatives because of their reduced impacts on agriculture. Therefore, the Purple-BB-L Route, Red-Q Route, Blue-CC-Q Route, and Purple-E-AA1-Red-Q Route have generally decreased the number of poles in agricultural fields compared to the original, baseline route. In addition, based on feedback during the public hearings and comments on the Draft EIS, the Applicants recommend that the Commission not consider H-frame structures for this Project for any route because of their high impact on agriculture. Similarly, the Applicants recommend that a single-circuit, parallel monopole design no longer be considered for the Purple Route because of the relatively high impacts on agriculture.

---

<sup>158</sup> Ex. EERA-13 at 5-53 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>159</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 116-17 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

**Table 2** and **Figure 6** below shows the additional or reduced number of poles in the fields for the Applicants' recommended route configuration.

**Table 2: Agricultural Land and Additional Structures for Applicants' Recommended Route Configurations**

Resource		Purple-BB-L	Green	Red-Q	Blue-CC-Q	Purple-E-AA1-Red-Q
Agricultural Land in 150-foot Right-of-Way (acres)		635 (plus additional Ag. land in Segment BB)	519	514	757 (plus unknown difference from Segment CC)	629.3
Additional Structures in Agricultural Fields	H-Frame Structures for Single-Circuit Segments	215	195	Not Analyzed <sup>160</sup>	Not Analyzed <sup>161</sup>	Not Analyzed <sup>162</sup>
	Monopole Structures for Single-Circuit Segments	93 (Double Circuit)	120	-62	88	-65
		193 (Parallel)				Not Analyzed

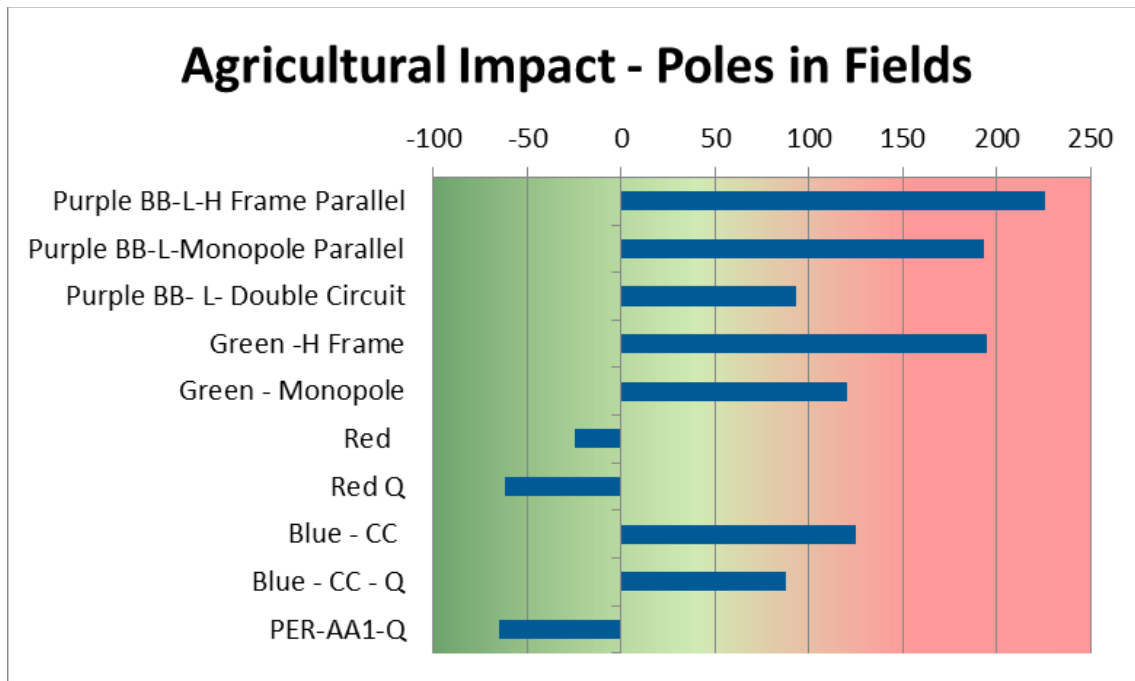
<sup>160</sup> Segment Alternative Q was not analyzed for an H-frame configuration.

<sup>161</sup> Segment Alternative Q was not analyzed for an H-frame configuration.

<sup>162</sup> Segment Alternative Q was not analyzed for an H-frame configuration.



**Figure 6: Agricultural Land Impacts for Applicants' Recommended Route Configurations<sup>163</sup>**



The Red-Q Route and the Purple-E-AA1-Red-Q Route (double-circuit design) reduce the number of structures in fields by 62 to 65 poles, respectively, while the Blue-CC-Q Route (double-circuit design) adds 88 poles, the Purple-BB-L Route (double circuit-design) adds 93 poles, and the Green Route (single-circuit design) adds 120 poles.<sup>164</sup>

In examining impacts to agriculture, the Red-Q Route or the Purple-E-Red-AA1-Q Route, each reduce the number of structures in farm fields by approximately 60 poles and thus have the least impact to agriculture. The Purple-BB-L Route (double-

<sup>163</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>164</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

circuit design) and Blue-CC-Q Route (double-circuit design) each increase the number of structures in farm land by approximately 90 poles and thus have similar, moderate impacts on agriculture. The Green Route (single-circuit, monopole design) would have the greatest impacts on agriculture, adding 120 poles in agricultural fields.

### ***3. Natural Environment – Forested Areas***

Minnesota Rule 7850.4100(E) requires consideration of the Project's effects on the natural environment including effects on air and water quality and flora and fauna. The Project area is primarily agricultural land with some urban development concentrated around North Mankato and Mankato. The dominant land cover across the Project area is agricultural fields. Forested land represents only three to eight percent of the right-of-way for all route alternatives and is mainly located along rivers and other watercourses.<sup>165</sup> Overall, the Project's potential impacts on natural resources are anticipated to be relatively minimal, because agricultural land has limited natural resource diversity and because any impacts can, to a great extent, be avoided and mitigated.<sup>166</sup>

All route alternatives cross the most sensitive natural resources within the Project area—such as the Minneopa State Park, Minnesota River, WPAs, or WMAs—following an existing transmission line corridor. The crossing distance for all rivers, creeks, and

---

<sup>165</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 137-38 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>166</sup> Ex. EERA-13 at 5-63 (Draft EIS) (eDocket No. [201812-148307-13](#)).

other surface water bodies in the Project area is less than 1,000 feet. Therefore, all surface water crossings are spanned and no structures would be placed in watercourses or waterbodies.<sup>167</sup>

Construction impacts on any wetlands can be mitigated by a variety of strategies, including using construction mats, constructing during winter months when the ground is frozen, using all-terrain construction equipment designed to minimize soil impacts, assembling structures on upland areas prior to site installation, and transporting crews and equipment via roads instead of wetlands.<sup>168</sup>

Construction of the Project will have long-term impacts on natural resources when vegetation is permanently moved at each structure and within the route right-of-way. The Draft EIS concluded that the primary long-term impact occurs when forest and other woody plants are cleared and permanently converted to low-growing vegetation.<sup>169</sup>

The Applicants believe the most notable natural resources in the Project area are forested wetlands and bluffs located in the river and stream valleys that are too steep or wet to cultivate. These areas are often characterized by wooded bluffs and bottomlands

---

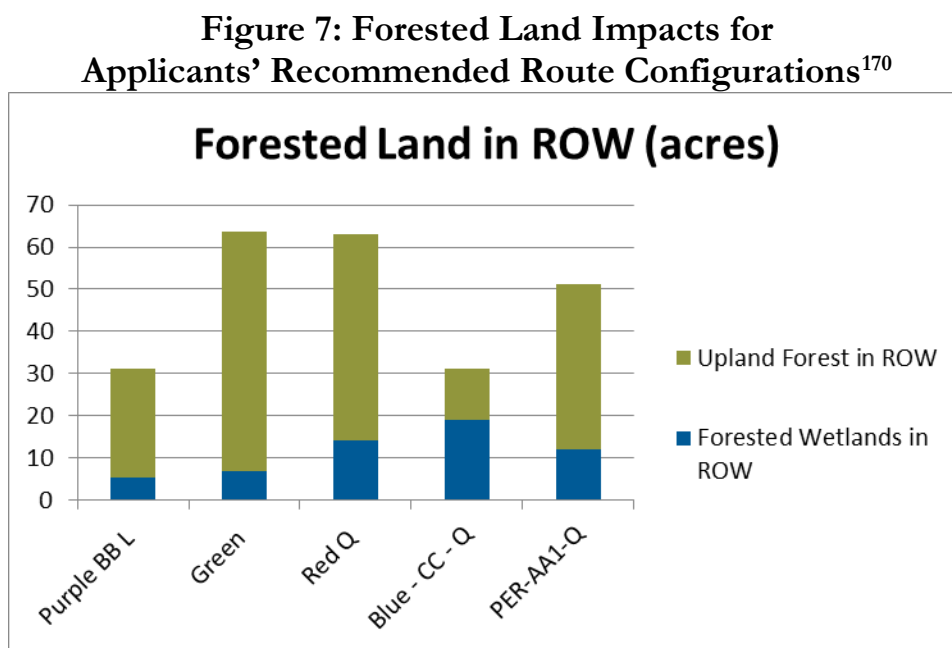
<sup>167</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-23 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 129 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>168</sup> Ex. EERA-13 at 5-70 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 136 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>169</sup> Ex. EERA-13 at 5-71 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

of various widths. Where a route passes through forested areas, trees would need to be removed changing the character of the land within the right-of-way. The Draft EIS found notable variation by route for impacts on forested upland, and the Applicants believe that the total amount of forested land cover (including both wetland forests and upland forests) is a good indicator for overall environmental impacts in this Project area.

**Figure 7** below shows the amount of forested wetland and forested upland for the Applicants' recommended route configurations.



The Green and Red-Q routes have twice the amount of forested land in their right-of-way compared to the Purple-BB-L and Blue-CC-Q routes, over 60 acres versus 30

---

<sup>170</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

acres.<sup>171</sup> The forested areas near the Green and Red-Q routes are for a large part located adjacent to the Minnesota and Blue Earth rivers.<sup>172</sup> Based on this data, the Purple-BB-L Route or the Blue-CC-Q Route have the least potential impact on forested land and forested wetland while the Green Route and the Red-Q Route have the most potential impact on these natural resources.

#### ***4. Corridor Sharing – Using Existing Rights-of-Way***

Minnesota Rule 7850.4100(J) requires consideration of use or paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way. One of the most effective ways to minimize impacts from a new transmission line is to follow an existing transmission line rather than to create a new transmission line corridor. Following roads is less effective, but can minimize impacts in commercial/industrial areas and in sparsely populated areas. In agricultural areas, roads do not always provide suitable transmission line corridors because structures must be placed roughly 10 feet into farm fields.

The Applicants analyzed the amount of sharing with existing infrastructure corridors for their recommended route configurations. **Table 3** and **Figure 8**, below, show corridor sharing in miles for the Purple-BB-L Route, Green Route, Red-Q Route, Blue-CC-Q Route, and Purple-E-AA1-Red-Q Route.

---

<sup>171</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

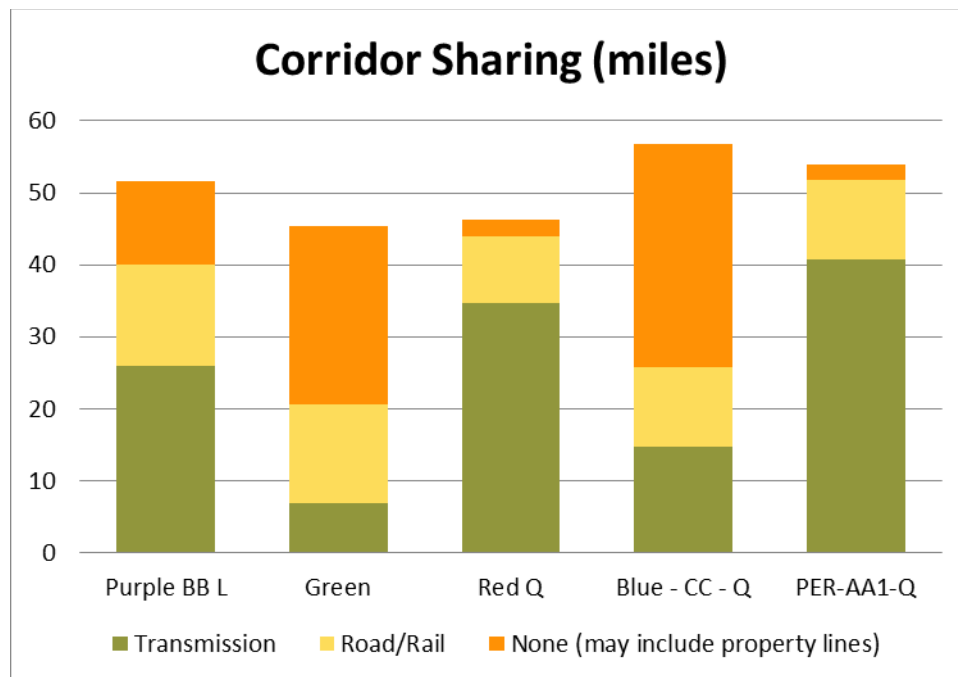
<sup>172</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

**Table 3: Use of Existing Infrastructure Corridors for Applicants’  
Recommended Route Configuration**

Existing Infrastructure	Route Alternatives				
	Purple- BB-L	Green	Red-Q	Blue - CC - Q	Purple- E-AA1- Red-Q
Total Length of Route (miles)	51.6	45.3	46.3	56.8	53.9
Follows Existing Transmission Line (miles, percent)*	25.9 (50%)	6.9 (15%)	34.7 (75%)	14.8 (26%)	40.7 (76%)
Follows Existing Roads (miles, percent)	14.2 (28%)	13.8 (30%)	9.3 (20%)	9.1 (16%)	11 (20%)
Follows Existing Railroad (miles, percent)	0	0	0	2.6 (5%)	0
Total – Transmission Line, Railroads and Roads (miles, percent)	40.1 (78%)	20.7 (47%)	(44) (95%)	26.5 (47%)	51.7 (96%)

*\*includes length where route follows existing transmission lines and road. This varies from Draft EIS tables that did not count where a route follows existing transmission lines and road.*

**Figure 8: Use of Existing Infrastructure Corridors for Applicants' Recommended Route Configuration**<sup>173</sup>



As shown above, the Green or Blue-CC-Q routes share the fewest number of miles of existing transmission line corridor. The Green Route follows transmission lines for about 15 percent of its length and the Blue-CC-Q Route for about 26 percent of its length. In contrast, the Red-Q Route or Purple-E-AA1-Red-Q Route follow existing transmission lines for approximately 75 percent of their length and the Purple-BB-L follows existing transmission lines for 50 percent of its length.

Overall, the Purple-E-AA1-Red-Q Route shares the most right-of-way with existing transmission lines, roads, and railroads (96 percent), followed by the Red-Q and Purple-BB-L routes (95 and 78 percent, respectively). The Green and Blue-CC-Q

<sup>173</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

routes share the least amount of right-of-way with existing transmission lines, roads, and railroads at 47 percent.

## ***5. Project Costs***

Minnesota Rule 7850.4100(L) requires consideration of the cost to construct proposed routes and the cost of operation and maintenance. In addition, as the need for this Project is economic-driven, the cost for different route/design alternatives also impacts the net economic benefits that will accrue from the Project.

The Project costs vary by route alternative based on the length, structure type, and configuration. As originally proposed, the Purple-E-Red, Red, and Blue routes were more expensive due to double-circuiting and length, while the Purple and Green routes were less expensive due to single-circuit and H-frame design.<sup>174</sup> The cost for the Purple and Green routes, H-frame design, was \$105.8 million and \$109.0 million (2016\$) as proposed by the Applicants in the Route Permit Application.<sup>175</sup> The cost for a monopole design for the Blue, Red, and Purple routes (double-circuit when following existing transmission lines) ranged from \$135.8 million to \$138.0 million (2016\$).<sup>176</sup> These are baseline costs for the Applicants' originally-proposed routes, without incorporating any alternative route segments. The total baseline cost for the

---

<sup>174</sup> Ex. EERA-13 at 6-42 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>175</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#));

<sup>176</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).



Purple-E-Red Route is \$157.0 million (2016\$).<sup>177</sup> **Table 4** below shows baseline costs for each proposed route alternative.

**Table 4: Project Costs for Proposed Routes (in millions, 2016\$)**<sup>178</sup>

Design Option	Purple Route	Green Route	Red Route	Blue Route	Purple-E-Red Route
Single-Circuit H-Frame		\$109.0			
Single-Circuit Monopole		\$121.3			
Single-Circuit Parallel H-frame	\$105.8				
Single-Circuit Parallel Monopole	\$121.7				
Double-Circuit Monopole and Single-Circuit H-Frame			\$135.2	\$123.7	
Double-Circuit Monopole and Single-Circuit Monopole	\$137.9		\$138.0	\$135.8	\$157.0

As described earlier, the Applicants no longer recommend H-frame structures for any route alternative and no longer recommend the parallel monopole design for the Purple Route due to agricultural impacts. The Applicants have also selected their recommended segment and alignment configurations for each route. **Table 5**, below, shows the estimated costs for the Applicants' five recommended route configurations.

<sup>177</sup> Ex. XC-25 at Schedule 2, row 39 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>178</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. 20189-146251-08). The cost for the Purple-E-Red Route is added to the original table.

**Table 5: Cost Estimates for Applicants' Recommended Route Configurations<sup>179</sup>**

Route Alternative	Cost (Millions) (2016\$) <sup>180</sup>	Cost (Millions) (Escalated to anticipated year spend \$) <sup>181</sup>
<b>Purple-BB-L Route</b> <i>Purple Route Modified to Use Segment Alternatives BB and L Double-Circuit Monopole Design</i>	\$140.1	\$155.8
<b>Green Route</b> <i>Single-Circuit Monopole Design</i>	\$121.3	\$134.9
<b>Red-Q Route</b> <i>Red Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design</i>	\$141.2	\$157.1
<b>Blue-CC-Q Route</b> <i>Blue Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design</i>	\$138.6	\$154.1
<b>Purple-E-AA1-Red-Q Route</b> <i>Purple-E-Red Route Modified to Use Segment Alternative Q and Alternative Alignment AA1 Double-Circuit Monopole Design</i>	\$159.7	\$178.2

**Table 6** provides the benefit-to-cost ratios for the Applicants' recommended route configurations estimated under the MTEP17 and MTEP18 models.

---

<sup>179</sup> The costs for Applicants' recommended route configurations were calculated using the cost estimates for the segment alternatives provided in Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)) and Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives) (eDocket No. [20192-149943-02](#)).

<sup>180</sup> "2016 dollars" or "(2016\$)" assumes that the Project would have been constructed (and dollars spent) in 2016.

<sup>181</sup> The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.

**Table 6: Costs and Benefit-to-Cost Ratios,  
Applicants' Recommended Route Configurations**

<b>Route Alternative</b>	<b>Cost (Millions) (2016\$)</b>	<b>Weighted Benefit- to-Cost (MTEP17) Ratio</b>	<b>Weighted Benefit- to-Cost (MTEP18) Ratio</b>
<b>Purple-BB-L</b> Double-Circuit, Monopole Design	\$140.1	1.63	1.28
<b>Green</b> Single-Circuit, Monopole Design	\$121.3	1.88	1.47
<b>Red-Q</b> Double-Circuit, Monopole Design	\$141.2	1.62	1.27
<b>Blue-CC-Q</b> Double-Circuit, Monopole Design	\$138.6	1.65	1.29
<b>Purple-E-AA1- Red-Q</b> Double-Circuit, Monopole Design	\$160.2	1.43	1.12

All route alternatives provide net economic benefits under MTEP17 and MTEP18, since the benefit-to-cost ratio for each of the five routes is above 1.0. In other words, for all of the routes, the benefits exceed the costs. The Green Route has the lowest costs and highest benefit-to-cost ratio. As the costs for the Purple-BB-L, Red-Q, and Blue-CC-Q routes are similar, there is no significant difference in the benefit-to-cost ratios for these three routes. The Purple-E-AA1-Red-Q Route is the most expensive route under consideration. The estimated cost for the Purple-E-AA1-Red-Q Route is \$18.5 million higher than the next highest cost route. As a result of its

higher costs, the benefit-to-cost ratio for the Purple-E-AA1-Red-Q Route is the lowest among the routes under consideration.

Another consideration related to the Project's costs is the MISO variance process. Under Attachment FF of the MISO Tariff, if the cost of this Project exceeds or is projected to exceed 25 percent or more of the Project's baseline cost estimate, MISO is required to initiate a new process called a "variance analysis."<sup>182</sup> The Project's baseline cost estimate is \$108 million (2016\$).<sup>183</sup> The Applicants will update the Project's cost estimate provided to MISO after a route is determined by the Commission and Applicants file their final cost estimates (45 days after the Commission's order).<sup>184</sup> Any final route with a cost estimate of \$135 million (2016\$) or more will trigger a MISO variance analysis.<sup>185</sup> After the variance analysis has been triggered, MISO will investigate the facts and documentation and then, at the conclusion of this process, decide to: (1) take no action; (2) institute a mitigation plan to alleviate grounds for variance; or (3) cancel the project.<sup>186</sup> Other than requiring a variance analysis, the MISO tariff does not dictate a particular outcome.<sup>187</sup> If the

---

<sup>182</sup> Ex. XC-24 at 35 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>183</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>184</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)); Ex. XC-26 at 2-3 (Stevenson Rebuttal) (eDocket No. [201812-148564-04](#)).

<sup>185</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>186</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>187</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

Commission selects a route that would result in a variance analysis, the Applicants will support the Commission's decision in the MISO variance process.

**C. Consideration of Issues Presented by State Agencies and Local Units of Government**

Minnesota Statutes section 216E.03, subdivision 7(12) requires the Commission to examine, when appropriate, issues presented by federal and state agencies and local units of government. A complete discussion of all of the issues raised is provided in the Applicants' proposed Findings of Fact. However, here, the Applicants briefly discuss an issue related to the crossing of Minneopa State Park by the Purple-BB-L and Purple-E-AA1-Red-Q routes and respond to recommendations made by the MnDNR in comments filed on March 14, 2019.<sup>188</sup>

***1. Minneopa State Park***

Minnesota siting rules prohibit locating a new transmission line in a state park except in certain circumstances.<sup>189</sup> Minnesota Rule 7850.4300, subpart 2, provides such crossings are permissible when:

the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line.

The Purple-BB-L and Purple-E-AA1-Red-Q routes cross Minneopa State Park within the existing easement of the Lakefield Junction – Wilmarth 345 kV transmission

---

<sup>188</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>189</sup> Minn. R. 7850.4300.

line.<sup>190</sup> This easement predates the establishment of Minneopa State Park and provides sufficient rights to construct another 345 kV circuit line within this existing right-of-way.<sup>191</sup> Generally speaking, Minneopa State Park is long and narrow, following the banks of the Minnesota River. The 345 kV transmission line for the Project would cross 650 feet of state-owned park land and 2,500 feet of private property within the statutory boundary of the Minneopa State Park along either the Purple-BB-L Route or Purple-E-AA1-Red-Q Route.<sup>192</sup> Statutory boundaries of a state park are set according to the Minnesota Legislature and often include parcels owned privately and other parcels owned by governmental entities.<sup>193</sup> The statutory boundary established by the legislature sets forth the boundaries within which the MnDNR “is authorized to acquire by gift or purchase the lands as described.”<sup>194</sup>

The Applicants propose to co-locate the two 345 kV transmission lines on single-pole, double-circuit structures, thus replacing any existing lattice tower structures. Because the new monopole structures are 35 to 60 feet taller than the existing structures, the Applicants plan to install bird diverters along the section that is within the Minneopa

---

<sup>190</sup> All route alternatives that make use of the Purple Route in Judson Township would cross the Minneopa State Park in the same location.

<sup>191</sup> Ex. EERA-13 at 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 11 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>192</sup> Ex. XC-19 at 11 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>193</sup> Minn. Stat. § 85.012.

<sup>194</sup> Minn. Stat. § 85.012. *See* Minn. Stat. § 85.012, subd. 43 (setting forth the statutory boundaries of Minneopa State Park in session laws from 1905 through 2018).

State Park statutory boundaries to minimize risk of aviation interaction with the transmission line.<sup>195</sup> There are currently no bird diverters on the existing Lakefield – Wilmarth 345 kV transmission line through this area.

Based on communications with the MnDNR and its May 18, 2018, Comments,<sup>196</sup> construction of these two Purple routes (Purple-BB-L and Purple-E-AA1-Red-Q) would not require a License to Cross Public Land, because these routes follow an existing, unrestricted utility easement acquired in 1971, predating establishment of the state park statutory boundary in this area.<sup>197</sup> In its May 18, 2018, Comments, the MnDNR outlined some additional recommended conditions for the Purple Route’s crossing of the Minneopa State Park. The Applicants do not object to these conditions, which include developing a new vegetation management plan for the existing right-of-way, providing an option for a future park trail segment, and coordination with the USFWS regarding a bald eagle nest near the existing easement and the Minnesota River.<sup>198</sup>

Given that the Purple routes’ crossing of Minneopa State Park would be confined to an existing easement and any construction impacts would be short term,

---

<sup>195</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>196</sup> See also MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>197</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS) (eDocket No. [20185-143325-01](#)); see Act of April 20, 1998, ch. 391, 1998 Minn. Laws. 1226 (codified at Minn. Stat. § 85.012, subd. 43 (1998 c 391 s 2, subd. 5(5-9))).

<sup>198</sup> Ex. XC-19 at 11-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS) (eDocket No. [20185-143325-01](#)).

there would be no material damage or impairment of the park. As a result, the requirements of Minn. R. 7850.4300, subp. 2 are satisfied if the Commission selects either the Purple-BB-L Route or the Purple-E-AA1-Red-Q Route and no variance from the Commission's rule is necessary.

However, if the Commission believes a variance from Minn. R. 7850.4300, subp. 2 is necessary, the Applicants request such a variance. A variance to a Commission rule shall be granted when enforcement of the rule would pose an excessive burden on the utility or others affected by the rule, granting the rule would not adversely impact the public interest, and granting the variance would not conflict with standards imposed by law.<sup>199</sup>

Enforcement of Minn. R. 7850.4300 would pose an excessive burden on the utility and the public as not allowing this crossing would result in greater human and environmental impacts along one of the other route alternatives, would likely increase Project costs, and would leave the Lakefield – Wilmarth 345 kV transmission line in place, across the state park while creating a new transmission line right-of-way elsewhere in the area.<sup>200</sup> Granting the variance would neither adversely impact the public interest or conflict with standards imposed by law as construction of the new

---

<sup>199</sup> Minn. R. 7829.23200, subp. 1.

<sup>200</sup> Of note, the MnDNR supports the Purple Route as long as the transmission line work stays within the existing easement. MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)) (“The DNR’s support of the purple route as a viable option is based on the transmission line work being restricted to the existing easement area.”).



345 kV transmission line along the Purple Route crossing of Minneopa State Park would use the existing easement, would replace lattice structures with single-pole, double-circuit structures, and would allow for the installation of bird diverters on the transmission lines' associated shield wire(s).

## ***2. MnDNR Recommendations***

In a March 14, 2019 letter, the MnDNR submitted recommendations on various route options presented in this proceeding, as well as recommended conditions to include in the Commission's Route Permit to mitigate potential Project impacts.<sup>201</sup> The Applicants respond to the MnDNR's recommendations below.

### *a. Routes, Route Segments, and Alignment Alternatives*

Alignment Alternative 3 (AA-3) is an alignment alternative for a portion of the Purple Route just west of the Huntley Substation.<sup>202</sup> AA-3 provides means to avoid or minimize impacts to forested habitat by (1) triple-circuiting the Purple Route with the existing ITC Midwest Minnesota – Iowa 345 kV Transmission Project (MN-IA Project) in the area (AA-3a) or (2) moving the alignment of the Purple Route to the south side of the area (AA-3b).<sup>203</sup>

In its comments, the MnDNR noted its support for AA-3a or AA-3b over the Purple Route to reduce impacts to the forested habitat associated with the Blue Earth

---

<sup>201</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>202</sup> Ex. EERA-13 at 3-21 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>203</sup> Ex. EERA-13 at 3-21 (Draft EIS) (eDocket No. [201812-148307-08](#)).

River.<sup>204</sup> Applicants, however, continue to support the Purple Route, as proposed, in this area. As noted in Rebuttal, Applicants do not support the triple-circuit design of AA-3a due to this design's maintenance safety, operational, and cost concerns.<sup>205</sup> To reduce impacts to forested habitat, the Applicants can commit to pursue a more compact design that reduces the easement width, thereby reducing tree clearing. Alternatively, Applicants could double-circuit this Project with the MN-IA Project for a span of two to three poles to get past the forested habitat in this area. Notably, the route along the forested area is only approximately 800 feet, the length of which has already been cleared for ITC Midwest's recently-completed MN-IA Project. The Project easement could overlap with the easement for the current transmission line so that the additional clearing would only be an additional 75 feet, at most, and as low as 45 feet with a more compact design.

*b. Impact Minimization and Proposed Permit Conditions*

**i. Vegetation Management Plan**

In its comments, the MnDNR recommended that a detailed Vegetation Management Plan (VMP) be prepared for the right-of-way easement in Minneopa State Park.<sup>206</sup> The MnDNR requested that the VMP specify techniques that will be used to control invasive plants, monitor schedules, and reports that will be provided to

---

<sup>204</sup> MnDNR Comments at 1 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>205</sup> Ex. XC-26 at 4-5 (Stevenson Rebuttal) (eDocket No. [201812-148564-04](#)).

<sup>206</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

Minneopa State Park staff.<sup>207</sup> The MnDNR further requested that the Route Permit include a condition requiring the Applicants to develop a VMP in coordination with the MnDNR.<sup>208</sup> The Applicants have no objection to such a condition if the Purple-BB-L Route or the Purple-E-AA1-Red-Q Route is selected by the Commission.

## **ii. Winter Tree Clearing**

The MnDNR recommends that the final EIS include a commitment from the Applicants for winter tree clearing. While the Applicants appreciate that winter tree clearing can reduce potential impacts to nesting birds and roosting bats, such a condition is simply not feasible for the entire length of the Project. While the Applicants could attempt winter clearing in particular areas of high concern, whether the Applicants are even able to access these areas for winter clearing is dependent on the timing of when the Applicants are able to obtain the necessary land rights for particular parcels. In addition, the Applicants are under a tight construction schedule and need the flexibility to conduct vegetation management activities during non-winter months to meet the Project's in-service date of December 2021.

## **iii. Avian Flight Diverters**

The MnDNR recommended that the Applicants work with the MnDNR to determine appropriate locations for avian flight diverters after the route is

---

<sup>207</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>208</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

determined.<sup>209</sup> The Applicants are committed to installing avian flight diverters and agree to work with the MnDNR to appropriately locate these diverters.

#### **iv. Rare and Unique Natural Resources**

The MnDNR recommends that coordination between the Applicants and the appropriate agencies regarding potential impacts to rare native plant communities and state-listed species, including the need for surveys, be included as a route permit condition.<sup>210</sup> The Applicants are agreeable to this condition.

#### **D. Summary of Analysis of Distinguishing Routing Factors**

**Table 7** below categorizes the impact for the Applicants' recommended route configurations based on least, moderate, and the most potential impact for each of the distinguishing routing factors. This table also ranks the routes by highest to lowest cost.

---

<sup>209</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>210</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

**Table 7: Applicants' Recommended Route Configurations –  
Summary of Impacts and Costs**

<b>Factor</b>	<b>Least Impact/ Cost</b>	<b>Moderate Impact/Cost</b>	<b>Most Impact/Cost</b>
Human Settlement (Proximity to Residences)	Purple-BB-L Blue-CC-Q	Purple-E-AA1-Red-Q	Green, Red-Q
Human Settlement (Future Development Plans)	Purple-BB-L Purple-E-AA1-Red-Q	Blue-CC-Q	Green, Red-Q
Land-Based Economies (Agriculture)	Red-Q Purple-E-AA1-Red-Q	Purple-BB-L Blue-CC-Q	Green
Natural Environment (Forested Land)	Purple-BB-L Blue-CC-Q	Purple-E-AA1-Red-Q	Green, Red-Q
Use of Existing Corridors	Purple-E-AA1-Red-Q Red-Q	Purple-BB-L	Green, Blue-CC-Q
Cost	Green	Purple-BB-L Red-Q Blue-CC-Q	Purple-E-AA1-Red-Q

The Applicants recognize that analysis of the routing criteria can lead to different conclusions depending on how all of the criteria are considered. Given the Project's economic-based need, the Commission may decide it is appropriate to prioritize the economic benefits and select the least-cost route that provides the greatest net economic benefits. In this case, this option would be the Green Route with a monopole design as it has the lowest cost (\$121.3 million (2016\$)), the highest benefit-to-cost ratio (1.88 under MTEP17 and 1.47 under MTEP18), and would not trigger a MISO variance analysis. However, the trade-offs are the Green Route's close proximity to residences; relatively higher impacts on aesthetics, future development, agriculture, and forested land; and relatively smaller amount of corridor sharing with existing transmission lines.

If the Commission believes it is appropriate to select a route that further minimizes potential environmental and human impacts at a higher cost, and that still provides net economic benefits, the Purple-BB-L Route is the best alternative. This route avoids the current and future development areas of Mankato and North Mankato; has a small number of existing residences within 200 feet and within 1,000 feet; follows existing transmission line corridors for half of its length; includes the fewest acres of forested land within its right-of-way; and has moderate agricultural impacts due to its double-circuit design. The Purple-BB-L Route also has a moderate cost (\$140.1 million (2016\$)), has a benefit-to-cost ratio well above 1.0 (1.63 under MTEP17 and 1.28 under MTEP18), and would trigger a MISO variance process.

