

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

Date of Request: March 31, 2008

Requested By: Elizabeth Goodpaster and Mary Marrow
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Midwest Office (IWLA), Fresh Energy and Minnesota Center for Environmental
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Please send a second copy of your response to:

Beth Soholt
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Request Due: April 21, 2008

In the Matter of the Application of Great River Energy, Northern States Power Company (d/b/a Xcel Energy) and others for Certificates of Need for the Cap X 345–kV Transmission Projects. PUC Docket No. CN-06-1115

INFORMATION REQUEST NOS. 5-14 OF WOW, IWLA, FRESH ENERGY, AND MCEA
TO APPLICANTS

5. Please provide a set of electrical one-line diagrams for the three CapX projects to include one-lines for the new facilities, tie-ins to existing facilities and lower voltage upgrade projects. Include circuit breaker arrangements, transformer connections and other substation equipment such as shunt capacitors to the extent that configurations are known or planned at this time.
6. Please provide the NW section of the 2006-2011 Midwest ISO transmission Expansion Planning Map, most recent edition. Include the area bounded by Sioux Falls on the south, La Crosse on the east and map borders on the north and west.
7. For the three proposed CapX projects, please provide a summary grid showing significant facility overloads during zero and critical N-1 and N-2 contingencies without the new project transmission facilities. Include facility names and range of overloads along with the identification of the N-1 and N-2 facilities removed from service. Exclude minor

items that would otherwise diminish the capacity of the line which can readily be remedied such as line switches and wave traps, e.g., critical N-1 and N-2 contingencies for the TC-Fargo 345 KV Project appear to be outages of the Milton R Young (Center) – Jamestown 345 KV line and the Forbes – Chisago 500 KV line.

8. a) Referring to Sec. 6.4.6.2 entitled “Twin Cities - Fargo 345 KV project”, page 6.50, please provide:
 - 1) the present NDEX limit;
 - 2) the points at which the NDEX flows are measured; and
 - 3) the increased flows at each measurement point which comprise the 350 MW increase.
 - b) If added wind generation in North Dakota exceeds the 350 MW increase, what other facilities will carry the excess?
 - c) As the NDEX limit is largely determined by system stability considerations as well as transmission line capability, what stability studies were conducted, and briefly summarize the results.
9. Referring to the TC-Brookings Project, Figure 5-8:
 - a) what low voltage facilities does the Helena 345 KV Substation tie into?
 - b) why is the Brookings Co - Lyon Co. 345 KV line only a single circuit? Will it be built for a future double circuit?
10. Please confirm an error in the response to DOC IR NO. 25, second sentence, first paragraph, which states that “Series compensation lowers the overall electrical resistance ...” (underlining added for emphasis). It appears that “resistance” should be “inductive reactance”.
 11. Since the MISO queue information in Figures 6-7 and 6-8 is nearly four years out of date, please provide updates from the MISO queue and updates of Figures 6-7 and 6-8. Please include workpapers.
 12. Figures 6-8 through 6-31 show various biases for installed generation. Referring to the current MISO queue for generation interconnection requests (provided in the response to IR No. 11, above), what bias does the current MISO queue analysis show for amounts up to each utility participant’s capacity obligation (renewables and other)?
 13. The bias analyses shown in Figures 6-19 through 6-31 all show the need for additional capacity from the Forbes-Duluth area to the Twin Cities. Why is this capacity excluded from the CAPX2020 projects?
 14. a) The TC-Brookings discussion indicates that Sioux Falls-Lakefield Junction

project supports 825 MW of wind generation and that the three BRIGO projects will increase this amount to 1200 MW. With the 700 MW added capacity of the TC-Brookings project (as stated on page 6.50) the total will presumably reach 1900 MW. Please compare this to the total amount of renewable capacity mandated for CAPX2020 participants in MN that is likely to be installed in the south-southwestern region behind the new CapX projects.

- b) How much capacity would be added to the 1900 MW referenced in part a) above, via upgrade of the MN Valley-TC 230 KV line to 345 KV?