



## Consideration of Zero-Injection GIA

# (Interconnection and Planning Draft Tariff Updates)

Market Participation and Registration of Co-Located Load and Generation (PAC-2024-4A)

Planning Advisory Committee

April 22, 2026

## Purpose

To share draft Tariff language reflecting the elements of the Zero-Injection Generator Interconnection Agreement (ZGIA) proposal relating to interconnection and planning for the load

## Key Takeaways

- MISO shared its proposal to continue facilitating ZGIA resource interconnections, beginning with the December Planning Subcommittee, and again at Planning Advisory Committees in January and February
- The draft Tariff language submitted alongside these materials reflect MISO's proposal and have benefited from significant stakeholder feedback
- Following today's presentation, stakeholders have another opportunity to provide feedback on the interconnection and planning for the load elements of the proposal as reflected in the draft Tariff language

# Stakeholder feedback summary

- **Overall, stakeholders are supportive** of the concept of ZGIA and submitted feedback across each of the four elements of the proposal, highlighting concerns, agreement or disagreement, and requesting additional information and examples of the proposal
- **Ensuring reliable ZGIA interconnection, and subsequent load study:** Stakeholders focused on the details of how these studies would work, mostly focused on the perspective of ensuring a reliable system
- **Contractual arrangements:** Stakeholders are generally aligned on the importance of a contractual agreement, want the types of agreements that will suffice to be clear, and want to clarify the retail/wholesale boundary
- **Multiple points of interconnection:** Stakeholders are generally opposed to MISO's approach of enabling ZGIAs that span multiple points of interconnection, instead proposing to contain ZGIAs within the same substation
- **Draft Tariff language** includes specifics that originated from feedback received to-date, including language ensuring a ZGIA disconnects if facilities connecting it to its associated load disconnect, and to require ZGIA zonal resource credits (ZRCs) to be included in a fixed resource adequacy plan (FRAP)

Please see [posted feedback response materials](#) and [stakeholder feedback submissions](#) for further detail

# Today's discussion focuses on interconnection and planning components of the ZGIA framework

## ZGIA Proposal Considerations

1

### Interconnection process

The ZGIA interconnection process will use frameworks currently in place across replacement, surplus, and ERAS processes

2

### Planning for the load interconnected with the ZGIA

MISO's planning processes will remain unchanged, reflecting the presence of the ZGIA as a Non-Transmission Alternative, and resulting in full services/obligations of firm NITS load

3

### Resource adequacy participation

ZGIAs are similar to other resources with incremental changes to deliverability and accreditation, and restrictions on how they meet load obligations

4

### Markets and Reliable Operations

MISO's markets, combined with monitoring of ZGIA injections and associated load withdrawals, will serve to maintain reliable operations of ZGIAs

*Parts 3 and 4, including a formal feedback request, are moving through the Large Load Working Group*

# Required Tariff and BPM Changes to Support Interconnection Process and Planning for the Load

- Tarriff:

- Attachment X
- Appendix 19 of Attachment X
- Attachment FF

Additional Tariff changes to reflect the resource adequacy, markets, and reliable operations elements of the proposal will be provided at the May 14 Large Load Working Group:

- **Module C** change to require market registration of ZGIAs not electrically identical to associated load
- **Module E-1** change to effectuate details of Resource Adequacy treatment

- BPM:

- Changes accompanying these Tariff changes will be made after the Tariff filing and before the effective date
- Includes:
  - BPM 002 - Energy and Operating Reserve Markets
  - BPM 011 - Resource Adequacy
  - BPM 015 - Generation Interconnection
  - BPM 020 - Transmission Planning

# Attachment X Summary of Changes (1 of 3)

- Creation of the terms *Zero Generation (ZG) Interconnection Service* and *Zero Generation (ZG) Interconnection Service Agreement* and *Zero Generation (ZG) Associated Load* and reflection of these new services as appropriate throughout the document
- Description of *ZG Interconnection Service*:
  - The service product describes the nature of the service as being available only to its *ZG Associated Load*, at either the same point of interconnection, or a point of interconnection meeting certain criteria (explained elsewhere)
  - The service is only available if the study determines the service will not have a material adverse impact or will not require construction or modification of any network upgrades
- Clarification that *ZG Interconnection Service* does not supersede state law regarding siting, service, or operations, and clarifies that interconnection customer is responsible for adhering to applicable laws and regulations

## Description of ZG Interconnection Study:

- Requires equipment sufficient to prevent energy from flowing to the transmission system if at the same POI; or if not at the same POI, whether configuration, control equipment, and/or required generator operator actions are sufficient to measure and verify the absence of flows
- If the load and generator are not at the same POI, includes a POI equivalency analysis (as described, uses language from the resource replacement section of *Attachment X*)
- Includes stability, short circuit analysis, and steady state analysis of the facility
- The study identifies transmission facilities between the generator POI and POI of the ZG Associated Load

