



# MISO PJM IPSAC

January 18, 2019

- TMEP Approval
- Annual Issues Review Notice
- Interregional Market Efficiency Study Status
  - MISO Regional Process and Criteria
- JOA Changes Update
- IPSAC Work Schedule





# Targeted Market Efficiency Projects

## Board Approval

- 61 Market-to-Market flowgates evaluated
- 2 projects recommended
  - \$ 25.3 million in historical congestion (2016+2017)
  - \$ 31.9 million TMEP benefit
  - \$ 4.5 million total cost
  - 7.1 average B/C ratio
- MISO and PJM each brought the recommended TMEPs to their respective boards in early December
  - Both Boards approved the projects
  - The projects are now part of the MTEP and/or RTEP portfolios

# Summary and Location of Approved TMEPs

M2M Facility	Upgrade	TO(s)	Benefit	Cost	Interregional Cost Split	MTEP Project #	RTEP Project #
Marblehead 161/138 kV Transformer	Terminal equipment (disconnect switch and bus conductor)	Ameren (IL)	\$12.4M	\$175k	100% MISO	16227	N/A
Gibson - Petersburg 345 kV Line	Terminal equipment (switches, breakers, relays, bus work)	Duke/IPL	\$19.5M	\$4.3M	93% MISO/ 7% PJM	16228	b3053



# Annual Issues Review Notice

- In the 4th quarter, RTOs exchange (completed in December 2018):
  - Regional issues and newly approved projects near the seam
  - New regional issues
  - Interconnection requests under coordination
  - M2M historical congestion
- RTOs jointly review above in January
- Receive Third Party issues in first quarter, but no less than 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

- To submit 3<sup>rd</sup> party input to the Annual Issues Review, please send feedback by February 27<sup>th</sup> to MISO and PJM (email contact at end of slide deck)




- MISO and PJM will review and solicit stakeholder feedback at the March 29 Issues Review IPSAC
  - Regional issues & solutions
  - 3<sup>rd</sup> party issues
- Issues and plans have been discussed at regional meetings
  - PJM regional issues are presented at monthly [TEAC meetings](#)
  - MISO regional issues are presented at triannual [Subregional Planning Meetings](#)

