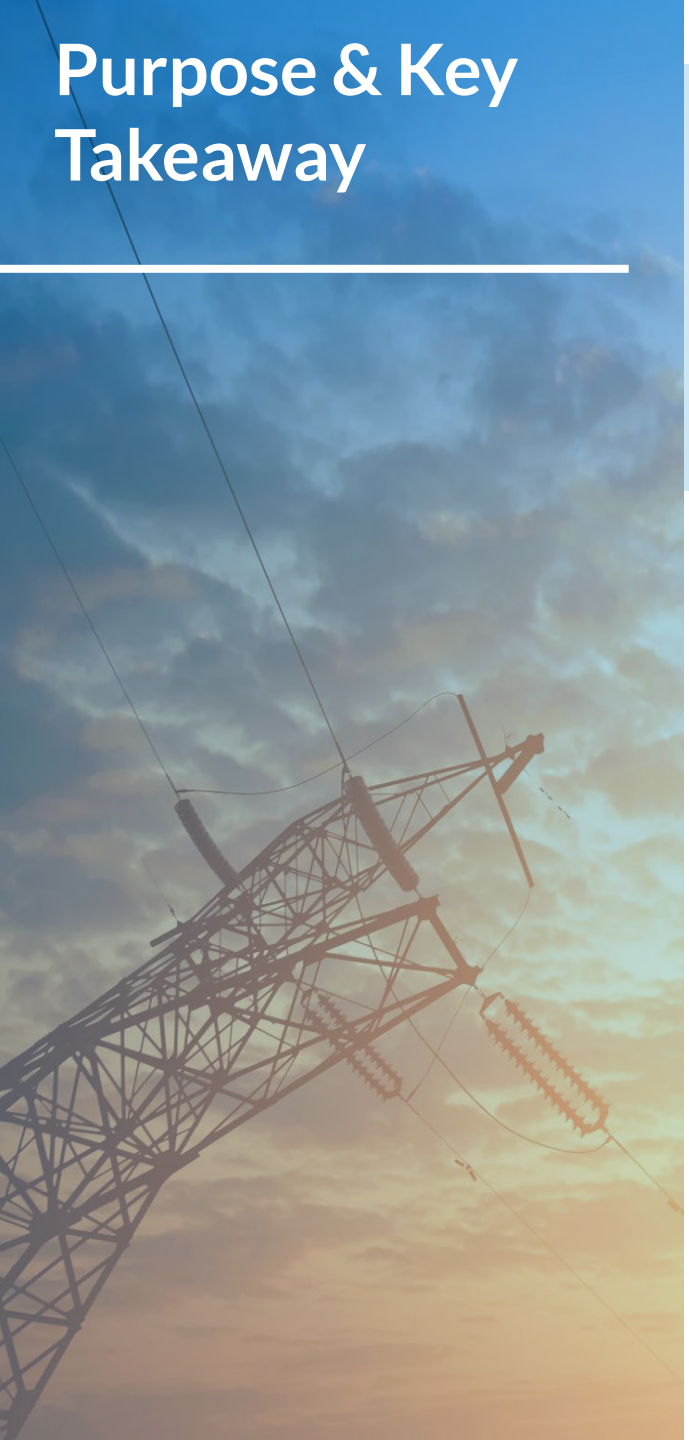


Large Load Application and Study Process (LLWG-2026-7)

Large Load Working Group

October 28, 2026

Purpose & Key Takeaway



Purpose

Review MISO's Large Load Project Review (LLPR) process, which addresses the Large Load application and study process

Key Takeaways

- **The LLPR establishes a dedicated large load process** providing a transparent and predictable pathway for identifying network upgrades while balancing speed, reliability, and stakeholder engagement
- MISO has added sections to the tariff and incorporated stakeholder feedback to prepare for our November filing
- Today MISO will cover additional detail regarding the process to help answer some of the questions received through stakeholder feedback; the additional level of detail on "how" will inform future Business Practice Manual changes
- Stakeholder feedback response is requested by November 4