In summary, based on the full record developed in this proceeding, Applicants recommend that the Commission select either the Green Route or the Purple-BB-L Route. Both routes satisfy the state routing criteria and are constructible. The Green Route is the least cost option and therefore maximizes the net economic benefits from the Project but has greater environmental and human impacts. The Purple-BB-L Route is slightly more costly, but still provides substantial net economic benefits and has fewer environmental and human impacts.

## VIII. CONCLUSION

The Applicants respectfully request that the ALJ recommend that the Commission grant a Route Permit to the Applicants for either the Green Route or for the Purple-BB-L Route between the Wilmarth Substation and the Huntley Substation. The Applicants further request that the ALJ adopt the proposed Findings of Fact submitted along with this Brief.

Dated: March 22, 2019

Respectfully submitted,

By: /s/ Valerie T. Herring  
Valerie T. Herring (#336865)  
BRIGGS AND MORGAN, P.A.  
2200 IDS Center  
Minneapolis, MN 55402  
(612) 977-8400

Mara K. Ascherman (#390451)  
Xcel Energy  
414 Nicollet Mall, 401-08  
Minneapolis, MN 55401  
(612) 215-4605

### **ATTORNEYS FOR APPLICANT XCEL ENERGY**

By: /s/ Lisa M. Agrimonti  
Lisa M. Agrimonti (#272474)  
FREDRIKSON & BYRON, P.A.  
200 South 6<sup>th</sup> Street, Suite 4000  
Minneapolis, MN 55402  
(612) 492-7344

### **ATTORNEY FOR APPLICANT ITC MIDWEST LLC**

MPUC Docket No. E002, ET6675/TL-17-185  
OAH Docket No. 82-2500-35157

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION  
OF NORTHERN STATES POWER  
COMPANY AND ITC MIDWEST LLC  
FOR A ROUTE PERMIT FOR THE  
HUNTLEY-WILMARTH 345 kV  
TRANSMISSION LINE PROJECT

**PROPOSED FINDINGS OF FACT,  
CONCLUSIONS OF LAW  
AND RECOMMENDATION**



## TABLE OF CONTENTS

	Page
STATEMENT OF ISSUE.....	2
SUMMARY OF RECOMMENDATIONS.....	2
FINDINGS OF FACT .....	2
I.    APPLICANTS AND OTHER PARTIES .....	2
II.   PROCEDURAL SUMMARY .....	4
III.  THE PROPOSED PROJECT.....	20
IV.  ROUTES EVALUATED FOR PROJECT .....	21
A.   Purple Route.....	24
B.   Green Route .....	29
C.   Red Route .....	30
D.   Blue Route .....	33
E.   Purple-E-Red Route .....	36
F.   Applicants' Recommended Route Configurations and Designs.....	38
1.   Purple Route .....	38
2.   Green Route.....	39
3.   Red Route.....	39
4.   Blue Route.....	39
5.   Purple-E-Red Route.....	39
G.   Transmission Line Structures and Conductors.....	39
H.   Right-of-Way and Route Width .....	41
I.   Project Schedule.....	43
J.   Project Costs and MISO Variance Analysis .....	43
K.   Permittees .....	48

## TABLE OF CONTENTS

(continued)

	<b>Page</b>
V. PUBLIC, LOCAL GOVERNMENT, AND FEDERAL AND STATE AGENCY PARTICIPATION.....	48
A. Public Outreach .....	48
B. Public Comments.....	50
1. Comments at Public Hearings .....	50
2. Public Hearing Comment Period – Written Comments .....	51
C. Local Government and Federal and State Agencies Outreach .....	54
1. Federal Agencies.....	54
2. State Agencies .....	56
3. Local Government Units.....	59
VI. FACTORS FOR A ROUTE PERMIT.....	63
VII. OVERVIEW OF THE PROJECT AREA .....	66
VIII. APPLICATION OF ROUTING FACTORS TO PROPOSED ROUTES.....	68
A. Effects on Human Settlement.....	68
1. Displacement .....	68
2. Noise.....	70
3. Aesthetics .....	71
4. Zoning and Land Use .....	75
5. Electronic Interference.....	79
6. Cultural Values.....	79
7. Recreation.....	79
8. Public Service and Infrastructure .....	80
B. Effects on Public Health and Safety.....	83

## TABLE OF CONTENTS

(continued)

	<b>Page</b>
1. Construction and Operation of the Project.....	83
2. Electric and Magnetic Fields.....	84
3. Implantable Medical Devices.....	85
4. Stray Voltage and Induced Voltage.....	86
C. Effects on Land-Based Economies .....	87
1. Agriculture.....	87
2. Forestry.....	91
3. Mining.....	91
4. Tourism .....	92
D. Effects on Archeological and Historic Resources .....	92
E. Effects on Natural Environment.....	94
1. Air Quality.....	94
2. Water Quality and Resources.....	96
3. Flora .....	100
4. Fauna.....	101
F. Effects on Rare and Unique Natural Resources .....	104
1. Rare Species .....	104
2. Rare Ecological Communities .....	106
G. Application of Various Design Considerations .....	107
H. Use or Paralleling of Existing Right-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries.....	109
I. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way.....	109
J. Electrical System Reliability .....	111
K. Costs of Constructing, Operating, and Maintaining the Facility .....	111

## TABLE OF CONTENTS

(continued)

	<b>Page</b>
L. Adverse Human and Natural Environmental Effects Which Cannot be Avoided .....	114
M. Irreversible and Irretrievable Commitments of Resources .....	115
IX. CONSIDERATION OF ISSUES PRESENTED BY STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT.....	115
A. Minneopa State Park.....	115
B. MnDNR Recommendations .....	117
X. SUMMARY OF ROUTE RECOMMENDATIONS .....	118
XI. NOTICE .....	119
ADEQUACY OF THE EIS .....	120
CONCLUSIONS .....	120
RECOMMENDATION.....	121

**STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE APPLICATION  
OF NORTHERN STATES POWER  
COMPANY AND ITC MIDWEST LLC  
FOR A ROUTE PERMIT FOR THE  
HUNTLEY-WILMARTH 345 kV  
TRANSMISSION LINE PROJECT

**PROPOSED FINDINGS OF FACT,  
CONCLUSIONS OF LAW  
AND RECOMMENDATION**

An evidentiary hearing was held before Administrative Law Judge (ALJ) Barbara J. Case on February 11, 2019, in St. Paul, Minnesota, in the above-captioned matter. Public hearings were held in Mankato on February 27, 2019, in Delavan on February 28, 2019, and in Mapleton on February 28, 2019. Written public comments were received until March 15, 2019.

Post-hearing briefs were filed on March 22, 2019, and responsive briefs were filed on April 15, 2019.

The following appearances were made:

Mara K. Ascherman, Xcel Energy, and Valerie T. Herring, Briggs and Morgan, P.A., appeared on behalf of Northern States Power Company, doing business as Xcel Energy.

Lisa M. Agrimonti, Fredrikson and Byron, P.A., appeared for and on behalf of ITC Midwest LLC (ITC Midwest). ITC Midwest in-house counsel Timothy Iannettoni was also present.

Katherine Hinderlie and Peter Madsen, Assistant Attorneys General, appeared for and on behalf of the Minnesota Department of Commerce, Division of Energy Resources (DOC-DER).

Linda S. Jensen, Assistant Attorney General, appeared for and on behalf of the Minnesota Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA).

Omar Bustami and Debra D. Roby, Jennings Strous & Salmon, P.L.C., and Michael H. Kennedy, Kennedy and Kennedy, appeared on behalf of the City of North Mankato (North Mankato).

William E. Flynn and Kathryn E. Wendt, Ballard, Spahr, L.L.P., appeared on behalf of Magellan Pipeline Company, L.P and Magellan Ammonia Pipeline, L.P. (collectively, Magellan).

Tricia DeBleeckere and Charley Bruce, appeared on behalf of the Minnesota Public Utilities Commission (Commission).

### **STATEMENT OF ISSUE**

Have Xcel Energy and ITC Midwest (collectively, the Applicants) satisfied the factors set forth in Minn. Stat. § 216E.03 and Minn. R. ch. 7850 for a route permit for the Huntley – Wilmarth 345 kilovolt (kV) Transmission Project (Huntley – Wilmarth Project or Project) and associated facilities in Blue Earth, Faribault, Martin, and Nicollet counties, Minnesota?

### **SUMMARY OF RECOMMENDATIONS**

The ALJ concludes that the Applicants have satisfied all relevant criteria set forth in Minnesota law for a route permit for the Huntley – Wilmarth Project and that there are no statutory or other requirements that preclude granting a route permit based on the record.

Based on the information in the Certificate of Need Application and Route Permit Application to the Commission, the Environmental Impact Statement (EIS), the testimony at the public hearings and evidentiary hearing, written comments, exhibits received in this proceeding, and other evidence in the record, the ALJ makes the following:

### **FINDINGS OF FACT**

#### **I. APPLICANTS AND OTHER PARTIES**

1. Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, headquartered in Minneapolis, Minnesota, is engaged in the business of generating, transmitting, distributing, and selling electric power and energy and related services in the states of Minnesota, North Dakota, and South Dakota.<sup>1</sup> In Minnesota, Xcel Energy provides electric service to approximately 1.3 million

---

<sup>1</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

customers. Xcel Energy is a wholly-owned utility operating company subsidiary of Xcel Energy Inc. and operates its transmission and generation system as a single integrated system with its sister company, Northern States Power Company, a Wisconsin corporation, known together as the NSP Companies.<sup>2</sup> The NSP Companies are vertically-integrated, transmission-owning members of MISO.<sup>3</sup> Together, the NSP Companies are among the largest transmission-owning members of MISO with over 8,000 miles of transmission lines and approximately 550 transmission and distribution substations.<sup>4</sup>

2. ITC Midwest LLC (ITC Midwest) is a transmission-only utility that owns approximately 6,600 circuit miles of transmission lines and more than 200 transmission substations in Minnesota, Iowa, Illinois, and Missouri.<sup>5</sup> ITC Midwest is a “transmission company” pursuant to Minn. Stat. § 216B.02, subd. 10.<sup>6</sup> ITC Midwest is a public utility under Section 203 of the Federal Power Act.<sup>7</sup> As such, ITC Midwest is subject to rate and other regulatory oversight by the Federal Energy Regulatory Commission (FERC).<sup>8</sup> ITC Midwest is part of ITC Holdings Corp., the largest independent transmission company in the United States with ITC Holdings Corp., the sole member of ITC Midwest, headquartered in Novi, Michigan, and ITC Midwest’s headquarters in Cedar Rapids, Iowa.<sup>9</sup>

3. The Minnesota Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) is statutorily obligated to conduct an environmental review of a Route Permit Application for a high voltage transmission line and to prepare an EIS for the proposed Project under the full permitting process.<sup>10</sup>

4. North Mankato is a city situated in Nicollet and Blue Earth counties in Minnesota. North Mankato’s city limits and planned development areas are located

---

<sup>2</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>3</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>4</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>5</sup> Ex. XC-7 at 2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>6</sup> Ex. XC-7 at 2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>7</sup> Ex. XC-7 at 2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>8</sup> Ex. XC-7 at 2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>9</sup> Ex. XC-7 at 2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>10</sup> Minn. Stat. § 216E.03, subd. 5.

within or in the immediate vicinity of certain route options proposed by the Applicants for the Huntley – Wilmarth Project.<sup>11</sup>

5. Magellan Pipeline Company, L.P. (Magellan) is a federally-regulated interstate pipeline limited partnership. It operates and maintains pipelines and related facilities for the transportation, storage, and distribution of refined petroleum products in fifteen states, including Minnesota. Currently, Magellan’s delivery network in Minnesota includes a terminal in Mankato, along with pipelines running from that terminal to Albert Lea. Magellan Ammonia Pipeline, L.P. owns a pipeline that transports anhydrous ammonia from production lines in Oklahoma and Texas to distribution terminals in Kansas, Nebraska, Iowa, and Minnesota. This pipeline terminates at the distribution terminal in Mankato and serves as a primary source of anhydrous ammonia to Minnesota farmers.<sup>12</sup>

## **II. PROCEDURAL SUMMARY**

6. On March 3, 2017, the Applicants notified the Commission by letter, pursuant to Minn. Stat. § 216B.246, subd. 3(a), that they intend to construct, own, and maintain the Huntley – Wilmarth 345 kV Transmission Line Project to be located in south central Minnesota.<sup>13</sup>

7. On August 9, 2017, North Mankato submitted a Memorandum<sup>14</sup> outlining concerns regarding certain preliminary route segments for the Project, along with City Resolution No. 47-17 requesting the Applicants remove route segments 20, 47, 48, 49, 50, 51, and 53 from their application.<sup>15</sup>

8. On January 22, 2018, the Applicants filed their Application for a Route Permit for the Huntley – Wilmarth Project, requesting that the Commission combine

---

<sup>11</sup> Petition to Intervene of the City of North Mankato at 2 (Apr. 13, 2018) (eDocket No. [20184-141969-01](#)).

<sup>12</sup> Petition to Intervene of Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. at 1-2 (June 5, 2018) (eDocket No. [20186-143581-01](#)).

<sup>13</sup> Ex. XC-1 (Notice of Intent to Construct, Own, and Maintain the Huntley – Wilmarth 345 kV Transmission Line Project) (eDocket No. [20173-129654-01](#)).

<sup>14</sup> Ex. NM-20 (Memorandum by City of North Mankato) (eDocket No. [20178-134576-04](#)).

<sup>15</sup> Ex. NM-19 (Resolution No. 47-17 by City of North Mankato) (eDocket No. [20178-134576-02](#)).



the certificate of need and route permit proceedings pursuant to Minn. Stat. § 216B.243, subd. 4.<sup>16</sup>

9. On January 23, 2018, the Commission issued a Notice of Comment Period on Route Permit Application Completeness, stating that the initial comment period will close on February 12, 2018, and the reply comment period would close on February 22, 2018.<sup>17</sup>

10. On January 23, 2018, the City of Mankato submitted Comments on the proposed Blue Route along with exhibits and an attachment.<sup>18</sup>

11. On February 6, 2018, North Mankato submitted Comments on the Completeness of the Certificate of Need and Route Permit Applications objecting to all portions of the Red and Green routes that conflict with North Mankato's Comprehensive Development Plan.<sup>19</sup>

12. On February 12, 2018, the DOC-EERA submitted Comments and Recommendations on the Completeness of the Route Permit Application, recommending that the Commission accept the Route Permit Application as substantially complete and authorize the DOC-EERA to establish an Advisory Task Force to assist in the environmental review process.<sup>20</sup>

13. On February 22, 2018, the Applicants submitted Reply Comments on the Completeness of the Route Permit Application.<sup>21</sup>

---

<sup>16</sup> Ex. XC-7 (Route Permit Application Filing Letter) (eDocket No. [20181-139208-01](#)), (Route Permit Application) (eDocket No. [20181-139208-02](#)), (Appendix A through Appendix K) (eDocket Nos. [20181-139208-03](#), [20181-139208-04](#), [20181-139208-05](#), [20181-139208-06](#), [20181-139208-07](#), [20181-139208-08](#), [20181-139208-09](#), [20181-139208-10](#)).

<sup>17</sup> Notice of Comment Period on Completeness of the Huntley-Wilmarth Route Permit Application (eDocket No. [20181-139235-01](#)).

<sup>18</sup> City of Mankato Comments on Huntley-Wilmarth 345 kV Transmission Blue Route Option (eDocket No. [20181-139280-01](#)), Exhibits A through E (eDocket Nos. [20181-139280-02](#), [20181-139280-03](#), [20181-139280-04](#), [20181-139280-05](#), [20181-139280-06](#)), and Attachment (eDocket No. [20181-139280-07](#)).

<sup>19</sup> Ex. NM-21 (North Mankato Comments on the Completeness of the Certificate of Need and Route Permit Applications) (eDocket No. [20182-139840-02](#)).

<sup>20</sup> Ex. EERA-1 (DOC-EERA Comments and Recommendations on the Completeness of the Route Permit Application) (eDocket No. [20182-139999-01](#)).

<sup>21</sup> Ex. XC-8 (Reply Comments on the Completeness of the Route Permit Application) (eDocket No. [20182-140418-01](#)).

14. On February 23, 2018, the Commission issued a Notice of Commission Meeting, scheduling the Route Permit Application for the March 8, 2018, agenda meeting.<sup>22</sup>

15. On February 23, 2018, the Applicants submitted Affidavits of Mailing and Publication in compliance with Minn. Stat. § 216E.03, subd. 4 and Minn. R. 7850.2100, subp. 5, confirming that the Applicants have provided all notices required under the statute and rule.<sup>23</sup>

16. On March 1, 2018, the Commission Staff issued Briefing Papers on the Completeness of the Route Permit Application.<sup>24</sup>

17. On March 16, 2018, the Applicants submitted a Letter requesting that a new alignment to the Project's Blue Route with a small width expansion to the Blue Route be studied in the EIS.<sup>25</sup>

18. On March 26, 2018, the Applicants submitted a Memorandum with Attachments to provide additional information on the Project's crossing of the Minnesota River and Minneopa State Park as well as ongoing coordination with the Minnesota Department of Natural Resources (MnDNR).<sup>26</sup>

19. On March 28, 2018, the Commission issued an Order Finding Applications Complete and Notice of and Order for Hearing, accepting the Certificate of Need and Route Permit applications as substantially complete; authorizing joint hearings and combined environmental review for the Applications; authorizing the DOC-EERA to establish an advisory task force; granting variances to Minn. R. 7849.0200, subp. 5 and 7849.1400, subp. 3.; and referring the applications to the Office of Administrative Hearings (OAH) for contested case proceedings.<sup>27</sup>

---

<sup>22</sup> Notice of Commission Meeting (eDocket No. [20182-140425-06](#)).

<sup>23</sup> Ex. XC-9 (Affidavits of Mailing and Publication) (eDocket No. [20182-140438-01](#)).

<sup>24</sup> Commission Staff Briefing Papers on Completeness of the Route Permit Application (eDocket No. [20183-140646-01](#)).

<sup>25</sup> Ex. XC-10 (Letter regarding Blue Route Alignment) (eDocket No. [20183-141145-01](#)).

<sup>26</sup> Ex. XC-11 (Letter regarding On-going Coordination with the MnDNR) (eDocket No. [20183-141392-01](#)).

<sup>27</sup> Ex. PUC-2 (Order Finding Applications Complete and Notice of and Order for Hearing) (eDocket No. [20183-141450-01](#)).

20. On March 29, 2018, the Commission issued a Notice of Public Information and Environmental Impact Statement Scoping Meetings, informing that four public meetings will be held in Mankato (2 meetings), Winnebago (1 meeting), and Mapleton (1 meeting), as well as notifying of a public comment period from March 29, 2018, through May 4, 2018.<sup>28</sup>

21. On April 2, 2018, the DOC-EERA published a Notice in the *EQB Monitor* informing that the Commission and DOC-EERA will hold public information and EIS scoping meetings for the Project, including information about the Project, opportunities for participation in the process, and meeting times and locations.<sup>29</sup>

22. On April 4, 2018, the DOC-EERA filed a Notice of Appearance.<sup>30</sup>

23. On April 6, 2018, Xcel Energy and ITC Midwest filed Notices of Appearance.<sup>31</sup>

24. Between April 13, 2018, and June 5, 2018, North Mankato, Clean Energy Organizations, and Magellan filed Notices of Appearance and Interventions.<sup>32</sup>

25. On April 17, 2018, the Commission and the DOC-EERA held two public information and EIS scoping meetings in Mankato, Minnesota.<sup>33</sup>

26. On April 17, 2018, the DOC-EERA issued a Notice that the April 18, 2018, public information and EIS scoping meetings to be held in Winnebago and

---

<sup>28</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings) (eDocket No. [20183-141503-01](#)).

<sup>29</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings) (eDocket No. [20183-141503-01](#)).

<sup>30</sup> DOC-EERA Notice of Appearance (Apr. 4, 2018) (eDocket No. [20184-141657-01](#)).

<sup>31</sup> Xcel Energy Notice of Appearance (Apr. 6, 2018) (eDocket No. [20184-141756-01](#)); ITC Midwest Notice of Appearance (Apr. 6, 2018) (eDocket No. [20184-141747-02](#)).

<sup>32</sup> North Mankato Petition to Intervene (Apr. 13, 2018) (eDocket No. [20184-141965-01](#)); North Mankato Notice of Appearance (Apr. 13, 2018) (eDocket No. [20184-141962-01](#)); CEO Notice of Appearance (Apr. 27, 2018) (eDocket No. [20184-142491-02](#)); Magellan Notice of Appearance (May 4, 2018) (eDocket No. [20185-142777-02](#)); Magellan Petition to Intervene (June 5, 2018) (eDocket No. [20186-143581-02](#)).

<sup>33</sup> Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings) (eDocket No. [20183-141503-01](#)).

Mapleton were postponed due to a Winter Weather Advisory issued by the National Weather Service.<sup>34</sup>

27. On April 24-25, 2018, the Commission issued a Notice of Rescheduled Public Information and Environmental Impact Statement Scoping Meetings, to be held in Winnebago and Mapleton on May 9, 2018. The Notice also extended the public comment period from March 26, 2018, through May 18, 2018.<sup>35</sup>

28. On May 3, 2018, the City of Mankato submitted Comments on the scope of the EIS.<sup>36</sup>

29. On May 4, 2018, ALJ Case issued an Order Granting Intervention to the City of North Mankato.<sup>37</sup>

30. On May 9, 2018, the Commission and the DOC-EERA held public information and EIS scoping meetings in Winnebago, Minnesota, and Mapleton, Minnesota.

31. On May 16, 2018, the Minnesota Department of Transportation (MnDOT) submitted Comments on the scope of the EIS, wishing to participate in the development of the EIS so that it will contain a thorough evaluation of the effects that various route proposals may have on the state transportation system.<sup>38</sup>

32. On May 17, 2018, the MnDNR submitted Comments on the scope of the EIS, providing specific comments on the Project's proximity to natural resources, segment alternatives, and routes.<sup>39</sup>

33. On May 17, 2018, ALJ Case issued an Order Granting Intervention to the Clean Energy Organizations.<sup>40</sup>

---

<sup>34</sup> Ex. EERA-4 (Notice of Meeting Postponed) (eDocket No. [20184-142066-01](#)).

<sup>35</sup> Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings) (eDocket No. [20184-142365-01](#)).

<sup>36</sup> Ex. EERA-6C at 2-11 (City of Mankato Comments on Environmental Review Scoping) (eDocket No. [20185-143325-05](#)).

<sup>37</sup> Order Granting Intervention to the City of North Mankato (eDocket No. [20185-142764-02](#)).

<sup>38</sup> Ex. EERA-6A at 9-11 (MnDOT Comments on the Scope of the EIS) (eDocket No. [20185-143089-01](#)).

<sup>39</sup> Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS) (eDocket No. [20185-143163-01](#)).

34. On May 18, 2018, the Applicants submitted their Comments on the scope of the EIS, proposing four additional route segments to be included for evaluation in the EIS.<sup>41</sup>

35. On May 21, 2018, North Mankato submitted Comments on the scope of the EIS.<sup>42</sup>

36. On May 23, 2018, the Commission filed the Speak Up report of comments received through that venue, including two written comments.<sup>43</sup>

37. On May 24, 2018, the DOC-EERA filed written comments on the scope of the EIS received from governmental agencies,<sup>44</sup> the Applicants,<sup>45</sup> local government units<sup>46</sup>, and public citizens.<sup>47</sup> The DOC-EERA also filed oral citizen comments received during the public information and EIS scoping meetings held on April 17, 2018, in Mankato and on May 9, 2018, in Winnebago and Mapleton.<sup>48</sup>

38. On May 25, 2018, ALJ Case issued the First Prehearing Order, establishing procedural timelines and schedule of proceedings.<sup>49</sup>

39. On June 1, 2018, the DOC-EERA submitted a Report of the Advisory Task Force established to assist in determining the scope of the EIS.<sup>50</sup>

---

<sup>40</sup> Order Granting Intervention to the CEOs (eDocket No. [20185-143128-01](#)).

<sup>41</sup> Ex. XC-12 (Applicants' Comments on the Scope of the EIS) (eDocket No. [20185-143207-01](#)).

<sup>42</sup> Ex. NM-22 (City of North Mankato's Comments on the Scope of the EIS) (eDocket No. [20185-143213-01](#)).

<sup>43</sup> Speak Up Report of comments received through Speak Up (eDocket No. [20185-143280-01](#)).

<sup>44</sup> Ex. EERA-6A (Written Comments Received from State and Federal Agencies on the Scope of the EIS) (eDocket No. [20185-143325-01](#)).

<sup>45</sup> Ex. EERA-6B (Applicants' Comments on the Scope of the EIS) (eDocket No. [20185-143325-03](#)).

<sup>46</sup> Ex. EERA-6C (Written Comments Received from Local Units of Government on the Scope of the EIS) (eDocket No. [20185-143325-05](#)).

<sup>47</sup> Ex. EERA-6E (Written Comments Received from Citizens on the Scope of the EIS, A-L) (eDocket No. [20185-143325-09](#)); Ex. EERA-6C (Written Comments Received from Citizens on Scope of the EIS, M-Z) (eDocket No. [20185-143325-11](#)).

<sup>48</sup> Ex. EERA-6D (Oral Comments Received from Citizens on the Scope of the EIS) (eDocket No. [20185-143325-07](#)).

<sup>49</sup> First Prehearing Order (eDocket No. [20185-143343-01](#)).

40. On June 19, 2018, the DOC-EERA submitted comments on the EIS scoping process and routing alternatives proposed during the scoping process as well as recommendations for the routing alternatives to be included in the scope of the EIS.<sup>51</sup>

41. On June 26, 2018, the DOC-EERA submitted a letter regarding the routing alternatives proposed during the EIS scoping process, including a link to an on-line map of the routing alternatives.<sup>52</sup>

42. On June 29, 2018, the Commission issued a Notice of Commission Meeting, scheduling the decision on the scope of the EIS and route alternatives to be evaluated for the July 12, 2018, agenda meeting.<sup>53</sup>

43. On July 9, 2018, the Commission Staff issued briefing papers on the scope of the EIS and route alternatives to be evaluated.<sup>54</sup>

44. On July 10, 2018, North Mankato submitted a motion regarding the route alternatives to be studied in the EIS.<sup>55</sup>

45. On July 12, 2018, the Commission held a meeting regarding the scope of the EIS and route alternatives to be evaluated.

46. On July 17, 2018, the Commission issued its Order regarding the scope of the EIS, proposing one additional route segment alternative, Segment Alternative Y, to be studied.<sup>56</sup>

47. On July 17, 2018, the DOC-EERA filed its Scoping Decision for the Environmental Impact Statement.<sup>57</sup> The Scoping Decision included 5 routes, 19

---

<sup>50</sup> Ex. EERA-7 (Advisory Task Force Report (May 2018)) (eDocket No. [20186-143530-01](#)).

<sup>51</sup> Ex. EERA-8 (DOC-EERA Comments and Recommendations on the Scoping Process and Scope of the EIS) (eDocket No. [20186-143985-01](#)).

<sup>52</sup> Ex. EERA-9 (DOC-EERA Letter regarding Routing Alternatives proposed during the EIS scoping process) (eDocket No. [20186-144187-01](#)).

<sup>53</sup> Notice of Commission Meeting (eDocket No. [20186-144343-01](#)).

<sup>54</sup> Commission Staff Briefing Papers on the Scope of the EIS (eDocket No. [20187-144599-01](#)).

<sup>55</sup> Ex. NM-23 (North Mankato Motion Regarding Route Alternatives to be Studied in the EIS) (eDocket No. [20187-144665-01](#)).

<sup>56</sup> Ex. PUC-3 (Order Regarding the Scope of the EIS) (eDocket Nos. [20187-144956-01](#) and [20187-144956-02](#)).

segment alternatives, and 3 alignment alternatives. All route, segment, and alignment alternatives evaluated in the Draft EIS are described in more detail below.

48. In response to comments received from the MnDNR and a landowner, on February 1, 2019, the Applicants proposed that the Final EIS also evaluate Segment Alternative BB to the Purple Route and Segment Alternative CC to the Blue Route.

49. On July 18, 2018, the DOC-EERA issued a Notice of its EIS Scoping Decision<sup>58</sup> and mailed letters to landowners who may be affected by a routing alternative for the proposed Project, providing information on the Project, the route permitting process, and future opportunities for participation in the process.<sup>59</sup>

50. On July 20, 2018, ALJ Case issued an order granting intervention to Magellan,<sup>60</sup> a Protective Order,<sup>61</sup> and the Second Prehearing Order detailing procedural requirements and modifying the schedule of proceedings.<sup>62</sup>

51. On July 24, 2018, ALJ Case issued an Amended Second Prehearing Order.<sup>63</sup>

52. On July 30, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had made a scoping decision on the EIS for the Project.<sup>64</sup>

53. On August 2, 2018, the DOC-EERA submitted a template of a Route Permit for a High-Voltage Transmission Line and Associated Facilities.<sup>65</sup>

---

<sup>57</sup> Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS) (eDocket No. [20187-144971-01](#)).

<sup>58</sup> Ex. EERA-11 (DOC-EERA Notice of EIS Scoping Decision) (eDocket No. [20187-144999-02](#)).

<sup>59</sup> Ex. EERA-12 (DOC-EERA Mailed Notice of Scoping Decision to New Landowners) (eDocket No. [20187-144997-01](#)).

<sup>60</sup> Order Granting Intervention to Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. (eDocket No. [20187-145059-01](#)).

<sup>61</sup> Protective Order (eDocket No. [20187-145059-03](#)).

<sup>62</sup> Second Prehearing Order (eDocket No. [20187-145059-02](#)).

<sup>63</sup> Amended Second Prehearing Order (eDocket No. [20187-145152-01](#)).

<sup>64</sup> Notice of EIS Scoping Decision for the Huntley to Wilmarth 345 kV Transmission Line Project (eDocket No. [20188-145453-01](#)).

<sup>65</sup> Template of a Route Permit for a High-Voltage Transmission Line and Associated Facilities (eDocket No. [20188-145486-01](#)).



54. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Public Information and Environmental Impacts Scoping Meeting in the *Fairmont Sentinel* on April 5, 2018, in the *Faribault County Register* on April 2, 2018, in *The Lake Crystal Tribune* on April 4, 2018, in *The Mankato Free Press* on April 5, 2018, in *The Maple River Messenger* on April 5, 2018, in the *Minnesota Lake Tribune* on April 5, 2018, and in the *St. Peter Herald* on April 5, 2018.<sup>66</sup>

55. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Rescheduled Public Information and Environmental Impacts Scoping Meeting in the *Fairmont Sentinel* on April 26, 2018, in the *Blue Earth Faribault County Register* on April 30, 2018, in *The Lake Crystal Tribune* on April 25, 2018, in *The Mankato Free Press* on April 26, 2018, in *The Maple River Messenger* on April 26, 2018, and in the *Minnesota Lake Tribune* on April 26, 2018.<sup>67</sup>

56. On August 6, 2018, the Applicants submitted proof of mailing on April 2, 2018, the Notice of Public Information and Environmental Impacts Scoping Meeting to residents and landowners who may be impacted by the Project.<sup>68</sup>

57. On August 6, 2018, the Applicants submitted proof of mailing on May 1, 2018, of a Notice that the Public Information and Environmental Impacts Scoping Meetings originally scheduled for April 18, 2018, in Winnebago and Mapleton were rescheduled for May 9, 2018.<sup>69</sup>

58. On August 7, 2018, the Applicants submitted proof of mailing the complete Certificate of Need and Route Permit applications for the Project on April 3, 2018, to the Martin County Library.<sup>70</sup>

59. On September 6, 2018, the Applicants filed the Direct Testimony and Schedules of Thomas G. Hillstrom, Kyle S. Neidermire, Andrew Siebenaler, Grant D. Stevenson, Benjamin Abing, and Thomas C. Petersen.<sup>71</sup>

---

<sup>66</sup> Ex. XC-13 (Affidavits of Publication) (eDocket No. [20188-145549-03](#)).

<sup>67</sup> Ex. XC-13 (Affidavits of Publication) (eDocket No. [20188-145549-05](#)).

<sup>68</sup> Ex. XC-14 (Affidavit of Mailing) (eDocket No. [20188-145548-04](#)).

<sup>69</sup> Ex. XC-14 (Affidavit of Mailing) (eDocket No. [20188-145548-06](#)).

<sup>70</sup> Ex. XC-15 (Affidavit of Mailing to the Library) (eDocket No. [20188-145597-01](#)).

<sup>71</sup> Ex. XC-19 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-22 (Neidermire Direct) (eDocket No. [20189-146251-04](#)); Ex. XC-24 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)); Ex. XC-25 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. XC-18 (Abing Direct) (eDocket No. [20189-146252-02](#)); Ex. XC-23 (Petersen Direct) (eDocket No. [20189-146252-04](#)).



60. On September 26, 2018, the Clean Energy Organizations filed a notice that as of September 11, 2018, WOW has changed its name to Clean Grid Alliance.<sup>72</sup>

61. On November 7, 2018, North Mankato filed the Direct Testimony and Schedules of Michael Fischer.<sup>73</sup>

62. On November 8, 2018, North Mankato filed an Errata to Mr. Fischer's Direct Testimony, correcting the OAH docket number.<sup>74</sup>

63. On November 16, 2018, the Clean Energy Organizations withdrew their Notice of Appearance in this docket.<sup>75</sup>

64. On December 7, 2018, the DOC-EERA filed the Draft EIS for the Project, noting that the report was issued in draft form so that it may be improved by public comment and indicating that comments on the Draft EIS would be accepted through January 28, 2019.<sup>76</sup> On December 10, 2018, the DOC-EERA filed a revised summary and amended Table S-5 for the Draft EIS.<sup>77</sup>

65. On December 10, 2018, the DOC-EERA issued a Notice of Availability of Draft EIS and Public Information Meetings, informing that three public meetings would be held in Mankato (one meeting), Delavan (one meeting), and Mapleton (one meeting), as well as notifying of a public comment period through January 28, 2019.

