

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

**DOCKET NO. ET6675/CN-12-1053  
OAH DOCKET NO. 60-2500-30782**

**REBUTTAL TESTIMONY**

**OF**

**RANDALL PORTER, PE**

**SUBMITTED ON BEHALF OF:**

**WIND ON THE WIRES, FRESH ENERGY, IZAAK WALTON LEAGUE –  
MIDWEST OFFICE, AND MINNESOTA CENTER FOR ENVIRONMENTAL  
ADVOCACY (“CLEAN ENERGY INTERVENORS”)**

**APRIL 25, 2014**

1 **1. INTRODUCTION**

2 **Q: Please state your name, job title, and business address.**

3 **A:** My name is Randall Porter. I am currently the Manager of Resource and  
4 Transmission Planning for Power System Engineering, Inc. Our business  
5 address is 10710 Town Square Drive NE, Blaine, MN.

6 **Q: For whom are you testifying?**

7 **A:** I am testifying on behalf of Wind on the Wires, Fresh Energy, Izaak  
8 Walton League of America – Midwest Office and the Minnesota Center for  
9 Environmental Advocacy.

10 **Q: Have you testified in proceedings in front of the Public Utilities  
11 Commission (“PUC”) before?**

12 **A:** Yes. I was the chief technical witness in the Faribault Energy Park  
13 Certificate of Need proceeding.

14 **Q: What is your background and educational experience?**

15 **A:** I currently am responsible for projects involving generation  
16 interconnection, electric transmission planning, distribution planning, and  
17 renewable energy resource integration into the grid. These projects  
18 involve both power system technical and economic analysis. I have been  
19 involved with projects involving electric transmission systems, generation  
20 interconnection, and short- and long-range planning in multiple states and  
21 provinces. I have represented clients before multiple working groups for  
22 the Midwest Independent System Operator (“MISO”), the PJM  
23 Interconnection, the Southwest Power Pool Electric Energy Network, the  
24 Alberta Electric System Operator, and other Regional Transmission

25 Organizations (“RTO”). I have also represented clients before the  
26 Minnesota Public Utilities Commission and in legal proceedings.

27 I obtained my Bachelor of Science Degree in Electrical Engineering in  
28 1988. I became a licensed Professional Engineer (P.E.) in 1994. Since  
29 1988, I have worked almost exclusively in the electricity industry, including  
30 for companies such as Northern States Power/ Xcel Energy. I have  
31 largely focused on transmission and related matters throughout my  
32 career. A description of my professional history and experience is set  
33 forth in my curriculum vitae, which is attached to this testimony as Exhibit  
34 A.

35 **Q: What is the purpose of your testimony?**

36 **A:** My testimony responds to Minnesota Department of Commerce, Division  
37 of Energy Resources witness Dr. Steve Rakow’s recommendation that the  
38 applicant, ITC Midwest, LLC (“ITC”) explain why the Lakefield Junction –  
39 Rutland 345kV or the 161kV Rebuild alternative (as defined in Dr.  
40 Rakow’s testimony) cannot meet the claimed needs. Dr. Rakow’s  
41 recommendation for clarification is reasonable. However, both the  
42 Lakefield – Rutland 345kV and the 161kV rebuild alternatives represent  
43 an “apples to oranges comparison” relative to the 345kV line proposed by  
44 ITC Midwest LLC.

45 **Q: Please summarize your position.**

46 **A:** The shorter Lakefield Junction – Rutland 345kV is not sufficient to  
47 address all of the constraints. In addition, the 161kV Rebuild would have  
48 insufficient capacity to support the potential development of wind energy  
49 facilities in the MISO Interconnection Queue in Minnesota and Northern  
50 Iowa. These options would not meet the expressed needs. The 345kV  
51 line proposed by ITC (hereafter referred to as “Project”) would be a better

52 conduit for moving electricity from Buffalo Ridge in Southwest Minnesota  
53 to points within Minnesota and to potential purchasers outside of  
54 Minnesota, than a 161kV Rebuild or the Lakefield Junction – Rutland  
55 345kV alternative. Other points I will address in support of this position  
56 include how the Project would reduce current and future curtailments of  
57 wind energy facilities in the area, that it facilitates development of wind  
58 energy facilities:

- 59 • planned for Buffalo Ridge;
- 60 • in the Midcontinent ISO queue;
- 61 • that have generation interconnection agreements contingent on a  
62 345 kV line being built by ITC; and
- 63 • that rely on the line and have contracts with utilities for off-take of  
64 the electricity.

65 In addition, I will discuss, from a policy perspective, how changing the line  
66 from the Project that was approved by MISO impedes the public policy  
67 purpose of the line.

