Understanding the Settlement impacts of “Effective Eco Max” within DISRS proposal

Distributed Resources Subcommittee
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Settlements Impact of Proposal

- Package A proposes to effectively update the bid-in Economic Max value considered in RTSCED for Solar and Wind resources.
- The bid-in Economic Max influences several key calculations in Operating Reserve Settlements as illustrated in the following slides
- No settlements changes were included in the package, which means bid-in Economic Max, rather than the Effective Eco Max will be used in settlements
- The following slides illustrate impacts of continuing to use bid-in Economic Max in Settlements.

Status Quo and Use of Eco Max in Operating Reserves

Desired MW Type	Status Quo	Proposal (use of Effective Eco Max) absent any Settlement Changes	Impacts
Ramp-limited Desired (RLD)	Output level that a resource should have achieved *between* Dispatch Signals. The Dispatch Signal is a direct input. The calculated RLD is capped at bid-in Economic Max in Settlements.	Because the dispatch signals are proposed to use the Effective Eco Max, the Effective Eco Max is inherently used in calculating the RLD MW. The RLD will continue to be capped at bid-in Economic Max in Settlements.	The cost of the MWs produced above bid-in Eco Max may not be compensated through make whole or LOC. *This is the same as how it works today.*
Dispatch signal MW or Basepoint MW	Output level requested via the dispatch basepoint bound by bid-in Eco Min and Eco Max. This value is issued by PJM's real-time dispatch tools. The Dispatch signal is capped at bid-in Economic Max in Settlements.	Because the dispatch signals are proposed to use the Effective Eco Max, the dispatch basepoint will be bound by the bid-in Eco Min and Effective Eco Max. The Dispatch signal will continue to be capped at bid-in Economic Max in Settlements.	The cost of the MWs produced above bid-in Eco Max may not be compensated through make whole or LOC. *This is the same as how it works today.*
Dispatch LMP Desired	Output level based on the dispatch run LMP and the incremental offer curve. This value is not ramp limited. The Dispatch LMP Desired is capped at bid-in Economic Max in Settlements.	The Dispatch LMP Desired will continue to be capped at bid-in Economic Max in Settlements.	The cost of the MWs produced above bid-in Eco Max may not be compensated through make whole or LOC. *This is the same as how it works today.*

Any settlement impacts of the change to use Effective Eco Max in SCED can be minimized by updating the bid-in Economic Maximum to reflect real-time operating conditions.

Lost Opportunity Cost (LOC) Structure

- Wind and Solar resources are eligible for LOC when manually dispatched down
  - LOC = (LOC MW * LMP) – Total Offer Cost
  - LOC MW amount is determined by the following
    - Minimum of (LMP Desired MW (*PJM Calculated*), Backcast (*Vendor calculated*), Max Facility Output (MFO))

      Minus

    - Actual MW

LOC Example

Given: Ramp Rate= 200 MW/min, Offer = $0, RTLMP = $50, Ramp Interval = 5 Minutes, MFO = 115

Scenario	Description	SE (MW)	Previous case Curtailed	Backcast	Bid-In EcoMax (MW)	Effective EcoMax (MW)	Dispatch Signal	LMP Desired	LOC	Take Away
Type		Input	Input	Input	Input	Input	Output	Output	Settlements	Settlements
1	Status Quo	0	0	110	100	N/A	0	100	MIN(110, 100, 115)*LMP	N/A
2	Effective EcoMax	0	0	110	100	0	0	100 *If LMP Desired considered Effective Eco Max, LMP would be 0.*	MIN(110, 100, 115)*LMP	LMP Desired is not capped by Effective EcoMax, allowing the reduction in Energy from LMP Desired to the Actual MW (100 MW) to be compensated for LOC. If Effective Eco Max was used in this calculation, LOC would be $0 (LOC MW = Effective Max = 0 MW)

*LOC is only paid when the resource is manually dispatched down by PJM dispatch

Key Takeaways

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Settlement impacts from implementing Effective Eco Max in SCED can be minimized by aligning the bid-in Economic Maximum with real-time operating conditions.	Modifying how the bid-in Eco Max is applied in settlements could reduce the incentive to keep bid data up to date, potentially resulting in inconsistent settlement treatment across resource types	If resources are treated differently from a settlement perspective, a broader analysis should be conducted to ensure that incentives to maintain accurate bid data and follow dispatch instructions remain effective. Evaluating such changes as part of the planned next phase of this initiative would be appropriate.

