



Blackstart Service Business Practice Manual
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Business Practices Manual

Blackstart Service



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1. Introduction

This introduction to the Midcontinent Independent System Operator, Inc. (MISO) *Business Practices Manual (BPM) for Blackstart Service* includes basic information about this BPM and the other MISO BPMs. The first section (Section 1.1) of this Introduction provides information about the MISO BPMs. The second section (Section 1.2) is an introduction to this BPM. The third section (Section 1.3) identifies other documents in addition to the BPMs, which can be used by the reader as references when reading this BPM.

1.1 Purpose of the MISO Business Practices Manuals

The BPMs developed by MISO provide background information, guidelines, business rules, and processes established by MISO for the operation and administration of MISO markets, provisions of transmission reliability services, and compliance with MISO settlements, billing, and accounting requirements. A complete list of MISO BPMs is available for reference through MISO's website. All definitions in this document are as provided in the MISO Tariff, the NERC Glossary of Terms Used in Reliability Standards, or are as defined by this document.

1.2 Purpose of this Business Practices Manual

This *BPM for Blackstart Service* describes the qualifications and compensation of Blackstart Units that are capable of providing Blackstart Service in accordance with Schedule 33 of the Open Access Transmission, Energy and Operating Reserve Markets Tariff for MISO, Inc. (Tariff). Schedule 33 was effective as of October 29, 2008 and has been incorporated into the Tariff.

MISO prepares and maintains this *BPM for Blackstart Service* as it relates to the reliable operation of MISO's region of authority. This BPM conforms and complies with the Agreement of Transmission Owners to Organize MISO, Inc., a Delaware Non-Stock Corporation (MISO Agreement), the Federal Energy Regulatory Commission (FERC) Order 2000, the Tariff, the North American Electric Reliability Corporation (NERC) operating policies, and the applicable reliability principles, guidelines, and standards of the Regional Entities. The BPM is designed to facilitate administration of efficient Energy and Operating Reserve Markets.

This BPM benefits readers who want answers to the following questions:

- How should a specific Blackstart Unit be identified and recognized as meeting the technical qualifications required to be deemed a blackstart capable generator for receiving compensation for its service?
- How will rates for a Blackstart Unit be calculated for its service?



- How will Transmission Customers be charged for blackstart service?
- How will revenues collected by MISO for blackstart and system restoration service be distributed to a Blackstart Unit Owner?

1.3 References

Other reference information related to this BPM includes:

- MISO Tariff

2. Blackstart Units

2.1 General Qualifications

A Blackstart Unit shall be considered capable of providing Blackstart Service when it meets the criteria established by NERC and the applicable Regional Entity, has been included in the Transmission Operators System Restoration Plan and, if applicable, entered into the database of the applicable Regional Entity's Blackstart Capability Plan. Moreover, a Blackstart Unit must meet the minimum requirements of Schedule 33 of the Tariff to be eligible for compensation under the Tariff. A Blackstart Unit Owner must be a Tariff Customer in order to qualify for payments under the Tariff. Transmission Operators are responsible for identifying to MISO the Blackstart Units that are included in each of their individual System Restoration Plans and that are required for the reliable restoration of the Transmission System in each of the Transmission Pricing Zones.

2.2 Technical Requirements

In accordance with the general qualifications set forth in section 2.1 above, in addition to meeting the criteria established by NERC and the applicable Regional Entity, a Blackstart Unit must meet the technical requirements necessary for it to be included in the Transmission Operator's System Restoration Plan and/or entered into the database of the applicable Regional Entity's Blackstart Capability Plan. As part of the Transmission Operators System Restoration Plan, the Transmission Operator shall document its selection criteria and requirements for qualification as Blackstart Units. At a minimum, the Transmission Operators System Restoration Plan's selection criteria and requirements for qualified Blackstart Units shall include the following:

- A Blackstart Unit must have the capability to close to a dead bus.
- A Blackstart Unit must be periodically tested, in a manner consistent with the NERC Reliability Standards, to ensure that it is available online and capable of supplying Useful Energy¹ to the station bus within a time period specified by the Transmission Operator and/or the applicable Regional Entity.
- A Blackstart Unit must have the ability to operate at zero load for the time period specified by the Transmission Operator and/or the applicable Regional Entity, or alternatively, for the period that is required to accomplish the goals of the Transmission Operator's System Restoration Plan.

¹ "Useful Energy" is defined as energy that meets frequency, voltage, and of sufficient quantity as to meet the needs of serving load, or the restoration plan. This includes sufficient reactive power regulating capability to support the restoration plan.

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- A Blackstart Unit must have, at minimum, sufficient reactive reserve capability to allow energization of the transmission system within the station to supply the facility with restoration power.
 - A Blackstart Unit must have an adequate inventory of fuel supply to accomplish the goals of the Transmission Operator's System Restoration Plan.

