Revisions to Synchronized Reserve Margin Adder

EPFSTF

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Synch Reserve Margin Adder Design

- A goal of the market design for synchronized reserve offers is to ensure that resources on the margin are indifferent to providing reserves or energy.
- Allowing participants to express the risk they assume by accepting an obligation via the synchronized reserve offer is key to ensuring they are indifferent.
- The existing margin adder allows participants to express this risk. However, the existing $7.50/MWh level of this adder is:
  - Based on the implicit margins in actual offers made by participants for Tier 2 Synchronized Reserve prior to the implementation of the market in 2002
    - Offers included market power; only two suppliers

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Expected Value of a Synch Reserve Penalty

PJM believes the risk resources assume by accepting an obligation can be approximated by calculating the expected value of the synchronized reserve penalty

- Expected value =

  Average $/MWh penalty * Average rate of non-performance during events * probability an event will occur

- Year-to-date in 2018 (through Q3):
  - Average $/MWh penalty = total penalty ($) / total shortfall MWh
    - » $218,840 / 494 MWh = $443/MWh
  - Average rate of non-performance = 1 – average Tier 2 response rate
    - » 100% – 75.3% = 24.7%
  - Probability an event will occur = Total hours of SR events greater than 10 minutes / Total hours in the period
    - » 1.13 / 7272 = 0.0156%
  - **Expected value** = $443/MWh * 24.7% * 0.0156% = **$0.02/MWh**

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PJM Proposed Revision to Margin Adder

- The existing $7.50/MWh margin is well in excess of the near $0/MWh expected value of the synchronized reserve penalty resources may face if they fail to respond during an event
  - Expected value of penalty was $0.01/MWh in 2017 and is $0.02/MWh in 2018 (through Q3)

- PJM proposes lowering the cap on the margin adder to the expected value of the penalty
  - PJM proposes re-calculating this value on an annual basis
  - Rather than setting the cap to a static $0/MWh based on current conditions, reassessing the cap on a periodic basis will allow the cap to change as clearing prices, and consequently the expected value of the penalty, are ultimately impacted by the proposed reserve market enhancements.

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