



# PJM Market Efficiency Window and Mid-Cycle Update

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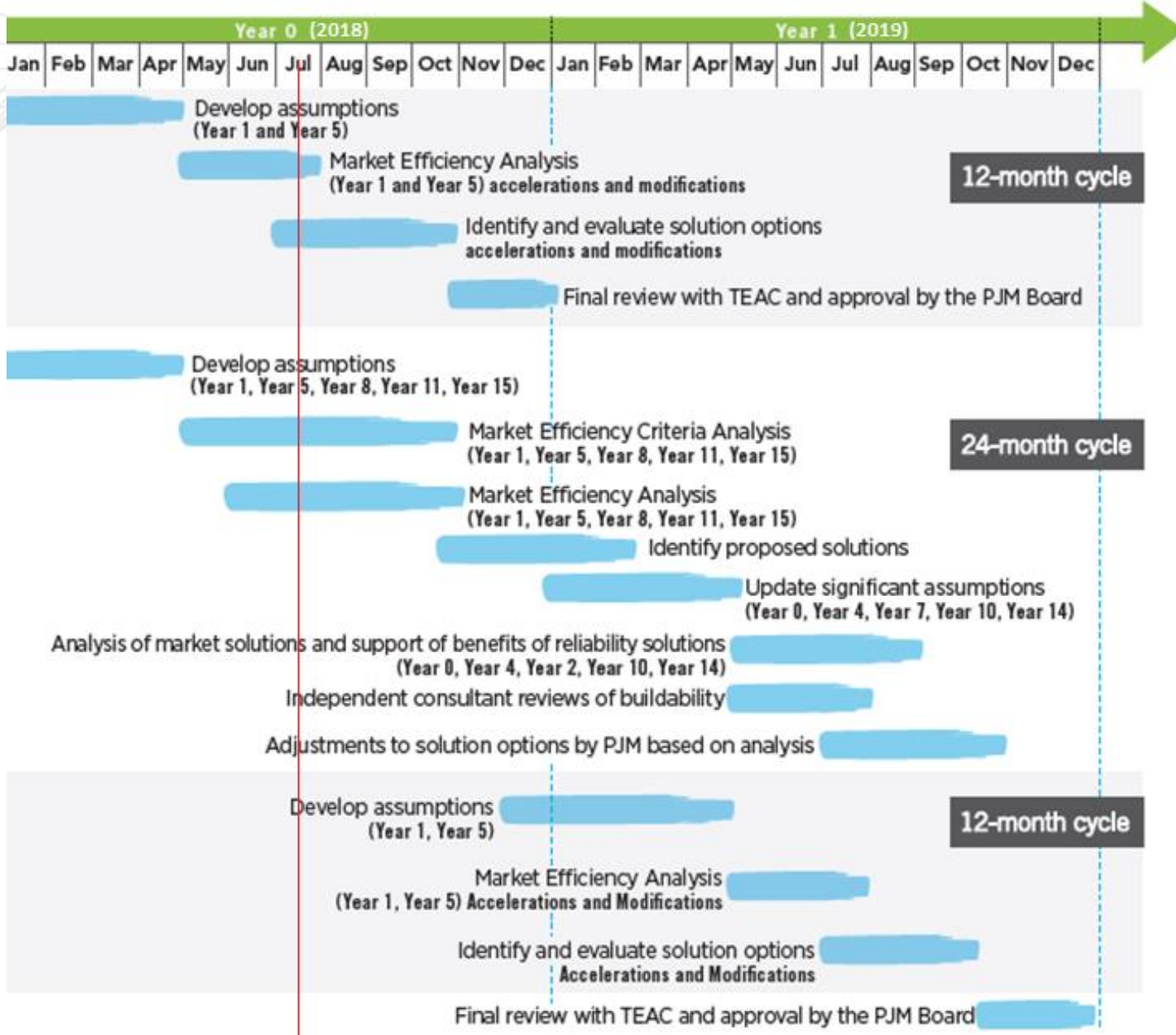
To provide an overview of

- The biennial Market Efficiency Window Process
- Challenges due to annual constraints
- The Mid-Cycle Update

- Background (Market Efficiency Window and Mid-Cycle Update)
- Considerations for Short Term Window
  - Capacity
  - Potential Projects resulting from 10-year ARR study
- Considerations for Long Term Window
  - MISO coordination
  - Placeholder (optional – driven based on constraints)
- Considerations for Mid-Cycle Update
  - Reevaluation
  - Interregional update freeze

- Currently, in both energy and capacity markets, congestion is addressed via the long-term Market Efficiency window, which occurs from November 1<sup>st</sup> to end of February on a biennial basis.
- However some constraints in PJM's market can be identified annually.
- PJM believes a structured approach is necessary to address this existing gap.

