

MISO Reliability Guidance – CEJA Considerations

Midcontinent Independent System Operator (“MISO”)

MISO is an independent, not-for-profit organization that delivers safe, cost-effective electric power across 15 U.S. states and the Canadian province of Manitoba. MISO is committed to reliability, nondiscriminatory operation of the bulk power transmission system and strives to be the most reliable, value-creating RTO.

Illinois Climate and Equitable Jobs Act (“CEJA” or the “Act”)

[Public Act 102-0662](#), which includes the Energy Transition Act and related legislation (the “Act”), was enacted by the Illinois General Assembly with an effective date of September 15, 2021. The Act directs a number of state agencies to implement new programs, initiatives and directives intended to further the state’s goals of transitioning the state to 100% clean energy.

The Act includes a number of provisions that seek to phase out carbon emissions and other pollutants from fossil fuel-based electricity generation. The Act also establishes a ceiling for a broad range of pollutants emitted from privately owned, natural gas-fueled electricity generation. The emissions ceiling, with its initial application beginning October 2021 on a rolling 12-month basis, is set at the average emissions of those generating units calculated over the three-year period 2018 through 2020. The Illinois Environmental Protection Agency (IEPA) has regulatory oversight of generator emissions, including the restrictions implemented by the Act.

Additionally, the Act includes provisions by which individual generators can be granted limited and temporary exceptions to the emissions ceiling if they are deemed necessary to maintain the reliability of the bulk electric system. The Act preserves MISO’s ability, as the RTO serving central and southern Illinois, to call upon emission-limited generators within its footprint to produce electricity necessary to maintain the reliability and stability of the grid. However, the IEPA is not planning a rulemaking and additional clarity is needed to address questions/ambiguities to 1) ensure that MISO has the tools necessary to manage the grid; and 2) address generators’ enforcement and litigation risk. Therefore, MISO, in coordination with the IEPA and the Illinois Governor’s Office, prepared this “guidance document” to answer these questions and give both MISO and generators clarity on how to manage reliability under the auspices of the Act.

Definitions¹

“Electric generating unit” or “EGU” means a fossil fuel-fired stationary boiler, combustion turbine, or combined cycle system that serves a generator that has a nameplate capacity greater than 25 MWe and produces electricity for sale.

“Large greenhouse gas-emitting unit” or “large GHG-emitting unit” means a unit that is an electric generating unit or other fossil fuel-fired unit that itself has a nameplate capacity or serves a generator that has a nameplate capacity greater than 25 MWe and that produces electricity, including, but not limited to, coal-fired, coal-derived, oil-fired, natural gas-fired and cogeneration units.

“Existing emissions” means (for CO₂e) the total average tons-per-year of CO₂e emitted by the EGU or large GHG-emitting unit either in the years 2018 through 2020 or, if the unit was not yet in operation by January 1, 2018, in the first three full years of that unit’s operation.

“Public greenhouse gas-emitting units” or “public GHG-emitting unit” means large greenhouse gas-emitting units, including EGUs, that are wholly owned, directly or indirectly, by one or more municipalities, municipal corporations, joint municipal electric power agencies, electric cooperatives, or other governmental or nonprofit entities, whether organized and created under the laws of Illinois or another state.

¹ <https://www.ilga.gov/legislation/publicacts/102/PDF/102-0662.pdf>

Relevant Statutory Provisions Regarding Emissions Ceilings for Private Natural Gas Generation²

- Establishing an Emissions Ceiling for Non-Public Natural Gas Generators
 - 415 ILCS 5/9.15: Subsection (k-5)
No EGU or large greenhouse gas-emitting unit that uses gas as a fuel and is not a public GHG-emitting unit may emit, in any 12-month period, CO₂e or copollutants in excess of that unit's existing emissions for those pollutants. SB2408 p.920
- Emissions Exceptions for Reliability
 - 415 ILCS 5/9.15: Subsection I
Notwithstanding subsections (g) through (k-5), large GHG-emitting units including EGUs may temporarily continue emitting greenhouse gases after any applicable deadline specified in any of subsections (g) through (k-5) if it has been determined, as described in paragraphs one and two of this subsection, that ongoing operation of the EGU is necessary to maintain power grid supply and reliability or ongoing operation of large GHG-emitting unit that is not an EGU is necessary to serve as an emergency backup to operations.
 - 415 ILCS 5/9.15: Subsection I (2)
If any EGU or large GHG-emitting unit that is a participant in a regional transmission organization receives notice that the regional transmission organization has determined that continued operation of the unit is required, the unit may continue operating until the issue identified by the regional transmission organization is resolved. The owner or operator of the unit must cooperate with the regional transmission organization in resolving the issue and must reduce its emissions to zero, consistent with the requirements under subsection (g), (h), (i), (j), (k), or (k-5), as applicable, as soon as practicable when the issue identified by the RTO is resolved.

