

BLACK HILLS POWER, INC.  
d/b/a BLACK HILLS ENERGY  
EL19-006

REQUEST DATE : 02/26/19  
RESPONSE DATE : 03/11/19  
REQUESTING PARTY: Staff

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**SDPUC Request No. 1.7:**

Per ARSD 20:10:22:10, please provide data, data sources, assumptions, forecast methods or models, or other reasoning upon which the demand for the facilities were based.

**Response to SDPUC Request No. 1.7:**

SDPUC 1.7 represents the data for Exhibit B to the Application. It was created by reviewing actual recorded demand data for each hour of each year over the 2013-2018 period, with the exception of 2018 as noted within the exhibit. The Rapid City Peak Demand value is a mathematical summation of several individual data points within Black Hills Power's SCADA system, and is designed to capture the net flows in and out of the Rapid City area, including Rapid City generation. The data was grouped into summer (April-September) and winter (October-March), and the peak hourly demand for each season and year was captured for SDPUC 1.7. It should be noted that anomalies in the data that would have resulted in abnormally high values were omitted from the results.

The estimation of the portion of the total Rapid City demand that would be served from the West Rapid City transformer (~30%) was determined by reviewing the power flow model for the area with the West Rapid City transformer in service. The fraction of the power flow through the West Rapid City transformer compared to the other transformers feeding Rapid City (Lange and South Rapid City) was approximately 30%. These transformer flows within the power flow model are captured in the "Load Served from WRC" tab of SDPUC 1.7 Rapid City Load (2013-2018).xlsx. It should be noted that the total power flows through the transformers are reflected in MVA, not MW, and by definition include reactive power flows. Consequently, the values should not be compared to the real power values as shown in Exhibit B to the Application.

The demand data should be taken in conjunction with the information provided in Section II, Purpose of Facility, of the Application regarding ARSD 20:10:22:08 for a more complete reasoning behind the demand for the planned facilities.

**Attachments:** SDPUC 1.7 Rapid City Load (2013-2018)

**Responder:** Wes Wingen