Wind and Solar Resource Dispatch Implementation

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DISRS

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Disclaimer: While materials are current at the time of publishing, applicable requirements may change. PJM Governing Documents control.

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Timeline

- Introduced Problem Statement and Issue Charge at June 3, 2024 DISRS meeting.
- Completed Key Work Activities:
  - Education, Interests, Solution Options
  - Published paper on renewable dispatch in market clearing engines October, 2024.
- One joint proposal with PJM and several stakeholders endorsed at September 2025 MRC.
- FERC accepted the proposal on February 20, 2026 (FERC Docket No. ER26-852-000).

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Summary of Initiative/Endorsed Package

- The proposal creates a concept of an “Effective Economic Maximum” (Effective EcoMax).
- The formulation of Effective EcoMax will be driven based on how the resources was dispatched in the previously approved RTSCED case (M11 section 2.5.3.6).
- If resource was not previously curtailed, a non-curtailment period, the Effective EcoMax will be equal to the State Estimator solution value (Dispatchable range).
- If resource was previously curtailed, a curtailment period, the Effective EcoMax will be the maximum of solved SE value, PJM forecast value or the Bid-In EcoMax value.
  - This formula will be in place for 2 consecutive non-curtailment period before the SE value is reflected as the Effective EcoMax.

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Summary of Initiative/Endorsed Package

- To help minimize volatility, resources will limit ramp rates no greater than 20% ICAP value per minute for wind and solar resources.
- Effective EcoMax will be utilized in both the dispatch and pricing runs.
- No changes to market settlement or intra-day offer rules.
  - Make whole / deviation charges remain status quo and will be based on Bid-in EcoMax.

Reminder: All dispatchable (Economic or Must-run) resources are expected to submit accurate bid-in parameters, including ramp rates, and follow PJM's dispatch signal for target time as closely as possible.

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Example 1 - Unit Operating Above Bid-In EcoMax

Interval	SE (MW)	Curtailed	Forecast MW	Bid-In EcoMax (MW)	Effective EcoMax (MW)	Calculated Base Point	Curtailed	Description
Type	Input	Input	Input	Input	Input	Output	Output	
1	0	0	0	100	0	0	0	Unit is offline
2	50	0	75	100	50	50	0	Unit is online, dispatchable up to Effective EcoMax, which is equal to the SE value because the unit was not curtailed in the previous interval.
3	110	0	75	100	110	110	0	Unit continues to produce more MWs, since it was not curtailed in the previous interval, continues to be dispatchable up to effective EcoMax, which is the SE value at this point.
4	95	0	95	100	95	95	0	Effective EcoMax continues to be based on the solved SE value since it was not curtailed in the previous interval.

*Since unit is not curtailed, Effective EcoMax = SE Value.

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Example 2 – Transition Period

Interval	SE (MW)	Curtailed	Forecast MW	Bid-In EcoMax (MW)	Effective EcoMax (MW)	Calculated Base Point	Curtailed	Description
Type	Input	Input	Input	Input	Input	Output	Output	
1	110	0	75	100	110	85	1	1)Unit providing above bid-in EcoMax. 2)Assume constraint binds and SCED needs to move the unit down to 85MW. 3) Unit was not previously curtailed. Effective EcoMax would be up to 110MW.
2	90	1	95	100	100	85	1	1) Constraint continues to bind. 2) Unit moves down but not enough. 2) Resources continues to be dispatched to 85 MW. 3) Unit continues to be curtailed since it is not dispatched up to Effective EcoMax (assuming economic would have allowed it to be).
3	85	1	95	100	100	100	0	1) Unit moves down to 85 MWs, constraint no longer active. 2)Effective EcoMax formula in place because resource was previously curtailed within 2 RTSCED cases. 3) Resource dispatched up to calculated EcoMax, 100MW 4) **Transition period.**
4	90	0	95	100	100	100	0	1) Constraint no longer active. 2) Effective EcoMax formula in place because resource was previously curtailed within 2 RTSCED cases. 3) Resource dispatched up to calculated EcoMax, 100MW 4) **Transition period.**
5	110	0	95	100	110	110	0	1) Constraint no longer active. 2) Effective EcoMax formula changes to reflect SE is no longer curtailed for 2 consecutive approved RTSCED cases. 3) Resource is dispatched up to SE MW, 110MW.

When previously curtailed* = Effective EcoMax = Max (SE, Forecast, Bid-in EcoMax)

***This formula will be in place for 2 consecutive non-curtailment period.**

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Preparation By Generation Owners

- Wind and Solar resources will no longer be dispatched based on their bid-in parameters.
  - The basepoint will reflect the solved State Estimator value when resource is not curtailed.
  - When curtailed, resources must follow PJM basepoint.
- The curtailment signal will provide real-time indication of a unit output being curtailed by PJM.
- The approach removes resources from inadvertently being curtailed via RTSCED due to stale bid-in parameters.
- Resources are expected to ramp linearly and no more than 20% of the resource's ICAP value per minute.

