MISO-PJM IPSAC

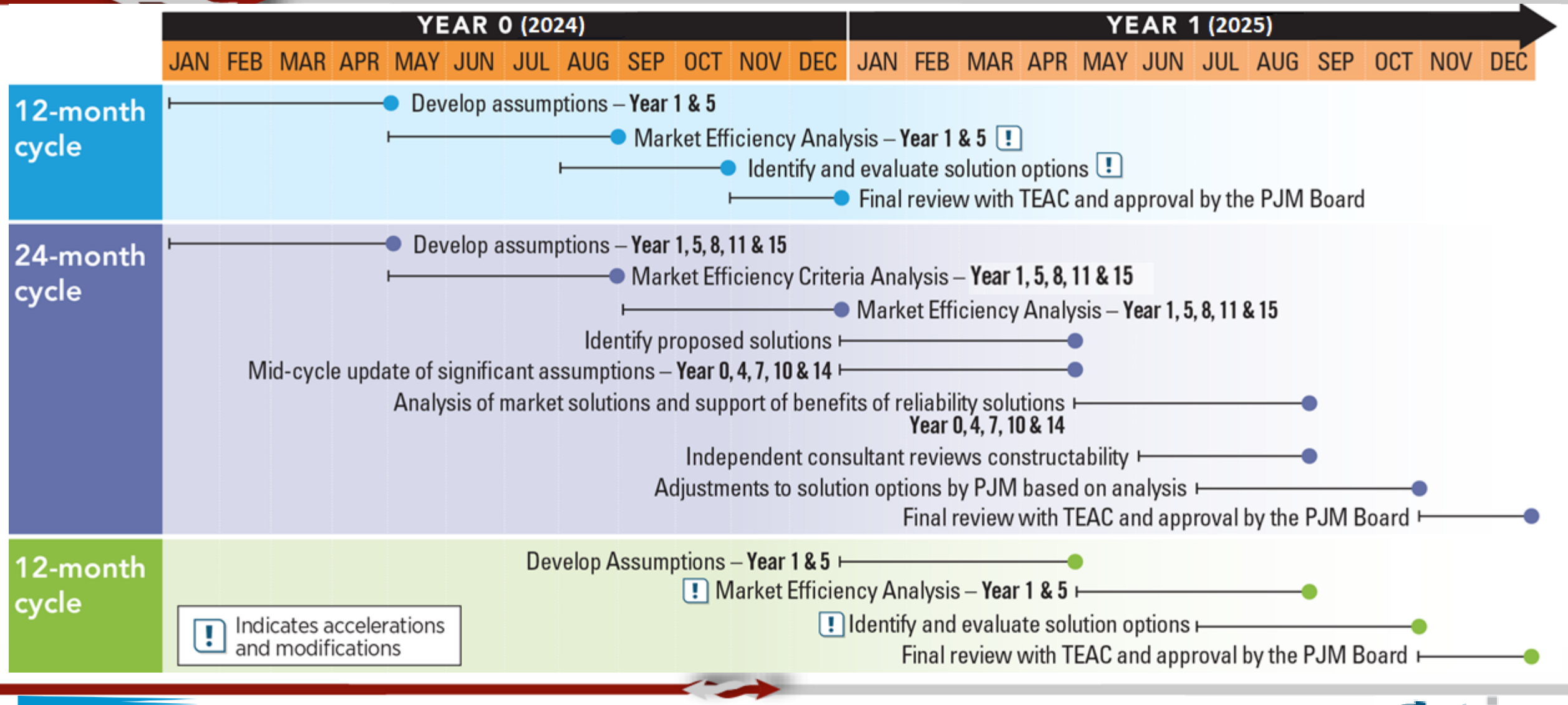
Agenda

- PJM 2024/2025 Market Efficiency Cycle
- PJM RTEP & MISO MTEP Update
- Annual Issues Review
- 3rd Party Issues and CSP Considerations
- Next Steps
- Open Discussion

PJM Market Efficiency Update

2024/25 Long-Term Market Efficiency Cycle

2024/25 Market Efficiency Timeline



2024/25 ME Base Case Status

- Upgraded to PROMOD IV user interface version 11.5. (PROMOD IV Engine I).
  - Also posted associated PROMOD CFG file on Market Efficiency secure page.
- Applied the 2024W1 proposed solutions.
  - Completed analysis of reactive interface limits.
- Applied a number of rating updates received from transmission owners.
- Considered feedback received from stakeholders review of the assumptions.
- Mid-cycle update of all modeled years to be posted on Market Efficiency secure page once upgrades are approved by PJM Board at February meeting.

