



Joint and Common Market  
**PSEUDO-TIE UPDATE**

**FEBRUARY 28, 2018**



# Agenda

1.	Overview
2.	MISO Update
3.	PJM Update
4.	Congestion Overlap
5.	Next Steps
	Appendix

# Overview

## Purpose

- Provide a status update on MISO-PJM efforts to address Pseudo-Tie issues

## Goals

- Address enhancements/alternatives for Pseudo-Tie challenges

## Key Takeaways

- MISO and PJM JOA updates associated with implementing enhanced Pseudo-Tie administration processes (in-lieu of pro-forma) were approved by FERC.
- PJM's enhanced Pseudo-Tie capacity requirements and Pro-forma agreement have been approved by FERC
- MISO and PJM waiting on FERC approval for JOA changes to implement Phase 1 for congestion overlap to resolve Section 206 Complaints. Phase 2 under stakeholder review.

# Background

- PJM and MISO have reliably administered a significant increase in Pseudo-Ties since the start of the 2016-2017 planning year
- Additional administrative enhancements pending or approved for future planning years
- MISO and PJM have developed a solution to prospectively address the Congestion Overlap issue that led to FERC complaints from Pseudo-Ties into PJM for capacity

# MISO Pseudo-Tie Filing Update

- MISO has made three filings to address Pseudo-Tie issues:
  - Tariff changes to establish a *pro forma* Pseudo-Tie Agreement (ER17-1061)
    - FERC issued an order on 2/26/18 rejecting the filing following a delegated order issued 8/9/17
  - MISO-PJM JOA changes to enhance and clarify Pseudo-Tie administration (ER17-2220)
    - FERC Issued an order on 12/29/17 accepting the filing effective 10/1/17, subject to compliance
  - MISO-PJM JOA changes to address Overlapping Congestion (ER18-136, ER18-137)
    - FERC Issued a deficiency letter to MISO and PJM on 12/28/17 requesting additional information, RTO's responded on 1/29/18, amending filing for effective date

# MISO Phase 2 Solution Update

- MISO to propose limited Tariff changes for Phase 2 to address:
  - Use of existing Virtual Transactions (Offers and Demand Bids) to align Financial Transmission Rights with Transmission Usage Charges
  - Use of Financial Schedules
- Modification to Market Administration Charge calculations to account for Pseudo-Ties utilizing Virtual Transactions
- Effective Date for Market Administration Charge changes dependent on Settlement System changes

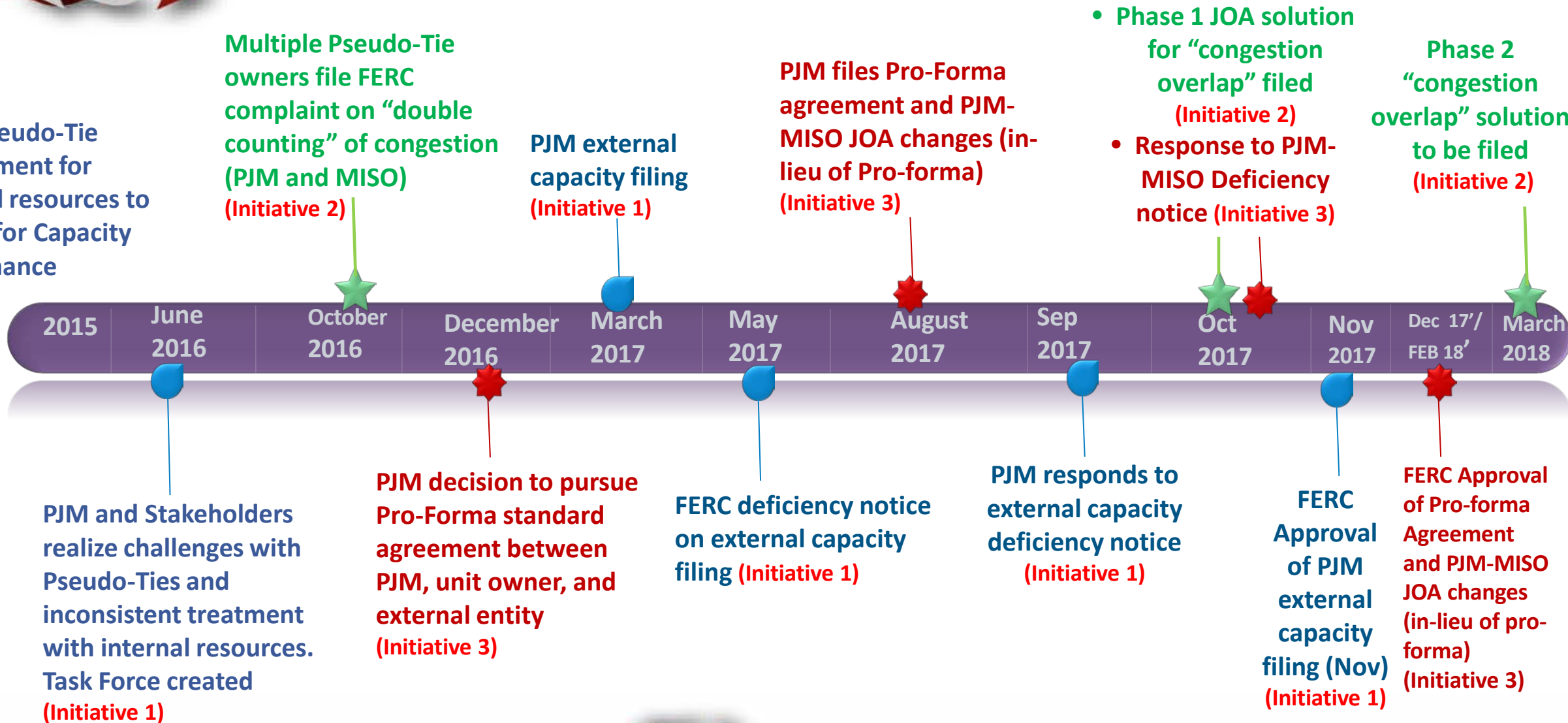
# PJM Overview: Three Pseudo-Tie Initiatives

