

Recap and Dispatch Methodology

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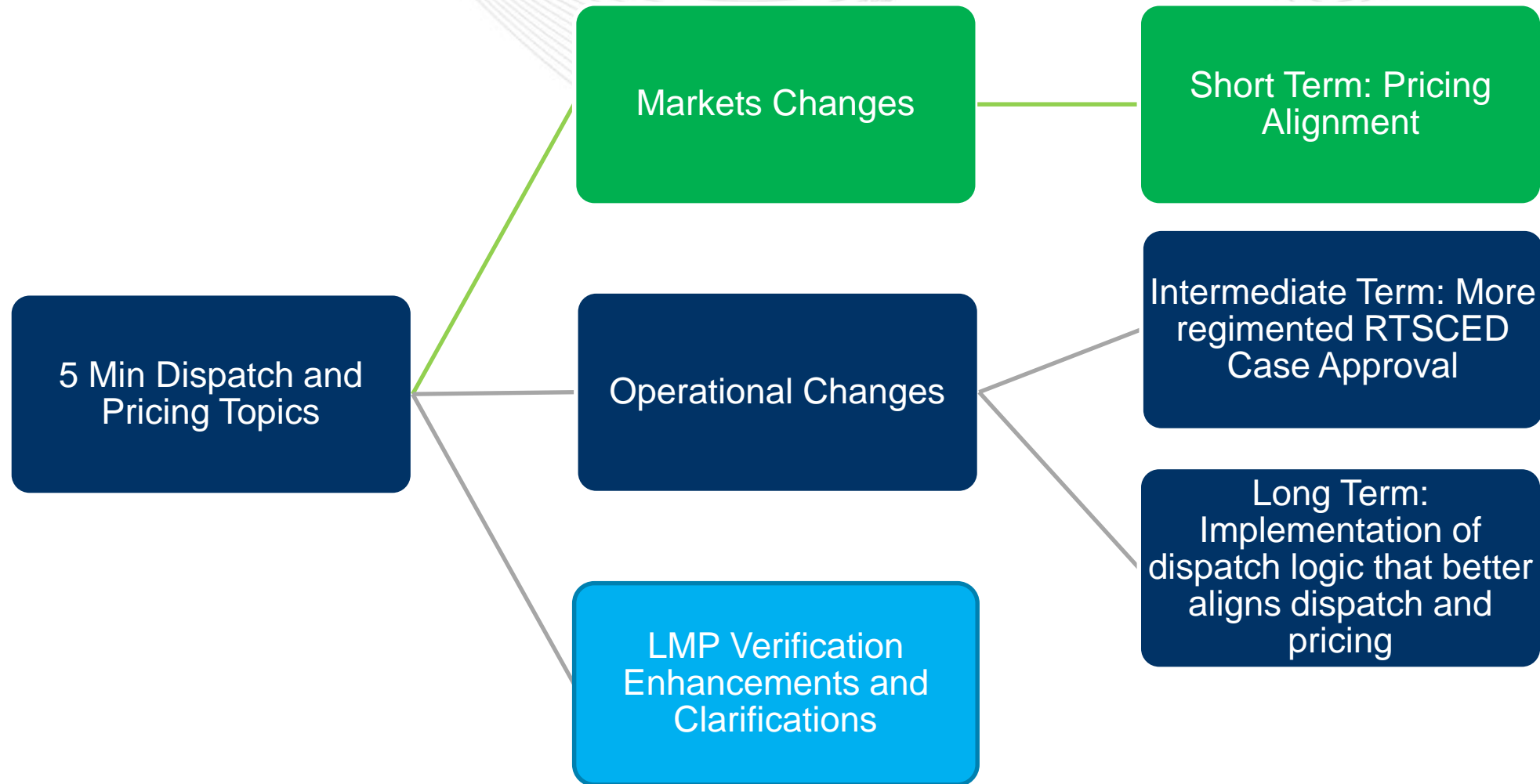
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5 Minute Dispatch and Pricing