2024/25 ME Base Case Simulated Congestion Results

- As expected, the addition of the 2024W1 reliability solutions also mitigates congestion for a significant number of constraints previously binding in the 2029 ME Base Case.
  - Table below shows constraints no longer binding after applying the 2024W1 reliability solutions to the 2029 case (all constraints were near/overlapping with violations posted in the 2024W1 reliability window).

Constraint	Area	Type
Clifford-Boxwood 138 kV	AEP	Line
Roberts-Kenny 138 kV	AEP	Line
Mt Zion-Westvaco 138 kV	APS	Line
Frostburg-Ridgeley 138 kV	APS	Line
Spotsylvania-Morrisville 500 kV	DOM	Line
Northern Neck-Sanders D.P 230 kV	DOM	Line
Westmoreland-Oak Grove 230 kV	DOM	Line
St John-Four Rivers 230 kV	DOM	Line
Wilton-AD1-100 Tap 345 kV	COMED	Line

*Includes constraints that shown simulated congestion > $10M before the addition of 2024W1 proposed solutions.

- Remaining congestion primarily located in the western portion of PJM system near MISO border.

Next Steps

- 2024/25 ME Base Case and Scenarios
  - Finalize ME models for all four simulated years (2025, 2029, 2032, 2035).
  - Create load, fuel, and generation sensitivity scenarios.
- The final Market Efficiency Base Case, Sensitivity Scenarios, and Congestion Drivers to be posted before the start of the window.
- 2024/25 Market Efficiency Window anticipated to open at the end of March 2025.

2024/25 Market Efficiency Window – Congestion Drivers

Congestion Driver	Area	Type	Comment
Museville-Smith Mountain 138 kV	AEP	Line	Historical congestion. Congestion increases driven by increased load forecast.
West Point-Lanexa 115 kV	DOM	Line	Congestion driven by the renewable buildup.
Garrett-Garrett Tap 115 kV	PN-APS	Line	Congestion driven by the renewable buildup.

Congested Facilities not included in the ME Window

Constraint*	Area	Type	To be included in the 2024/25 ME Window	Comment
Olive-P9700 East 345 kV	AEP-MISO	Line	No	Significant congestion decreases from MISO Tranche 1 upgrades and from 2025 Load Sensitivity.
Haviland-East Lima 138 kV	AEP	Line	No	2025 Load Sensitivity shows significant congestion decrease due to increased load in western part of the system.
Twin Branch-Meridian 345 kV	AEP	Line	No	2025 Load Sensitivity shows significant congestion decrease due to increased load in western part of the system.
Leroy Center-Spruce 138 kV	ATSI	Line	No	2025 Load Sensitivity shows significant congestion decrease due to increased load in western part of the system.
Chesterfield-Basin 230 kV	DOM	Line	No	Congestion expected to be addressed by future network upgrade proposed as part of TC1.
Boonetown-South Reading 230 kV	METED	Line	No	Future First Energy supplemental project will address congestion.
Lenox-Macnew Tap 115 kV	PN	Line	No	Congestion may be mitigated by future New York PAR at Hillside. Waiting for NYISO decision on PAR model/operation.
AP South Interface	PJM	Interface	No	2025 Load Sensitivity shows significant congestion decrease due to increased load in western part of the system.
Joshua Falls-Yeat Interface	PJM	Interface	No	2025 Load Sensitivity shows significant congestion decrease due to increased load in western part of the system.

**Includes constraints with annual simulated congestion greater than $1Million and 25 hours binding in each of 2029 & 2032 simulated years.*

Congested Facilities not included in the ME Window (cont.)

Constraint*	Area	Type	To be included in the 2024/25 ME Window	Comment
Wolfs Crossing TR 81 345/138 kV	CE	TR	No	There are significant congestion changes, both decreases and increases, from the new 2025 Load Forecast. These constraints may also see significant congestion changes from recently approved MISO Tranche 2.1 projects. Further analysis needed. **These facilities will not be included in the 2024/25 ME Window.**
Nelson-Electric Junction 345 kV**	CE	Line	No	
Cherry Valley-Silver Lake 345 kV**	CE	Line	No	
Haumesser-W Dekalb 138 kV	CE	Line	No	
Crescent Ridge-Corbin 138 kV**	CE-MISO	Tie Line	No	
Kewanee B1Z1 138 KV**	CE	CB	No	
Quad Cities-MEC Cordova 138 kV**	CE-MISO	Line	No	
Kewanee-Putnam 138 kV**	CE-MISO	Line	No	
McGirr Rd-ESS H447 138 kV	CE	Line	No	
Stateline-Roxana 138 kV**	CE-MISO	Line	No	
Quad Cities-ESS H471 345 kV**	CE	Line	No	

**Includes constraints with annual simulated congestion greater than $1Million and 25 hours binding in each of 2029 & 2032 simulated years*