---

<sup>72</sup> Notice of WOW Name Change (eDocket No. [20189-146648-02](#)).

<sup>73</sup> Ex. NM-1 (Fischer Direct) (eDocket Nos. [201811-147666-01](#), [201811-147668-01](#), [201811-147668-02](#), [201811-147668-03](#), [201811-147668-04](#), [201811-147668-05](#), [201811-147668-06](#), [201811-147668-07](#), [201811-147668-08](#), [201811-147668-09](#), [201811-147669-01](#), [201811-147669-02](#), [201811-147669-03](#), [201811-147669-04](#), [201811-147669-05](#), [201811-147669-06](#), [201811-147669-07](#), [201811-147669-08](#)).

<sup>74</sup> Fisher Direct Errata filing (eDocket No. [201811-147681-01](#)).

<sup>75</sup> Withdrawal Letter (eDocket No. [201811-147858-01](#)).

<sup>76</sup> Ex. EERA-13 (Draft EIS) (eDocket Nos. [201812-148307-02](#), [201812-148307-04](#), [201812-148307-06](#), [201812-148307-08](#), [201812-148307-10](#), [201812-148307-12](#), [201812-148307-14](#), [201812-148307-16](#), [201812-148307-18](#), [201812-148307-20](#), [201812-148310-02](#), [201812-148310-04](#), [201812-148310-06](#), [201812-148310-08](#), [201812-148310-10](#), [201812-148310-12](#), [201812-148310-14](#), [201812-148310-16](#), [201812-148310-18](#), [201812-148310-20](#), [201812-148312-02](#), [201812-148312-04](#), [201812-148312-06](#), [201812-148312-08](#), [201812-148312-10](#), [201812-148312-12](#), [201812-148312-14](#), [201812-148312-16](#), [201812-148312-18](#), [201812-148312-20](#)).

<sup>77</sup> Ex. EERA-14 (Draft EIS, Revised Summary and Amended Table S-5) (eDocket No. [201812-148353-01](#)).

The Notice requested that comments focus on what information needs to be clarified or included in the Draft EIS to ensure that the Final EIS is complete and accurate.<sup>78</sup>

66. On December 12, 2018, ALJ Case issued the Third Prehearing Order, detailing procedural requirements and modifying the schedule of proceedings.<sup>79</sup>

67. On December 18, 2018, the Applicants filed the Rebuttal Testimony and Schedules of Grant D. Stevenson and Thomas G. Hillstrom.<sup>80</sup>

68. On December 18, 2018, Magellan filed Comments providing additional information regarding the proposed routes for the Project. Magellan anticipates that it will be able to work collaboratively with the Applicants to complete any necessary mitigation efforts in the event the Green, Red, or Blue Route is selected.<sup>81</sup>

69. On December 18, 2018, the DOC-DER filed the Rebuttal Testimony and Attachments of Matthew Landi.<sup>82</sup>

70. On December 20, 2018, the DOC-EERA submitted a proof of publication of the Notice of Availability of Draft EIS and Public Information Meetings in the *Fairmont Sentinel* on December 10, 2018, in the *Faribault County Register* on December 10, 2018, in *The Lake Crystal Tribune* on December 12, 2018, in *The Mankato Free Press* on December 9, 2018, and in the *Minnesota Lake Tribune* on December 13, 2018.<sup>83</sup>

71. On December 20, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had released the Draft EIS for the Project.<sup>84</sup>

---

<sup>78</sup> Ex. EERA-15 (Notice of DOC-EERA to Project Mailing List Regarding Draft EIS Availability and Public Meetings) (eDocket No. [201812-148337-01](#)); Ex. EERA-16 (Notice of DOC-EERA to Landowners Regarding Draft EIS Availability and Public Meetings) (eDocket No. [201812-148339-02](#)).

<sup>79</sup> Third Prehearing Order (eDocket No. [201812-148413-01](#)).

<sup>80</sup> Ex. XC-26 (Stevenson Rebuttal) (eDocket No. [201812-148564-03](#)); Ex. XC-20 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>81</sup> Magellan Letter dated Dec. 18, 2018 (eDocket No. [201812-148559-01](#)).

<sup>82</sup> Ex. DER-4 (Landi Rebuttal) (eDocket No. [201812-148557-01](#)).

<sup>83</sup> Ex. EERA-17 (Affidavit of Publication) (eDocket No. [201812-148626-02](#)).

<sup>84</sup> Ex. EERA-18 (Notice of Availability of Draft EIS and Public Information Meetings) (eDocket No. [201812-148625-01](#)).

72. On January 9, 2019, the Commission issued a Notice of Public Hearings, informing that public meetings would be held in Mankato (one meeting) on January 30, 2019, Delavan (one meeting) on January 31, 2019, and Mapleton (one meeting) on January 31, 2019. The Notice also notified about a public comment period from January 9, 2019, through February 21, 2019.<sup>85</sup>

73. On January 15, 2019, the Commission submitted proof of mailing on January 9, 2019, the Notice of Public Hearing to residents and landowners who may be impacted by the Project.<sup>86</sup>

74. On January 15, 2019, the DOC-EERA submitted materials to be used in the January 2019 public hearings regarding the Draft EIS.<sup>87</sup>

75. On January 23, 2019, the Commission submitted a memorandum issued to state agencies on January 15, 2019, requesting participation in record development and attendance at the January 2019 public hearings.<sup>88</sup>

76. On January 25, 2019, the Applicants submitted short comments on the Draft EIS.<sup>89</sup>

77. On January 28, 2019, the Applicants filed the Surrebuttal Testimony and Schedules of Thomas G. Hillstrom.<sup>90</sup>

78. On January 28, 2019, the MnDNR submitted comments on the Draft EIS, recommending that the Final EIS include potential impacts of route segments H, J, K, L, and M on grassland/restored prairie and a bald eagle nest, as well as an additional alternative route segment to minimize the Purple Route's number of crossings of Willow Creek.<sup>91</sup>

79. On January 28, 2019, MnDOT submitted comments on the Draft EIS, stating that MnDOT will work to accommodate the Project within or as near as

---

<sup>85</sup> Ex. PUC-5 (Notice of Public Hearings) (eDocket No. [20191-148999-01](#)).

<sup>86</sup> Ex. PUC-5 (Certified Mail Receipts for Public Hearing Notice Mailed on Jan. 9, 2019) (eDocket No. [20191-149245-01](#)).

<sup>87</sup> Meeting Materials (eDocket No. [20191-149224-01](#)).

<sup>88</sup> Ex. PUC-4 (Letter to State Agencies) (eDocket No. [20191-149218-01](#)).

<sup>89</sup> Ex. EERA-20B (Applicants' Comments on Draft EIS) (eDocket No. [20191-150008-03](#)).

<sup>90</sup> Ex. XC-21 (Hillstrom Surrebuttal) (eDocket No. [20191-149655-02](#)).

<sup>91</sup> Ex. EERA-20A at 2-3 (MnDNR Comments on Draft EIS) (eDocket No. [20191-150008-01](#)).

feasible to the highway rights of way, based on an evaluation of appropriate clearances, safety requirements, and effective operations.<sup>92</sup>

80. On January 28, 2019, North Mankato filed the Surrebuttal Testimony of Michael Fischer, restating that the Red and Green routes, including Segment Alternatives A and B, are incompatible with the City's growth plans outlined in the Comprehensive Development Plan.<sup>93</sup>

81. On January 28, 2019, North Mankato submitted comments on the Draft EIS, urging the DOC-EERA to conclude that the Green and Red routes, including Segment Alternatives A and B, will have significant adverse impacts on North Mankato's future development plans and human settlements.<sup>94</sup>

82. On January 28, 2019, Mankato submitted Comments on the Draft EIS, stating that the Blue Route is in direct conflict with the adopted land use and growth plans of Mankato, future expansion of the Mankato Regional Airport, and forested wetland areas located between Mankato and the City of Eagle Lake.<sup>95</sup>

83. On January 28, 2019, the Applicants and North Mankato submitted proposed exhibit lists.<sup>96</sup>

84. On January 29, 2019, the Commission issued a Press Release postponing the public hearings scheduled for January 30 and 31, 2019, due to extreme weather and rescheduling the meetings for February 6 and February 7, 2019, pursuant to the January 9, 2019, Notice of Public Hearings.<sup>97</sup>

85. On February 1, 2019, the Applicants submitted a letter requesting that the Final EIS include an analysis of two additional route segment alternatives for the Project.<sup>98</sup> The Applicants proposed Segment Alternative BB for the Purple Route

---

<sup>92</sup> Ex. EERA-20A at 4-8 (MnDOT Comments on Draft EIS) (eDocket No. [20191-150008-01](#)).

<sup>93</sup> Ex. NM-17 (Fischer Surrebuttal) (eDocket No. [20191-149696-01](#)).

<sup>94</sup> Ex. NM-18 (North Mankato Comments on Draft EIS) (eDocket No. [20191-149699-01](#)).

<sup>95</sup> Ex. EERA-20C at 4-14 (Mankato Comments on the Draft EIS) (eDocket No. [20191-150008-05](#)).

<sup>96</sup> Applicants' Exhibit List (eDocket No. [20191-149684-04](#)); North Mankato's Exhibit List (eDocket No. [20191-149704-01](#)).

<sup>97</sup> Press Release (eDocket No. [20191-149768-01](#)).

<sup>98</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

and Segment Alternative CC for the Blue Route in response to comments received from the MnDNR and a landowner, respectively.<sup>99</sup>

86. On February 4, 2019, ALJ Case issued the Fourth Prehearing Order, stating that the public hearings will be held on February 6 and 7, 2019, at the times and places set forth in the Commission's January 29, 2019 notice.<sup>100</sup>

87. On February 5, 2019, the Commission issued a press release postponing the February 6 and 7, 2019, public hearings due to dangerous driving conditions.<sup>101</sup>

88. On February 5, 2019, the DOC-EERA filed written comments on the scope of the EIS received from governmental agencies,<sup>102</sup> the Applicants,<sup>103</sup> local government units,<sup>104</sup> and public citizens.<sup>105</sup> The DOC-EERA also filed oral citizen comments received during public Draft EIS meetings held on January 9, 2019, in Mankato (two meetings), January 10, 2019, in Delavan (one meeting), and January 10, 2019, in Mapleton (one meeting).<sup>106</sup>

89. On February 8, 2019, ALJ Case issued the Fifth Prehearing Order, stating that the postponed public hearings will be held on February 27 and 28, 2019, and the evidentiary hearing will be held on February 11, 2019, and requesting supplemental testimony from the Applicants, the DOC-DER, and MISO in response to questions in Appendix A of the Order.<sup>107</sup>

90. On February 8, 2019, the Applicants submitted a letter providing information in advance of the evidentiary hearing regarding the four witnesses that

---

<sup>99</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>100</sup> Fourth Prehearing Order (eDocket No. [20192-149979-01](#)).

<sup>101</sup> Press Release (eDocket No. [20192-150013-01](#)).

<sup>102</sup> Ex. EERA-20A (Written Comments Received from State and Federal Agencies on Draft EIS) (eDocket No. [20192-150008-01](#)).

<sup>103</sup> Ex. EERA-20B (Applicants' Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>104</sup> Ex. EERA-20C (Written Comments Received from Local Units of Government on the Draft EIS) (eDocket No. [20192-150008-05](#)).

<sup>105</sup> Ex. EERA-20D (Written Comments Received from Citizens on the Draft EIS) (eDocket No. [20192-150008-07](#)).

<sup>106</sup> Ex. EERA-20E (Oral Comments Received from Citizens on the Draft EIS at Public Meetings) (eDocket No. [20192-150008-09](#)).

<sup>107</sup> Fifth Prehearing Order (eDocket No. [20192-150117-01](#)).

Applicants intended to offer to respond to questions included in Appendix A of the Fifth Prehearing Order.<sup>108</sup>

91. On February 11, 2019, the Commission submitted proof of publication of public hearings that were scheduled for January 30 and 31, 2019.<sup>109</sup>

92. On February 11, 2019, landowner Steven Burnett filed public comments detailing the concerns and impacts of the Green and Red routes on his property, the North Ridge Residential Development Area, and the North Port Industrial Park.<sup>110</sup>

93. On February 11, 2019, an evidentiary hearing was held before ALJ Case in St. Paul, Minnesota.

94. On February 11, 2019, ALJ Case issued the Sixth Prehearing Order, modifying the schedule of proceedings, including extending the deadline for public comments to March 15, 2019.<sup>111</sup>

95. On February 13, 2019, the Commission issued a Notice of Rescheduled Public Hearings, stating that the public hearings would be held in Mankato (two meetings) on February 27, 2019, in Delavan (one meeting) on February 28, 2019, and in Mapleton (one meeting) on February 28, 2019.<sup>112</sup>

96. On February 21, 2019, the Commission filed public comments it received on the Project.<sup>113</sup>

97. On February 22, 2019, the Commission filed public comments it received through the Speak Up platform.<sup>114</sup>

---

<sup>108</sup> Letter (eDocket No. [20192-150137-02](#)). Written responses to the Appendix A questions were filed only in the Certificate of Need docket (Docket No. E002,ET6675/CN-17-184). *See* MISO Zhou Supplemental Testimony (Mar. 7, 2019) (Certificate of Need Docket) (eDocket No. [20193-150905-01](#)); DOC-DER Johnson Sur-Surrebuttal (Mar. 7, 2019) (Certificate of Need Docket) (eDocket No. [20193-150903-01](#)).

<sup>109</sup> Affidavit of Publication (eDocket No. [20192-150181-02](#)).

<sup>110</sup> Steven Burnett Comments (eDocket No. [20192-150177-01](#)).

<sup>111</sup> Sixth Prehearing Order (eDocket No. [20192-150163-01](#)).

<sup>112</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-01](#)).

<sup>113</sup> Public Comments Batch Two (Feb. 21, 2019) (eDocket No. [20192-150495-02](#)).

<sup>114</sup> Public Comments – Speak Up (Feb. 22, 2019) (eDocket No. [20192-150531-01](#)).



98. Public hearings were held at the AmericInn in Mankato at 1:00 p.m. and 6:00 p.m. on February 27, 2019.<sup>115</sup> Public hearings were held at the Delavan High School in Delavan at 1:00 p.m. and at the Maple River High School in Mapleton at 6:00 p.m. on February 28, 2019.<sup>116</sup>

99. On March 4, 2019, the City of Mankato filed a Resolution dated January 28, 2019, requesting that the Commission reject the Blue Route.<sup>117</sup>

100. On March 5 and 12, 2019, the Commission filed additional public comments it received on the Project.<sup>118</sup>

101. On March 14, 2019, the MnDNR submitted comments on the draft EIS regarding its recommendations on the various route options as well as conditions that should be included in the route permit to mitigate project impacts.<sup>119</sup>

102. On March 15, 2019, the Commission filed additional public comments it received on the Project.<sup>120</sup>

103. On March 18 and 19, 2019, the Commission filed public comments it received on the Project.<sup>121</sup>

104. On March 20, 2019, the Commission filed public comments it received through the Speak Up platform.<sup>122</sup> An additional public comment received by the Commission was filed on March 21, 2019.<sup>123</sup>

---

<sup>115</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-02](#)).

<sup>116</sup> Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. [20192-150242-02](#)).

<sup>117</sup> Resolution of the Mankato City Council Dated Jan. 28, 2019 (eDocket No. [20193-150821-01](#)).

<sup>118</sup> Sonnek Public Comment (Mar. 5, 2019) (eDocket No. [20193-150861-01](#)); Peterson Public Comment (Mar. 12, 2019) (eDocket No. [20193-151023-01](#)).

<sup>119</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>120</sup> Public Comments (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>121</sup> Reynolds Comment (Mar. 18, 2019) (eDocket No. [20193-151164-02](#)); Eimer Comment (Mar. 18, 2019) (eDocket No. [20193-151185-02](#)); Duncanson Comment (Mar. 19, 2019) (eDocket No. [20193-151201-01](#)).

<sup>122</sup> Public Comments – Speak Up (Mar. 20, 2019) (eDocket No. [20193-151223-01](#)).

<sup>123</sup> Elkins Comment (Mar. 21, 2019) (eDocket No. [20193-151253-02](#)).

### III. THE PROPOSED PROJECT

105. The Huntley – Wilmarth Project consists of a new 345 kV transmission line connecting Xcel Energy’s existing Wilmarth Substation north of Mankato, Minnesota, with ITC Midwest’s Huntley Substation south of Winnebago, Minnesota.<sup>124</sup> The transmission line will be approximately 50 miles in length and the proposed route alternatives will traverse Blue Earth, Faribault, Martin, and Nicollet counties in Minnesota.<sup>125</sup> The Project also includes the necessary modifications to the existing Huntley and Wilmarth substations to accommodate the new 345 kV transmission line.<sup>126</sup>

106. Xcel Energy and ITC Midwest will own the Huntley – Wilmarth transmission line jointly as tenants in common.<sup>127</sup> Each Applicant will be responsible for the necessary modifications and maintenance of its substation.<sup>128</sup> The equipment and improvements inside the Wilmarth Substation, located on the northern edge of the City of Mankato, will be owned solely by Xcel Energy.<sup>129</sup> The equipment and improvements inside the Huntley Substation, located approximately three miles south of the City of Winnebago, will be owned solely by ITC Midwest.<sup>130</sup>

107. As the Project Manager, Xcel Energy will be responsible for the construction and maintenance of the proposed 345 kV transmission line.<sup>131</sup> The facilities for the Huntley – Wilmarth Project include the following:

---

<sup>124</sup> Ex. XC-7 at ES-3, 1, 7 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>125</sup> Ex. XC-7 at ES-3, 1, 7 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>126</sup> Ex. XC-7 at ES-3, 1, 7 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>127</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>128</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>129</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>130</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-22 at 4 (Neidermire Direct) (eDocket No. [20189-146251-04](#)); Ex. XC-23 at 6 (Petersen Direct) (eDocket No. [20189-146252-04](#)).

<sup>131</sup> Ex. XC-7 at 1 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



- An approximately 50-mile long, new 345 kV transmission line, connecting the Wilmarth Substation to the Huntley Substation, including steel pole structures and double-bundled, twisted pair conductors.<sup>132</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Huntley Substation, including a 345 kV circuit breaker, potential transformers for relays, switches, dead-end structures, relay and equipment panels, a bus, and concrete foundations.<sup>133</sup>
- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Wilmarth Substation, including a dead-end structure, a 345 kV circuit breaker, a DC battery system, bus work, transformers, miscellaneous other equipment, and concrete foundations.<sup>134</sup>

#### IV. ROUTES EVALUATED FOR PROJECT

108. To develop route options for the Project, the Applicants established a Project Study Area (36 miles long and 29 miles wide) between the two substation endpoints.<sup>135</sup> Using mapping data, the Applicants then identified routing constraints (i.e., areas to avoid such as population centers, environmentally sensitive areas, federal wildlife protection areas, and Minneopa State Park) and routing opportunities (i.e., infrastructure corridors such as existing transmission lines and roads as well as property lines). The Applicants conducted field visits in early 2017 to confirm mapping data and to gain a better understanding of the Project Study Area. Later in 2017, the Applicants also met with local government units and federal and state agencies and held public open houses in Mapleton and Mankato to gather feedback on initial route options.<sup>136</sup> Based on the information and feedback collected, the Applicants refined and developed the routes proposed in the Route Permit Application.<sup>137</sup>

---

<sup>132</sup> Ex. XC-25 at 4-6, 9 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>133</sup> Ex. XC-23 at 6-7 (Petersen Direct) (eDocket No. [20189-146252-04](#)).

<sup>134</sup> Ex. XC-25 at 13-14 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>135</sup> Ex. XC-7 at 25 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>136</sup> Ex. XC-7 at 28 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>137</sup> Ex. XC-7 at ES-5, 25-31 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 3-5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

109. Major route constraints in the Project Study Area include the existing communities of Mankato, North Mankato, and Belgrade Township. Because the Wilmarth Substation is located within the northern boundary of Mankato, the Applicants developed routes that avoided high-density areas by traversing either to the west or to the east of the Mankato/North Mankato area before turning south towards the Huntley Substation.<sup>138</sup>

110. Other major constraints in the Project Study Area are environmental and include Minneopa State Park to the west of the cities of Mankato and North Mankato; crossing of the Minnesota River and Watonwan River; and a parcel of land (the Pheasants Forever parcel) that is in the process of being transferred to the U.S. Fish and Wildlife Service (USFWS) to be added to an existing Waterfowl Protection Area (WPA).<sup>139</sup>

111. The Applicants proposed four route options in the Route Permit Application, identified from west to east as the Purple, Green, Red, and Blue routes.<sup>140</sup> As a result of the scoping process for the EIS, a fifth route alternative, Purple-E-Red, was added to the scope of the EIS.<sup>141</sup>

112. The Applicants included six route segment alternatives in the Route Permit Application, labeled as Segment Alternatives A-F.<sup>142</sup> As a result of the scoping process for the EIS, Route Segment C was removed from consideration and 14 new route segments (E2, G-R, Y) were added, for a total of 19 route segment alternatives. The DOC-EERA scoping decision also included three new alignment alternatives (AA-1 to AA-3).<sup>143</sup>

113. A route segment alternative is a segment that departs from and returns to a route, but does not itself connect the Huntley and Wilmarth substations.<sup>144</sup> An alignment alternative places the line in a different location within the proposed route's

---

<sup>138</sup> Ex. XC-7 at ES-8 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>139</sup> Ex. XC-7 at ES-9 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>140</sup> Ex. XC-7 at 41-43 ((Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 24-25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>141</sup> Ex. EERA-10 at 8 (DOC-EERA EIS Scoping Decision) (eDocket No. [20187-144971-01](#)).

<sup>142</sup> Ex. XC-7 at 44-47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>143</sup> Ex. EERA-10 at 8-10 (DOC-EERA EIS Scoping Decision) (eDocket No. [20187-144971-01](#)).

<sup>144</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)).

width and therefore does not change the location or width of the proposed route.<sup>145</sup> In a route permit, the Commission approves a route, a route width, and an anticipated alignment.<sup>146</sup>

114. As a result of further information provided after the scope of the EIS was developed, the Applicants requested that two additional Segment Alternatives be evaluated in the Final EIS. Segment Alternative BB was proposed as an alternative to minimize crossings of Willow Creek along the Purple Route and was developed in response to feedback received from the MnDNR on the Draft EIS. Segment Alternative CC was proposed as an alternative along the Blue Route to avoid an area where a landowner stated that he is currently building a house.<sup>147</sup>

115. The routes and segment alternatives proposed for inclusion in the Final EIS are shown in **Figure 1**.

---

<sup>145</sup> Ex. EERA-13 at 3-19 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>146</sup> Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>147</sup> Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. [20192-149943-02](#)).

**Figure 1: Routes and Segment Alternatives Included in the EIS**



### **A. Purple Route**

116. The Purple Route is approximately 51.6 miles long and follows 24.5 miles of existing transmission lines. Proceeding westward from the Wilmarth

substation, the route follows the existing Lakefield Junction – Wilmarth transmission line to the west and south for approximately 23 miles. The Purple Route departs from the Lakefield Junction – Wilmarth line in Lincoln Township and proceeds south for approximately 23.5 miles, generally following property divisions and roads. The Purple Route turns to the east just southwest of Winnebago and follows property divisions and 160<sup>th</sup> Street the remaining 5 miles to the Huntley Substation.<sup>148</sup>

117. The Purple Route crosses the Minnesota River twice, once just northwest of the Wilmarth Substation and once approximately 8 miles west of Mankato through Minneopa State Park near Judson, Minnesota.<sup>149</sup>

118. The Purple Route crosses Minneopa State Park within the existing easement of the Lakefield Junction – Wilmarth 345 kV transmission line. This easement predates establishment of Minneopa State Park and provides sufficient rights to construct another 345 kV circuit within its bounds, consistent with the proposed Purple Route.<sup>150</sup> The Applicants propose to co-locate the two 345 kV transmission lines on single-pole, double-circuit structures, thus replacing the existing lattice tower structures. Since the new monopole structures are 35 to 60 feet taller than the existing structures, the Applicants plan to install bird diverters along the section that is within the state park boundaries to minimize impacts on birds. Based on communications with the MnDNR, the Applicants’ understanding is that no License to Cross Public Land would be required for crossing Minneopa State Park land in this location because the Project would utilize an existing unrestricted utility easement acquired in 1971, which predates the establishment of the park in this area.<sup>151</sup> The MnDNR filed comments on March 14, 2018, stating its “support of the [P]urple [R]oute as a viable option based on the transmission line work being restricted to the existing easement area.”<sup>152</sup>

---

<sup>148</sup> Ex. EERA-13 at 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 6-7 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>149</sup> Ex. EERA-13 at 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>150</sup> Ex. EERA-13 at 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 11 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)); *see* MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>151</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>152</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).



119. For the Purple Route, the Applicants proposed three different design options: (1) a single-circuit H-frame; (2) a single-circuit monopole; and (3) a double-circuit monopole. Both single-circuit designs (options 1 and 2) will be constructed parallel next to the existing transmission lines, except within Minneopa State Park and the Nelson WPA where they will be double-circuited. The double-circuit design (option 3) will be constructed on a monopole structure with existing transmission lines and on single-circuit monopole structures in areas where the new transmission line does not follow an existing transmission line corridor.<sup>153</sup>

120. Segment Alternative F to the Purple Route was included in the Applicant's Route Permit Application as an option to avoid crossing Minneopa State Park.<sup>154</sup> This segment is approximately 3.8 miles long.<sup>155</sup> It departs from the Purple Route to the west, crosses the Minnesota River near the town of Judson, and continues to the south until rejoining the Purple Route. Segment Alternative F would nearly triple the area of prime farmland within the right-of-way and not follow an existing right-of-way for its length when compared to the equivalent segment of the Purple Route.<sup>156</sup> While Segment Alternative F minimizes impacts to wetlands and Minneopa State Park, it places 32 more residences within 1,000 feet of the right-of-way, almost doubles the amount of agricultural land within the right-of-way to 23.4 acres, and increases the number of monopole structures when compared to the equivalent segment of the Purple Route.<sup>157</sup>

121. Near the Watonwan River, the original Purple Route crosses a parcel of land that is currently owned by Pheasants Forever, and this parcel is in the process of being transferred to the USFWS to be added to an existing WPA.<sup>158</sup> As the Applicants may be unable to obtain a new transmission line easement across the Pheasants Forever parcel, the Applicants developed Segment Alternatives H through M to avoid current and future WPA land and to cross the Watonwan River at

---

<sup>153</sup> Ex. XC-7 at ES-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>154</sup> Ex. XC-7 at 46 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>155</sup> Ex. XC-7 at 46 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>156</sup> Ex. EERA-13 at 3-10 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. EERA-13 at 7-17 to 7-21 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>157</sup> Ex. XC-7 at 46 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-10 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. EERA-13 at 7-17 to 7-21 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>158</sup> Ex. XC-19 at 25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

locations that minimize impacts to the Watonwan River valley.<sup>159</sup> These segments were developed as a result of a field visit conducted by the Applicants and the MnDNR in consultation with the DOC-EERA.<sup>160</sup>

122. In Direct Testimony, the Applicants stated that they no longer support the original Purple Route near the Watonwan River due to the difficulty in obtaining the necessary land rights but did not state a preference as to the remaining segment alternatives (route segments H-M).<sup>161</sup>

123. In Rebuttal Testimony, the Applicants indicated that they believe Segment Alternative I is no longer permissible because it crosses land recently purchased and integrated into the existing Nelson WPA.<sup>162</sup> Based on the high probability of additional land being acquired by the USFWS and higher cost, the Applicants stated in Rebuttal Testimony that they no longer support Segment Alternatives H, I, J, and K and instead prefer Segment Alternatives L or M for the Watonwan River crossing.<sup>163</sup> When comparing Segment Alternatives L and M, Segment Alternative L is shorter in length, has fewer non-residential buildings within 200 to 500 feet, follows a longer length of existing linear features, and has less forested area to be cleared than Segment Alternative M.<sup>164</sup> In its March 14, 2018, letter, the MnDNR stated that Segment M crossed a native plant community consisting of very mature basswood and bur oaks.<sup>165</sup> The MnDNR requested that the alignment for Segment M be shifted 125 feet to the west to avoid this native plant community.<sup>166</sup>

---

<sup>159</sup> Ex. XC-19 at 25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>160</sup> Ex. EERA-13 at 3-12 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 24-25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>161</sup> Ex. XC-19 at 25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>162</sup> Ex. XC-20 at 12-14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>163</sup> Ex. XC-20 at 12-14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

<sup>164</sup> Ex. XC-20 at 12-14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>165</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>166</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

124. Segment Alternative N was proposed during scoping for the EIS to minimize impacts to farmland.<sup>167</sup> It follows a drainage ditch, requiring two additional public water crossings, and adds approximately 0.6 miles of length to the Purple Route. Segment Alternative N has three more residences within 1,000 feet of the proposed alignment, would have greater aesthetic impacts, and would have approximately 12 more acres of agricultural land within its right-of-way when compared to an equivalent segment of the Purple Route, at an additional cost of \$2.7 million.<sup>168</sup>

125. Segment Alternative BB was proposed by the Applicants after the Draft EIS was issued in response to comments from the MnDNR requesting the number of crossings of Willow Creek be reduced along the Purple Route.<sup>169</sup> Segment Alternative BB reduces the number of crossings of Willow Creek from three to one.<sup>170</sup> Located south of 121st Street, Segment Alternative BB proceeds northwest to cross Willow Creek once and then turns north along property lines before proceeding northeast to rejoin the Purple Route.<sup>171</sup> Segment Alternative BB also reduces the number of residences within 300-feet of the proposed alignment from one to none, forest clearing from 3.2 acres to 0.5 acres, wetland in the right-of-way from 2.32 acres to 0.5 acres, and forested wetland in the right-of-way from 1.7 acres to 0.3 acres, while only slightly increasing the overall length and cost, when compared to the equivalent segment of the Purple Route.<sup>172</sup>

126. Alignment Alternative AA-3 to the Purple Route was proposed during scoping for the EIS by a landowner. Near the Huntley Substation, this alignment would triple-circuit the new 345 kV line with the existing Minnesota to Iowa 345/161 kV line (AA-3a) or move the alignment to the south side of 160<sup>th</sup> Street (AA-3b).<sup>173</sup>

---

<sup>167</sup> Ex. EERA-13 at 3-14 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. EERA-13 at 7-34 to 7-38 (Draft EIS) (eDocket No. [201812-148307-17](#)); Ex. XC-19 at 25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>168</sup> Ex. EERA-13 at 3-14 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. EERA-13 at 7-34 to 7-38 (Draft EIS) (eDocket No. [201812-148307-17](#)); Ex. XC-19 at 25 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>169</sup> Ex. EERA-13 at 2-3 (MnDNR comment letter on DEIS) (eDocket No. [20192-150008-01](#)).

<sup>170</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>171</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>172</sup> Ex. XC-27 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>173</sup> Ex. EERA-13 at 3-21 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 26 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).



127. Both alignments move the line away from a seasonal hunting trailer so that it is no longer within the Purple Route's right-of-way. The owner of this trailer stated at the public hearing in Mankato that she is opposed to the Purple Route unless the alignment is moved to the south side of 160<sup>th</sup> Street (AA-3b).<sup>174</sup> The costs are \$700,000 more for Alignment Alternative AA-3b and \$2.64 million more for Alignment AA-3a than for the corresponding portion of the Purple Route.<sup>175</sup> The substantial cost increase of Alignment Alternative AA-3a is primarily due to the fact that its use would require removing the existing double-circuit 345 kV/161 kV structures and foundations installed in 2018 by ITC Midwest, and replacing them with new taller triple-circuit structures. In addition, the Applicants generally prefer avoiding triple-circuit designs due to operational concerns and maintenance safety.<sup>176</sup> In its March 14, 2018, letter, the MnDNR stated a preference for Alignment Alternative AA-3a and Alignment Alternative AA-3b over the original Purple Route due to the reduced impacts to forested habitat of these alignment alternatives.<sup>177</sup>

## **B. Green Route**

128. The Green Route is approximately 45.4 miles long and follows 5.4 miles of existing transmission lines.<sup>178</sup> It was developed by the Applicants to provide an alternative with a direct path to the south while avoiding crossing of Minneopa State Park. From the Wilmarth Substation, the Green Route follows the Lakefield Junction – Wilmarth line for 4.5 miles north and west and then departs from this line in Belgrade Township, heading south along property lines through agricultural and residential areas.<sup>179</sup> The Green Route bypasses Minneopa State Park by heading east between the Minnesota River and North Mankato and crosses the river by double-circuiting with the existing South Bend – Wilmarth 115 kV transmission line.<sup>180</sup> Once across the Minnesota River, the Green Route heads west along U.S. Highway 169 for one mile, where it turns south.<sup>181</sup> After departing from the highway, the Green Route takes a relatively direct route south for 30 miles to the Huntley Substation, generally

---

<sup>174</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 31 (Davis) (Feb. 27, 2019).

<sup>175</sup> Ex. EERA-13 at 7-62 to 7-65 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>176</sup> Ex. XC-26 at 4-5 (Stevenson Rebuttal) (eDocket No. [201812-148564-04](#)).

