



E&AS Offset Straw Proposal Education

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- Develop a forward looking E&AS methodology
 - 3 year historical can be distorted by anomalous events
 - 3 year historical not consistent with how new units view entry decisions or existing unit view exit decisions
 - 3 year historical 4-6 years out of date by the delivery year

2018/19 E&AS Margin

$$= \text{Historical E\&AS Margin} * \frac{\text{2018/2019 Mass Hub On-Peak Prices}}{\text{Historical Mass Hub On-Peak Prices}}$$

- Very simplistic adjustment that takes forward energy prices to adjust E&AS margins
- Does not account for changes in fuel costs that may not move in lock step with energy prices

- Builds on the simplicity of what Brattle has proposed for ISO-NE
- Incorporates gas prices both historically and in the forward curves
- Looking at this monthly over the year
 - Forward market heat rate by month
 - Historic market heat rate by month



PJM Straw Proposal— Historic Monthly Market Heat Rate

$$\text{Historic Monthly Market Heat Rate} = \frac{\text{Monthly Western Hub Onpeak Average}}{\text{Monthly Henry Hub Average}}$$

$$\text{January 2014 Market Heat Rate} = \frac{\$137.45 \text{ \$/MWh}}{\$4.82 \text{ \$/mmbtu}} = 28.51 \text{ mmbtu/MWh}$$



PJM Straw Proposal— Future Monthly Market Heat Rate

$$\text{Future Monthly Market Heat Rate} = \frac{\text{Future Monthly Western Hub Onpeak Average}}{\text{Future Monthly Henry Hub Average}}$$

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

January 2018 E&AS offset =

$$\sum_{y=1}^1 \left(\sum_{m=1}^1 \text{HE\&ASO}_{y,m} * \frac{\text{FMHR}_m}{\text{HMHR}_{y,m}} \right) =$$
$$\$1,265 * \frac{11.74}{28.51} = \$521$$

$$\text{Future E\&AS offset} = \sum_{y=1}^3 \left(\sum_{m=1}^{12} \text{HE\&ASO}_{y,m} * \frac{\text{FMHR}_m}{\text{HMHR}_{y,m}} \right)$$

HE&ASO = Historic Energy and Ancillary Service Offset

FMHR = future market heat rate

HMHR = Historic market heat rate

y = year

m = month

- Straw proposal accounts for monthly variance, but not day-to-day or monthly variance
 - Simpler than doing a methodology like the energy and environmentally limited offset
 - Question about whether or not to use a representative year for price shapes or use the most recent three years as proposed.