



MISO PJM IPSAC

July 26, 2019

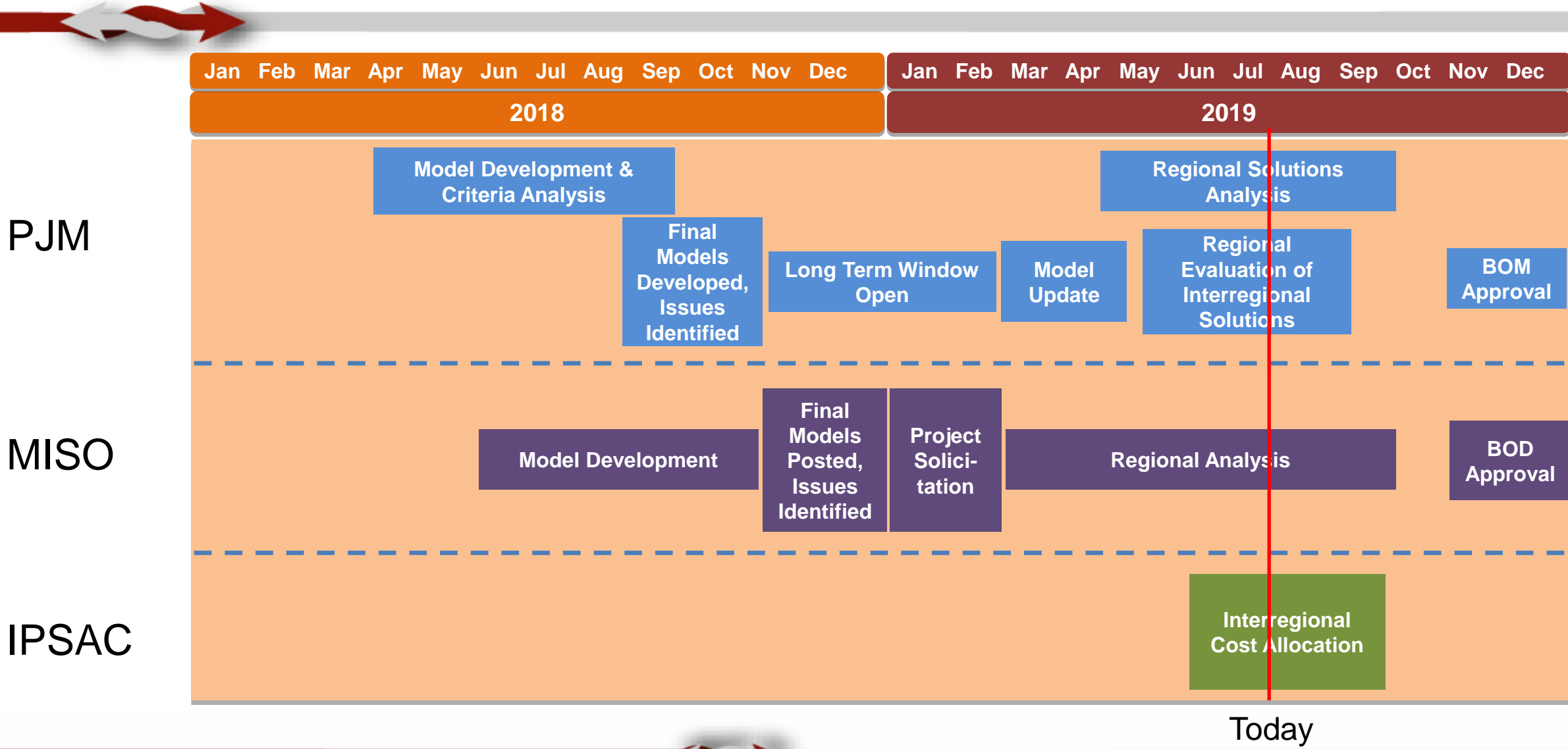
- IMEP Study Status
- JOA Revision Update
- MISO Cost Allocation Filing
- IPSAC Work Schedule