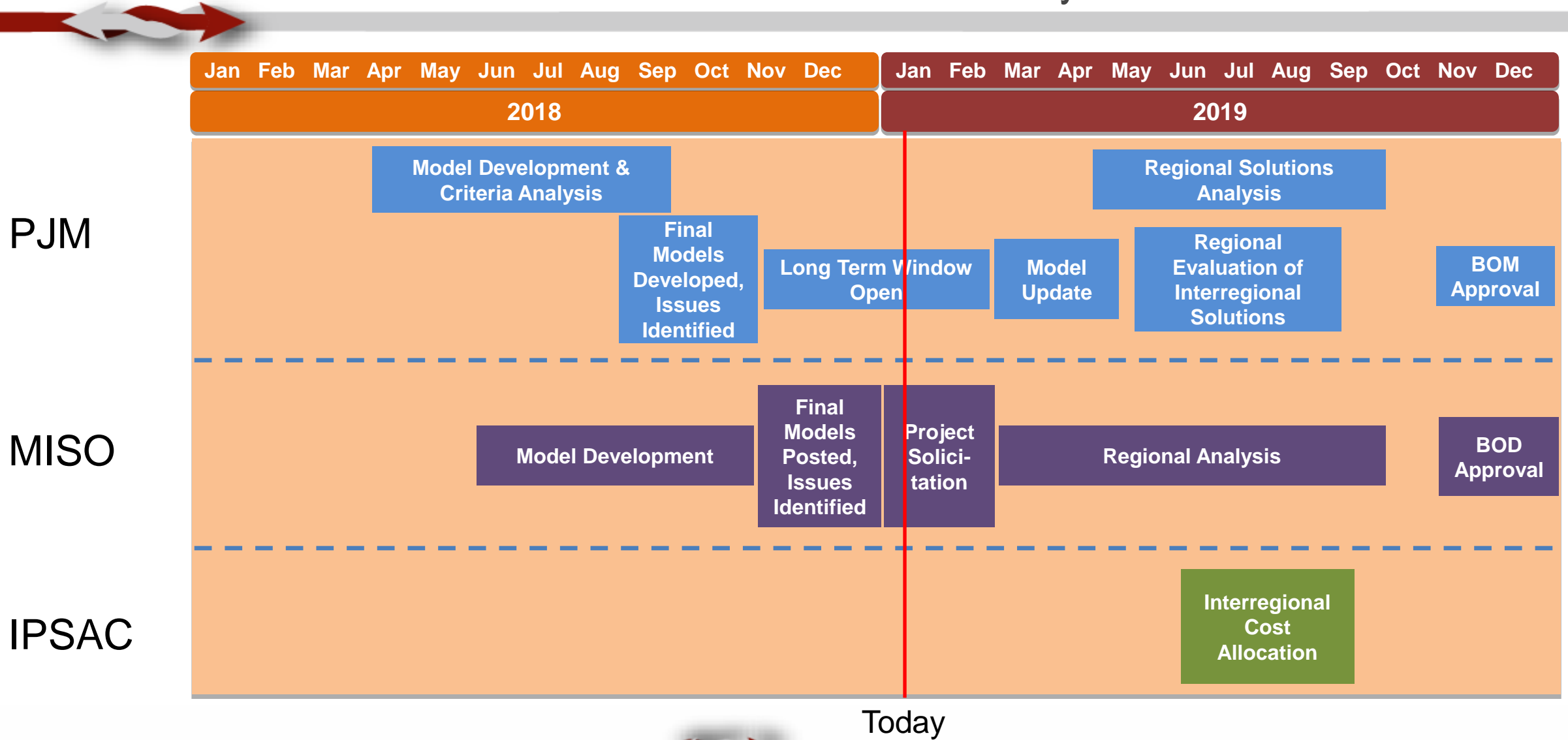


# Interregional Market Efficiency Projects Study Status

- 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

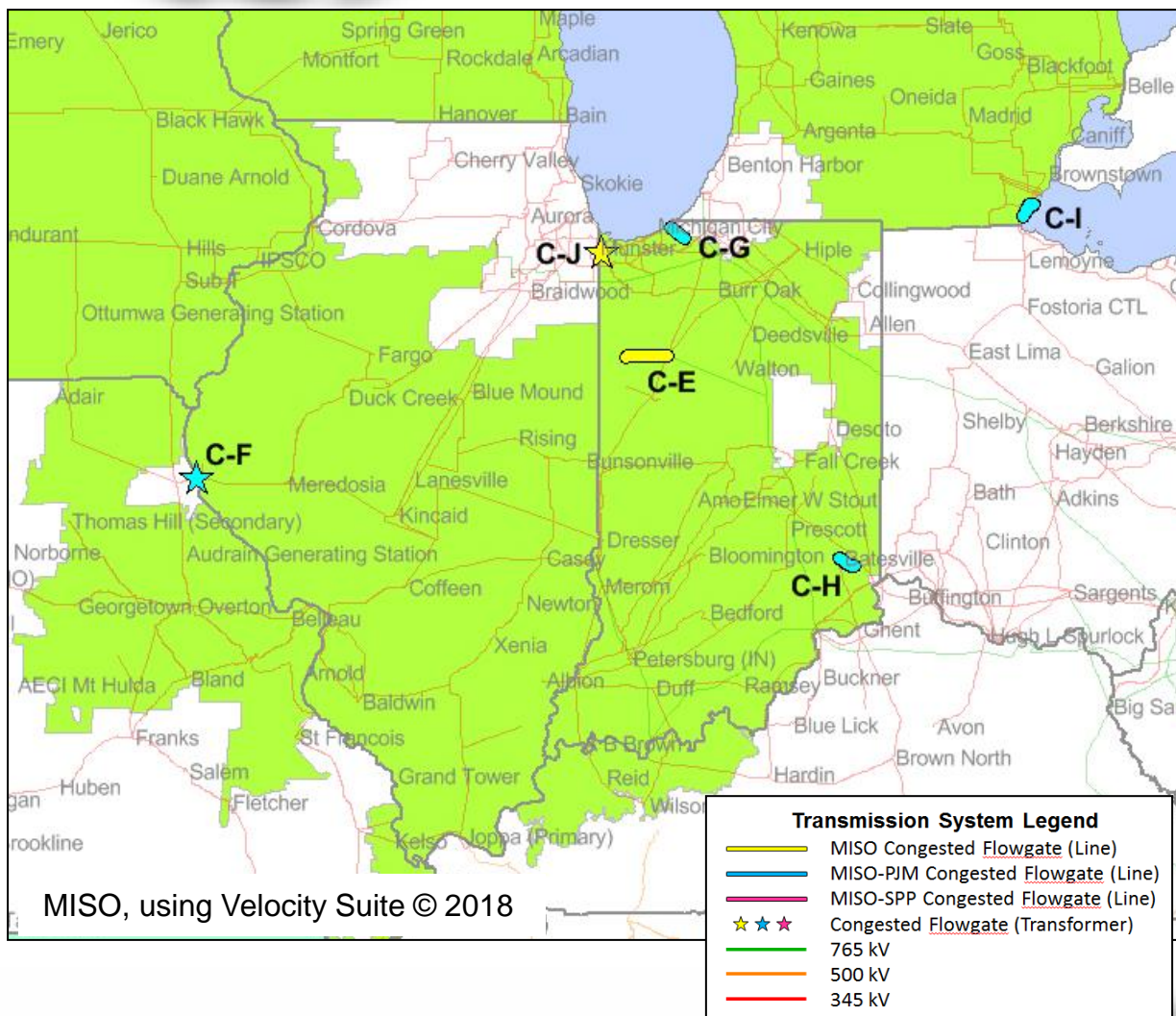
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- Study progresses in parallel through PJM and MISO regional processes
  - Each RTO has developed an economic model and identified issues for which upgrades are being solicited
    - Model and issues identification consistent with regional process and practice
  - 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

# Market Efficiency - Estimated Timeline



# MISO Regional Market Efficiency Process Update

- MISO's Market Congestion Planning Study (MCPS) published regional issues and information at the [December 7, 2018 SPM1](#)
  - [MCPS Study Overview](#)
  - [MISO North/Central Economic Issues](#)
  - [Project Solicitation Information](#)
  - [Solution Idea Submittal Form](#)



## Flowgate C-E: Goodland – Reynolds 138kV

- Nearby existing wind farms (Hoosier Wind Park, Goodland I Wind, Settlers Trail Wind, Pioneer Trail Wind) driving congestion.

## Flowgate C-F: Marble Head N Transformer 161/138kV

- Historically binding M2M constraint exacerbated by coal and nuclear retirements in Illinois.

## Flowgate C-G: Bosserman – Trail Creek 138kV

- Historically binding M2M constraint. Congestion driven by nearby retirements (e.g. Baily, R M Schafer, Dresden), which increase east to west flows in Northern Indiana.

## Flowgate C-H: Hubble – Batesville 138kV

- Historically binding M2M constraint exacerbated by future renewable energy.

## Flowgate C-I: Lallendorf – Monroe 345kV

- Historically binding M2M constraint driven by high transfer from North to south flow.

## Flowgate C-J: Munster Transformer 345/138kV

- Congestion driven by increasing wind capacity to the west of Munster transformer which causes heavy west to east flows during periods of high wind.