2.2.1 Testing Requirements

In accordance with Schedule 33, Section IV of the Tariff, a Blackstart Unit shall be tested periodically in accordance with the NERC System Restoration and Blackstart reliability standards to verify that it can be started and operated without being connected to the Transmission System. To receive Blackstart Service compensation, a Blackstart Unit must have a successful periodic test on file with MISO covering a test performed within the prior 3 calendar years, and must also satisfy all applicable NERC and Regional Entity Blackstart standards.

As part of the Transmission Operator's System Restoration Plan, the Transmission Operator shall document testing requirements for Blackstart Units within its Transmission Operator area. At a minimum, the testing requirements shall include the following:

- Appropriate testing schedule (which, at a minimum, shall meet the requirements established by applicable NERC and Regional Entity standards).
- Testing criteria (which may be used to determine whether a Blackstart Unit has successfully passed the applicable test).
- Documentation of completed testing (which a Transmission Operator must verify).

2.2.2 Blackstart Start-up Procedure Requirement

A Blackstart Unit Owner shall create a formal blackstart start-up procedure, which the affected Transmission Operator has reviewed, and submit it to MISO. Schedule 33, Section III of the Tariff provides: "Each Blackstart Unit Owner must maintain procedures for the start-up of the Blackstart Units consistent with the procedures established by NERC and the applicable Regional Entity." As such, a Blackstart Unit Owner's failure to provide the Transmission Operator and MISO with the most current version of its start-up procedure is considered a violation of Schedule 33, Section III of the Tariff.

2.3 Planned Outage Restrictions

The maximum number of concurrent planned outages of Blackstart Units within a Transmission Pricing Zone may be restricted based on Transmission Operator requirements for Blackstart Service availability.



MISO will notify the Transmission Operator of planned outages of Blackstart Units identified in the Transmission Operator restoration plan. The Transmission Operator will inform MISO of any conflicts with their requirements for Blackstart Resource availability, and MISO may request the unit outage to be rescheduled in order to maintain sufficient black start capability in the Transmission Operator area.

2.4 Revenue Requirements

Compensation for Blackstart Service is based on the annual revenue requirements associated with each Blackstart Unit. In accordance with Schedule 33, Section V of the Tariff, a Blackstart Unit Owner possesses the unilateral right under Section 205 of the Federal Power Act to file to establish or revise its annual cost-based revenue requirement for the provision of Blackstart Service. The Blackstart Unit Owner or Transmission Operator is thus responsible for making all appropriate filings with FERC, which shall then determine whether such revenue requirement is just and reasonable.



3. Service Agreement to Provide Blackstart Service

In order to qualify for compensation under Schedule 33 of the Tariff, a Blackstart Unit Owner must submit an executed Service Agreement to MISO using Attachment NN to the Tariff, or alternatively, enter into an agreement for such service with a Transmission Operator and submit an executed Service Agreement to the MISO using Attachment NN to the Tariff. If a Blackstart Unit Owner and a Transmission Operator enter into such an agreement for the provision of Blackstart Service, a copy of the separate agreement must be attached as “Exhibit A” to the executed Service Agreement.

A Transmission Operator contracting for Blackstart Unit services shall be compensated for Blackstart Service under Schedule 33 of the Tariff if the bilateral agreement for Blackstart Service with a Blackstart Unit Owner meets the minimum term and technical capability requirements of Schedule 33. Compensation paid to the Transmission Operator shall be based on the annual revenue requirement for each Blackstart Unit, as described in Schedule 33, Section V of the Tariff.

A Transmission Operator otherwise entitled to compensation may choose to have MISO compensate the Blackstart Unit Owner directly, if permitted to do so by the bilateral agreement between the Blackstart Unit Owner and the Transmission Operator. In this event, MISO will make payments to the Blackstart Unit Owner on behalf of the Transmission Operator, but will not accept an assignment of the obligations imposed by the contract.

4. Process for Compensation

To be compensated for providing Blackstart Service, a Blackstart Unit Owner or a Transmission Operator must provide MISO with all data necessary to demonstrate that it has met all applicable



NERC and Regional Entity Blackstart criteria, standards and requirements by May 1 of each year. The Blackstart Unit Owner must also affirm that it will continue to meet the requirements outlined in Schedule 33 of the Tariff for the next twelve (12) months.

No later than May 1 of each year, MISO must receive sufficient documentation of such compliance in order for it to compensate the Blackstart Unit Owner or Transmission Operator for the provision of Blackstart Service. A Blackstart Unit Owner shall supply MISO with documentation of the following, in addition to meeting registration requirements as outlined in Section 8 of this BPM:

- Test records validated by the Transmission Operator, which verify that successful tests were performed on the Blackstart Unit within the preceding 3 calendar years.
- Most current version of the Blackstart Unit Owner's blackstart start-up procedure.