MIC Special Session

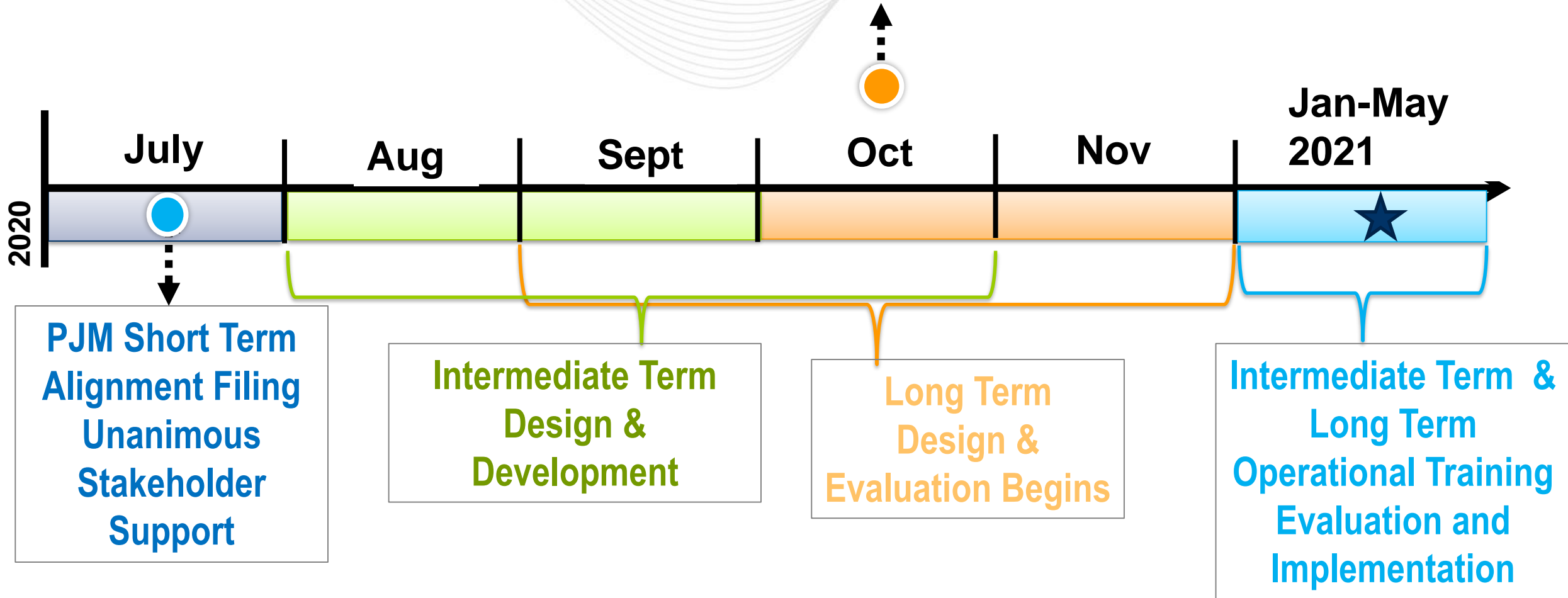
10/27/2020

PJM Path: Treat Efforts as Separate Work Streams



5 Minute Dispatch and Pricing Timeline

Short Term Go Live 10/15



- RTSCED
 - 10 Minute Look Ahead
 - 10 Minute Ramp
 - Auto-executed every 5 minutes or manually on demand
 - Manual case approval ~5 minutes
- LPC
 - LPC uses the approved RT SCED case for the **same target interval** as its reference case
 - LPC is executed every 5 minutes in real time. Kicks off **90** seconds after the target interval
 - LPC case for 10:15 interval kicks off at 10:16:30

