MISO-SPP Joint Targeted Interconnection Queue Update

MISO-SPP Joint Stakeholder Meeting

03/27/2023

SPP Southwest Power Pool

MISO

Key Takeaways:

- Study Recap
  - SPP-MISO JTIQ Study focus
  - JTIQ Portfolio
  - Current Interconnection Queue Process vs JTIQ
  - Benefits of JTIQ replacing AFS Process
- Cost Sharing and Cost Allocation Updates
  - Cost Sharing and Cost Allocation Overview
  - JTIQ Cost Recovery and Charges
  - Illustrative Examples
  - DOE Funding
- Tariff Changes
- Timeline

SPP Southwest Power Pool

MISO

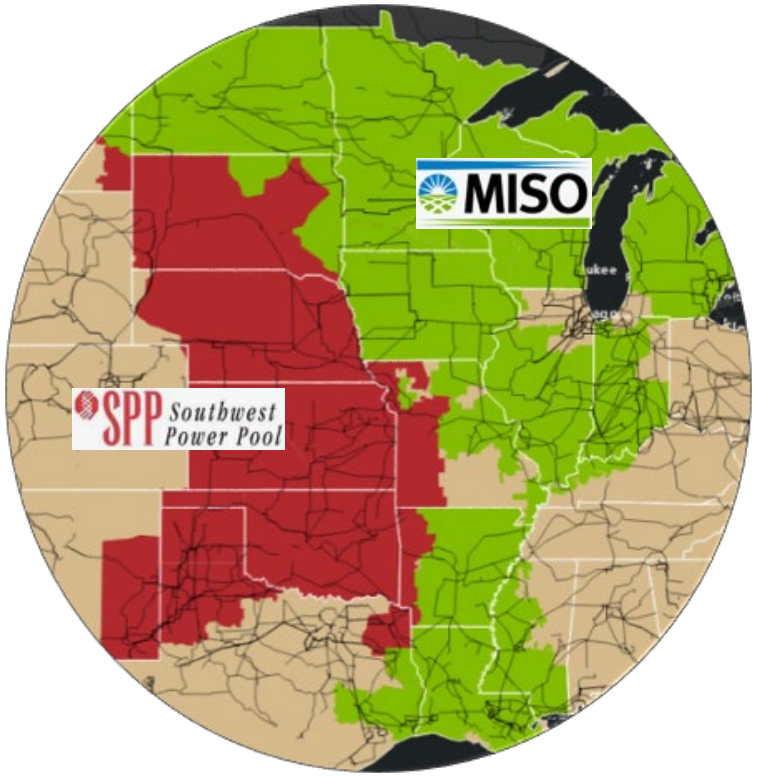
Study Recap

SPP Southwest Power Pool

MISO

SPP-MISO JTIQ Study focus

JTIQ concentrated on optimizing transmission for interconnection along the SPP-MISO seam and unlocking clogged interconnection queues



- SPP and MISO are experiencing similar resource mix shifts with significant queue sizes
- The transmission system is at capacity along the SPP-MISO seam
- Upgrades are too costly for small groups of interconnection customers, contributing to churn in the queue which leads to delays
- The study accomplishes what Affected System Studies were meant to achieve and is consistent with the principles envisioned in SCRIPT CPP and recent FERC NOPRs

SPP Southwest Power Pool

MISO

JTIQ Portfolio E&C Costs & APC Benefits

JTIQ Portfolio	Location by RTO	Cost E&C ($M)
Bison – Hankinson – Big Stone South 345 kV	MISO	476
Brookings Co – Lakefield 345 kV	MISO	331
Raun – S3452 345 kV	MISO - SPP	144.4
Auburn – Hoyt 345 kV	SPP	90.5
Sibley 345 Bus Reconfiguration	SPP	18.8
Total Cost of Portfolio of Projects	MISO - SPP	1,060.7

10-year Adjusted Production Cost (APC) Benefits		
MISO	SPP	Total
$55.7	$132.9	$188.6

SPP Southwest Power Pool

MISO

Current Interconnection Queue Process vs JTIQ

	Current Interconnection Queue Process	JTIQ Process
Network Upgrade Identification Process	• MISO DPP and SPP DISIS identify Network Upgrades required by new generation in Host Region • MISO performs Affected System Study (AFS) for SPP DISIS and SPP performs AFS for MISO DPP to identify Network Upgrades required across the seams by new generation in Host Region	• Focuses on backbone projects rather than POI injection Network Upgrades
Generation Interconnection Assumption	• Utilizes actual generation sites in interconnection queues	• Utilizes future generation representing multiple DISIS and DPP study clusters
Network Upgrade Scope	• Identifies Network Upgrades sufficient only for a particular SPP DISIS or MISO DPP study cycle	• Identifies larger/longer term optimized system needs across seams and across study clusters

