



Reserve Certainty Near-Term Implementation

Synchronized Reserve Deployment

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Market Implementation Committee
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Action Required	Deadline	Who May Be Affected
<p>Communicate to staff about the enhancement to the Synchronized Reserve Deployment</p> 	<p>Winter 2024</p> 	<p>PJM Members and Market Participants</p> 

When PJM Dispatch declares a Synchronized Reserve Event today:

Dispatch issues the automated notification and the All-Call notification

Two status points are sent to members over ICCP and DNP protocols:

- **Sub-zone (MAD) spin**
- **RTO spin**

- Members are instructed to ramp up their units as quickly as possible or to reduce load in the case of Economic Load Response resources.
- PJM has non-performance concerns on response during Synchronized Reserve Events, which it requires for system recovery.



Enhancement to the Synchronized Reserve Deployment

When PJM Dispatch declares a Synchronized Reserve Event, Dispatch will continue to issue the automated notification and the All-Call notification.

The All-Call remains authoritative, and if either the telemetered spin status point or basepoint signaling failed (links are down, other issues, etc.), all resources with reserve assignments are expected to respond.

NEW: Reserve deployment instructions to generators will be transmitted as an update to basepoints. **Deployed reserve MWs** are added to the **current output** of each unit and sent out immediately through telemetry as **basepoints**.

- This addition of the deployment MWs will happen outside of the dispatch and pricing optimization, and therefore will not be reflected in LMP.

For **Economic Load Response resources**, deployment instructions continue to go through **DR Hub**.

Resources with a real-time synchronized reserve effective assignment that do not receive a basepoint should immediately deploy their full assignment in response to the **All-Call**.

- This includes hydro and condensers.

While the event persists, economic basepoints for dispatch-following resources with a deployed reserve assignment would be the greater of:

- a) the original deployment instruction sent at the start of the event (**Deployed reserve MWs + current output**), or
- b) the new economic dispatch point calculated by SCED.

When a Synchronized Reserve Event is activated, only the units **with real-time synchronized reserve effective assignment** will have their **basepoints** updated as **current output MW plus deployed SR MW**.

- If the deployment is in the sub-zone only (e.g., MAD), then only the sub-zone units with the real-time reserve effective assignment will have their basepoint as deployed reserve MW + current output.
- If the deployment is in the entire PJM RTO, then all units with the real-time reserve effective assignment will have their basepoint as deployed reserve MW + current output.
- All other units with no real-time synchronized reserve effective assignment will continue to receive SCED basepoint during a Synchronized Reserve Event.

When the Synchronized Reserve Event is canceled, all basepoints will go back to SCED basepoints

PJM is testing and validating the AGC code and is targeting to implement the code as soon as possible for winter operations

- Implement 100% Synchronized Reserve deployment in AGC where SR instructions are included in generator basepoints.
 - For demand response resources, deployment instructions continue to go through DR Hub.
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- PJM Operations will continue to deploy 100% spin until performance concerns are resolved.
 - Compliance will be measured against the deployed MW and not the real-time synchronized reserve assigned MW.
 - Regulation performance scoring will no longer be suspended during a Synchronized Reserve Event.

Governing Documents and Manuals Updated

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”

Updates to Section 4.5.2 Non-Performance

- Specified that resources will be evaluated based on the Synchronized Reserve amounts they are “directed to deploy”
- Removed outdated regulation language

Updates to Section 4.5.2 Non-Performance

- Updated PJM Actions to specify that the reserve deployment quantities will be added to resource basepoints and sent out immediately during an SR Event
- Added information about demand response SR deployment through DR Hub
- Updated PJM Member Actions to specify that resources shall continue to follow their basepoints, which will reflect the SR deployment instructions, and that if resources holding an SR assignment do not receive a basepoint these resources should immediately deploy their full SR assignment
- Removed outdated regulation language

Updates to Section 6.1 Synchronized Reserve Accounting Overview

Removed outdated regulation language

Updates to Section 6.2.2 Balancing Synchronized Reserve Market Clearing Price Credit

Specified that the Synchronized Reserve Shortfall Charge will be based on the Synchronized Reserve amount the resource “was directed to deploy”

Updates to Section 6.3.3 Synchronized Reserve Retroactive Penalty Charge

Specified that retroactive penalty charge is based on failure to provide the Synchronized Reserve that resources “were directed to deploy”

Acronym	Term & Definition
AGC	Automatic Generation Control is equipment that automatically adjusts generation.
DNP	Distributed Network Protocol is a type of communication method to send/receive signals between a remote generation site and a control center.
ICCP	Inter-Control Center Communication Protocol is a type of communication method between two control centers that allows them to share signals.
MAD	A Synchronized Reserve sub-zone, also referred to as Mid-Atlantic & Dominion .
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.

Acronym	Term & Definition
LMP	<p>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.</p>
SR	<p>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.</p>
SCED	<p>Security Constrained Economic Dispatch is the optimization engine used to calculate dispatch and reserve assignments and to set prices.</p>
SR Event	<p>Synchronized Reserve Event (spin event) is a request from PJM Dispatch to units and/or Economic Load Response resources to provide Synchronized Reserve in the specified Reserve Zones or Sub-zone, within ten minutes, to increase the energy output or reduce load by a directed amount from the assigned or self-scheduled real-time effective Synchronized Reserve.</p>

[PJM Glossary](#)

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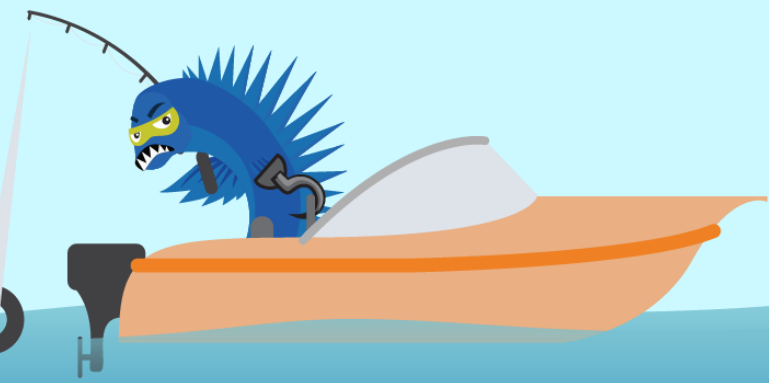
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