Today's discussion focuses on a final proposal, LLPR is on track for the November filing



Themes

- Process
- Network Upgrade
- Operational
- Transparency
- Speculation

August 27 LLWG

Presentation

Sept 23 LLWG

- Presentation
- Discussion around relationship between eligible customer / transmission service and the MTEP process
- Pro forma provisions in a transmission service agreement between MISO and the transmission customer

Oct 29 LLWG

- MISO has incorporated tariff language for the Cost Recover Agreement related to Cost Shifting Risk Among Transmission Customers (LLWG-2026-8) issue matures
- New Exhibit for the Operations Pro Forma and the System Impact Study Agreement
- Updated tariff language incorporating stakeholder feedback

November

Overall summary of stakeholder feedback

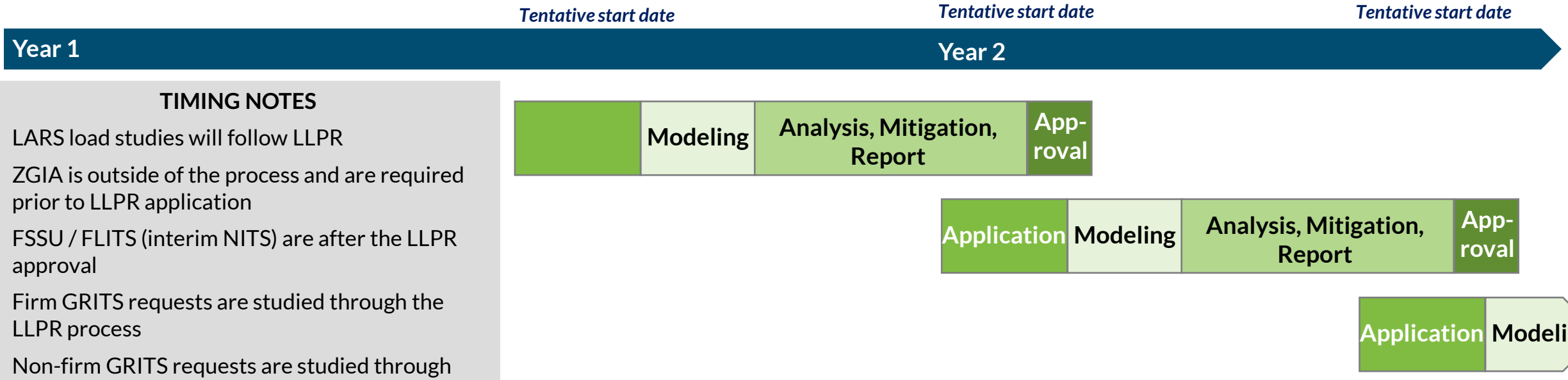
Additional response to these themes are addressed in the feedback response

- **Readiness, anti-speculation, and financial commitments:** MISO supports meaningful entry requirements and has drafted initial requirements due at submission. To address confidentiality concerns, MISO has updated the ESA requirement to an attestation.
- **Integration with Other Processes:** specific question on impact to DPP, language exists in BPM 015 Generator Interconnection BPM
- **Relationship to existing EPR and other pathways:** EPRs are retained, additional summary in appendix and will be discussed later
- **Timelines:** MISO will retain monthly TSTF as they can be used for EPR or LLPR, MISO will further touch on modeling and mitigation timeframe in discussion today
- **EMT / stability requirements:** MISO requires EMT work to be complete in the pre-application phase to capture a complete lists of network upgrades, additional information is included in the appendix with more discussion ongoing with LL BPM
- **Studies:** MISO is providing more information today on the study process, additional details exist in BPM 020 Transmission Planning BPM and will continue to be developed as necessary
- **Alternative and cross study regional solutions:** MISO does and will consider alternatives, added tariff language to specify alternative consideration
- **Alternative Transmission Technologies:** MISO will do a review of the submitted information in addition understand why the ATT / GETS was not selected and review opportunities for needs that come out of LLPR, further detail will be in the BPM
- **Tariff comments:** Some of the specific tariff redlines were incorporated into the proposed tariff, the tariff documents “what” and BPM documents “how”
- **Cost Attribution & Transparency:** MISO has added an application piece requesting further detail on transparency for transmission upgrades for Large Loads, additional items are deferred to *Cost Shifting Risk Among Transmission Customers (LLWG-2026-8)*