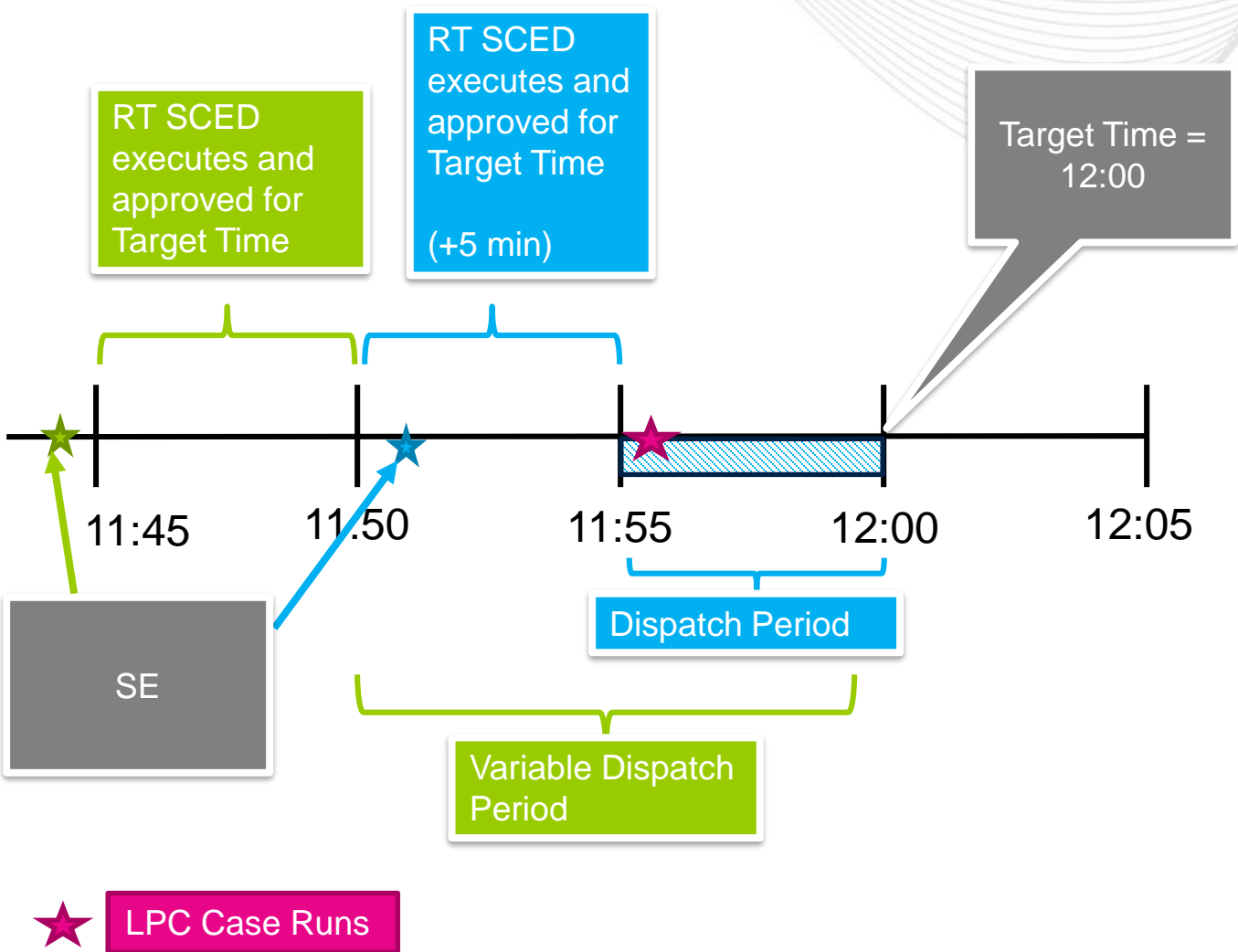
Current SCED vs. Proposed Long-Term SCED Implementation

Current SCED Execution

- RTSCED cases auto-execute every 5 minutes, 10 to 14 minutes prior to target time or manually executed
 - RTSCED cases are manually approved at dispatcher discretion
- The most recent SE MW is used for initial MW and adjusted by unit's ramp rate to determine 10 min dispatch value

