

MISO PJM IPSAC

August 26, 2016







IPSAC Meeting, August 26, 2016



- TMEP Proposed JOA Language
- FERC EL13-88 Filings
- IPSAC Work Schedule



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Agenda









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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





NERC FG ID(s)	Monitored Branch	Ownership	Tota	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







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- 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







Since last meeting:

- Consider three years of historical congestion data
 - Must include immediately previous year (2015)
 - Only two years historical congestion required
- Congestion hedge
 - Price ARRs and FTRs separately, consistent with the ratio that have converted to FTRs





- Constraint congestion has 2 parts: Day Ahead (DA) Congestion and Excess Congestion Fund (ECF) (or Balancing Congestion)
 - See April 8 IPSAC slides for calculation details
- These two components are summed from both PJM and MISO for total flowgate congestion
- Congestion values have been verified with PJM and MISO Market Monitors





Goal:

Identify portion of congestion on specific M2M flowgates that may be offset by revenues received from guaranteed ARRs (stage 1A)

- 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 ARR auction as a result of Stage 1A ARR flows that did not convert to FTRs
- Identify congestion on the M2M flowgate in the Day Ahead market as a result of Stage 1A ARR flows that did convert to FTRs
- The sum of these two components is the value of guaranteed congestion hedges on the flowgate







- Limited to M2M flowgates
- Projects must by 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 project are near term
- Benefit determination between RTO's adjusted by M2M payments





Example Benefit Calculation

		2013		2014		2015	Three years of historical		
PJM Congestion	\$	75,000	\$	1,000,000	\$	1,500,000	values		
MISO Congestion	\$	10,000	\$	1,000,000	\$	1,250,000			
PJM Hedge Value	\$	20,000	\$	400,000	\$	750,000	*See next slide for		
MISO Hedge Value	\$	0	\$	300,000	\$	400,000	calculation details		
PJM M2M Payment	\$	2,000	\$	150,000	\$	200,000	Note M2M payments are		
MISO M2M Payment	\$	(2,000)	\$	(150,000)	\$	(200,000)	equal and opposite		
PJM Unhedged Congestion	\$	55,000	\$	600,000	\$	750,000	Congestion minus Hedge		
MISO Unhedged Congestion	\$	10,000	\$	700,000	\$	850,000	Value		
Total Unhedged Congestion	\$	65,000	\$	1,300,000	\$	1,600,000	Sum of both RTOs		

*All values and project details are for illustrative purposes only





Example Congestion Hedge Calculation

	2013	2014	2015
Value of PJM ARRs	\$ 10,000	\$ 200,000	\$ 300,000
Value of PJM ARRs converted to FTRs	\$ 10,000	\$ 200,000	\$ 450,000
PJM Hedge Value	\$ 20,000	\$ 400,000	\$ 750,000
Value of MISO ARRs	\$ 0	\$ 100,000	\$ 150,000
Value of MISO ARRs converted to FTRs	\$ 0	\$ 200,000	\$ 250,000
MISO Hedge Value	\$ 0	\$ 300,000	\$ 400,000

Value of ARRs = Shift factor (source – sink) of each ARR path on the TMEP flowgate * MW of the ARR * shadow price across the constraint in the FTR auction

Value of ARRs converted to FTRs = Shift factor (source – sink) of each converted ARR path on the TMEP flowgate * MW of the converted ARR * average day ahead shadow price * day ahead binding hours

*All values and project details are for illustrative purposes only





- Proposed upgrade is replacement of breakers and associated CTs and relays
 - Total cost \$2.5 Million
- Analysis shows project eliminates congestion issue

Annual benefit is average of two highest years of Total Unhedged Congestion:



*All values and project details are for illustrative purposes only





Inter-RTO Cost Allocation

PJM Total Benefit:		1,350,000	Sum of unhedged congestion for
MISO Total Benefit:		1,550,000	two highest historical years
PJM Total M2M Payments	\$	350,000	Sum for two highest historical vears
MISO Total M2M Payments		(350,000)	Sum for two highest historical years
PJM Adjusted Benefit:	\$	1,700,000	Total Benefit plus M2M Payments
MISO Adjusted Benefit:	\$	1,200,000	
PJM pays:		59%	Share of Adjusted Benefits
MISO pays:		41%	