<sup>177</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>178</sup> Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>179</sup> Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>180</sup> Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>181</sup> Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

along field divisions and roads with a few deviations from these features to avoid homes<sup>182</sup>

129. While the Green Route avoids crossing Minneopa State Park, it traverses along the western fringe of North Mankato in areas that are designated as future residential or industrial development in North Mankato's Comprehensive Development Plan.<sup>183</sup>

130. For the Green Route, the Applicants proposed two design options: (1) single-circuit H-frame structures; or (2) single-circuit monopole structures. The Green Route follows the existing Lakefield Junction – Wilmarth Line leaving the Wilmarth Substation but the Applicants proposed to construct this segment as a single-circuit design adjacent to the existing line. The only location where the Applicants proposed to double-circuit the Green Route with an existing line is for a one-mile segment across the Minnesota River.<sup>184</sup>

131. Segment Alternative O, proposed during scoping for the EIS, is a 5.1-mile modification of the Green Route to follow County Road 107 rather than property lines. Segment Alternative O is longer in length, has fewer residences within 200 to 500 feet of the alignment but more residences within 500 to 1,000 feet, has more acres of CREP easements within the right-of-way, has more non-residential buildings within 500 to 1,000 feet, and more acres of non-forested wetlands within the right-of-way than the equivalent segment of the Green Route.<sup>185</sup>

132. The Applicants also proposed several segment alternatives that relate to both the Green Route and the Red Route, which are discussed further, below.

### **C. Red Route**

133. The Red Route is approximately 46.5 miles long and follows 26.3 miles of existing transmission lines.<sup>186</sup> The Red Route shares the same route with the Green Route for the northern 16 miles. The Red and Green routes proceed together

---

<sup>182</sup> Ex. EERA-13 at 3-4 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 15-17 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41-42, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>183</sup> Ex. EERA-13 at A-3 (Draft EIS) (eDocket No. [201812-148310-03](#)).

<sup>184</sup> Ex. XC-7 at ES-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>185</sup> Ex. EERA-13 at 3-15 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 26 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>186</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

around the edge of North Mankato, through Belgrade Township, and across the Minnesota River.<sup>187</sup> The Red Route departs from the Green Route near Rapidan Township where it follows the existing Huntley – South Bend 161 kV transmission line for approximately 24 miles and then continues south and west approximately 6 miles, joining the Green Route into the Huntley Substation.<sup>188</sup>

134. For the Red Route, the Applicants proposed to double-circuit the 345 kV line in all areas where this route follows existing transmission line corridors: in the north when exiting the Wilmarth substation, across the Minnesota River Valley, and along the Huntley – South Bend 161 kV transmission line. In the areas where the route does not follow existing transmission line corridors, the Applicants propose either: (1) single-circuit H-frame structures; or (2) single-circuit monopole structures.<sup>189</sup>

135. Segment Alternatives A and B, which relate to both the Green Route and the Red Route because these two routes share the same alignment in this area, were proposed by the Applicants in the Route Permit Application to address proximity to residential areas and future development plans by North Mankato and Belgrade Township.<sup>190</sup>

136. Segment Alternative A is 3.8 miles long; it follows the Purple Route from the Wilmarth Substation before it diverges from the Purple Route west of 405<sup>th</sup> Avenue traveling south for 1.7 miles.<sup>191</sup> It crosses U.S. Highway 14 and 526<sup>th</sup> Street before turning southeast and crossing 409<sup>th</sup> Avenue, and rejoins the Green and Red routes west of Rockford Road. Segment Alternative A is longer in length, crosses more acres of forested wetland, has more than twice the number of non-residential buildings within 500 to 1,000 feet, has an additional watercourse crossing, and has more residences within 500 to 1,000 feet than the equivalent segment of the Red Route.<sup>192</sup> Segment Alternative A would add 11 double-circuit monopole structures

---

<sup>187</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>188</sup> Ex. EERA-13 at 3-4 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 12-14 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 42, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>189</sup> Ex. XC-7 at ES-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>190</sup> Ex. EERA-13 at 3-5 to 3-7 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 21 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 44-45 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>191</sup> Ex. EERA-13 at 7-3 and 7-4 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>192</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)).

and 15 single-circuit monopole structures, and would cost \$2.13 million more (2016\$) than the comparable segments of the Green Route and the Red Route.<sup>193</sup>

137. Segment Alternative B is 2.9 miles long; it diverges from the Green and Red routes south of U.S. Highway 14 and continues south along Rockford Road for 1.1 miles before rejoining the Green and Red routes near Judson Bottom Road.<sup>194</sup> Segment Alternative B has significantly less forested land and somewhat less agricultural land within its right-of-way. It would add seven double-circuit monopole and seven single-circuit monopole structures when compared to the equivalent segments of the Green Route and the Red Route. Segment Alternative B would have 25 more residences within 1,000 feet of the proposed alignment and would cost approximately \$570,000 less (2016\$) than the equivalent segment of the Green and Red routes.<sup>195</sup>

138. Segment Alternative D, proposed by the Applicants in the Route Permit Application, is 2.0 miles long and connects the Red and Green routes near their midpoints.<sup>196</sup> This connection would allow the use of a combination of Red and Green routes.<sup>197</sup> Segment Alternative D minimizes aesthetic impacts by following road right-of-way (137th Street) for a portion of its length.<sup>198</sup> The Red Route in this area is proposed to be double-circuited with an existing 161 kV line; the Green Route is a greenfield route, i.e., it primarily follows field and section lines.<sup>199</sup> Using Segment Alternative D as a crossover would have more aesthetic and agricultural impacts than selecting the Red Route, as proposed, and fewer aesthetic and agricultural impacts than the Green Route, as proposed.<sup>200</sup>

139. Segment Alternative R relates to the Red Route and was proposed by the Applicants during scoping for the EIS to provide an alternative option to connect to the Huntley Substation through existing transmission corridors. Segment Alternative

---

<sup>193</sup> Ex. EERA-13 at 7-3 and 7-4 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>194</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>195</sup> Ex. EERA-13 at 7-3 and 7-4 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>196</sup> Ex. XC-7 at 47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>197</sup> Ex. EERA-13 at 3-8 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 22 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>198</sup> Ex. EERA-13 at 7-8 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>199</sup> Ex. EERA-13 at 7-8 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>200</sup> Ex. EERA-13 at 7-8 to 7-11 (Draft EIS) (eDocket No. [201812-148307-17](#)).

R is 2.5 miles long and follows an existing 161 kV transmission line that does not cross a WPA.<sup>201</sup> Segment Alternative R minimizes aesthetic impacts for the Red Route because it is double-circuited with an existing transmission line and minimizes agricultural impacts because it reduces the number of structures in the right-of-way by 31. Segment Alternative R costs \$2.81 million more (2016\$) than the equivalent segment of the Red Route.<sup>202</sup>

140. Segment Alternative Y relates to the Red Route and is 2.9 miles long. It was added to the scope of the Draft EIS by the Commission and moves the Red Route to the west to follow an existing 161 kV transmission line corridor instead of the road corridor of 405<sup>th</sup> Avenue.<sup>203</sup> Segment Alternative Y minimizes aesthetic impacts because of its proximity to residences and use of existing transmission lines, minimizes agricultural impacts by reducing the number of structures in agricultural land by 21, increases impacts to wetlands, and costs approximately \$440,000 more than the equivalent segment of the Red Route.<sup>204</sup> In its March 14, 2018 letter, the MnDNR stated a preference for the original Red Route with double-circuiting over Segment Y noting that the double-circuit design would remove an existing transmission line from running parallel to the Smith Wildlife Management Area (WMA).<sup>205</sup>

#### **D. Blue Route**

141. The Blue Route is approximately 57.0 miles long and follows 9.7 miles of existing transmission lines.<sup>206</sup> The Blue Route exits the Wilmarth Substation to the east and traverses around Mankato following the existing Wilmarth – Dome Pipeline 115 kV transmission line for 3.7 miles.<sup>207</sup> Approximately 0.5 miles east of Highway 22, the Blue Route departs from the existing 115 kV line and turns to the southeast following a railroad/road corridor for 2.6 miles.<sup>208</sup> After heading south from the rail

---

<sup>201</sup> Ex. EERA-13 at 3-16 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 28 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>202</sup> Ex. EERA-13 at 7-48 to 7-52 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>203</sup> Ex. EERA-13 at 3-18 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 26 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>204</sup> Ex. EERA-13 at 7-52 to 7-56 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>205</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>206</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>207</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>208</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

corridor and crossing Highway 14, the Blue Route continues approximately 40 miles to the south through farmland, primarily on field divisions and roads.<sup>209</sup> In Barber Township, the Blue Route joins and follows an existing 161 kV line, continuing to the west for approximately six miles. The last five miles of the Blue Route are shared with the Red and Green routes, following 160<sup>th</sup> Street to the Huntley Substation.<sup>210</sup>

142. The Applicants adjusted the Blue Route alignment after the Route Permit Application was submitted to avoid a wooded wetland complex east of Mankato. The wetland is protected by a deed restriction on vegetation removal, which is problematic for the safe construction and operation of the proposed transmission line. The Applicants adjusted the Blue Route alignment approximately 0.25 miles to the west.<sup>211</sup>

143. While the Blue Route avoids crossing Minneopa State Park and the Minnesota River, it is constrained by the close proximity to the development areas in the eastern fringe of Mankato and the Mankato Regional Airport.<sup>212</sup> The Blue Route is located approximately one mile from the Mankato Regional Airport.<sup>213</sup>

144. For the Blue Route, the Applicants proposed two different design options: (1) a single-circuit H-frame, and (2) a single-circuit monopole. A segment near the Wilmarth Substation and a segment east of the Huntley Substation would be constructed as a double-circuit monopole.<sup>214</sup>

145. Segment Alternative G, which is approximately 3.4 miles long, was suggested by Mankato to minimize potential impacts of the Blue Route on the Eastwood Solar Farm. Route Segment G moves the route slightly to the east, following a segment of County Road 86 where 13 homes are located.<sup>215</sup> Segment Alternative G avoids the potential for impacts to the Eastwood Solar Farm and

---

<sup>209</sup> Ex. XC-7 at 42 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>210</sup> Ex. EERA-13 at 3-4 to 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 18-19 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 42, 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>211</sup> Ex. XC-19 at 20 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>212</sup> Ex. XC-19 at 30-31 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>213</sup> Ex. EERA-13 at 3-11 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>214</sup> Ex. XC-7 at ES-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>215</sup> Ex. EERA-13 3-11 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 27 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).



reduces the area of wetlands in the right-of-way, has 13 more residences with 1,000 feet, and costs approximately \$2.0 million more when compared to the equivalent segment of the Blue Route.<sup>216</sup>

146. Segment Alternative P is an alternative near the southern end of the Blue Route and was proposed by a landowner to minimize agricultural impacts. This segment is approximately 8.7 miles long and departs from the Blue Route just west of County Road 17. The Applicants analyzed, but did not propose, this segment because it has four additional houses within 500 feet (the corresponding Blue Route segment has none) and adds four angle structures, thereby increasing costs by approximately \$1.55 million (2016\$) over the equivalent segment of the Blue Route.<sup>217</sup>

147. Segment Alternative Q relates to the Green, Red, and Blue routes and was proposed by the Applicants during scoping for the EIS to provide an alternative option to connect to the Huntley Substation through existing transmission corridors.<sup>218</sup> Segment Alternative Q is approximately 4.8 miles long; it is double-circuited with an existing 161 kV line through the Prescott WPA.<sup>219</sup> USFWS staff has informally indicated that they do not prefer this Segment Alternative.<sup>220</sup> Segment Alternative Q minimizes aesthetic impacts because it follows existing transmission line, minimizes agricultural impacts by reducing the number of monopole structures by 37, and would cost an additional \$3.2 million (2016\$) because of its double-circuit construction when compared to the equivalent segments of the Blue, Red, and Green routes.<sup>221</sup>

148. Segment Alternative CC was proposed by the Applicants after the Draft EIS was issued in response to comments received by a landowner at a January 9, 2019, public meeting.<sup>222</sup> The landowner indicated that he is currently building a house within the proposed right-of-way of the Blue Route at 203<sup>rd</sup> Street in Mankato

---

<sup>216</sup> Ex. EERA-13 at 7-21 to 7-25 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>217</sup> Ex. EERA-13 at 3-16 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 27-28 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>218</sup> Ex. XC-19 at 28 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>219</sup> Ex. EERA-13 at 7-45 to 7-48 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>220</sup> Ex. EERA-13 at 3-16 to 3-17 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 28-29 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>221</sup> Ex. EERA-13 at 7-45 to 7-48 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>222</sup> Mankato 1:00 p.m. Draft EIS Pub. Hrg. Tr. at 36 (Woitas) (Jan. 9, 2019); Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

Township.<sup>223</sup> Segment Alternative CC uses a portion of Segment Alternative G, following property boundaries across the LeSueur River to rejoin with the Blue Route at 594<sup>th</sup> Avenue.<sup>224</sup> Segment Alternative CC also reduces the number of stream crossings from two to one, decreases the amount of forest clearing from 9.1 acres to 7.0 acres, and reduces costs by \$410,000 (2016\$) when compared to the equivalent segment of the Blue Route.<sup>225</sup>

149. Alignment Alternative AA-2 to the Blue Route was proposed by a landowner to shift the line to the west to minimize agricultural and residential impacts. Alignment Alternative AA-2 departs from the Blue Route north of Minnesota State Highway 83.<sup>226</sup> Alignment Alternative AA-2 would increase costs by approximately \$1.1 million (2016\$) than the equivalent segment of the Blue Route.<sup>227</sup>

### **E. Purple-E-Red Route**

150. The Purple-E-Red Route is a combination of the Purple and Red routes, as connected by Route Segment E proposed by the Advisory Task Force.<sup>228</sup> This route alternative is approximately 55 miles long and uses those portions of the Purple and Red routes that follow existing transmission lines, and as a result, a larger portion of this route alternative is double-circuit design in an existing transmission line corridor (approximately 32.3 miles). The Purple-E-Red Route exits the Wilmarth Substation along the Purple Route and after crossing the Minnesota River, follows Segment Alternative E to the Red Route.<sup>229</sup>

151. Segment Alternative E was proposed by the Applicants in the Route Permit Application.<sup>230</sup> It is approximately 11.8 miles long and provides a connection

---

<sup>223</sup> Mankato 1:00 p.m. Draft EIS Pub. Hrg. Tr. at 36 (Woitas) (Jan. 9, 2019); Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>224</sup> Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>225</sup> Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>226</sup> Ex. EERA-13 at 3-20 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 28 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>227</sup> Ex. EERA-13 at 7-59 to 7-62 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>228</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 23 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>229</sup> Ex. EERA-13 at 3-5 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 23 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>230</sup> Ex. XC-7 at 47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



from the Purple Route, after crossing the Minnesota River, to the Green and Red routes.<sup>231</sup> This segment departs from the Purple Route near County Road 42, crosses Minneopa Creek, turns east following Highway 60, and turns south crossing the Blue Earth River.<sup>232</sup>

152. Segment Alternative E2 was proposed by the Applicants during scoping for the EIS to provide an alternative option to Segment Alternative E that could minimize impacts to residences.<sup>233</sup> Segment Alternative E2 is identical to Segment Alternative E except that after crossing the Blue Earth River it turns east and connects with the Green and Red routes about 2.2 miles farther north than Segment Alternative E.<sup>234</sup>

153. Segment Alternative E and Segment Alternative E2 minimize aesthetic impacts and impacts to the areas identified by the City of North Mankato as targeted for future development. Both segment alternatives would have about 65 less residences within 1,000 feet of the proposed alignment, have significantly more agricultural land within the rights-of-way (approximately 190 acres compared to approximately 87 acres), add a significant number of structures (approximately 15 double-circuit and 40 parallel monopole structures), and cost approximately \$19 million (2016\$) more than the equivalent segment of the Red Route.<sup>235</sup>

154. Alignment Alternative AA-1 was proposed during scoping for the EIS to provide an alignment alternative option for Segment Alternative E. For a relatively short distance near the intersection of Highways 60 and 169, Alignment Alternative AA-1 travels on the south side of Highway 169 instead of the north side.<sup>236</sup> Alignment Alternative AA-1 would place the transmission line at a greater distance from residences on the north side of the highway, but closer to businesses on the

---

<sup>231</sup> Ex. XC-7 at 47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>232</sup> Ex. EERA-13 at 3-8 to 3-9 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 22 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 47 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>233</sup> Ex. EERA-13 at 3-8 to 3-9 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 29 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>234</sup> Ex. EERA-13 at 3-8 to 3-9 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 29 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>235</sup> Ex. EERA-13 at 7-12 to 7-17 (Draft EIS) (eDocket No. [201812-148307-17](#)).

<sup>236</sup> Ex. EERA-13 at 3-19 (Draft EIS) (eDocket No. [201812-148307-08](#)).

south side of the highway, when compared to the proposed alignment for Segment Alternative E.<sup>237</sup>

## **F. Applicants' Recommended Route Configurations and Designs**

155. In their post-hearing brief, the Applicants provided their recommended route configurations and designs for each of the five routes. These recommendations were based on Applicants' examination of all potential design options, analysis of all routes, including segment and alignment alternatives, evaluation of the Draft EIS, and review of comments received from the public, federal and state agencies, and local government units.

156. Based on this analysis, the Applicants recommended that (1) H-Frame structures (with two poles 20 to 30 feet apart) no longer be considered to ensure agricultural impacts are minimized for the Project, and (2) the single-circuit, monopole design constructed adjacent to the existing H-frame Lakefield Junction – Wilmarth 345 kV line no longer be considered for the Purple Route. The adjacent design would result in far higher agricultural impacts than other design alternatives due to the increased number of structures.

157. The Applicants also refined each of the five route options included in the Draft EIS by incorporating segment and alignment alternatives that best minimize potential human and environmental impacts. The Applicants' recommended route configurations for the five route options are described below.

### *1. PURPLE ROUTE*

158. Based on comments from the MnDNR, the Applicants recommend that the Purple Route incorporate Segment Alternative BB to reduce the number of crossings of Willow Creek and to limit forest clearing. The Applicants further recommend that the Purple Route incorporate Segment Alternative L to avoid current and future WPA near the Watonwan River area that are in the process of being added to the federal refuge system and minimize residences within 200 feet to 500 feet and watercourse crossings. The USFWS stated it will not allow a new transmission line to cross these current and future WPA parcels. The Applicants' recommended route configuration for the Purple Route incorporates Segment Alternatives BB and L, and is referred to as the Purple-BB-L Route.

---

<sup>237</sup> Ex. EERA-13 at 3-19 (Draft EIS) (eDocket No. [201812-148307-08](#)).

## 2. *GREEN ROUTE*

159. The Applicants did not recommend any modifications to the Green Route.

## 3. *RED ROUTE*

160. Based on public comments in this proceeding and information in the Draft EIS, the Applicants recommended that the Red Route incorporate double-circuited Segment Alternative Q to reduce agricultural impacts by reducing the number of structures in this segment. The Applicants' recommended configuration for the Red Route incorporates Segment Alternative Q, and is referred to as the Red-Q Route.

## 4. *BLUE ROUTE*

161. Based on public comments in this proceeding and information in the Draft EIS, the Applicants recommended that the Blue Route incorporate Segment Alternative CC to avoid conflict with a new house that a landowner has stated is being constructed within the right-of-way. The Applicants also recommended that the Blue Route incorporate a double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Blue Route incorporates segment alternatives CC and Q, and is referred to as the Blue-CC-Q Route.

## 5. *PURPLE-E-RED ROUTE*

162. Based on public comment in this proceeding and information in the Draft EIS, the Applicants recommended that the Purple-E-Red Route include Alignment Alternative AA-1 to increase distance from existing residences. The Applicants further recommended that the Purple-E-Red Route incorporate double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Purple-E-Red Route incorporates Segment Alternative Q and Alignment Alternative AA-1, and is referred to as the Purple-E-AA1-Red-Q Route.

## **G. Transmission Line Structures and Conductors**

163. The Applicants propose to mainly use single-pole steel pole structures. The monopole structures will be a single-circuit design if they accommodate only the new 345 kV transmission line. The monopole structures can be a double-circuit design in areas where the route follows existing transmission line corridors and will

accommodate both the new 345 kV line and an existing transmission line on the same structure.<sup>238</sup>

164. Certain Project areas may require multiple pole or other specialty structures.<sup>239</sup> Examples of such areas include locations where the route changes direction, along highways, or in environmentally-sensitive locations.<sup>240</sup> For instance, three-pole structures may be used on all proposed routes to accommodate large angles where the transmission line route changes direction.<sup>241</sup>

165. The proposed monopole structures will typically range in height from approximately 90 feet to up to 170 feet.<sup>242</sup> The span length between structures will be approximately 1,000 feet. In some circumstances, design requirements or topography may require longer or shorter spans.<sup>243</sup>

166. A monopole structure is typically installed on a concrete foundation.<sup>244</sup>

167. The proposed conductors for the Project will consist of double-bundled, twisted pair Dove (2-556.5 kcmil) Aluminum Conductor Steel Reinforced cables, or cables with comparable capacity.<sup>245</sup> The 345 kV twisted pair conductors will have a capacity equal to or greater than 3,000 amps.<sup>246</sup> In locations where the new 345 kV line is proposed to be built as a double-circuit line, i.e., co-located with an existing

---

<sup>238</sup> Ex. XC-7 at 11-13 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-23 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>239</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>240</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>241</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>242</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>243</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-23 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>244</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 4 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-23 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>245</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>246</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

transmission line, the conductor for the existing line would be sized appropriately for new construction at that voltage.<sup>247</sup>

## **H. Right-of-Way and Route Width**

168. The right-of-way is the area required for the safe construction and operation of the transmission line.<sup>248</sup> The typical right-of-way width for the Project will be 150 feet regardless of which type of pole structure option is used.<sup>249</sup> All construction activities and permanent structures will be contained within the 150-foot right-of-way.<sup>250</sup> Any residences or other buildings located within a proposed right-of-way are generally removed or displaced.<sup>251</sup> Similarly, any trees and other woody vegetation in the right-of-way will be cleared and replaced with low-growing vegetation.<sup>252</sup>

169. When the new line follows existing roads, the Applicants propose to place structures on adjacent private property, approximately 10 feet offset from the existing road right-of-way.<sup>253</sup> In areas where a 10-foot offset is not feasible, structures may be placed inside road rights-of-way, subject to the road authority's utility accommodation policy.<sup>254</sup>

170. When the new line follows existing transmission line corridors, the Applicants propose to place the new double-circuit structures on the same centerline as the existing transmission line, with the exception of the northern portions of the Purple and Red routes.<sup>255</sup> To allow the existing 345 kV line to remain in service

---

<sup>247</sup> Ex. XC-7 at 11 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 9 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>248</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>249</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>250</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 8 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-26 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>251</sup> Ex. EERA-13 at 5-11 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>252</sup> Ex. EERA-13 at 5-71 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>253</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>254</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-26 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>255</sup> Ex. XC-25 at 7 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

during the construction of the Project, the Applicants propose to offset the new double-circuit structures 100 feet to the north and northwest of the existing line, for 18.5 miles for the Purple Route from the Wilmarth Substation and for 4 miles for the Red Route from the Wilmarth Substation.<sup>256</sup> After the new line is constructed, the old line is removed.<sup>257</sup>

171. If the permitted route follows existing transmission line rights-of-way through Minneopa State Park or WPA, the Applicants will use existing easements and place the new structures on the same centerline as the existing structures so that no additional easement rights would be needed.<sup>258</sup>

172. The transmission line must be constructed within the route designated by the Commission unless, after permit issuance, permission to proceed outside the route is sought by the Applicants and approved by the Commission.<sup>259</sup> As a result, the route width of a transmission line is wider than the right-of-way to provide some flexibility in designing and constructing the line.<sup>260</sup> The route width allows the Applicants to address any landowner concerns and engineering issues that may arise after a route permit is issued.<sup>261</sup> Once the utility establishes a final alignment and structure placement, the Applicants will acquire a 150-foot wide right-of-way centered on the structure location (75 feet on each side of the structure).<sup>262</sup>

173. The Applicants have requested a route width of 1,000 feet for the transmission line and of 1,000 feet surrounding the Wilmarth and Huntley substations to accommodate the potential relocation of existing lines entering the substations.<sup>263</sup> The Applicants have requested an additional route width of approximately 4,000 feet for a section of the Blue Route near Mankato, where the route proceeds south of

---

<sup>256</sup> Ex. XC-25 at 7 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>257</sup> Ex. XC-25 at 7 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>258</sup> Ex. XC-7 at 14 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-26 to 3-27 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>259</sup> Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>260</sup> Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>261</sup> Ex. XC-7 at 9 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>262</sup> Ex. EERA-13 at 3-26 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>263</sup> Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

County Road 3 and U.S. Highway 14 until reaching Section 23 of Mankato Township, where the route width narrows back to 1,000 feet.<sup>264</sup>

## **I. Project Schedule**

174. The Project is expected to be placed in service in December 2021, immediately prior to MISO's designated in-service date of January 1, 2022. Construction of the Project is anticipated to commence in 2020.<sup>265</sup> The Applicants provided a preliminary Project schedule, subject to change, as shown in **Table 1**.

**Table 1: Anticipated Project Schedule<sup>266</sup>**

Activity	Estimated Dates
Minnesota Certificate of Need and Route Permit Issued	Second Quarter, 2019
Survey and Transmission Line Design Begins	Second Quarter, 2019
Land Acquisition Begins	Third Quarter, 2019
Other Federal, State, and Local Permits Issued	First Quarter, 2020
Start Right-of-Way Clearing	Second Quarter, 2020
Start Project Construction	Second Quarter, 2020
Project In-Service	December 2021

## **J. Project Costs and MISO Variance Analysis**

175. The Huntley – Wilmarth Project was studied, reviewed, and approved by the MISO Board of Directors as a Market Efficiency Project (MEP) in December 2016 in its annual Transmission Expansion Plan (MTEP16) report.<sup>267</sup> Therefore,

---

<sup>264</sup> Ex. XC-7 at 10 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>265</sup> Ex. XC-7 at 15 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>266</sup> Ex. XC-7 at 15 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 13 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>267</sup> Ex. XC-7 at ES-1, 21 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 5, 7 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).



Project costs are a key inputs in evaluating the need and economic benefits of the Project.<sup>268</sup>

176. The Applicants have a high degree of confidence in the cost estimates prepared for the Project.<sup>269</sup>

177. Due to the importance of costs in assessing the need for the Project, the Applicants implemented a more robust cost estimation process for the Project than is typically used prior to submitting a route permit application to the Commission.<sup>270</sup> In doing so, the Applicants developed costs that are specific to each route and pole structure design proposed in the Route Permit Application. These cost estimates allow for an evaluation of each route and design option for the Project in terms of how each option affects the projected benefit-to-cost ratio of the Project.<sup>271</sup>

178. Route and structure design options have varying costs and varying impacts on the human and natural environments. In general, H-frame structures are the least expensive type of structure, followed by single-pole, single-circuit structures and then single-pole, double-circuit structures. While H-frame structures are generally the least expensive, they may have greater impacts on agricultural and other land use due to the two-pole design.<sup>272</sup> In general, monopole structures are about 10 to 15 percent more expensive than H-frame structures, and double-circuiting with an existing line is more expensive than paralleling the line.<sup>273</sup> Double-circuiting a line, however, can reduce human and environmental impacts.<sup>274</sup>

179. For the total Project costs, the Applicants estimated costs for several categories of building a transmission line, including (1) transmission line structures and materials; (2) transmission line construction and restoration; (3) transmission line

---

<sup>268</sup> Ex. XC-7 at ES-2 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-19 at 5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-25 at 10-11 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>269</sup> Evid. Hrg. Tr. at 20:16-22:19 (Stevenson).

<sup>270</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>271</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 10-11 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Evid. Hrg. Tr. at 20:16-25:17 (Stevenson).

<sup>272</sup> Ex. XC-19 at 6 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>273</sup> Ex. EERA-13 at 3-33 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>274</sup> Ex. XC-7 at ES-2 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



permitting and design; (4) transmission line right-of-way acquisition; and (5) substation materials, permitting, design, and construction.<sup>275</sup>

180. Based on the robust cost estimation analysis, the Applicant's calculated total Project costs for the route and design options proposed in the Route Permit Application range from \$105.8 million to \$138.0 million (2016\$).<sup>276</sup> These costs, as prepared for the Route Permit Application, are listed in **Table 2** below.

**Table 2: Total Project Costs (2016\$)<sup>277</sup>**

Design Option	Route Option			
	Purple Route (West Route) (Millions)	Green Route (Middle Route) (Millions)	Red Route (Middle Route) (Millions)	Blue Route (East Route) (Millions)
Single-Circuit H-Frame		\$109.0		
Single-Circuit Monopole		\$121.3		
Single-Circuit Parallel H-frame	\$105.8			
Single-Circuit Parallel Monopole	\$121.7			
Double-Circuit Monopole and Single-Circuit H-Frame			\$135.2	\$123.7
Double-Circuit Monopole and Single-Circuit Monopole	\$137.9		\$138.0	\$135.8

181. The Applicants prepared cost estimates for the segment alternatives (A-F) proposed in the Route Permit Application.<sup>278</sup> The Applicants also developed cost

<sup>275</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>276</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>277</sup> Ex. XC-7 at 16 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-25 at 9-10 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>278</sup> Ex. XC-7 at 17-18 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

estimates for the new Purple-E-Red Route and segment and alignment alternatives proposed during scoping and included in the Draft EIS.<sup>279</sup>

182. The costs for all route, segment, and alignment alternatives were summarized in Schedule 2 of the Applicants' witness Mr. Stevenson's Direct Testimony and additional cost information was provided by the Applicants with their February 1, 2019, letter.<sup>280</sup> Of these alternatives, the lowest cost alternative is the Purple Route, single-circuit H-frame design with Segment Alternatives F and J at \$104.8 million (2016\$). The highest cost alternative is the Purple-E-Red Route, double-circuit design with Segment Alternatives E, Y, and Q at \$160.7 million (2016\$).<sup>281</sup>

183. The Applicants prepared recommended route configurations for each of the five route options by incorporating segment and alignment alternatives that the Applicants believe best minimize potential impacts. Cost estimates for the Applicants' recommended route configurations and designs are summarized in **Table 3**.

---

<sup>279</sup> Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

<sup>280</sup> Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. [20192-149943-02](#)).

<sup>281</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)); Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. [20192-149943-02](#)).

**Table 3: Cost Estimates for  
Applicants' Recommended Route Configurations<sup>282</sup>**

<b>Route Alternative</b>	<b>Cost (Millions) (2016\$)<sup>283</sup></b>	<b>Cost (Millions) (Escalated to anticipated year spend \$)<sup>284</sup></b>
<b>Purple-BB-L Route</b> <i>Purple Route Modified to Use Segment Alternatives BB and L Double-Circuit Monopole Design</i>	\$140.1	\$155.8
<b>Green Route</b> <i>Single-Circuit Monopole Design</i>	\$121.3	\$134.9
<b>Red-Q Route</b> <i>Red Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design</i>	\$141.2	\$157.1
<b>Blue-CC-Q Route</b> <i>Blue Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design</i>	\$138.6	\$154.1
<b>Purple-E-AA1-Red-Q Route</b> <i>Purple-E-Red Route Modified to Use Segment Alternative Q and Alignment Alternative AA-1 Double-Circuit Monopole Design</i>	\$159.7	\$178.2

<sup>282</sup> The costs for the Applicants' recommended route configurations were calculated using the cost estimates for the segment alternatives provided in Ex. XC-25 at Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-07](#)) and Ex. XC-27 (Applicants' Letter Proposing Purple and Blue Route Segment Alternatives)(eDocket No. [20192-149943-02](#)).

<sup>283</sup> "2016 dollars" or "(2016\$)" assumes that the Project would have been constructed (and dollars spent) in 2016.

<sup>284</sup> The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.

184. Another consideration related to the Project costs is the MISO variance process. Under Attachment FF of the MISO tariff, if the cost of this Project exceeds or is projected to exceed 25 percent or more of the Project's baseline cost estimate, MISO is required to initiate a new process called a variance analysis.<sup>285</sup>

185. The Project's baseline cost estimate is \$108 million (2016\$).<sup>286</sup> Applicants will update the Project's cost estimate provided to MISO after a route is determined by the Commission and the Applicants file their final cost estimates 45 days after the Commission issues its Route Permit Order.<sup>287</sup> Any final route with a cost estimate of \$135 million (2016\$) or more would trigger a MISO variance analysis.<sup>288</sup>

186. After a variance analysis has been triggered, MISO will investigate the facts and documentation and then, at the conclusion of this process, decide to: (1) take no action; (2) institute a mitigation plan to alleviate grounds for a variance; or (3) cancel the project.<sup>289</sup> Other than requiring a variance analysis, the MISO tariff does not dictate a particular outcome.

## **K. Permittees**

187. Northern States Power Company, a Minnesota corporation, and ITC Midwest LLC are the permittees for the Project.<sup>290</sup>

# **V. PUBLIC, LOCAL GOVERNMENT, AND FEDERAL AND STATE AGENCY PARTICIPATION**

## **A. Public Outreach**

188. The Applicants made significant efforts to reach out to the public before filing the Route Permit Application.<sup>291</sup>

---

<sup>285</sup> Ex. XC-24 at 35 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>286</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>287</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)); Ex. XC-26 at 2-3 (Stevenson Rebuttal) (eDocket No. [201812-148564-04](#)).