*** Coordinated PJM/MISO Market-to-Market Constraint.*

MISO M2M Congested Facilities not included in the ME Window

Constraint*	Area	Type	To be Included in the 2024/25 ME Window	Comment
Douglas-Francisco 345 kV**	MISO	Line	No	These are coordinated PJM/MISO Market-to-Market constraints on facilities located in MISO. These constraints may see significant congestion changes from recently approved MISO Tranche 2.1 projects. Further analysis needed. **These facilities will not be included in the 2024/25 ME Window.**
Whitestown-Guion 345 kV**	MISO	Line	No	
Hubbell-Batesville 138 kV**	MISO	Line	No	
Hubbell-Weisburg 138 kV**	MISO	Line	No	
Chicago Ave-Praxair 138 kV**	MISO	Line	No	
Dune Acres-Michigan City 138 kV**	MISO	Line	No	
Elkhorn-North Lake Geneva 138 kV**	MISO	Line	No	

**Includes constraints with annual simulated congestion greater than $1Million and 25 hours binding in each of 2029 & 2032 simulated years*

*** Coordinated PJM/MISO Market-to-Market Constraint.*

2025 Market Efficiency Timeline

Step	Tentative Target Date
Finalize Preliminary Congestion Drivers	March 2025
Post Final Base Case, Sensitivity Scenarios, and Congestion Drivers	End of March 2025
Long Term ME Proposal Window (120 Days)	April - July 2025
Analysis of Proposed Solutions	July – September 2025
TEAC Reviews and Board Approval	October - December 2025

PJM RTEP & MISO MTEP Update

PJM Regional Issues Review

- New Reliability issues
  - Regional issues and newly approved projects near the seam
  - Please see selected TEAC and Subregional RTEP Committee – Western meeting slides posted with meeting materials
    - Includes solution for 2024 Window 1
- New Market Efficiency congestion
  - The new M2M constraints are presented on slides 10 and 11
  - All M2M constraints will continue to be evaluated as potential drivers to be included in the 2024/25 Market Efficiency Window anticipated to open at the end of Q1 2025.
- M2M historical congestion
  - Joint summary posted with meeting materials

MISO Regional Issues Review

- MTEP reliability planning update
  - TO submitted ‘bottom-up’ projects under review for MTEP25
    - Projects presented at MISO sub-regional planning meetings (SPMs) in early February
    - List of MTEP Projects Under Evaluation
  - MTEP25 Powerflow models under development
- MTEP economic planning update
  - MISO completed the 2024 near-term congestion study
  - Similar effort was performed in 2023
- Long-Range Transmission Plan (LRTP) Update
  - LRTP Tr2.1 was approved by the MISO Board on December 12th 2024
  - For further information, please see the MISO LRTP webpage
- M2M historical congestion
  - Joint summary posted with meeting materials

Annual Issues Review

Annual Issues Review Process (JOA §9.3.7.2)

- In the 4th quarter, RTOs exchange:
  - Regional issues and newly approved projects near the seam
  - New regional issues
  - Interconnection requests under coordination
  - M2M historical congestion
- RTOs jointly reviewed above in January
- Receive Third Party issues in first quarter (required 30 days before Issues Review IPSAC)
- Issues Review IPSAC –
  - Held in the first quarter of each year
  - Must provide 60 calendar day notice of scheduled date
  - Stakeholder feedback due 30 days prior to IPSAC
- **Within 45 calendar days after the Issues Review IPSAC the JRPC shall determine the need for a Coordinated System Plan study**
- **JRPC notifies the IPSAC of its decision within 5 business days**

Regional and Third Party Input

- Issues and plans have been discussed at regional meetings
  - PJM regional issues are presented at monthly TEAC meetings and Subregional RTEP Western meetings
  - MISO regional issues are presented at triannual Subregional Planning Meetings

- Third Party input was requested at the November 22, 2024 IPSAC meeting
  - Input/feedback was due by February 5, 2025

Submitted 3rd Party Issues

Third Party Input

4 entities provided feedback:

Num	Stakeholder	Feedback Description
1	RMI + 14 Signatories	Recommendations: 1. Ensure the ITCS results in actionable infrastructure recommendations 2. Commit to undertaking a more long-term effort following the conclusion of the ITCS 3. Consider improvements to utilizing existing interregional transfer capacity
2	Consumer Advocates (14 Signatories)	Recommendations to expand the ITCS: 1. Evaluate ITCS costs and benefits in alignment with Order 1920-A 2. ITCS transfer needs and economic drivers are unclear 3. Advocate for holistic approach beyond near-term; interregional planning alongside regional and supplemental projects 4. Concerns about price differentials across PJM/MISO seam 5. NREL Study findings; uneconomic transfers almost half of hours of the year. Better management of existing interregional transmission capacity
3	Invenergy	1. Interregional planning process should occur every other year and is not optional. 2. Better coordination of the existing available transfer capability of the system
4	WPPI	1. Consider congestion of the ComEd Rock Falls-Garden Plain 138 kV line 2. Consider West-to-east congestion in the Gary, IN area especially for the loss of Wilton Center-Dumont 765 kV line