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17

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Being determined individually by each RTO

- PJM: Under discussion by TOs
- MISO: Discussion occurring at RECB















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- Responses provided by six entities
- Supportive of concept and stated goals of TMEPs
- Feedback posted with meeting materials







- Discount for hedging and short payback period may limit beneficial projects from being completed
 - Don't discount historical congestion
- Consider additional benefits such as production cost savings
- Clarify TMEPs do not qualify as open bid projects
- Use 2 years historical congestion, rather than 3
- Provided redline of suggested changes to JOA language (posted with meeting materials)





- Change project in service requirement to 4 years
- Allow flexibility in benefit period
- Don't discount historical congestion (no hedge calculation included)
- Don't limit to only M2M flowgates
- Not clear how projects that meet criteria would move forward
- Include requirement for completing TMEP study annually





- The hedging calculation adds significant complexity to the process. One of the stated goals of TMEPs is to keep the process quick and simple.
 - Recommend removing hedging calculation
- Regional cost allocation remains unclear; still a barrier to developing projects







- Add clarification to how cost will be split between RTOs
- How will increased congestion on nearby flowgates be quantified?
- A MISO-PJM "year zero" PROMOD model would be helpful







- Concerned about the validity/accuracy of hedging calculation
- Support production cost based metrics, but unsure how to meet stated TMEP goals using production cost calculations
 - Recommend moving forward with current method, but be open to change/improvement down the road







- Concerns about MISO Regional cost allocation
 - Suggested edits to remove TMEPs from Interregional Market Efficiency Project umbrella in JOA







- Appreciate all comments received
- Agree that between the congestion hedge and the short payback time the metrics are a high hurdle
- Congestion based on the cost of re-dispatch includes production cost savings
- The current approach is a compromise reached through many months of discussions with all involved stakeholders
- Open to continued development and improvement





- Numerous stakeholders have questioned the need for including congestion hedges
 - Increases study complexity
 - Decreases project benefits within 4 year window
- Average congestion hedge is on the order of 35%
 - Not considering hedge would have the same impact as using a six year payback period
- Are congestion hedges really a necessary part of the study?





- All interested stakeholders requested to complete poll specifically regarding the congestion hedging issue
 - <u>http://survey.qualtrics.com/jfe/form/SV_0AOfybERTJJgLMF</u>
 - Will also send link via email
 - Poll will be open until 5:00 PM Friday, September 2
- Target to file language with FERC in September
- Moving forward with analysis to be ready to submit projects for board approval as soon as FERC approves the language







FERC Order on EL13-88







30

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Informational Filing (P58) and Status Report (P186)

- Alignment of interregional, MTEP, and RTEP timelines
- Completed and filed per August 19 deadline
- Posted with meeting materials







- Schedules for MTEP, RTEP, and Interregional studies are appropriately and effectively synchronized
- June 20 compliance filing added significant detail to JOA on coordinated timing of interregional studies
 - Ensures MTEP and RTEP timelines work with interregional processes
- Remaining variations in regional schedules and processes are necessary and were developed among a diverse group of stakeholders based on unique regional needs and compromises
- A process for coordination of generation retirement studies is under development as directed by the commission





FERC Directed Stakeholder Involvement

Deliverable		Due Dates (2016)				Stokoholdor Forum
	20-Jun	19-Aug	18-Oct	15-Dec	Stakenoluer Forum	
Directive P186	Include Generator Retirement Coordination Procedures in JOA	v	v	v	v	
Informational P186	Status Reports on Gen Retirement Coordination Language	^	^	^	^	1P3AC, P3C, PC
Informational P92	Joint Model in Regional Processes			X		IPSAC, PSC, PC

No FERC Directed Stakeholder Involvement

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







IPSAC Work Schedule







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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 reviews 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







Key Dates



Open Discussion







IPSAC Meeting, August 26, 2016





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