SPP Southwest Power Pool

MISO

Benefits of JTIQ replacing AFS Process

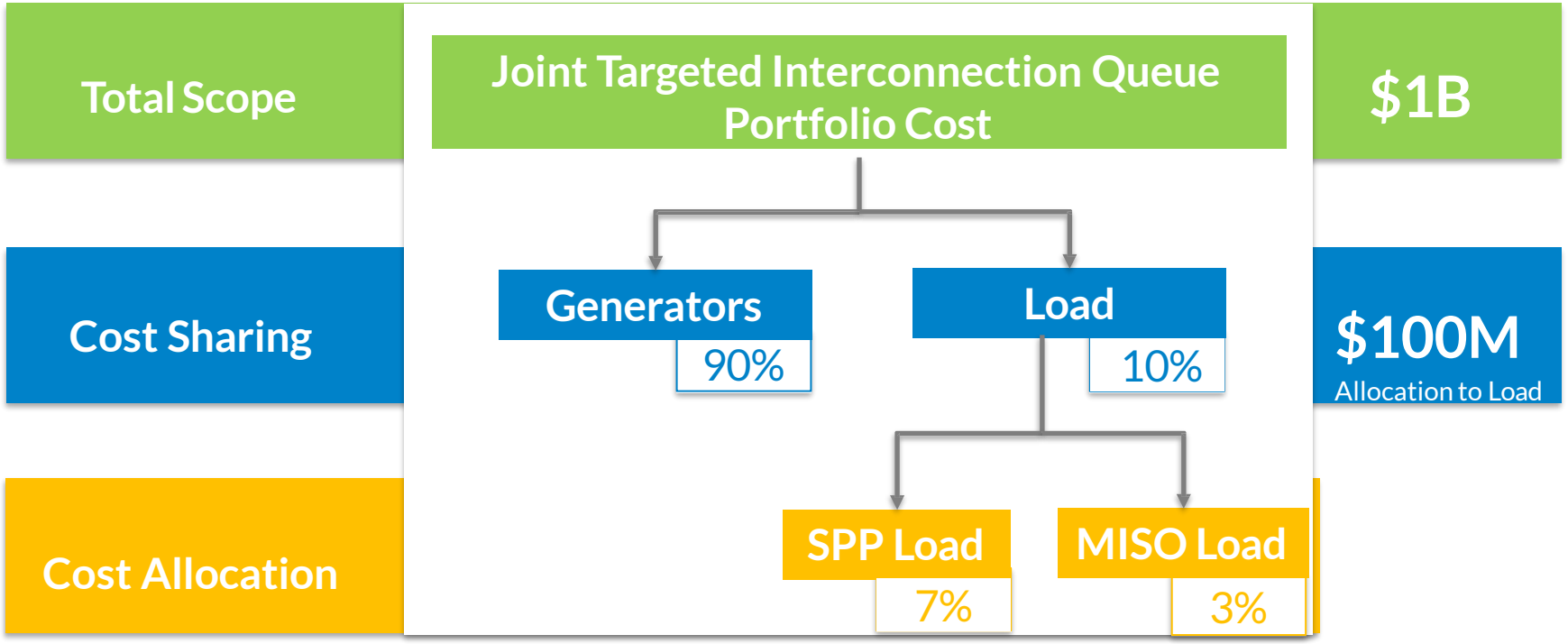
- **Improves cost certainty** for GI requests in MISO and SPP
  - Provides GI customers affected system cost at the start of DPP or DISIS
  - Eliminates unknown AFS Network Upgrades
  - Eliminates AFS study cost
- **Improves timing certainty** for GI requests in MISO and SPP
  - Concludes study process for requests with the completion of DPP or DISIS without having to wait for separate AFS study results
  - Eliminates timing delays on AFS study coordination
- **Enhances alignment with FERC** interconnection initiatives
  - Builds on notion of interconnection zones contemplated by FERC's transmission planning NOPR
- **Optimizes Network Upgrades** along the seams
  - Identifies optimized Network Upgrades that address larger/longer-term system needs across seams and across study clusters as compared to individual MISO+SPP AFS processes

SPP Southwest Power Pool

MISO

Cost Sharing and Cost Allocation Updates

Cost Allocation and Cost Sharing Overview



- Engineering & Construction (E&C) and Transmission Owner carrying costs will be shared by Generators (90%) and Load (10%)
  - The 10% Load share will be allocated between SPP and MISO Load based on Adjusted Production Cost (APC) benefits
- 100% of Operation & Maintenance (O&M), Administrative & General (A&G), etc. costs will be borne by Load

All cost figures are illustrative and based on potential cost sharing methodologies and project costs and benefits that are still under development.

