



Update on Renewable Dispatch

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Operating Committee
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- LOC/Governing Documents
- Curtailment indicator sent to resources
- Following dispatch/Updating resource parameters to PJM
- Metrics to provide insight into renewable operations

- LOC for wind in place
 - Settlements for LOC based on PJM's wind backcast

- LOC for solar filed
 - PJM implementation of LOC for solar currently targeting End of summer/Early fall for completion
 - Manual 28 changes will be aligned with this implementation

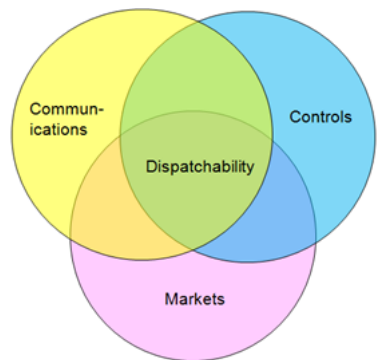
- ❑ Curtailment indicator or curtailment flag that is currently sent out to wind resources targeted to stop at the end of summer/early fall trying to align with LOC implementation timeframe
- ❑ Creating independent curtailment indication for resources will need to take into account 2 steps to verify
 - ❑ Resource's expected economic maximum matches the economic maximum(GENMAXEN) PJM has in Markets Gateway
 - ❑ Mismatch: Update Markets Gateway with new economic maximum
 - ❑ Compare PJM's SCED economic basepoint(GENECON) to the resource's MW output
 - ❑ SCED basepoint < MW output

PJM Generator Telemetry List – <https://pjm.com/-/media/planning/services-requests/generator-telemetry-list.ashx>

Attachment M: Wind and Solar Unit Dispatchability Check List

Communications

1. The **unit must send active MW; Wind Speed, Wind Direction, Temperature, and Pressure for wind farms; Solar Irradiance and Back Panel Temperature for solar parks via SCADA/ICCP**; values sent to PJM cannot be static or flat-lined for an extended period of time and must be within reasonable limits.
2. The **unit must electronically receive control signals, including Economic Basepoint and the Generator On Reason (GENRUNR)**.



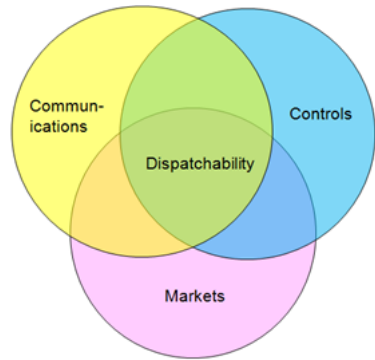
Controls

1. The **unit must be capable of following electronic control signals as received**, i.e. have the physical controls in place to throttle their generation or processes to remove equipment from service. **Control signals include Economic Basepoint and the Generator On Reason (GENRUNR)**.

Attachment M: Wind and Solar Unit Dispatchability Check List

Markets

1. All units should follow their Economic Basepoint, even when curtailed by SCED.
2. The unit must electronically receive control signals, including Economic Basepoint and the Generator On Reason (GENRUNR).
 - a. Specifically for wind or solar resources, economic/emergency limits, and Fixed Gen flag status should be updated every 5 minutes or as forecast changes require for RTSCED (T+15 minutes). Hourly parameter updates for economic/emergency limits, and Fixed Gen flag status should be updated every 5 minutes or as forecast changes require for ITSCED (T+2 hours).
 - b. Specifically for wind or solar units, Economic Basepoint should be updated every 5 minutes or as forecast changes require for RTSCED (T+15 minutes). Hourly parameter updates for economic/emergency limits, and Fixed Gen flag status should be updated every 5 minutes or as forecast changes require for ITSCED (T+2 hours).
 - c. Specifically for wind or solar units, Eco Max should be greater than or equal to unit output ($\text{Eco Max} \geq \text{Output}$). Eco Max should be updated every 5 minutes or as often as necessary to reflect the current maximum output of the unit to ensure an accurate dispatch signal and proper accounting for PJM's ITSCED.



- ❑ Operations and Market issues due to not following PJM dispatch and updating parameters
 - ❑ Incorrect higher eco max than expected by SCED
 - ❑ ACE(power balance) control
 - ❑ Accounting for MW that will not be provided
 - ❑ Incorrect lower eco max than expected by SCED
 - ❑ Constraint control
 - ❑ Not accounting for MW being produced above eco max
 - ❑ Creates LMP swings
 - ❑ Associated with system constraints and SCED accounting for inaccurate generator parameters

- Currently developing dashboards to monitor wind/solar metrics
 - Wind/solar ability to follow PJM's dispatch
 - PJM wind/solar forecast accuracy
 - Incorporate in other PJM tools and analysis when applicable

- Other metrics?

1	2	3
<p>Resources should be updating economic limits 4-12 times an hour as a best practice</p>	<p>Following PJM's SCED economic dispatch, not independently following real time pricing.</p>	<p>Curtailment indication sent by PJM will be going away end of summer/early fall 2024</p>

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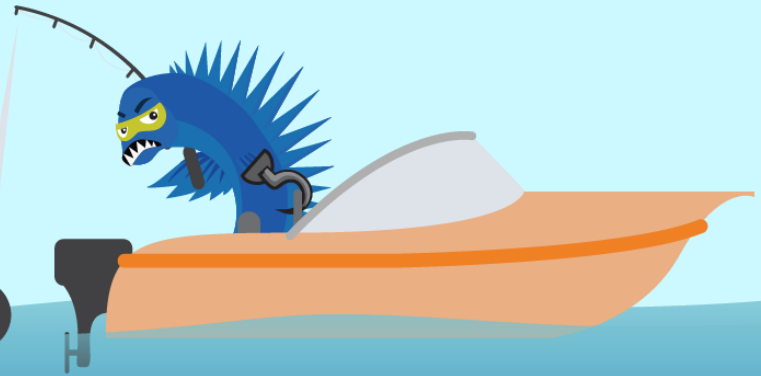
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POWER GRID**

**THINK BEFORE
YOU CLICK!**



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MALICIOUS PHISHING
EMAILS**



**Report suspicious email activity to PJM.
Call (610) 666-2244 or email it_ops_ctr_shift@pjm.com**