MISO set up the LLPR process with specific requirements to achieve speed and certainty

- EMT studies are required to be complete at application because a transmission upgrades may be required; the objective is to identify the full set of network upgrades needed to reliably serve the load
- Models for LLPR will start and rely on the MTEP model process (6-month process to build and review models) and build upon each other for each cycle
- Specific timelines for mitigation remain; MISO and TOs can work offline on more challenging projects, however, moving to approval will require resubmission. This is a lesson learned through the EPR process: to move fast requires certainty

Large Load Project Review Cycle Cadence



TIMING NOTES

- LARS load studies will follow LLPR
- ZGIA is outside of the process and are required prior to LLPR application
- FSSU / FLITS (interim NITS) are after the LLPR approval
- Firm GRITS requests are studied through the LLPR process
- Non-firm GRITS requests are studied through the LLPR for specific requirements

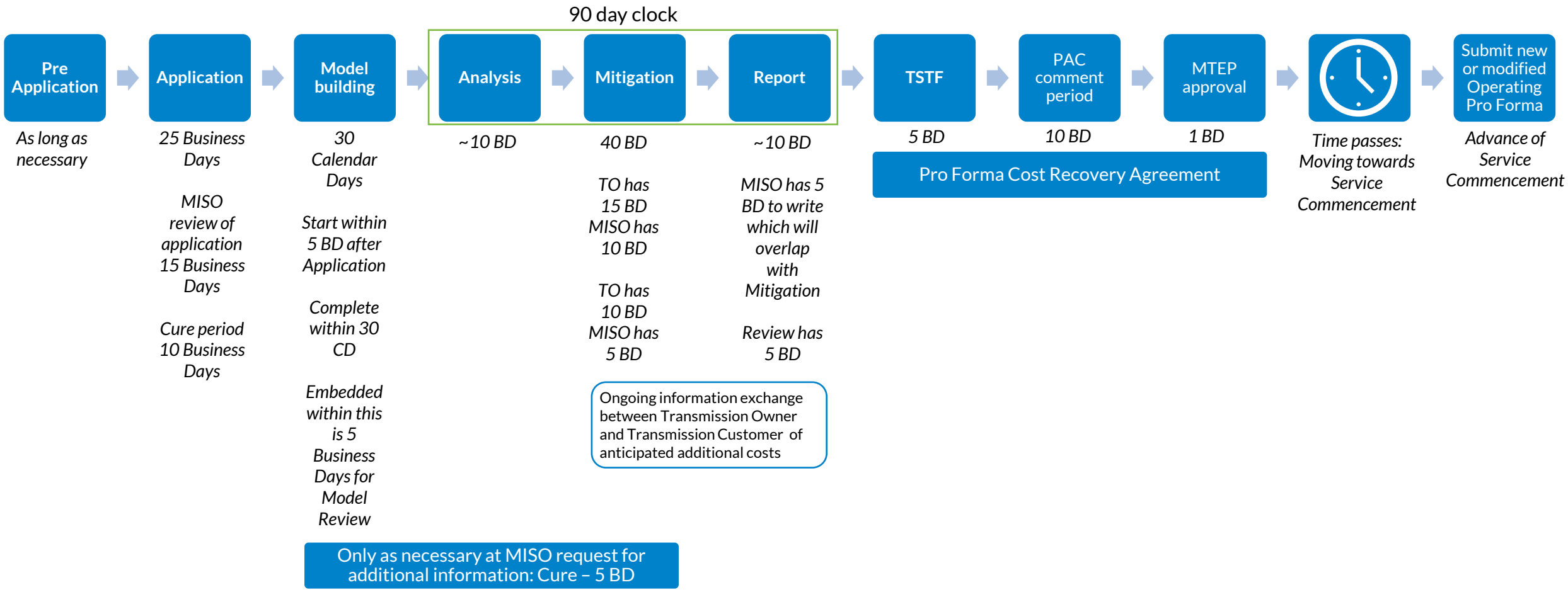
LARS Large Load Addition Resource Study ZGIA Zero Injection Generator Interconnection Agreement
FLITS Flexible Large Load Integration and Transmission Service

