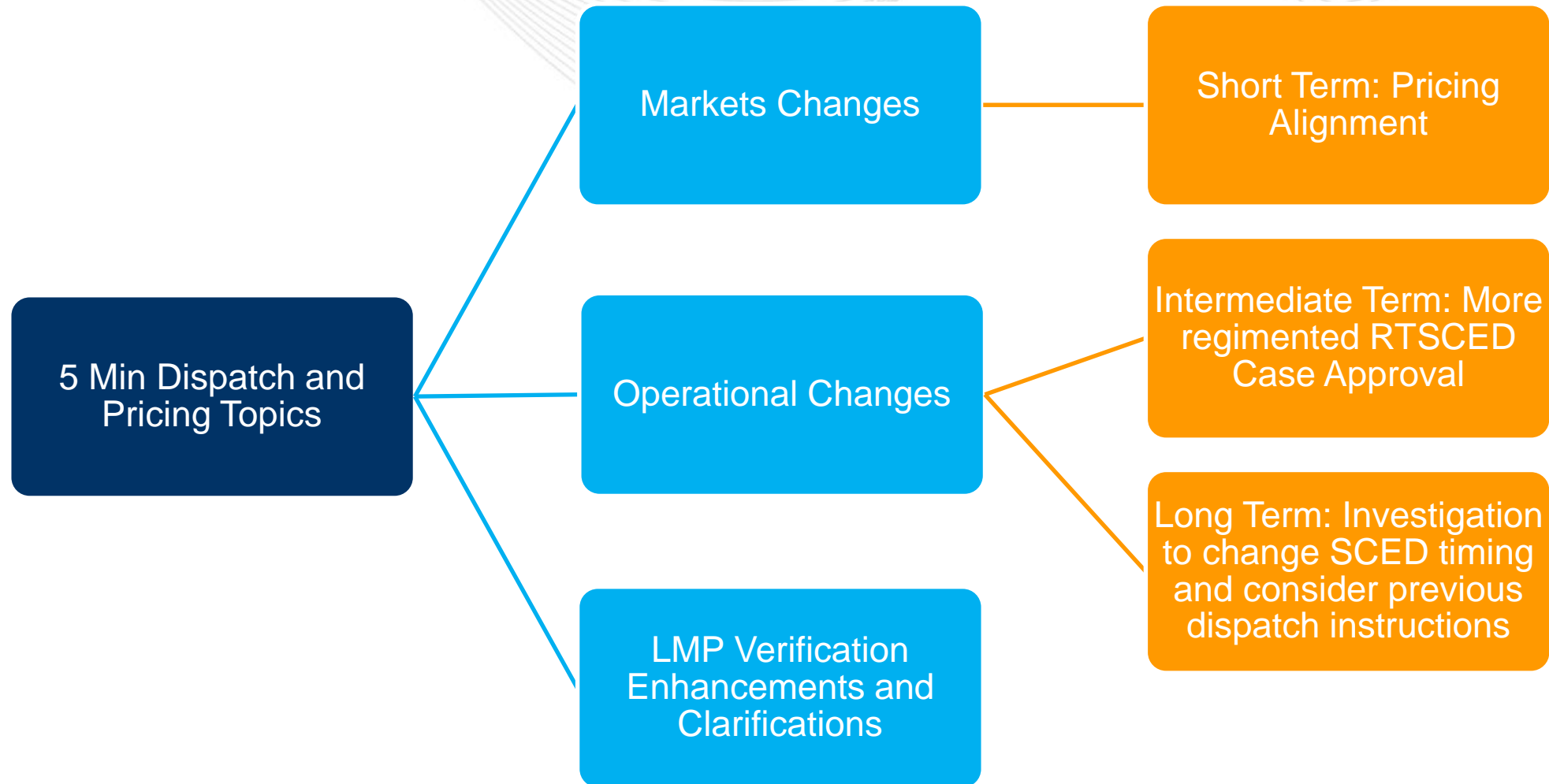




# Status Update and PJM Package Highlights: 5 Minute Dispatch and Pricing

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MIC Special Session  
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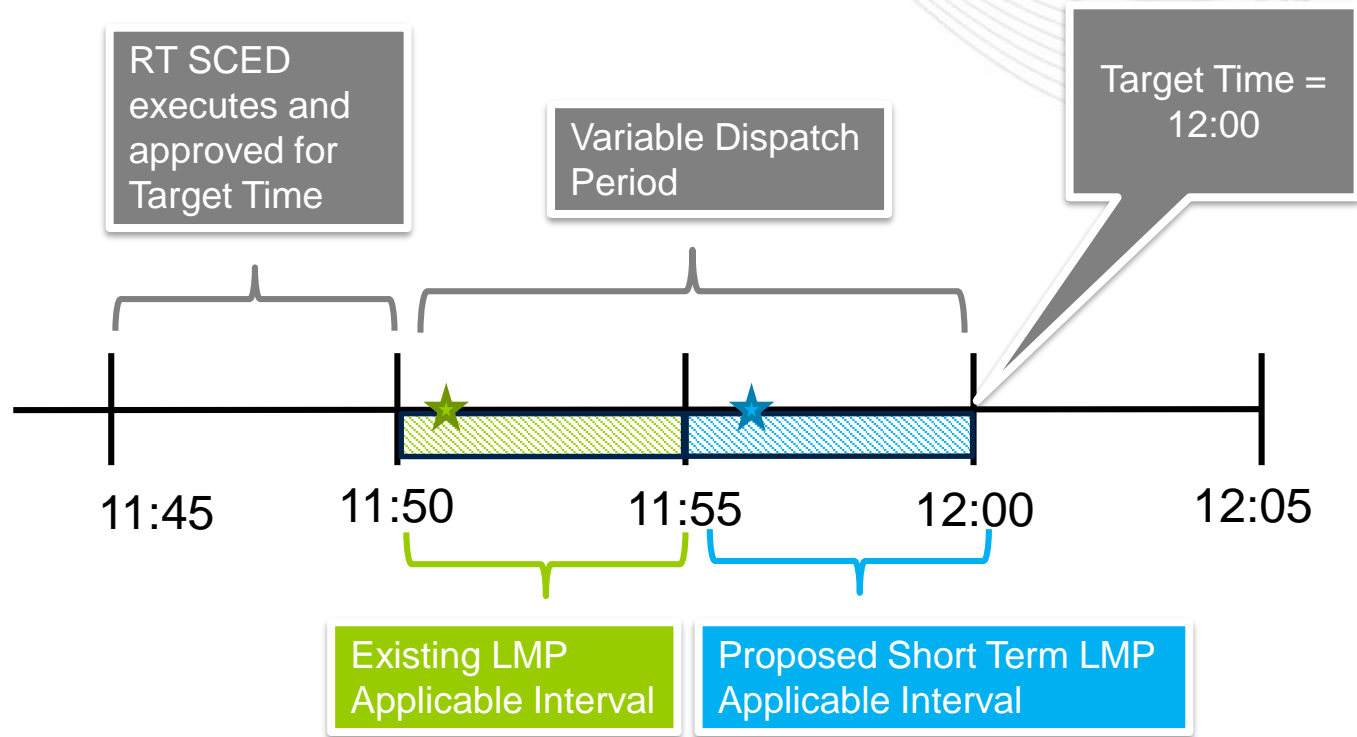
# PJM Path: Treat Efforts as Separate Work Streams



## Short Term Changes: Pricing Alignment

- Subset of original package focused on Pricing Alignment
- PJM committed to these changes
- PJM's legal view is short-term changes achieve FERC directive for Fast Start

- Align LPC to use the reference RTSCED case for the same target time
  - Example: LPC calculates prices for interval from 11:55 to 12:00 using RT SCED solution with target time 12:00
  - Execute LPC cases every five minutes after the start of dispatch interval. Therefore, a delay of approx. 5-6 minutes will occur between when the RTSCED case is approved and priced
- Resource Offers, Parameters and Ancillary Service assignments corresponding to the interval ending at the target dispatch time are used as input to the RTSCED Case
  - Example: Offers for 11:00 to 12:00 will be effective up to and including the 12:00 target time, Offers 12:00 to 13:00 will be applied to dispatch target time of 12:05
- LPC will use the most recently approved RTSCED case prior to target time if no approved RTSCED case exists for the same target time



- ★ Existing LPC case execution time
- ★ Proposed LPC case execution time

## SCED Changes:

- Hourly Offer Curves for 11:00 hour used instead of 12:00 hour
- Inflexible Sync Reserve and Regulation awards determined by ASO for 11:00 hour instead of 12:00 hour

## LPC Changes:

- Align LPC to use the latest approved RT SCED case for the same target time (interval ending)
- LPC case executed at a predefined time, shortly after the start of dispatch interval
  - I.e. the LMP for 11:55 - 12:00 is calculated at 11:56:30

