



# 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.

- Examples of Market Adjustments
  - Changes in system topology that effect the largest contingency
  - Extreme load pick up
  - 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

- Out of Market Adjustments - Dispatch 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
  - Add X (MW) to the MRR
    - $X = \text{EcoMin} * 1/3 + ((\text{Ramp Rate} * \text{Degree Of Generator Performance}) * 10 \text{ min})$
- Operator defines the hours the MRR is adjusted based on the operating condition driving the need for additional reserves.

- Notification to Market Participants
  - Provided as far in advance of the effective time of the adjustment as possible
  - Provide the following information:
    - Reason for the change
    - Impacted hours
    - MW amount added
  - Method TBD – considering real-time posting through Data Miner 2 or informational Emergency Procedures message