# Attachment X Summary of Changes (3 of 3)

- Specifies certain monetary amounts, dates, and details:
  - A non-refundable Deposit 1 (D1) and \$150,000 study deposit
  - Submission 180 days prior to earlier of (1) COD or (2) associated load online date
  - Limits ZGIA requests to be no more than 150% of the gross demand of the associated load
  - Reasonable efforts to complete the study within 90 calendar days
- Specifies the form of the required contractual link between the resource and the load
  - LSE self-supply, PPA or similar; Build-Own-Transfer; other agreement

## Appendix 19 of Attachment X Summary of Changes

- Creation of the terms *ZG Interconnection Service* and *ZG Interconnection Service Agreement*, and *ZG Associated Load* and reflection of these new service as appropriate throughout the document (similar to *Attachment X*)
- Specifies commercial operation to be specific to supply of energy to ZG Associated Load
- Description of ZG Interconnection Service (similar to *Attachment X*)
- Obligates the resource to cease production under certain conditions:
  - ZG Associated Load is offline
  - The ZGIA is a multi-POI ZGIA and any of the transmission facilities identified as connecting the ZGIA to its associated load through the interconnection study are disconnected

## Attachment FF Summary of Changes

- Paragraph added to further describe contractual commitments for ZG Associated Loads when a ZGIA is used as a generation solution within MTEP. The contractual commitment clearly links the “Generation Facility with associated ZG Interconnection Service,” and the “ZG Associated Load.”

# Stakeholder Feedback Request

- MISO requests feedback on **ZGIA Proposal Draft Tariff Language (PAC-2024-4B)** by Wednesday, May 6, 2026.
- Feedback requests and responses are managed through the Feedback Tool on the MISO website: <https://www.misoenergy.org/engage/stakeholder-feedback/>

# Next Steps



Provide feedback on resource adequacy participation and markets/operations (proposal parts 3 and 4)

**Due: May 4, 2026  
(LLWG)**



Provide feedback on today's content (proposal parts 1 and 2)

**Due: May 6, 2026  
(PAC)**



**Post-Only: PAC  
Portion of Tariff Filing**

**May 27, 2026  
(PAC)**



**File Tariff**

**June 2026**

# Contact

[largeloadprogram@misoenergy.org](mailto:largeloadprogram@misoenergy.org)

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# Stakeholder feedback

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# Key Issue: Operational Behavior When the Generator Is Unavailable

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Need clarity on whether load trips, curtails, or stays online</li><li>✓ Requests for response time requirements</li><li>✓ Concerns about implications for N-1 and P3 planning</li><li>✓ Interest in understanding how upgrades are determined and assigned</li></ul>	<ul style="list-style-type: none"><li>• Generator outages are accounted for in the MTEP process as P11 or P31 planning events used in the MTEP Reliability Analysis. ZGIA generator outages will be accounted for in this manner.</li><li>• NERC Planning Events address treatment of outages of load and generation in TPL-001 performance standards</li><li>• MISO is not a party to any agreements between the Transmission Owner and the Load Serving Entity/Load Customer regarding upgrades needed for TPL-001 compliance.</li><li>• If load falls below the ZGIA resource output, the resource must ramp down as well.</li><li>• If the load trips, or if any facilities connecting the ZGIA to its associated load trip, the ZGIA must disconnect as quickly as permitted by MISO's provided generator modeling data</li></ul>

# Key Issue: Transmission Service & Netting Rules

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Concern about how transmission service must be procured</li><li>✓ Requests for strict service charges reflecting actual usage (AMP/Entergy/Consumers)</li><li>✓ Requests to allow netting (Vistra)</li><li>✓ Calls for clearer rules tied to cost-causation risk</li></ul>	<ul style="list-style-type: none"><li>• All MISO Network loads must acquire Network Service (NITS) on a gross-load basis, and the presence of a ZGIA does not, by itself, alter or supersede this requirement</li><li>• ZGIA resources and their associated load must be metered and modeled separately – ensuring that gross load is transparent and billed appropriately.</li><li>• Associated loads are treated like any other load from a reliability standpoint – including the right to be served even during any outage of the ZGIA resource, and the obligation to pay for transmission service based on gross load.</li><li>• ZGIA resources serve their associated load but do not reduce the Load Serving Entity's network load obligation</li></ul>

# Key Issue: Study Assumptions (GI Queue, Load Interconnection, MTEP)

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Questions on how ZGIAs will be modeled in GI Queue studies</li><li>✓ Requests for clarity on how large loads will be represented in MTEP</li><li>✓ Interest in whether ZGIA avoids upgrades and under what conditions</li></ul>	<ul style="list-style-type: none"><li>• Resources with GIAs (of any type) and associated loads are modeled per MOD-032 and the MISO Modeling Manual using data from Generator Owners and/or Transmission Owners</li><li>• For MTEP modeling, ZGIA resource capacity is limited to the peak associated load in each seasonal powerflow model</li><li>• ZGIAs may help Transmission Owners avoid upgrade costs by allowing use of the resource as a Non-Transmission Alternative by obtaining a ZGIA and prior to obtaining a GIA through a GI queue (DPP or ERAS)</li><li>• ZGIA studies will evaluate combined load and generation impacts to reflect intended operation and the outage impact of those facilities</li><li>• Stability/short-circuit analyses applied as needed</li><li>• Assumptions for zero-MW dispatch and queued project interactions will be defined in study scope</li></ul>

