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Xcel Energy

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

Response To: Hwikwon Ham Information Request No. 46  
MN Department of Commerce

Date Received: March 3, 2008

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Question:

- A. Please provide the table 1 in Appendix A-1 in a Microsoft Excel spreadsheet.
- B. Please provide the chart and the data used to produce the diagram 2 in Appendix A-1 of the petition in a Microsoft Excel spreadsheet.
- C. Please provide 2004 MAPP report showing “2009 load level” column of table 1 in Appendix A-1. Please show the computation in Excel Spread sheet.
- D. Please provide all the assumptions and calculation formula used to produce “Calculated 2020 load level” column of table 1 in Appendix A-1.
- E. Please provide most recent Peak Demand Forecast and Energy Forecast (Minnesota only and System wide) in Integrated Resource Plan accepted/approved by Minnesota Public Utilities Commission. Please provide the data in a Microsoft Excel spreadsheet.
- F. Please provide Figure 6-34 in a Microsoft Excel spreadsheet. Please provide (or refer to) the forecast Figure 6-34 is based on. If the forecast is not based on Minnesota Public Utilities Commission approved or accepted forecast, please compare the forecast with the forecast provided in Part E.
- G. Please provide detailed narrative and numerical explanation if the most recent Peak Demand Forecast and Energy Forecast are significantly different from part E. (Please do not consider New DSM and RES statutes answering this question. Those two changes are dealt separately.) Please provide the data in a Microsoft Excel spreadsheet.
- H. Please reproduce the table 1 in Appendix A-1 with updated data provided in part E in a Microsoft Excel spreadsheet.

If any (or all) of the above information has already been provided in this docket or in response to an earlier OES information request, please identify the specific cite or OES information request number.

Please provide any and all the definition of the acronyms and abbreviations used.

Response:

A. See Attachment A on CD (CapX2020 0000062).

B. See Attachment B on CD (CapX2020 0000062).

C. The 2009 load levels used in Table 1 were taken from the 2004 series Mid-Continent Area Power Pool (“MAPP”) model, year 2009 summer peak, which is shown in Attachment C on CD (CapX2020 0000062). These models are developed by a committee at MAPP that is made up of representatives of utilities in the region. The load levels are reported by each load serving entity at the substation level for summer peak, and then are modeled accordingly using PSS<sup>TM</sup>E Power System Simulator for Managing and Utilizing System Transmission (“MUST”), a comprehensive suite of programs used in the study of transmission and generation performance in both steady-state and dynamic conditions. For each of the control areas in the CapX2020 footprint (shown in Diagram 1, in Appendix A-1 of the Application and identified by a three-character numerical key in MUST, as illustrated in Attachment C) the loads reported in the 2009 year model are listed in Table 1 by company name. For example, the 1,507.3 MW load level for Minnesota Power was determined by adding up the loads at each Minnesota Power load serving substation in the model. These 2004 series models were the most up to date models as of the study timeframe in summer 2004.

The Midwest Reliability Organization (“MRO”), which took responsibility from MAPP after MRO became the reliability organization approved by the Federal Energy Regulatory Commission for the midwest region, is currently responsible for the models. Included as background information are the MRO cover letter and data request in preparation for the development of the MRO 2007 Series Model (see Bates No. CapX2020 0000063-83).

D. See Attachment D on CD (CapX2020 0000062). Each company’s Energy Marketing group provided the yearly growth rate percentage for each company in August 2004. The 2009 load levels, as described in part C above, were then grown by the given growth rate for the 11-year period as shown in the formulas used in the spreadsheet to determine the approximate 2020 load levels. It is important to note that the three proposed 345 kV Projects described in the Application are all necessary

for much lower system load levels than this 2020 load level, as described in Chapter 4 of the Application. Even if those 2020 load levels were not to materialize as anticipated, these Projects are still required to reliably serve the load in the State of Minnesota.

E. See Attachment E on CD (CapX2020 0000062).

F. See Attachment F on CD (CapX2020 0000062). Please note that Figure 6-34 as provided in the Application inadvertently includes inaccurate data for Minnesota Power. The correct information for Minnesota Power was, however, provided in Table 1.2 of Appendix D-7 of the Application. The attached Figure 6-34 has been modified to match the information in the appendix. In addition, the Minnesota Power information for the year 2025 has been added and the mathematical calculation for the MWh total for 2016 has been corrected.

Generally, Figure 6-34 in the Application is based on forecasts approved by the Minnesota Public Utilities Commission in the various utilities Integrated Resource Plan (“IRP”) proceedings, summarized in Appendix C-6 of the Application, except for Central Minnesota Municipal Power Agency (“CMMPA”), Minnesota Municipal Power Agency (“MMPA”), and Rochester Public Utilities (“RPU”), all of which are not required to file an IRP and whose forecasts are provided in Appendix C-7 of the Application, and Great River Energy (“GRE”), for which there are two primary differences in the two forecasts. First, for GRE’s 2005 IRP forecast, 2003 was the last year of historical data. Second, different forecasting methods were used. The 2005 IRP forecast was the summation of customer class forecasts for each member cooperative. The most recent forecasts use data through 2005. In addition, the most recent forecasts use fewer years of data but incorporate a time-series, cross-sectional method to forecast the largest customer classes. A more detailed description of the two forecasting methods are available in their respective filings.

G. See Attachment G on CD (CapX2020 0000062). Generally, the difference between the most recent Peak Demand Forecast and Energy Forecast from the Part E is explained by the fact that the forecasts relied on for Figure 6-34 of the Application were forecasts of retail energy sales, representing what energy is consumed by customers, as opposed to forecasts relied on in the IRP proceedings of total system energy needs, which includes sales to consumers, losses incurred through delivery of electricity to consumers, wholesale sales, and a utility’s own use (*e.g.*, station power). If there are other additional explanations for the small differences between a utility’s most recent Peak Demand Forecast and Energy Forecast and the Commission-approved forecasts for that utility, these explanations will be submitted as a supplement to this information request response.

H. The most recent values are provided in the column labeled “2007 MRO SERIES FINAL 2009 Summer Peak” in Attachment H on CD (CapX2020 0000062). The 2009 summer peak demand developed in the 2007 MRO Series Model is estimated to be 2,014 MW greater than estimated in the 2004 MAPP Series Model.

Due to a MRO-requested change in the load modeling method, described below, GRE load in the 2007 MRO Series Model is the GRE load in the GRE control area. In the 2004 MAPP Series Model, GRE reported its data as though all GRE load resided in the GRE control area. GRE has load in the ALT (West), Xcel Energy, Minnesota Power (“MP”), and Otter Tail Power Company (“OTP”) control areas, in addition to the GRE control area.

For example, in the 2007 MRO Data Request concerning “Load Modeling” (see Bates No. CapX2020 0000071 at page 6) the MRO explains how load should be assigned to each control area (area number):

The load should be assigned the same area number that is assigned to the bus, which is the area number of where the bus is physically located. By default, the area number is the same as the area to which the bus is assigned. A company’s zone and owner numbers will be assigned to a load owned by that company.

Previously and subsequently the MRO Data Request has asked for load projections in a different manner. For example, in the 2008 MRO Data Request (see Bates No. CapX2020 0000084-103), the MRO requests data be provided as follows:

The load should be assigned the same area number that is responsible for adjusting generation to supply the load. Furthermore, each company is required to assign all of their loads (remote or local) to one control area. This approach is a change from past practices and is driven by the models now being solved using the PSS/E area interchange control of Tie Lines and Loads. (CapX2020 0000088).

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