- ✓ Initiative 1: External and Internal capacity comparability (Complete)
- Initiative 2: Congestion Overlap (On-going)
- ✓ Initiative 3: Pro-Forma Agreement or JOA equivalent (Complete)



# PJM Pseudo-Tie Initiatives Timeline

FERC Pseudo-Tie requirement for external resources to qualify for Capacity Performance







# PSEUDO-TIES: CONGESTION OVERLAP

# Congestion Overlap: Background

- MISO and PJM have been working since late 2016 to address the overlapping congestion Pseudo-Tie issue and have been discussing solutions at various stakeholder forums since early 2017
- The RTO's proposed a two phase solution in August 2017
  - Phase 1 modifies the MISO-PJM Joint Operating Agreement to address Market-to-Market settlement and Day-Ahead coordination aspects of the issue
  - Phase 2 modifies the individual RTO Tariffs to address congestion charges, credits, rebates or hedges aspects of the issue

# Solution Details: Phase 1 (Pending FERC approval)

MISO and PJM filed JOA changes on October 23<sup>rd</sup>

- Response to deficiency noticed made on January 29, 2018 (FERC Dockets ER18-136-000, ER18-137-000)

## Day-Ahead Market change summary

The RTOs will coordinate Pseudo-Tie FFE impacts. The Attaining BA will model flowgate capacity impact consistent with the pseudo-tied Real-Time Market Flow credit to better reflect congestion in the day-ahead market, including LMPs, for Pseudo-Tie resources. This removes the majority of overlapping congestion.

## Real-Time Market change summary

In Market-to-Market settlements, Market Flow credit will be given to the Attaining BA for Pseudo-Tie resource impacts on Reciprocal Coordinated Flowgates on the path from Pseudo-Tie resource to interface based on actual MW output of the unit.

## Solution Details: Phase 2

Implementation in 2018 because of requirements for PJM/MISO Tariff changes and more extensive software changes. Solution extends Phase 1 with the addition of the following:


- Attaining BA will issue refunds/FTRs to Pseudo-Tie Transactions (those with load contracts) for congestion costs paid in the Day-Ahead Market.
- Real-Time Market credits/charges will be issued to Pseudo-Tie Transactions based on deviations from Day-Ahead Scheduled Transactions.
- The Native BA will provide an option for Pseudo-Tie Transactions to submit a pair of virtual transactions in the Day-Ahead Market to align Transmission Usage Charges with available FTR hedges.

# Additional Information

- Detailed spreadsheet example provided with August 2017 JCM materials
  - Allows for user “Plug and Play” to measure impacts of solution
  - <http://www.pjm.com/-/media/committees-groups/stakeholder-meetings/pjm-miso-joint-common/20170822/20170822-dcpt-phase-2-example.ashx>
- Phase 2 changes to be presented at PJM and MISO respective stakeholder meetings
  - JOA changes not required for Phase 2 solution.

