



MISO PJM IPSAC

July 29, 2016

- Targeted Market Efficiency Project (TMEP) Study
- TMEP Proposed JOA Language
- FERC EL13-88 Filings
- IPSAC Work Schedule

Targeted Market Efficiency Project Study

TMEP Concept vs. Longer Term MEP

Targeted Market Efficiency Project

- Driver is historical M2M congestion (whether or not it drives settlement payments)
- Each TMEP upgrade project to relieve congestion must be flowgate specific and meet other criteria
- Upgrade suggestions for general areas, conditions or collection of constraints may require longer term studies
- Limited scope and cost capped TMEPs complement, not replace, MEPs

Longer Term Market Efficiency Project

- MEPs require regional issues in both RTOs and are subject to regional process project approval
- Candidate JOA MEP upgrades must also be entered for evaluation in a regional PJM competitive window in response to PJM issues
- MEP analysis is a longer and more rigorous process involving a long model development and review timeline with subsequent analysis
- Recent FERC orders involve changes to the MEP process
- MEP JOA and regional processes are under review and likely require further changes

- Facility specific information will be reviewed to ensure appropriate treatment of any CEII or confidential information
- List of facilities with potential upgrades has been developed
- RTOs have collaborated on all tie lines to ensure complete information
- RTOs working to evaluate effectiveness of upgrades

- Focus has been on finalizing proposed metrics – want clear metrics before making project recommendations

Updated TMEP Potential Upgrades

NERC FG ID(s)	Monitored Branch	Ownership	Total 2015 Congestion
2286/2205	Burnham - Munster 345kV	CE-NIPS	\$ 14,036,864
2647	Bayshore - Monroe 345kV	ATSI – ITC	\$ 9,170,850
2427/2540	Michigan City – Bosserman 138kV	NIPS-AEP	\$ 7,915,489
20729/2548/2685	Reynolds-Magnetation 138kV	NIPS	\$ 7,572,616
2577/2531	Roxana - Praxair 138kV	NIPS	\$ 6,253,543
20707/20737	Klondcin-Purdue 138kV	DEI	\$ 5,721,354
2207	Braidwood-East Frankfurt 345kV	CE	\$ 4,883,720
2395	Marysville-Tangy 345kV	AEP-ATSI	\$ 4,816,134
2578	Michigan City – Trail Creek 138kV	NIPS	\$ 3,346,401
20865	Munster 345/138	NIPS	\$ 3,208,684
20849/21139	Tippecanoe - Lafayette South 138kV	DEI	\$ 2,898,873
2445	Batesville - Hubble 138kV	DEI-HE	\$ 1,704,731
3654	Bush - Lafayette 138kV	DEI	\$ 1,680,640

TMEP Proposed JOA Language

- Small, low cost, short lead time projects
- Targeted at specific, historical congestion issues
- Simple method for benefit determination
- Avoid complicated analysis which could delay implementation

- Projected benefits based on historical congestion should be reduced based on guaranteed congestion hedges
- RTOs are investigating the magnitude of hedging that exists on Market-to-Market (M2M) flowgates
- Variability from year to year and flowgate to flowgate
 - Hedge ranges from 0 to 100%
- Evaluating hedge % calculated annually for each flowgate

- Auction Revenue Rights (ARRs) are an instrument to protect load serving entities from congestion; based on their initial and ongoing contributions to finance transmission construction.
- ARRs are guaranteed up to the first 50% of historical peak load
- ARRs are paid based on the revenues obtained in the FTR auction (sink price - source price)*ARR MW
- FTRs are financial instruments that are purchased by the highest bidder
- FTRs are paid based on the congestion that actually occurs (LMP sink - LMP source) * (FTR MW) in the DA (and Balancing) markets.

ARR = Auction Revenue Rights, FTR = Financial Transmission Rights, LMP = Locational Marginal Price

- ARR can be converted into FTR – guaranteed to clear as an FTR if the ARR holder chooses to convert them
- Most FTRs are owned by entities that were allocated ARRs, then converted to FTRs. A very small portion of all FTRs are purchased in the FTR auction by market participants
- The simultaneous feasibility test (SFT) accounts for all of the ARRs, ARRs converted to FTRs, and then clears as many FTRs as possible while maintaining a security constrained system



Goal:

Identify portion of congestion on specific M2M flowgates that may be offset by revenues received from guaranteed ARR

- Regional market efficiency analysis criteria includes ARR hedges
 - Regional analysis evaluates impact of entire portfolio of ARRs on the load cost
 - Challenge for TMEPs is to determine impact on a single flowgate



Method:

- Identify congestion on the M2M flowgate in the first round of the annual FTR auction
- This congestion is the amount paid to ARR holders for this flowgate

(shift factor (sink - source) of each stage 1A ARR path on the TMEP flowgate monitored element * MW of the ARR) * shadow price on the TMEP flowgate monitored element in FTR auction

- Limited to M2M flowgates
- Projects must be in service by 3rd summer peak
- Projects over \$20 million not eligible (must go through MEP process)
- Benefits based on 3 years of historical congestion (DA + Balancing/ECF)
- Discount historical congestion by guaranteed congestion hedges (ARRs)
- Four years worth of benefits must completely cover project's installed capital cost
- Discount/inflation rate not necessary as all projects are near term
- Benefit determination between RTO's adjusted by M2M payments

- Updated draft JOA language posted with meeting materials
- Stakeholders requested to provide comments by August 12
- Final draft JOA language to be presented at August 26 IPSAC