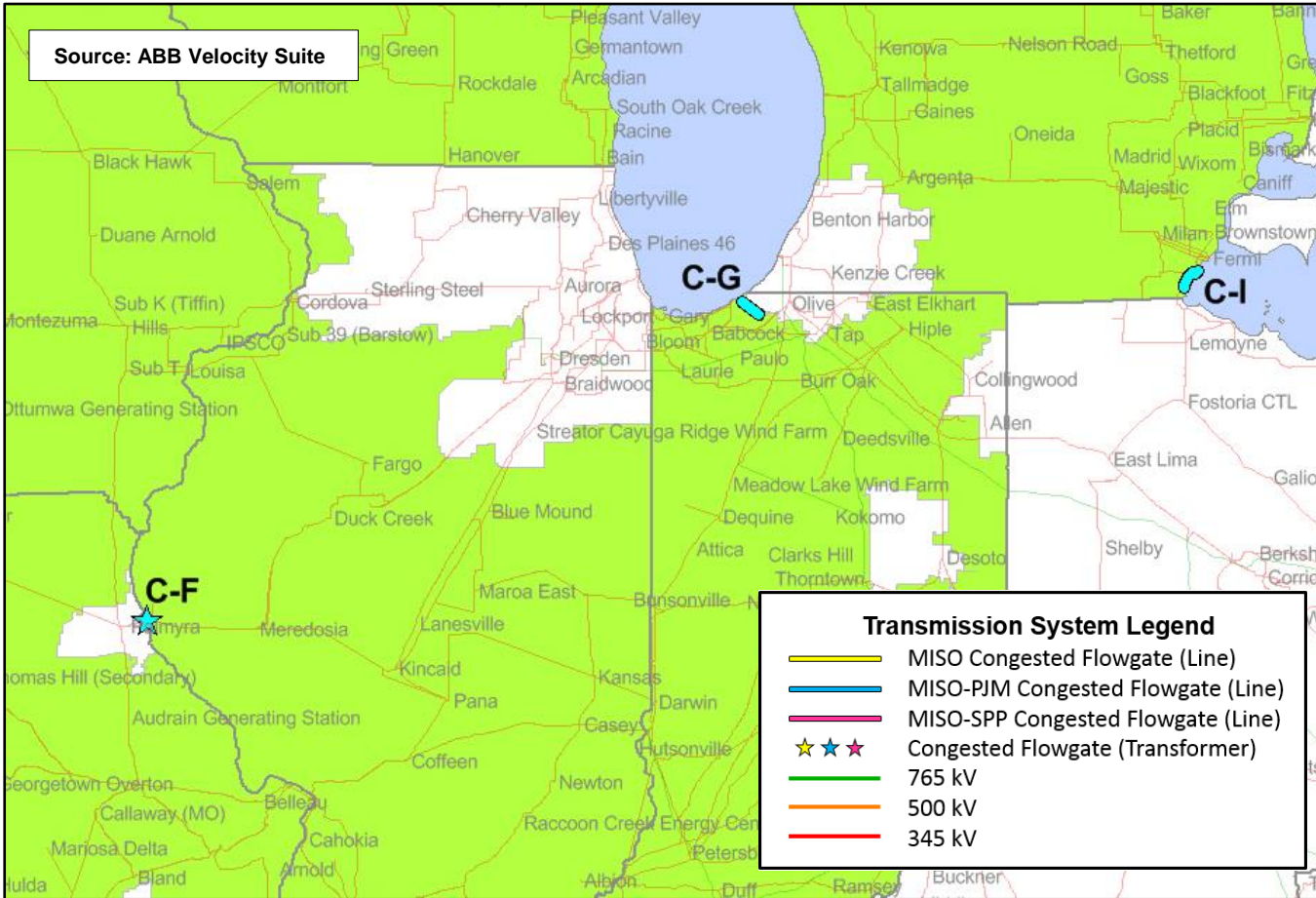
18/19 Interregional Market Efficiency Project Study

Study Status

- PJM and MISO are conducting a two-year Interregional Market Efficiency Project (IMEP) study in 2018/2019
- Issues identification and benefit determination conducted in each regional process consistent with current effective JOA
- Interregional proposals must:
 - Address at least one identified issue in each region (could be same issue if identified by both RTOs)
 - Be submitted to both regional processes



