

A decorative graphic consisting of several thin, overlapping, wavy lines in shades of grey and white, positioned at the top of the slide.

# Lost Opportunity Cost Credit Overview

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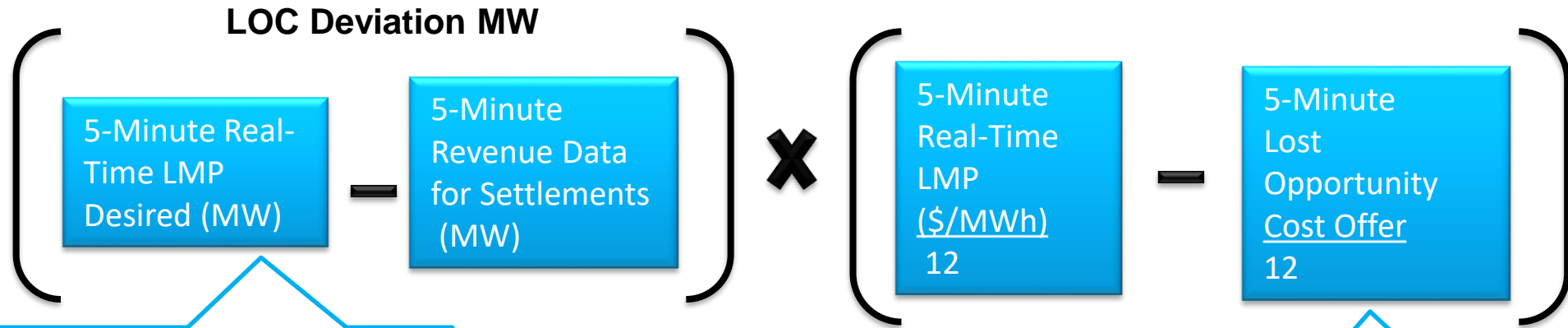
- Generators whose output is reduced or suspended for reliability may be eligible for Lost Opportunity Cost (LOC) credit
  - PJM Dispatch logs a generator for “manual dispatch” with a reason code
  - PJM Settlements evaluates the reason code to determine LOC eligibility
- Pool scheduled resources are compensated using the *higher* of: Committed Offer & Final Offer
- Wind units must have an established process to follow PJM dispatch signals to be eligible for LOC credits

## Lost Opportunity Cost (LOC) Credit

- Flexible Resources are also eligible for LOC credit if committed Day-Ahead but not operating in Real-Time per PJM dispatch instructions
- Flexible Resources are defined as having
  - Combined startup and notification time less than or equal to 2 hours
  - Min Run time less than or equal to 2 hours
- Flexible Resources are not eligible for LOC if Real-Time Offer is greater than Day-Ahead Committed Offer

