Forward E&AS Offset Methodology

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"Therefore, we order PJM to make a compliance filing within 45 days of the date of this order proposing modifications to its Tariff to implement a forward-looking E&AS Offset that reasonably estimates expected future energy and ancillary services revenues for all Tariff provisions that rely on a determination of the E&AS Offset (e.g., Net CONE)."

2008: PJM proposal - Forward pricing using 12 monthly futures contracts for power and gas

2011: Triennial Review – Brattle recommends investigating forward-looking E&AS methodology

2014: PJM proposal - Use ratio between future and historic heat rate to scale E&AS offset

2018: Quadrennial Review – Brattle recommends historical for CT, forward-looking for CC

Scale historical E&AS Offset by a ratio of future to historic heat rates:

$$\textbf{E\&AS Offset} = \sum_{y}^{3} \sum_{m}^{12} \textbf{\textit{Historical E\&AS}} * \frac{\textcolor{green}{\textbf{\textit{Future Monthly Heat Rate}}}}{\textcolor{cyan}{\textbf{\textit{Historic Monthly Heat Rate}}}}$$

Where:

$$\textcolor{green}{\textit{Future Monthly Heat Rate}} = \frac{\textit{Future Monthly Western Hub On-Peak Average}}{\textit{Future Monthly Henry Hub Average}}$$

$$\textcolor{cyan}{\textit{Historic Monthly Heat Rate}} = \frac{\textit{Historic Monthly Western Hub On-Peak Average}}{\textit{Historic Monthly Henry Hub Average}}$$
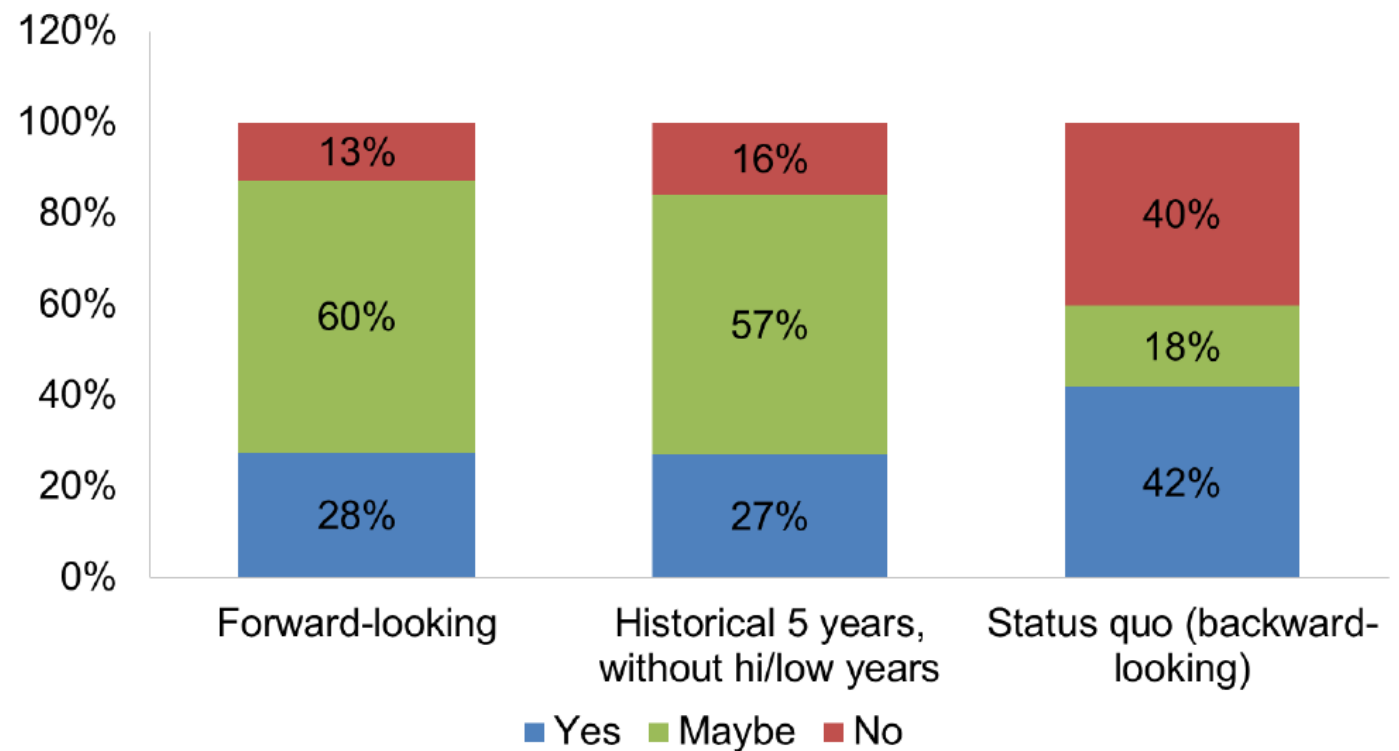
$$Future\ Monthly\ Heat\ Rate = \frac{Future\ Monthly\ Western\ Hub\ On-Peak\ Average}{Future\ Monthly\ Henry\ Hub\ Average}$$

$$January\ 2018\ Heat\ Rate = \frac{52.83\ \$/MWh}{4.50\ \$/mmbtu} = 11.74\ mmbtu/MWh$$

$$Historic\ Monthly\ Heat\ Rate = \frac{Historic\ Monthly\ Western\ Hub\ On-Peak\ Average}{Historic\ Monthly\ Henry\ Hub\ Average}$$

$$January\ 2011\ Heat\ Rate = \frac{137.45\ \$/MWh}{4.82\ \$/mmbtu} = 28.51\ mmbtu/MWh$$

$$\text{E\&AS Offset} = \sum_{y}^{3} \sum_{m}^{12} \textit{Historical E\&AS} * \frac{\textit{Future Monthly Heat Rate}}{\textit{Historic Monthly Heat Rate}}$$

$$\textit{January } \textbf{2018 E\&AS Offset} = \sum_{y}^{1} \sum_{m}^{1} \$1,265 * \frac{11.74}{28.51} = \$521$$

Calculate monthly E&AS offset for each of 3 historic years to produce an annual total and a 3-year average

- Lack of locational specifics
- Liquidity in forward markets
- Transition timing
- Historical time span

- Accuracy (reasonable expectation of actual revenues)

- Volatility (variation between years)

- Resource flexibility (useful for many resources)

- Transparency (can be determined independently)

- Sensitivity (to model or dispatch criteria)

- Timely (meet filing timeline)