

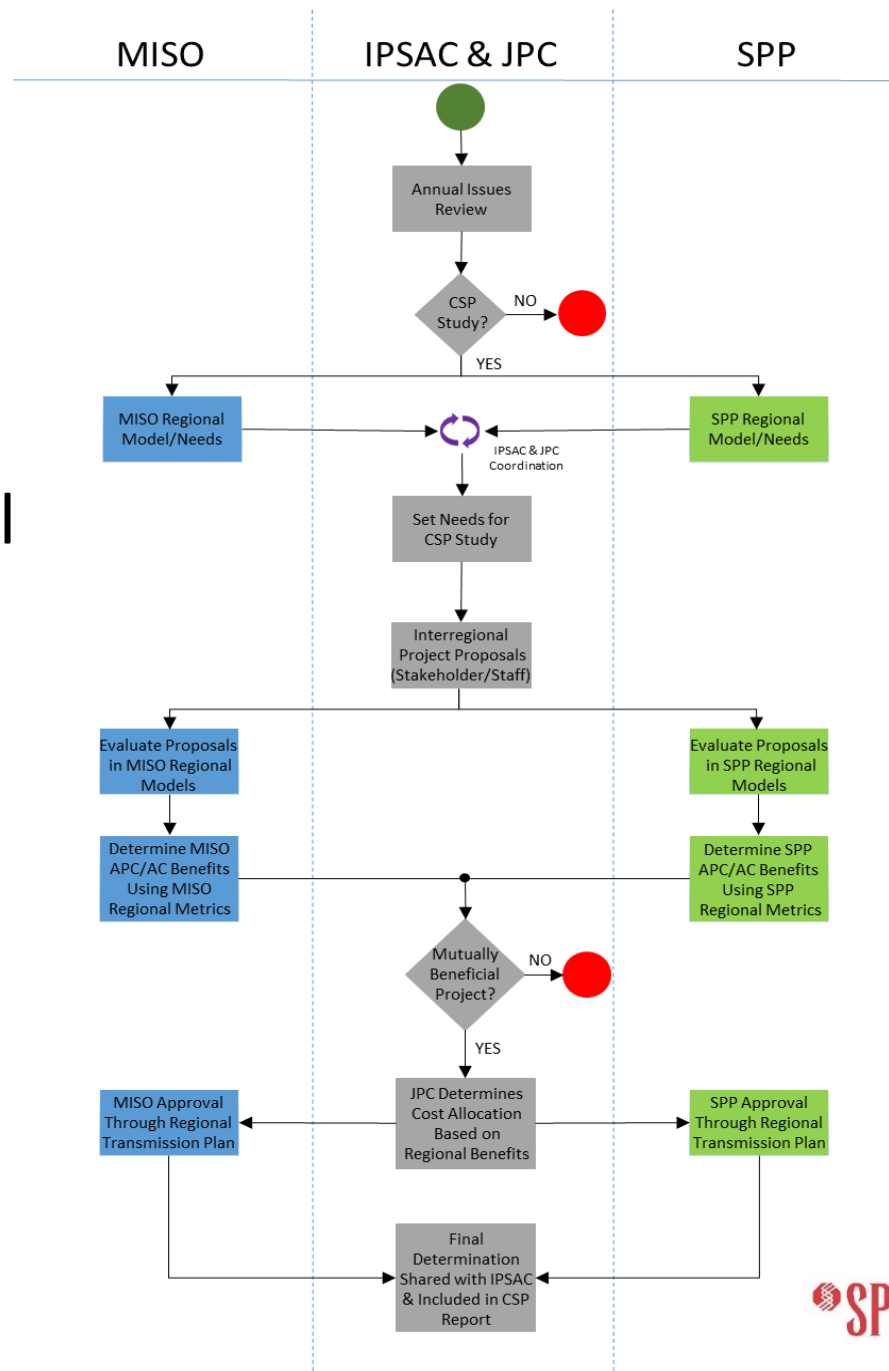
SPP-MISO 2024 Coordinated System Plan (CSP) Kick-Off and Discussion