- The objective is to execute and approve one RTSCED case for each 5 minute dispatch target time subject to minimal deviations
  - Auto execution of RTSCED cases changes from every 4 minutes to every 5 minutes
  - Additional cases may be manually executed and approved as needed by dispatch
  - PJM will transition to this state through operator training and software changes
- May include changes to ancillary service requirements or other items necessary to accommodate less frequent dispatch cases
- PJM **is committed** to this implementation
  - Tentative timeline to be developed for May MIC

PJM will continue to evaluate the impact and benefits of these long term changes

- RTSCED cases will auto execute every 5 minutes with a target time of 10 minutes into the future
  - The initial MW for the new case will be adjusted for feasibility using the previous dispatch MW as an input
- RTSCED Case Approval
  - If a case is not manually approved by dispatch for a target time, a case will be automatically approved at a specified time or deadline prior to the start of the dispatch interval
  - A case may not be approved for target time at dispatcher discretion
    - Additional transparency provided when RTSCED cases are not approved for a target time
- Additional changes to Ancillary Service products may be required to support these long term changes



- Benefits and impacts to Operations require further evaluation
  - Changes impact Operator actions
  - Consider parallel or incremental implementation approach
  - Prioritization with other on going efforts
  
- Updates to be provided as appropriate to Stakeholders and IMM



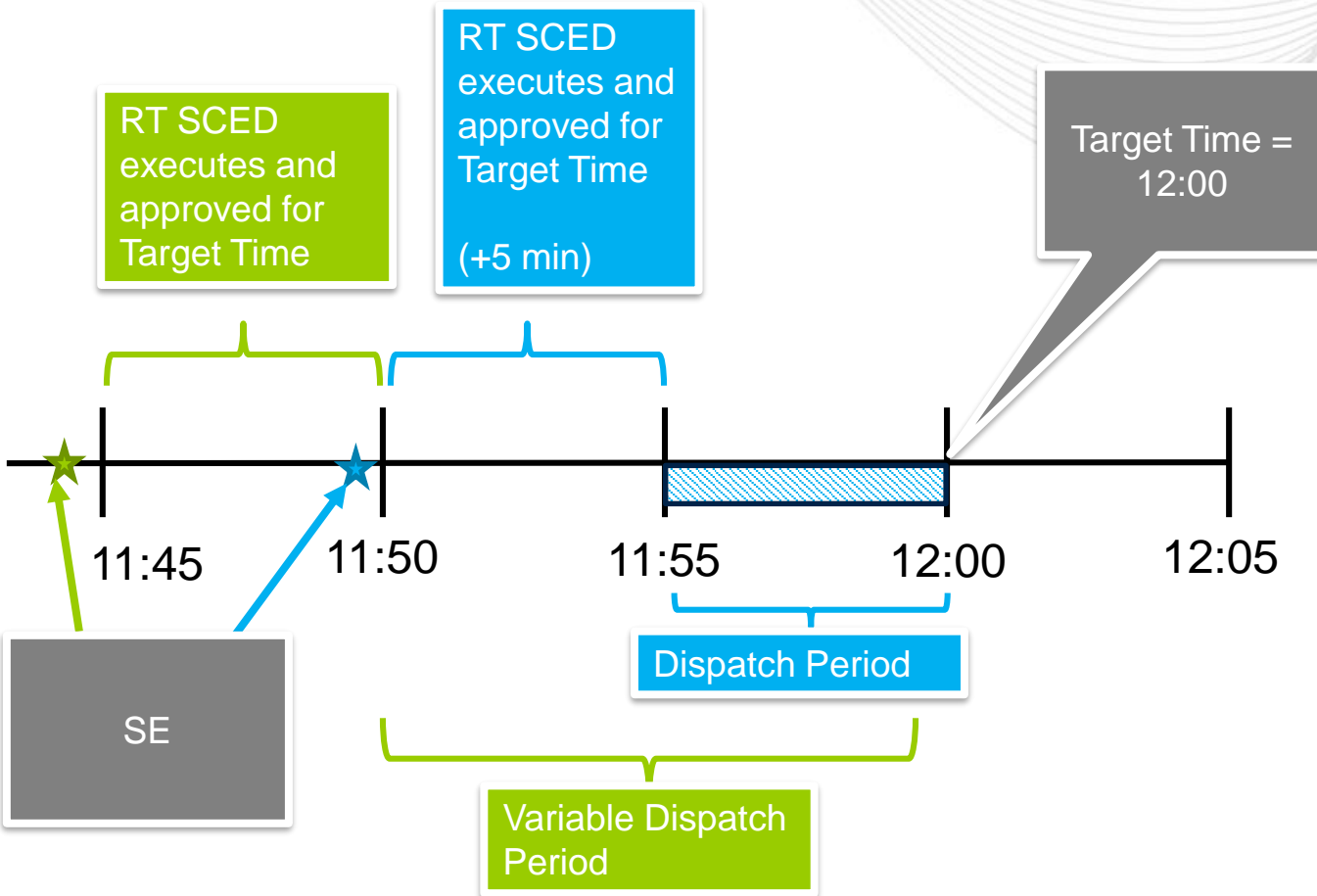
# Current SCED vs. Proposed Long Term SCED Implementation