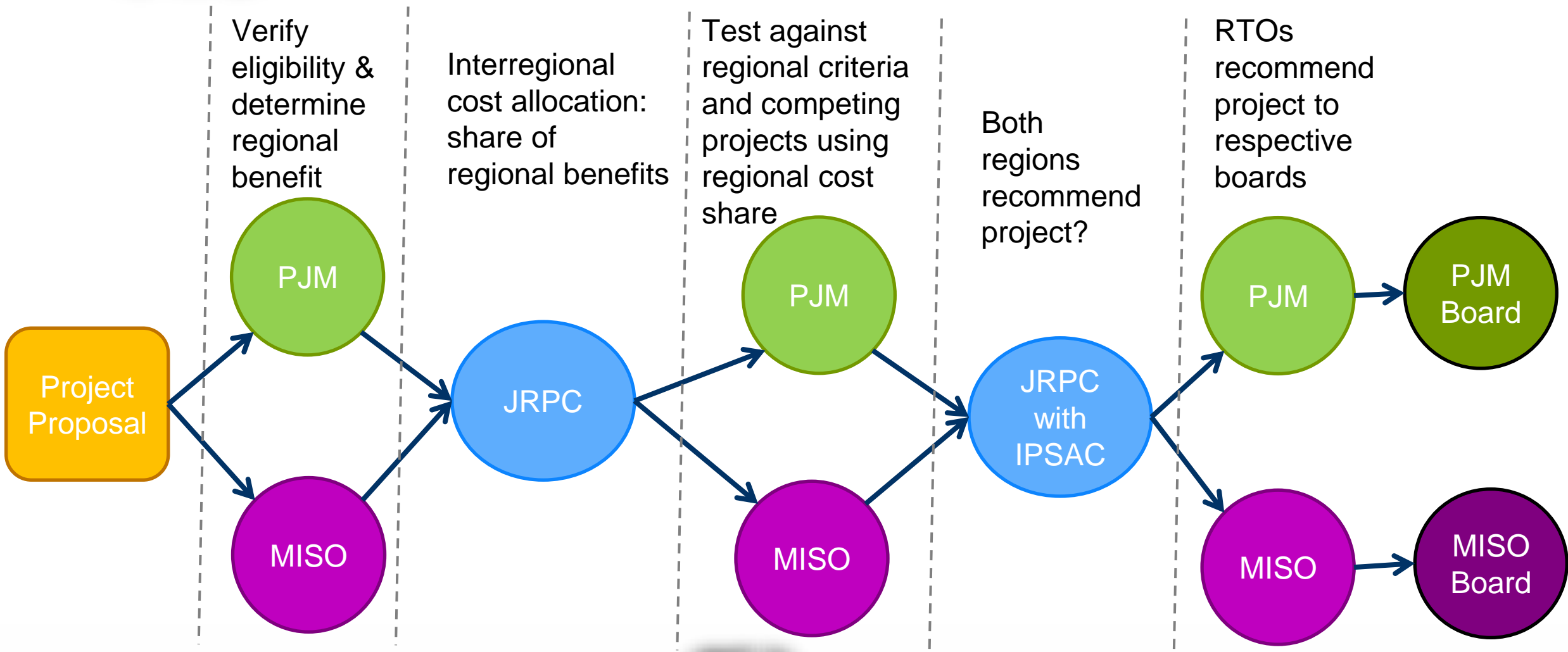
Interregional Congestion Drivers



- Flowgate C-F: Marblehead N Transformer 161/138kV**
 - Historically binding M2M constraint aggravated by coal and nuclear retirements in Illinois.
- Flowgate C-G: Bosserman to Trail Creek 138kV**
 - Historically binding M2M constraint. Congestion driven by nearby retirements, which increase east to west flows in northern Indiana.
- Flowgate C-I: Lallendorf to Monroe 345kV**
 - Historically binding M2M constraint driven by high transfer from north to south.