SPP-MISO Interregional Planning Stakeholder Advisory Committee (IPSAC)

September 9, 2024

SPP and MISO announced a CSP process in Q2 of 2024

- SPP and MISO held an Annual Issues Review in Q1 2024
- Received issue recommendations from stakeholders
- JOA requires a CSP in 2024 and that was communicated to stakeholders in April 2024



Coordinated System Plans historical efforts have presented challenges

- CSPs generally focus on economic congestion
 - Lack of joint reliability needs identified by either RTO
- Specific flowgates are determined for study through:
 - Stakeholder input
 - Historical congestion data
 - 5-10 year-out economic analysis (PROMOD)
- Success in developing solutions where both RTOs benefit (per JOA requirements) has proven difficult
 - Identifying similar congestion in models as in real-time
 - Meeting required Benefit-Cost ratios (MISO=1.25; SPP=1.0)
 - Meeting benefit thresholds in both RTOs ($\geq 5\%$ of the total benefits)

SPP and MISO are engaging in a different approach to planning at the Seam

- After various conversations across the Summer, both RTOs have concluded that our typical path of CSP efforts is not optimal
- Drivers that led to this position
 - Lack of concrete results of existing process
 - Overall desire of both RTOs to enhance the process
 - Current state of transmission planning
 - Order 1920
 - NERC Interregional Transfer Capability Study
 - Overall Federal, State, and other stakeholder viewpoints
- A new approach will allow the RTOs to explore additional drivers and assumptions

This approach will encompass a more comprehensive and forward-looking perspective

Current process

- Annual Issues Reviews drive study scopes in the CSP process
- Study scopes are developed for and target known specific system issues such as regional transmission needs that are electrically or geographically adjacent, market-to-market flowgate congestion, and/or other specific issues submitted through the Annual Issues Review

2024 direction

- The approach for this effort will be much broader, without pre-defined specific historical issues to be resolved
- Various defined scenarios will be analyzed on a forward-looking basis and the drivers from such analysis will determine final project recommendations

Draft Study Scope:

Highlights

- SPP and MISO are designing a study to identify near-term upgrades that incrementally enhance transfer capability and yield multiple benefits across the two RTOs
- The study includes reliability, economic, and transfer analysis using forward-looking models and assumptions (10 and/or 20-year models)
- SPP and MISO will partner with states and stakeholders to identify and pursue JOA/Tariff adjustments, as needed, to bring solutions forward for recommendation and approval
- The RTOs study work continue through 2025
- Stakeholder feedback will be requested on draft study scope

Draft Study Scope: Solution Guidance

- The RTOs will evaluate reliability, economic, and transfer capability needs in equal measure, seeking to increase transfer capability while addressing overlapping system needs
- Solutions will increase transfer capability by a range of TBD GWs
- Seek a balance of investment in each RTO (load-weighted)
- Priority will be immediately actionable enhancements such as upgrades that use existing right-of-way, terminal equipment, or transformers
- Greenfield transmission development may be considered, as appropriate

Draft Study Scope:

Planning Models

Pursue use of blended joint models in parallel with existing SPP and MISO regional models

(winter, summer, average load, and light load):

- Reliability
 - MISO 2032 LRTP F2A Reliability Core Model set
 - SPP 2025 ITP Model set (2029; 2034)
 - 3 or 4 Base Seasonal Models – winter peak, summer peak, average load, and light load
- Economic
 - MISO 2032 LRTP F2A Economic (PROMOD Model)
 - SPP 2025 ITP Model set (2029; 2034)

Draft Study Scope:

Scenarios and Analysis

- Economic/PROMOD: Congestion analysis
- Reliability Analysis: Steady state reliability analysis
- Transfer Analysis: Study to improve incremental transfer capability (FCITC)
- Extreme Weather Analysis: Scenario in the winter, for example Winter Storms Uri and Elliott including high RTO-RTO transfers, storm load levels, and generation outages
- Others to be determined, if / as needed, for final scope direction