SPP Southwest Power Pool

MISO

JTIQ Cost Recovery

- The JTIQ Transmission Owners (TOs) need to be fully compensated for the JTIQ projects' Annual Transmission Revenue Requirement (ATRR). The total ATRR to be recovered consists of:
  - E&C Carrying Costs (Return "of" Investment, Return "on" Investment, & Income Tax)
  - O&M, A&G, Other Taxes, etc.
- The following combination of charges to Generators and Load must cover the total ATRR:
  - JTIQ Generators Charge
  - JTIQ Load Charge (Load Share & Temporary "Backstop")
  - Constructing Zone/Region generally applicable rates
- The JTIQ Transmission Owners will begin recovering a project's ATRR as each project goes in-service

SPP Southwest Power Pool

MISO

JTIQ Generator Charge (90% Share)

- The JTIQ Generator Charge is intended to collect 90% of E&C and carrying costs
  - The proposal is for no O&M, etc. to be included in this charge, which is consistent with current GI policy
- The JTIQ Generator Charge is proposed to be based on a levelized 20-year rate and to provide as much cost certainty as possible
  - The rate will, however, initially be based on near-final costs and projected/threshold MWs. This will require a subsequent true-up for actual costs and actual MWs
    - JTIQ project costs will be trued up after the projects are in-service and final project costs are known
    - The MWs in the denominator of the rate will be trued up once a sufficient level of MWs have executed agreements
    - Annual changes to rates may also be made to reflect the Transmission Owner's current cost of capital and income tax rates
- The JTIQ Generator Charge will reflect varying in-service dates of the JTIQ projects
  - The charge will, thus, be lower in the earlier years before all projects are in service
- The rates for clusters that commit after projects are in service will be increased to reflect the late start and will be charged over the remainder of the 20-year levelized period (e.g. 19 years)

SPP Southwest Power Pool

MISO

JTIQ Load Charge (10% Share)

- The JTIQ Load Charge is intended to collect 10% of E&C and carrying costs over time
  - 10% of O&M, A&G, Other Taxes, etc. will also be included in this charge
- The proposal is for this charge to be based on a 20-year levelized revenue requirement, similar to the JTIQ Generator Charge
- In addition, the JTIQ Load Charge may serve as the temporary "backstop" for late subscribing Generators