FSSU Firm Service Step Up NITS Network Integrated Transmission Service
GRITS Grid Responsive Integration Transmission Service

Summary of tariff changes

Definitions	Definitions of created terms specific to this process
Transmission Customer submitting application	Ties to Large Load definition (50 MW or increase 25 MW or more) added service products and options
Overall process	Overview and expectations of coordination of process
Study timeline	• Studies three times a year • Application deadline posted defined days in advance • Requests accepted on a rolling basis
Requirements for LLPR Processing	• Three sections outline requirements (application form, study files, documentation of agreements, System Impact Study Agreement, application fee, study deposit, non-disclosure agreements) • Requirements align with today's EPR • Requirements enhanced to accommodate Interconnection Reliability Requirements (further details will be in BPM) • Network Upgrades report from the Transmission Owner • New certification in the Attestation
Application review period	• Transmission Provider 15 days, Transmission Customer 10 days to cure • Errors identified post study kickoff have 5 business days to cure
Model review period	Build models within 30 calendar days after conclusion of the Application cure process (which includes the model review)
Analysis and timeline for mitigation	• Two rounds of Transmission Owner and Transmission Provider mitigation • Missed mitigation review deadlines will result in project withdrawal with provisions to resubmit
Stakeholder forum completion	Consistent with process today
Execution of agreement	Pro-Forma Cost Recovery Agreement Execution of Operations Agreement which is proposed a new exhibit to Attachment F the Network Integration Transmission Service agreement and a new Exhibit for a new Attachment for GRITS
Confidentiality provisions	Who information can be shared with and under what circumstances NDAs are required
New Exhibit to Attachment F	Capture Large Load specific information for projects that are an outcome of LLPR
System Impact Study Agreement	Study Agreement for LLPR
Cost Recovery Agreement	Addressed via *Cost Shifting Risk Among Transmission Customers (LLWG-2026-8)*

Overall LLPR: specific requirements to achieve speed and certainty



CD Calendar Days
BD Business Days

Pre Application – As long as necessary because much of the information relies on design, studies and contracts

STUDY FILES

Application requirements	Expectations or additional context
MTEP project ID	Transmission Owner submit this prior to Transmission Customer filling out application
MOD project ID	Transmission Owners submits this prior to Transmission Customer filling out application
Applicable planning models and supporting model documentation/verification information	Information provided by the Transmission Owner (project-specific steady-state, positive sequence dynamic models and EMT models, study files and verification information)
TO interconnection planning study report (Steady state and dynamic)	Report outlining transmission needs and solutions
ATT / GETS considered and outcome	Specific on what ATTs were considered for which transmission needs, which ones were selected, if an ATT isn't selected the reasoning why
Contingency /monitored element update	The monitored file and contingency file that incorporates the topology changes that align with the MTEP model for the applicant
One-line diagram	Transmission Owner one-line diagram including specific breakers that align with the contingency file for the application

