Revisions to Synchronized Reserve Margin Adder

EPFSTF
November 28, 2018
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
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
• 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.