Draft Study Scope: JOA and Cost Allocation Considerations

- The RTOs will pursue JOA revisions regarding project types and cost allocation in parallel with study work
- A multi-benefit style project type and cost allocation is desired by both RTOs to draw on a broader set of benefits for project recommendations
 - Utilizing guidance/direction from FERC Order 1920

SPP and MISO expect to request a waiver from FERC on the JOA CSP requirements

Even though SPP and MISO are kicking off the CSP study, after consideration of our scope direction, we intend to request a CSP waiver with FERC

- Scope direction does not readily align with the defined JOA process
- Project type and cost allocation are not readily apparent within the JOA for the intent of the study
- Existing JOA Process
 - Annual Issues Reviews drive study scopes for known targeted system issues (more historical view)
 - Interregional Project type and cost allocation dependencies (cost of avoided existing project)
 - Does not align with direction from FERC
- A waiver from the JOA process will allow RTOs to pursue the potential opportunities and goals we intend to achieve, which will include:
 - Enhanced JOA processes to be filed with FERC based on learnings from the study effort
 - Development of new multi-benefit interregional project type(s)
 - Development of transmission projects to enhance the grid and seam

Next Steps

- SPP and MISO to file waiver request with FERC
- SPP and MISO will continue to further develop detail on the study scope, request stakeholder feedback, and will provide to the IPSAC when complete
- Stakeholder engagement will be held via the IPSAC and respective regional stakeholder committees
 - RTOs anticipate the next IPSAC meeting to be scheduled in late Q4 2024
 - Feedback on proposed scope (slides 6-10, or see the posted one-pager) should be sent to MISO and SPP at the respective contact email addresses (next slide) by Sept 20
- Study effort is expected to conclude in 2025

Contact

- Interregional Planning (MISO)
interregionalplanning@misoenergy.org
- Interregional Relations (SPP)
interregionalrelations@spp.org

Appendix

Stakeholder Submitted Issues & Comments

1. Xcel Energy – Madeleine Balchan, Jordan Schmick, and Bryan Ramler (see separate presentation)
2. Great River Energy – Steve Malek
3. Clean Energy Organization – Natalie McIntire
4. Missouri Public Service Commission – Adam McKinnie
5. Missouri River Energy Services – Andy Berg

Great River Energy

Steve Malek

- **Sheyenne-Fargo 230 kV for loss of Buffalo-Jamestown 345 kV (and other contingencies)**
 - Constraint for 1269 hours in 2023 day-ahead market \$47 average shadow price
 - PROMOD simulations (MISO F2A) indicate future congestion will increase
- **Aberdeen Jct-Ellendale 115 kV for loss of Twin Brooks-Big Stone South 345 kV**
 - Constraint for 702 hours in 2023 day-ahead market \$52 average shadow price
 - PROMOD simulations (MISO F2A) indicate increased congestion on this line when Forman upgrade is complete
 - Include adjacent segment Aberdeen Jct-Aberdeen SBT 115 kV in mitigation/monitoring
- **Minn Valley-Granite Falls (WAPA) 230 kV for loss of Minn Valley Tap-Granite Falls (XCEL) 230 kV**
 - Masked by Granite Falls-Blair 230 kV constraint in 2023 (192 hours, \$72 avg. shadow price)
 - PROMOD simulations (MISO F2A) indicate future congestion will increase
 - Also consider impacts on nearby Granite Falls-Morris 230 contingency
- **Ramsey 230/115 kV transformer and Devils Lake (WAPA) to Devils Lake East (OTP) 115 kV segments for loss of Ramsey-Prairie 230 kV**
 - Ramsey transformer constraint (28 hours in 2023, \$8 average shadow price)
 - PROMOD simulations (MISO F2A) indicate congestion on 115 kV segments if/when Ramsey transformer is upgraded
- **Sioux Falls 230/115 transformer for loss of parallel transformer**
 - Not observed in recent market history
 - Extreme prices observed in PROMOD (MISO F2A) simulations due to constraint