Long-Term SCED Execution Under Investigation

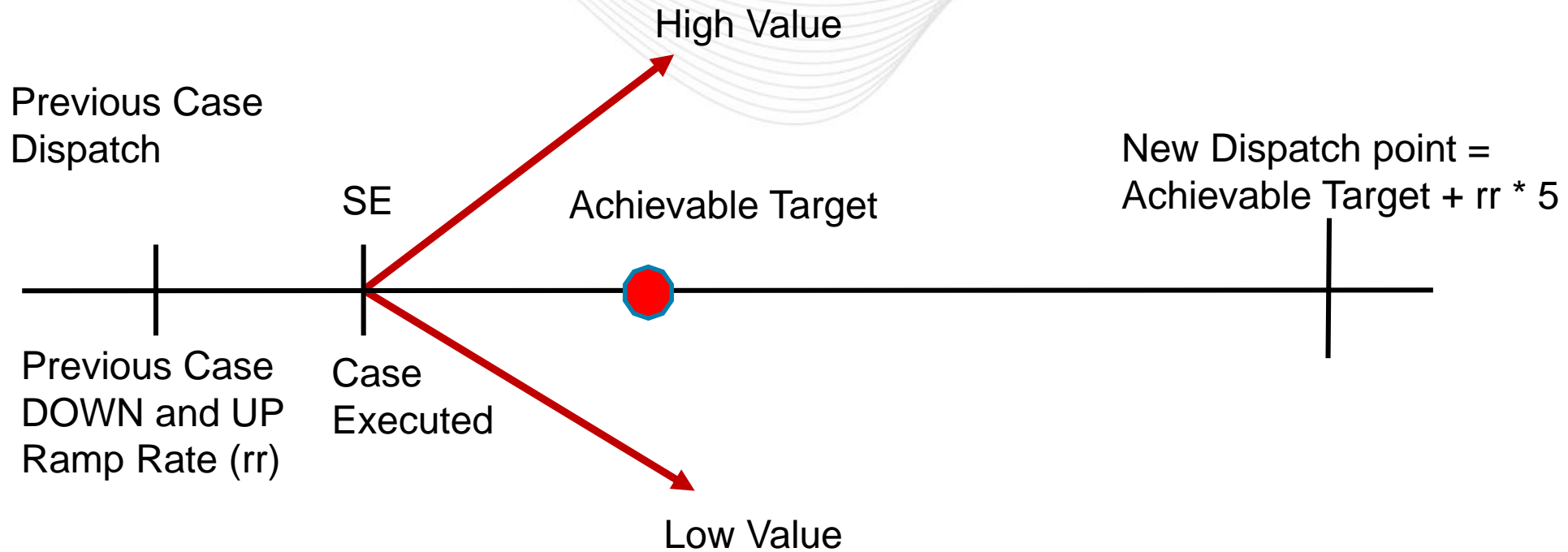
- RTSCED cases will auto-execute every 5 minutes, 8 to 10 minutes prior to target time
 - Dispatch Signal sent out at 11:55
 - If a RTSCED case is not manually approved for a target dispatch interval, one will be automatically approved at a specified time or deadline prior to the start of the dispatch interval
- The initial MW for the 11:55 case will be adjusted for feasibility using the previous dispatch MW, 11:50 approved case, as an input