## 68 **2. REBUTTAL**

69 **Q: What does witness Rakow say about the Project?**

70 **A:** Witness Rakow makes a number of findings regarding the Project. The  
71 comments he makes that are relevant to my testimony are that the Project  
72 “has a greater impact on transfer capability than the 161kV Rebuild  
73 alternative in nearly every circumstance studied.”<sup>1</sup> Witness Rakow also  
74 states that the record is unclear as to why the Lakefield Junction to  
75 Rutland 345kV alternative, that was part of an old MISO transmission

76 expansion plan of 2009, cannot meet the expected demands that the  
77 Project would meet.<sup>2</sup> Finally, witness Rakow states that ITC fails to  
78 explain “why the Lakefield Junction – Rutland 345kV alternative cannot be  
79 expected to meet the claimed needs” and if ITC does not adequately  
80 resolve this issue he recommends that the Commission reject the petition  
81 and direct ITC to pursue the 161kV Rebuild alternative.<sup>3</sup>

82 **Q: What is the ‘161 kV Rebuild alternative’?**

83 **A:** Witness Rakow identifies it as a complete rebuild of 161kV line from Fox  
84 Lake to Rutland to Winnebago junction that was included in the ITC  
85 Midwest LLC Multi-Value Project #3 Planning Study, dated March 2013.<sup>4</sup>  
86 I agree with that description.

87

88 **Q: What is the ‘Lakefield Junction to Rutland 345 kV alternative’?**

89 **A:** The Lakefield Junction to Rutland alternative is described by witness  
90 Rakow as “an option identified in Midwest ISO Transmission Expansion  
91 Plan 2009 (MTEP 2009) that would mitigate issues related to the Fox  
92 Lake – Rutland 161 kV flowgate.”<sup>5</sup> I agree with that description.

93

94 **Q: Please explain why the 161kV rebuild does not meet the needs that  
95 would be addressed by the Project.**

96 **A:** The Petition at page 7 lists three main needs met by the Project:  
97 (1) increase generation outlet in southern Minnesota and northern Iowa to  
98 allow both existing and new generation to be exported from the Buffalo  
99 Ridge area;

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<sup>1</sup> Direct Testimony of Dr. Steve Rakow on behalf of the Minnesota Department of Commerce, Division of Energy Resources at 41:16-17 (March 26, 2014).

<sup>2</sup> Id. at 18:5-8.

<sup>3</sup> Id. at 45:3-6.

<sup>4</sup> Id. at 10:9-13.

<sup>5</sup> Id. at 12:7-18.

- 100 (2) eliminate the need for operating procedures known as special  
101 protection schemes; and  
102 (3) decrease the cost of energy in Minnesota.

103 The 161kV rebuild does not meet need (1). It may mitigate needs (2) and  
104 (3), but the Project would be superior.

105 **Q: What alternatives to the Project did MISO evaluate?**

106 **A:** MISO evaluated the following the following alternatives:

- 107 ○ 2<sup>nd</sup> Fox Lake – Rutland – Winnebago 161kV line;
- 108 ○ Lakefield Junction – Winnebago – Adams 345kV line;
- 109 ○ Lakefield Junction – Winnebago – Webster – Blackhawk –  
110 Hazleton 345kV line
- 111 ○ Lakefield Junction – Mitchell County 345kV line<sup>6</sup>

112 The 2<sup>nd</sup> Fox Lake – Rutland – Winnebago 161kV line does not meet need  
113 (1). The remaining three alternatives shift system constraints to the  
114 Adams-Hazleton 345kV line or do not increase generation outlet in  
115 Northeastern Iowa, which is one of the needs identified for the Project.

116 The Lakefield-Rutland 345kV line or the 161kV Rebuild constitute only a  
117 segment of the 2<sup>nd</sup> Fox Lake – Rutland – Winnebago 161kV line route.  
118 While these 2 suboptions address the immediate local need of the  
119 mitigating the existing Fox Lake-Rutland overloaded line segment, they do  
120 not meet need (1). In addition these suboptions do not meet needs (2) &  
121 (3) as well as the Project would.

122

123 **Q: Do you agree with witness Rakow that the Project has greater**  
124 **transfer capability than the 161 kV Rebuild alternative?**

125 **A:** Yes, the project has a greater transfer capability.

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<sup>6</sup> Midwest ISO Transmission Expansion Plan 2010 (MTEP10).

126 **Q: To what extent are wind energy facilities in southwest Minnesota**  
127 **currently being curtailed?**

128 **A:** Exact quantification would require further technical study. However it is  
129 known that elimination of the special protection scheme (“SPS”) The  
130 Lakefield – Lakefield Junction 345kV line would reduce curtailment. This  
131 SPS has been necessary because of the severity of the constraints on  
132 this line. These are the constraints that the Project is designed to mitigate.

133 **Q: How would the Project affect curtailment of existing wind energy**  
134 **facilities in southwest Minnesota in comparison to what the 161 kV**  
135 **Rebuild alternative would provide?**

136 **A:** ITC’s analysis indicates that the Project would eliminate the need for the  
137 SPS on the Lakefield – Lakefield Junction line. The retirement of that  
138 SPS would reduce the curtailment of wind energy in Southwest  
139 Minnesota. In comparison, the 161kV Rebuild would just “shift” the  
140 constraint further east or south.