FACILITY INFORMATION

Application requirements	Expectations or additional context
Facility location (address, county, GPS), Point of Withdrawal	A Point of Withdrawal that matches the MISO transferred facilities list including information similar to mailing address and GPS coordinates
Firm/non-firm capacity	The amount of firm and non-firm capacity, all potential FLITS capacity should be included in the firm value
Facility load composition and major equipment characteristics	Computational load/non-computation load percentage, major power-electronic, motor/cooling, UPS/BESS, backup/on-site generation, and reactive equipment
Operating and dynamic characteristics	load profile, staged development/ramp, significant or repetitive load changes, and workload transfer characteristics
Protection, ride-through, recovery/reconnection, and other material dynamic-performance characteristics, as applicable	Additional detail included in October 8, 2026 meeting material
Requested ISD	Requested in service date of the full load interconnection.

ATTESTATIONS/Agreements/Application fee and Study deposit

Application requirements	Expectations or additional context
Attestations	Required information listed in the LLPR tariff language
Agreements	LLPR System impact study agreements and NDA agreements, details in LLPR tariff language.
Application fee and deposit	Non-refundable application fee and refundable study deposit.

ATT / GETS Alternative Transmission Technologies / Grid Enhancing Technologies

Transmission Study Process – Application and Model Build Informational purposes

Analysis | Mitigation | Report

MISO will post list of projects in the LLPR cycle

Model Freeze Point

Application

- Transmission Customer submits Large Load Application
  - Project change file (.idv)
  - Updates to study inputs
    - .con
    - .mon
    - .sub
- Planners review application and notify of deficiencies

Application Cure

- Transmission Customer have 10 BD to cure deficiencies.
- Transmission Customer with insufficiencies after 10 BD cure period will exit the process.

Model Build

- Within 5 BD, incremental updates are applied to latest available MTEP or LLPR model
- Preliminary steady-state assessment to support model review and validation
- Models and assessment results posted for applicant review

Model Review

- Transmission Owner has 5 BD to review model and provide revisions
- Planners revise model with identified revisions

Contingency Analysis

- Updated models posted on ShareFile
- Planners perform Contingency Analysis on updated models
- Contingency Analysis results posted on ShareFile

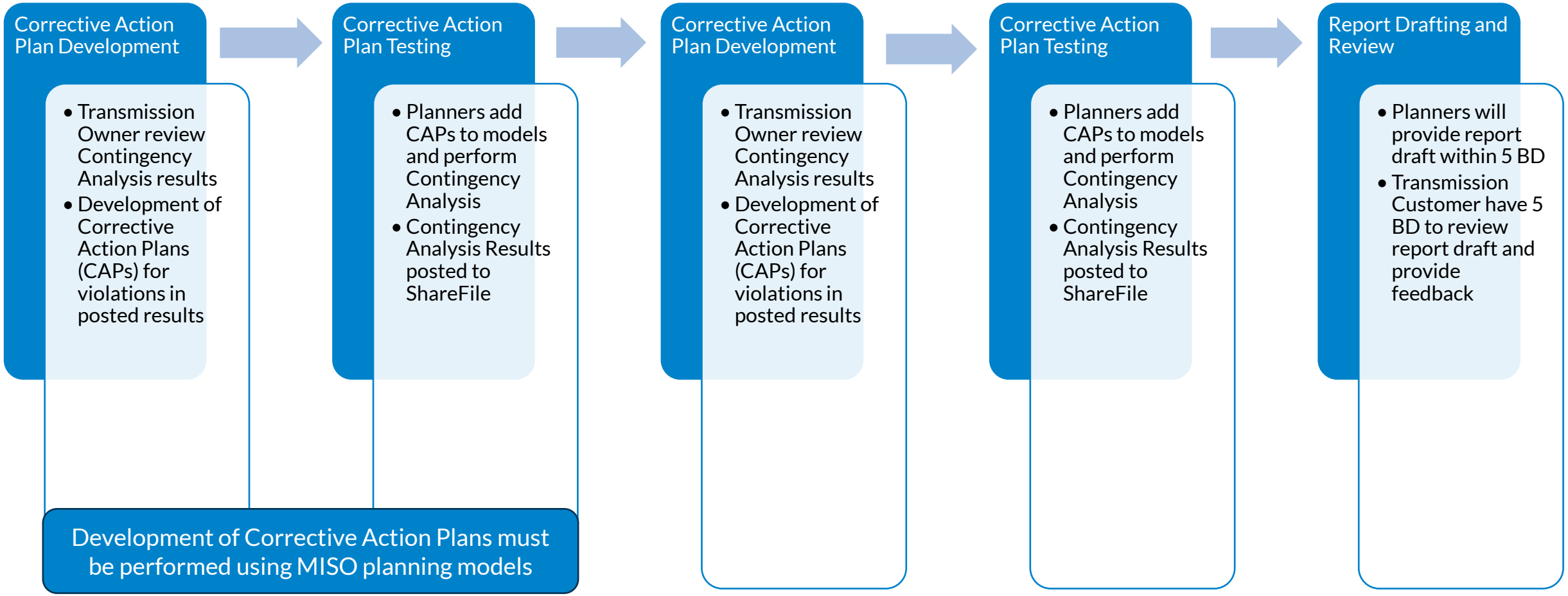
These are incremental updates to MTEP models created through a 6-month build and review process

