

# 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>All stakeholders</p> 

## When PJM Dispatch declares a Synchronized Reserve Event today:

Dispatch issues the telemetered spin status 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.

**When PJM Dispatch declares a Synchronized Reserve Event, Dispatch will continue to issue the telemetered spin status 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**.

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|--|---|--|
| <ul style="list-style-type: none"><li>• 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.</li></ul> | <ul style="list-style-type: none"><li>• 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.</li></ul> | <ul style="list-style-type: none"><li>• All other units with no real-time synchronized reserve effective assignment will continue to receive SCED basepoint during a Synchronized Reserve Event.</li></ul> |
|--|---|--|

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.

## Members may need to make changes depending on their implementation of their AGC logic and controls

IF:

- Members calculate their own spinning basepoint by summing their current ECOBP with their ASPIN signal

- Members do not receive an ECOBP signal from PJM to follow their spinning basepoint instruction

THEN:

- Members will need to remove existing logic if they calculate their own spinning basepoint signal once the reserve certainty changes are in effect

- Members should follow their All-Call instructions that they receive from dispatch and ramp up as quickly as possible

Acronym	Term & Definition
AGC	<b>Automatic Generation Control</b> is equipment that automatically adjusts generation.
DNP	<b>Distributed Network Protocol</b> is a type of communication method to send/receive signals between a remote generation site and a control center.
ICCP	<b>Inter-Control Center Communication Protocol</b> 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 <b>Mid-Atlantic &amp; Dominion</b> .
MW	A <b>megawatt</b> 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	<b>Locational Marginal Price</b> 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.
SR	<b>Synchronized Reserves</b> 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.
SCED	<b>Security Constrained Economic Dispatch</b> is the optimization engine used to calculate dispatch and reserve assignments and to set prices.
SR Event	<b>Synchronized Reserve Event</b> (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.

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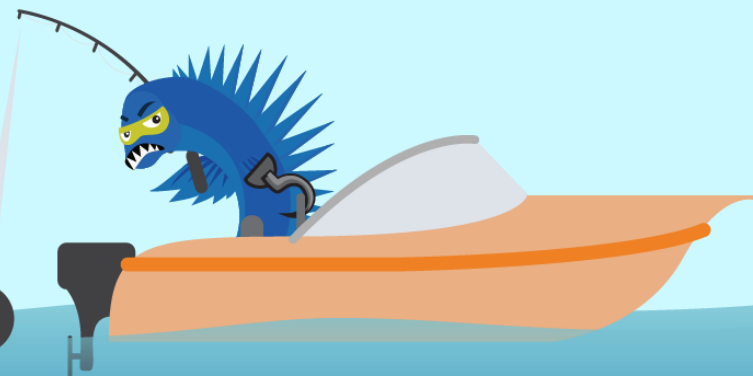
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