# Key Issue: Point of Interconnection & Electrical Equivalence

## What MISO Heard

- ✓ Concerns that POI differences could create unintended injections
- ✓ Requests to limit ZGIAs to the same bus or substation
- ✓ Need for clarity on metering arrangements, protection schemes, and contingency treatment when POIs differ

## MISO's Response

- MISO appreciates the feedback stakeholders provided on this question. MISO's position is that use of the currently-effective replacement process requirements meaningfully restricts ZGIAs and their associated loads to locations/separations where their impact to the grid will be de minimis. For reference, since implementing this language for retiring/replacing generators, only 1 out of 4 requests to move POIs has passed these strict criteria.

# Key Issue: Governance, Contracts, Transparency and Restudy

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Requests for a pro forma agreement</li><li>✓ Need for clarity on minimum term requirements</li><li>✓ Requests for clear rules for off-take contract evidence</li><li>✓ Desire for transparency and posting standards</li><li>✓ Concerns about restudy triggers, especially if the generator withdraws or the load changes</li></ul>	<ul style="list-style-type: none"><li>• Any change or withdrawal of an approved MTEP project requires a no-harm study by MISO Expansion Planning</li><li>• ZGIA as a Non-Transmission Alternative is available to any Load Serving Entity, Transmission Owner, or Generator Owner that meets Point of Interconnection and submission requirements</li><li>• Resources with a signed ZGIA may still enter another GI queue to obtain a GIA with full injection rights</li><li>• ZGIA resources must show evidence they will reach commercial operation by the load's need date</li><li>• Posted Tariff language regarding off-take form and evidence is same as ERAS effort, with multiple options for showing association between ZGIA and associated load (LSE self-supply, PPA, Build-Own-Transfer, other)</li></ul>

# Key Issue: Avoiding Cost Shifts / Ensuring Cost Causation Alignment

## What MISO Heard

- ✓ Widespread concern from AMP, AEU, NRDC, OMS, Consumers, Entergy
- ✓ Concerns that loads may avoid upgrades initially using ZGIAs but later cause upgrades that are then socialized

## MISO's Response

- ZGIA has the potential to improve visibility into causation – to the extent a generation investment is assigned to the large load, whereas the transmission investment that is no longer needed would have been allocated to the Local Pricing Zone
- If ZGIA agreements are not met and upgrades become necessary, those costs are still allocated to the load in the Local Pricing Zone
- MISO is not proposing any changes to cost allocation of either generation or transmission investments in its ZGIA efforts. Cost allocation could be a component of the broader large load efforts taking place at the Large Load Working Group.

# Key Issue: Using RAS Instead of Network Upgrades

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Unease about over-reliance on RAS</li><li>✓ Questions about reliability implications</li><li>✓ Concerns about whether RAS is appropriate for large loads</li></ul>	<ul style="list-style-type: none"><li>• RAS is one of the mitigation tools available to Transmission Owners for planning a reliable system, but is not the only mechanism, and MISO does not propose to prescribe any particular method as part of the ZGIA effort.</li><li>• ZGIAs do not enhance or restrict RAS use beyond BPM-020, NERC TPL-001, and each Transmission Owner's Local Planning Criteria</li><li>• Posted tariff language includes requirements for the ZGIA resource to install protective equipment to prevent injections if located at the same point of interconnection as the load, or requires the ZGIA to disconnect under specific circumstances if not.</li></ul>

# Key Issue: Handling Multiple ZGIAs Associated With One Load

What MISO Heard	MISO's Response
<ul style="list-style-type: none"><li>✓ Questions about modeling assumptions when multiple ZGIAs serve one load</li><li>✓ Concern about aggregation rules</li><li>✓ Need clarity on output limitations and how MISO evaluates combined resources</li></ul>	<ul style="list-style-type: none"><li>• Large loads may enter ZGIAs with multiple resources to reliably serve forecasted load</li><li>• Having multiple ZGIAs does not change the Transmission Owner's compliance obligations or how MISO evaluates resources and load in MTEP Reliability Analysis</li><li>• Combined output of ZGIA resources may not exceed the load demand and is limited to the modeled load in MTEP seasonal planning</li><li>• Load and resource owners must agree on allocation of generation output; MISO is not a party to those agreements</li></ul>

# Key Issue: ZGIA Duration & Transition Path

## What MISO Heard

- ✓ Requests to ensure ZGIA is a transitional construct and does not replace the standard GIA process
- ✓ Interest in a time-bound ZGIA construct with a clear transition to full interconnection service
- ✓ Need for a clear pathway for ZGIA resources to obtain ERIS or NRIS when long-term injection rights are desired

## MISO's Response

- ZGIA resources may pursue full interconnection service at any time through the DPP process, but MISO does not propose to require any time constraints on a ZGIA.
- ZGIA Interconnection Service does not include the right to inject, and a ZGIA resource must go through the DPP process to secure ERIS or NRIS to inject.