# LOC Credit for Pool Scheduled Generators

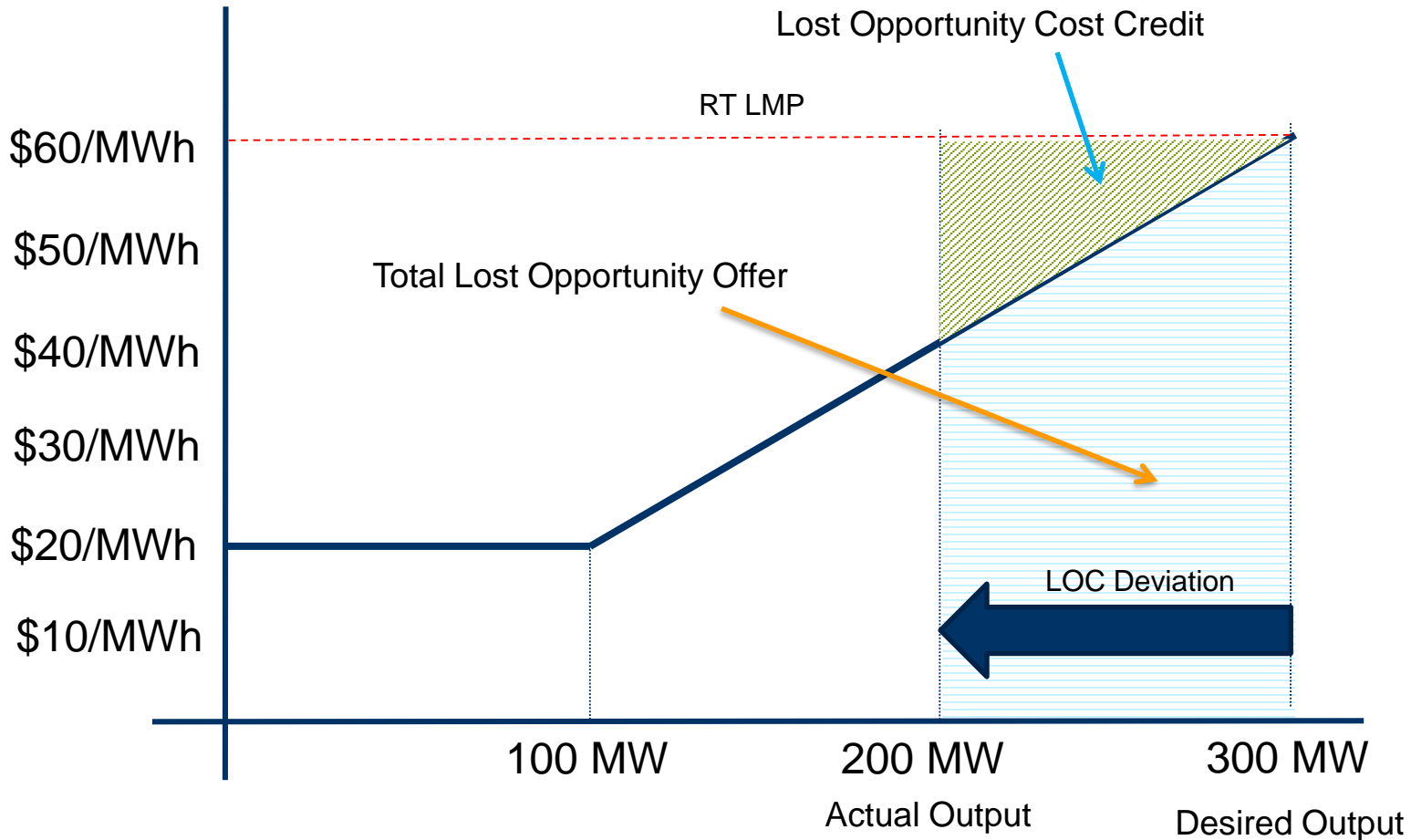
- LOC Credits are calculated for each eligible 5-minute interval
- If result is negative, credit is \$0



- Determined using schedule on which unit is dispatched and 5-minute LMP
- Adjusted for effective 5-minute Regulation and Synchronized Reserve Assignments
- Capped at 5-minute economic max or Maximum Facility Output (MFO)
- Capped at 5-minute wind forecast for wind generators

- Does not include no-load and startup cost
- Offer is additional cost unit would have incurred if operating at LMP Desired MW (\$/Deviation MW amount)

# Pool Scheduled Generating Unit Reduced for Reliability



———— **Committed Offer**

EcoMax = 300 MW

EcoMin = 100 MW

RT LMP = \$60

Lost Opportunity Cost Credit

$$= (\text{LOC Deviation} * \text{RT LMP}) - \text{Total Lost Opportunity Offer}$$