Note: All models have MTEP as the base even if it is from a previous LLPR cycle

Days shown are calendar days unless otherwise noted as BD Business Days

Transmission Study Process – Assessment and Mitigation

Analysis | Mitigation | Report



BD Business Days

LLPR follows our standard MTEP process for the study scope, analysis and models with additions as appropriate for Large Loads

Analysis | Mitigation

Scope of study

- Cumulative analysis evaluates the combined impact of approved and proposed projects, allowing MISO to identify transmission needs; industry tools provide the ability to understand unique impacts that can be relied upon if projects withdraw from the study process
- Model updated each cycle with new MTEP models being the starting point annually

Analysis: Fully contingency scope

- NERC Transmission Planning Standard TPL-001 R3.1
  - N-1: P1, P2, P4[1], P5[1]
  - N-1-1: P3, P6, P7
- Stability – TPL-001
- Analysis will include Interconnection Reliability Requirements, some of impact analysis

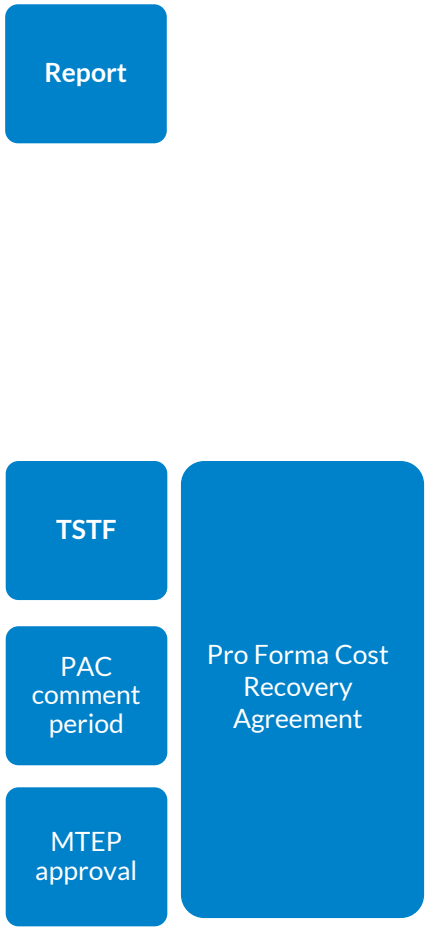
Models: Full model set with latest GIAs

- 2-year Winter Peak Low Wind[2]
- 2-year Summer Peak
- 5-year Summer Shoulder High Wind[2]
- 5-year Summer Shoulder Average Wind
- 5-year Spring Light Load High Wind[2]
- 5-year Summer Peak
- 10-year Summer Peak