- Feedback has been posted with meeting materials

Third Party Input : RMI + 14 Signatories

- PJM and MISO want to ensure the Interregional Transfer Capability Study (ITCS) leads to actionable infrastructure upgrades.
  - actively exploring options to leverage existing project types and associated cost allocation mechanisms within and outside of the current Joint Operating Agreement (JOA) as part of the on-going Interregional Transfer Capability Study.
  - Both RTOs have initiated discussions on potential changes. These discussions include considerations of project types, benefits, and the necessary tariff and JOA revisions to support timely implementation

- Beyond the initial ITCS, PJM and MISO will conduct a lessons learned assessment to identify necessary process and JOA improvements. This will support a potential long-term Phase II study in the future aligned with FERC Order 1920-A, enhancing scenario-based planning and integrating all relevant policies.

- PJM and MISO recognize the importance of optimal interregional transfer capability
  - annual analysis of PJM-MISO interface definition
  - enhancements to forecasting measures used within Coordinated Transaction Scheduling (CTS)
  - continued collaboration between PJM and MISO seams administration regarding enhancements to interregional transfers

Third Party Input : Consumer Advocates (14 Signatories)

- PJM and MISO acknowledge the emphasis on the need for further action as a result of the Interregional Transfer Capability Study (ITCS) and recognize the importance of a thorough cost-benefit analysis.

- PJM and MISO are actively exploring options both within and outside of the Joint Operating Agreement (JOA) to facilitate the resolution of joint, multi-driver issues. JOA and Tariff updates will be considered as appropriate to address needs as a next step.
  - Efforts to enhance transparency in evaluating reliability, economic, and transfer needs
  - Develop a robust framework for assessing interregional project benefits.

- PJM and MISO are committed to integrating interregional planning with regional processes to improve system efficiency, addressing price differentials along the PJM-MISO seam, and supporting the assessment of additional interfaces as recommended by OPSI and OMS
  - Collaborating with members of the PJM and MISO Congestion Management Process to update the framework for calculating Firm Flow Entitlements.
  - Advancing price forecasting improvements for Coordinated Transaction Scheduling (CTS) through PJM's Reserve Certainty Senior Task Force (RCSTF).

Third Party Input : Invenergy

- PJM and MISO recognize the importance of a structured and coordinated approach to interregional planning and remain committed to enhancing alignment between our planning efforts and will continue to explore opportunities for greater coordination where possible.

- PJM and MISO recognize the need for continued collaboration in assessing transfer capability as well as the importance of managing interregional flows in a manner that is reliable, equitable and efficient.
  - Stakeholders are encouraged to engage with PJM and MISO through the Joint and Common Market Initiative to raise awareness to market signals related to interregional transfers

Third Party Input : WPPI

- PJM and MISO appreciate WPPI Energy's concerns regarding persistent congestion along the MISO-PJM seam and recognize the potential reliability and cost impacts.

- As part of our annual issues review process, we will take the identified congestion points into account when evaluating the need for a Coordinated System Plan (CSP) and/or Targeted Market Efficiency Project (TMEP) study in 2025 or the near future.

Defined CSP Studies under the JOA

- Targeted Market Efficiency Project (TMEP) Study
  - MISO and PJM decided not to conduct a TMEP Study in 2024. Instead, they have been collaborating on an interregional transfer capability study.
    - The Powerton – Towerline upgrade from the 2022 TMEP Study
      - Approved by the PJM and MISO boards at the beginning of 2023
      - Completed and in service in September 2024.
  - RTOs are currently reviewing the highest congested elements and potential mitigating factors

- Interregional Market Efficiency Project (IMEP) Study
  - PJM and MISO are coordinating interregional congestion issues for consideration in the 2025 PJM-MISO CSP planning cycle

- Interregional Reliability Projects; Interregional Public Policy Projects; Ad-Hoc studies:
  - No issues currently identified

Next Steps

JRPC Determination

- JRPC will determine the need for Coordinated System Plan studies and inform the IPSAC through the PJM and MISO email distributions
  - JRPC will make a CSP determination by April 21, 2025 per JOA requirements
  - JRPC will inform the IPSAC within 5 days of the decision

- Next IPSAC meeting is tentatively scheduled for mid-year as needed
  - Additional IPSAC meetings will be scheduled as needed depending on necessity of study

Open Discussion

Contacts

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