$$= (100 \text{ MW} * \$60/12) - \$5000/12$$

$$= \$83.33$$

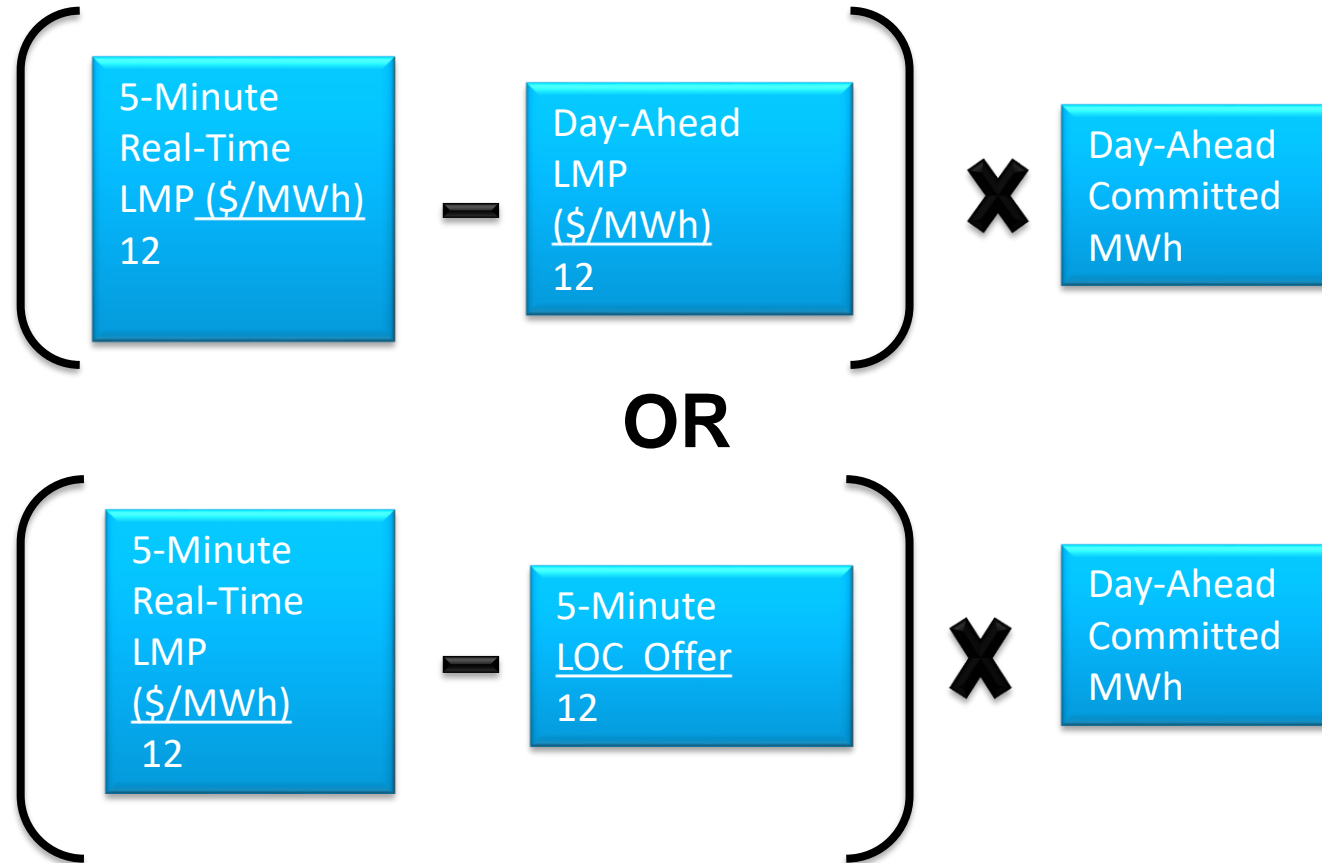
- Voltage Limits at a Generators and other non-PJM OATT facility
  - Transmission Owner or PJM Member can request PJM to operate for any requested voltage limits at a specific bus that are identified as more restricting than the PJM Baseline Voltage Limits
  - These requested voltage limits are submitted using the Manual-03 Attachment C form
  - PJM will evaluate these limits for reasonableness and inform the requestor
  - The PJM Member will be billed for any “Off-Cost” operation

