NorthWestern Energy (NWMT)
Daily Load Forecast Assumptions

Each business day, NorthWestern Energy forecasts its Balancing Area (control area) load for the next five days. To ensure there is at least one forecasted day available, extra days can be forecasted in the case of holidays and other non-working days. The following describes the assumptions used in this forecasting process.

Temperature data for various Montana cities is received daily via email from DTN Meteorlogix (formerly Weatherbank). This temperature data includes hourly temperatures and average high and low temperatures: actual values for the previous day, and forecast values for the current day and the next six days. The weather data for the six largest Montana cities (Billings, Bozeman, Butte, Great Falls, Helena, and Missoula) and the actual hourly Balancing Area load data are imported into a database used to complete the load forecasts.

The forecast database uses an algorithm to shape the heavy load hour loads and light load hour loads for the day being forecast based on the average of the following actual hourly historical load data and the weighting the person running the forecast places on each:

1. One day prior to the current date (the current date is the day the forecast is completed)

2. The same day of the week as the forecast date one week prior to the current date (the forecast date is the day the forecast is being completed for)

3. The same day of the week as the forecast date two weeks prior to the forecast date

4. The same day of the week as the forecast date one year ago; and the same day of the week two weeks on either side of that date (i.e., five days of data)

5. The same day of the week as the forecast date two years ago; and the same day of the week two weeks on either side of that date

6. The same day of the week as the forecast date three years ago; and the same day of the week two weeks on either side of that date

The default weighting factors for each of these items is 1 - 40%, 2 – 28%, 3 – 15%, 4 – 10%, 5 – 4%, and 6 – 3%. These factors and even the dates used in items 1 - 6 can be changed by the person completing the forecast. That person uses their judgment and past experience to vary any of these after reviewing the historical actual temperature and load data, and the forecast temperature data, when developing the forecast – multiple scenarios may be created until a reasonable load forecast is finally retained and uploaded to the EMS/OATI systems and posted on OASIS. These final forecasts and the most recent actual Balancing Area load (i.e., the control area metered loads from the last hour and the prior hours) are used by the system operators in their real-time management of the Balancing Area.