RCSTF Synchronized Reserve Deployment Enhancements

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Deployment: Challenges to Address

- Communication delays caused by the All-Call
- Inconsistency between how instructions are given during a spin event and during normal dispatch
- Confusion on what PJM is requesting from resources during a spin event
- Dispatchers lack tools to deploy less than 100% of the reserves held

Deployment Proposed Solution

- Dispatcher initiates the reserve event, entering the amount of reserves to be deployed
- **Reserve deployment instructions to generators will be transmitted as an update to basepoints.** Deployed reserve MWs are added to the current output of each resource and sent out immediately through telemetry
  - The automated notification that we are in a spin event, and the All-Call notification will still be issued.
- For demand response resources, deployment instructions continue to go through DR Hub
- While the event persists, dispatch instructions to dispatch-following resources with a reserve deployment assignment would be the greater of a) the original deployment instruction sent at the start of the event or b) the new economic dispatch point calculated by SCED

Less than 100% Reserve Deployment Proposed Solution

- To the extent possible, all resources will be deployed pro rata
  - Example: A resource has a 10 MW SR assignment and PJM deploys 80% of held reserves. The resource would be instructed to deploy 8 MW.
- Inflexible generation resources will be deployed to the greater of a) EcoMin and b) the pro rata reserve deployment instruction*
  - Example: A condenser has an EcoMin of 10 MW, a 30 MW SR assignment, and PJM deploys 50% of held reserves. The resource would be instructed to deploy 15 MW.
  - Example: A condenser has an EcoMin of 20 MW, a 30 MW SR assignment, and PJM deploys 50% of held reserves. The resource would be instructed to deploy 20 MW.
- Resources without a dispatchable range will be deployed to their SR assignment*

**Due to these constraints, actual reserves deployed may be greater than the pro rata calculation*

Updates to the Synchronized Reserve Event definition

- Specified that during a Synchronized Reserve Event, resources will be requested to increase energy output by “a directed” amount

Updates to Section 3.2.3A Synchronized Reserve (j)

- Specified that resources will be evaluated based on the amount that a resource was “directed to deploy” during a Synchronized Reserve event, rather than its “assignment”

Contact

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RCSTF Initial Solution Packages

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Acronyms

Acronym	Term & Definition
LMP	**Locational Marginal Price** is defined as the marginal price for energy at the location where the energy is delivered or received. For accounting purposes, LMP is expressed in dollars per megawatt-hour ($/MWh). LMP is a pricing approach that addresses Transmission System congestion and loss costs, as well as energy costs.
SCED	**Security Constrained Economic Dispatch** is the optimization engine used to calculate dispatch and reserve assignments and to set prices.
MW	A **Megawatt** is a unit of power equaling one million watts (1 MW = 1,000,000 watts) or one thousand kilowatts (1 MW = 1,000 KW). To put it in perspective, under non-severe weather conditions, one MW could power roughly 800 to 1,000 average-sized American homes.

Acronyms

Acronym	Term & Definition
SR	**Synchronized Reserves** is a reserve capability that can be converted fully into energy within 10 minutes following the request of PJM. Equipment providing Synchronized Reserve must be electrically synchronized to the power system.
PR	**Primary Reserves** is a reserve capability that can be converted fully into energy within 10 minutes following the request of PJM. The Primary Reserve service can be provided by both Synchronized and Non-Synchronized Reserves.
ORDC	**Operating Reserve Demand Curve** is used to articulate the value of maintaining reserves at specified levels

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