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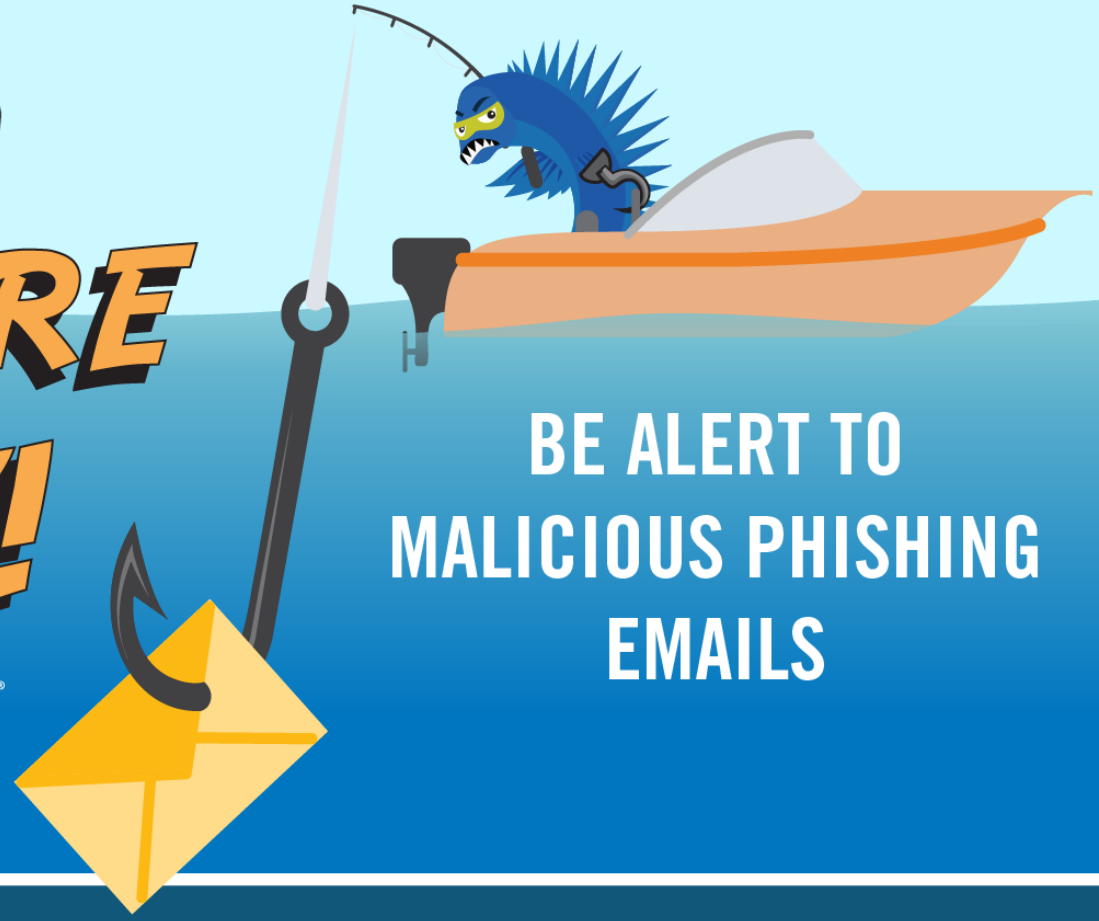

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