The aforementioned documents must be emailed to MISO Client Services and Readiness Department (help@misoenergy.org).

5. Rate Calculations for Blackstart Service

As provided in Schedule 33, Section VI of the Tariff, MISO shall calculate rates for Blackstart Service for each Transmission Pricing Zone in the Transmission System. The charges collected under Schedule 33 represent a pass through of Blackstart Service costs, based upon the annual cost-based revenue requirements of those Blackstart Units providing service pursuant to Schedule 33, that have been approved by the Commission. For those Transmission Pricing Zones where more than one entity is deemed to be a Blackstart Unit Owner providing Blackstart Service,



MISO will pass through the revenue it receives directly to each individual Blackstart Unit Owner based on the revenue requirements specified in Schedule 33.

MISO shall determine the rates for each Transmission Pricing Zone within the Transmission System by following the steps outlined in Schedule 33, Section VI.A of the Tariff. Likewise, MISO shall determine the appropriate rate for Transmission Customers with Loads located outside the Transmission Provider's Transmission System by following the steps outlined in Schedule 33, Section VI.B of the Tariff.

6. Collection of Charges

Each Transmission Customer shall pay MISO a monthly charge for Blackstart Service as prescribed under Schedule 33 of the Tariff by multiplying the applicable rate by a capacity or Load value, as follows:

- Point-to-Point Transmission Service charges will use Reserved Capacity in the calculation of the Schedule 33 charge.
- Network Integration Transmission Service or NITS charges will use Network Load in the calculation of the Schedule 33 charge.

For additional information regarding the Schedule 33 charge calculation, please refer to the BPM for Transmission Settlements.



7. Revenue Distribution

All Schedule 33 revenues collected by MISO shall be distributed to Blackstart Unit Owners and Transmission Operators as follows:

- Each month, for Point-to-Point Transmission Service or NITS provided to load within a Transmission Pricing Zone within the Transmission System, MISO shall distribute to each Blackstart Unit Owner a *pro rata* allocation of the amounts collected under Schedule 33 based upon the Blackstart Unit Owner's respective share of the relative rates within the Transmission Pricing Zone (*i.e.*, rates of the Blackstart Units divided by the total rates of Blackstart Units in a Transmission Pricing Zone) derived under Schedule 33, Section VI.A of the Tariff.
- Each month, for Transmission Service provided to Points of Delivery or Loads located outside the Transmission System, MISO shall distribute to each Blackstart Unit Owner a *pro rata* allocation of the amounts collected for its share of its gross annual Blackstart

Service revenue requirement among all Blackstart Unit Owners providing service under Schedule 33.

- Each month, MISO shall distribute to each Transmission Operator that has contracted for Blackstart Service and is eligible for compensation pursuant to Schedule 33, a *pro rata* allocation of the amounts collected for its share of its Blackstart Service contract payment among the gross annual Blackstart Service revenue requirement of all Blackstart Unit Owners providing service under Schedule 33. If the Blackstart Unit Owner has elected to receive payment directly from MISO, and so indicated in the applicable Attachment NN, MISO will make the payment due the Transmission Operator directly to the Blackstart Unit Owner.

For additional information regarding Schedule 33 revenue distribution, please refer to the BPM for Transmission Settlements.

8. Registration Process for Blackstart Service

The process for requesting Schedule 33 services is administered by MISO Client Services and Readiness Department, which will coordinate the necessary actions for registering the Blackstart unit for Schedule 33 compensation.

Prior to completing the necessary registration documentation, the Blackstart unit owner must file and receive a FERC order for a cost-based annual revenue requirement for Blackstart Service with FERC, which will determine the qualified compensation. Additionally, the Blackstart unit owner must verify that the unit meets the technical requirements of the Transmission Operator System Restoration plan including the technical requirements defined in this BPM.

The Blackstart unit owner or Transmission Operator should contact MISO Client Services and Readiness Department (help@misoenergy.org) to request the required registration documentation. These requirements are also outlined on MISO's public website: www.misoenergy.org > Markets and Operations > Market Participation > Supplemental Registration tab. This includes the following documents:

- Change Request (formerly Attachment B – Change of Information Form)



- Blackstart Unit Registration Form
- Blackstart Unit Certification Statement
- Attachment NN – Blackstart Service Agreement
- Test records from testing performed within the last 3 calendar years approved by the Transmission Operator
- Current Blackstart Unit Startup Procedure

The Certification statement must be completed by the Blackstart Unit owner or Transmission Operator, which provides a written attestation that it has met the necessary requirements as defined in Schedule 33 and this BPM. Documents must be signed by an authorized contact as defined in BPM 001 – Market Registration.

Once all documentation is received, MISO Client Services and Readiness Department will review the request with the Legal and Real Time Operations departments and respond within 14 days. Approved requests will become effective on the first day of the month following the approval.