- PJM's existing Market Efficiency process includes posting window mid-cycle base case updates prior to the evaluation of Market Efficiency window proposals.
- The objective of these mid-cycle updates is to capture most up-to-date input assumptions such as updated transmission topology (baseline, network and supplemental upgrades), load forecast, gas prices, and generator deactivations.
- Submitted proposals are analyzed using the mid-cycle updated Market Efficiency Base Case which is different from the Market Efficiency Base Case posted at the beginning of the window.
- This effort may be related to activities contemplated in the Market Efficiency Window section before.



# Market Efficiency Timeline

- 12-month Cycle
  - Acceleration Analysis
  - FTR Credit
- 24-month Cycle
  - Input assumptions
  - Base case development
  - Develop target congestion
  - Proposal submission
  - Evaluation
  - Approval



## 24-Month Market Efficiency Cycle (Year 1, Year 2)

- Long term proposal window: November Year 1 – February Year 2
- Mid-cycle update of major assumptions: January – April
  - Load Forecast, Fuel and Emissions forecasts, Generation expansion, Network topology
  - Only updating the most significant changes, not full update.
  - Updated ME Base Scenarios posted
- Analysis of proposed solutions: May - October
  - Independent consultant review of cost and ability to build
  - Review of analysis with TEAC: Jun – Nov
- Determination of final projects: December
  - Final review with TEAC and Board approval
  - Projects may be approved earlier if analysis and review complete

- Constraints in PJM's capacity market can be identified annually.
- Given that, under the default project solicitation approach, once a capacity market constraint is identified it could take 2 or 3 years or more before the transmission solution could be implemented in the capacity market.
- During the most recent cycle, PJM conducted a special short-term RPM window to address known congestion in our most recent base residual capacity auction.
- PJM believes a structured approach is necessary to address this existing gap between capacity market and planning cycles.



- PJM conducts a FERC mandated stage 1A Auction Revenue Right 10 year analysis
  - to attempt to preserve minimum ARR transmission rights for its firm transmission customers.
- If unresolved violations exist, PJM is required to develop transmission solutions
- This analysis is conducted on an annual basis
  - results are discussed at the Transmission Expansion Advisory Committee.
- The process shall be consistent with the spirit of FERC order 1000.
  - the necessary transmission solutions to mitigate violations from this analysis do not require the need to satisfy Market Efficiency benefit-to-cost metric,
- The existing Market Efficiency window might not be the best avenue to implement transmission solutions for this requirement.
- PJM believes a structured approach is also necessary to address this existing gap similar to the previously discussed capacity market challenge.

- Ample time for stakeholder review/vetting of window model
- Allows for MISO coordination
  - MISO Window open ~ January - February
  - PJM-MISO JOA requires regular interregional analyses
- Placeholder for long-term congestion drivers
  - optional – driven based on constraints

- Interaction between Reevaluation processes and Mid-Cycle Update
- Updated PJM load flow model (RTEP) available ~March
- Generation mix/queue status changes daily
- Interregional Updates
  - External load flow model (MMWG) available ~November
  - MISO economic model available ~December

# Appendix A – Operating Agreement & Manual References

- Scope, PJM requirements & Member requirements
- <http://www.pjm.com/about-pjm/member-services.aspx>
- PJM Manual 14B, Section 2.6:  
<http://www.pjm.com/~media/documents/manuals/m14b.ashx>
- PJM Operating Agreement, Schedule 6, Section 1.5.7:  
<http://www.pjm.com/media/documents/merged-tariffs/oa.pdf>
- PJM Market Efficiency Practices <http://www.pjm.com/~media/planning/rtep-dev/market-efficiency/pjm-market-efficiency-modeling-practices.ashx>