<sup>288</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>289</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>290</sup> Ex. XC-7 at 4 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>291</sup> Ex. XC-7 at 181 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

189. There were 25,000 public outreach mailers sent to the parcels in the Project Study Area regarding open house meetings for the Project. Local media covered the open houses, and newspaper articles and news stations provided information about the open houses.<sup>292</sup>

190. Applicants hosted two open houses for the Project to gather input from the public on several different transmission line routing options. Open house invitations sent to each land parcel within the Project Study Area. The first open house was held on June 20, 2017, at the Maple River High School in Mapleton, Minnesota. The second was held on June 21, 2017, at the Courtyard by Marriott in Mankato, Minnesota.<sup>293</sup>

191. One hundred and seventy-six formal and informal comments were collected and summarized during the open house meetings. Several common themes arose in these comments, including concern about crossing through farmland and potential impacts on agricultural practices; concerns about using double poles because they are difficult to farm around; avoiding environmentally-sensitive areas and preservation of natural beauty; concerns about impacts associated with the Blue Earth River crossing; concerns regarding transmission line safety, particularly in residential areas; and concerns over decreased property values and hindrances to development.<sup>294</sup>

192. Since filing the Route Permit Application, the Applicants maintained a list of approximately 20,000 landowners and residents in the Project area. The Applicants sent a mailing to this list on April 2, 2018, to notify people of the DOC-EERA scoping meetings and to provide a general update on the status of the Project.<sup>295</sup>

193. The Applicants also sent a mailing on September 5, 2018, to update landowners and residents about the issuance of the scoping decision and to provide other Project updates.<sup>296</sup>

194. The Applicants maintain a Project website, e-mail address, and phone line to allow the Applicants to continue to be available to members of the public to answer questions about the Project.<sup>297</sup>

---

<sup>292</sup> Ex. XC-7 at 181 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>293</sup> Ex. XC-7 at 181 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>294</sup> Ex. XC-7 at 182 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>295</sup> Ex. XC-19 at 32 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>296</sup> Ex. XC-19 at 32, Schedule 5 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

## **B. Public Comments**

195. Members of the public spoke at the Draft EIS public meetings on January 9-11, 2019, and at the Public Hearings held on February 27-28, 2019.<sup>298</sup> Additionally, members of the public submitted comments in writing, both on the Draft EIS and to ALJ Case.

### *1. COMMENTS AT PUBLIC HEARINGS*

196. Approximately 40 people spoke during the public hearings held in Mankato, Delavan, and Mapleton on February 27-28, 2019.<sup>299</sup> Comments on the route for the Project are discussed here, while comments on the need for the Project are discussed in the Proposed Findings of Fact in the Certificate of Need docket (Docket No. E002.ET6675/CN-17-184). Several comments received during the public hearings are summarized below.

197. June Davis, a property owner in Verona Township, expressed her opposition to the Purple Route as the proposed route would interfere with the buildable portion of her property.<sup>300</sup> Ms. Davis owns a seasonal trailer near the Huntley Substation and further raised concerns regarding noise factors, health issues, and property value impacts resulting from the building of a new transmission line.<sup>301</sup>

198. Andy Frederick, a property owner, raised concerns with the proximity of the Red and Green routes to the City of North Mankato and the environmental impacts associated with the operation of a new transmission line.<sup>302</sup>

199. Bob Schroeder, a property owner, generally supported the Purple Route but raised concerns with the H-frame design and the impact such poles have on farming practices.<sup>303</sup>

---

<sup>297</sup> Ex. XC-19 at 32 (Hillstrom Direct). (eDocket No. [20189-146251-02](#)).

<sup>298</sup> See Pub. Hrg. Tr. Vol. I-III (Mankato, Delavan, and Mapleton).

<sup>299</sup> Mankato Pub. Hrg. Tr.; Delavan Pub. Hrg. Tr.; Mapleton Pub. Hrg. Tr.

<sup>300</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 29-30 (Davis) (Feb. 27, 2019).

<sup>301</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 31-33 (Davis) (Feb. 27, 2019).

<sup>302</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 31-33 (Frederick) (Feb. 27, 2019).

<sup>303</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 62-63 (Schroeder) (Feb. 27, 2019).

200. Paul Anderson, a property owner, expressed concerns with the Purple Route and the impacts of running a parallel configuration, particularly through his farmland.<sup>304</sup>

201. Lee Manthei, a property owner, stated concerns with the Blue Route and the impacts that the route, as proposed, would have on his property and farming practices and voiced support of a monopole transmission line design to ease the impact on farming.<sup>305</sup>

202. Lucas Nelson, a policy associate at the Center for Rural Affairs, discussed the opportunities in Minnesota to connect rural communities to economic opportunities through wind generation, particularly via tax revenue generated by wind resources.<sup>306</sup> In supporting the Project, Mr. Nelson stated that one of the biggest hurdles to new wind generation is the lack of transmission infrastructure and that the Project provides essential new upgrades to transmission infrastructure that allow for new wind generation to connect to the regional grid.<sup>307</sup>

## 2. *PUBLIC HEARING COMMENT PERIOD – WRITTEN COMMENTS*

203. Over 50 written comments were received from stakeholders, including agencies, local units of government, property owners along the proposed routes or route alternatives, and others interested in the proceeding during the public hearing comment period.<sup>308</sup> Several of these comments are summarized below, the majority of which opposed or supported certain proposed routes or segments.

204. Steven Burnett, a land owner with property next to the city of North Mankato, submitted written comments stating opposition to the Red and Green routes, as well as Segment Alternatives A and B, as these routes pass directly through Mr. Burnett's farm or would be within view of his existing home. Mr. Burnett further discussed that he has already been impacted by the existing Lakefield Junction –

---

<sup>304</sup> Mankato 6:00 p.m. Pub. Hrg. Tr. at 52-53 (Anderson) (Feb. 27, 2019).

<sup>305</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 22-28 (Manthei) (Feb. 28, 2019).

<sup>306</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 40-42 (Nelson) (Feb. 28, 2019).

<sup>307</sup> Delavan 1:00 p.m. Pub. Hrg. Tr. at 40-41 (Nelson) (Feb. 28, 2019).

<sup>308</sup> See, e.g., Burnett Comment (Feb. 11, 2019) (eDocket No. [20192-150177-01](#)); Anderson Comment (Feb. 21, 2019) (eDocket No. [20192-150495-02](#)); Sonnek Comment (Mar. 5, 2019) (eDocket No. [20193-150861-01](#)); Greenwood Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).



Wilmarth 345 kV line and does not want a second 345 kV line to run through his property.<sup>309</sup>

205. Melissa Anderson, a resident of North Mankato, submitted written comments objecting to any route that would be constructed near her neighborhood.<sup>310</sup>

206. Connie Fahrforth, a property owner, submitted written comments objecting to the proposed Purple Route or its alternatives due to environmental impacts.<sup>311</sup>

207. Raquel Harder, a property owner, submitted written comments objecting to the proposed western path (Purple Route) as it would impact her property and wildlife.<sup>312</sup>

208. Russell Sonnek, a property owner, submitted written comments raising concerns about the impact that the Blue Route will have on his farming practices and property values.<sup>313</sup>

209. Andy Fredrick, a property owner, submitted written comments addressing impacts the Red and Green routes would have on his existing property, development of that property, and its value.<sup>314</sup>

210. Vernon Peterson, a property owner, submitted comments suggesting that the Applicants follow current transmission infrastructure rather than construct new infrastructure, raising concerns with health, property values, and impacts on farmland.<sup>315</sup>

211. Paul Anderson, a property owner, submitted written comments stating that he would support the Project if the proposed 345 kV line used the same

---

<sup>309</sup> Burnett Comment (Feb. 11, 2019) (eDocket No. [20192-150177-01](#)).

<sup>310</sup> Anderson Comment (Feb. 21, 2019) (eDocket No. [20192-150495-02](#)).

<sup>311</sup> Fahrforth Comment (Feb. 21, 2019) (eDocket No. [20192-150495-02](#)).

<sup>312</sup> Harder Comment (Feb. 21, 2019) (eDocket No. [20192-150495-02](#)).

<sup>313</sup> Sonnek Comment (Mar. 5, 2019) (eDocket No. [20193-150861-01](#)).

<sup>314</sup> Frederick Comment (Mar. 8, 2019) (eDocket No. [20193-150952-01](#)).

<sup>315</sup> Peterson Comment (Mar. 12, 2019) (eDocket No. [20193-151023-01](#)).



easement as the current 345 kV line, but opposed the construction of new transmission infrastructure.<sup>316</sup>

212. Paul Bowe, a property owner, submitted written comments suggesting that any new route use existing infrastructure with a single-pole, double-circuit design to minimize agricultural impacts.<sup>317</sup>

213. Mark Braun, a property owner, submitted written comments suggesting that the transmission line be buried if the selected route is close to North Mankato to minimize impacts on property values in that area.<sup>318</sup>

214. Brandon Brehmer, a farmer and new business owner, submitted written comments concerning the impacts that the Blue Route would have on agriculture businesses.<sup>319</sup>

215. Aaron Jones, a property owner, submitted written comments stating his support for the Purple Route only if new, single-pole designs are used to support both the existing and new transmission infrastructure.<sup>320</sup>

216. Steven Lloyd, a property owner, submitted written comments stating that if the Project is approved, he would recommend that a route be chosen where existing transmission infrastructure exists and burying of the transmission lines.<sup>321</sup> If burial of the lines is not feasible, then Mr. Lloyd voiced support for following an existing transmission line route, replacing the existing poles with a double-circuit monopole, and placing the new and existing lines on the single-pole.<sup>322</sup>

217. Donald McGinness, a property owner, submitted written comments noting the increased agricultural impacts from the parallel H-frame design as compared to the double-circuit design.<sup>323</sup> Mr. McGinness stated, “[m]odern planting equipment is frequently 40 feet and larger in width. Agricultural sprayers have booms

---

<sup>316</sup> Anderson Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>317</sup> Bowe Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>318</sup> Braun Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>319</sup> Brehmer Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>320</sup> Jones Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>321</sup> Lloyd Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>322</sup> Lloyd Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>323</sup> McGinness Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

that are 90 to 120 in width and traverse fields 2-4 times during the growing season. Grain is harvested and unloaded on the go to carts traveling next to combines. These two units typically have an effective working width of 45 to 60 feet. Having a 300 [feet] corridor containing two H-frame structures with an effective footprint of 40 feet each at different intervals crossing fields at an angle will be a nightmare.”<sup>324</sup>

### **C. Local Government and Federal and State Agencies Outreach**

218. Applicants made significant efforts to reach out to interested public agencies and interested community organizations before filing the Application.<sup>325</sup>

219. The Applicants initiated their outreach campaign to public agencies through in-person meetings and Project notification letters. Many agencies, stakeholders, landowners, interested parties, and NGOs were contacted to gather feedback on the Project.<sup>326</sup>

220. Subsequently, the Applicants sent a Project introduction letter and map to other federal, tribal, state, county, and local agencies and stakeholders with jurisdiction in the Project Study Area, introducing the Project and requesting agency input into public and natural resources that may be potentially affected by the Project. The Applicants also requested input from the federal and state agencies with respect to the resources under their jurisdiction as well as the identification of federal and state permits and/or approvals that may be potentially required for the Project.<sup>327</sup>

221. A total of 28 agency letters were sent out on August 29, 2017, and September 8, 2017, requesting feedback on potential resources, concerns with route development, and offering GIS shapefiles upon request.<sup>328</sup>

#### *1. FEDERAL AGENCIES*

##### *a. U.S. Army Corps of Engineers (USACE)*

222. The Applicants discussed the Project with USACE staff who will manage the permitting process under Section 404 of the Clean Water Act and

---

<sup>324</sup> McGinness Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>325</sup> Ex. XC-7 at 174-81 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>326</sup> Ex. XC-7 at 174 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>327</sup> Ex. XC-7 at 174 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>328</sup> Ex. XC-7 at 174, Appendix G (Route Permit Application) (eDocket Nos. [20181-139208-02](#)), [20181-139208-06](#), [20181-139208-07](#), [20181-139208-08](#), [20181-139208-09](#)).

authorization under Section 10 of the Rivers and Harbors Act. Discussions with the USACE included assessing potential wetland impacts for each route option; the avoidance of wetlands if practicable; and the analysis and avoidance of impacts to endangered species and cultural resources.<sup>329</sup>

*b. U.S. Fish and Wildlife Service (USFWS)*

223. Two meetings were held with USFWS staff in August 2017 to discuss land rights and endangered species.<sup>330</sup>

224. On August 8, 2017, a phone meeting was held with USFWS to discuss whether existing easements on WPAs could be considered for new routes. Another meeting was held on August 15, 2017, to discuss potential impacts to federally-listed endangered species.<sup>331</sup>

225. The USFWS submitted comments on the Draft EIS on February 5, 2019, stating that the Green Route appears to have the least effects on permanently-protected conservation lands because the line would run adjacent to, and not through, such lands.<sup>332</sup> The USFWS also recommended modifications to the Purple Route, if selected, to avoid all Service interest lands that could be impacted by the Purple Route, as proposed.<sup>333</sup>

*c. U.S. Department of Agriculture, Natural Resources Conservation (NRCS)*

226. The Applicants sent a Project introduction letter to the NRCS office and requested comments on the Project. The NRCS responded, in a letter dated September 20, 2017, that form FPPA AD-1006 should be completed to determine whether the Farmland Protection Policy Act applies to the Project. But an email follow-up from the NRCS State Soil Liaison on September 28, 2017, stated that the NRCS acknowledges that the Project is excluded from the Farm Land Protection

---

<sup>329</sup> Ex. XC-7 at 175-76 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>330</sup> Ex. XC-7 at 176 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>331</sup> Ex. XC-7 at 176 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>332</sup> Ex. EERA-20A at 12-13 (Written Comments Received from State and Federal Agencies on Draft EIS) (eDocket No. [20192-150008-01](#)).

<sup>333</sup> Ex. EERA-20A at 12-13 (Written Comments Received from State and Federal Agencies on Draft EIS) (eDocket No. [20192-150008-01](#)).

Policy Act because no federal funding will be used for the Project. The NRCS also provided mapping for NRCS-administered easements.<sup>334</sup>

## 2. *STATE AGENCIES*

### *a. Minnesota State Historic Preservation Office (SHPO)*

227. The Applicants sent an introduction letter to the SHPO and received a response on October 3, 2017. The Applicants will conduct a Phase 1a Literature Review and, in turn, a Phase 1 archeological survey if necessary, after a final route has been selected by the Commission.<sup>335</sup>

### *b. Minnesota Department of Natural Resources (MnDNR)*

228. The Applicants met with MnDNR staff on February 17, 2017, to discuss the Commission process and the MnDNR's participation in the permitting process. An overview of the Project Study Area was examined with preliminary discussions of the Minneopa State Park boundary and potential Minnesota River crossing locations.<sup>336</sup>

229. The Applicants again met with MnDNR staff on May 23, 2017, to discuss potential crossing of Minneopa State Park. The MnDNR requested additional descriptions of park impacts, and the Applicants followed up with a preliminary design that showed that no poles would be placed in parkland and that structures could be designed to keep energized lines above existing tree height to minimize tree clearing in the park.<sup>337</sup>

230. A subsequent meeting was held on September 14, 2017, after the MnDNR reviewed potential route options. Discussion focused on areas where the MnDNR had concerns or suggestions on changes, as well as potential impacts on endangered species. The MnDNR suggested an analysis of visual impacts to Minneopa State Park. The MnDNR also requested further review of several crossings at other areas along the routes to reduce impacts to sensitive riparian areas, and Applicants refined several crossings based on this review.<sup>338</sup>

---

<sup>334</sup> Ex. XC-7 at 177 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>335</sup> Ex. XC-7 at 177 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>336</sup> Ex. XC-7 at 177 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>337</sup> Ex. XC-7 at 177 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>338</sup> Ex. XC-7 at 178 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

231. A meeting was also held on December 19, 2017, where the Applicants and the MnDNR reviewed route modification suggestions made by the MnDNR and the Applicants' preliminary work on a visual assessment for impacts to Minneopa State Park from Segment Alternative C.<sup>339</sup>

232. The MnDNR submitted comments in the Project docket on May 17, 2018, acknowledging the Applicants' efforts to minimize environmental impacts and to develop a positive working relationship with the MnDNR. The MnDNR, overall, found that Segment Alternative C was the least preferable route.<sup>340</sup>

233. On January 28, 2019, the MnDNR submitted comments on the Draft EIS regarding information to be clarified or included in the Draft EIS to help ensure the Final EIS is complete and accurate. Specifically, the MnDNR requested clarification in the Final EIS whether any public water basins are within the right-of-way and that the existing transmission line that crosses the public water basin near the Smith WMA be removed if the route is selected for construction.<sup>341</sup> Additionally, the MnDNR noted that the Purple Route crosses Willow Creek several times and recommended that the Final EIS include additional segment alternatives to minimize the number of crossings and associated habitat impacts at Willow Creek.<sup>342</sup>

234. On March 14, 2019, the MnDNR submitted comments on the Draft EIS regarding its recommendations on the various route options as well as conditions that should be included in the route permit to mitigate Project impacts.<sup>343</sup>

*c. Minnesota Department of Transportation (MnDOT)*

235. The Applicants met with MnDOT on May 18, 2017. The meeting included discussion of providing Project background and potential routes.<sup>344</sup>

236. MnDOT submitted comments on May 16, 2018, commenting on the scope of the EIS. Specifically, MnDOT requested an opportunity to participate in the

---

<sup>339</sup> Ex. XC-7 at 178 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>340</sup> Ex. EERA-6A at 2-8 (MnDNR Comments) (May 17, 2018) (eDocket No. [20185-143325-01](#)).

<sup>341</sup> Ex. EERA-20A at 2-3 (MnDNR Comments) (Jan. 28, 2019) (eDocket No. [20192-150008-01](#)).

<sup>342</sup> Ex. EERA-20A at 2-3 (MnDNR Comments) (Jan. 28, 2019) (eDocket No. [20192-150008-01](#)).

<sup>343</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>344</sup> Ex. XC-7 at 178 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

development of the EIS so that the EIS would include a thorough evaluation of the effects of various route proposals on the state transportation system.<sup>345</sup>

237. On January 28, 2019, MnDOT submitted comments on the Draft EIS, highlighting the importance that the designated route be sufficiently wide along trunk highway right-of-ways so that MnDOT and the Applicants can work.<sup>346</sup>

*d. Minnesota Board of Water and Soil Resources (BWSR)*

238. A meeting was held with the Applicants and the BWSR on May 31, 2017. The meeting included a discussion of providing Project background and potential routes, focusing on routes that intersected with BWSR easements. BWSR staff indicated that they would evaluate the project for compatibility with the conservation plan developed by the Soil and Water Conservation District in their easements.<sup>347</sup>

*e. Minnesota Department of Agriculture (MnDOA)*

239. The Applicants met with the MnDOA on December 19, 2017. The meeting included a discussion of providing Project background and proposed route options. During that meeting, MnDOA staff recommended preparing an Agricultural Impact Mitigation Plan for large (345 kV) transmission projects.<sup>348</sup>

240. The Applicants and the MnDOA finalized terms of an Agricultural Impact Mitigation Plan for the Project on September 12, 2018.<sup>349</sup> The Agricultural Impact Mitigation Plan specifies the measures that the Applicants will take to avoid and mitigate any impacts to agricultural land that may result from the construction of the Project.<sup>350</sup>

---

<sup>345</sup> Ex. EERA-6A at 9-11 (MnDOT Comments (May 16, 2018)) (eDocket No. [20185-143325-01](#)).

<sup>346</sup> Ex. EERA-20A at 4-8 (MnDOT Comments (Jan. 28, 2019)) (eDocket No. [20192-150008-01](#)).

<sup>347</sup> Ex. XC-7 at 178 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>348</sup> Ex. XC-7 at 178 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>349</sup> Ex. XC-20 at 14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-06](#)); Ex. EERA-13 at Appendix D (Draft EIS – Agricultural Impact Mitigation Plan) (eDocket No. [201812-148310-11](#)).

<sup>350</sup> Ex. XC-20 at 14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-06](#)); Ex. EERA-13 at Appendix D (Draft EIS – Agricultural Impact Mitigation Plan) (eDocket No. [201812-148310-11](#)).



### 3. *LOCAL GOVERNMENT UNITS*

#### *a. Mankato*

241. The Applicants met with City of Mankato staff on January 31, 2017, where the city provided information on future development and requested to be kept informed of the process.<sup>351</sup>

242. The Applicants provided a Project overview presentation to the Mankato City Council on June 12, 2017.<sup>352</sup>

243. A second City of Mankato staff meeting was held on August 22, 2017, to discuss specific concerns regarding potential routes east of the city.<sup>353</sup>

244. The City of Mankato submitted written comments to the Project docket on January 23, 2018, and again on May 3, 2018, addressing the Blue Route option.<sup>354</sup>

245. On January 28, 2019, the Mankato City Council adopted a resolution requesting that the Blue Route be rejected from consideration.<sup>355</sup>

#### *b. North Mankato*

246. The Applicants met with City of North Mankato staff on January 31, 2017, where the Applicants provided a Project overview and the city provided information on future city boundaries.<sup>356</sup>

247. A Project overview presentation was provided to the North Mankato City Council on June 5, 2017.<sup>357</sup>

---

<sup>351</sup> Ex. XC-7 at 178-79 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>352</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>353</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>354</sup> City of Mankato Comments (Jan. 24, 2018) (eDocket No. [20181-139280-01](#)); Ex. EERA-6A at 2-11 (City of Mankato Comments (May 3, 2018)) (eDocket No. [20185-143325-01](#)).

<sup>355</sup> Mankato 1:00 p.m. Pub. Hrg. Tr. at 52 (Vogel) (Feb. 27, 2019); Mankato City Council Comments – Resolution of the Mankato City Council Dated Jan. 28, 2019 (Mar. 4, 2019) (eDocket No. [20193-150821-01](#)).

<sup>356</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>357</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

248. A second meeting was held with the Applicants and the City of North Mankato on July 19, 2017, where several residents objected to the route segment along Rockford Road and the city expressed an objection to any route segments that cross possible future development areas.<sup>358</sup>

249. On August 9, 2017, the City of North Mankato submitted a resolution passed by the City Council of North Mankato requesting that the Applicants remove several segments of the proposed 345 kV transmission line from the Application.<sup>359</sup> North Mankato also submitted a memorandum addressing the city's concerns with several of the proposed segments of the transmission line.<sup>360</sup>

250. A third meeting was held on August 21, 2017, to discuss additional segments that were being considered west of North Mankato in Belgrade Township. North Mankato staff indicated that it objected to all routes on the city's western fringe.<sup>361</sup>

251. The City of North Mankato submitted comments on February 6, 2018, alerting the Commission to North Mankato's objection to all portions of the Red and Green routes that conflict with the city's Comprehensive Development Plan.<sup>362</sup>

252. The City of North Mankato also submitted comments on the scoping of the EIS on May 21, 2018, suggesting that concerns and potential impacts associated with specific portions of the Red and Green routes, as well as Segment Alternatives A, B, and C, be included within the scope of the EIS.<sup>363</sup>

253. The City of North Mankato also intervened in this proceeding and filed Direct Testimony<sup>364</sup> and Surrebuttal Testimony<sup>365</sup> addressing the city's opposition to the proposed Red and Green routes, as well as Segment Alternatives A and B.

---

<sup>358</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>359</sup> Ex. NM-19 (North Mankato Resolution) (eDocket No. [20178-134576-02](#)).

<sup>360</sup> Ex. NM-20 (North Mankato Memorandum) (eDocket No. [20178-134576-04](#)).

<sup>361</sup> Ex. XC-7 at 179 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>362</sup> Ex. NM-21 at 1 (Comments of North Mankato on Completeness of Route Permit Application) (eDocket No. [20182-139840-02](#)).

<sup>363</sup> Ex. NM-22 (Comments of North Mankato on Scoping of EIS) (eDocket No. [20185-143213-01](#)).

<sup>364</sup> Ex. NM-1 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>365</sup> EX. NM-17 (Fischer Surrebuttal) (eDocket No. [20191-149696-01](#)).



254. On January 28, 2019, the City of North Mankato submitted comments on the Draft EIS, supporting a Final EIS that concluded that portions of the Red and Green routes in the area of North Mankato, as well as Segment Alternatives A and B, would have significant adverse effects on North Mankato's Comprehensive Development Plan.<sup>366</sup>

*c. Nicollet County*

255. The Applicants met with Nicollet County staff on February 15, 2017, where county staff provided some general guidance that existing corridors are preferred and suggested avoiding river bottom roads and a county park at Minnemishinona Falls.<sup>367</sup>

256. A second meeting was held with the Applicants and county staff on September 28, 2017, to discuss potential new route segments in Belgrade Township and to discuss the permitting process.<sup>368</sup>

257. Nicollet County submitted written comments in a letter to the Project dated October 10, 2017. The letter included a county board resolution and identified what Nicollet County classified as objectionable impacts from route segments in the area west of Mankato and indicated that these impacts can be avoided by following the Purple Route.<sup>369</sup>

258. In March 2019, Seth Greenwood, Public Works Director/County Engineer writing on behalf of the Nicollet County Board of Commissioners, requested that the Commission not consider the Red and Green routes or Segment Alternatives A and B due to human, environmental, scenic, and farmland impacts.<sup>370</sup>

*d. Blue Earth County*

259. A meeting was held in Blue Earth County on February 15, 2017, to provide an overview of the Project. County staff inquired about the effects of the Project and provided some guidance on routing along roads and bike trails.<sup>371</sup>

---

<sup>366</sup> Ex. NM-18 (Comments of North Mankato on Draft EIS) (eDocket No. [20191-149699-01](#)).

<sup>367</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>368</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>369</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>370</sup> Greenwood Comment (Mar. 15, 2019) (eDocket No. [20193-151163-02](#)).

<sup>371</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

*e. Faribault County*

260. On March 23, 2017, the Applicants met with Faribault County staff to provide a Project overview. Staff indicated that they were aware of wind development occurring south of the Project Study Area and inquired about economic benefits of the Project.<sup>372</sup>

*f. Martin County*

261. On March 23, 2017, the Applicants met with Martin County staff to provide a Project overview. Staff noted that only a small segment of one route is in Martin County.<sup>373</sup>

*g. Butternut Valley Township*

262. The Applicants attended a township meeting on June 19, 2017, where township supervisors indicated that if the route were approved through the township, another line built parallel to the existing line would not be acceptable. A route built as a double-circuit may be preferable especially if it were built on a single-pole structure.<sup>374</sup>

*h. Belgrade Township*

263. The Belgrade Township Board passed a resolution on September 12, 2017, requesting the Applicants to reevaluate proposed route segments in Belgrade Township and supporting routes along existing infrastructure routes.<sup>375</sup>

264. The Applicants attended a Belgrade Township meeting on October 10, 2017. The meeting was attended by approximately 50 residents, many of whom opposed route segments introduced in Belgrade Township. Specific objections raised included proximity to homes and a disapproval of introducing new routes to avoid future development in the City of North Mankato.<sup>376</sup>

---

<sup>372</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>373</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>374</sup> Ex. XC-7 at 180 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>375</sup> Ex. XC-7 at 181 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>376</sup> Ex. XC-7 at 181 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

265. Belgrade Township residents submitted a petition, signed by 32 people, dated October 10, 2017, requesting withdrawal of routes through Belgrade Township (Purple, Red, and Green routes).<sup>377</sup>

## **VI. FACTORS FOR A ROUTE PERMIT**

266. The Power Plant Siting Act (PPSA), Minn. Stat. ch. 216E, requires that route permit determinations “be guided by the state’s goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state’s electric energy security through efficient, cost-effective power supply and electric transmission infrastructure.”<sup>378</sup>

267. Under the PPSA, the Commission and the ALJ must be guided by the following responsibilities, procedures, and considerations:

- (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high-voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
- (2) environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;
- (3) evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;
- (4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;<sup>379</sup>

---

<sup>377</sup> Ex. XC-7 at 181, Appendix G (Route Permit Application) (eDocket Nos. [20181-139208-02](#), [20181-139208-06](#), [20181-139208-07](#), [20181-139208-08](#), [20181-139208-09](#)).

<sup>378</sup> Minn. Stat. § 216E.03, subd. 7.

<sup>379</sup> Factor 4 is not applicable because the Applicants are not proposing to site a large electric generating plant in this docket.

- (5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
- (6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
- (7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivision 1 and 2;
- (8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;
- (9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;
- (10) evaluation of future needs for additional high-voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;
- (11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and
- (12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.<sup>380</sup>

268. Also, Minn. Stat. § 216E.03, subd. 7(e), provides that the Commission “must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons.”

269. In addition to the PPSA, the Commission and the ALJ are governed by Minn. R. 7850.4100, which mandates consideration of the following factors when determining whether to issue a route permit for a high-voltage transmission line:

---

<sup>380</sup> Minn. Stat. § 216E.03, subd. 7.

- A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;
- B. effects on public health and safety;
- C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;
- D. effects on archaeological and historic resources;
- E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;
- F. effects on rare and unique natural resources;
- G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;
- H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;
- I. use of existing large electric power generating plant sites;<sup>381</sup>
- J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;
- K. electrical system reliability;
- L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;
- M. adverse human and natural environmental effects which cannot be avoided; and
- N. irreversible and irretrievable commitments of resources.<sup>382</sup>

270. There is sufficient evidence on the record for the ALJ to assess the routes on the record using the criteria and factors set out above.

---

<sup>381</sup> This factor is not applicable because it applies only to power plant siting.

<sup>382</sup> Minn. R. 7850.4100.

## VII. OVERVIEW OF THE PROJECT AREA

271. The majority of the Project area is rural in nature with an agriculture-based economy. Corn and soybean crop production, livestock operations, and associated industries drive the local agricultural economy. The predominant land cover type in Blue Earth, Nicollet, Martin, and Faribault counties is agricultural. Roughly 90 percent of the soil in the Project Area is identified as prime farmland. In 2012, the average farm size in these four counties is similar, averaging 350 acres, and generally slightly larger than the average size of 352 acres for all Minnesota farms.<sup>383</sup>

272. Farming and protection of agriculture, the land, and the ability to continue to farm and support livelihoods through agriculture are strong values within the Project area.<sup>384</sup>

273. The four counties in the Project area have small populations compared to the State of Minnesota as a whole, comprising less than three percent (2.5 percent) of the state's total population.<sup>385</sup> Mankato has a population of approximately 42,000 people and North Mankato has a population of approximately 14,000 people.<sup>386</sup>

274. Land use and build infrastructure varies across the Project area, north to south. The northern Project area is primarily urban and centered on the cities of Mankato and North Mankato. The southern Project area is primarily agricultural, including crop and animal production operations.<sup>387</sup>

275. Manufacturing and service industries (restaurants, hotels, repair shops, convenience and retail stores) are concentrated in the urban and suburban areas located in the northern part of the Project area. The cities of Mankato and North Mankato, and their surrounding areas, serve as a regional hub for health care, arts, and culture. The Mankato Clinic is one of the largest private clinics in the state, with more than 100 physicians. The Mankato area also has four colleges—Bethany Lutheran

---

<sup>383</sup> Ex. XC-7 at 93, 113 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>384</sup> Ex. XC-7 at 93 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>385</sup> Ex. XC-7 at 88-89 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>386</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>387</sup> Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

College, Rasmussen College, South Central College and Minnesota State University, Mankato.<sup>388</sup>

276. The five Routes are located within the Minnesota River Watershed. Major rivers in the Project area include the Minnesota, Watonwan, Blue Earth, and LeSueur rivers. There are also several sizable lakes in the Project area, many being greater than 160 acres. Some of the lakes in the Project area include Rice Lake, Lake Crystal, Loon Lake, Mills Lake, Lily Lake, Lura Lake, and Minnesota Lake.<sup>389</sup>

277. Numerous natural amenities—including lakes, rivers, parks, WPAs, and WMAs—attract local and regional recreational users along all five route options. These areas are also important to the identity of the area and provide opportunities for various recreational activities such as fishing, hunting, and snowmobiling, which are also part of the identity of area residents.<sup>390</sup>

278. The topography of the Project area is generally flat, with areas of rolling plains. The vegetation cover is uniformly low, making the topography in some areas susceptible to visual disruptions. The landscape in the area is already dotted with various structures, including residences, farmsteads, communication towers, distribution lines, transmission lines, wind turbines, and solar panels.<sup>391</sup>

279. Prior to European settlement, vegetation in the Project area was primarily associated with tallgrass prairie. Vegetation in the area is now dominated by agricultural and low-intensity urban land use; tallgrass prairie remnants are rare and isolated. Agricultural areas within the Project area include active row crop fields interspersed with wind breaks, woodlots, fence rows, and grassland swales associated with drainage ditches. There is minimal forestland in the area, mainly located in forested riparian areas at larger streams and rivers, and no commercial forestry operations have been identified along the five route options.<sup>392</sup>

---

<sup>388</sup> Ex. XC-7 at 93-94 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>389</sup> Ex. XC-7 at 125 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-3 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>390</sup> Ex. XC-7 at 94 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>391</sup> Ex. XC-7 at 87-88 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>392</sup> Ex. XC-7 at 117, 137 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

280. The wildlife species that inhabit the Project area are typical of those found in agricultural, rural, exurban, and suburban areas. These species are well-adapted for the dominant agricultural and developed habitats in the Project area.<sup>393</sup>

## VIII. APPLICATION OF ROUTING FACTORS TO PROPOSED ROUTES

### A. Effects on Human Settlement

281. Minnesota Rule 7850.4100(A) requires consideration of the proposed routes' effects on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.

#### 1. *DISPLACEMENT*

282. There are currently no permanent residences, businesses, churches, schools, daycares, or nursing homes within the rights-of-way of the route or segment alternatives under consideration for the Project.<sup>394</sup> There is one seasonal residence and 13 non-residential buildings (e.g., agricultural outbuildings or animal production structures) within the rights-of-way of routing alternatives for the Project.<sup>395</sup>

283. The Project's displacement impacts are route-specific and vary by route and segment alternative.<sup>396</sup>

284. At a January 9, 2019, public meeting, a landowner indicated that he is building a house within the proposed right-of-way of the Blue Route at 203<sup>rd</sup> Street in Mankato Township.<sup>397</sup> Segment Alternative CC was proposed by the Applicants to

---

<sup>393</sup> Ex. XC-7 at 138 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>394</sup> One location along the Blue Route has been identified where a residence is being constructed and Segment Alternative CC was developed to avoid this area of the Blue Route and the planned residence. Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. [20192-149943-02](#)).