FERC Order on EL13-88

FERC Directed Stakeholder Involvement

Deliverable		Due Dates (2016)				Stakeholder Forum
		20-Jun	19-Aug	18-Oct	15-Dec	
Directive P186	Include Generator Retirement Coordination Procedures in JOA	X	X	X	X	IPSAC, PSC, PC
Informational P186	Status Reports on Gen Retirement Coordination Language					
Informational P92	Joint Model in Regional Processes			X		IPSAC, PSC, PC

No FERC Directed Stakeholder Involvement

Deliverable		Due Dates (2016)		Stakeholder Forum (Informational Updates)
		20-Jun	19-Aug	
Directive P57	Formalize Steps and Deadlines in CSP Study	X		IPSAC, PAC, TEAC
Directive P131	Lower Interregional MEP Thresholds	X		IPSAC, RECB, TEAC
Directive P132	Remove Interregional B/C Ratio	X		IPSAC, RECB, TEAC
Directive P133	Revise Benefit Calculation of Interregional MEPs	X		IPSAC, RECB, TEAC
Directive P185	Include BPM GI Coordination Procedures in JOA	X		IPSAC, PSC, TEAC
Informational P58	Aligning Interregional, MTEP, and RTEP		X	IPSAC

IPSAC Work Schedule



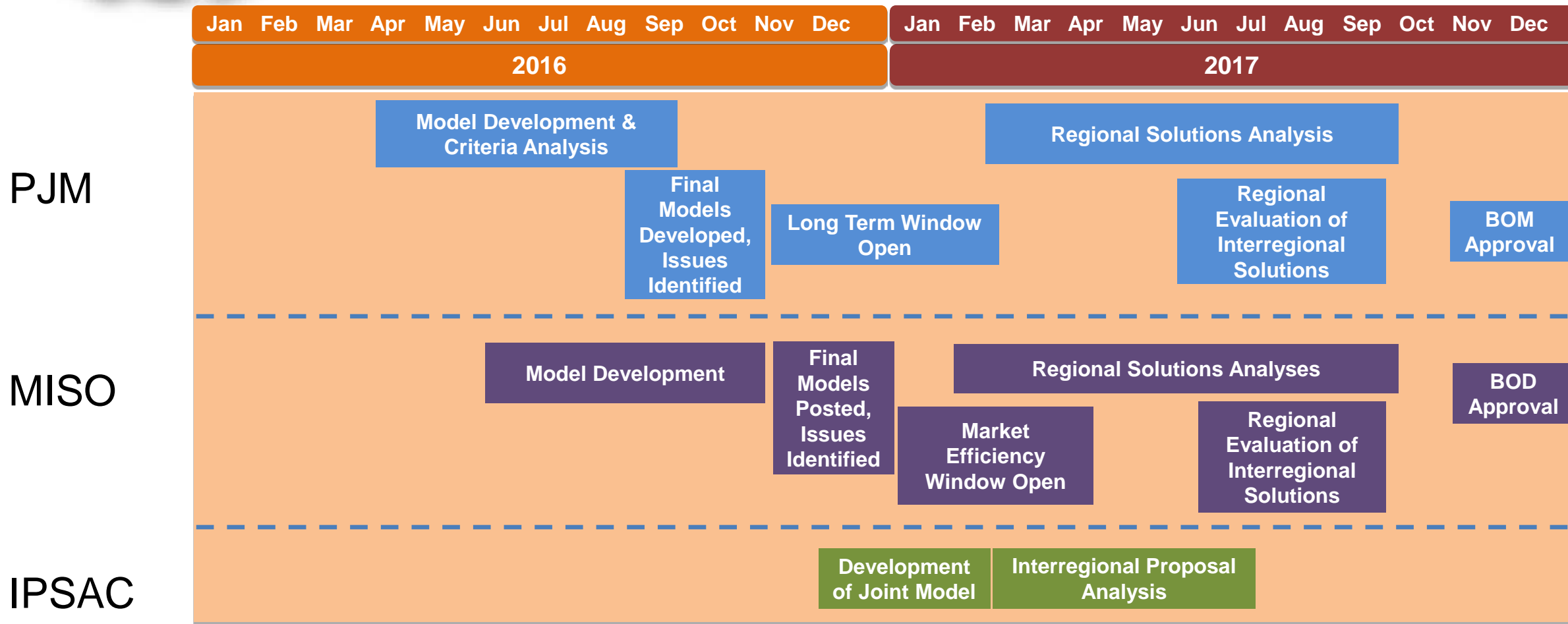
Q3 2016

- Complete evaluations of potential Targeted upgrades
- Finalize and file TMEP language in JOA

Q4 2016

- Continue MEP Metric and Process discussions with stakeholders
- Complete TMEP analysis and recommend projects as appropriate
- Identify potential longer term interregional issues from regional processes; solicit projects from stakeholders

Interregional Market Efficiency Project Timeline



*Interregional proposals must be proposed in each regional window (January & February overlap)

- July 29, 2016 – IPSAC & notice of September PJM issues review
- August 26, 2016 – IPSAC stakeholder input to PJM issues review due
- September 30, 2016 – IPSAC review PJM issues
- November 1, 2016 – PJM long-term solution proposal window opens
- February 28, 2017 – PJM long-term solution proposal window closes

- October 2016 – IPSAC & notice of December MISO issues review
- November 2016 – IPSAC & stakeholder input to MISO issues review due
- December 2016 - IPSAC review MISO issues
- January – March 2017 – MISO solution proposals accepted

Open Discussion

- Chuck Liebold
chuck.liebold@pjm.com
- Adam Solomon
asolomon@misoenergy.org