Constructing Zone/Region Generally Applicable Rates

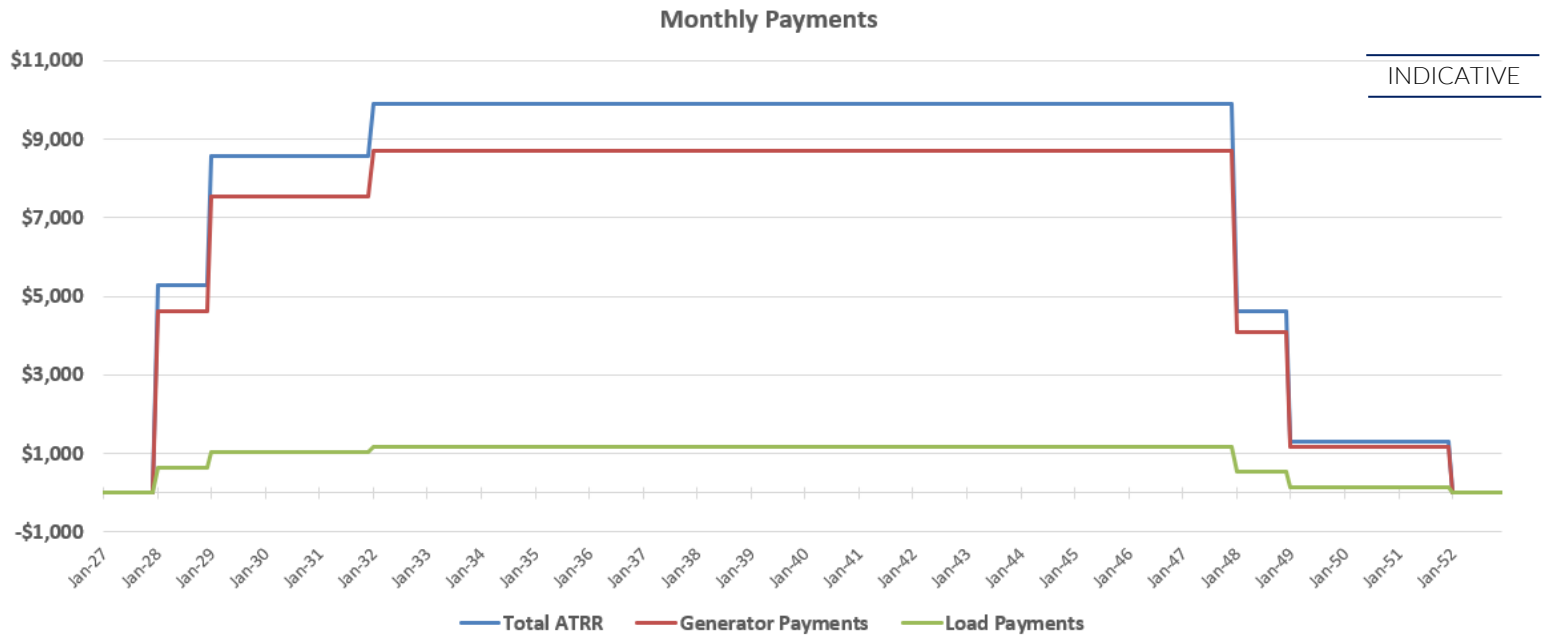
- The full ATRR for JTIQ projects less credits for revenues received from the JTIQ Generator Charge and the JTIQ Load Charge will be included in constructing Transmission Owner's Zone/Region generally applicable rates
- This net ATRR will effectively result in non-capital costs (i.e. O&M, A&G, etc.) being included in the Transmission Owner's formula rate and allocated accordingly
- This is the default for any ATRR amounts (including timing-related difference—e.g., levelized vs actual ATRR) that are not included in the JTIQ Generator Charge or the JTIQ Load Charge

SPP Southwest Power Pool

MISO

Rate Development Example 1

- If all MWs are committed before 1st JTIQ Project is in-service, then JTIQ Load pays 10% share and JTIQ Generators pay 90% share of E&C costs from the in-service date
- In hypothetical example below
  - JTIQ Projects are going into service in Jan 2028, Jan 2029, and Jan 2032
  - Cluster agreements are executed before Jan 2028
  - Total E&C ATRR (Blue) = Generator Payments (Red) + Load payments (Green)