MISO Possible Uses of Reliability Provisions

The following are examples of cases that could trigger the CEJA reliability provisions. However, as the MISO Region evolves, there may be additional cases where units would be called upon to remain online.

- Capacity issues when the available resources on the system may not be sufficient to satisfy the demand
- As part of system restoration activities following a complete or partial interruption to the bulk electric system
- Generation required for MISO to satisfy thermal limit operating criteria
- Generation required for MISO to satisfy voltage operating criteria
- Minimal testing requirements for the four categories above or requirements of federal, state, or local authorities
- Outage management and resultant operating conditions
- Capacity issues arising from supply surplus conditions in the MISO Region

Reliability Provision Approach

1. Capacity Issues - if MISO determines that the resources scheduled for an operating day are not sufficient to maintain the appropriate reserve levels for the MISO Region, or forecasted extreme weather conditions or other abnormal circumstances pose an imminent threat to the MISO Transmission System, then MISO would begin to implement capacity related operating and emergency procedures. These procedures include a series of declarations, alerts, warnings, and actions to be taken by our members to preserve the reliability of the MISO footprint. Actions may include deferring outages or maintenance, utilizing all available generation and requesting generation to operate above its maximum economic capability, or implementing Load Modifying Resources. For additional information about MISO's capacity related procedures, see SO-P-NOP-00-449 Conservative System Operations and SO-P-EOP-00-002 MISO Market Capacity Emergency available at: <https://www.misoenergy.org/markets-and-operations/reliability-information/reliability-operating->

² <https://www.ilga.gov/legislation/publicacts/102/PDF/102-0662.pdf>

[procedures/#t=10&p=0&s=&sd=](#) under “Normal Operating Conditions” and “Emergency Operating Conditions”, respectively.

2. System Restoration - following the complete or partial shutdown of the Transmission System, MISO works with its members to restore the integrity of the MISO Region as quickly as possible. The process may include utilizing Blackstart Units that are capable of starting without any external supply to form islands, building cranking paths to other generating units, nuclear stations, and critical gas facilities, restoring load, synchronizing and interconnecting islands to form larger islands and then ultimately interconnecting to outside areas and returning the system to normal operation. For additional information about how MISO would restore the system from a complete or partial shutdown, see SO-P-PSR-01 MISO Power System Restoration Plan available at <https://www.misoenergy.org/markets-and-operations/reliability-information/reliability-operating-procedures/#t=10&p=0&s=&sd=> under “Restoration Documents.”
3. Thermal Operating Criteria - the MISO Market is operated so that the loading on all MISO facilities are within their normal continuous ratings, and so that immediately following any single facility malfunction or failure, the loading on all remaining facilities can be expected to be within emergency ratings. One of the ways MISO controls the loading on facilities is by adjusting generation MW output via redispatch. This redispatch process generally involves reducing generation output in one part of the system while turning on or increasing generation in another part of the system. The generation resources which are selected are determined by the Security Constrained Economic Dispatch (SCED) package which selects units which have the desired reliability effect at the lowest cost. For additional information on MISO’s use of SCED to manage congestion, see <https://cdn.misoenergy.org/20210930%20RSC%20Item%2009%20MISO%20Congestion%20Management%20Process592976.pdf>.
4. Voltage Operating Criteria – MISO operates all facilities under MISO’s functional control such that no MISO monitored facility will violate normal limits on a continuous basis and that no monitored facility will violate emergency voltage limits following any simulated facility malfunction or failure. MISO, in conjunction with its Transmission Operators, controls the voltages on facilities in several ways including by adjusting generator reactive power (MVAR) output and by adjusting generation output via the redispatch process described above.
5. Minimal Testing – if generators have exceeded their emission limitations, they may still be required to test to ensure readiness for one of the above categories, including participation as a Capacity Resource through MISO’s Planning Resource Auction (“PRA”). The testing (Generator Verification Test Capacity) is an annual requirement for MISO’s PRA and generators operate for a very short period of time in order to satisfy the testing requirement. This would also include other minimal short-term testing to ensure compliance with all regulations, requirements, and permits of federal, state, and local authorities.
6. Outage Management – as generators or transmission lines are taken offline for various reasons (maintenance, upgrade, damage, etc), MISO can create an operating guide to manage the resultant operating conditions. An operating guide may rely on a unit to maintain system reliability.
7. Supply Surplus – if MISO determines that forecasted load or forecasted Regional Directional Transfer flows fall within a certain range, MISO would begin to implement Supply Surplus Emergency procedures. These procedures provide for backing down generation, but could require certain generation to remain online to some extent based on locational needs. For additional information on MISO’s Supply Surplus Emergency procedure, see SO-P-EOP-00-003 MISO Supply Surplus Emergency available at: <https://www.misoenergy.org/markets-and-operations/reliability-information/reliability-operating-procedures/#t=10&p=0&s=&sd=> under “Emergency Operating Conditions.”