# Next Steps Timeline

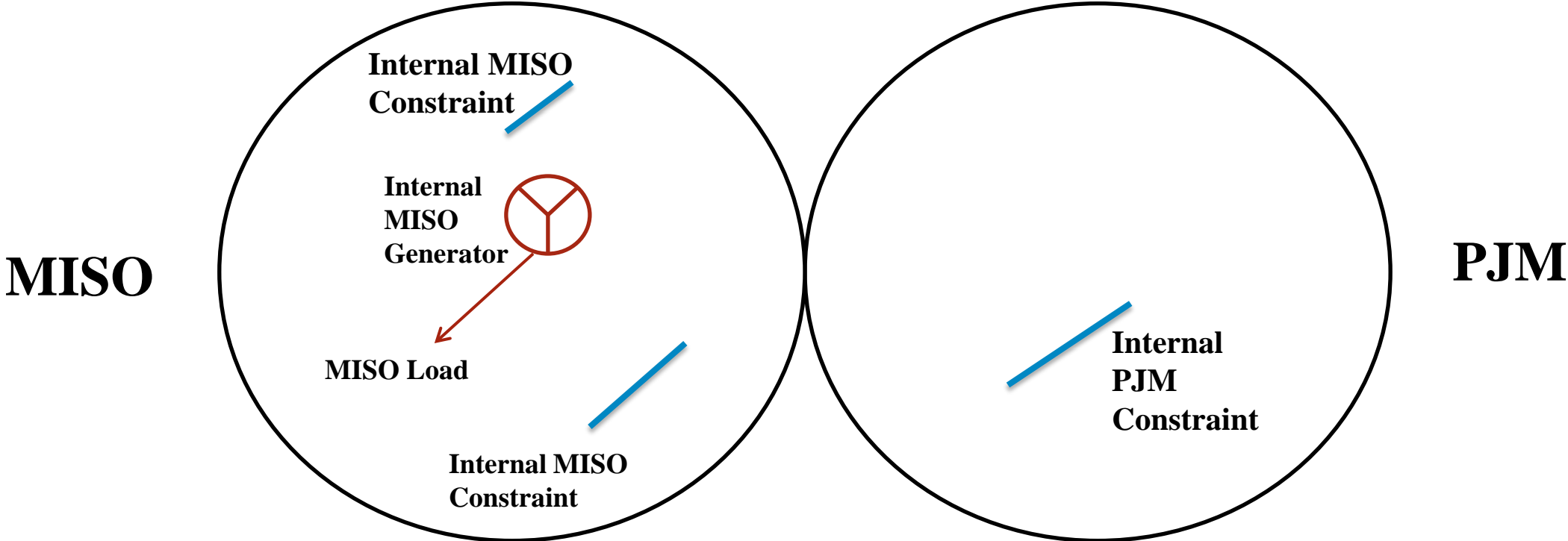
Due Date	Who	Action
March 2018	MISO, PJM	MISO and PJM file Phase 2 Tariff changes
2 <sup>nd</sup> Quarter 2018	FERC	Act on MISO and PJM Phase 1 and 2 Tariff filings
Mar – May 2018	PJM	Deliver system changes for Phase 2 Solution
Jun – Aug 2018	MISO	Deliver system changes for Phase 2 Solution
June 1, 2018	PJM	Implement Phase 1 and 2 Solution
June 1, 2018	MISO	Implement Phase 1 Solution
Sep 1, 2018	MISO	Implement Phase 2 Solution