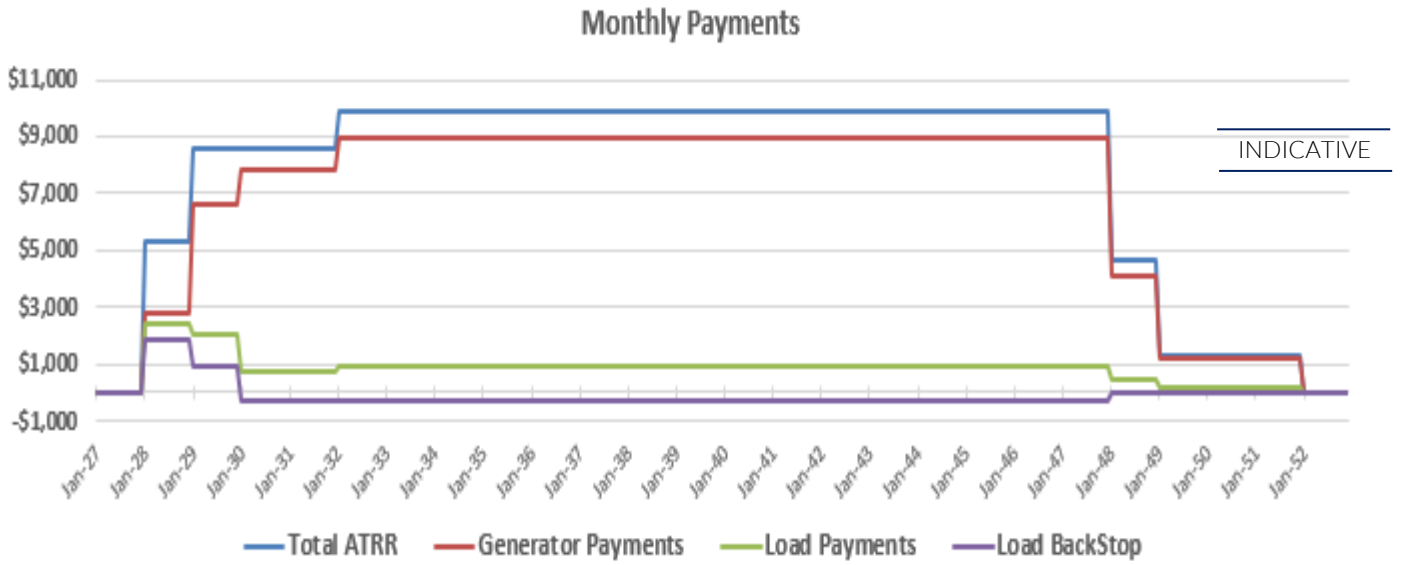


SPP Southwest Power Pool

MISO

Rate Development Example 2

- If not all MWs are committed before 1st JTIQ Project is in service, then JTIQ Load temporarily serves as “backstop” for the under-committed level of Generator MWs
  - Increased JTIQ Generator Charge for late-starting clusters result in reimbursement to JTIQ Load in later years
- In hypothetical example below
  - JTIQ Projects are going into service in Jan 2028, Jan 2029, and Jan 2032
  - Cluster agreements are executed before Jan 2028, Jan 2029 and Jan 2030
  - Total E&C ATRR (Blue) = JTIQ Gen. payments (Red) + JTIQ Load payments (Green)
  - Load payments (Green) = Load 10% share + Load temporary backstop (Purple)



SPP Southwest Power Pool

MISO

Rate Development Example 2: First Year Project is In-Service; 17GW Committed of 28GW Enabled

	Illustrative Only		
		MWs	Year 2028
1	Total Monthly ATRR for JTIQ Project		$ 2,180,199.00
2	Perecntage of ATRR assigned to JTIQ Load		10.00%
3	Monthly ATRR Assigned to JTIQ Load		$ 218,019.90
4			
5	Cluster #1 JTIQ Generators assigned ATRR (monthly amount)	8,000	$ 560,622.60
6	Cluster #2 JTIQ Generators assigned ATRR (monthly amount)	5,000	$ 350,389.13
7	Cluster #3 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ 280,311.30
8	Additional Cluster	-	$ -
9	Additional Cluster	-	$ -
10	Additional Cluster	-	$ -
11	Additional Cluster	-	$ -
12	Additional Cluster	-	$ -
13	Additional Cluster	-	$ -
14	Total Monthly ATRR assigned JTIQ Generators	17,000	$ 1,191,323.03
15			
16	Monthly Backstop ATRR assigned to JTIQ Load, if any		$ 770,856.08
17			
18	Portfolio Expected MWs	28,000	
19			
20	**Assumptions:**		
21	JTIQ Project's In-Service Date: 1/1/2028		
22	Clusters #1, #2, #3 executed commitment agreements in 2026, 2026 and 2027, respectively		

JTIQ Load Charge for project will be paid over 20 years

These first 3 clusters, with agreements in place at project in-service date, will be charged over 20 years

Load serves as “backstop” for temporary Generator under-subscription

SPP Southwest Power Pool

MISO

Rate Development Example 2: Second Year Project is In-Service; 24GW Committed of 28GW Enabled

	Illustrative Only			
		MWs	Year 2028	Year 2029
1	Total Monthly ATRR for JTIQ Project		$ 2,180,199.00	$ 2,180,199.00
2	Perecntage of ATRR assigned to JTIQ Load		10.00%	10.00%
3	Monthly ATRR Assigned to JTIQ Load		$ 218,019.90	$ 218,019.90
4				
5	Cluster #1 JTIQ Generators assigned ATRR (monthly amount)	8,000	$ 560,622.60	$ 560,622.60
6	Cluster #2 JTIQ Generators assigned ATRR (monthly amount)	5,000	$ 350,389.13	$ 350,389.13
7	Cluster #3 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ 280,311.30	$ 280,311.30
8	Cluster #4 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ -	$ 308,080.80
9	Cluster #5 JTIQ Generators assigned ATRR (monthly amount)	3,000	$ -	$ 231,060.60
10	Additional Cluster	-	$ -	$ -
11	Additional Cluster	-	$ -	$ -
12	Additional Cluster	-	$ -	$ -
13	Additional Cluster	-	$ -	$ -
14	Total Monthly ATRR assigned JTIQ Generators	24,000	$ 1,191,323.03	$ 1,730,464.43
15				
16	Monthly Backstop ATRR assigned to JTIQ Load, if any		$ 770,856.08	$ 231,714.68
17				
18	Portfolio Expected MWs	28,000		
19				
20	**Assumptions:**			
21	JTIQ Project's In-Service Date: 1/1/2028			
22	Clusters #1, #2, #3 executed commitment agreements in 2026, 2026 and 2027, respectively			
23	Clusters #4 & #5 executed commitment agreements on or before Janaury 1, 2029			