MISO Procedures for Excepted Generators

Communicating and Scheduling EGU and Large GHG-Emitting Units for Reliability:

- (1) To help manage run hours, resource owners are encouraged to consult with the Independent Market Monitor (“IMM”) to develop a Cost-Based (Consultative) Reference Level as detailed in MISO Business Practices Manual (“BPM”) 009 – Market Monitoring and Mitigation, Section 6.9.1 (Methods to Calculate Reference Levels).

- (2) If an EGU or large GHG-emitting unit reasonably anticipates not having sufficient run hours left as a result of emissions limits in CEJA Legislation, the unit will need to bid into the Day-Ahead and Real-Time Markets as “AME.”
- (3) If MISO foresees the need to run an EGU or large GHG-emitting unit in the Illinois area for any of the reliability scenarios listed above, it will communicate this need to the applicable generation owner in accordance with the MISO BPMs and Reliability Operating Procedures.³ Included in this communication will be the time (Eastern Standard) the unit is requested to begin generating, as well as the reason for the commitment (production, emergency, etc). Generation owners are provided this information through various mechanisms including a private portal whereby the generator owner can view their commitment details as noted above.
 - a. Both MISO and the generation owner will log this information
 - b. The generation owner will run the unit as instructed
- (4) In accordance with the MISO BPMs and Reliability Operating Procedures, MISO will continue to monitor system conditions and will then communicate to the generation owner when the unit is no longer needed for reliability and inform them the unit should be taken offline and stop generating.
 - a. The generation owner will then take the unit offline.
 - b. Both MISO and the generation owner will log this information.
- (5) Within thirty (30) days of an exception event, the generation owner will electronically submit to the appropriate Illinois government agency and copy MISO* the following information:
 - a. The unit committed
 - b. The time the unit began operating
 - c. The time the unit stopped operating
 - d. The emissions attributable to this window of time

*Due to the Confidentiality restrictions in the MISO Tariff, MISO is not permitted to release Market Participant Confidential Information such as unit run times or commitments.

MISO Emergency Procedure Communications

During periods of actual or anticipated emergency conditions on the MISO transmission system, there are defined MISO operational procedures, as outlined in MISO’s Reliability Operating Procedures and BPMs, to address the communication needs of MISO’s stakeholders. These stakeholders include, among others, transmission and generation asset owners, demand-side resources (including Load Modifying Resources), state agencies, and the general public.

The following addresses how MISO will communicate with those state agencies that, due to their role, must understand any emergency conditions present on the MISO system potentially affecting their population.

Emergency Procedures in MISO System Operations

Power system disturbances are most likely to occur as a result of loss of generating equipment, transmission facilities, or unexpected load changes that can drop voltage or stress the system. These disturbances may affect the reliable operation of the MISO system. It is MISO’s responsibility to communicate when these events are foreseen, when they materialize, the corrective actions to be taken, and when the events subside. Communicating these events to our Illinois state agency constituencies will highlight the situations and scenarios in which MISO is most likely to direct emission-limited generators to run for grid reliability and stability.

MISO Emergency Operating Procedures Terms

Many of the MISO Reliability Operating Procedures can be broken down into one of the following three categories:

- Alerts may be issued one or more days prior to emergency procedures.

³ MISO’s operating procedures for normal operating conditions, abnormal operating conditions, Emergency operating conditions, and restoration documents are referred to herein as “Reliability Operating Procedures” consistent with where stakeholders can find the documents on MISO’s public website. These documents include, but are not limited to, MISO’s SO-P-NOP-00-449 Conservative System Operations, SO-P-EOP-00-002 MISO Market Capacity Emergency, SO-P-EOP-00-003 MISO Supply Surplus Emergency, SO-P-EOP-00-004 Transmission System Emergency, and SO-P-PSR-01 MISO Power System Restoration Plan.

- Warnings occur the morning of the operating day that an emergency event is imminent.
- Events are declared at the onset of an emergency event.

However, in certain situations the implementation order of these levels may change. Sometimes MISO must omit a warning or alert and immediately declare an emergency event. Certain emergency situations do not have an alert, warning or event level.

MISO Emergency Procedure Notification Emails

When a Reliability Operating Procedure notice is issued, MISO will designate the affected region (including Local Balancing Authorities), time period and emergency notification pursuant to the MISO Reliability Operating Procedures. MISO will send the emergency notification to the appropriate state agency emergency contact lists. If an emergency declaration has been issued for a MISO region, the email will be sent to the appropriate regional emergency email list. If an emergency declaration has been issued for a particular MISO zone(s), the email will be sent to the appropriate state(s) emergency email list for which the zone(s) is located in. At a minimum, the email should indicate the time for the emergency procedure, the affected MISO zone(s) or region(s), and the message definition.

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