## MISO Market Congestion (Jan 2016 – Jul 2018)

ID	Monitored Element	Area	Day-Ahead Binding Hours	Day-Ahead Total Shadow Price (k\$/MWh)	Real-Time Binding Hours	Real-Time Total Shadow Price (k\$/MWh)
C-E	Goodland - Reynolds 138kV	NIPS	2,474	45.1	1,169	53.4
C-F	Marble Head N Transformer 161/138kV	AMIL	4,796	167	350	122
C-G	Bosserman – Trail Creek 138kV	NIPS - AEP	13	0.1	0	0
C-H	Hubble – Batesville 138kV	HE - DUK-IN	1,084	131	266	294
C-I	Lallendorf – Monroe 345kV	FE-ATSI - DECO	904	16.8	202	9.37
C-J	Munster Transformer 345/138kV	NIPS	0	0	0	0

Data source: Day-ahead and real-time binding constraint reports from MISO Market

## PROMOD Output

ID	Monitored Element	Contingency Element(s)	Area	2028 Total Annual Shadow Price (k\$/MWh)			
				AFC	CFC	DET	LFC
C-E	Goodland - Reynolds 138kV*	Goodland - Remington 69kV; Sheldons - Watseka 138kV	NIPS	65	68	72	54
C-F	Marble Head N Transformer 161/138kV	Maywood – Herleman 345kV	AMIL	137	63	24	8
C-G	Bosserman – Trail Creek 138kV	Bosserman - Michigan City 138kV	NIPS - AEP	46	16	22	43
C-H	Hubble – Batesville 138kV*	Clifty Creek – Trimble Reactor 345kV; Tanners Creek – Miami Fort 345kV	HE - DUK-IN	82	34	20	0
C-I	Lallendorf – Monroe 345kV*	Allen Jct – Morocco 345kV; Morocco - Monroe - Milan 345kV	FE-ATSI - DECO	125	19	16	4
C-J	Munster Transformer 345/138kV	Lake George – Munster 345kV	NIPS	376	86	84	83

\*Binding for multiple contingencies

- MTEP19 PROMOD model has been posted to FTP
- SFTP Location:
  - Host: [misoftp.midwestiso.org](http://misoftp.midwestiso.org)
  - Port: 22
  - Folder: /MTEP19/MTEP19 PROMOD models/
- Final model includes stakeholder feedback from November posting
- Contingency analysis was conducted to determine new flowgates

- MTEP19 solution submission window is open for identified transmission needs and will close on March 1, 2019
- Next regional MCPS meetings are May 31, 2019 for the North/Central (West SPM2)\* and May 29, 2019 for South SPM2 to present:
  - Transmission solution screening results
  - Identified project candidates

\* North/Central focus area meetings will occur as part of West Region SPMs and will provide updates in East and Central SPMs

Meeting	Date	Location	Region	Focus Areas	Topics
SPM1	12/7/2018	Eagan, MN	North/Central**	North/Central; MISO-PJM & MISO-SPP	-Scope & schedule -Needs identification -Open solution submission window (window closes 3/1/19)
	12/18/2018	Metairie, LA	South***	South & MISO-SPP	
SPM2	5/31/2019	Eagan, MN	North/Central**	North/Central; MISO-PJM & MISO-SPP	-Solution screening results -Identification of project candidates -Solicitation of sensitivities
	5/29/2019	Metairie, LA	South***	South & MISO-SPP	
MCPS TSTF*	7/25/2019	Webex	All	All	-Robustness & sensitivity analysis results -Reliability no harm testing results -Further project iterations and sensitivities
SPM3	8/22/2019	Eagan, MN	North/Central**	North/Central; MISO-PJM & MISO-SPP	-Final project results -MISO recommendations
	8/29/2019	Little Rock, AR	South***	South & MISO-SPP	

\*SPMs and MCPS TSTF are open-public meetings

\*\*North/Central focus area issues will presented as part of West Region SPMs and updates will be provided at East and Central SPMs

\*\*\*South focus area meetings will occur as part of South Region SPMs

- MISO-PJM congestion analysis will be coordinated concurrently through the MISO Regional MCPS process as well as the IPSAC
  - Solutions must be submitted to both MISO and PJM as a MISO-PJM interregional solution
  - Solutions must address both a MISO and a PJM issue
- All solution ideas, questions, and comments can be sent to:

