MIDAMERICAN ENERGY COMPANY
Docket No. EL14-XXX

Explanation of Weather Normalization Pro Forma Adjustment
Test Year Ending December 31, 2013

Explanation of Weather Normalization Pro Forma Adjustment

1. The process used in calculating the pro forma adjustment for weather normalization is a two-step process.

    a. The first step is to determine the difference in kWh by month and by rate class between what was used by customers in the 2013 test year and what would have been used by customers had CDDs and HDDs in 2013 been normal. This difference becomes the usage component of the pro forma adjustment.

    b. The second step is to apply the appropriate margin rates to the usage component to determine the revenue component of the pro forma adjustment.

2. MidAmerican is calculating a pro forma adjustment for the following rate classes: Rate RBD, Rate RED, Rate RSD, and Rate RWD.

3. The usage component is determined through statistical regression analysis of use per customer per day for each rate class.

    a. Use per customer per day is calculated for each month of the test year for each of the four rate classes, and a regression model is developed that relates use per customer per day to CDDs per day and HDDs per day.

        i. Daily use per customer is calculated by dividing the total kWh sales by rate class in each billing month by the number of bills issued in each month, and further dividing that result by the average number of days in a billing cycle for that billing month (total number of days billed in the month across all bills issued in that month divided by the total number of bills issued in the month).

        ii. Daily CDDs and HDDs for each billing month are calculated by summing the total number of CDDs and HDDs associated with each bill issued for that month and then dividing by the total number of bills issued in the month.

    b. The result of each regression model is a set of coefficients that describe the relationship between use per customer per day and CDDs and HDDs per day. The difference between actual and normal daily degree days are then multiplied by this set of coefficients to determine the appropriate weather adjustment on a per customer per day basis for each month.

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c. This adjustment is then multiplied by the number of days in each billing month and then by the number of bills issued in each month to determine the total usage adjustment for each month. This calculation is done separately for each rate class.

d. For each class, the monthly usage adjustment is further broken down by usage step. Each residential rate contains both a summer and a winter usage step that is weather dependent, so a separate model is developed that relates monthly billed use per customer for winter months to the monthly split between kWh usage in the first and second step of the winter rate by month, and another separate model is developed that relates monthly billed use per customer for summer months to the monthly split between kWh usage in the first and second step of the summer rate by month. These models are then used to adjust the actual split between the first and second steps in each winter month and each summer month to reflect weather normalized monthly use per customer.

e. Weather normalized unbilled sales for each rate class are determined by calculating the difference between weather normalized billing sales and weather normalized calendar year sales for each rate class using the models described above and substituting normal weather on a calendar month basis for normal billing month weather, and substituting the number of days in a calendar month for the number of days in the billing month. The difference between weather normalized billing year and calendar year sales equals the total amount of weather normalized unbilled sales. Actual unbilled sales by rate class are subtracted from this amount to arrive at the total weather normalization adjustment for unbilled sales.

f. The regression models developed in this analysis are accurate and do a good job of accurately identifying the complex relationship between electric sales and weather. The R-Square values for the four different rate class models are as follows:
    i. Rate RBD – 0.97
    ii. Rate RED – 0.98
    iii. Rate RSD – 0.96
    iv. Rate RWD – 0.98

    A large majority of the month to month variation in electricity sales is explained by the weather variables in these models, which is to be expected. Just as importantly, the models identify a relationship between electricity use and weather that is logical and intuitively easy to understand.

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4. The revenue component of the pro forma adjustment is determined by applying the appropriate revenue rates to the usage component of the pro forma adjustment. The revenue rate is equal to the current tariffed revenue rate and is applied separately to each step in each rate code by season.

    a. Billing month revenue adjustments for each rate and step within each rate are based on the appropriate seasonal rate in each step of the rate.

    b. Revenue adjustments for the unbilled sales component for each rate and step are based on the average revenue adjustment rates by step for January and December of the test year.

Major Assumptions

1. Cooling degree days are calculated from a 65 degree base (CDD 65) and heating degree days are calculated from a 55 degree base (HDD 55).

2. Normal daily degree days used in the models are based on 30-year daily normal data for CDDs (65 degree base) and HDDs (55 degree base) for the NOAA reporting station at the Sioux City, IA. The 30 year period is 1981-2010.