Adjustments to ORDC for Operator Actions

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• Goal is to allow system operators flexibility in managing and maintaining system reliability but capture these actions in the market pricing

• PJM initially discussed the use of a “extreme day” ORDC curve
  – Curve utilized on days where operators take action due to greater than normal uncertainty (specifically, forced outage uncertainty)
• Current thinking is adjustments should be made on a case by case basis instead of using a pre-defined curve

• Adjustments would be made to the base requirement portion of the curve
  – Operator adjusts the Minimum Reserve Requirement (MRR) not the slope of the curve

• For purposes of discussion we will focus on adjustments to the real time 10 minute SR and PR requirements
  – The methodology discussed can be applied to a 30 minute DA and 30 minute RT ORDC curves if/when they are developed
• Adjustments to the MRR portion of the curve can be classified as either a Market Adjustment or Out of Market Adjustment

• **Market Adjustments** - Operator identifies need for additional reserves and adds desired MW to the MRR.
  – No specific resource is identified. The market will select the least cost set of resources to provide the reserves.
  – Operator defines the hours the MRR is adjusted based on the operating condition driving the need for additional reserves.
Types of Adjustments

• Examples of Market Adjustments
  – Changes in system topology that effect the largest contingency
  – Extreme weather event
    • Hurricane Sandy – Covering Nuclear units potentially taken offline due to high winds
    • Tail end of a hot weather event - Increased uncertainty in forced outages and weather forecast
    • First extreme cold day (Polar Vortex type event)
Types of Adjustments

• **Out of Market Adjustments** –
  • Dispatch may commits a unit outside of the market clearing engines based on reliability needs not modeled in the software
    – MRR is updated to reflect the additional reserves created by that action
      • Reflects operator actions in prices
  – Examples of Out of Market Adjustments
    • Unit committed for a non-market facility at the request of the Transmission Operator (TO)
    • Reactive Issues/Voltage Issues which cannot be priced in the market
    • Severe weather events (Polar Vortex, Hurricane)
Types of Adjustments

– Add X (MW) to the MRR
  • X = EcoMin * 1/3 + ((Ramp Rate * Degree Of Generator Performance) * 10 min)

• Operator defines the hours the MRR is adjusted based on the operating condition driving the need for additional reserves.
  – Based on call on time, and extends until the resource is released
• Real Time Notification
  – Market Adjustments
    • Provide notification to Market Participants when the MRR is adjusted by Operator Action using existing notification process when additional spinning reserve is carried today
      – Post informational message which is accessible in Markets Gateway and PJM Tools/My Tools Home
  – Market and Out of Market Adjustments
    • In Data Viewer include the MW added to the MRR requirement
      – Both Market and Out of Market Adjustments
• Historical Posting
  – Provide the following information:
    • Reason for the change
    • Impacted hours
    • MW amount
  – Method TBD – considering posting through Data Miner 2