[EP@misoenergy.org](mailto:EP@misoenergy.org)

# PJM Regional Market Efficiency Process Update

- October IPSAC reviewed
  - Issues identification process
  - Window timing & registration
- Several interregional drivers have been identified by PJM
- Proposal window closes on March 1



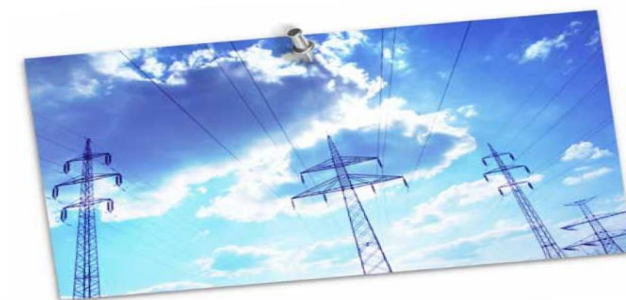
2018/19 RTEP Market Efficiency Window Eligible Congestion Drivers			ME Base Case with FSA units (Annual Congestion \$million)		ME Base Case with FSA units (Hours Binding)		Comment	Potential Upgrades
Constraint	FROM AREA	TO AREA	2023 Simulated Year	2026 Simulated Year	2023 Simulated Year	2026 Simulated Year		
Hunterstown to Lincoln 115 kV	METED	METED	\$ 7.45	\$ 10.56	865	1010	Internal Flowgate	
Monroe 1&2 to Wayne 345 kV	MISOE	MISOE	\$ 4.38	\$ 9.51	148	271	M2M	
He Hubbell to Sunman Weisburg 138 kV	MISOC	MISOC	\$ 3.19	\$ 3.20	122	110	M2M	
E Frankfort (R) to Goodings (R) 345 kV	COMED	COMED	\$ 0.56	\$ 1.46	58	145	M2M	
Cumberland TR2 to Juniata Bus 1 230 kV	PLGRP	PLGRP	\$ 8.99	\$ 13.10	357	316	Internal Flowgate	
Marblehead North Bus 1 138/161	MISOC	MISOC	\$ 0.95	\$ 0.60	160	118	M2M	A PJM/MISO TMEP has been proposed for this facility
Bosserman to Trail Creek 138 kV	AEP	MISOE	\$ 7.04	\$ 9.79	265	340	M2M	

\* Table from November 8 TEAC


# Proposed Changes to Article 9 of the PJM/MISO JOA

# IPSAC Work Schedule

- Stakeholder Input Due: February 27<sup>th</sup>
- Interregional MEP proposal windows close: February 28<sup>th</sup> (MISO), March 1 (PJM)
- Issues Review IPSAC: March 29<sup>th</sup>
- JRPC notifies IPSAC of CSP study decision: May 17<sup>th</sup> (at latest)
- File JOA Article 9 updates at FERC



# Open Discussion

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- Alex Worcester  
[alex.worcester@pjm.com](mailto:alex.worcester@pjm.com)
  - Jarred Miland  
[jmiland@misoenergy.org](mailto:jmiland@misoenergy.org)
  - Adam Solomon  
[asolomon@misoenergy.org](mailto:asolomon@misoenergy.org)



# Appendix

## JOA Article IX Updates

- Teed up discussion October, 2017
- Sought stakeholder feedback -January
- Reviewed feedback with IPSAC -March
- Presented draft redlines -June
- Expected filing shared with IPSAC –August



- Remove 5% GLDF criteria; materiality determined by regional processes
- Clean up as required to reflect no joint model for IMEP study
- Clarify obligation to construct (project in one region benefiting the other)
- Eliminate Cross Border Baseline Reliability Project (CBBRP) type
- Remove Section 9.4.4.3 (allocation outside of CSP)
  - Relies on joint model
  - Annual issues review still allows RTOs opportunity to find projects outside of joint study and include in the CSP