Clean Energy Organization

Natalie McIntire

- There is an urgent need for more robust interregional transmission connections between MISO and SPP from a reliability, economic, and public policy perspective. Over the past year, there has been growing interest in interregional transmission along the MISO-SPP seam from both states and a national level – Midwestern Governor’s Association (MGA), Organization of MISO States (OMS), Illinois, Minnesota, and Michigan Governors, Department of Energy’s 2023 National Transmission Needs Study, and NERC’s 2023 Long-Term Reliability Assessment.
- Given the demonstrated, and accelerating, need for more interregional transmission between SPP and MISO, the CEOs request that the IPSAC initiate a more proactive, comprehensive interregional transmission planning process than what is currently done today. (See next slide.)
- While we recognize making these reforms will take time, we believe they are necessary to establish a shared planning methodology between the RTOs, harmonize inputs from stakeholders, and identify long lead time transmission projects. MISO’s and SPP’s ongoing efforts to expand proactive regional planning (LRTP in MISO and currently the ITP in SPP, though SPP’s CPP, which is in development, will likely fill this role in the future) could serve as valuable inputs to design this interregional process.

Clean Energy Organization, continued

Natalie McIntire

CEOs request that the IPSAC initiate a more proactive, comprehensive interregional transmission planning, such as the following:

- Utilize a planning approach that considers multiple types of transmission needs, including needs for future generation additions, together and quantify associated benefits in a comprehensive manner using a list of common benefits metrics agreed upon by both MISO and SPP
- Conduct a single modeling process agreed upon by both MISO and SPP rather than conducting separate modeling
- Incorporate all utility future resource plans and state policy mandates and goals as modeling inputs, as well as data gathered from each RTO's interconnection queue
- Employ scenario-based planning, with scenarios designed to address credible ranges of uncertain future conditions, including but not limited to:
 - Renewable energy generation and energy storage growth
 - Anticipated generator retirements
 - Anticipated (not just historic) load growth, including, but not limited to, new manufacturing or data center sites and load growth from electrification
 - System stress conditions such as extreme weather events
 - The benefits of accessing capacity across a larger area for reliability of both regions, and capturing diversity of variable energy and load
 - Other future risks such as fuel price volatility
- Given how long it takes to develop multi-state transmission, use a planning horizon of 15-20 years
- Incorporate consideration of grid-enhancing technologies into the planning process. Such technologies include, at a minimum, advanced conductors, dynamic line ratings, power flow controllers, dynamic transformer ratings, and topology optimization.

Missouri Public Service Commission

Adam McKinnie

1. Examine the 4-state region (MO, KS, OK and AR) in and around Southwest Missouri and look for possible seams projects.
2. Examine the region of the LRTP Tranche 1 projects in Northern Missouri and the currently proposed JTIQ projects along the Northern MISO-SPP seam for possible seams projects connecting or supporting those lines.
3. Refocus on and finish the rate pancaking / unreserved usage white paper from MISO and SPP that had been intended to be completed by the end of 2023.
4. Targeted Market Efficiency Projects (TMEPs)
5. Please consider project types that do not have a preset cost sharing arrangement between MISO and SPP in the 2024 study.

Missouri River Energy Services

Andy Berg

- **Marshall, Minnesota area**

- **Problem:** Lyon Co 345/115 kV outage (TMP188_24709, NERC ID 24709, amongst others).
- **Current Projects:** Although some planned projects may have benefits, nothing specific seems to address this constraint.
- **Potential Fix:** Second Lyon Co 345/115 kV transformer or 115 kV line mitigation (rebuild, etc.).

- **Moorhead, Minnesota area**

- **Problem:** Jamestown-Buffalo 345 kV outage (FARSHEBUFJAM, NERC ID 5725, amongst others).
- **Current Projects:** JTIQ / LRTP Tranche 1 may have had some benefits, but this constraint persists.
- **Potential Fix:** Adjoin the Sheyenne-Lake Park-Audubon 230 kV line with Fargo-Moorhead-Morris 230 kV line.