MISO Load Interconnection Whitepaper

July 2023

Version 0.1

Table of Contents

1. Introduction 3
2. Overview of Responsibilities 3
   2.1 Responsibilities of the Load Owner 3
   2.2 Responsibilities of the MISO Transmission Owner 3
   2.3 Responsibilities of MISO 4
3. Frequently Asked Questions 4
4. Definitions (per Module A) 5
5. References and Related Documents 6
6. Revision History 6

1. Introduction

The purpose of this document is to provide more information about the process of interconnecting new loads to the Transmission System, while describing related roles and responsibilities of load owners, Transmission Owners/Operators, Load Serving Entities, and MISO. Connecting loads to the Transmission System may cause reliability impacts, so MISO and its Transmission Owners must help ensure the reliability of the Transmission System is maintained.

The studies that MISO conducts to determine reliability impacts are performed in accordance with NERC Reliability Standards TPL-001-5 and FAC-002-2, which describe Transmission System Planning Performance Requirements and Facility Interconnection Studies respectively. All studies, and the mitigation of reliability issues a new load may create, are also done in accordance with MISO's Transmission Expansion Planning Protocol (Tariff Attachment FF) and as detailed in MISO's Transmission Planning Business Practice Manual (BPM-020).

2. Overview of Responsibilities

2.1 Responsibilities of the Load Owner

The entity seeking to interconnect its load to the MISO Transmission System should first contact and collaborate with the appropriate Transmission Owner (TO) and Load Serving Entity (LSE) to develop a load interconnection agreement. It is required that the TO, LSE, and the load owner have an interconnection agreement. The TO must perform its own assessment to determine whether the load can physically and reliably connect to its transmission system. The load owner will be expected to supply all necessary technical data needed to perform reliability analysis studies. To help guide a load owner through this process, many of MISO's transmission-owning members have publicly available reference guides or help documents for new interconnection customers[1]. The Load Serving Entity is responsible for including any new loads in the forecasts provided to MISO for development of its system planning scenarios.

2.2 Responsibilities of the MISO Transmission Owner

The Transmission Owner will conduct its own studies to determine whether the load can reliably and physically connect to the transmission system and then develop an interconnection agreement with the LSE and/or load owner. The TO will lead the reliability impact study of any interconnection request that it receives based upon its own planning criteria. The TO may perform steady state, dynamic, or other analysis per its interconnection requirements. If there are consequential

[1]For example, the following is provided by American Transmission Company: https://www.atcllc.com/customer-engagement/connecting-to-the-grid/

reliability impacts, the TO will work with the load owner to provide the appropriate mitigation acceptable to the Transmission Owner and MISO. Such transmission upgrades should be submitted to MISO as an MTEP project to be studied along with the additional load amount. All transmission upgrades as described in MISO's BPM -020 that are required by new load interconnections must be submitted through MISO's annual MTEP cycle to facilitate an open and transparent stakeholder process. The transmission owner is also expected to coordinate with the LSE in submitting demand and load data to MISO for its annual planning model development process. If the Transmission Owner has determined that no transmission upgrades are required to reliably connect and serve the load interconnection then that request is not required to be included in MISO MTEP process but still must be coordinated with MISO's planning and operational groups.

2.3 Responsibilities of MISO

The Transmission Owner, load owner, and LSE should coordinate to provide MISO with any necessary data needed to review all load interconnection studies. All load interconnections that have been identified through the Transmission Owners study process as requiring transmission upgrades will be independently reviewed by MISO to determine the reliability impacts on the MISO system. MISO will collaborate with the TO, load owner, and LSE to review the results of the analysis and determine if any mitigations are required to address reliability impacts. Any modification to the transmission system based on those mutually developed mitigation solutions will be presented to stakeholders through the annual MTEP process , such as a Subregional Planning Meeting or Technical Study Task Force. If the Transmission Owners studies do not show a need for transmission upgrades then MISO may defer performing an independent assessment and not require an MTEP project be submitted to account for the project. MISO planning and operational staff will work to approve the change through the appropriate procedures as defined in it's various BPMs.