- Benefits to each RTO are determined by that RTO using their respective regional process and metrics (Tariff)
 - Note inconsistent study years and discount rates
- Costs are allocated interregionally based on pro rata share of benefits, as determined above
- Interregional projects must meet the B/C criteria in each RTO (based on allocated costs), qualify as an MEP under both the MISO and PJM process, and be approved by each RTO's board



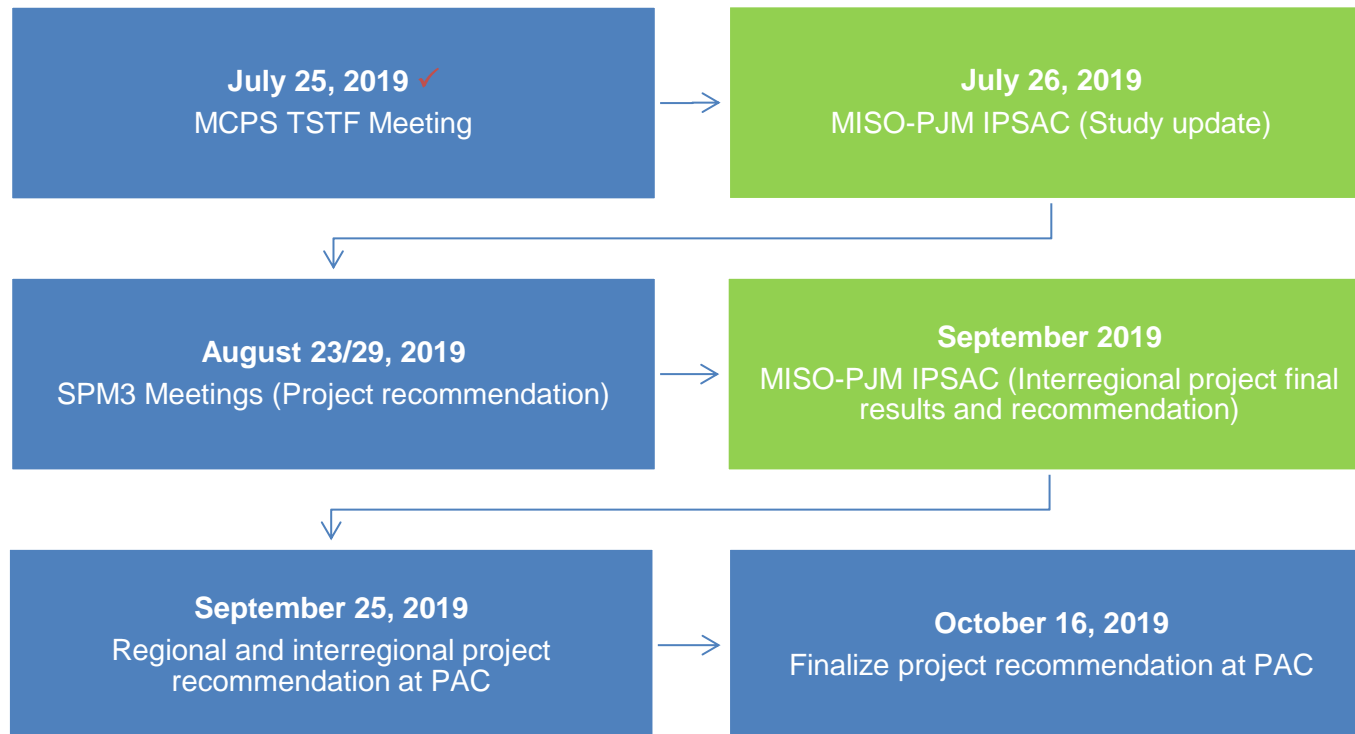
MISO IMEP Study Status

- Four out of ten interregional solutions addressing two flowgates shortlisted for further review
- MISO and PJM coordinating scoping-level cost estimates and final list of Project Candidates
 - All of these results are based solely on MISO regional benefits
- Final results and project recommendation for MISO-PJM focus area is expected at September 2019 MISO-PJM IPSAC meeting

- NC-51 does not address congestion issue in MISO or PJM model and is no longer considered going forward
- NC-19 and NC-21 address only half the congestion and are no longer considered going forward