[1]P4 and P5 events can qualify as N-1 or N-1-1 depending on the specific event, but are reported with N-1 results [2]Sensitivity Case

The Finalization of the LLPR process begins with the Report which uses the information such as Network Upgrades to form the Pro Forma Cost Recovery Agreement and the stakeholder process for LLPR

- The proposed report will be enhanced to include the
  - Study assumptions including other projects included
  - Scope including study assumptions, system needs, alternatives considered, selected solutions, ATT/GET evaluations, and planning-level cost and schedule estimates
  - The planning level cost and time estimate will also be incorporated into the report
- Full reports will be available on Sharefile
- MISO will retain monthly TSTF on the calendar, TSTF may be used for EPR or LLPR
  - TSTF will include subset of report as a presentation
- Based on stakeholder feedback MISO will extend the PAC comment period (10 business days)
- After the PAC comment period has concluded *and* the pro forma cost recovery agreement is complete the projects will move to MTEP approval



A new Exhibit for Large Loads to Attachment F Network Integration Transmission Service to capture the Pro Forma between MISO and the Transmission Customer regarding ongoing Interconnection Reliability Requirements

Submit new or modified Operating Pro Forma

THEME	NEED
Operational*	Ongoing requirements (addressed with Interconnection Reliability Requirements)

- Specific language refers to Section 37A of the Tariff that includes the Interconnection Reliability Requirements filed in August
- Other required information include general and electrical facility information and load forecast
- The Exhibit is created once Network Upgrades are in place and the Large Load obtains the CPNode required in #2 of the form
- Similar agreement will exist for firm GRITS
- Party to this agreement is Transmission Customer and Transmission Provider

Relationship of LLPR with other study processes, MISO will default to Transmission Customer request to inform study requirements

Service requested must be identified by the Transmission Customer in the application, projects may not transition between study processes they must withdraw and re-enter

Process	Relationship to LLPR	Additional considerations
LLPR	The core study for Large Loads that are 50 MW or increased by 25 MW	If generator is associated with Large Load that is less than 200 MW the generator must achieve a GIA prior to Transmission Customer application (including ZGIA)
Load Addition Resource Study (LARS)	The core study for Large Loads minimum of 200 MW that have associated Generation required	The same requirements, study process, and outcome for the LLPR apply for the Large Loads associated with the LARS process
Network Integrated Transmission Service for Large Load	This is a primary function of the LLPR	Completion of the LLPR process supports the development of a new or revised Exhibit to the Network Integration Transmission Service Agreement.
Firm Service Step Up FSSU	Takes place after LLPR	LLPR is required to be completed prior to eligibility to participate with FSSU
Interim NITS - Flexible Load Interim Transmission Service FLITS	Takes place after LLPR	LLPR is required to be completed prior to eligibility to participate with FLITS
Firm GRITS	This is a primary function of the LLPR	Completion of the LLPR process supports the development of a new or revised Exhibit to the GRITS Transmission Service Agreement.
Non-Firm GRITS	Specific pieces like Interconnection Reliability Requirements apply from LLPR	Completion of the LLPR process supports the development of a new or revised Exhibit to the GRITS Transmission Service Agreement, completion of other processes may be required
Expedited Project Review (EPR)	No direct relationship to LLPR	Applies to non-load urgent changes to the transmission system and loads that are <50 MW or increases <25 MW

Stakeholder Feedback Request

- MISO requests feedback on **Large Load Application and Study Process (LLWG-2026-7)** by November 4, 2026
  - Please provide feedback on the following:
    - Tariff and new Exhibit
- Feedback requests and responses are managed through the Feedback Tool on the MISO website: https://www.misoenergy.org/engage/stakeholder-feedback/