## Current SCED Execution

- RTSCED cases auto-execute every 4 minutes, 10 to 14 minutes prior to target time
  - 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

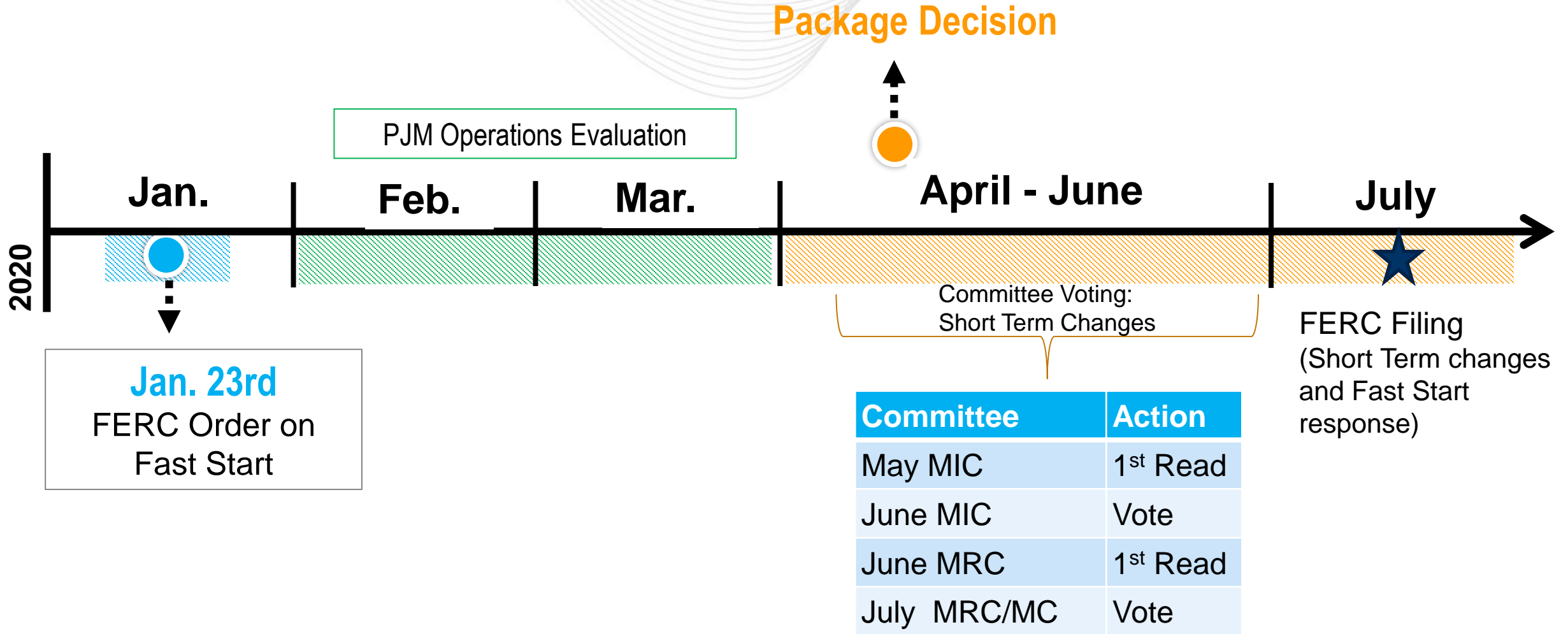
- RTSCED cases will auto execute every 5 minutes, 8 to 10 minutes prior to target time or manually executed by dispatch
  - If RTSCED case is not approved for a target dispatch interval, will be automatically approved at a specified time or deadline prior to the start of the dispatch interval
- The initial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



## LMP Verification Enhancements and Clarifications

- Changes to be pursued separately
- Clarify Operating Agreement language regarding LMP and Clearing Price reposting
- Conforming manual language changes
  - Align with the current Verification process
  - Updated Dead Bus Replacement Logic

# 5 minute Dispatch and Pricing Tentative Timeline



- Request endorsement of PJM short term changes
- PJM will bring forth a proposed timeline and implementation details for the intermediate changes
- Continue to pursue LMP Verification Enhancements
- Continue to evaluate long term changes

Questions?