

Response:

A.1 - A.2 The load forecasts included in the Application were developed by each utility that serves load in the southern Red River Valley area. As such, the assumptions reflected in the 2020 winter peak load forecast are reflective of those used by the individual utilities. Detailed descriptions of each utility's load forecasting methodology can be found in Applicants' response (and subsequent supplemental response) to Department of Commerce Office of Energy Security Information Request No. 47 ("OES IR No. 47").

A.3 The combined substation demand forecast provided in the Application has not been accepted directly into any integrated resource plan. However, the substation demand forecasts provided by the individual utilities are based, in part, on resource planning data. See Applicants' Response to OES IR No. 47.

A.4 After gathering the load forecast data for individual substations in the southern Red River Valley area, planning engineers noted that the sum of individual substation peaks was approximately 309 MW higher than the coincident peak load in the entire southern Red River Valley area. This is because, across a large area like the southern Red River Valley, each substation will achieve its peak load at a slightly different time depending on whether a substation serves rural or urban territory, and residential, commercial, or industrial loads.

The ratio of coincident peak to the sum of the substation peak loads was 77 percent.

This adjustment factor was then applied to each year's peak loads to appropriately scale the load forecast down. Further discussion regarding the load adjustment factor can be found on page 4.22 of the Application.

A.5 The term "MW at Risk" approximates the number of megawatts of customer load that would need to be interrupted to return the system within operating limits assuming no new transmission facilities were constructed and the critical contingency in the area occurred during the year in question.

B. The maximum load level at which the southern Red River Valley area transmission system can reliably operate has been determined to be approximately 1,360 MW. More detail regarding this load level can be found in the Application, beginning on page 4.18, and in the TIPS Update (Appendix A-3 of the Application).

C. In the southern Red River Valley area, the electrical system can reliably support 1,360 MW. At this level, the loss of the Center – Jamestown portion of the Center – Jamestown – Maple River 345 kV line severely limits the capacity of the transmission system in the Red River Valley as this is the only 345 kV connection between generation-rich central North Dakota and the Red River Valley. When this portion of the 345 kV line is out, all load in eastern North Dakota must be served by the existing 230 kV network which cannot reliably support the additional power influx. The TIPS Update found that placing 1,360 MW of power on the 230 kV and 115 kV lines caused unacceptably low voltages to occur in the vicinity of Enderlin, North Dakota. The loss of the 345 kV line also caused overloads on the Fargo – Sheyenne 230 kV line. As the system is configured, when load surpasses the critical level and contingencies occur, system operators will be forced to mitigate these overloads and voltages issues by running local generation in smaller towns or interrupting service to customers. If the transmission system in this area is not improved, the resulting low voltage area will continue to increase as load in the Red River Valley grows. The substation forecast analysis, provided in Appendix C-3 of the Application, indicates that the 1,360 MW demand level will be exceeded in the 2016 to 2019 timeframe.

Appendix C-3 was compiled by using substation forecasts provided by Xcel Energy, Great River Energy, Basin Electric Power Cooperative, Minnkota Power Cooperative, Minnesota Power, Missouri River Energy Services, Otter Tail Power Company, and Western Area Power Administration. The utilities' substation forecasts took into account load management programs and conservation efforts used by the utilities to reduce peak demand.

D. Applicants do not have this information.

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