Clusters #4 & #5 will be adjusted for 1-yr late start and charged over 19 years

The addition of Clusters #4 & #5 results in reduced “backstop” in second year

SPP Southwest Power Pool

MISO

Rate Development Example 2: Third Year Project is In-Service; All 28GW Committed

	Illustrative Only				
		MWs	Year 2028	Year 2029	Year 2030 to 2047
1	Total Monthly ATRR for JTIQ Project		$ 2,180,199.00	$ 2,180,199.00	$ 2,180,199.00
2	Perecntage of ATRR assigned to JTIQ Load		10.00%	10.00%	10.00%
3	Monthly ATRR Assigned to JTIQ Load		$ 218,019.90	$ 218,019.90	$ 218,019.90
4					
5	Cluster #1 JTIQ Generators assigned ATRR (monthly amount)	8,000	$ 560,622.60	$ 560,622.60	$ 560,622.60
6	Cluster #2 JTIQ Generators assigned ATRR (monthly amount)	5,000	$ 350,389.13	$ 350,389.13	$ 350,389.13
7	Cluster #3 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ 280,311.30	$ 280,311.30	$ 280,311.30
8	Cluster #4 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ -	$ 308,080.80	$ 308,080.80
9	Cluster #5 JTIQ Generators assigned ATRR (monthly amount)	3,000	$ -	$ 231,060.60	$ 231,060.60
10	Cluster #6 JTIQ Generators assigned ATRR (monthly amount)	4,000	$ -	$ -	$ 339,328.50
11	Additional Cluster	-	$ -	$ -	$ -
12	Additional Cluster	-	$ -	$ -	$ -
13	Additional Cluster	-	$ -	$ -	$ -
14	Total Monthly ATRR assigned JTIQ Generators	28,000	$ 1,191,323.03	$ 1,730,464.43	$ 2,069,792.93
15					
16	Monthly Backstop ATRR assigned to JTIQ Load, if any		$ 770,856.08	$ 231,714.68	$ (107,613.83)
17					
18	Portfolio Expected MWs	28,000			
19					
20	**Assumptions:**				
21	JTIQ Project's In-Service Date: 1/1/2028				
22	Clusters #1, #2, #3 executed commitment agreements in 2026, 2026 and 2027, respectively				
23	Clusters #4 & #5 executed commitment agreements on or before Janaury 1, 2029				
24	Cluster #6 executed commitment agreements on or before January 1, 2030				

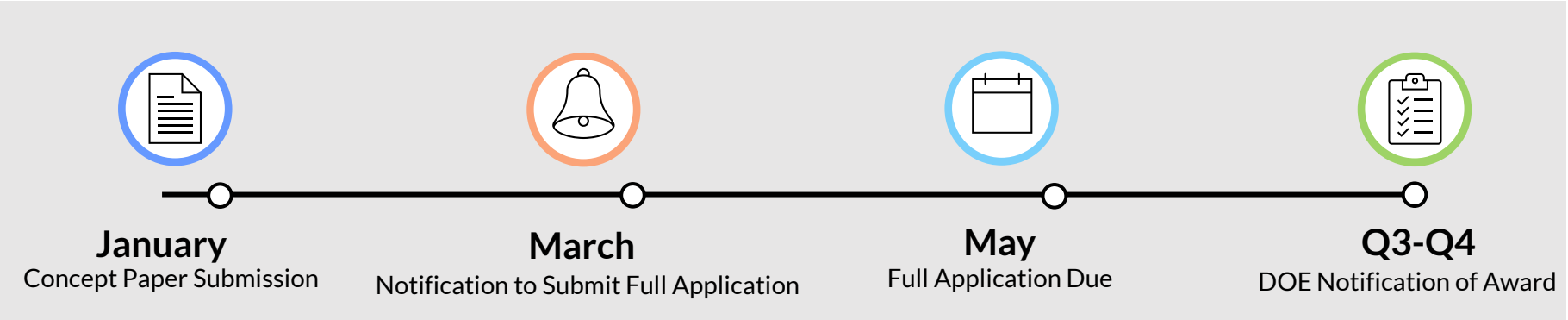
Cluster #6, will be adjusted for 2-yr late start and charged over 18 years

