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Xcel Energy

Docket No.: E002, ET2/CN-06-1115

Response To: Elizabeth Goodpaster and Mary Marrow
WOW, et al

Information Request No. 27

Date Received: April 21, 2008

Question:

Applicants' response to NAWO/ILSR Information Request No. 16 confirms that the CAPX2020 Hampton County-North Rochester-La Crosse 345 kV line is intended to be radial based on the local needs of the Rochester and La Crosse areas. However, studies of the Minnesota-Wisconsin Stability Index (MWSI), which page 7 of Appendix A-2 indicates are now under way, are likely to show that this third 345 kV tie between MN and WI is likely to increase transfer capability between the states, and this should be recognized.

- (a) What are the results (or likely results) of this MWSI evaluation which would show benefits beyond those present in the application?
- (b) As part of the foregoing, would the 345 kV connection to WI (even with radial operation) help as generation outlet for southern MN wind farms already in the MISO queue?
- (c) What are typical flows north on the Adams-Prairie Island 345 kV line, and how are these flows impacted by wind generation in southern MN?

Response:

a. At the time of the Southwestern Minnesota Study (2006) (Appendix A-2), the interface between Minnesota and Wisconsin, which was monitored to ensure that regional stability limitations were maintained during high transfers, was the Minnesota Wisconsin Stability Interface ("MWSI"). The MWSI was generally defined as the sum of flows on Prairie Island – Byron and Eau Claire – Arpin 345 kV transmission lines and was limited to a total of 1,480 MW.

The MWSI was reevaluated beginning in 2007 due to the construction of the Arrowhead – Weston 345 kV line. The study team, which was comprised of

operations and planning engineers from the area utilities as well as Midwest Independent Transmission System Operator (“MISO”), redefined the interface. Thus MWSI was replaced by the MN WI Export Interface (“MWEX”). MWEX is defined as the summation of the flow on the King – Eau Claire 345 kV line measured at the King Substation and at the 230 kV phase shifter that is located on the Minnesota Power side of the Arrowhead Substation. The Prairie Island – Byron 345 kV transmission line is no longer included in this interface. MWEX limits the flows of both the King – Eau Claire 345 kV line and the Arrowhead – Stone Lake 345 kV line. The exact values of the interface vary according to the concurrent outages of the transmission system. The MISO Temporary Operating Guide titled “Minnesota Wisconsin Export Interface (MWEX) Rev 9 – Special – 2008 – 155,” which was in effect through May 2, 2008, had a system operating limit of 1,100 MW.

Applicants note that even though the Prairie Island – Byron 345 kV line is no longer included in the Minnesota – Wisconsin interface, the flow on this line is still limited because of the Byron – Maple Leaf 161 kV congestion created by a fault on the Byron – Pleasant Valley – Adams 345 kV line. This limit is defined in the Byron-Maple Leaf Operating Guide. With the addition of the Twin Cities – La Crosse 345 kV Project, Byron – Maple Leaf congestion is mitigated, which will increase the flow potential on the Prairie Island – Byron 345 kV line. Studies must be done to determine this new flow level and the new limiter.

b. The proposed Twin Cities – La Crosse 345 kV Project is designed to meet local load giving needs reliability, enhance regional reliability, and to provide generation outlet support. The precise generation outlet potential of the proposed 345 kV line project is unclear at this time. The outlet capability will be largely dependent on where the specific generators interconnect and how many megawatts are interconnected at various locations.

c. Under normal conditions, power flows on the Adams – Byron – Prairie Island 345 kV line are generally north to south. If there were significant wind generation additions in southern Minnesota, these flows could switch to south to north depending on system conditions, load and power levels.

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