3. Frequently Asked Questions

Question: *How do I know if my load is connecting to part of MISO's Transmission System?*

> **Answer**: MISO's Transmission System is defined as the transmission facilities owned or controlled by Transmission Owners that have conveyed functional control to MISO. The Transmission Owner will have this information. However, lists of transferred transmission facilities (TTF) are also posted on the Legal section of MISO's public website: https://www.misoenergy.org/legal/transferred-transmission-facilities/

Question: *Does the size (MW) of new load matter with respect to the process it should follow?*

Answer: No, the same process applies for any load interconnecting to the Transmission System regardless of the amount of energy being withdrawn.

Question: *My load will be co-located at the same site as existing generation and served only by that generation, not withdrawing from the grid. Do I still need to go through MISO's transmission planning process?*

Answer: Yes, the load should still go through the process described above and is independent from MISO's generation interconnection process. It is not permissible to de-rate or lower existing generation injection amounts to account for the new load's withdrawal. The load must go through the process(es) described in this document and be studied for reliability impacts.

Question: *The load is from a new energy storage facility that will be charging from the transmission system. Which MISO process should I follow, transmission planning or generation interconnection?*

Answer: The load of batteries charging from the Transmission System is studied through MISO's generation interconnection process. New storage projects, assuming they will also discharge or inject energy into the transmission system, should be submitted through MISO's generation interconnection queue and not as standalone load through the transmission planning process.

4. Definitions (per Module A)

Load: A term that refers to either an end-user of Energy, net of system losses, or the amount of Energy (MWh) consumed by such end-user within the Transmission Provider Region.

Load Serving Entity (LSE): Any entity that has undertaken an obligation to serve Load for end-use customers by statute, franchise, regulatory requirement or contract for Load located within or attached to the Transmission System, including but not limited to purchase-selling entities and retail power marketers with the obligation to serve Load. Where a distribution cooperative or a municipal distribution system otherwise covered by the prior sentence is a wholesale customer of a generation and transmission cooperative or a municipal Joint Action Agency, the generation and transmission cooperative, a state or federal agency or municipal Joint Action Agency may act as the Load Serving Entity for such distribution cooperative or municipal distribution system. Where retail Load switching occurs in a state, the entity with the obligation to serve Load is the LSE.

Transmission Owner(s): Each member of the ISO whose transmission facilities (in whole or in part) make up the Transmission Provider Transmission System. An ITC is not a Transmission Owner as defined herein. Those Transmission Owners or ITC Participants that are not public utilities under the Federal Power Act shall not become subject to Commission regulation by virtue of their status as Transmission Owners or ITC Participants under this Tariff; provided, however, that by transferring functional

responsibility of their facilities classified as transmission and covered by this Tariff, those Transmission Owners or ITC Participants that are not public utilities under the Federal Power Act have agreed to participate in an ITC and/or the ISO in accordance with the terms of the ITC Participant Transfer Agreement. An ITC Participant is not, by virtue of participation in an ITC, a Transmission Owner as defined herein.

Transmission Provider Region: The Transmission System and Region that: (i) function as a centrally coordinated system and (ii) operate, subject to the single set of Dispatch Targets and Setpoint Instructions determined and issued by the Transmission Provider.

Transmission System: The transmission facilities owned or controlled by Transmission Owners that have conveyed functional control to the Transmission Provider, and are used to provide Transmission Service under Module B of this Tariff. The Transmission System includes transmission facilities owned or controlled by Transmission Owners, the functional control of which has been transferred to the Transmission Provider subject to Commission approval under Section 203 of the Federal Power Act. In addition, the Transmission System includes other transmission facilities owned or controlled by the Transmission Owner that are booked to transmission accounts and are not controlled or operated by the Transmission Provider but are facilities that the Transmission Owners, by way of the Agency Agreement, have allowed the Transmission Provider to use in providing service under this Tariff. While not part of the Transmission System, service over Distribution Facilities is available through the execution of a Service Agreement pursuant to Schedule 11 of this Tariff. The term Transmission System shall include the Transmission System (Michigan).

5. References and Related Documents

- MISO Business Practice Manual 015 – Generation Interconnection
- MISO Business Practice Manual 020 – Transmission Planning
- MISO Planning Modeling Manual v4.1

6. Revision History

Date	Version	Description	Author(s)
07/18/2023	0.1	Initial draft	MISO Planning Staff