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# Appendix

# LOC Credit for Flexible Resource Committed Day-Ahead Not Operating in Real-Time

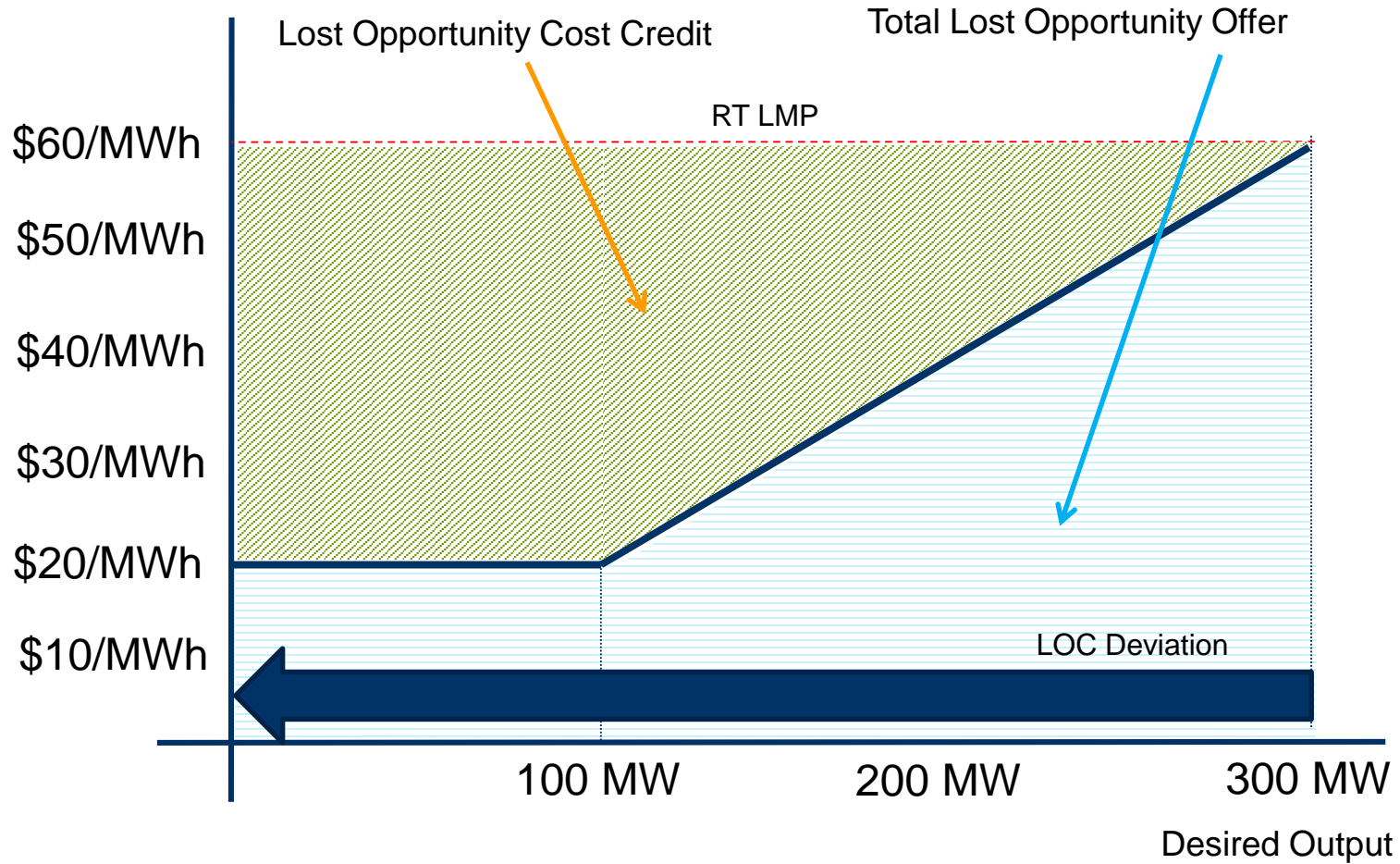
Each 5-minute interval LOC Credit is higher of ...



- LOC Offer**
- 5-minute offer includes no-load and startup cost
  - Startup cost excluded if resource operates in Real-Time in a 5-minute interval that coincides with Day-Ahead commitment
  - Offer is additional cost unit would have incurred if operating at DA MW (\$/DA MW amount)
  - If result is negative, credit is \$0



# Flexible Resource Committed in DA, Not Called in RT



**Committed Offer:**

EcoMax = 300 MW

EcoMin = 100 MW

RT LMP = \$60

No-load cost = \$100

Start-up cost = \$500

Unit is committed Day-ahead for 5 hours, but does not operate in Real Time.

**Lost Opportunity Cost Credit**

$$\begin{aligned}
 &= (\text{Day-ahead MW} * \text{RT LMP}) - (\text{Total Lost Opportunity Offer} + \text{no-load} + \text{start-up}/5) \\
 &= (300 \text{ MW} * \$60/12) - (\$10000 + \$100 + \$100)/12 \\
 &= \$650
 \end{aligned}$$

### 3.5.4 Addressing Voltage Limits at Generators and other Non-PJM OATT Facilities (including Distribution)

- For a limitation at a Generator, Generation station facility, or other non-PJM OATT facility, either the Transmission Owner or PJM Member can request PJM to operate for any requested voltage limits at a specific bus that are identified as more restricting than the PJM Baseline Voltage Limits.
- These requested voltage limits are submitted using the Manual-03 Attachment C form.
- PJM will evaluate these limits for reasonableness and inform the requestor.
- 
- The PJM Member will be billed for any “Off-Cost” operation.