141 **Q: If the Commission were to adopt Dr. Rakow’s contingent**  
142 **recommendation that a 161kV Rebuild be pursued, how would that**  
143 **impact regional deliverability?**

144 **A:** From a regional planning perspective, the Project is just one part of an  
145 overall transmission plan for the entire upper Midwest. It is a link in the  
146 chain of transmission projects needed to meet the renewable portfolio  
147 standards in 2021 and 2026 for the states within the MISO footprint. In  
148 2003, MISO started analyzing what new transmission would be needed to  
149 meet the renewable portfolio standards of the states within its footprint.  
150 That analysis started with the Regional Generation Outlet Study (“RGOS”)  
151 and culminated with the Multi Value Project (“MVP”) portfolio of seventeen  
152 transmission projects. The purpose of the RGOS study and the MVP  
153 portfolio was to develop a portfolio of transmission projects that allow

154 states to meet the renewable portfolio standards using the lowest  
155 delivered dollar per megawatt-hour cost.<sup>7</sup> If an attempt was made to  
156 substitute the or the 161kV Rebuild for the Project, this substitution would  
157 impede MISO's RGOS work and the intended benefits of the MVP  
158 portfolio.

159 MISO's planning activities currently assume that all of the MVP lines will  
160 be built by their proposed in-service dates. If the 161kV Rebuild or the  
161 Lakefield Junction – Rutland 345kV option were pursued instead of the  
162 Project, MISO's planning activities would be thrown into chaos. It would  
163 require MISO to perform restudies of the entire MISO queue for projects in  
164 western Wisconsin, Minnesota, Iowa, North Dakota, South Dakota and  
165 Montana. That would be a massive undertaking. Existing and pending  
166 generation interconnection agreements ("GIAs") would have to be  
167 renegotiated and amended. Some generation projects in the queue may  
168 be forced to withdraw or be rendered uneconomic.

169 The 161kV Rebuild or the Lakefield Junction – Rutland 345kV would only  
170 delay future upgrades that would be needed to accommodate the projects  
171 in the queue in southwest Minnesota that would be used to meet  
172 renewable portfolio standards of the states within the MISO footprint.

173 **Q: Can you describe the potential for development of wind energy**  
174 **facilities in southwest Minnesota?**

175 **A:** Presently there are about 1,525 MW of wind generation installed and  
176 operating on the Buffalo Ridge.

177 Since the August 2012 Definitive Planning Phase ("DPP") study cycle  
178 there are over 4,300 MW of GIAs contingent on the Project being built. In  
179 addition, power supply contracts have been signed with Xcel Energy and

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<sup>7</sup> Midwest ISO Regional Generation Outlet Study (RGOS), at 1 (Nov. 19, 2010); MISO Multi Value Project Portfolio: Results and Analyses ("MVP Report"), at 3 (January 10, 2012).



180 other Minnesota utilities that are cost effective to Minnesota ratepayers  
181 and that are dependent on the Project. If the Project is not built then the  
182 wind generators either need to renegotiate their contracts or terminate  
183 their projects. Termination of such wind generation projects would cause  
184 a great loss to those developers, landowners, and local communities.

185  
186 Thus the line helps local utilities and prevents harm to projects whose  
187 ability to be built is contingent on the Project being built as designed.

188 **Q: How would the Project affect future development and curtailment of**  
189 **projects in the MISO queue and that have interconnection**  
190 **agreements in comparison to what the 161 kV Rebuild alternative**  
191 **would provide?**

192 **A:** If the 161kV Rebuild or the Lakefield Junction – Rutland 345kV alternative  
193 were substituted for the Project, the MISO interconnection queue for  
194 western MISO would be thrown in disarray. When a generator applies to  
195 MISO for approval to interconnect to the MISO transmission system,  
196 MISO has to analyze how that generator would impact the system and  
197 determine the network upgrades that are necessary for that project to  
198 interconnect. All GIAs issued by MISO since the August 2012 DPP Study  
199 Cycle have identified the Project as mitigation for the constraints identified  
200 by MISO in its studies.

201 **Q: How would the 161 kV Rebuild alternative affect future wind energy**  
202 **facilities proposed for Buffalo Ridge?**

203 **A:** A detailed study would be needed to confirm the exact extent to which the  
204 161kV Rebuild or the Lakefield Junction – Rutland 345kV alternative  
205 would affect future wind energy built in Buffalo Ridge, but a “freeze” of the  
206 Minnesota Wind Industry at current levels would be likely.

207 **Q: How would the Project affect future development and curtailment in**  
208 **Buffalo Ridge in comparison to what the 161 kV Rebuild alternative**  
209 **would provide?**

210 **A:** The Project would eliminate the need for the Lakefield – Lakefield  
211 Junction SPS, which would reduce curtailments and allow existing wind  
212 generation to operate more hours in a year and would allow for more wind  
213 energy generation to be built in Buffalo Ridge.

214 **Q: Does this conclude your testimony?**

215 **A:** Yes