Synchronized Reserve Deployment: IMM Options

SRDTF

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- **With Tier 1 and Tier 2 consolidation, all synchronized reserves will be paid the synchronized reserve MCP.**
- **ORDC will result in higher prices and larger cleared reserve MW.**
- **All synchronized reserves subject to penalties for nonperformance.**
- **The current overresponse to the all call during a synchronized reserve event is expected to be exacerbated under the new reserve market rules.**

IMM Solution Criteria for Reserve Deployment

- **Currently, SCED dispatch instructions are not relevant because all resources are asked to increase output.**
- **Ideally, a new SCED solution that can deploy synchronized reserves, and accurately models the cause of the spin event should replace all call.**
- **The new proposed long term SCED reforms allow dispatchers to manually execute SCED cases outside the automated cycle in these situations.**
- **The time required to model the contingency, solve, approve a new SCED case, and send instructions to resources is a limiting factor.**

IMM Solution Options

- **To dispatch reserves until the manually executed SCED solution is available, replace the all call with a reserve deployment tool that generates dispatch signals.**
- **The reserves that are deployed are a portion of the synchronized reserves that cleared in the current five minute interval.**
- **The total MW to deploy is input by dispatchers, equal to the MW lost, or required for ACE recovery.**

IMM Solution Options

- **The MW deployed from each resource is its share of the total deployed MW (MISO, SPP)**
  - **The total cleared synchronized reserve MW, and each resource's cleared MW are known after each RT SCED approval.**
- **For example, if the most recent RT SCED solution cleared a total of 1,600 MW of synchronized reserves, and the contingency is 800 MW, each cleared resource is asked to convert half the cleared synchronized reserves to energy.**
- **Fair assignment of obligation to respond to disturbances.**
- **Existing Manual 12 (4.1.2) language, no changes needed.**

IMM Solution Options

- **Dispatchers input the total MW needed, the tool calculates resource specific MW and sends dispatch signals to the target levels (Manual 12, 4.1.2).**
- **Existing RTGEN tool in MISO and SPP (EMS application) sends dispatch MW plus reserve deployment MW to units.**

IMM Solution Options

- **Dispatchers manually execute a new RT SCED with:**
  1. **The actual unit lost modeled, and**
  2. **Cleared inflexible tier 2 synchronized reserves made eligible for energy dispatch (can be prepopulated, similar to IRD).**
- **RT SCED dispatch replaces RTGEN reserve deployment once case solves.**

Pricing During Spin Events

- **Pricing during spin events should be consistent with supply and demand for dispatched reserves.**
  - **Continue pricing based on 5 minute look ahead.**
- **Current shortage pricing rules:**
  - **If reserves deployed during the spin event are replaced in the SCED solution, no shortage pricing.**
  - **If RT SCED calculates a reserve shortage according to the standard process, shortage pricing results.**
- **Under the ORDC changes, any reduction in supply, even well beyond the minimum reserve requirement, will result in increases to clearing prices.**

Pricing During Spin Events

- **NERC reliability standards require that the level of reserves after a disturbance be restored within 90 minutes after a disturbance occurs. (NERC BAL-002-3, R3)**
- **SPP reduces the reserve requirement by the same amount as the MW deployed. (Market Protocols 4.4.3.6)**
- **PJM currently does not change the reserve requirement when reserves are deployed.**
- **Result is an inefficient outcome during the infrequent times when reserves are used for their intended purpose.**
- **Adjusting the reserve requirement to allow time to recover reserves avoids charging customers high prices for using reserves that have been paid for.**

PJM Proposal

- **IRD is based on incorrect assumptions.**
- **The unit loss that is the cause of the spin event is not modeled.**
- **Instead, IRD assumes that the RTO load increases by an ad hoc MW quantity but assumes that the lost unit is also still online.**
- **The assumed load increase is set to the MW output of the largest contingency on the system.**
- **IRD produces artificially inflated prices that do not reflect system conditions, and applies the prices to the following five minute interval, not the interval when spin event started.**
- **This will add to the expected higher prices resulting from the downward sloping ORDCs.**

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