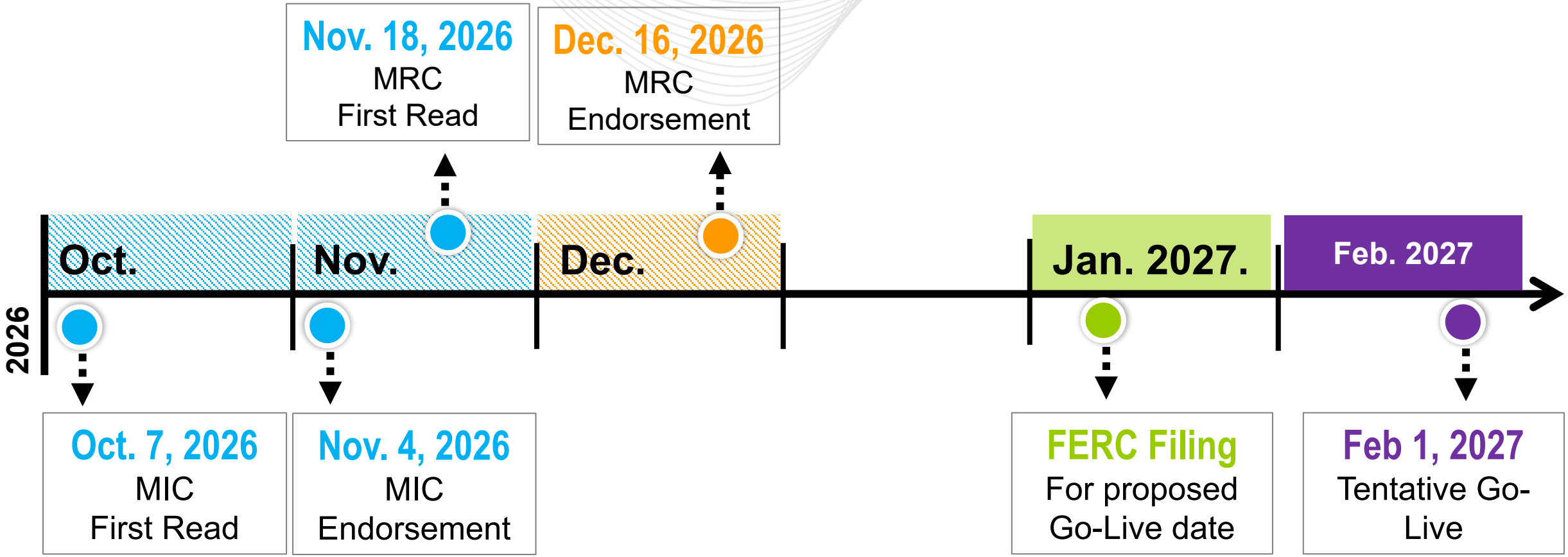
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Next Steps

- Gen owners/operators of Wind or Solar generation in PJM that are not utilizing the curtailment flag to follow PJM basepoint need to reach out to PJMTelemetrySupport@pjm.com to request the additional telemetry setpoints over existing ICCP or DNP SCADA links.
  - The curtailment flag has been available since December 2025.
  - Resources do not need to wait until go-live to subscribe to the additional telemetry point.

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Review/Endorsement Timeline



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Governing Document Changes

- Tariff, Attachment K-Appendix, section 2.4
- Operating Agreement, Schedule 1, section 2.4
- Manual 11
- Manual 14D

- **Approved Definition:** "Effective Economic Maximum" shall mean the highest incremental MW output level for a wind or solar resource based on either (1) the State Estimator MW value for such resource or (2) if the resource has been curtailed in previous Real-time Settlement Intervals as further described in the PJM Manuals, the greater of the resource's State Estimator MW value, Economic Maximum, or PJM's forecast for the output that such resource can achieve while following economic dispatch.

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Governing Document Changes - M11

Section	Description
2.3.12	New section provides summary of Market Participant expectations for resource parameters.
2.5.3.6	New section describes the formulation of Effective Economic Maximum and how it is applied to Wind and Solar resources in Real-Time SCED.
2.6	Updated that the State Estimator solution may be used in determining the Effective Economic Maximum.
2.7.1	Effective Economic Maximum will be used for Fast Start Pricing where applicable.
4.2.3	Effective Economic Maximum will be used for any approved Wind and Solar resources to determine their capability for Ancillary Services.

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Governing Document Changes - M14D

Section	Description
8.1	Wind Farm Requirements: Restored reference to available “Curtailment Indicator”.
12.1	Solar Farm Requirements: Added reference to available “Curtailment Indicator”.
Attachment L	Jointly Owned Resource Communication: Restored reference to “Curtailment Indicator”.
Attachment M	Wind and Solar Unit Dispatchability Check List: Revised language and guidance to include the available curtailment flag for wind and solar resources; added a reference to post-dispatch guidance in PJM Manual 11: Energy & Ancillary Services Market Operations.

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