<sup>395</sup> Ex. EERA-13 at 5-11 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)); Ex. XC-7 at 82 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>396</sup> Ex. EERA-13 at 6-1 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>397</sup> Mankato 1:00 p.m. Draft EIS Pub. Hrg. Tr. at 36 (Woitas) (Jan. 9, 2019).



move the Blue Route proposed alignment away from this house, avoiding any displacement.<sup>398</sup>

285. The Purple Route has one seasonal residence, a hunting trailer, within the proposed right-of-way. This seasonal residence is located approximately 500 feet west of the Huntley substation and approximately 30 feet from a 345 kV/161 kV transmission line constructed approximately one year ago. This trailer is used sporadically during the year and is not currently connected to a well or septic system. The Applicants have stated that they will work with the landowner to find an acceptable solution using the original Purple Route alignment or, alternatively, could either use Alignment Alternative AA-3b or pursue a design that is contained in the existing 345 kV/161 kV transmission line right-of-way.<sup>399</sup>

286. A home is being constructed within the right-of-way of the original Blue Route but Applicants recommended route configuration that incorporates Segment Alternative CC, the Blue-CC-Q Route, would avoid displacement of this home.<sup>400</sup>

287. No other route or segment alternative has an existing residence within the proposed right-of-way.<sup>401</sup>

288. All routes under consideration have non-residential buildings within the right-of-way. Non-residential buildings may or may not be removed or relocated as a result of the Project. A site-specific analysis conducted by the Applicants will determine whether a non-residential building must be removed or relocated.<sup>402</sup>

289. The Applicants have previously reviewed all non-residential buildings along the routes under consideration. The Applicants can avoid any currently-erected non-residential structure from being located within the transmission line right-of-way by pole placement, use of specialty structures, or modifying the right-of-way width. The Applicants have committed to working with landowners to implement additional

---

<sup>398</sup> Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>399</sup> Ex. EERA-20B at 2-3 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)); Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>400</sup> Mankato 1:00 p.m. Draft EIS Pub. Hrg. Tr. at 36 (Woitas) (Jan. 9, 2019); Ex. XC-27 at 3-4 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>401</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>402</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

design or mitigation measures as necessary to ensure adequate clearances and to address landowner concerns in these instances.<sup>403</sup>

290. No residential displacement is anticipated as a result of the Project. Applicants have committed to working with landowners to entirely avoid or minimize to the greatest extent practicable displacement of non-residential structures for any final route selected by the Commission for the Project.

## 2. *NOISE*

291. The Minnesota Pollution Control Agency (MPCA) has established noise limits for residential, commercial, and industrial land use activities (Minnesota Noise Standards).<sup>404</sup>

292. During the construction of the Project, temporary, localized noise from heavy equipment and increased vehicle traffic is expected to occur along the selected route's right-of-way during daytime hours. Construction noise could temporarily affect residences, schools, and businesses. However, the Project will not exceed the nighttime Minnesota noise limits. Commission site permits require that construction activities are limited to daytime hours.<sup>405</sup>

293. The Applicants provided representative noise level data for the Project's transmission line configurations, and this data indicates that the highest noise level from operating the transmission line will comply with the Minnesota Noise Standards.<sup>406</sup>

294. Noise from the modified Huntley and Wilmarth substations (e.g., additional transformers and switchgear) outside of the substation property will be within the Minnesota Noise Standards.<sup>407</sup>

---

<sup>403</sup> Ex. XC-27 at 2-3 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

<sup>404</sup> Ex. EERA-13 at 5-11 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 83-84 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>405</sup> Ex. EERA-13 at 5-12 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 84-85 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>406</sup> Ex. EERA-13 at 5-13 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 85-87 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>407</sup> Ex. EERA-13 at 5-13 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 87 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

295. The Project's noise impacts do not vary notably by route or segment alternative.<sup>408</sup>

296. Overall, noise impacts from the Project are anticipated to be minimal and within the Minnesota Noise Standards.<sup>409</sup>

### 3. *AESTHETICS*

297. Aesthetic and visual resources include the physical features of a landscape such as land, water, vegetation, animals, and structures. Determining the relative scenic value or visual importance of these features in a given area is a complex process that depends on what individuals may perceive as being beautiful.<sup>410</sup>

298. In the northern Project area, the existing landscape is characterized by an urban and suburban built environment (Mankato/North Mankato area). Viewsheds are limited and frequently interrupted by buildings, businesses, streets, and trees.<sup>411</sup>

299. The existing landscape in the southern Project area is characterized by nearly level to gently rolling plains dominated by agricultural lands (i.e., crop and forage land). Viewsheds in this area are generally broad and uninterrupted, with only small scattered areas where they are defined by trees or topography. Dominant natural features in the landscape include lakes and the Blue Earth, Le Sueur, Minnesota, and Watonwan rivers and their associated riparian corridors.<sup>412</sup>

300. The southern Project area, however, is also shaped by existing infrastructure. Horizontal elements, such as highways and county roads, are consistently present, and vertical elements, such as transmission lines and wind turbines, are visible from considerable distances. Residences and farmsteads are also scattered across these viewsheds.<sup>413</sup>

---

<sup>408</sup> Ex. EERA-13 at 5-13 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>409</sup> Ex. EERA-13 at 5-13 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>410</sup> Ex. EERA-13 at 5-4 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>411</sup> Ex. EERA-13 at 5-4 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>412</sup> Ex. EERA-13 at 5-4 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>413</sup> Ex. EERA-13 at 5-4 (Draft EIS) (eDocket No. [201812-148307-11](#)).

301. The Project's aesthetic impacts are anticipated to be minimal to moderate, depending on the selected route.<sup>414</sup>

302. The Project's aesthetic impacts are route-specific and vary by route and segment alternative.<sup>415</sup>

303. The Project's aesthetic impacts can be minimized by selecting routes that maximize distances from residences or share existing infrastructure rights-of-way, such as existing transmission lines, roads, and railroads.<sup>416</sup>

304. The Green and Red routes are near the greatest number of residences within 1,000 feet, while the Blue, Purple, and Purple-E-Red routes are near the fewest number of residences within 1,000 feet. The number of residences close to the Green and Red routes is two to three times higher than the number of residences close to the Blue, Purple, and Purple-E-Red routes.<sup>417</sup> The Purple Route has one seasonal residence within the right-of-way near the Huntley Substation and within 30 feet of an existing 345 kV/161 kV transmission line.<sup>418</sup> The Purple Route and Blue Route have the fewest number of residences within 200 feet of the proposed alignment of each route. The number of residences within 200 feet of the proposed alignment of the Purple Route is further reduced by the Applicants' refined Purple-BB-L Route.<sup>419</sup>

305. **Table 4**, below, from the Draft EIS, shows the proximity of residential structures (either permanent or seasonal) to the five route alternatives.

---

<sup>414</sup> Ex. EERA-13 at 5-4 to 5-5 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>415</sup> Ex. EERA-13 at 5-4 to 5-5 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>416</sup> Ex. EERA-13 at 6-3 and 6-5 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>417</sup> Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>418</sup> Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>419</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (eDocket No. [201812-148312-18](#)); Ex. XC-27 at 2 (Applicants' Letter) (eDocket No. [20192-149943-02](#)).

**Table 4: Proximity to Residences<sup>420</sup>**

Residences, Distance from Anticipated Alignment	Route Alternative				
	Purple	Green	Red	Blue	Purple-E-Red
Residences within 0–75 Feet	1	0	0	0	0
Residences within 75–200 Feet	3	19	24	3	8
Residences within 200–500 Feet	12	46	38	10	19
Residences within 500–1,000 Feet	35	68	64	30	34
Total	51	133	126	43	61

306. The one residence in **Table 4** within 75 feet of the Purple Route is a seasonal trailer, discussed above.

307. **Table 5** summarizes the sharing of each route alternative with existing infrastructure, transmission lines, roads, or railroads.

**Table 5: Sharing of Existing Infrastructure by Route Alternative<sup>421</sup>**

Infrastructure	Route Alternatives				
	Purple	Green	Red	Blue	Purple-E-Red
Follows Existing Transmission Line (miles, percent)	24.5 (47)	5.4 (12)	26.3 (57)	9.7 (17)	32.3 (60)
Follows Existing Roads (miles, percent)	11.8 (23)	13.8 (30)	11.3 (24)	10.1 (18)	13.0 (24)
Follows Existing Railroad (miles, percent)	0 (0)	0 (0)	0 (0)	2.6 (5)	0 (0)
Total—Transmission Line, Road and Railroad (miles, percent)	36.3 (70)	19.2 (42)	37.6 (81)	22.4 (39)	45.3 (84)

308. The Purple-E-Red Route, Red Route, and Purple Route make the greatest use of existing infrastructure right-of-way. The Green and Blue routes share the least amount of right-of-way with existing infrastructure.<sup>422</sup>

<sup>420</sup> Ex. EERA-13 at 6-4 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>421</sup> Ex. EERA-13 at 6-6 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>422</sup> Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

309. The Applicants' recommended route configurations do not change any route's overall proximity to residences. **Table 6**, below, shows proximity to residences for the Purple-BB-L Route, Green Route, Red-Q Route, Blue-CC-Q Route, and Purple-E-AA1-Red-Q Route.

**Table 6: Proximity to Residences for  
Applicants' Recommended Route Configurations**

Residences, Distance from Anticipated Alignment	Route Alternatives				
	Purple- BB-L	Green	Red-Q	Blue - CC - Q	Purple- E-AA1- Red-Q
<b>Residences within 0-75 feet</b>	1*	0	0	0	0
<b>Residences within 75-200 feet</b>	3	19	24	3	8
<b>Residences within 200-500 feet</b>	12	46	39	12	19
<b>Residences within 500-1000 feet</b>	36	68	64	30	35
<b>Total</b>	52	133	127	45	62

\*seasonal trailer next to the Huntley Substation

310. The Blue-CC-Q and Purple-BB-L routes have the fewest number of residences within 1,000 feet of the proposed alignment followed by the Purple-E-AA1-Red-Q Route. The Green and Red-Q routes have the highest number of residences within 1,000 feet of their proposed alignment.<sup>423</sup>

311. The Applicants' recommended route configurations increase the amount of corridor sharing for each of the routes but the Purple-E-AA1-Red-Q, Red-Q, and Purple-BB-L routes make the greatest use of existing infrastructure right-of-way. The Green and Blue-CC-Q routes share the least amount of right-of-way with existing infrastructure.<sup>424</sup>

---

<sup>423</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>424</sup> Ex. EERA-13 at 6-7 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 73 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

**Table 7: Sharing of Existing Infrastructure for Applicants' Recommended Route Configurations**

Infrastructure	Route Alternatives				
	Purple-BB-L	Green	Red-Q	Blue - CC - Q	Purple-E-AA1-Red-Q
Total Length of Route (miles)	51.6	45.3	46.3	56.8	53.9
Follows Existing Transmission Line (miles, percent)*	25.9 (50%)	6.9 (15%)	34.7 (75%)	14.8 (26%)	40.7 (76%)
Follows Existing Roads (miles, percent)	14.2 (28%)	13.8 (30%)	9.3 (20%)	9.1 (16%)	11 (20%)
Follows Existing Railroad (miles, percent)	0	0	0	2.6 (5%)	0
Total – Transmission Line, Railroads and Roads (miles, percent)	40.1 (78%)	20.7 (47%)	(44) (95%)	26.5 (47%)	51.7 (96%)

*\*includes length where the route follows transmission line and road. This varies from Draft EIS tables that did not count where the route follows existing transmission and road.*

312. No significant aesthetic impacts are anticipated as a result of the Project.

#### 4. ZONING AND LAND USE

313. According to the PPSA, the route permit issued by the Commission is the only approval required to be obtained by the utility and the permit supersedes all regional, county, and local zoning and land use rules.<sup>425</sup> Impacts on local zoning and land use can, however, be considered impacts to human settlements and therefore a factor in evaluating routing options for a transmission line.<sup>426</sup>

<sup>425</sup> Minn. Stat. § 216E.10.

<sup>426</sup> Ex. EERA-13 at 5-15 (Draft EIS) (eDocket No. [201812-148307-11](#)).



314. The Project area is subject to zoning stipulations from several entities, including Nicollet County, Blue Earth County, Martin County, Faribault County, the City of North Mankato, and the City of Mankato.<sup>427</sup>

315. The Project will impact local and future planned land use. The Draft EIS states that the impacts are anticipated to be minimal to significant, depending on the selected route.<sup>428</sup>

316. The Project's land use impacts are route-specific and vary by route alternative. In general, the Project is compatible with zoning in the more rural, agricultural parts of the Project area, but less compatible with zoning and community planning in the more urban parts of Mankato and North Mankato.<sup>429</sup>

317. According to North Mankato's Comprehensive Development Plan, areas of new residential development are planned to occur north and southwest of the city. The Comprehensive Development Plan also includes areas zoned for future heavy industrial development, including the Northport Industrial Park, located north of U.S. Highway 14, near Lookout Drive.<sup>430</sup>

318. The Purple, Red, Purple-E-Red, and Green routes all proceed westward from the Wilmarth Substation, double-circuited with or parallel to existing transmission lines. In doing so, they pass through a portion of land north of North Mankato that is planned for future residential development. Impacts from the Purple, Red, Purple-E-Red, and Green routes on this future residential development are anticipated to be minimal, as the new line will follow an existing transmission line already in place.<sup>431</sup>

319. The Purple and Purple-E-Red routes continue following existing transmission lines to the west of North Mankato and have no further impact on the city's development plans.<sup>432</sup> Similarly, the Blue Route that proceeds eastward from the Wilmarth substation does not impact North Mankato's development plans.

---

<sup>427</sup> Ex. EERA-13 at 5-15 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>428</sup> Ex. EERA-13 at 5-23 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>429</sup> Ex. EERA-13 at 5-23 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>430</sup> Ex. EERA-13 at 5-17 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>431</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>432</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).



320. The Red and Green routes proceed to the south through North Mankato's Northport Industrial Park, which is planned for future heavy industrial development and future commercial/industrial mixed uses. Because industrial and commercial land uses are not necessarily incompatible with a transmission line, impacts on these land uses are anticipated to be minimal to moderate.<sup>433</sup>

321. The Red and Green routes then continue proceeding further southward through land west and southwest of the city that is planned for future residential development.<sup>434</sup>

322. North Mankato opposes those portions of the Red and Green routes that begin where the routes turn south from the existing transmission line at Belgrade Township and end where the Red and Green routes meet Segment Alternative E. The city states that these route options interfere with the city's near- and long-term growth plans described in the Comprehensive Development Plan adopted in 2015. The Red and Green routes and Segment Alternatives A and B traverse through the planned North Ridge Residential Development Area and North Mankato South Boundary Residential Area.<sup>435</sup> According to North Mankato, 183 new homes would be added within 500 feet of the proposed Red and Green routes.<sup>436</sup>

323. While there are potential impacts from the Red and Green routes on North Mankato's future residential development, the impacts are not significant.<sup>437</sup> The city's development plans are still conceptual and the exact timing, scope, and nature of the development are uncertain.<sup>438</sup> In addition, most of the future residential development area has not yet been annexed by the city.<sup>439</sup> Finally, as the Applicants

---

<sup>433</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>434</sup> Ex. EERA-13 at 6-8 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>435</sup> Ex. NM-1 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>436</sup> Ex. NM-1 at 14 (Fischer Direct) (eDocket No. [201811-147666-01](#)).

<sup>437</sup> Ex. XC-20 at 2-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B Table at 1, 8 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>438</sup> Ex. XC-20 at 2-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B Table at 1, 8 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>439</sup> Ex. XC-20 at 2-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B Table at 1, 8 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

have pointed out, development can and does occur near and around transmission lines.<sup>440</sup>

324. The Blue Route proceeds eastward from the Wilmarth Substation and then southward between the cities of Mankato and Eagle Lake in a planned development area known as the Greater East Mankato Infill Service District. Some development of this area has begun and planned future land uses include a mix of residential, commercial, and public uses; open spaces; and extensions of public infrastructure to serve the area.<sup>441</sup>

325. The City of Mankato submitted comments on the Draft EIS, stating that the Blue Route conflicts with the adopted land use and growth plans of the City of Mankato, future expansion of the Mankato Regional Airport, and forested wetland areas located between Mankato and the City of Eagle Lake.<sup>442</sup> The City of Mankato noted that the area between the cities of Mankato and Eagle Lake has, and will have in the near future, the fastest growing population in the Project area.<sup>443</sup> This area has already experienced significant public and private infrastructure investment reflecting the urban development. The city requested that the Draft EIS be amended to state that the Blue Route's impacts on aesthetics, displacement, zoning and land use, public services, and flora are "moderate to significant and likely unable to be mitigated."<sup>444</sup>

326. Similar to the concerns raised by the City of North Mankato, the exact timing, scope, and nature of the future development within the City of Mankato and the area between the City of Mankato and Eagle Lake is unknown today. Further, both industrial and residential development occurs near transmission lines.<sup>445</sup> Therefore, any uncertain impacts should not be characterized as significant.

327. No significant impacts to approved and known land use plans are anticipated as a result of the Project should any route be selected.

---

<sup>440</sup> Ex. XC-20 at 2-12 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. EERA-20B at 1, 8 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>441</sup> Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>442</sup> Ex. EERA-20C at 2-11 (Mankato Comments on the Draft EIS) (eDocket No. [20192-150008-05](#)).

<sup>443</sup> Ex. EERA-20C at 2-11 (Mankato Comments on the Draft EIS) (eDocket No. [20192-150008-05](#)).

<sup>444</sup> Ex. EERA-20C at 2-11 (Mankato Comments on the Draft EIS) (eDocket No. [20192-150008-05](#)).

<sup>445</sup> Ex. XC-20 at 3 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)).

328. The Applicants' recommended route configurations for the Red, Green, and Blue routes do not avoid the areas identified by the cities of North Mankato and Mankato for future development.

## 5. *ELECTRONIC INTERFERENCE*

329. The Project's potential electronic interference impacts do not vary by route or segment alternative.<sup>446</sup>

330. No significant impacts on electronic devices—such as radios, televisions, internet, cellular phones, and GPS applications—are anticipated as a result of the Project.<sup>447</sup>

## 6. *CULTURAL VALUES*

331. The Project's cultural impacts do not vary notably by route or segment alternative.<sup>448</sup>

332. No significant impacts on cultural values are anticipated as a result of the Project.<sup>449</sup>

## 7. *RECREATION*

333. Recreation in the Project area consists primarily of outdoor recreational opportunities, such as canoeing, boating, biking, snowmobiling, camping, hunting, and fishing. Several lakes, rivers, WMAs, WPAs, recreational trails, and Minneopa State Park support these activities in the Project area.<sup>450</sup>

334. Impacts on recreation due to construction of the Project are anticipated to be minimal and temporary by nature, lasting only for the duration of construction. The Project itself, once constructed, could impact aesthetics at a special recreational

---

<sup>446</sup> Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>447</sup> Ex. EERA-13 at 5-23 to 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 104-05 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>448</sup> Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>449</sup> Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 93-94 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>450</sup> Ex. EERA-13 at 5-55 (Draft EIS) (eDocket No. [201812-148307-13](#)); *see also* Ex. XC-7 at 94-101 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

location such that recreation could be less enjoyable. Impacts to recreation, however, are anticipated to be minimal. Potential impacts can be mitigated by prudent route selection, i.e., routing the line away from recreational resources.<sup>451</sup>

335. The Project's recreational impacts do not vary notably by route or segment alternative.<sup>452</sup>

336. No significant impacts to recreation are anticipated as a result of the Project.

## 8. *PUBLIC SERVICE AND INFRASTRUCTURE*

337. Transmission line projects have the potential to negatively impact public services (e.g., roads, railways, utilities, emergency services, and airports).<sup>453</sup>

338. The Applicants will coordinate the placement of transmission line structures with MnDOT, local roadway authorities, and railway authorities to avoid long-term impacts on roadways and railways.<sup>454</sup> The Project's long-term impacts on roadways and railways are anticipated to be minimal and do not vary notably by route or segment alternative.<sup>455</sup>

339. Although construction activities could occasionally cause lane or roadway closures and increase traffic in the Project area, temporary impacts from construction on roadways and railways are anticipated to be minimal and do not vary notably by route or segment alternative.<sup>456</sup>

---

<sup>451</sup> Ex. EERA-13 at 5-59 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 101-02 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>452</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>453</sup> Ex. XC-7 at 102-03, 105-13 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>454</sup> Ex. EERA-13 at 5-27 to 5-28 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 111-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>455</sup> Ex. EERA-13 at 5-27 to 5-28 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 111-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>456</sup> Ex. EERA-13 at 5-26 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-3 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 111-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

340. No impacts on emergency services are anticipated as a result of the Project.<sup>457</sup> Any temporary road closures required during construction would be coordinated with local jurisdictions to provide for safe access for police, fire, and other rescue vehicles.<sup>458</sup> Impacts on emergency services do not vary by route or segment alternative.<sup>459</sup>

341. Electric and gas utilities in the Project area are provided by a variety of public utility companies, co-operatives, and other entities. There are also several bulk transportation pipelines in the project area. In addition, municipal public works and departments construct and maintain various public utilities, including sanitary sewers, streets, sidewalks, and water mains.<sup>460</sup>

342. Depending on the load levels and design parameters, the Green, Red, and Blue routes may potentially impact Magellan's pipelines in the Project area. Magellan prefers the Purple Route, but also anticipates that it will be able to work collaboratively with the Applicants to complete any mitigation efforts if it is later determined that any mitigation is needed, no matter which route is selected for the Project.<sup>461</sup>

343. The Project's impacts on traditional public electric, gas, pipeline, and municipal utilities are anticipated to be minimal. These impacts do not vary by route or segment alternative.<sup>462</sup>

344. The Project's impacts on the Eastwood Solar Farm, a 5.5 MW solar-powered generating facility located on the eastern edge of Mankato, will depend on the route selected. The Blue Route may generate shadows on the PV cells of the solar farm, potentially impeding its output and efficiency. Significant impacts are not anticipated as shadows are expected to be limited to morning hours. Accordingly, the

---

<sup>457</sup> Ex. EERA-13 at 5-29 to 5-30 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>458</sup> Ex. EERA-13 at 5-29 to 5-30 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>459</sup> Ex. EERA-13 at 5-29 to 5-30 (Draft EIS) (eDocket No. [201812-148307-11](#)), Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>460</sup> Ex. EERA-13 at 5-29 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>461</sup> Magellan Letter dated Dec. 18, 2018 (eDocket No. [201812-148559-01](#)).

<sup>462</sup> Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

Blue Route's impacts on the Eastwood Solar Farm are anticipated to be minimal to moderate.<sup>463</sup>

345. The other four route alternatives (Purple, Green, Red, and Purple-E-Red) as well as the segment alternatives associated with them have no impacts on the Eastwood Solar Farm.<sup>464</sup>

346. The Mankato Regional Airport is a public airport located approximately five miles northeast of Mankato. Transmission line structures and conductors can conflict with the safe operation of an airport if they are too tall for the applicable safety zones. The Mankato Regional Airport is subject to zoning and development guidelines, such as the Mankato Regional Airport Zoning Ordinance, Federal Aviation Administration guidelines, and MnDOT guidelines, which all regulate the height of structures in close proximity to airports.<sup>465</sup>

347. The Project's impact on the Mankato Regional Airport will depend on the route selected. The Purple, Green, Red, and Purple-E-Red routes as well as the segment alternatives associated with them have no impact on the Mankato Regional Airport.<sup>466</sup>

348. The Blue Route is located within approximately one mile of the Mankato Regional Airport.<sup>467</sup> The Applicants' proposed structure heights would comply with the existing regulations and limitations that apply to the Mankato Regional Airport.<sup>468</sup>

349. The Blue Route has the potential to impact future expansion of the Mankato Regional Airport and these impacts could require mitigation measures.<sup>469</sup>

---

<sup>463</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>464</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>465</sup> Ex. EERA-13 at 5-30 to 5-31 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 111 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>466</sup> Ex. EERA-13 at 6-12 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>467</sup> Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>468</sup> Ex. XC-7 at 111 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. XC-7 at 31 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>469</sup> Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

However, any such impacts are currently uncertain and no expansion plans have been approved or are under active development.<sup>470</sup>

350. No significant impacts to public services are anticipated as a result of the Project.<sup>471</sup>

## **B. Effects on Public Health and Safety**

351. Minnesota Rule 7850.4100(B) requires consideration of the Project's effect on public health and safety. The evidence on the record demonstrates that health and safety issues are not anticipated during construction and operation of the facilities.

### *1. CONSTRUCTION AND OPERATION OF THE PROJECT*

352. The Project will be designed in compliance with local, state, National Electrical Safety Code (NESC), and Applicants' standards for transmission lines, including clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths.<sup>472</sup>

353. Construction crews and/or contract crews will comply with local, state, NESC, and Xcel Energy standards regarding installation of facilities and standard construction practices.<sup>473</sup> Established Xcel Energy standards and industry safety procedures will be followed during and after installation of the transmission line.<sup>474</sup> This will include clear signage during all construction activities.<sup>475</sup>

354. The proposed transmission line will be equipped with protective devices to safeguard the public from any damage from the transmission line, such as structures or conductors falling to the ground or other potential accidents.<sup>476</sup> The protective devices include circuit breakers and relays located where the line connects

---

<sup>470</sup> Ex. EERA-13 at 5-32 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. EERA-13 at 6-13 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>471</sup> Ex. EERA-13 at 6-10 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>472</sup> Ex. XC-7 at 76 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>473</sup> Ex. XC-7 at 76 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>474</sup> Ex. XC-7 at 76 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>475</sup> Ex. XC-7 at 76 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>476</sup> Ex. XC-7 at 76-77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



to the substations.<sup>477</sup> The substations are fenced and contain a locking gate for access.<sup>478</sup> The protective equipment will de-energize the line should such an event occur.<sup>479</sup> Proper signage will be posted warning the public of the risk of coming into contact with energized equipment.<sup>480</sup>

355. The Applicants' design standards exceed the NESC requirements for safe design and operation of transmission lines.<sup>481</sup> These standards include designing transmission lines to withstand severe winds from summer storms and withstand the combination of ice and strong winds from winter weather.<sup>482</sup>

356. The record demonstrates that construction and operation of the Project will not significantly impact public safety.<sup>483</sup>

## 2. *ELECTRIC AND MAGNETIC FIELDS*

357. Minnesota Statutes section 216E.03, subdivision 7 requires consideration of the effects of electric and magnetic fields on public health and welfare.

358. Electric and magnetic fields are invisible regions of force resulting from the presence of electricity and are produced by all electric devices, including transmission and distribution lines.<sup>484</sup>

359. Electric fields on a transmission line are dependent on the voltage of the line.<sup>485</sup> The strength of an electric field decreases rapidly as the distance from the source increases and electric fields are easily shielded or weakened by most objects, such as trees or buildings.<sup>486</sup>

---

<sup>477</sup> Ex. XC-7 at 76-77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>478</sup> Ex. XC-7 at 76-77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>479</sup> Ex. XC-7 at 76-77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>480</sup> Ex. XC-7 at 76-77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>481</sup> Ex. EERA-20B at 6 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>482</sup> Ex. EERA-20B at 6 (Comments on the Draft EIS) (eDocket No. [20192-150008-03](#)).

<sup>483</sup> Ex. XC-7 at 77 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>484</sup> Ex. XC-7 at 54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>485</sup> Ex. XC-7 at 54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>486</sup> Ex. XC-7 at 55 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Ex. EERA-13 at 5-33 (Draft EIS) (eDocket No. [201812-148307-11](#)).



360. Magnetic fields are created by the electrical current moving through a transmission line. Similar to electric fields, their strength decreases rapidly as the distance from the source increases.<sup>487</sup>

361. Since the 1970s, a large amount of scientific research has been conducted on electric and magnetic fields and human health. This large body of research has been reviewed by many leading public health agencies such as the U.S. National Cancer Institute, the U.S. National Institute of Environmental Health Sciences, and the World Health Organization, among others. These reviews have concluded that there is insufficient evidence to demonstrate a causal relationship between electric and magnetic field exposure and any adverse human health effects.<sup>488</sup>

362. Predicted electric fields for the Project, as modeled and measured by the Applicants, are below the 8 kV/m standard required by the Commission.<sup>489</sup> Similarly, predicted magnetic fields for the Project, as modeled and measured by the Applicants, are below any regulatory guidelines for magnetic fields used in other states or internationally.<sup>490</sup>

363. No adverse health impacts from electronic and magnetic fields are anticipated for persons living or working near the Project.<sup>491</sup>

### 3. *IMPLANTABLE MEDICAL DEVICES*

364. Electromechanical implantable medical devices, such as cardiac pacemakers, cardioverter defibrillators, neurostimulators, and insulin pumps, may be subject to interference from electric and magnetic fields.<sup>492</sup>

365. Maximum levels of electric fields at the edge of the right-of-way are anticipated to be less than 1.5 kV/m, and in most instances, less than 1 kV/m. These levels do not interfere or interact with implantable medical devices.<sup>493</sup>

---

<sup>487</sup> Ex. EERA-13 at 5-32 to 5-33 (Draft EIS) (eDocket No. [201812-148307-11](#)).

<sup>488</sup> Ex. XC-7 at 62-63 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>489</sup> Ex. EERA-13 at 5-36 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 54-57 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>490</sup> Ex. EERA-13 at 5-38 (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 58-63 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>491</sup> Ex. EERA-13 at 5-36 (Draft EIS) (eDocket No. [201812-148307-11](#)); Ex. XC-7 at 113 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>492</sup> Ex. EERA-13 at 5-42 (Draft EIS) (eDocket No. [201812-148307-13](#)).

366. No adverse health impacts or permanent impacts to implantable medical devices are anticipated as a result of the Project.<sup>494</sup>

#### 4. *STRAY VOLTAGE AND INDUCED VOLTAGE*

367. Stray voltage is, generally, an issue associated with electrical distribution lines and electrical service at a residence or on a farm.<sup>495</sup> Transmission lines do not create stray voltage as they do not directly connect to businesses, residences, or farms.<sup>496</sup> Because the Project is a 345 kV transmission line, it does not directly connect to businesses or residences, and accordingly, no stray voltage impacts are anticipated from the Project.<sup>497</sup>

368. The Project's stray voltage impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>498</sup> Any potential impacts on distribution services can be mitigated with several measures, including phase cancellation and proper grounding.<sup>499</sup>

369. Route permits issued by the Commission require that electric transmission lines are constructed and operated to meet NESC standards for induced voltages. No induced voltage impacts are anticipated as a result of the Project. The Project's induced voltage impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>500</sup>

370. No significant impacts to public health and safety are anticipated as a result of the Project.

---

<sup>493</sup> Ex. EERA-13 at 5-43 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>494</sup> Ex. EERA-13 at 5-43 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>495</sup> Ex. EERA-13 at 5-43 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 64 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>496</sup> Ex. XC-7 at 64 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>497</sup> Ex. EERA-13 at 5-44 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 64 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>498</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>499</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>500</sup> Ex. EERA-13 at 5-45 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 64 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

## C. Effects on Land-Based Economies

371. Minnesota Rule 7850.4100(C) requires consideration of the Project's effects on land-based economies, specifically agriculture, forestry, tourism, and mining.

### 1. AGRICULTURE

372. Agriculture is the main land-based economic resource in the Project area, with roughly 90 percent of the soil identified as prime farmland (e.g., prime farmland or farmland of statewide importance).<sup>501</sup>

373. Transmission lines cause permanent agricultural impacts when transmission line structures are located in crop, pasture, and other agricultural land.<sup>502</sup> The footprint of the transmission line structures cannot be used for agricultural production, which impacts farm income.<sup>503</sup> However, typically a more significant impact is that structures can impede the use of farm equipment and limit the management options for agricultural operations.<sup>504</sup> Each structure must be carefully avoided during tillage, planting, spraying, and harvesting of fields.<sup>505</sup>

374. In addition, transmission line structures in agricultural fields could potentially impede the use of irrigation systems.<sup>506</sup>

375. The Project's impacts on agricultural operations and production are route-specific and vary by route and segment alternative, the type of structures used, and the configuration of the structures.<sup>507</sup>

---

<sup>501</sup> Ex. EERA-13 at 5-47, 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>502</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>503</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>504</sup> Ex. EERA-13 (Draft EIS) at 5-47, 5-51 (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 116 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>505</sup> Ex. EERA-13 at 5-47, 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 116 (Route Permit Application) (eDocket No. [20181-139208-02](#)); Mankato 1:00 p.m. Pub. Hrg. Tr. at 62:5-6 (Schroeder) (Feb. 27, 2019) ("I have three sets of poles, they're a real pain and you know what to farm around."); Mankato 6:00 p.m. Pub. Hrg. Tr. at 32-33 (Depuydt) (Feb. 27, 2019); Delavan 1:00 p.m. Pub. Hrg. Tr. at 44-45 (Grover) (Feb. 28, 2019).

<sup>506</sup> Ex. EERA-13 at 5-53 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>507</sup> Ex. EERA-13 at 5-46 (Hillstrom Direct) (eDocket No. [201812-148307-13](#)).