ID	Issue Resolved	Project	Cost Estimation (\$M)*	20-year PV Benefits (\$M) to MISO	Congestion Relief (%)
NC-51	Lallendorf to Monroe 345kV	Wayne Switch Upgrades	0.41	0.15	0%
NC-11	Bosserman to Trail Creek 138kV	Rebuild Michigan City to Trail Creek to Bosserman and LNG to Maple 138kV Lines	32.3	8.69	100%
NC-19		Meadow Lake to Pike Creek 345kV	225.31	36.9	49%
NC-21		Toto Switching Station	18.07	12.5	45%
NC-50		Kuchar to Luchtman 138kV	23.26	9.17	95%
NC-48		Marblehead N Transformer 161/138kV	Maywood to Herleman 345kV	34.63	7.76
NC-49		Palmyra to Herleman 345kV	33.76	8.27	100%

Note: Costs under review



Upcoming Analysis for MISO-PJM Focus Area

- Coordinate with PJM to identify final list of Project candidates
 - Determine B/C ratio with interregional cost share
- Coordinate scoping-level cost estimate
- Project refinement if any
- Reliability no-harm testing

TSTF – Technical Study Task force; IPSAC – Interregional Planning Stakeholder Advisory Committee; PAC – Planning Advisory Committee; SPC – System Planning Committee; BOD – Board of Directors

PJM IMEP Study Status

PJM Interregional Proposals Analysis

- Market Efficiency Analysis performed on a base case that includes all previously approved PJM RTEP enhancements and expansions
- Completed preliminary N-1 contingency analysis for all interregional proposals to determine flowgates to monitor
- Completed PROMOD runs for the 10 interregional proposals received from 9 entities (including 1 joint proposal)
 - Projects modeled using the submitted assumptions
 - Simulated years 2019, 2023, 2026, 2029
 - Modeled Base Case and FSA sensitivity

PJM Interregional Proposals Analysis (continue)

- Calculated PJM benefits and determined preliminary B/C ratios for the interregional proposals
 - B/C ratios computed using the submitted in-service cost of components (assumed full cost assigned to PJM)
 - MISO benefits were not included in B/C ratios
- [Preliminary B/C ratios shared with stakeholders at the June 2019 TEAC meeting](#)
- Monroe – Wayne
 - All three proposals shifted congestion from Monroe – Wayne 345 kV to parallel Monroe - Brownstone 345 kV constraint
 - **None of the proposals significantly decreased total congestion around Monroe bus**
 - Table below shows congestion around the Monroe bus (simulated year 2023)

Constraint	Base	MW_775	MW_078	MW_782
B:26461219MON12 26469219WAYNE 1 FLO E:21 19MON12 345-19BNSTNS 345 (DECO) [1]	\$ (1,667,690)			
B:26461219MON12 26470719BNSTNS 1 FLO E:40 L/O 19MON12 to 19WAYNE	\$ (2,497,653)	\$ (4,105,035)	\$ (4,154,729)	\$ (4,021,034)
Total	\$ (4,165,342)	\$ (4,105,035)	\$ (4,154,729)	\$ (4,021,034)

- Apply LNG-Maple rating correction to base case
- Rerun PROMOD simulations for Bosserman – Trail-Creek and Marblehead interregional proposals (both Base Case and FSA Sensitivity)
- Run Load and Gas Price sensitivities for all interregional proposals
- Finalize Reliability Analysis for all proposals
- Finalize Cost Constructability Analysis for all proposals
- RPM Check for Bosserman – Trail-Creek proposals

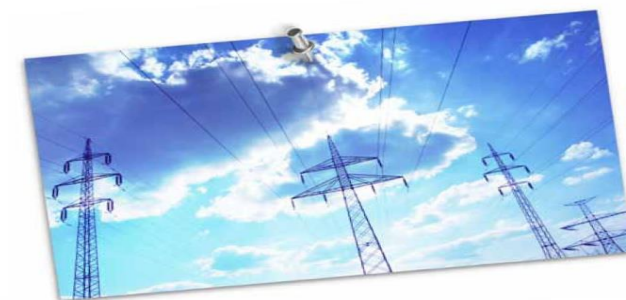
Changes to Article IX of the PJM/MISO JOA

- Final JOA Redlines presented to stakeholders
- Pre-filing call with FERC
- Joint filing letter drafted; coordination between legal teams ongoing

MISO Cost Allocation FERC Filing Update

IPSAC Work Schedule

- Ongoing coordination of IMEP proposal evaluation



Open Discussion

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- July 23, 2019
 - Original version posted