# Example of Pseudo-Tie Congestion Overlap



# Before Pseudo-Tie

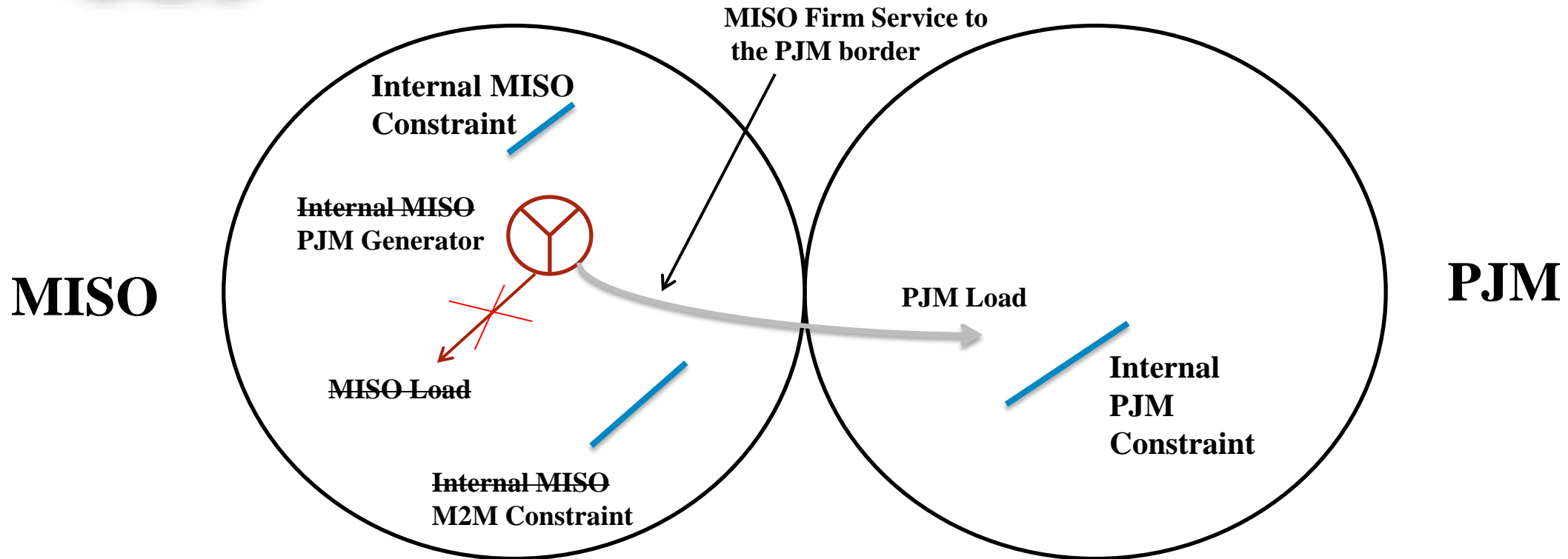


**PJM has no units with impacts  $>5\%$  on MISO constraint and therefore no M2M flowgate exists**





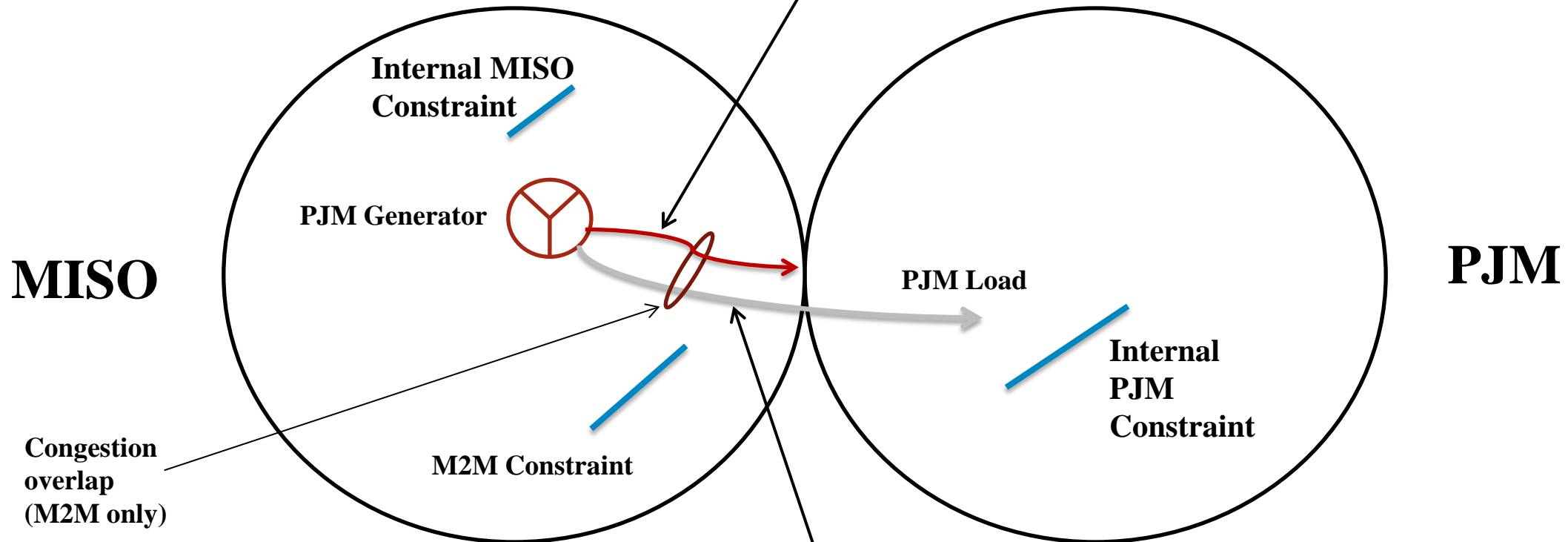
# After Pseudo-Tie in PJM



**PJM Pseudo-Tie unit has impact >5% on MISO constraint and therefore an internal MISO constraint becomes a coordinated M2M constraint**

# Congestion Costs After Pseudo-Tie in PJM

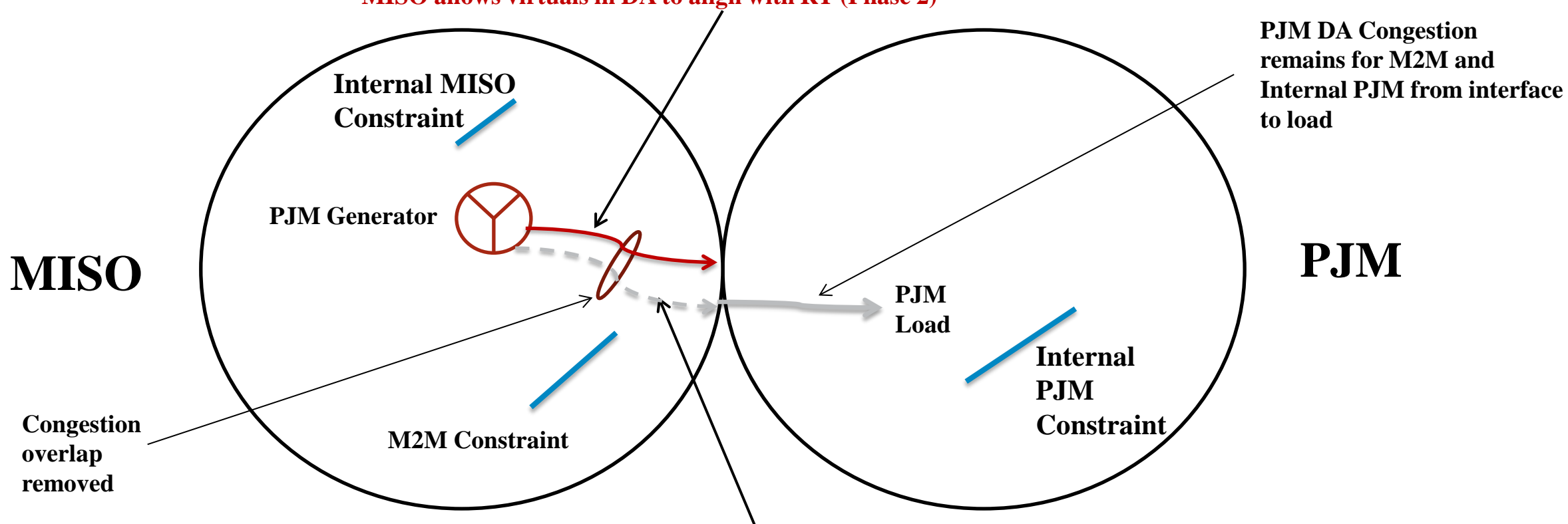
- MISO collects Real-time Explicit Congestion (M2M and Internal MISO constraints)
- MISO collects excess congestion via M2M payment from PJM (PJM receives no FFE)



- PJM collects Day-ahead congestion on entire path (M2M and Internal PJM constraints)
- Unhedged congestion for partial path from unit to interface

# Solution to Congestion Overlap

- MISO collects RT Explicit Congestion (M2M and Internal MISO constraints)
- MISO excess congestion removed from M2M payment (PJM M2M flow reduced) (Phase 1)
- MISO allows virtuals in DA to align with RT (Phase 2)



- PJM DA M2M congestion removed for path from unit to interface (Internal PJM congestion remains) (Phase 1)
- PJM provides FTR eligibility for entire path (Phase 2)
- PJM credits/charges will be issued based on DA vs. RT deviations (Phase 2)

# Contacts

Stakeholder feedback – send comments to:

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