376. The Applicants and the MnDOA have developed and finalized an Agricultural Mitigation Plan for the Project, outlining best practices to minimize and mitigate impacts on farmland.<sup>508</sup>

377. Any other impacts on agriculture from the Project (e.g., irrigation, precision farming, organic agriculture, animal production, and beekeeping) are anticipated to be minimal. These impacts do not vary notably by route or segment alternative.<sup>509</sup>

378. Impacts on agricultural production depend on the amount of farmland in a route's right-of-way, the structure used (H-frame vs. monopole), and the line configuration (parallel vs. double-circuit). Depending on the structure and configuration, the Project may increase or decrease the current amount of structures placed in farmland in the Project area.<sup>510</sup>

379. **Table 8** shows the amount of agricultural land in the rights-of-way of the route alternatives as well as the number of additional structures placed in agricultural fields as a result of the Project.

**Table 8: Agricultural Land and Additional Structures by Route Alternative<sup>511</sup>**

Resource		Purple Route	Green Route	Red Route	Blue Route	Purple-E-Red Route
Agricultural Land in 150-Foot Right-of-Way (acres)		610	519	509	752	622
Additional Structures in Agricultural Fields	H-Frame Structures for Single-Circuit Segments	215	195	-5	240	40
	Monopole Structures for Single-Circuit Segments	75 (Double-Circuit)	120	-25	125	-29 (Double-Circuit)
		175 (Parallel)				8 (Parallel)

<sup>508</sup> Ex. XC-20 at 14 (Hillstrom Rebuttal) (eDocket No. [201812-148564-05](#)); Ex. XC-7 at 117 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>509</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>510</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 116-17 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>511</sup> Ex. EERA-13 at 6-17 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 117 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

380. As shown in **Table 8**, using H-frame structures instead of monopoles, results in more structures in agricultural fields and more impacts to agricultural production.<sup>512</sup> For example, for the Blue Route, with H-frame structures, there would be 240 structures in fields; with monopoles, there would only be 125 structures.<sup>513</sup>

381. In addition, paralleling instead of double-circuiting results in more structures in agricultural fields and higher impacts on agricultural production.<sup>514</sup> As an example, for the Purple Route, double-circuiting results in 75 structures in fields; paralleling results in 175.<sup>515</sup>

382. Double-circuiting with an existing transmission line can lead to reduction in the number of structures in farm fields, if existing H-frame structures are removed and replaced with monopole structures.<sup>516</sup>

383. The Red Route and the Purple-E-Red Route with monopole structures reduce the number of structures in fields.<sup>517</sup> The Red Route results in a net reduction of 25 structures in fields.<sup>518</sup> The Purple-E-Red route results in a reduction of 16 structures in fields.<sup>519</sup>

384. Also, the Purple Route would have only moderate impacts on agriculture if a monopole, double-circuit design is used in existing transmission corridors as this route and design increases the number of structures in fields by 75.

385. The Purple, Green, and Blue routes with H-frame structures or monopole (single-circuit) structures would have the greatest agricultural impacts.<sup>520</sup>

386. The Applicants recommended route configurations do not include any H-frame or parallel design options due to the increased agricultural impacts of those designs. In addition, the Applicants' recommended route configurations further

---

<sup>512</sup> Ex. EERA-13 at 6-16 ((Draft EIS) eDocket No. [201812-148307-15](#)).

<sup>513</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>514</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>515</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>516</sup> Ex. EERA-13 at 6-16 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>517</sup> Ex. EERA-13 at 6-18 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>518</sup> Ex. EERA-13 at 6-18 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>519</sup> Ex. EERA-13 at 6-18 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>520</sup> Ex. EERA-13 at 6-18 (Draft EIS) (eDocket No. [201812-148307-15](#)).

reduce the number of structures in fields for the Red-Q Route, Purple-E-AA1-Red-Q Route, and the Blue-CC-Q Route but slightly increase the number of structures in fields along the Purple-BB-L Route.

**Table 9: Agricultural Land and Additional Structures for Applicants' Recommended Route Configurations<sup>521</sup>**

Resource		Purple-BB-L	Green	Red-Q	Blue-CC-Q	Purple-E-AA1-Red-Q
Agricultural Land in 150-foot Right-of-Way (acres)		635 (plus additional Ag. Land in Segment BB)	519	514	757 (plus unknown difference from Segment Alt. CC)	629.3
Additional Structures in Agricultural Fields	H-Frame Structures for Single-Circuit Segments	215	195	Not Analyzed <sup>522</sup>	Not Analyzed <sup>523</sup>	Not Analyzed <sup>524</sup>
	Monopole Structures for Single-Circuit Segments	93 (Double Circuit)	120	-62	88	-65
		193 (Parallel)				Not Analyzed

387. The Red-Q Route and the Purple-E-AA1-Red-Q Route (double-circuit design) reduce the number of structures by 62 to 65 poles, respectively, while the Blue-CC-Q Route (double-circuit design) adds 88 poles, the Purple-BB-L Route

<sup>521</sup> See Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>522</sup> Segment Alternative Q was not analyzed for an H-frame configuration.

<sup>523</sup> Segment Alternative Q was not analyzed for an H-frame configuration.

<sup>524</sup> Segment Alternative Q was not analyzed for an H-frame configuration.

(double circuit-design) adds 93 poles, and the Green Route (single-circuit design) adds 120 poles.<sup>525</sup>

388. In examining impacts to agriculture, the Red-Q Route or the Purple-E-AA1-Red-Q Route each reduce the number of structures in farmland by approximately 62 to 65 poles and thus have the least potential impact to agriculture. The Purple-BB-L Route (double-circuit design) and Blue-CC-Q Route (double-circuit design) have similar, moderate impacts on agriculture. Each of these routes would, however, add approximately 90 poles in farmland. The Green Route (single-circuit, monopole design) would have the most potential impacts, adding 120 poles in agricultural fields.

## 2. *FORESTRY*

389. There are few forested areas in the Project area. Forested riparian areas are located along larger streams and rivers and some small woodlots are located adjacent to farmsteads. There are no known tree farms, timber plots, or other commercial forestry operations in the Project area.<sup>526</sup>

390. No significant impacts on forestry resources or operations are anticipated as a result of the Project. The impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>527</sup>

## 3. *MINING*

391. Mining does not comprise a major industry in the Project area, and any such operations consist mainly of aggregate sand or gravel mining sites used for local construction projects.<sup>528</sup>

392. The Project's impacts on mining are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>529</sup>

---

<sup>525</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>526</sup> Ex. EERA-13 at 5-54 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 117-18 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>527</sup> Ex. EERA-13 at 5-54 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 118 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>528</sup> Ex. EERA-13 at 5-54 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 119 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



#### 4. *TOURISM*

393. Impacts on tourism due to construction of the Project are anticipated to be minimal and temporary by nature, lasting only for the duration of construction. The Project itself, once constructed, could impact aesthetics at a special location subject to tourism such that activities could be less enjoyable. Long-term impacts on tourism, however, are anticipated to be minimal. Potential impacts can be mitigated by prudent route selection, i.e., routing the line away from resources subject to tourism.<sup>530</sup>

394. The Project's impacts on tourism are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>531</sup>

#### **D. Effects on Archeological and Historic Resources**

395. Minnesota Rule 7850.4100(D) requires consideration of the Project's effects on archaeological and historic resources.

396. Archeological resources include historic and prehistoric artifacts, structural ruins, and earthworks, which are often partially or completely below ground. Historic resources include extant structures, such as buildings and bridges, and landscapes.<sup>532</sup>

397. The SHPO maintains a comprehensive database of all documented prehistoric and historic archaeological sites as well as historic architectural resources and cultural landscapes for the entire state. To determine potential impacts on cultural resources, known archeological and historic sites in the Project area were identified through SHPO records.<sup>533</sup>

---

<sup>529</sup> Ex. EERA-13 at 5-55 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 119 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>530</sup> Ex. EERA-13 at 5-59 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 118 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>531</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>532</sup> Ex. EERA-13 at 5-59 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>533</sup> Ex. EERA-13 at 5-59 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 119-20 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



398. The Project's impacts on archeological and historic resources are route-specific, although most of the identified cultural resources are located at a significant distance from the routing alternatives.<sup>534</sup>

399. The Project's impacts on archeological and historic resources are anticipated to be minimal with proper mitigation measures.<sup>535</sup> The primary means of mitigation are prudent routing (avoiding known cultural resources) and prudent structure placing within a route.<sup>536</sup>

400. The Purple Route has two archeological resources located within its right-of-way<sup>537</sup>—neither of these resources have been evaluated for listing in the National Register of Historic Places (NRHP).<sup>538</sup> The Project's impacts on these resources can be avoided and minimized through surveys and prudent placement of the route alignment and individual structures.<sup>539</sup>

401. A significant historic and architectural resource, the Adams H. Bullis House, listed in the NRHP, is located within 500 feet of the Green Route.<sup>540</sup> Impacts to this resource can be avoided by selecting a route other than the Green Route or by placing the transmission line on the Green Route so that the line would be shielded from view by vegetation surrounding the Adams H. Bullis House to the extent possible.<sup>541</sup>

402. Two historic resources, the Borgmeier farmstead and an unnamed farmstead, are located within 500 feet of the Blue Route.<sup>542</sup> These farmsteads have

---

<sup>534</sup> Ex. EERA-13 at 5-59 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>535</sup> Ex. EERA-13 at 5-63 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>536</sup> Ex. EERA-13 at 5-63 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>537</sup> One is an unnamed site with artifact scatter and the other is Pleasant Mound ghost town. *See* Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>538</sup> Ex. EERA-13 at 6-19 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 120-21 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>539</sup> Ex. EERA-13 at 6-19 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 120-21 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>540</sup> Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>541</sup> Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 121-22 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>542</sup> Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 122 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

not been evaluated for listing in the NRHP.<sup>543</sup> Impacts to these farmsteads can be avoided by selecting a route other than the Blue Route or by placing the transmission line on the Blue Route so that the line would be shielded from view by vegetation surrounding the farmsteads to the extent possible.<sup>544</sup>

403. The Applicants' recommended route configurations are not anticipated to change the historic and architectural resources located within the right-of-way or within 500 feet of the route alternative.<sup>545</sup> Segment Alternative Q has two fewer historic sites within one mile as compared to the same segment of the Red and Blue routes but has two more archeology sites within one mile as compared to the same segment of the Red and Blue routes.<sup>546</sup> No cultural data was provided in the Draft EIS for Segment Alternatives BB and CC.

## **E. Effects on Natural Environment**

404. Minnesota Rule 7850.4100(E) requires consideration of the Project's effects on the natural environment including effects on air and water quality and flora and fauna. The evidence on the record demonstrates that the Project is not anticipated to have a material effect on the natural environment.<sup>547</sup>

405. Overall, the Project's potential impacts on natural resources are anticipated to be relatively minimal because the Project area is primarily agricultural land with limited natural resource diversity and because any impacts can, to a great extent, be avoided and mitigated.<sup>548</sup>

### *1. AIR QUALITY*

406. Potential air quality impacts associated with the Project come from two primary sources: long-term emissions from operating the transmission line and short-

---

<sup>543</sup> Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 122 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>544</sup> Ex. EERA-13 at 6-20 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 122 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>545</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>546</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>547</sup> Ex. EERA-13 at 5-63 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>548</sup> Ex. EERA-13 at 5-63 (Draft EIS) (eDocket No. [201812-148307-13](#)).

term emissions from construction activities. Ionization of air molecules surrounding the transmission line conductor (corona effect) produces a very small amount of ozone and nitrogen oxide (NO<sub>x</sub>). Accordingly, emissions from operating the proposed transmission line are anticipated to have negligible impacts on air quality.<sup>549</sup>

407. Emissions during Project construction would primarily consist of emissions from construction vehicles and other equipment (CO<sub>2</sub>, NO<sub>x</sub>, and particulate matter) as well as dust generated from earth-disturbing activities.<sup>550</sup> Any emissions from construction would be similar to those from agricultural activities common in the Project area and would only occur for short periods of time in localized areas.<sup>551</sup> Minor short-term air quality impacts from construction can be mitigated by prudent construction practices, such as using water trucks to reduce dust, covering open-bodied trucks, and promptly reseeding areas of disturbed vegetation.<sup>552</sup>

408. The Project's air quality impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>553</sup>

409. The Applicants also modeled the avoided tons of emissions for SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> that will result from the construction of the Project.<sup>554</sup> The Applicants concluded that using the most recent Commission-approved values for externalities, and dispatch assumptions from MISO's MTEP17 PROMOD cases for the Project produces \$5.3 million to \$21.1 million in annual public policy benefits from emissions reductions during the simulated study years.<sup>555</sup>

---

<sup>549</sup> Ex. EERA-13 at 5-46 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 124 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>550</sup> Ex. EERA-13 at 5-46 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>551</sup> Ex. EERA-13 at 5-46 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>552</sup> Ex. EERA-13 at 5-46 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 124 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>553</sup> Ex. EERA-13 at 6-15 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>554</sup> Ex. XC-6 at 105 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

<sup>555</sup> Ex. XC-6 at 105 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).

## 2. *WATER QUALITY AND RESOURCES*

410. There are a variety of water resources in the Project area, such as rivers and streams (watercourses), lakes and ponds (waterbodies), wetlands, floodplains, and groundwater resources.<sup>556</sup>

### *a. Surface Waters*

411. Watercourses in the Project area tend to be small to moderate in size, and the major watercourses include the Blue Earth River, Le Sueur River, Maple River, Minnesota River, and Watonwan River.<sup>557</sup> Smaller watercourses include the Cobb River, Elm Creek, Minneopa Creek, Perch Creek, Rice Creek, and Willow Creek.<sup>558</sup> The Project area contains several larger waterbodies, including Bass Lake, Cottonwood Lake, Lake Crystal, Eagle Lake, Lura Lake, Loon Lake, Mills Lake, Minnesota Lake, Perch Lake, Rapidan Lake, and Rice Lake.<sup>559</sup>

412. It is anticipated that all watercourses and waterbodies in the Project area would be avoided by prudent routing or spanned.<sup>560</sup> The crossing distance for all watercourses and waterbodies in the project area is less than 1,000 feet—the typical transmission line span for the Project.<sup>561</sup> Thus, no structures would be placed within these features, and no direct impacts on watercourses and waterbodies are anticipated.<sup>562</sup>

413. Construction activities have the potential to have indirect impacts on surface water resources, for example, as a result of vegetation removal within the right-of-way.<sup>563</sup> Mitigation measures, such as the development of a stormwater

---

<sup>556</sup> Ex. EERA-13 at 5-64 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>557</sup> Ex. EERA-13 at 5-64 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>558</sup> Ex. EERA-13 at 5-64 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>559</sup> Ex. EERA-13 at 5-64 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>560</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>561</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>562</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>563</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-23 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 132 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

pollution prevention plan, are anticipated to prevent or minimize any such Project impacts on watercourses and waterbodies.<sup>564</sup>

414. The Green Route crosses 17 watercourses (seven are of Public Waters Inventory (PWI)), the Red Route crosses 18 watercourses (12 are of PWI), the Purple-E-Red Route crosses 22 watercourses (14 are of PWI), the Purple Route crosses 27 watercourses (17 are of PWI), and the Blue Route crosses 41 watercourses (15 are of PWI).<sup>565</sup>

415. The Green Route crosses 17 watercourses (seven are of PWI), the Red-Q Route crosses 20 watercourses (12 are of PWI), the Purple-E-AA1-Red-Q Route crosses 22 watercourses (14 are of PWI), the Purple-BB-L Route crosses 30 watercourses (15 are of PWI), and the Blue-CC-Q Route crosses 43 watercourses (15 are of PWI).

416. The Blue-CC-Q Route continues to have the most watercourse crossings with 43 crossings. The next highest total is for the Purple-BB-L Route (33 crossings) and the Purple-E-AA1-Red-Q Route (22 crossings).<sup>566</sup>

*b. Wetlands*

417. Placement of transmission structures in a wetland will result in small permanent impacts where the structure foundation occupies space in the wetland. Permanent impacts on wetlands can also occur when forested wetlands are converted to non-forested wetlands when trees are removed from the transmission line right-of-way. Finally, transmission line construction activities within wetlands have a potential for impacts. Vegetation clearing, movement of soils, and construction traffic could impair functioning wetlands.<sup>567</sup>

---

<sup>564</sup> Ex. EERA-13 at 5-67 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-23 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 132 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>565</sup> Ex. EERA-13 at 6-22 to 6-23 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>566</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>567</sup> Ex. EERA-13 at 5-69 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-24 (Draft EIS) (eDocket No. [201812-148307-15](#)).

418. The Project may impact wetlands and these impacts are route-specific.<sup>568</sup> The Project's potential impacts on wetlands can be mitigated by selecting routes, alignments, and pole placements that avoid wetlands.<sup>569</sup>

419. If wetlands cannot be avoided, construction impacts can be mitigated by a variety of strategies, including using construction mats, constructing during winter months when the ground is frozen, using all-terrain construction equipment designed to minimize soil impacts, assembling structures on upland areas prior to site installation, and transporting crews and equipment via roads instead of wetlands.<sup>570</sup>

420. The Purple-E-Red Route has the greatest amount of non-forested wetland within the right-of-way (63 acres), followed by the Purple Route (53 acres), Red Route (48 acres), Green Route (38 acres), and Blue Route (37 acres).

421. The Blue Route has the largest amount of forested wetland within the right-of-way (19 acres), followed by the Red Route (13 acres), the Purple-E-Red Route (11 acres), the Green Route (7 acres), and the Purple Route (6 acres). None of the rights-of-way for the route alternatives contain PWI wetlands.<sup>571</sup>

422. The Applicants' recommended route configurations have similar impacts on wetlands and forested wetlands.

423. The Purple-E-AA1-Red-Q Route has the greatest amount of non-forested wetland within the right-of-way (67.1 acres), followed by the Red-Q Route (52 acres), the Purple-BB-L Route (48.6 acres), the Blue-CC-Q Route (41.4 acres), and the Green Route (38.2 acres).

424. The Blue-CC-Q Route has the largest amount of forested wetland within its right-of-way (19 acres), followed by the Red-Q Route (14.1 acres), the Purple-E-AA1-Red-Q (12.2 acres), the Green Route (7 acres), and the Purple-BB-L Route (5.3 acres). None of the rights-of-way for the route alternatives contain PWI wetlands.<sup>572</sup>

---

<sup>568</sup> Ex. EERA-13 at 6-24 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 135-37 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>569</sup> Ex. EERA-13 at 6-24 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>570</sup> Ex. EERA-13 at 5-70 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>571</sup> Ex. EERA-13 at 6-24 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 135 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>572</sup> Ex. EERA-13 at 6-24 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 135 (Route Permit Application) (eDocket No. [20181-139208-02](#)).



*c. Floodplains*

425. The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. At the state level, the MnDNR oversees the administration of the state floodplain management program and oversees the national flood insurance program for Minnesota. Floodplains are also regulated at the local level and Martin County, Nicollet County, and the City of Mankato have designated floodplain zoning districts within the Project area.<sup>573</sup>

426. FEMA has designated 100-year floodplains along the following watercourses: Blue Earth River, Center Creek, Cobb River, Elm Creek, Le Sueur River, Little Cobb River, Maple River, Minneopa Creek, Minnesota River, Rice Creek, South Creek, Watonwan River, Willow Creek, and along several unnamed tributaries.<sup>574</sup>

427. No impacts on floodplains are anticipated as a result of the Project. If a floodplain crossing is greater than the typical 1,000-foot transmission line span, the crossing may require permanent placement of structure foundations within the floodplain. However, it is anticipated that these structures would have limited effects on water flow, floodwater storage capacity, or flooding in these floodplains, since the volume displaced by the structures would likely be small in the context of the setting. FEMA does not require mitigation for construction within the floodplain.<sup>575</sup>

428. The Project's impacts on floodplains are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>576</sup>

*d. Groundwater*

429. The Project's impacts on groundwater are anticipated to be minimal and they do not vary notably by route or segment alternative.<sup>577</sup> Structure foundations

---

<sup>573</sup> Ex. EERA-13 at 5-68 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>574</sup> Ex. EERA-13 at 5-68 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 127 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>575</sup> Ex. EERA-13 at 5-68 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 127 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>576</sup> Ex. EERA-13 at 6-21 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>577</sup> Ex. EERA-13 at 5-70 (Draft EIS) (eDocket No. [201812-148307-13](#)).

used for the construction are not expected to be deep enough to impact groundwater resources.<sup>578</sup>

### 3. FLORA

430. The dominant land cover across the Project area is agricultural vegetation, with forested vegetation representing between three percent and eight percent of the land cover within the right-of-way for all route alternatives.<sup>579</sup> Forested vegetation is mainly located along rivers and other watercourses.<sup>580</sup>

431. Construction of the Project will have short-term impacts on existing vegetation, including physical surface disturbance, soil compaction, and other impacts from equipment use. These impacts are short-term and can be mitigated or avoided by a number of measures, such as replanting, limiting vehicle traffic, and other prudent construction practices.<sup>581</sup> Short-term impacts on vegetation from construction do not vary significantly by route or segment alternative.<sup>582</sup>

432. Construction of the Project will have long-term impacts on flora when vegetation is permanently removed at each structure and within the route right-of-way. The primary long-term impact from the Project occurs when forest or other woody vegetation is cleared from the right-of-way and permanently converted to low-growing vegetation.<sup>583</sup>

433. The Project's impacts on forested vegetation vary by route and segment alternative.<sup>584</sup>

---

<sup>578</sup> Ex. EERA-13 at 5-70 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-21 (Draft EIS) (eDocket No. [201812-148307-15](#)); Ex. XC-7 at 133-34 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>579</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>580</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 137-38 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>581</sup> Ex. EERA-13 at 5-71 (Draft EIS) (eDocket No. [201812-148307-13](#)); *see also* Ex. XC-7 at 138 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>582</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>583</sup> Ex. EERA-13 at 5-71 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>584</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).



434. Out of the five route alternatives, the Green and Red routes would traverse through the largest amount of forested land cover (68 and 64 acres respectively), much of which is located adjacent to the Minnesota and Blue Earth rivers.<sup>585</sup> These two routes would result in relatively greater impacts on forested vegetation than other route alternatives. The Purple and Blue routes have the least amount of forested land cover (37 acres each).<sup>586</sup> The Purple-E-Red Route has an intermediate amount of forested land cover, much of which is located adjacent to rivers (56 acres).<sup>587</sup>

435. The Applicants' recommended route configurations have impacts on forested vegetation that range from 36 to 68 acres.<sup>588</sup>

436. The Green and Red-Q routes would traverse through the largest amount of forested land cover (68 and 49 acres respectively) and would result in relatively greater impacts on forested vegetation than other route alternatives.<sup>589</sup> The Purple-BB-L and Blue-CC-Q routes have the least amount of forested land cover (36 acres each). The Purple-E-AA1-Red-Q Route has an intermediate amount of forested land cover (57 acres).<sup>590</sup>

#### 4. *FAUNA*

437. The Project's impacts on fauna are primarily assessed by evaluating wildlife habitat and wildlife management and conservation areas near the route alternatives.<sup>591</sup> The Project area contains several federal Grassland Bird Conservation Areas, several federal WPAs, the Upper Minnesota Valley Important Bird Area designated as such by the National Audubon Society, several MnDNR WMAs, and

---

<sup>585</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>586</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>587</sup> Ex. EERA-13 at 6-25 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>588</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>589</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>590</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>591</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

several MnDNR Shallow Wildlife Lakes, Migratory Waterfowl Feeding and Resting Areas, and State Game Refuges.<sup>592</sup>

438. Potential long-term impacts on fauna as a result of the Project are anticipated to be minimal with appropriate mitigation measures.<sup>593</sup> Potential impacts on fauna can be mitigated through several measures, such as routing away from high-quality habitat, using existing rights-of-way, spanning, and special structures. Impacts on fauna are smaller when the route follows existing roads or transmission lines.<sup>594</sup>

439. The Project's impacts on fauna are anticipated to vary only slightly among route and segment alternatives.<sup>595</sup>

440. All route alternatives pass through Grassland Bird Conservation Areas. The acreage of such land within the rights-of-way range from 108 acres for the Purple-E-Red Route to 81 acres for the Purple Route.<sup>596</sup> The Purple Route and the Blue Route traverse through these conservation areas along an existing transmission line, while the Green, Red, and Purple-E-Red routes do not follow existing infrastructure.<sup>597</sup>

441. All route alternatives, except the Green Route, would pass through WPAs.<sup>598</sup> Because the Purple, Red, Purple-E-Red and Blue routes follow existing transmission lines and roads to cross the WPAs, the anticipated impacts on fauna are minimal and do not vary notably by route alternative.<sup>599</sup>

442. All route alternatives would pass through the Upper Minnesota Valley Important Bird Area, however, the Blue Route's right-of-way would include only one acre of such land.<sup>600</sup> The Purple and Purple-E-Red routes traverse through this

---

<sup>592</sup> Ex. EERA-13 at 5-72 and 5-77 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>593</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>594</sup> Ex. EERA-13 at 5-77 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>595</sup> Ex. EERA-13 at 6-26 and 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>596</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>597</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>598</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>599</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>600</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

conservation area along an existing transmission line, while the Green and Red routes do not follow existing infrastructure.<sup>601</sup>

443. The Green, Red, and Purple-E-Red routes would traverse through WMAs, while the Purple and Blue routes would not cross such lands.<sup>602</sup> Because the Green, Red, and Purple-E-Red routes will use existing infrastructure to cross WMAs, the Project's impacts on WMA habitat are anticipated to be minimal and they do not vary notably by route alternative.<sup>603</sup>

444. The Red and the Purple-E-Red routes would pass through the edge of one shallow wildlife lake, Lura Lake, along an existing transmission line and road.<sup>604</sup> The Blue Route would pass through the eastern edge of Cottonwood Lake, which is designated as a shallow wildlife lake and a Migratory Waterfowl Feeding and Resting Area.<sup>605</sup> The Purple and Green routes do not cross any shallow wildlife lakes.<sup>606</sup>

445. The Blue Route is the only route alternative that would cross a Migratory Waterfowl Feeding and Resting Area.<sup>607</sup>

446. All five route alternatives cross the east Minnesota River Game Refuge following an existing transmission line.<sup>608</sup>

447. The Project may also impact avian species (e.g., songbirds, raptors, waterfowl) due to electrocution or collision with transmission line conductors. The Applicants will minimize these impacts by constructing the Project in accordance with the Avian Power Line Interaction Committee's safety recommendations, which

---

<sup>601</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>602</sup> Ex. EERA-13 at 6-26 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>603</sup> Ex. EERA-13 at 6-26 and 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>604</sup> Ex. EERA-13 at 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>605</sup> Ex. EERA-13 at 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>606</sup> Ex. EERA-13 at 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>607</sup> Ex. EERA-13 at 6-27 and 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>608</sup> Ex. EERA-13 at 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

minimize electrocution risk.<sup>609</sup> Bird collisions can also be mitigated by conductor configuration and bird flight diverters.<sup>610</sup>

448. Overall, the Blue and Purple routes are most likely to minimize the Project's impacts on fauna habitat because they do not cross any WMAs and cross all WPAs, Grassland Bird Conservation Areas, and the Upper Minnesota Valley Important Bird Area along existing transmission lines. The Green and Red routes are likely to have the most impact on fauna habitat, because they do not follow existing transmission lines when crossing Grassland Bird Conservation Areas and the Upper Minnesota Valley Important Bird Area.<sup>611</sup>

449. The Applicants' recommended route configurations have the same impacts on fauna habitat as the original routes. The Blue-CC-Q and Purple-BB-L routes are most likely to minimize the Project's impacts on fauna habitat because they do not cross any WMAs and cross all WPAs, Grassland Bird Conservation Areas, and the Upper Minnesota Valley Important Bird Area along existing transmission lines. The Green and Red-Q routes are likely to have the most impact on fauna habitat, because they do not follow existing transmission lines when crossing Grassland Bird Conservation Areas and the Upper Minnesota Valley Important Bird Area.<sup>612</sup>

## **F. Effects on Rare and Unique Natural Resources**

450. Minnesota Rule 7850.4100(F) requires consideration of the Project's effects on rare and unique resources.

451. Impacts to rare and unique natural resources are primarily assessed by evaluating the presence of rare species near the right-of-way of route alternatives and the presence of rare communities within the right-of-way of route alternatives.<sup>613</sup>

### *1. RARE SPECIES*

452. The Project's potential impacts on rare species are anticipated to be minimal and they do not vary significantly by route or segment alternative.<sup>614</sup>

---

<sup>609</sup> Ex. EERA-13 at 5-78 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. XC-7 at 141 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>610</sup> Ex. EERA-13 at 5-78 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>611</sup> Ex. EERA-13 at 6-28 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>612</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>613</sup> Ex. EERA-13 at 6-29 (Draft EIS) (eDocket No. [201812-148307-15](#)).

Potential impacts can be minimized through prudent construction management and species-specific mitigation measures.<sup>615</sup>

453. No federally endangered or threatened species have been documented within one mile of the route alternatives.<sup>616</sup> Nine state endangered or threatened species have been documented within one mile of the route alternatives, including the eastern spotted skunk, the loggerhead shrike, the Blanding's turtle, and six threatened vascular plants.<sup>617</sup> All of the route alternatives have between five and seven state endangered or threatened species within one mile of them.<sup>618</sup> The Blue Route has three state endangered or threatened species within its right-of-way; all other route alternatives have two such species within their rights-of-way.<sup>619</sup>

454. All route alternatives have two or three state special concern or watchlist species within their rights-of-way.<sup>620</sup> The number of such species within one mile from the route alternatives varies from seven to sixteen.<sup>621</sup>

455. Migratory birds are protected under the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act.<sup>622</sup> Bald eagles have been documented nesting in the right-of-way of the Purple and Purple-E-Red routes near the Minnesota River.<sup>623</sup> Two colonial water bird nesting sites have been documented within one mile of the Blue Route, adjacent to the Maple River.<sup>624</sup>

456. As the Project's potential impacts on rare species are anticipated to be minimal and do not vary significantly by route or segment alternative, the Applicants'

---

<sup>614</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>615</sup> Ex. EERA-13 at 5-81 (Draft EIS) (eDocket No. [201812-148307-13](#)); Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)); *see also* Ex. XC-7 at 141-49 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>616</sup> Ex. EERA-13 at 6-29 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>617</sup> Ex. EERA-13 at 6-29 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>618</sup> Ex. EERA-13 at 6-29 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>619</sup> Ex. EERA-13 at 6-29 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>620</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>621</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>622</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>623</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>624</sup> Ex. EERA-13 at 6-30 (Draft EIS) (eDocket No. [201812-148307-15](#)).

recommended route configurations will have similar potential impacts on rare species as the original five routes.

## 2. *RARE ECOLOGICAL COMMUNITIES*

457. The Project area contains rare ecological communities, including Minnesota Biological Survey (MBS) sites of biodiversity significance (SBS), MBS native plant communities, and MBS railroad rights-of-way prairies.<sup>625</sup>

458. The Project's potential impacts on rare communities are anticipated to be minimal. Potential impacts can be minimized through prudent routing, spanning and construction management. In addition, following existing rights-of-way and field lines would reduce the potential for fragmenting of rare communities.<sup>626</sup>

459. The Project's potential impacts on rare communities vary by route and segment alternative.<sup>627</sup>

460. The Purple and Purple-E-Red routes pass through the largest area of SBS (37 acres) as well as the largest area of SBS ranked as "high" (22 acres). The Blue Route traverses through the least amount of SBS (3 acres) and no SBS ranked "high."<sup>628</sup>

461. The Purple-E-Red Route would pass through the most forested and non-forested native plant communities, including native plant communities with a conservation status rank of S2 or S3, while the Blue Route would pass through the least.<sup>629</sup>

462. The Blue Route impacts the fewest rare communities and all of the communities can be spanned.<sup>630</sup> The Purple and Purple-E-Red routes impact the

---

<sup>625</sup> Ex. EERA-13 at 5-85 (Draft EIS) (eDocket No. [201812-148307-13](#)); *see also* Ex. XC-7 at 149-53 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>626</sup> Ex. EERA-13 at 5-86 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>627</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>628</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>629</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>630</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

greatest number of rare communities.<sup>631</sup> The Purple-E-Red Route also includes two rare communities that cannot be spanned.<sup>632</sup>

463. As the Project's potential impacts on rare communities are anticipated to be minimal and do not vary significantly by route or segment alternative, the Applicants' recommended route configurations will have similar potential impacts on rare communities as the original five routes.<sup>633</sup>

## **G. Application of Various Design Considerations**

464. Minnesota Rule 7850.4100(G) requires consideration of whether the applied design options maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.

465. Applicants proposed three different structure designs for the proposed 345 kV line: (1) single-circuit, H-frame, (2) single-circuit, monopole, and (3) double-circuit, monopole.<sup>634</sup> In places where the proposed route follows an existing transmission line corridor, the Applicants also examined three different configurations: (1) paralleling the existing transmission line on H-frame structures; (2) paralleling the existing transmission line on monopole structures; and (3) double-circuiting the new 345 kV line with the existing line on a monopole structure.<sup>635</sup>

466. The type of structure (monopole or H-frame) and the configuration (parallel or double-circuit) used for the proposed transmission line influences the nature and extent of the impacts of the Project.<sup>636</sup>

467. Monopole structures better mitigate the potential environmental impacts of the Project as compared to H-frame structures. H-frame structures have greater land-use impacts due to their two-pole design as compared to the one-pole design of monopole structures.<sup>637</sup>

---

<sup>631</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>632</sup> Ex. EERA-13 at 6-33 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>633</sup> Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS) (eDocket No. [201812-148312-18](#)).

<sup>634</sup> Ex. XC-7 at ES-12 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>635</sup> Ex. EERA-13 at 3-23 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>636</sup> Ex. EERA-13 at 3-25 (Draft EIS) (eDocket No. [201812-148307-08](#)).

<sup>637</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).