Resulting third year "backstop" is negative and, thus, begins reimbursement to JTIQ load

SPP Southwest Power Pool

MISO

DOE Funding - MISO and SPP have supported an application for funding of the JTIQ Projects under the DOE's Grid Resilience and Innovative Partnership Program



- The JTIQ Projects and Study Process were preliminarily submitted to DOE for consideration in the Grid Resilience and Innovation Partnerships, Grid Innovation Program (GRIP) funding opportunity
  - Notification to submit full application was received early March
- Potential for project match of 50% of JTIQ portfolio
- The DOE application will not impact MISO's and SPP's current timelines and approach

SPP Southwest Power Pool

MISO

Tariff Changes

MISO/SPP JOA changes

- Section 9.4
  - Split into three sections (general rules, JTIQ, current process)
  - New JTIQ section contains numerous subsections addressing
    - identification of JTIQ Participation Group
    - Subscription Process
    - Costs assignment and obligation to build.
    - Mechanics of payments and true ups

SPP Southwest Power Pool

MISO

MISO Tariff Changes—Changes to Existing Sections

- Attachment X – Generator Interconnection Procedures (GIP)
  - Section 1: Definitions
  - Sections 3.1 and 3.5: Include per MW/charge and inclusion process; expand coordination with Affected Systems language to explain JTIQ
  - Section 5: Transition provisions for JTIQ modelling and cost responsibility, construction process
  - Section 7.3. Include proximate upgrades in scope of system impact study and incorporate JTIQ milestone payments in existing payment process
  - Section 7.6—7.9: Reflect how over/under-collection of JTIQ costs will be addressed in accordance with proposal and impact of withdrawal
  - Section 11: Include new milestones for JTIQ costs at time of GIA
  - Section 12: Address sequencing of construction for JTIQ upgrades
- Attachment X, Appendix 6 – Generator Interconnection Agreement (GIA)
  - Article 1: Add definition of JTIQ Upgrade
  - Article 5.2—5.7: adjustments to option to build and timing language to reflect JTIQ processes
  - Article 11.3 and 11.4.2: adjustments to account for TO self funding of JTIQ upgrades
  - Article 11.5: revisions to reflect payment of JTIQ costs
  - Appendix B: Milestones adjustments for JTIQ payments
- Attachment FF – Transmission Expansion Protocol
  - Sections II & III: Include JTIQ projects as GI projects

SPP Southwest Power Pool

MISO

MISO Tariff Changes—New Provisions/Agreements

- New JTIQ addendum/attachment to GIP or GIA
  - Provide mechanism to obligate identified JTIQ portfolio participants to follow JTIQ rules and make appropriate payments
- New Schedules
  - Address calculation of JTIQ charges to Interconnection Customers and Load
  - Provide for updating of cost estimates and collection of excess if needed
  - Provide for timing and calculation of refunds in the event of overcollection
- Together, the new Addendum and rate schedule will address similar concepts and issues for JTIQ as are ordinarily covered by MPFCA and MPFSA

SPP Southwest Power Pool

MISO

SPP Tariff Changes – Existing Sections

- Att. H – Annual Transmission Revenue Requirement for Network Integration Transmission Service
  - Add SPP load's portion of JTIQ ATRR to the regional charge
    - Includes ATRR from both SPP and MISO projects
  - Any necessary additions/modifications to constructing TOs' formula rates
- Att. J – Recovery of Cost Associated with New Facilities
  - Reference JTIQ project cost recovery
- Att. L – Treatment of Revenues
  - Provisions to distribute revenue to SPP constructing TOs and to MISO
    - Revenues result from the JTIQ Charges to Generators and JTIQ Charges to Load in both SPP and MISO
- Att. V – Generator Interconnection Procedures and Agreements
  - Modify the GI procedures and agreements to reference any JTIQ cost obligations the customer may have under criteria specified in new Att. AV and any study, process, or notification requirements for SPP to follow