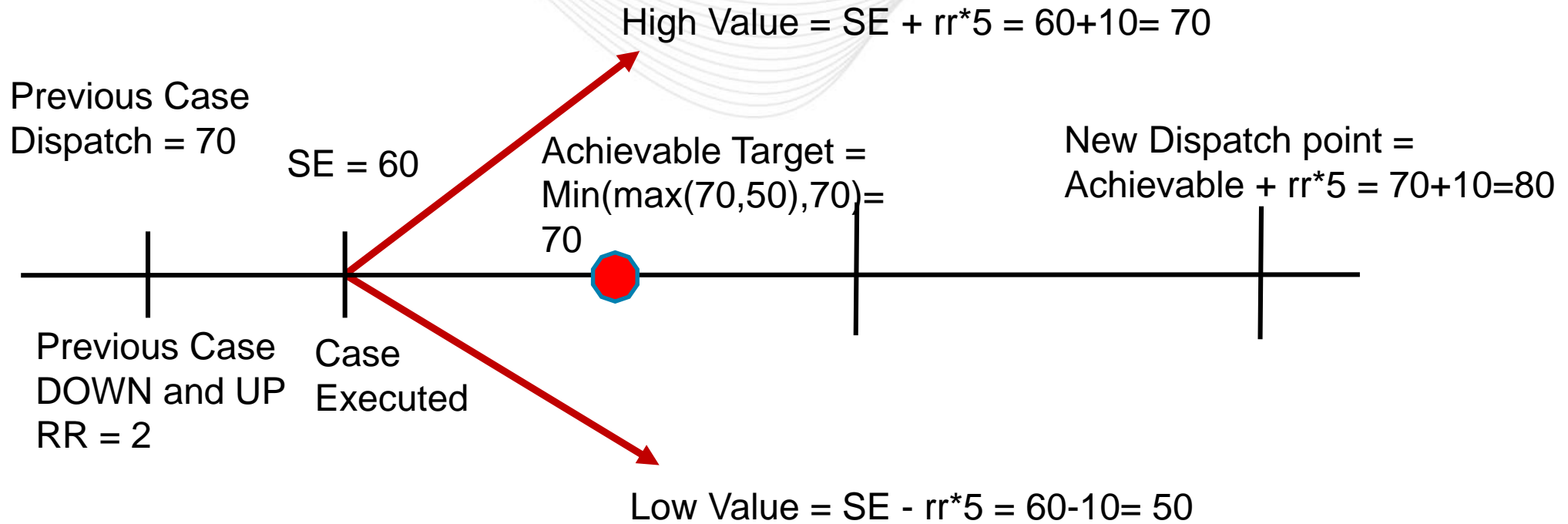
- If a RTSCED case is not manually approved for a target dispatch interval, a case will be automatically approved at a specified time prior to the start of the dispatch interval
 - Specified time of approval is aligned with beginning of dispatch period (e.g. dispatch period 12:00-12:05 case is approved at 12)
 - If no case is approved by dispatch, the auto-approval function will use the same case scenario as the previously approved case
- In the event of a poor data input or reliability concern, PJM Dispatchers will have ability to disable auto-approval feature
 - If no case is selected and the auto-approval is disabled the previous case will be carried forward for LMP pricing (same as today)

- 10 Minute Look Ahead with a 5 Minute Ramp
 - Uses the first 5 minutes of the look ahead period to recalculate an **achievable previous target** MW, which is then used as the starting point to calculate the dispatch basepoint over the second 5 minutes of the 10 minute look ahead period. SE MW is used at the starting point in the calculation of achievable previous target MW
 - The unit will then be ramped over 5 minutes to it's next dispatch point
 - Each segment builds upon each other based on the projected output of the unit.

General Envelope Diagram and Formula



$$\text{Achievable Target} = \text{Min} (\text{MAX}(\text{previousCaseDispatch}, \text{SE MW} - \text{previous down RR} * 5), \text{SE MW} + \text{previous up RR} * 5)$$



Envelope Example 2 (Reserves)

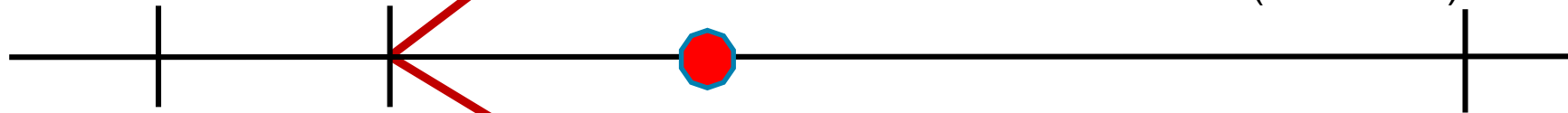
ECOMAX = 100 Reserve Capability = 2 mw*10= 20

