



Attachment GGG Improvements (PAC-2024-6)

Interconnection Process Working Group

December 02, 2025

Key Takeaways



Purpose:

Introduce additional Attachment GGG improvements for MHVDC connection procedures

Key Takeaways:

- Proposing an additional path for Injection Rights via Module B (TSR) alongside existing Attachment X (DPP) path
- Proposing an MHVDC study milestone concept to support customers while maintaining reliability
- Request for Feedback Due December 16, 2025

Att. GGG Improvement Context & Guardrails

- Context
 - ❖ MISO Att. GGG (MHCP): connection-only; establishes safe physical interconnection and provides guideline for MHVDC operation (caps, modes, etc).
- Current Paths for MHVDC Injection & Withdrawal Rights
 - ❖ Injection from external resources (Injection Rights) → Attachment X conversion to E-NRIS
 - ❖ Export Energy from MISO (Withdrawal Rights) → Module B via TSRs
- Guardrails
 - ❖ Any change to rights usage will be Tariff-governed and subject to FERC approval; No implied rights from Attachment GGG Transmission Connection Agreement

Proposal for Dual Pathways to Obtain Injection Rights

- Add a second optional path to obtain Injection Right capability
 - ❖ **Option 1** (existing): Attachment X (GIP) → E-NRIS conversion (capacity accreditation & market participation)
 - ❖ **Option 2** (**NEW, PROPOSED**): Module B (transmission service) to schedule energy injections, *without* generation interconnection queue request & E-NRIS conversion
- Rationale
 - ❖ Align scheduling flexibility with cross-seam operations when capacity accreditation is not immediately sought
 - ❖ Reduce timing friction where Attachment X conversion is pending but energy transfer is desired under Transmission Service rules
- Scope Boundaries
 - ❖ E-NRIS still required for capacity & modeled resource participation
 - ❖ Module B TSR provides transmission for energy schedules **only**; no capacity implication
 - ❖ Both paths inherit operating guide limits from Att. GGG studies and Transmission Connection Agreement

Proposal for MHVDC Study Milestone Process

- Objective

- ❖ Provide an early engineering checkpoint before OEM-specific EMT is finalized—without compromising Att. GGG's reliability bar and helping to enable project financing and viability

- Scope (Indicative)

- ❖ Steady-state & short-circuit at Point of Connection (POC)
- ❖ RMS dynamic screening (voltage control, nearby contingencies)
- ❖ Generic EMT (converter-driven stability screening, temporary overvoltage envelopes, DC-fault envelope assumptions)
- ❖ Power-quality vs IEEE/IEC limits
- ❖ High-level affected system screening

- Deliverable

- ❖ Study milestone report with conservative operating envelopes and a risk register suitable for financing discussions

Proposal for MHVDC study milestone process

- Conversion to full Att. GGG Report & TCA

- ❖ Stage 2 (Final, within Att. GGG):
 - Complete the following **ADDITIONAL studies (indicative)**: OEM-specific EMT, protection logic, refined PQ/filters, UFLS/frequency screening, etc. as needed
 - Then converting the study milestone report to final Att. GGG Report, Operating Guidelines and TCA

- Guardrails:

- ❖ Study milestone report **DOES NOT** grant transmission connection service, transmission service or injection rights
- ❖ Study milestone report includes revocation caveats and a fixed sunset unless advancing to full Att. GGG process completion

Att. GGG Improvement Proposal - Benefits & Risk Control

- Benefits

- ❖ Developers:
 - Earlier financeable milestone
 - Optionality to use Module B TSRs for energy before E-NRIS capacity timing
- ❖ MISO and TOs:
 - Keeps safety/operability gate intact
 - Reduces “all-or-nothing” pressure
 - Clearer separation of connection, energy scheduling, and capacity deliverability

- Risk Control:

- ❖ No implied rights; rights only via Attachment X (injection/capacity) or Module B (energy TSR)
- ❖ Milestone study has conservative boundaries; **OEM EMT still required pre-TCA**
- ❖ Explicit restudy/material-modification triggers

Timeline and Next Steps

- Finalize concepts, circulate redlines (Tariff + BPM) – 2026 Q1-Q2
- Stakeholder Vetting / Tariff Filing (As Applicable) – 2026 Q2-Q3
- FERC Action, Implement BPM/Tariff – 2026 Q4

Stakeholder Feedback Request

- MISO is requesting feedback on **Attachment GGG Improvements (PAC-2024-6)** by Dec 16, 2025
 - Please provide support or opposition, preferred approaches or specifications to the following proposals:
 - Creating a new path to obtain injection into MISO's transmission system via Module B
 - Creating a preliminary study milestone report
- Feedback requests and responses are managed through the Feedback Tool on the MISO website: <https://www.misoenergy.org/stakeholder-engagement/stakeholder-feedback/>



Questions?

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Acronyms & MISO Tariff

- ❖ **E-NRIS:** External Network Resource Interconnection Service
 - ❖ **TSR:** Transmission Service Requests
 - ❖ **SIS:** System Impact Studies
 - ❖ **A-ERIS:** Annual Energy Resource Interconnection Service
 - ❖ **QOL:** Quarterly Operating Limit
 - ❖ **TCA:** Transmission Connection Agreement
 - ❖ **BPM:** Business Procedure Manual
 - ❖ **POI:** Point of Interconnection
 - ❖ **AFS:** Affected Systems Study
 - ❖ **MTEP:** MISO Transmission Expansion Plan
 - ❖ **JTIQ:** Joint Targeted Interconnection Queue
 - ❖ **LRTP:** Long Range Transmission Planning
 - ❖ **PRA:** Planning Resource Auction
- **MISO Tariff Module B:**
Transmission Services
 - **MISO Tariff Att. GGG:**
Merchant HVDC Transmission Connection Procedures (MHCP)
 - **MISO Tariff Att. X:**
Generation Interconnection Procedure (GIP)