

Stakeholder Feedback Template

Large Load Interconnection Reliability Requirements – June 29 LLWG

Purpose: provide feedback to MISO for Large Load Interconnection Reliability Requirements presented during the June 29 Large Load Working Group.

Instructions:

- Add feedback by topic to this workbook
- Email the completed workbook to StakeholderRelations@misoenergy.org

Timeline: submit feedback by Tuesday, July 7th

Links:

- [June 29 LLWG Meeting Materials](#)
 - LL Interconnection Reliability Requirements Presentation
 - Technical Compendium

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Sector: End-Use Customer

Do you wish for this feedback to be posted on the MISO public website? Yes/No

Tariff Section	Description
Module A/B	NEW DEFINED TERMS, APPLICABILITY, TRANSITION PROVISION, and effective date
Module B	LARGE LOAD INFORMATION REQUIREMENTS: Basic Facility Data
Module B	LARGE LOAD TELEMETRY REQUIREMENTS
Module B	LARGE LOAD RIDE-THROUGH REQUIREMENTS
Module B	LARGE LOAD RAMP REQUIREMENTS

General Feedback for Large Load Interconnection Reliability Requirements (Slides 8,12)

1. Do you have any specific feedback related to the Large Load related definitions in slide 8?

Response: Overall, Google appreciates MISO's thoughtfulness in crafting robust technical interconnection requirements to ensure continued reliability of the bulk electric system. There is no question that the addition of certain types of large loads will introduce new considerations to the system that must be properly evaluated to prevent unintended consequences. Google strongly supports robust requirements that align with the potential risk that a given large load brings to the system, and enforcement of such requirements will ensure the grid remains safe, reliable, and efficient for all customers.

However, Google reiterates prior feedback that MISO should refrain from setting requirements based specifically on the business type or end use of electricity (i.e., "Computational Load"). Instead, eligibility for such requirements should be based on the characteristics of the load that necessitate such requirements. For example, if it is the size, voltage-sensitive nature, and potential rapid ramping/oscillations of the load(s) in question that introduce risk to the bulk electric system, such characteristics should be explicitly used to define applicability. Google would recommend that "Computational Load" be redefined with further definition provided not by the equipment the load is serving ("information technology equipment, such as servers, storage, and networking hardware"), but by specific characteristics of the load - such as potential to ramp faster than 30 MW/min, etc.

Such practice would provide multiple benefits, including preventing the unintentional and inefficient inclusion of loads that may meet the current "Computational Load" definition but which do not introduce the same level of risk to the system. A good example is the "Data Center Cloud Storage" load type contained in the table on Slide 9, which has lower risk characteristics than at least some of the loads contained in the "Non-Computational Load" table, yet is still held to more stringent requirements. This will also allow flexibility in the future should loads emerge with similar risk profiles, but different end uses.

2. Do you have any specific feedback related to the TRANSITION PROVISION in slide 12?

Response: While Google understands MISO's intent with utilizing "metered Demand" to measure applicability of requirements, there is further opportunity to clarify language, as

outlined below. Critically, regardless of MISO incorporating the clarifications or alterations proposed, MISO must build out a robust and clear requirements exception process (as referred to on slide 11 and the “time-limited exception” process) for sites that would require hardware modifications to comply (a good example of such a process is NERC’s R4 of PRC-029-1, for inverter based resources).

- A. As written, it is unclear if part (a) is mutually exclusive from part (c). That is, part (a) states that a Large Load with metered Demand equal to or greater than 50 MW before 10/1/26 is not subject to additional requirements, yet part (c) states that a Large Load with metered Demand equal to or greater than 50 MW after 11/1/27 is subject to those requirements. If a Large Load has metered Demand of 55 MW prior to 10/1/26, but then also has 55 MW of metered Demand after 11/1/27, it appears that - with a strict reading of the drafted language - both part (a) and part (c) apply.

To resolve this, MISO could specify that the **first instance** of a Large Load having metered Demand equal to or greater than 50 MW would define the applicability of requirements, subject to the clarifications below.

- B. While Google appreciates MISO’s efforts to accommodate large load projects in late-stage development through transitional provisions, it remains unclear based on current draft language how the proposed implementation plan will work for large load sites that are in early operations and actively in a “ramp up” period (that is, projects that have already been studied and approved, and are in early stages of increasing demand - a process that may take several months or even years). As written, it is unclear whether the waiver from requirements mentioned in part (a) would apply for the lifetime of all eligible sites or whether the requirements would be triggered and in-effect once the site grows at some later date (even if such growth is not “incremental” in that it has already been studied and approved). And if the intention is the latter, the details of the requirements are vague.

Google sees two considerations as critical in this discussion of these requirement waivers:

- Mitigations to be able to comply with these requirements are not likely to be trivial to implement. In certain cases hardware changes and significant expenditures will be required. While Google understands MISO’s intent to evaluate applicability based on metered load, Google proposes that all sites currently operational or under development with approved studies and supporting contracts already completed as of October 1, 2026, be

exempt from the requirements noted for the duration of the site's operations, up to the contracted MW amounts.

- To the extent growth at a site is pursued above and beyond existing contracted amounts (i.e. via incremental study and contracts), then the requirements should apply on a go-forward basis only for the incremental MWs enabled in the future study and contracts. That is, the requirements should not be applied retroactively to existing loads studied and contracted for before October 1, 2026.

3. Other general feedback:

Response: N/A

LARGE LOAD TELEMETRY REQUIREMENTS (slide 18)

4. Do you have any feedback regarding this requirement(s)?:

Response: N/A

LARGE LOAD RIDE-THROUGH REQUIREMENTS (slide 23)

5. Do you have any feedback regarding this requirement(s)?:

Response: N/A

LARGE LOAD RAMP REQUIREMENTS (slide 14)

6. Do you have any feedback regarding this requirement(s)?:

Response: Google reiterates its prior comments regarding the value and necessity of more details on the measurement methodology for the proposed ramp rate requirements.

While Google understands oscillatory behavior will be addressed at a later point, we offer the following feedback on repetitive load variation (not to exceed 10 MW over

sliding 5 second scale) limits. As a point of reference, Google notes that Southern Company has documented specific tests it will deploy to gauge compliance across requirements, including a set for a similar 10 MW fluctuation limit over a sliding 5 second scale (see requirements document [here](#)). Google recommends MISO provide this level of detail to ensure all parties are aligned on expectations and so that necessary engineering-design level requirements can be communicated to those teams developing needed mitigations. Specifically for the repetitive load variation limit, Google supports taking a statistical approach as Southern has proposed (e.g. “The top quartile (P75) change in active power every 4-6 seconds should not exceed 10 MW”).