Previous Case
Dispatch = 70

SE = 60

Achievable Target = 70

New Dispatch point if cleared
for Reserves = 70 - 10
(Reserves) = 60

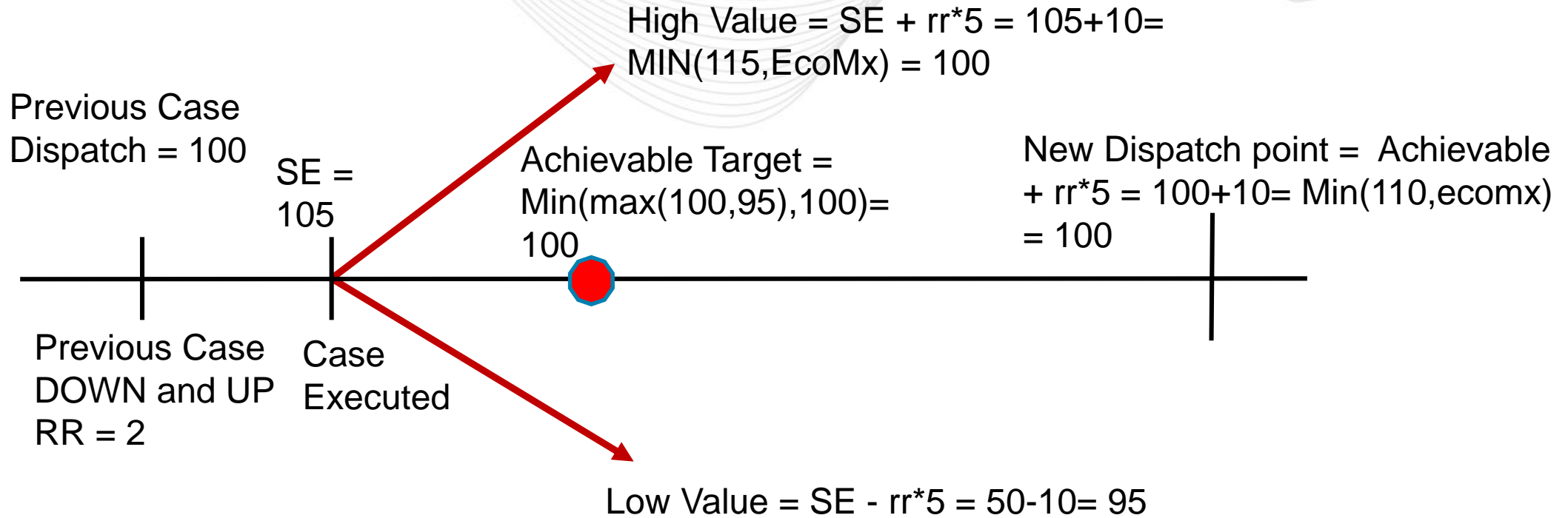


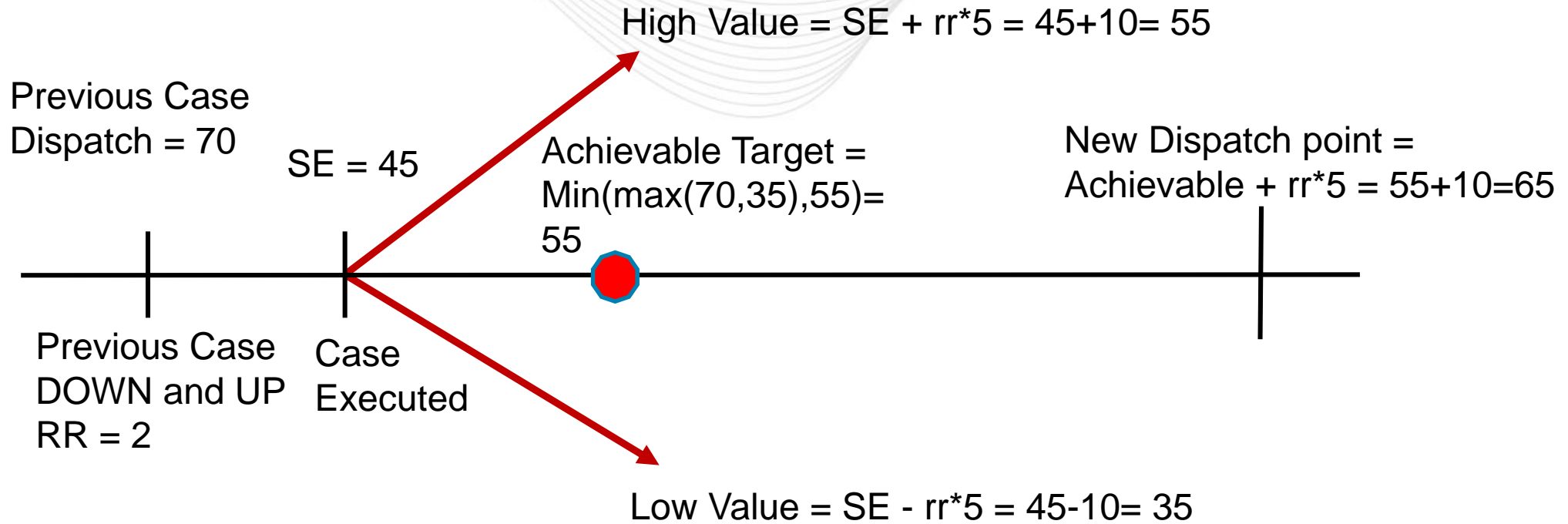