Next Steps

- File November



Contact

LargeLoadProgram@misoenergy.org

Appendix



Example concept of how processes interact

Local Reliability Journey Begins Here

TO/MP Submit Project Proposals

SPM #1
Present TO/MP Submitted Projects

Alternative Project Submission

SPM #2
Results of MISO Independent TPL assessment

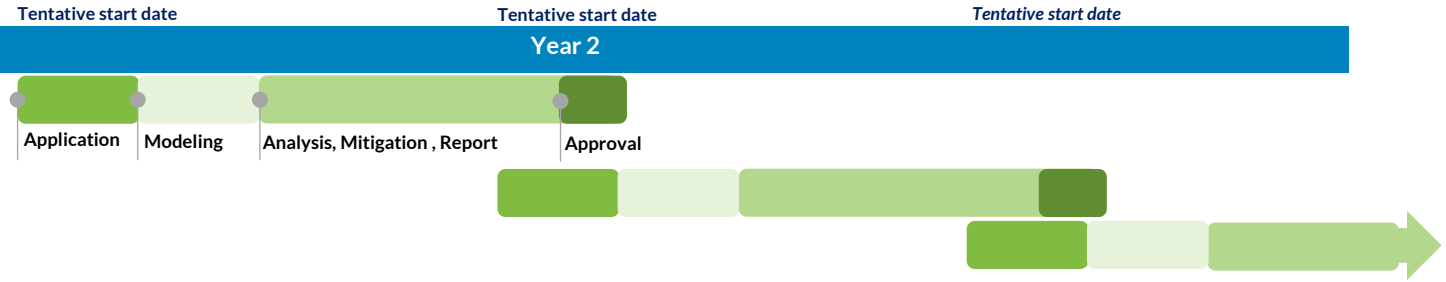
SPM #3
Present MTEP project recommendations

Year 1 | **Year 2**

Information Exchange	Project Proposal Review	MISO Independent Reliability Assessment	MISO alternative/ gap Assessment	MISO Board of Directors approval/Compliance Documentation

Large Load Project Review

- LARS load studies will follow LLPR
- ZGIA is outside of the process and are required prior to LLPR application
- FSSU / FLITS are after the LLPR approval
- Firm GRITS follows LLPR
- Non-firm GRITS follows LLPR for specific pieces



Future: Expedited Project Review
Not eligible for Large Loads

Year 1 | **Year 2**

Accepted on a rolling basis, monthly TSTFs will remain available for approval

TO = Transmission Owners MP = Market Participants SPM = Subregional Planning Meeting
TPL is a NERC Reliability Standard for Transmission Planning

Conceptual idea for EPR going forward – future discussion

- Large loads will not be able to participate in the Expedited Project Review process in the future, this is specific to loads that meet the Large Load Definition
- Expedited Project Review changes going forward that will modified in the BPM after November
  - **Retaining from current process**
    - Model applicability (use latest model)
    - Scope (test on all MTEP models)
    - Monthly TSTF
  - **Modifications**
    - Accept on ad hoc basis

EMT analysis may result in changes to the Transmission System, the need and solution assessment is advance of participation in the LLPR

- MISO will on an ongoing basis post System Strength Screening
  - In progress activities
    - Updated System Strength Screening that starts with the MTEP model to provide refined date
    - Substation specific mapping opportunity
    - Intake if additional information is required or analysis is required (for example if network upgrade inclusion resolves risk)
    - Development of study posting cadence
- If your LL looks to interconnect in a weak grid area an EMT study is required demonstrating that system is reliable or that the mitigation identified resolves the system need

EMT Study

- Triggered by system strength screening (NSCR < 3.0)
  - Build detailed EMT models (Large Load + network)
  - Assess converter control interactions
  - Evaluate fast transient instability
  - Compare pre-/post-project performance
  - Define necessary mitigations

EMT Study Complete → LLPR Submission

Sept 23, 2026 LLWG