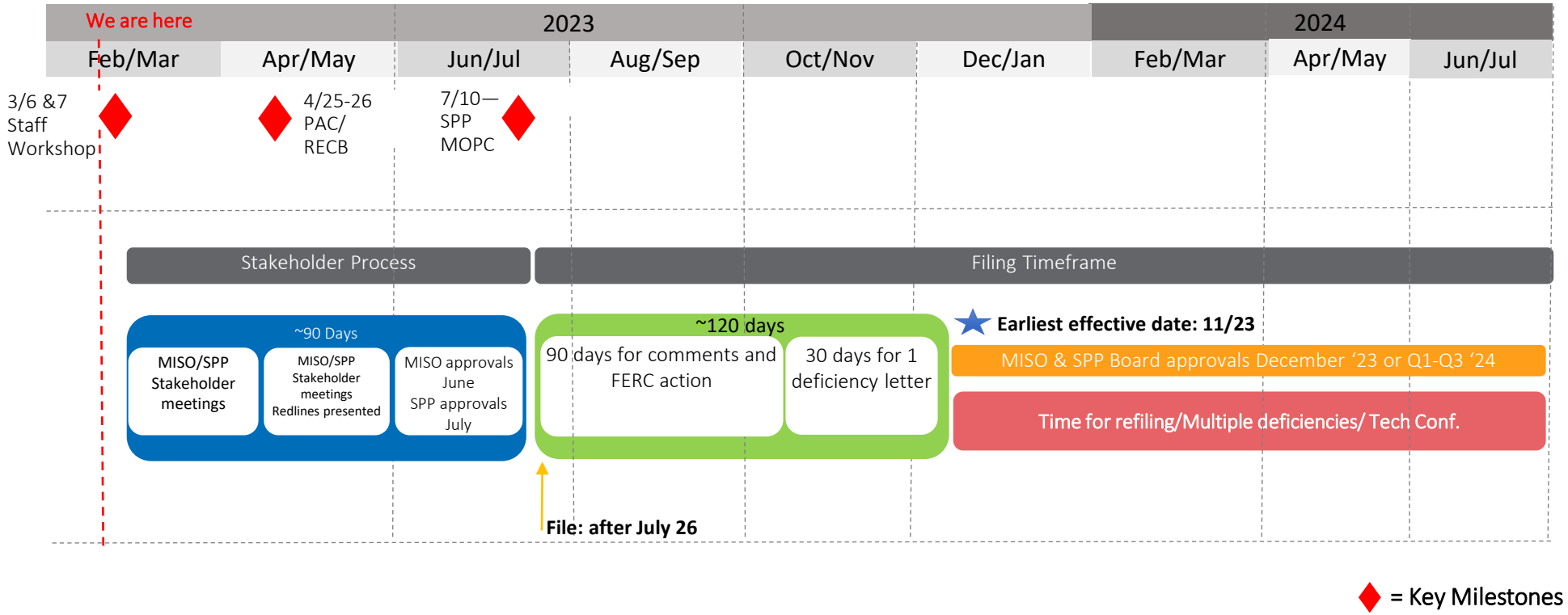
SPP Tariff Changes – New Sections

- New Attachment AV
  - JTIQ Charge to Generators – cost allocation and rate calculation
    - Including criteria for determining the JTIQ zone for GI cost assessment
  - JTIQ Charge to Load – cost allocation and rate calculation
  - Treatment of any funds received from DOE
  - Rate true-up mechanisms and timing
- Form of agreement for SPP GI customers in the JTIQ zone
  - Reference Att. AV for rate determination
  - Recovery of JTIQ study costs
  - Term and other provisions
- Form of agreement for SPP constructing TOs
  - Reference Att. AV for cost recovery methodology
  - Reporting of construction cost and other project information

SPP Southwest Power Pool

MISO

Timeline


We are here
2023
2024
Feb/Mar
Apr/May
Jun/Jul
Aug/Sep
Oct/Nov
Dec/Jan
Feb/Mar
Apr/May
Jun/Jul
3/6 &7 Staff Workshop
4/25-26 PAC/ RECB
7/10— SPP MOPC
Stakeholder Process
Filing Timeframe
~90 Days
MISO/SPP Stakeholder meetings
MISO/SPP Stakeholder meetings Redlines presented
MISO approvals June SPP approvals July
~120 days
90 days for comments and FERC action
30 days for 1 deficiency letter
Earliest effective date: 11/23
MISO & SPP Board approvals December '23 or Q1-Q3 '24
Time for refiling/Multiple deficiencies/ Tech Conf.
File: after July 26
= Key Milestones

Contact Information

- GI-AFS@misoenergy.org
- Interregionalrelations@spp.org