Previous Case
DOWN and UP
RR = 2

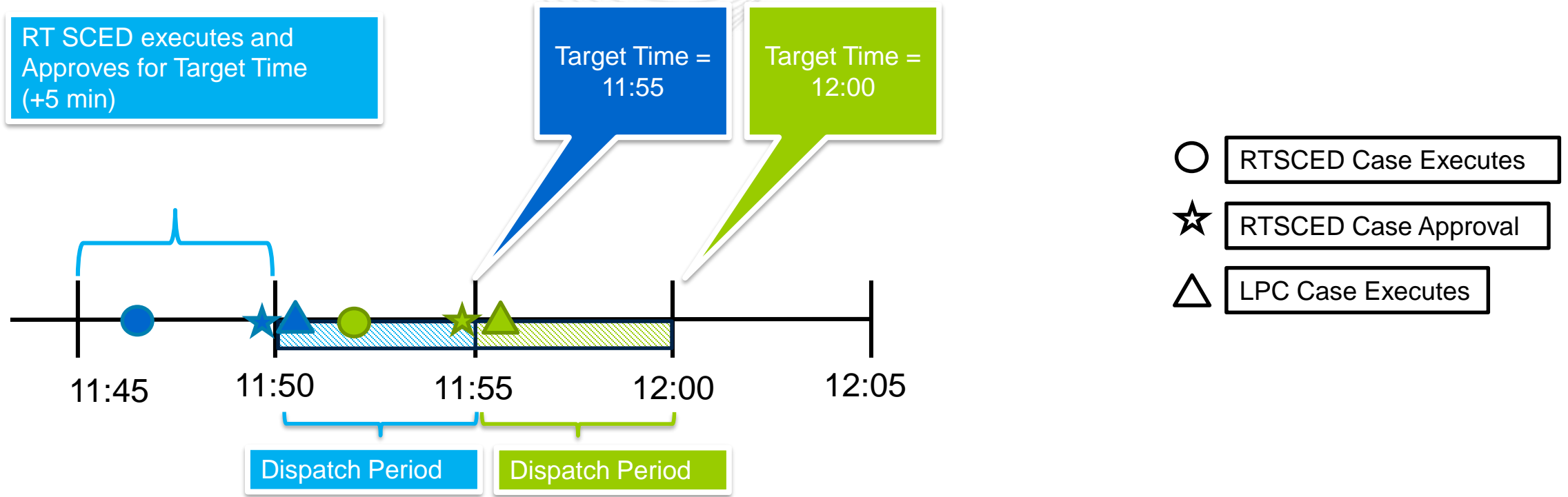
Case
Executed

Reserve RR = 2

Eco Max = 100







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