468. Foundations for monopole structures are anticipated to be 7 to 12 feet in diameter.<sup>638</sup> Accordingly, the footprint for a monopole structure would be 38 to 113 square feet. Foundations for H-frame structures are of a similar size if a concrete foundation is used (7 to 10 feet in diameter), but could be smaller for a culvert foundation (4 feet in diameter).<sup>639</sup> However, H-frame structures have two foundations that are 25 to 30 feet apart.<sup>640</sup> Thus, the effective footprint for an H-frame structure would be 116 to 400 square feet.<sup>641</sup> Because of their relatively larger footprint, H-frame structures would impede agricultural management more than monopole structures.<sup>642</sup>

469. Similarly, double-circuiting the proposed 345 kV line with existing transmission lines better mitigates potential environmental impacts as compared to paralleling existing transmission lines.<sup>643</sup> Paralleling existing transmission lines would impede agricultural management more than double-circuiting due to the increase in the width of the transmission corridor (i.e., existing corridor plus new corridor).<sup>644</sup>

470. For some structure configurations, e.g., parallel H-frame structures, it is possible that portions of fields could no longer be properly managed and would, in effect, be removed from agriculture production.<sup>645</sup>

471. The proposed 345 kV transmission line will relieve 100 percent of the congestion along the Huntley to Wilmarth path throughout the 20-year study period.<sup>646</sup> As a result, the Applicants concluded that it was not necessary to construct facilities capable of expanding the transmission capacity of the proposed 345 kV line.<sup>647</sup>

---

<sup>638</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>639</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>640</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>641</sup> Ex. EERA-13 at 5-47 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>642</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>643</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>644</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>645</sup> Ex. EERA-13 at 5-51 (Draft EIS) (eDocket No. [201812-148307-13](#)).

<sup>646</sup> Ex. XC-24 at 41 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>647</sup> Ex. XC 6 at 113 (Certificate of Need Application) (eDocket No. [20181-139030-01](#)).



472. The Huntley and Wilmarth substations have the ability to accommodate additional transmission line connections.<sup>648</sup>

#### **H. Use or Paralleling of Existing Right-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries**

473. Minnesota Rule 7850.4100(H) requires consideration of the use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries.

474. All of the route alternatives, except the Purple Route, follow field, parcel, or section lines for about 80 percent of their length. The Purple Route shares 64 percent of its length with field, parcel, and section lines.<sup>649</sup> The Purple Route shares a lower percentage of its length with field, parcel, and section lines because it follows an existing transmission line for a portion of its length that does not necessarily follow field, parcel, and section lines.

#### **I. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way**

475. Minnesota Rule 7850.4100(J) requires consideration of use or paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way.

476. None of the route options share a pipeline right-of-way.

477. The Purple-E-Red Route shares the most right-of-way with existing transmission lines, roads, and railroads (84 percent), followed by the Red and Purple routes (81 and 70 percent, respectively).<sup>650</sup> The Purple-E-Red route also shares the most right-of-way with existing transmission lines (60 percent).<sup>651</sup> The Green and Blue routes share the least amount of right-of-way with existing transmission lines, roads, and railroads at 42 percent and 39 percent, respectively.<sup>652</sup>

478. Potential impacts of the route also depend on whether the new transmission line is parallel or double-circuited with the existing transmission line. The Purple, Red, and Purple-E-Red routes have the option of double-circuiting in all

---

<sup>648</sup> Ex. XC-7 at 18 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>649</sup> Ex. EERA-13 at 6-34 (Draft EIS)(eDocket No. [201812-148307-15](#)).

<sup>650</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>651</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>652</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

areas where the route follows existing transmission line corridors. In contrast, only a minor portion of the Green and Blue routes would be double-circuited with an existing transmission line.<sup>653</sup>

479. An examination of both infrastructure corridor sharing and field, parcel, and section lines shows that the Purple-E-Red Route follows existing infrastructure or field, parcel, and section lines for 96 percent of its length and the Red Route follows these same corridors for 89 percent of its length.<sup>654</sup> The Purple Route also follows existing infrastructure (70 percent) and field lines (64 percent), for a high percentage of its length, a total of 95 percent.<sup>655</sup> The amount of right-of-way sharing for all routes is shown in **Table 10** below from the Draft EIS.

**Table 10: Right-of-Way Sharing and Paralleling<sup>656</sup>**

Infrastructure	Route Alternatives				
	Purple	Green	Red	Blue	Purple-E-Red
Follows Existing Transmission Line (miles, percent)	24.5 (47)	5.4 (12)	26.3 (57)	9.7 (17)	32.3 (60)
Follows Existing Roads (miles, percent)"	11.8 (23)	13.8 (30)	11.3 (24)	10.1 (18)	13.0 (24)
Follows Existing Railroad (miles, percent)	0 (0)	0 (0)	0 (0)	2.6 (5)	0 (0)
Total—Transmission Line, Road, and Railroad (miles, percent)	36.3 (70)	19.2 (42)	37.6 (81)	22.4 (39)	45.3 (84)
Follows Field, Parcel, and Section Lines (miles, percent)	33.2 (64)	36.9 (81)	36.5 (78)	47.2 (83)	42.1 (78)
Total—All (miles, percent)	49.1 (95)	39.1 (86)	41.6 (89)	49.6 (87)	51.8 (96)

480. As shown in **Table 11**, above, an analysis of the Applicants' recommended route configurations improves the percentage of corridor sharing for each alternative but does not change the performance of the route alternatives relative

<sup>653</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>654</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>655</sup> Ex. EERA-13 at 6-34 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>656</sup> Ex. EERA-13 at 6-34, Table 6-11 (Draft EIS) (eDocket No. [201812-148307-15](#)). The Draft EIS notes that “[p]ortions may share or parallel more than one type of infrastructure ROW or division/boundary line and, therefore, the sum may be greater than 100 percent.”

to each other. The Purple-E-AA1-Red-Q Route shares the most right-of-way with existing transmission lines, roads, and railroads (96 percent), followed by the Red-Q and Purple-BB-L routes (95 and 78 percent, respectively). The Purple-E-AA1-Red-Q Route also shares the most right-of-way with existing transmission lines (76 percent). The Green and Blue-CC-Q routes continue to share the least amount of right-of-way with existing transmission lines, roads, and railroads at 47 percent.

481. Minnesota Statutes section 216E.03, subdivision 7(e), provides that the Commission “must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons.” Consistent with the requirements of this statute, all of the Applicants’ recommended route configurations utilize existing high-voltage transmission routes and parallel existing highway right-of-way to the maximum extent feasible.

## **J. Electrical System Reliability**

482. Minnesota Rule 7850.4100(K) requires consideration of electrical system reliability when selecting a route for a high-voltage transmission line.

483. The Project will be constructed to meet all reliability standards and requirements.<sup>657</sup> All proposed route alternatives support and enhance the reliability of the regional electrical system.<sup>658</sup>

## **K. Costs of Constructing, Operating, and Maintaining the Facility**

484. Minnesota Rule 7850.4100(L) requires consideration of the cost to construct proposed routes and the cost of operation and maintenance.

485. The costs of the Project vary by the route alternative as well as by the structure type and configuration.

486. For the Applicants’ recommended route configurations, the lowest cost alternative is the Green Route, single-circuit monopole design at \$121.3 million (2016\$).<sup>659</sup>

---

<sup>657</sup> Ex. EERA-13 at 6-35 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>658</sup> Ex. EERA-13 at 6-35 to 6-36 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>659</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

487. For the Applicants' recommended route configurations, the highest cost alternative is the Purple-E-AA1-Red-Q, double-circuit design at \$160.2 million (2016\$).<sup>660</sup>

488. The cost of the Project will impact the Project's benefit-to-cost ratio. The economic benefits of the Project was calculated by MISO in MTEP16 and by the Applicants using the MTEP17 and MTEP18 models. The higher the cost, the lower the benefit-to-cost ratio, as the Project's economic benefits remain constant for each MTEP model year.

489. **Table 12** shows the estimated costs for the Applicants' five recommended route configurations as well as the benefit-to-cost ratios estimated by the Applicants under the MTEP17 and MTEP18 models.

**Table 12: Estimated Cost and Benefit-to-Cost Ratios**

Route Alternative	Cost (Millions) (2016\$)	Weighted Benefit-to-Cost Ratio (MTEP17)	Weighted Benefit-to- Cost Ratio (MTEP18)
<b>Purple-BB-L</b> Double-Circuit, Monopole Design	\$140.1	1.63	1.28
<b>Green</b> Single-Circuit, Monopole Design	\$121.3	1.88	1.47
<b>Red-Q</b> Double-Circuit, Monopole Design	\$141.2	1.62	1.27
<b>Blue-CC-Q</b> Double-Circuit, Monopole Design	\$138.6	1.65	1.29
<b>Purple-E-AA1-Red-Q</b> Double-Circuit, Monopole Design	\$160.2	1.43	1.12

490. Under MTEP17 and MTEP18 models, the benefit-to-cost ratio for all five of the Applicants' recommended route configurations is above 1.0. This means that the APC savings of each route alternative is greater than its costs and thus the

---

<sup>660</sup> Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. [20189-146251-08](#)).

Project will provide economic benefits to MISO North/Central, which includes Minnesota customers, in terms of lower wholesale energy costs regardless of the route selected by the Commission.<sup>661</sup>

491. However, the higher cost route/design alternatives have lower benefit-to-cost ratios as compared to lower cost route/design alternatives.<sup>662</sup> The Green Route has the highest benefit-to-cost ratio under the MTEP17 and MTEP18 models at 1.88 and 1.47, respectively. The Purple-E-AA1-Red-Q Route has the lowest benefit-to-cost ratio under the MTEP17 and MTEP18 models at 1.43 and 1.12, respectively.

492. As noted above, another consideration related to the Project costs is the MISO variance process. Under Attachment FF of the MISO tariff, if the cost of this Project exceeds or is projected to exceed 25 percent or more of the Project's baseline cost estimate, MISO is required to initiate a new process called a variance analysis. The Project's baseline cost estimate is \$108 million (2016\$).<sup>663</sup>

493. The Applicants will update the Project's cost estimate provided to MISO after a route is determined by the Commission and the Applicants file their final cost estimates. Any final route with a cost estimate of \$135 million (2016\$) or more may trigger a MISO variance analysis.<sup>664</sup> After the variance analysis has been triggered, MISO will investigate the facts and documentation and then at the conclusion of this process decide to: (1) take no action; (2) institute a mitigation plan to alleviate grounds for variance; or (3) cancel the project.<sup>665</sup> Other than requiring a variance analysis, the MISO tariff does not dictate a particular outcome.<sup>666</sup>

494. All of the Applicants' recommended route configurations with the exception of the Green Route would trigger a MISO variance analysis.

495. In their post-hearing brief, the Applicants stated that if the Commission selects a route that would result in a variance analysis, the Applicants will support the Commission's decision in the MISO process. This will include providing information on the Project's increased economic benefits under MTEP17 and MTEP18 and

---

<sup>661</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>662</sup> Ex. XC-22 at 8 (Neidermire Direct) (eDocket No. [20189-146251-04](#)).

<sup>663</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>664</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>665</sup> Ex. XC-24 at 36 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

<sup>666</sup> Ex. XC-24 at 37 (Siebenaler Direct) (eDocket No. [20189-146251-06](#)).

information on the Commission's routing factors and how these were applied by the Commission in its final route selection.

496. Operation and maintenance costs after construction of the transmission line will be nominal for several years because the line will be new and minimal initial vegetation management is required.<sup>667</sup> Xcel Energy will perform annual aerial inspections of the transmission line and inspect the line from the ground every six years.<sup>668</sup> Xcel Energy will also perform necessary vegetation management for the line.<sup>669</sup>

497. The annual aerial inspections are the principal operation and maintenance costs for the transmission line.<sup>670</sup> These inspections cost approximately \$150-\$200 per mile and the ground inspections cost approximately \$400-\$600 per mile.<sup>671</sup> Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.<sup>672</sup>

#### **L. Adverse Human and Natural Environmental Effects Which Cannot be Avoided**

498. Minnesota Rule 7850.4100(M) requires consideration of unavoidable human and environmental impacts.

499. Even with prudent mitigation strategies, such as appropriate routing, the Project will have adverse human and environmental impacts that cannot be avoided.

500. The Project will have permanent aesthetic impacts, temporary construction-related impacts, permanent impacts on agriculture, and permanent impacts on flora and fauna.<sup>673</sup>

501. These impacts are anticipated to occur for all route alternatives and vary by the route and segment alternative, as discussed in prior sections.<sup>674</sup>

---

<sup>667</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>668</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>669</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>670</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>671</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>672</sup> Ex. XC-7 at 53-54 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>673</sup> Ex. EERA-13 at 6-42 to 6-43 (Draft EIS) (eDocket No. [201812-148307-15](#)).

## **M. Irreversible and Irretrievable Commitments of Resources**

502. Minnesota Rule 7850.4100(N) requires consideration of the irreversible and irretrievable commitments of resources that are necessary for the Project.

503. The commitment of a resource is irreversible when it is impossible or very difficult to redirect that resource for a different future use. An irretrievable commitment refers to the use or consumption of a resource such that it is not recoverable for later use by future generations.<sup>675</sup>

504. There are few commitments of resources associated with the Project that are irretrievable. These commitments include the steel, concrete, and hydrocarbon resources committed to the project, though it is possible that the steel could be recycled at some point in the future. Labor and fiscal resources required for the project are also irretrievable commitments.<sup>676</sup>

505. Irreversible and irretrievable impacts commitments are anticipated to occur for all route alternatives and they do not vary significantly among route alternatives.<sup>677</sup>

## **IX. CONSIDERATION OF ISSUES PRESENTED BY STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT**

506. Minnesota Statutes section 216E.03, subdivision 7(12) requires the Commission to examine, when appropriate, issues presented by federal and state agencies and local units of government. The majority of the issues presented by federal, state, and local units of government are addressed as part of the analysis of the Commission's routing factors. The issues that have not previously been addressed are discussed below.

### **A. Minneopa State Park**

507. Minnesota siting rules prohibit locating a new transmission lines in a state park except in certain circumstances. Minnesota Rule 7850.4300, subpart 2 provides such crossings are permissible when "the transmission line would not materially damage or impair the purpose for which the area was designated and no

---

<sup>674</sup> Ex. EERA-13 at 6-42 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>675</sup> Ex. EERA-13 at 6-43 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>676</sup> Ex. EERA-13 at 6-43 (Draft EIS) (eDocket No. [201812-148307-15](#)).

<sup>677</sup> Ex. EERA-13 at 6-43 (Draft EIS) (eDocket No. [201812-148307-15](#)).



feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line.”

508. The Purple-BB-L and Purple-E-AA1-Red-Q routes cross Minneopa State Park within the existing, unrestricted easement of the Lakefield Junction – Wilmarth 345 kV transmission line acquired in 1971. This easement predates the establishment of Minneopa State Park and provides sufficient rights to construct another 345 kV circuit line within its existing right-of-way.<sup>678</sup>

509. Minneopa State Park is long and narrow, along the banks of the Minnesota River. The transmission line would cross 650 feet of state-owned park land and 2,500 feet of private property within the statutory boundary of Minneopa State Park.

510. The Applicants propose to co-locate the two 345 kV transmission lines on single-pole, double-circuit structures, thus replacing any existing lattice tower structures. Since the new monopole structures are 35 to 60 feet taller than the existing structures, the Applicants plan to install bird diverters along the section that is within the state park boundaries to minimize impacts on birds.<sup>679</sup>

511. In comments filed on May 18, 2018, the MnDNR stated that construction of the two Purple routes would not require a License to Cross Public Land, since these routes follow an existing, unrestricted utility easement acquired prior to the establishment of the state park in this area.<sup>680</sup> In these comments, the MnDNR outlined some additional recommended conditions for the Purple routes’ crossing of Minneopa State Park.<sup>681</sup> The Applicants do not object to any of these conditions, which include developing a new vegetation management plan for the existing right-of-way, providing an option for a future park trail segment, and coordination with the

---

<sup>678</sup> Ex. EERA-13 at 3-1 (Draft EIS) (eDocket No. [201812-148307-08](#)); Ex. XC-19 at 11 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. XC-7 at 41 (Route Permit Application) (eDocket No. [20181-139208-02](#)).

<sup>679</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)).

<sup>680</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS) (eDocket No. [20185-143325-01](#)).

<sup>681</sup> Ex. XC-19 at 9-12 (Hillstrom Direct) (eDocket No. [20189-146251-02](#)); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS) (eDocket No. [20185-143325-01](#)).



USFWS regarding a bald eagle nest near the existing easement and the Minnesota River.<sup>682</sup>

512. Given that the Purple routes' crossing of Minneopa State Park would be confined to an existing easement and any construction impacts would be short term, there will be no material damage or impairment of Minneopa State Park from the proposed transmission line. In addition, if the Commission selects either the Purple-BB-LL Route or the Purple-E-AA1-Red-Q Route, it has determined that this route best meets its routing criteria and there is no feasible and prudent alternative to the selected route.

513. If the Commission believes a variance from Minn. R. 7850.4300, subp. 2 is necessary, the requirements for a variance are satisfied. A variance to a Commission rule shall be granted when enforcement of the rule would pose an excessive burden on the utility or others affected by the rule, granting the rule would not adversely impact the public interest, and granting the variance would not conflict with standards imposed by law.<sup>683</sup>

514. Enforcement of Minn. R. 7850.4300 would pose an excessive burden on the utility and the public as not allowing this crossing would result in greater human and environmental impacts along one of the other route alternatives, would likely increase Project costs, and would leave the Lakefield – Wilmarth 345 kV transmission line in place across the state park while creating a new transmission line right-of-way elsewhere in the area. Granting the variance would neither adversely impact the public interest or conflict with standards imposed by law as construction of the new 345 kV transmission line along the Purple Route crossing of Minneopa State Park would use the existing easement, would replace lattice structures with single-pole, double-circuit structures, and would allow for the installation of bird diverters on the transmission lines' associated shield wire(s).

## **B. MnDNR Recommendations**

515. In a March 14, 2019, letter, the MnDNR submitted recommendations on various route options presented in this proceeding, as well as recommended

---

<sup>682</sup> Ex. XC-19 at 11-12 (Hillstrom Direct)(eDocket No. [20189-146251-02](#)); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS)(eDocket No. [20185-143325-01](#)).

<sup>683</sup> Minn. R. 7829.23200, subp. 1.

conditions to include in the Commission's Route Permit to mitigate potential Project impacts.<sup>684</sup>

516. In its comments, the MnDNR recommended that a detailed Vegetation Management Plan (VMP) be prepared for the right-of-way easement in Minneopa State Park.<sup>685</sup> The MnDNR requested that the VMP specify techniques that will be used to control invasive plants, monitor schedules, and reports that will be provided to Minneopa State Park staff.<sup>686</sup> The MnDNR further requested that the Route Permit include a condition requiring the Applicants to develop a VMP in coordination with the MnDNR.<sup>687</sup> The Applicants are agreeable to this condition.

517. The MnDNR recommended that the final EIS include a commitment from the Applicants for winter tree clearing. Applicants are unable to commit to winter tree clearing for the entire length of the Project due to the timing of when easements may be obtained and the need to meet the Project's in-service date of December 2021.

518. The MnDNR recommended that the Applicants work with the MnDNR to determine appropriate locations for avian flight diverters after the route is determined.<sup>688</sup> The Applicants committed to installing avian flight diverters and agreed to work with the MnDNR to appropriately locate these diverters.

519. The MnDNR recommends that coordination between the Applicants and the appropriate agencies regarding potential impacts to rare native plant communities and state-listed species, including the need for surveys, be included as a route permit condition.<sup>689</sup> The Applicants are agreeable to this condition.

## **X. SUMMARY OF ROUTE RECOMMENDATIONS**

520. The record evidence demonstrates that the Green Route satisfies the routing factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000 and 7850.4100. The Green Route with a monopole design has the lowest cost (\$121.3 million (2016\$)) and the highest benefit-to-cost ratio (1.88 under MTEP17 and 1.47

---

<sup>684</sup> MnDNR Comments (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>685</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>686</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>687</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>688</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

<sup>689</sup> MnDNR Comments at 2 (Mar. 14, 2019) (eDocket No. [20193-151077-01](#)).

under MTEP18). As its estimated cost is under 25 percent of the MISO baseline cost (\$108 million), selection of the Green Route would not trigger the MISO variance process. However, the Green Route is located near a greater number of residences; has greater impacts on future development, agriculture, and forested land; and has a relatively smaller amount of corridor sharing with existing transmission lines.

521. The record evidence demonstrates that the Purple-BB-L Route constructed on double-circuit structures minimizes impacts to the human and natural environments based on the routing factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000 and 7850.4100. The Purple-BB-L Route has the fewest number of existing residences within 500 feet, avoids areas designated for future development areas by Mankato and North Mankato, follows existing transmission line corridors for more than half of its length, includes the fewest acres of forested land within its right-of-way, and has moderate agricultural impacts due to its double-circuit design. The Purple-BB-L Route also has a higher cost (\$140.1 million (2016\$)) but has a benefit-to-cost ratio well above 1.0 (1.63 under MTEP17 and 1.28 under MTEP18). As the estimated costs for the Purple-BB-L Route are more than 25 percent greater than the MISO baseline cost estimate, selection of the Purple-BB-L Route would trigger the MISO variance process.

## **XI. NOTICE**

522. Minnesota statutes and rules require an applicant for a Route Permit to provide certain notice to the public as well as to local governments before and during the Application for a Route Permit process.<sup>690</sup>

523. The Applicants provided notice to the public and to local governments in satisfaction of Minnesota statutory and rule requirements.

524. Minnesota statutes and rules also require the DOC-EERA and the Commission to provide certain notice to the public throughout the Route Permit process. The DOC-EERA and the Commission provided the notice in satisfaction of Minnesota statutes and rules.<sup>691</sup>

---

<sup>690</sup> Minn. Stat. § 216E.03, subd. 3a; Minn. Stat. § 216E.03, subd. 4; Minn. R. 7850.2100, subp. 2; Minn. R. 7850.2100, subp. 4.

<sup>691</sup> Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.2500, subps. 2, 7-9.

## **ADEQUACY OF THE EIS**

525. The Commission is required to determine the adequacy of the EIS.<sup>692</sup>

526. *[As of the date of these proposed Findings, the Final EIS has not been issued. Applicants will provide amended findings to address the Final EIS with its Reply Brief.]*

**Based on the foregoing Findings of Fact and the record in this proceeding, the ALJ makes the following:**

## **CONCLUSIONS**

1. The Commission and the ALJ have jurisdiction to consider the Applicants' Route Permit Application.

2. The Commission determined that the Application was substantially complete and accepted the Application on March 28, 2018.

3. The DOC-EERA has conducted an appropriate environmental analysis for the Project for purposes of this Route Permit proceeding and the Final EIS satisfies Minn. R. 7850.2500.

4. The Applicants gave notice as required by Minn. Stat. § 216E.03, subd. 3a and 4, and Minn. R. 7850.2100, subp. 2 and 4.

5. DOC-EERA gave notice as required by Minn. Stat. § 216E.03, subd. 6, Minn. R. 7850.2300, subp. 2, and Minn. R. 7850.2500, subp. 2 and 7-9.

6. Public hearings were conducted in communities along the proposed transmission line routes. The Applicants and the Commission gave proper notice of the public hearings and the public was given the opportunity to appear at the hearings or submit written comments.

7. All procedural requirements for processing the Route Permit have been met.

8. The record evidence demonstrates that the *[Green Route or the Purple-BB-L Route]* satisfies the Route Permit criteria set forth in Minn. Stat. § 216E.03, subd. 7(a) and Minn. R. 7850.4100 based on the factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000.

---

<sup>692</sup> Minn. R. 7850.2500, subp. 10.

9. The record evidence demonstrates that the *[Green Route or the Purple-BB-L Route]* is the best route alternative for the Project.

10. The record evidence demonstrates that constructing the Project along the *[Green Route or the Purple-BB-L Route]* does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Acts, Minn. Stat. §§ 116B.01-116B.13, and the Minnesota Environmental Policy Act, Minn. Stat. §§ 116D.01-116D.11.

11. *[For Purple-BB-L Route:]* Routing of the transmission line along the Purple-BB-L Route would not materially damage or impair the purpose for which this area within Minneopa State Park was designated and no feasible and prudent alternative exists.

12. The Applicants' request for a route width of 1,000 feet for the transmission line and 1,000 feet surrounding the Wilmarth and Huntley substations is reasonable and appropriate for the Project.

13. The Applicants' request for a right-of-way of 150 feet for operation and maintenance of the 345 kV transmission line is reasonable and appropriate.

14. Any Findings more properly designated as Conclusions are adopted as such.

**Based on these Findings and Fact and Conclusions, the ALJ makes the following:**

### **RECOMMENDATION**

1. The Commission concludes that all relevant statutory and rule criteria necessary to obtain a Route Permit for the *[Green Route or the Purple-BB-L Route]* have been satisfied and that there are no statutory or other requirements that preclude granting a Route Permit based on the record.

2. The Commission should grant a Route Permit for the *[Green Route, monopole design or the Purple-BB-L Route, double-circuit, monopole design]*.

3. The Commission's Standard Route Permit Conditions should be incorporated into the Route Permit, unless modified herein.

4. The Route Permit should include a condition requiring the Applicants to work with the MnDNR to determine appropriate locations for avian flight diverters.

5. The Route Permit should include a condition requiring the Applicants to coordinate with the appropriate agencies regarding potential impacts to rare native plant communities and state-listed species, including the potential need for surveys.

6. *[If Purple-BB-L recommended:]* The Route Permit should also include a condition requiring the Applicants to develop a Vegetation Management Plan in coordination with the MnDNR for the right-of-way in Minneopa State Park.

7. The Applicants be required to take those actions necessary to implement the Commission's orders in this proceeding.

THIS REPORT IS NOT AN ORDER AND NO AUTHORITY IS GRANTED HEREIN. THE MINNESOTA PUBLIC UTILITIES COMMISSION WILL ISSUE THE ORDER OF AUTHORITY WHICH MAY ADOPT OR DIFFER FROM THE FOLLOWING RECOMMENDATION.

Based on the foregoing Findings of Fact, Conclusions of Law, and the record in this proceeding, the Administrative Law Judge makes the Recommendations set forth in this Report.

Dated on \_\_\_\_\_

\_\_\_\_\_  
Barbara J. Case  
Administrative Law Judge

## **CERTIFICATE OF SERVICE**

I, Lynnette Sweet, hereby certify that I have this day served copies of the foregoing document on the attached lists of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

**MPUC Docket No. E002, ET6675/CN-17-184**

**MPUC Docket No. E002, ET6675/TL-17-185**

**OAH Docket No. 82-2500-35157**

Dated this 22nd day of March 2019

/s/

---

Lynnette Sweet  
Regulatory Administrator

[illegible]



First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Larry	Hartman	Larry.Hartman@state.mn.us	Department of Commerce	85 7th Place East, Suite 280  St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-184_Official Service List
Valerie	Herring	vherring@briggs.com	Briggs and Morgan, P.A.	2200 IDS Center 80 S. Eighth Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-184_Official Service List
Katherine	Hinderlie	katherine.hinderlie@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota St Suite 1800 St. Paul, MN 55101-2134	Electronic Service	No	OFF_SL_17-184_Official Service List
Patrice	Jensen	patrice.jensen@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd N  St. Paul, MN 55155	Electronic Service	No	OFF_SL_17-184_Official Service List
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street  St. Paul, MN 551012134	Electronic Service	No	OFF_SL_17-184_Official Service List
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-184_Official Service List
STACY	KOTCH EGSTAD	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd.  St. Paul, MN 55155	Electronic Service	No	OFF_SL_17-184_Official Service List
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_17-184_Official Service List
Karen	Kromar	karen.kromar@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd  Saint Paul, MN 55155	Electronic Service	No	OFF_SL_17-184_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Peter	Madsen	peter.madsen@ag.state.mn.us	Office of the Attorney General-DOC	Bremer Tower, Suite 1800 445 Minnesota Street St. Paul, Minnesota 551017741	Electronic Service	No	OFF_SL_17-184_Official Service List
Susan	Medhaug	Susan.medhaug@state.mn.us	Department of Commerce	Suite 280, 85 Seventh Place East  St. Paul, MN 551012198	Electronic Service	No	OFF_SL_17-184_Official Service List
Brian	Meloy	brian.meloy@stinson.com	Stinson, Leonard, Street LLP	50 S 6th St Ste 2600  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-184_Official Service List
Kevin	Mixon	kevin.mixon@state.mn.us	Department of Natural Resources	261 HWY 15 S  New Ulm, MN 56073	Electronic Service	No	OFF_SL_17-184_Official Service List
Debra	Moynihan	debra.moynihan@state.mn.us	MN Department of Transportation	395 John Ireland Blvd MS 620  St. Paul, MN 55155-1899	Electronic Service	No	OFF_SL_17-184_Official Service List
Kate	O'Connell	kate.oconnell@state.mn.us	Department of Commerce	Suite 50085 Seventh Place East  St. Paul, MN 551012198	Electronic Service	No	OFF_SL_17-184_Official Service List
Debra	Roby	droby@jsslaw.com	Jennings Strouss & Salmon, PLC	1350 I Street NW Suite 810 Washington, DC 20005	Electronic Service	No	OFF_SL_17-184_Official Service List
Stephan	Roos	stephan.roos@state.mn.us	MN Department of Agriculture	625 Robert St N  Saint Paul, MN 55155-2538	Electronic Service	No	OFF_SL_17-184_Official Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	7400 Lyndale Ave S Ste 190  Richfield, MN 55423	Electronic Service	Yes	OFF_SL_17-184_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jeffrey	Small	jsmall@misoenergy.org		MISO P.O. Box 4202 Carmel, Indiana 46082-4202	Electronic Service	No	OFF_SL_17-184_Official Service List
Lynnette	Sweet	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_17-184_Official Service List
Kari	Valley	kvalley@misoenergy.org	Mid-Continent Independent System Operator	2935 Ames Crossing Road  Eagan, MN 55121	Electronic Service	No	OFF_SL_17-184_Official Service List
Amelia	Vohs	avohs@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Avenue West Suite 515 St. Paul, Minnesota 55104	Electronic Service	No	OFF_SL_17-184_Official Service List
Caren	Warner	caren.warner@state.mn.us	Department of Commerce	85 7th Place East Suite 500  St. Paul, MN 55101-2198	Electronic Service	No	OFF_SL_17-184_Official Service List
Cynthia	Warzecha	cynthia.warzecha@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Box 25 St. Paul, Minnesota 55155-4040	Electronic Service	No	OFF_SL_17-184_Official Service List
Kathryn E.	Wendt	wendtk@ballardspahr.com	Ballard Spahr, LLP	80 South Eighth St  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-184_Official Service List
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_17-184_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Lisa	Agrimonti	lagrimonti@fredlaw.com	Fredrikson & Byron, P.A.	200 South Sixth Street Suite 4000 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-185_Official Service List
Mara	Ascheman	mara.k.ascheman@xcelen ergy.com	Xcel Energy	414 Nicollet Mall Fl 5  Minneapolis, MN 55401	Electronic Service	No	OFF_SL_17-185_Official Service List
Charley	Bruce	Charley.Bruce@state.mn.u s	Public Utilities Commission	121 East 7th Place Suite 350  St. Paul, MN 55117	Electronic Service	No	OFF_SL_17-185_Official Service List
Omar	Bustami	obustami@jsslaw.com	Jennings, Strouss & Salmon, PLC	1350 I St. NW Suite 810 Washington, DC 20003	Electronic Service	No	OFF_SL_17-185_Official Service List
Barbara	Case	barbara.case@state.mn.us	Office of Administrative Hearings	600 N. Robert St.  St. Paul, Mn. 55101	Electronic Service	Yes	OFF_SL_17-185_Official Service List
Patricia	DeBleekere	tricia.debleekere@state.m n.us	Public Utilities Commission	Suite 350 121 Seventh Place East  St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-185_Official Service List
Sharon	Ferguson	sharon.ferguson@state.mn .us	Department of Commerce	85 7th Place E Ste 280  Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_17-185_Official Service List
William	Flynn	flynnw@ballardspahr.com	Ballard Spahr, LLP	80 South 8th Street  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-185_Official Service List
Larry	Hartman	Larry.Hartman@state.mn.u s	Department of Commerce	85 7th Place East, Suite 280  St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-185_Official Service List
Valerie	Herring	vherring@briggs.com	Briggs and Morgan, P.A.	2200 IDS Center 80 S. Eighth Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-185_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street  St. Paul, MN 551012134	Electronic Service	No	OFF_SL_17-185_Official Service List
STACY	KOTCH EGSTAD	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd.  St. Paul, MN 55155	Electronic Service	No	OFF_SL_17-185_Official Service List
Michael	Kaluzniak	mike.kaluzniak@state.mn.us	Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-185_Official Service List
Debra	Roby	droby@jsslaw.com	Jennings Strouss & Salmon, PLC	1350 I Street NW Suite 810 Washington, DC 20005	Electronic Service	No	OFF_SL_17-185_Official Service List
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750  St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-185_Official Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	7400 Lyndale Ave S Ste 190  Richfield, MN 55423	Electronic Service	Yes	OFF_SL_17-185_Official Service List
Jeffrey	Small	jsmall@misoenergy.org		MISO P.O. Box 4202 Carmel, Indiana 46082-4202	Electronic Service	No	OFF_SL_17-185_Official Service List
Lynnette	Sweet	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_17-185_Official Service List
Kari	Valley	kvalley@misoenergy.org	Mid-Continent Independent System Operator	2935 Ames Crossing Road  Eagan, MN 55121	Electronic Service	No	OFF_SL_17-185_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Kathryn E.	Wendt	wendtk@ballardspahr.com	Ballard Spahr, LLP	80 South Eighth St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-185_Official Service List