

prices. The three prior calendar year's historical data is used to make this calculation. For example, when computing opportunity costs in 2009, use historical LMP data from 2006, 2007 and 2008. Begin by taking the hourly bus prices for the three prior calendar years at the generator's bus, and for every hour, divide that hour's price by the corresponding price at PJM Western Hub. The historic hourly basis differential in hour h, day d, month m, and year y is

$$\text{HourlyBasisDifferentialRatio}_{y,m,d,h} = \frac{\text{BUSLMP}_{y,m,d,h}}{\text{PJMWHLMP}_{y,m,d,h}}$$

NOTE: When PJMWHLMP is zero and the BUSLMP is zero, then the ratio value is one. If PJMWHLMP is zero and the BUSLMP is not zero then value is null and it is not included in the average.

Example 1.1: Three hourly basis differential ratios values for the same hour in each of three historical years:

$$\begin{aligned} \text{HourlyBasisDifferentialRatio}_{\text{June } 3,2006 \text{ H11}} &= \frac{\text{BUSLMP}_{\text{June } 3,2006 \text{ H11}}}{\text{PJMWHLMP}_{\text{June } 3,2006 \text{ H11}}} \\ \text{HourlyBasisDifferentialRatio}_{\text{June } 3,2007 \text{ H11}} &= \frac{\text{BUSLMP}_{\text{June } 3,2007 \text{ H11}}}{\text{PJMWHLMP}_{\text{June } 3,2007 \text{ H11}}} \\ \text{HourlyBasisDifferentialRatio}_{\text{June } 3,2008 \text{ H11}} &= \frac{\text{BUSLMP}_{\text{June } 3,2008 \text{ H11}}}{\text{PJMWHLMP}_{\text{June } 3,2008 \text{ H11}}} \end{aligned}$$

Once the hourly basis ratios are calculated for every hour during the three-year history, for each historic month take the sum of the on-peak hourly basis differentials in the month, and divide by the number of peak hours in the month (observations). Similarly, for every month, sum the off-peak hourly basis ratios, and then divide by the number of off-peak hours within that month. These monthly basis differentials adjust PJM Western Hub monthly peak and off-peak forward prices to expected peak and off-peak monthly forward prices delivered to the generator's bus.

$$\text{MonthlyPeakBasisDifferentialRatio}_{y,m}^{\text{peak}} = \frac{\sum_{\text{peak hours}} (\text{HourlyBasisDifferentialRatio}_{y,m,d,h}^{\text{peak}})}{\text{Number of Peak Hours in month } m}$$

$$\text{MonthlyOffPeakBasisDifferentialRatio}_{y,m}^{\text{off-peak}} = \frac{\sum_{\text{off-peak hours}} (\text{HourlyBasisDifferentialRatio}_{y,m,d,h}^{\text{off-peak}})}{\text{Number of Off - Peak Hours in month } m}$$

Example 1.2: Monthly Peak Basis Differentials for the three historical periods: