Manual No. 007

Business Practices Manual

Physical Scheduling

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Revision History

Doc Number	Description	Revised by:	Effective Date
BPM-007-r25	Annual Review completed ▪ Modified 19.2 ▪ Modified Attachment D – MISO Market Information Specification for Non-OATI Users ▪ Modified Attachment E – MISO Market Information Specification for Non-OATI Users to change title and subsections from “E” to “D” ▪ Modified Attachment F - Time Change Tagging to change title and subsections from “F” to “E”	N. Browning	MAY-01-2024
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BPM-007-r23	Annual Review completed.	M. Schingle	APR-20-2022
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BPM-007-r19	▪ Annual Review Completed ▪ Removed 2.1 ▪ Exhibit 3-3. Added Spot product to CTS ▪ 5.1 – minor edits ▪ 18.3 – Procedure name addition ▪ Various minor wording changes	N. Browning	DEC-01-2018
BPM-007-r18	▪ 3.3.2 – Reverted r17 price cap change	N. Browning	DEC-02-2017
BPM-007-r17	▪ 3.3.2 – Changed price cap on Dispatchable Import Interchange transactions ▪ Appendix E.1 – updated the MisoMarketCertID	N. Browning	DEC-01-2017

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BPM-007-r15	▪ Annual Review completed. ▪ Edited various sections with regard to intra-hour scheduling ▪ Removed Section 5.2.2. ▪ Section 6 – Validations ▪ Removed 19.3 Rounding as it is redundant.	N. Browning	NOV-02-2016
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BPM-007-r13	▪ Section 6 – Validations ▪ 9.1 – Scheduling Across ONT Controlled Interface ▪ Section 19 – clarified NAI submission process	N. Browning	JUL-01-2015
BPM-007-r12	▪ Section 14 removed as not a part of the Interchange Scheduling process. ▪ Section 3.3.4.1 Update EAR e-Tag options to include Export transactions. ▪ Appendix E – updated outdated message code	N. Browning	MAR-01-2015
BPM-007-r11	▪ Section 7 Added Dynamic schedule review in Ramp process. ▪ Appendix E – removed outdated message code	N. Browning	DEC-15-2014
BPM-007-r10	▪ Annual Review completed.	N. Browning	SEP-1-2014
BPM-007-r9	▪ Various – changed “OATi” to “OATI" ▪ Various – changed Real-Time scheduling deadlines from “30 minutes prior” to “20 minutes prior” to accommodate FERC Order 764 ▪ Section 2.4 – 0-NX reference ▪ Section 7.4 – Deleted staggered schedule allowance due to ramp unavailability. ▪ Section 17.4 – Added language for Non-Firm to Firm transmission elevations for CBM ▪ Attachment B – Deleted MAPP TP examples	N. Browning	OCT-15-2013

	▪ Attachment B – Added MOWR examples		
BPM-007-r8	▪ Section 1.4 - Added contact information ▪ Section 2.6 – Added new MP definition ▪ Section 3.4 – Moved some Scheduling rules to this header ▪ Section 6 – Updated validation criteria ▪ Section 9.2 – Added MI-ONT interface definition ▪ Section 20 – Updated S7 Timeline ▪ Appendix C – Added information for Ramp Availability Monitor and Ramp Limits screens ▪ Appendix G – removed ATF representative information. ▪ References to PSS changed to webTrans ▪ Additional minor changes	N. Browning	MAR-20-2013
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BPM-007-r6	▪ Clarification of Spot Market Product ▪ Changes to Attachment A ▪ Clean-up of Physical Path examples in Attachment B ▪ Addition of Section 23 ▪ Minor corrections	N. Browning	APR-18-2012
BPM-007-r5	▪ Minor specifications to GFACO rules in Section 3.3.5 ▪ Added Section 6.2 for Source/Sink validation criteria. ▪ Updated End-of-month checkout procedures in Section 20.2 ▪ Removal of First Energy references ▪ Minor corrections	N. Browning	JUL-07-2011
BPM-007-r4	▪ Various grammatical / spelling errors ▪ Added Validation criteria to Section 6 ▪ Ramp – Section 7 ▪ Added Section 15- HVDC ▪ Updated Section 19- Back-up Procedures ▪ Appendix C – Ramp ▪ Appendix F – deleted for redundancy ▪ Various smaller changes	N. Browning	JAN-05-2011

BPM-007-r3	▪ Changed BPM numbering, Removed Issue Date column.	N. Browning	JUL-23-2010
RTO-BPM-001-r3	▪ Included new section 15 to identify transactions sourcing from Capacity Resources ▪ Removal of RDD transaction type ▪ Updated Section 19	N. Browning	JAN-06-2009
RTO-BPM-001-r2	Revised to reflect the September 14, 2007, subsequent September 19 Errata filing and March 26, 2008 30-Day Compliance Filing of the Open Access Transmission and Energy Markets Tariff for the MISO, Inc. (EMT) relating to implementation of the Day-Ahead and Real-Time Energy and Ancillary Services Markets and to integrate proposed changes to the Balancing Authority Agreement.	N. Browning	JAN-06-2009
RTO-BPM-001-r1	Section 7 – Changed ramp limit as announced on MISO's OASIS AUG-19-2008.	N. Browning	OCT-01-2008

Contents

1. Introduction

This introduction to the Midcontinent Independent System Operator, Inc. (MISO) *Business Practices Manual (BPM) for Physical Scheduling* includes basic information about this BPM and 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 the MISO for the operation and administration of MISO markets, provision 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 Physical Scheduling* includes the following:

- Description of all the types of Interchange Schedules
- Day-Ahead and Real-Time Energy and Operating Reserve Market rules pertaining to Interchange Schedules
- e-Tag Process
- Spot-In Market Product
- Ramp Reservation System instructions

1.3. References

Other reference information related to this BPM includes:

- BPM-002 Energy and Operating Reserve Markets
- BPM-005 Market Settlements
- BPM-012 Transmission Settlements
- BPM-013 Module B – Transmission Service
- Open Access Transmission, Energy and Operating Reserve Market Tariff of the MISO
- Additional documents are referenced in the text of this BPM
- Refer to the *BPM-002 for Energy and Operating Reserve Markets* for the description of Financial Bilateral Transactions.

1.4. Compliance

MISO adheres to all applicable NERC reliability standards and NAESB standards.

1.5. Contact Information

For Real Time support or questions on this BPM:

- Generation&Interchange-All@misoenergy.org
- (317) 249-5511

2. Scheduling Overview

The following software tools are available to assist MISO with the management of Interchange Scheduling and are described in this section:

- e-Tagging
- OASIS
- OATI webTrans
- Ramp Reservation System (RRS)
- OATI webRegistry

2.1. e-Tagging

Entities participating in the MISO market will have their own software vendor in order to create and submit NERC e-Tags.

2.1.1. Unique Tag IDs

Each e-Tag on which the MISO is included shall have a unique tag ID. Each e-Tag ID will follow the same format: (GCA)_(PSECODE)(Tag Code)_(LCA)

Example: LLC_JOHNC01RT08681_MISO

Tag codes should not be submitted with the exact same e-Tag ID as one that occurred anytime in the past. Should an e-Tag be submitted and implemented using a previously implemented tag ID, the Market Participant runs the risk of an incorrect settlement.

2.2. MISO Market Information

For those entities using Open Access Technology International, Inc. (OATI) as their tagging vendor, the MISO market information of the tag can be added as follows:

After logging into OATI tagging software:

- Click on Misc. from the main toolbar
- Select Tagging Settings
- Under Tag Display Options – Click the box entitled “Enable display of MISO market information”
- Click Apply

Other tagging software vendor users:

- See Attachment E of this BPM

2.3. OASIS

Schedules submitted via an e-Tag into the MISO market must reference a valid MISO Transmission Service Request (TSR) or a Network Integrated Transmission Service (NITS TSN). Grandfathered transactions must have a valid Grandfathered Transmission Service Request. Grandfathered transactions that involve two MISO Members must have Transmission Service across both transmission systems and must provide the TSR numbers on the e-Tag.

NAESB business practices make note of a Next-hour Market Service Product of 0-NX, which is to be added as a reference when an e-Tag is made. MISO does not offer this product and will not approve e-Tags referencing a 0-NX transmission reservation.

MISO does allow for a Spot Market product to be used for non-Firm Import transactions. See Attachment A of this BPM.

2.4. webTrans

OATI’s webTrans processes and tracks the Interchange Schedules that enter, exit, pass through or exist within MISO’s Market Footprint. In general, webTrans is used to process Interchange Schedules with external entities and validate transactions against rules explained in this BPM. In addition to managing Bilateral Interchange transactions, webTrans is also used to manage various interchange coordination agreements.

MPs submit Interchange Schedules via a NERC e-Tag. An approved e-Tag creates a schedule in webTrans. Each type of Interchange Schedule is discussed in more detail in Section 3 of this BPM. During the registration process, valid MPs may request access to webTrans. MPs will be able to view all schedules that utilize their transmission. These schedules will be displayed on the ‘Market Clearing’ screen in webTrans.

2.5. Market Participants (MPs)

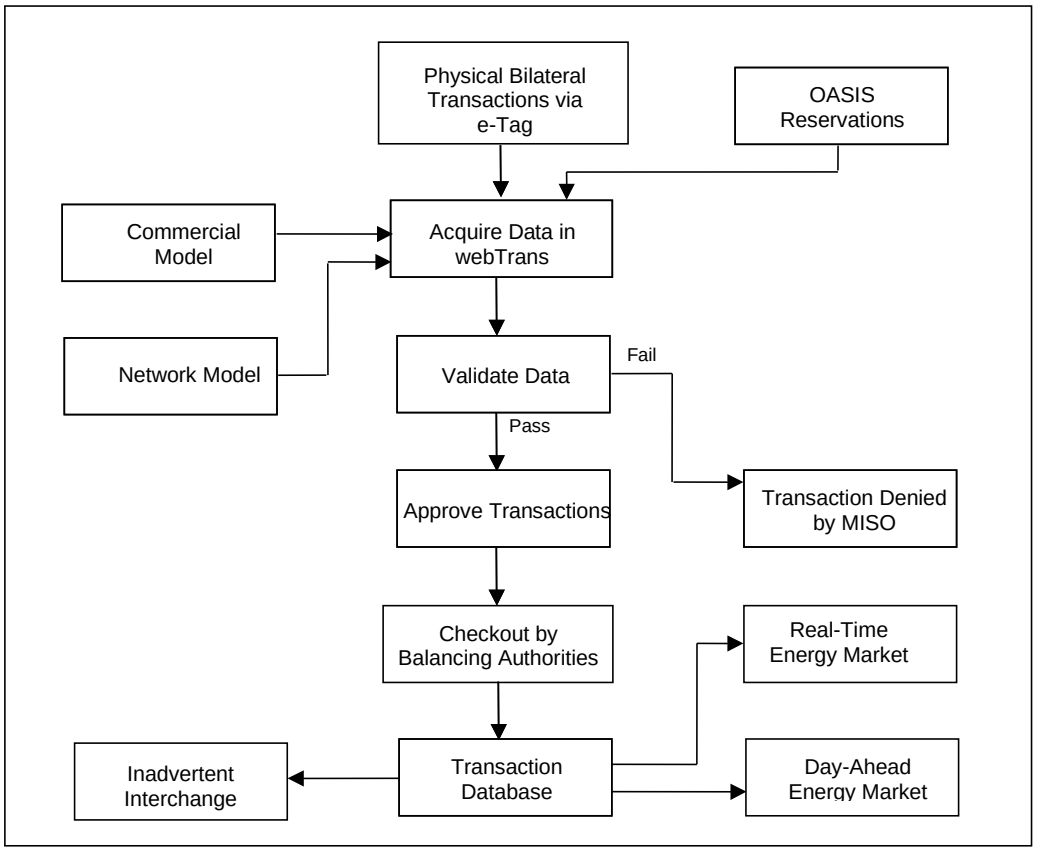
Every webTrans schedule that involves the MISO Energy and Operating Reserve market will have an MP assigned based on the Asset Owner of the transmission referenced on the associated e-Tag.

- The Creating Purchasing-Selling Entity (CPSE) of the e-Tag does not have to be the owner of the MISO transmission leg.
- The owner of the MISO transmission leg must be listed correctly on the e-Tag in the Transmission Allocation Profile.
- The MP for the transaction will be based on the Asset Owner of the first MISO transmission listed on the e-Tag.
- If the transaction is using Carved-Out Grandfathered transmission or NITS transmission, the MP for the transaction will be based on the entity listed in the Miscellaneous Info field in the physical path on the e-Tag.

MPs for schedules referencing NITS TSNs will have Asset Owners assigned based on a text input field on the Miscellaneous portion of the associated E-tag. See Section 17 for more information.

Exhibit 2-1 presents an overview of the Scheduling process.

Exhibit 2-1: webTrans Process Overview



2.6. OASIS Entity Code and Tagging Desk Code

Purchasing Selling Entities (MISO MPs) must register their OASIS entity code and associated tagging desk code with the NAESB webRegistry hosted by OATI, Inc. in order to purchase transmission and schedule Energy in the MISO Energy and Operating Reserve Market or with any transmission provider or market.

The OASIS entity code is shown as the Company Name on the Transmission Service Reservation. The Tagging desk code is shown on the e-Tag in various locations. The most important components to this section are the Creating Purchasing Selling Entity (CPSE) and the entity shown as the owner of the MISO transmission under the transmission allocation section of the e-Tag.

The OASIS entity code and Tagging desk code's naming conventions are slightly different. The OASIS entity code has fewer characters than the Tagging desk code.

Example:

OASIS entity code: BLUE
Tagging desk code: BLUE01

The TSR will use the company name of BLUE and the owner of the transmission on the transmission allocation section of the e-Tag will be BLUE01.

If the company BLUE did not register their associated Tagging desk code they will not be able to schedule the Transmission Service they purchased.

The MISO Generation and Interchange Department verifies the owner of the MISO transmission matches the entity shown as the owner of the transmission on the e-Tag.

2.7. Ramp Reservation System

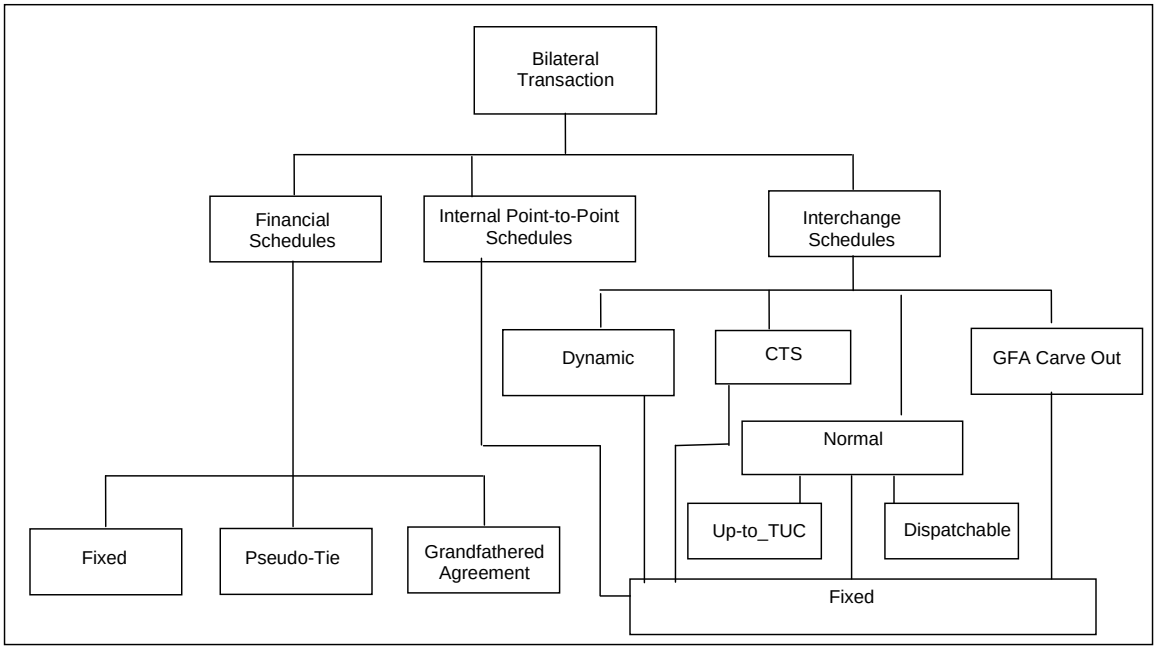
The Ramp Reservation System (RRS) interfaces directly with webTrans. This tool allows MPs to view Ramp Availability, reserve Ramp prior to scheduling time, or to automatically create Ramp Reservations with submitted schedules. For a complete overview of the Ramp Reservation System, please see Attachment C.

3. Bilateral Transactions

3.1. Bilateral Transactions

Bilateral Transactions are contracts between parties for the transfer of Energy and financial responsibility for Energy from suppliers to consumers. Exhibit 3-1 presents, at a high level, the terminology that has been adopted to describe the various types and forms of Bilateral Transactions. Exhibit 3-2 presents more detail for the Interchange Schedule types.

Exhibit 3-1: Bilateral Transactions Terminology



- Bilateral Transactions that transfer physical Energy In, Out, Within and Through the Market Footprint are referred to as Interchange Schedules.
- Bilateral Transactions that transfer financial responsibility within and across the Market Footprint are referred to as Financial Bilateral Transactions. Refer to the *BPM-002 for Energy and Operating Reserve Markets* for further information.

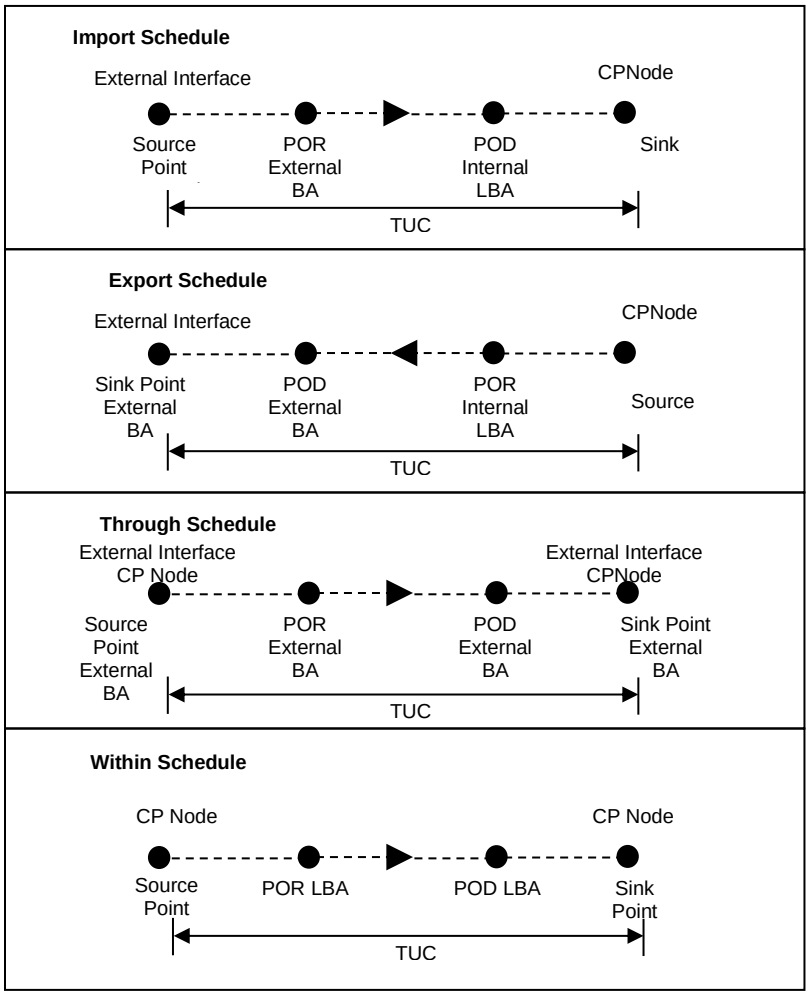
The manner in which Interchange Schedules are applied to the Day-Ahead and Real-Time Energy and Operating Reserve Markets is described in the following subsections.

3.2. Interchange Schedules

An Interchange Schedule is submitted via an e-Tag by an MP representing withdrawals and injections at specified locations.

- All e-Tag requirements must be satisfied
- All Interchange Schedules specify:
  - Point-of-Receipt (POR)
  - Point-of-Delivery (POD)
  - Source Point
  - Sink Point
  - MW quantity
  - Applicable time period
    - The data provided for the Interchange Schedule must be consistent with the data on the OASIS reservation.
    - The Interchange Schedule must include a Confirmed OASIS reservation upon submission of the schedule.
  - Transaction Type and energy types with the associated OASIS product that can be used for each transaction type.
  - Market Transaction and the interface node that is sent to DART for market calculation.
  - The interface node(s) that is sent to Market Settlements for settlement calculations.

Exhibit 3-2: Interchange Schedules



3.2.1. Import Schedule

If the Source Point is external to the MISO Market Footprint and the Sink Point is internal, the Interchange Schedule is an Import Schedule. Import Schedules need not be accompanied by confirmed reservations of MISO Point-to-Point Transmission Service on the Transmission System, if supported by Network Integration Transmission Service or are submitted pursuant to a Grandfathered Agreement.

Spot-In Market products are created for all MPs to be used when they are offering external resources into the MISO market. See Attachment A of this BPM for additional details regarding the Spot-In Market Product.

3.2.2. Export Schedule

If the Sink Point is external to the MISO Market Footprint and the Source Point is internal, the Interchange Schedule is an Export Schedule. Export Schedules, not submitted pursuant to a Grandfathered Agreement or to an individual Coordinating Owner's coordination agreement regarding reciprocity provisions with regard to Transmission Service, must be accompanied by confirmed reservations of Point-to-Point Transmission Service on the Transmission System.

3.2.3. Through Schedule

If the Source Point and Sink Point are external to the MISO Market Footprint, the Interchange Schedule is a Through Schedule. Through Schedules must be accompanied by confirmed reservations of Point-to-Point Transmission Service, unless the Transmission Service is provided according to the terms of a Grandfathered Agreement, for segments within the Market Footprint.

3.2.4. Within Schedule

If the Source Point and Sink Point are internal to the MISO Market Footprint, the Interchange Schedule is a Within Schedule. Within Schedules must be accompanied by Transmission Service provided according to the terms of a Grandfathered Agreement, MISO Network Service or may be accompanied by confirmed reservations of Point-to-Point Transmission Service.

3.3. Interchange Schedule Types

When creating an e-Tag for Interchange Schedules, each MP must select an Energy type, a transaction type, and a market type:

- ***Energy Type*** – MISO supports two Energy types:
  - *Normal* – This is the standard energy type. The hourly MW amount is static and does not change after the fact.
  - *Dynamic* – This energy type is agreed to by both parties and requires metering by both parties. The original value on the e-Tag is an estimate. The estimated value is updated after the fact by both parties to the schedule.
- ***Transaction Type***
  - Fixed Interchange Schedules
  - Dispatchable Interchange Schedules
  - Up to Transmission Usage Charge (TUC) Interchange Schedules
  - Coordinated Transaction Scheduling (CTS) schedules

- ***Market Type***
  - Day-Ahead Energy and Operating Reserve Market – automatically rolls over into the Real-Time Energy and Operating Reserve Market
  - Real-Time Energy and Operating Reserve Market only

Exhibit 3-3: Energy & Market Transaction Type with OASIS, DART, & Settlement Info

Market Transaction Type - FIXED - Available in Day-Ahead and Real-Time Energy and Operating Reserve Markets

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Import	Normal	-Network -Spot-In Market -Point-to-Point	Source-External Interface Node	Source-External Interface Node
Export	Normal	-Point-to-Point	Sink-External Interface Node	Sink-External Interface Node
Through	Normal	-Point-to-Point	Source-External Interface Node / Sink-External Interface Node	Sink-External Interface Node / Sink-External Interface Node

Market Transaction Type - FIXED - Available in Real-Time Markets Only

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Within	Normal	-Point-to-Point	Source-External Interface Node	Source-External Interface Node

Market Transaction Type - DYNAMIC FIXED - Available in Day-Ahead and Real-Time Energy and Operating Reserve Markets

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Import	Dynamic	-Network -Point-to-Point	Source-External Interface Node / Sink-Internal P-Node	Source-External Interface Node
Export	Dynamic	-Point-to-Point	Source-Internal P-Node / Sink-External Interface Node	Sink-External Interface Node
Through	Dynamic	-Point-to-Point	Source-External Interface Node / Sink-External Interface Node	Source-External Interface Node / Sink-External Interface Node

Market Transaction Type - DISPATCHABLE - Available in Day-Ahead Markets

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Import	Normal	-Network -Spot-In Market -Point-to-Point	Source-External Interface Node	Source-External Interface Node
Export	Normal	-Point-to-Point	Sink-External Interface Node	Sink-External Interface Node

Market Transaction Type - UP-TO-TUC - Available in Day-Ahead Markets

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Import	Normal	-Network -Point-to-Point	Source-External Interface Node / Sink-Internal P-Node	Source-External Interface Node
Export	Normal	-Point-to-Point	Source-Internal P-Node / Sink-External Interface Node	Sink-External Interface Node
Through	Normal	-Point-to-Point	Source-External Interface Node / Sink-External Interface Node	Sink-External Interface Node / Sink-External Interface Node

Market Transaction Type - CTS - Available in Real Time Only Markets

Transaction Type	Energy Type	OASIS Product/Type	DA / RT	Settlements
Import	Normal	-Network -Point-to-Point -Spot-In Market	Source-External Interface Node = PJM / Sink-Internal P-Node	Source-External Interface Node = PJM
Export	Normal	-Point-to-Point	Source-Internal P-Node / Sink-External Interface Node = PJM	Sink-External Interface Node = PJM

3.3.1. Fixed Interchange Schedules

Fixed Interchange Schedules are physical transactions that bring energy to and from the MISO at the External Interfaces. MPs can use Fixed Interchange Schedules to deliver energy into, out of, within or through the Energy and Operating Reserve Markets. MPs that submit this type of transaction to the MISO are price takers for that energy.

Fixed Interchange Schedules are supported in both the Day-Ahead Energy and Operating Reserve Market and in the Real-Time Energy and Operating Reserve Market. Day-Ahead Fixed Interchange Schedules automatically roll into the Real-Time Energy and Operating Reserve Market as a Fixed Interchange Schedule.

If the MP does not want the cleared Day-Ahead Fixed Interchange Schedule to roll into the Real-Time Energy and Operating Reserve Market, the MP must zero out the e-Tag no later than 20 minutes prior to the start time of the request. The MP will be settled at the Day-Ahead Location Marginal Price (LMP) for the cleared MW amount and charged for any deviation in the Real-Time Energy and Operating Reserve Market at real-time LMPs.

All Fixed Interchange Schedules' Energy prices are settled at the LMP for the applicable Energy and Operating Reserve Market for the appropriate External Interface CPNode.

3.3.2. Dispatchable Interchange Schedules

Dispatchable Interchange Schedules are physical transactions that specify a Bid or Offer ($/MWh). Dispatchable Interchange Schedules are supported in the Day-Ahead Energy and Operating Reserve Market only. Dispatchable is not a valid offer for drive-through or within schedules.

If the Dispatchable Interchange Schedule is cleared in the Day-Ahead Energy and Operating Reserve Market, it rolls into the Real-Time Energy and Operating Reserve Market and is treated as a Fixed Interchange Schedule at the MW level that was determined in the Day-Ahead Energy and Operating Reserve Market.

Prices determined in the Day-Ahead Energy and Operating Reserve Market at the appropriate External Interface CPNode. Dispatchable pricing is a minimum of $0 and a maximum of $2000.00 for Import Schedules and a minimum of $0 and a maximum of $9999.99 for exports. Only one price pair per hour is allowed and partial hour pricing is not permitted. Pricing information must be the same on multi-day e-Tags.

3.3.3. Up-to-TUC Interchange Schedules

Up-to-TUC Interchange Schedules are physical transactions that specify a willingness to pay the Transmission Usage Charge (TUC) (in $/MWh) represented by a maximum amount beyond which the MP agrees to be curtailed. MPs can specify any amount of TUC they are willing to pay “up to” $25/MWh.

Up-to-TUC Interchange Schedules are supported in the Day-Ahead Energy and Operating Reserve Market only and the cleared amount determined by the Day-Ahead Energy and Operating Reserve Market is rolled into the Real-Time Energy and Operating Reserve Market. The TUC is calculated based on the differences in LMPs between the Source Points and Sink Points as illustrated in Exhibit 3-3.

3.3.4. Fixed Dynamic Interchange Schedules

Fixed Dynamic Interchange Schedules may be Import Schedules, Export Schedules, Through Schedules or GFA Schedules associated with Grandfathered Carve Outs. In each case, the estimated scheduled amount is submitted, and adjusted after the fact to represent actual flow amounts, represents amounts of energy to be transferred into, out of, through or within the MISO BAA.

3.3.4.1. External Asynchronous Resources (EARs)

Fixed Dynamic Interchange Schedules associated with External Asynchronous Resources (EAR) are special types of schedules that are submitted at an EAR Resource CPNode (the Source Point). Market clearing results associated with the EAR are used to adjust the schedule at the end of the hour. In order to set up a Fixed Dynamic Interchange Schedule for an EAR, the first tier External BA must contact the MISO. An ICCP link between the External BA and the MISO will be developed. An XML listener is required by the entity requesting the EAR.

The following requirements apply to Fixed Dynamic Interchange Schedules associated with EARs:

- One EAR source and sink point each per external BA
- First tier External BAs only
- The external Source or Sink Point must be specifically designated ending in _EAR
    - Example: MHEB_EAR
- The owner of the interface points must be the e-Tags’ CPSE
- The CPSE must be the owner of the MISO transmission
- One e-Tag per Source and Sink Point each per hour

- MISO Exports must be supported with Firm Point-to-Point transmission

3.3.5. Coordinated Transaction Schedules (CTS)

CTS transactions may be Imports or Exports with the PJM interface only. CTS transactions include a Bid ID that reflects a Real-Time Dispatchable bid offer. For more detail about CTS, see BPM-002 Energy and Operating Reserve Markets

The following requirements apply to Fixed Interchange Schedules associated with CTS Bids:

- Confirmed transmission rights, or a Spot-In transmission product, are required to be included on the associated E-tag in the amount of the maximum bid offer.
- E-tags must be submitted with 0MWs listed as the energy profile
- A Token/Value pairing of Token: “BID” and Value: *(*PJM ExSchedule-generated Bid ID*)* must be included in the Miscellaneous column of the GCA line in the E-tag’s physical path.
- E-tags and E-tag adjustments must be submitted at least 75 minutes prior to the listed start time of the request.
- Market Operator adjustments will be submitted by the Sink BA approximately 20 minutes prior to the start of the request to reflect any non-zero cleared volume. The customer is required to approve those requests.

3.3.6. Grandfathered Agreement Carve Out (GFACO) Transactions

The Federal Energy Regulatory Commission determined that certain Grandfathered transactions would be carved out of the MISO market. These transactions must be tagged to MISO as the Balancing Authority as GCA and/or LCA and provide a Grandfathered Transmission Service Reservation. See Attachment B of this BPM for additional information on scheduling GFACO Transactions.

3.3.6.1. Scheduling Grandfathered Transactions

All Grandfathered Carve Out transactions must be submitted via e-Tag:

- Import
- Export
- Within

The MISO will be the:

- GCA and/or LCA
- Scheduling Entity for the Grandfathered Transmission Provider

Local Balancing Authority Transmission Provider:

- The non-MISO Transmission Provider will be the TP on the e-Tag

Asset Owners:

- The Asset Owner must be provided in the miscellaneous field on the GCA and/or LCA line of the MISO BA. See Attachment B of this BPM.

The MISO and Local Balancing Authorities will do a coordinated review of the e-Tags for correctness of the schedule against the Transmission Service Reservation. The LBA will also verify the MISO is a Scheduling Entity on the e-Tag.

The MISO will review the e-Tag for correctness of the physical path, market path, and ramp.

3.3.6.1.1. Multi-Tiered GFACOs

Grandfathered transactions must include Grandfathered transmission for each of the transmission providers' systems included in the transaction.

Example:

GCA/LCA	TP	POR	POD	S/E
MISO				
	NSP	NSP	OTP	MISO
	OTP	NSP	OTP	MISO
MISO				

3.4. Grandfathered Options A, B, and C

3.4.1. Non-billable Transmission Service Requests

Non-billable Transmission Service Requests (TSRs) have been created on the MISO OASIS page for Grandfathered Options A, B, and C. The Options A, B, and C TSRs are used when physically scheduling the transactions. Options A and C have no special scheduling considerations that differentiate their use.

3.4.2. Option B

In order to receive the losses and congestion benefit of Option B, three steps must be performed **prior to Day-Ahead Energy and Operating Reserve Market Close**:

1.) Offer generation
2.) Implemented physical e-Tag
3.) Interchange Schedule
    a) The MISO will create the contract for the special Interchange Schedule.

Option B can be scheduled in Real-Time but the MP will not receive the losses and congestion benefits.

3.5. NERC TLR

MISO Responsibilities

MISO Generation and Interchange Operators will take appropriate actions as GCA and/or LCA and will verify that all other required schedule adjustments have been made. See the current North American Electric Standards Board (NAESB) Electronic Tagging Functional Specification document for more information about Reliability versus Market Profile applications in E-tag systems.

4. Sources/Sinks/PORs/PODs in OATI webRegistry

CPNodes for MISO as GCA and/or LCA

The MISO will register all CPNodes in the NAESB webRegistry tool in association with MISO Balancing Authority and MISO PSE code. As the Commercial Model is updated, the MISO will update CPNodes registered to the MISO on webRegistry. Refer to the *BPM-010 for Network & Commercial Models* for further information on CPNodes.

Market Participant Responsibilities

If Market Participants register CPNodes for their own use, they must update webRegistry on their own behalf when the Commercial Model is updated if needed. MISO will approve if the naming convention of the CPNode is correct.

4.1. Commercial Model Changes

New CPNodes are periodically added to the Commercial Model. The MISO will upload the CPNodes up to one week prior to their effective date. The new CPNodes will be available for use on the date that the new model is effective. An MP would not be allowed to tag against the new CPNode for a transaction that flows before the effective date of a new CPNode. If an e-Tag is implemented that starts before a CPNode is effective, it will be Market Adjusted to zero.

When CPNodes are removed from the Commercial Model, it will be deactivated the day before the Commercial Model change. CPNodes will be deactivated with the MISO as the physical schedule's Generation or Load Local Balancing Authority with every PSE pairing. If a Market Participant creates a physical schedule that is active past the CPNode's effective date, the e-Tag will be Market Adjusted to zero.

If a deactivated CPNode is used on a long-term e-Tag, it is the responsibility of the tag's Creating PSE to resubmit an e-Tag using an active CPNode. If the e-Tag is not resubmitted using an active CPNode, it will be Market Adjusted to zero.

5. Market Rules

5.1. Day-Ahead Rules

The following general rules apply to submitting Interchange Schedules in the Day-Ahead Energy and Operating Reserve Market:

- Schedules may start or stop on the quarters of each hour.
- Day-Ahead transactions must be fully approved by all parties with the e-Tag in the "Implemented" state by the time the Day-Ahead Market closes on the day prior to the Operating Day (OD-1).
- As there is a NERC-defined 2-hour approval window for Day-Ahead transactions, it is recommended that e-Tags be submitted with enough time to ensure that all entities have had time to review and approve the request prior to the Day-Ahead Market deadline.
- If Day-Ahead transactions are adjusted after the market clearing, the cleared MW will be used in the Day-Ahead Energy and Operating Reserve Market and the adjusted MW schedule will be used in the Real-Time Energy and Operating Reserve Market as requested by the PSE.
- MISO confirms the validated and compliant Interchange Schedule requests with appropriate neighboring Balancing Authorities.
- Only one price pair per hour is allowed per transaction. Partial hour pricing is not permitted.
- On multi-day tags the pricing information must be the same.
- Interchange Schedules are subject to ramping availability (See Section 7 of this BPM).

Interchange Schedules not adhering to the requirements are denied. The MP is notified of the reason for denial via transaction denial and the MP may then submit another Interchange Schedule if there is sufficient time prior to the submission deadlines.

5.2. Market Clearing

The MISO submits a 'Market Adjust' to the e-Tag when a Day-Ahead Energy and Operating Reserve Market Interchange Schedule is not cleared or is partially cleared. The MISO Market clears daily on or about 1330 hours EPT. The results of the Market Clearing appear on the e-Tag via a Market Adjust. Entities with approval rights, as defined by NERC/ERO or applicable Regional Entities, must take approval actions.

If a 'Market Adjust' is denied by a non-MISO entity, the PSE will be responsible to provide the Energy in the Real-Time Energy and Operating Reserve Market or to provide an adjustment to the e-Tag to the market adjusted value, which must be approved by all applicable parties. A denied Market Adjust does not alter the MISO Day Ahead Clearing result from a settlement perspective.

After the Day-Ahead Energy and Operating Reserve Market closes and prior to Day-Ahead Energy and Operating Reserve Market clearing, changes will not be permitted to Day-Ahead Schedules running the next day. The MISO will deny such changes. Real-Time changes are only allowed after Day-Ahead Energy and Operating Reserve Market clearing.

Market Adjusts may also occur for reasons outside of Day-Ahead Energy and Operating Reserve Market clearing. These reasons include:

- The implementation of any Day-Ahead e-Tag after the market close.
- The use of an incorrect or inactive CPNode on GFACO, Dynamic or Up-to-TUC schedules.

5.2.1. Manual Market Adjusts

If any electronic communication problems occur within the MISO Market that result in inconsistencies between the Market Clearing result and any physical Day-Ahead Schedule profile, the MISO will issue manual Market Adjusts to correct the inconsistent schedules. The manual Market Adjusts may be issued at any time before or within the duration of the schedule.

5.3. Real-Time Rules

The e-Tag, both on initial creation and on submission of PSE Adjusts, must be submitted no later than 20 minutes prior to the start of the transaction.

All Interchange Schedules must begin and end on the top, quarter past, half, or quarter till the hour. Corrections to MISO information on Pending schedules must be submitted no later than 20 minutes prior to the start time of the request.

5.4. Revenue Sufficiency Guarantee (RSG) snapshot

With regard to the way Revenue Sufficiency Guarantee (RSG) charges are handled with Real Time Physical Schedules, schedules submitted at a specified amount of hours prior to the start of the operating hour may be netted against the Asset Owner's other schedules to potentially mitigate their RSG charges.

MISO Market Settlements requires a “snapshot” of all the implemented and approved schedules which are active in a given hour. This “snapshot” will be taken at a time specified by the MISO Market Settlement group. The snapshot will always be taken at :01 minute past the start of an hour.

Example:
Current Operating Hour = 10:00:00.
A snapshot is taken at 10:01:00 of all approved and implemented schedules that are active during the 1400 – 1500 operating hour. If a schedule is programmed to start at 14:15:00 and is not approved by 10:01:00, then its details will not populate in the RSG snapshot table for the 1000 current operating hour. The next snapshot will be taken at 11:01:00. At the end of the operating day 24 snapshots will have been taken.

- The time that is used to take the snapshot is the discretion of the Market Settlement group and may be changed.
- Pending new tags or Pending adjustments will not be included in the snapshot.

For more details about the Revenue Sufficiency Guarantee charge, please consult the *BPM-005 for Market Settlements*.

6. Validation Criteria

Interchange Schedule requests are automatically validated against a variety of criteria, which include:

- Availability and agreement to referenced TSRs
- MISO Market timing
- MISO Market pricing information
- MISO Ramp capabilities
- Appropriate energy profile / physical losses
- Physical path appropriateness / adjacent BA connectivity

Validations that fail MISO's criteria will be denied by the MISO BA and/or the MISO TP.

6.1. External Sources and Sinks

Transmission Service Reservations

The source or sink of the external interface must match between a MISO OASIS TSR and its corresponding e-Tag with rare exception. Exceptions include:

- Local Balancing Authorities to PJM (DPL, CE, etc.) may be listed on MISO TSR, but e-Tags will only include PJM.
- Local Balancing Authorities to SWPP (OPPD, CSWS, etc.) may be listed on MISO TSR, but e-Tags will only include SWPP.
- If the external interface is not included in MISO's commercial model, it will not be a selectable source/sink on MISO's OASIS. An e-Tag that extends MISO's commercial model boundaries must choose a directionally accurate corresponding interface point.

7. Ramp

For the purposes of physical scheduling, Ramp is defined as the amount of MW change in the Net Scheduled Interchange (NSI) at a particular point in time. With rare exception, MISO uses the Eastern Interconnection standard 10-minute ramp. The ramp runs from five minutes before the listed start time of the schedule to five minutes after the listed start time of the schedule. Schedule profile changes are only allowed on each quarter hour. Therefore, changes to the NSI are calculated at those times to define the MISO's ramp availability. The MISO current default ramp limit is always displayed on the "Ramp Limits" section of the Ramp Reservation System (RRS) on the MISO Portal.

The MISO considers ramp on Import Schedules and Export Schedules. The MISO does not consider ramp on the following transactions:

- Within Schedules
- Through Schedules
- CTS Transactions

7.1. Hourly Ramp Limit

In addition to the ramp limits on every quarter hour, the MISO also observes trends over four consecutive quarter hour limits, both in the past and in the future. While ramp for each quarter within four consecutive quarters may fall within the ramp limits, as a whole, it may exceed the MISO's capabilities. Ramp limits are defined within the RRS and are adjustable at any time. The default limit is +/-2000 MW at every four consecutive quarter hour periods. Any adjustments to the MISO's available limit will be publicly posted in advance whenever possible. This limit does not affect RRS validations in any way, but is a manually tracked trend observation. If an excess of this limit is thought to affect the reliability of the MISO Market, MISO operators will take corrective action to bring the system to stability.

7.2. Ramp Reservation System (RRS)

To aid in the tracking and calculating of ramp availability throughout the MISO service area, the MISO has developed the Ramp Reservation System (RRS). Market Participants will be able to access and use this system to reserve ramp before securing financially binding transmission requests or scheduling e-Tags. There is no cost to the use of the RRS, which will be available via the MISO Market Portal. Access will require a digital certificate provided by MISO.

The RRS will allow users to reserve ramp ahead of time. The RRS will generate an ID number that the MP will put on the associated e-Tag upon scheduling time. If an MP wishes not to create

a Ramp Reservation, they can submit e-Tags with no Ramp Reservation designation. The RRS will automatically create a reservation for the e-Tag and calculate its availability. The MISO Generation & Interchange department will approve or deny the transaction based on that validation.

For each e-Tag, there may be only one associated reservation. Vice versa, each reservation may only be used on one e-Tag. If the e-Tag is submitted for a different value than the reservation, the RRS will check the availability of the change and approve or deny the reservation accordingly. The e-Tag and reservation must match exactly with regard flow direction (Import/Export).

The RRS will calculate availability for all changes in the MW profile of each transaction. From the start to the end, including every quarter hour MW change in the profile, the RRS will verify that each change is within the MISO-defined limits. If the change is being manually submitted, a user may give an option to put a reservation in queue. If the Ramp Reservation profile is not completely currently available, the RRS will place the Reservation in queue, and will continually revalidate it until either ramp becomes available, or that timing requirements expire.

Any adjustments to an e-Tag will automatically adjust its associated Ramp Reservation. There will be no user-adjustments of Ramp Reservations once they are associated to an e-Tag. A PSE Adjust will still be subject to ramp availability.

For more on the Ramp Reservation System, see Appendix C.

7.3. Ramp Hoarding

Ramp Hoarding is the usage of market tools to create availability in the Ramp Reservation System's calculator to support the Approval of Ramp Reservations that would be denied if not for specific actions taken. These actions, whether intentional or unintentional, include:

- Counterflow e-Tag cancellations
- Lack of use of counterflow reservations
- Adjacent-time e-Tag cancellations
- Lack of use of adjacent-time reservations

The actions above give the MP unfair market advantage for transactions sourcing or sinking in the MISO Energy and Operating Reserve market. Furthermore, the oversubscription of Ramp directly relates to the ability (or non-ability) of the MISO generation footprint to accurately and timely respond to match its load in addition to the changes in NSI. This can affect errors at each interface tie, deviations in frequency and operational instability.

The MISO will take steps to curb instances of Ramp Hoarding in its market by taking precautionary measures as well as After-The-Fact investigative measures. The actions above may move the MISO to report the activity to FERC, especially for repeated actions and those which cause operational or financial impacts.

7.4. Ramp Overusage

If ramp becomes over-subscribed in Real-Time, ramp will be unwound in order of a last-in, first-out (LIFO) basis of real-time schedule submission time.

Curtailments due to ramp will be in fifteen-minute increments. MISO Generation & Interchange Operators may curtail the first fifteen minutes of the ramp start, or the last fifteen minutes of the ramp out, depending upon the limitations of ramp capabilities.

On curtailed transactions that are denied by a non-MISO entity where the MISO is the LCA, the MISO may override the denial as LCA.

8. Manitoba Hydro (MHEB)

8.1. Manitoba Status

Manitoba Hydro (MHEB) is a MISO Member, but is NOT in the MISO Market Footprint. The MISO is also a contractor for Manitoba Hydro, performing certain Interchange Accounting duties. The MISO is listed on an e-Tag as TP and/or Scheduling Entity on **ALL** MHEB transactions whether or not the transactions involve the MISO Market.

Because Manitoba is not in the MISO Market Footprint, not all transactions that involve MHEB will also involve the MISO Market and not all transactions will need a MISO transmission reservation.

8.2. Transaction Processing

In order to separate transactions that involve the MISO Market and MHEB from transactions that involve MHEB and the MISO as Transmission Provider and scheduling entity only a specific POR/POD combination must be used on the MHEB transmission provider line on transactions that involve the MISO Market.

The POR or POD of MHEB.MISO must be used on the MHEB TP line for transactions that involve MHEB and the MISO Market.

For transactions that require a MISO TP line, but do not require reserved transmission on the MISO OASIS, the designation of “MISO S/A” should be used as the MISO transmission reference. Failure to use this may result in a transaction being denied.

See Attachment B of this BPM for scheduling examples of MHEB transactions.

8.3. Interface Definition

Any scheduled interchange using MHEB as an interface into or out of the MISO market will have “MHEB” defined as the settled-upon external interface node, regardless of the ultimate external Source or Sink listed on the E-tag.

9. Controlled Interfaces

The MISO has three controlled Interfaces. Two of the Interfaces are within the MISO Market Footprint and the third is within a MISO Member that is not within the MISO Market Footprint.

The two controlled Interfaces within the MISO Market Footprint are:

1) Michigan-ONT (MI-ONT)
2) Minnesota Power-ONT (MP-ONT)

The third controlled Interface not in the MISO Market Footprint, but may involve MISO Market transactions, is:

3) Manitoba Hydro-ONT (MH-ONT)

For scheduling purposes the controlled Interfaces are determined at scheduling time by the selection of POR and POD on the MISO transmission line on the e-Tag. See Attachment B of this BPM for physical path examples and scheduling information.

9.1. Scheduling Across the ONT Controlled Interfaces

The ONT Interface is split into three parts, with three different Interface designations and three different LMPs. These interfaces will have effects that MPs should take note of.

- Any e-Tag using ONT_W listed as the Source Point in the ONT GCA line must have MP-ONT as a POR on the MISO TP.
- Any e-Tag using ONT_W listed as the Sink Point in the ONT LCA line must have MP-ONT as a POD on the MISO TP.
- e-Tags travelling through the MP-ONT interface will be settled at the external node of ONT_W regardless of the CPNode listed on the e-Tag.
- e-Tags travelling through the MI-ONT interface will be settled at the external node of ONT.DECO.PSOUT regardless of the CPNode listed on the e-Tag.

10. Transactions with IESO

For transactions between the MISO Market and IESO (ONT), Market Participants should note that Day-Ahead transactions that clear the MISO Market may not clear the IESO (ONT) Real-Time Energy and Operating Reserve Market. If the IESO does not clear the entire Day-Ahead Schedule submitted to the MISO Market, the Market Participant will be responsible for the MW difference at the real-time LMP.

Transactions that have not cleared the IESO (ONT) Real-Time Energy and Operating Reserve Market must be adjusted no later than 20 minutes before the start time of the request.

In the case of a real-time transaction in the MISO Market, if the PSE does not adjust the e-Tag prior to 20 minutes before the start of the schedule they will be held responsible for the full MW value in the MISO Market. Adjustments made to IESO e-Tags will be validated using the same criteria for any other adjustment, include ramp availability.

10.1. Controlled Interfaces

The IESO's market will maintain the limit of the phase shifters between the MISO Market and the IESO.

10.2. Quarter Hour Schedules

Day-ahead or real-time transactions between the MISO Market and IESO Market can start on the quarters but cannot end on the quarter of the next hour per IESO Market Rules.

Example:

- Correct quarter hour schedule: Start at 0915, End at 1000
- Incorrect quarter hour schedule: Start at 0915, End at 1015

See Attachment B.8 of this BPM for E-tag examples.

11. Transmission Stacking and Allocation

When multiple reservations are used on physical schedules either vertically or horizontally, the Asset Owner from the first transmission reservation will be sent to Day 2 settlements for financial settlement of the Energy.

11.1. Transmission Allocation

- Unless the PSE wants to commit a level higher than the MW flow, the PSE should put the exact amount they want allocated to each OASIS reservation in the Transmission Allocation Profile. If not, there will be times when the MW validation fails. The OASIS reservations will be decremented showing they really did use the transmission even if the flow of power was at a lesser amount.
- If the PSE commits a higher level than the MW flow and that amount is not available, the MW validation will fail and the schedule will be denied.
- If the PSE commits a level higher than the MW flow and it is available, the OASIS reservation will be decremented for that amount and will not be available for use with another transaction.
- Example 'A' – A transmission reservation has 100 MW available and the PSE commits 100 MW in the Transmission Allocation Profile for that reservation, but is only using 50 MW. The transmission reservation will be decremented for 100 MW and the other 50 MW, which are not being used, will not be available for other transactions.
- Example 'B' – 206 MW is what the PSE has allocated to each transmission reservation. If there are any other schedules against the 206 MW for either reservation, the MW validation will fail, showing inadequate capacity available for the schedule. The schedule will be denied for this reason since the transmission has in fact been previously used.
- Any e-Tag that uses the same Transmission Reservation Number on an e-Tag more than one time will be DENIED by MISO Generation & Interchange.

11.2. Transmission Allocation on Market Adjusted Transactions

Market Adjusts do not adjust the Transmission Allocation of the e-Tag. If the Market Participant wants to use those MW on a separate e-Tag they will have to submit a PSE Adjust to clear the MW on the Transmission Allocation.

Example: The day-ahead e-Tag was for 100 MW and the market cleared 50 MW. The entire 100 MW is decremented from the Transmission Service reservation and is not available for use on another transaction unless the MP does a PSE Adjust and adjusts the transmission to 50 MW.

12. Recallable Transactions

Day-Ahead or Real-Time transactions that are scheduled into the MISO Market using recallable energy can only be adjusted on the quarters and are subject to ramp validation. If ramp fails on the PSE adjust the adjustment will be denied.

13. Partial Paths

Partial Paths are not accepted for Interchange Schedules.

14. HVDC Scheduling

Transactions that involve High-Voltage Direct Current (HVDC) transmission will have to be designated with specificity on e-Tags in the MISO market footprint. Each applicable transaction will require Confirmed transmission capacity on the MISO OASIS. Each implemented e-Tag will create a parent schedule in the webTrans that will provide operating data to HVDC operators and MISO generation dispatchers, as well as any applicable external references. Each e-Tag will also create a "child" schedule that will be used to distinguish Energy & Operating Reserve settlements with its HVDC settlement. *(See BPM-005 for Market Settlements)*

14.1. HVDC Losses

Due to the nature of the HVDC settlement, physical losses will be accounted for in the use of HVDC services in the following manner: Market Participants may only schedule energy up to 92% of the associated transmission capacity. e-Tags that reference a TSR that exceeds 92% of the capacity of that TSR will be denied.

14.2. HVDC Drive-Withins

Schedules that source and sink from resources that are each located within the MISO market footprint will typically not have transmission reserved on the AC system to accommodate the network flow. To use the HVDC service, it is still required to submit an e-Tag for operation of the HVDC line(s). These schedules will reference only the HVDC transmission on the e-Tag and will ignore the use of the AC system. *See Appendix B of this document for examples.*

14.3. HVDC Imports/Exports

Schedules that represent interchange between the MISO and an external Balancing Authority, AC service will have to be referenced on the e-Tag in coordination with use of the HVDC system. Here, e-Tags will include three concurrent lines with MISO as Transmission Provider.

- The first leg, with service from the ultimate e-Tag BA to the HVDC source point.
- The second leg, with service on the HVDC transmission line.
- And the third leg, with service from the HVDC sink to the ultimate sink.

See Appendix B of this document for examples.

14.4. HVDC Operation

HVDC Operators will be communicated the HVDC schedule prior to changes in the level of line usage. If the HVDC line is oversubscribed or is scheduled to flow in direction contrary to its system design, the HVDC operators will work with the MISO operators to unwind excessive energy transactions.

If the HVDC line is undersubscribed, the HVDC operators will work with the MISO operators to either unwind transactions to a zero net schedule, or the HVDC operators will operate to the minimum and MISO operators will post-assign schedules for settlement of the excess energy.

15. Capacity Resource Scheduling

Schedules that source from a resource that is identified as a Capacity Resource in Module E for a MISO LSE must be identified in the tagging process.

Schedules that source from a Generator Resource internal to the MISO BA footprint that are identified as a Capacity Resource for an external BA must also be identified in the tagging process.

This identification is necessary to allow proper curtailment of transactions during energy emergency Events.

The following combinations of Capacity Resource transactions are discussed:

- External resource counted as a Module E Capacity Resource for LSE within MISO market.
- Internal resource counted as a Capacity Resource for party external to MISO

In order to identify an import schedule that is sourced from an external resource that is counted as a Module E Capacity Resource for an LSE within MISO, insert the following message into the Miscellaneous column on the e-Tag, on the row where MISO is listed as the LCA. The Token portion should be listed as “MISOCR” – all characters must be capitalized, and there must be no spaces. The Value portion would be the name of the external resource that is being identified as the Capacity Resource. That Value should be ***exactly*** the same as the Resource Name supplied to the Module E Capacity Tracking (MECT) tool. These import transactions should be submitted to their full Installed Capacity values (ICAP) values. These transactions are seen to be Firm imports during MISO Max Gen Emergency Warnings, and would not be curtailed by the external BA if the MISO is declaring a Max Gen Emergency Warning or higher event.

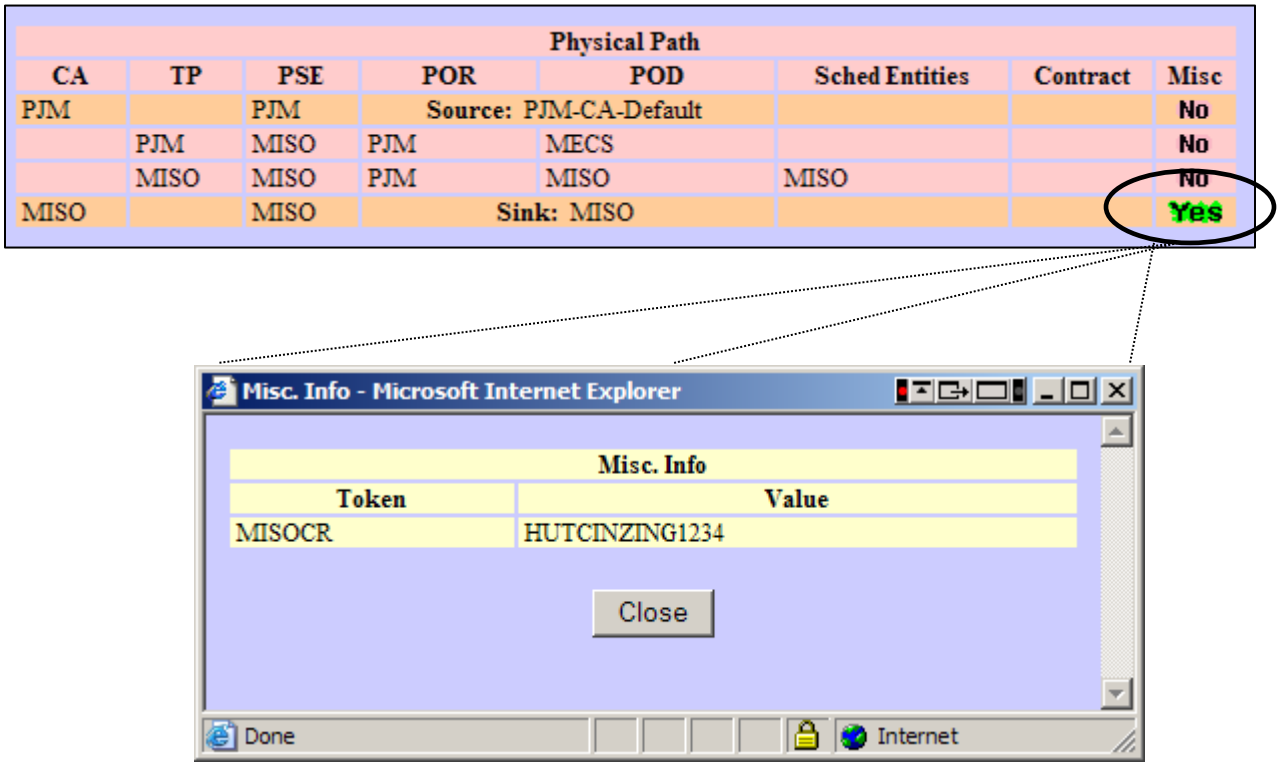
In order to identify an export schedule that is sourced from a MISO resource that is counted as a Capacity Resource for an external BA, insert the following message into the Miscellaneous column on the e-Tag, on the row where the MISO is listed as the GCA. The Token portion should be listed as “XXXCR”, where XXX refers to the applicable external BA. The Value portion would be the name of the MISO-internal resource that is being identified. These transactions are seen to be Firm exports during energy emergency declarations by the BA where the transaction is sinking. These export transactions would not be curtailed by the MISO if the external BA declared an energy emergency, provided that the MISO Resource is online and fulfilling all capacity obligations to MISO.

It is the responsibility of the applicable scheduling agent to ensure that transactions sourcing from a resource identified as a Capacity Resource are within the necessary MW quantities to respect de-rates and availability of source resource.

For purposes of this type of schedule identification, if there is no “MISOCR” for an import transaction identified in the token portion of the e-Tag, the transaction shall be deemed to be Non-Firm from a capacity standpoint and will be eligible for curtailment by the external BA declaring an energy emergency.

For purposes of this type of schedule identification, if there is no “XXXCR” for an export transaction identified in the token portion of the e-Tag, the transaction shall be deemed to be Non-Firm from a capacity standpoint and will be eligible for curtailment by the MISO during Max Gen Emergency Warning or higher declarations or as directed for system reliability by the Reliability Coordinator.

Fig. 16-1



16. Reserve Sharing and Other Emergency Schedules

Reserve Sharing and other Emergency schedules created as part of an Operating Guide are entered after-the-fact into webTrans.

16.1. Reserve Shares

Asset Owners (AOs) are pre-defined for Reserve Sharing events for each BA interface involved in MISO's Contingency Reserve Sharing Group (CRSG). This AO information is provided in the schedule and sent to Market Settlements.

16.2. Other Emergency Schedules

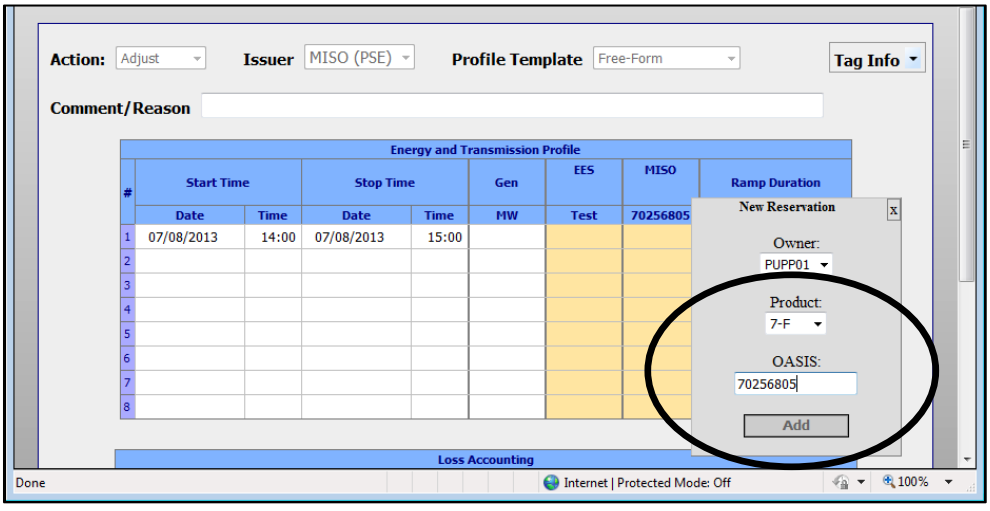
Entry of other Emergency schedules is similar to the reserve sharing schedules but will have different naming conventions. For spinning reserves, contact the MISO with the necessary information and the MISO will build a tag-like schedule after the fact. AOs for the schedules may be determined after the event has ended.

16.3. Emergency Re-dispatch Schedules (ERD)

If Emergency Re-dispatch (ERD) is called upon, the MISO should be contacted with the necessary information to build a tag-like schedule after the fact.

16.4. Capacity Benefit Margin (CBM) Elevations

Under Energy Emergency conditions specified in MISO EOP-002 MISO Market Capacity Emergency Procedure, the Shift Manager or Reliability Coordinator may call for the elevation of Interchange Transactions from a Level 6, Non-Firm Priority up to a level 7. When this procedure is called upon, the MISO Generation & Interchange team will make the change to the e-Tag.



17. Transmission Details for E-tags

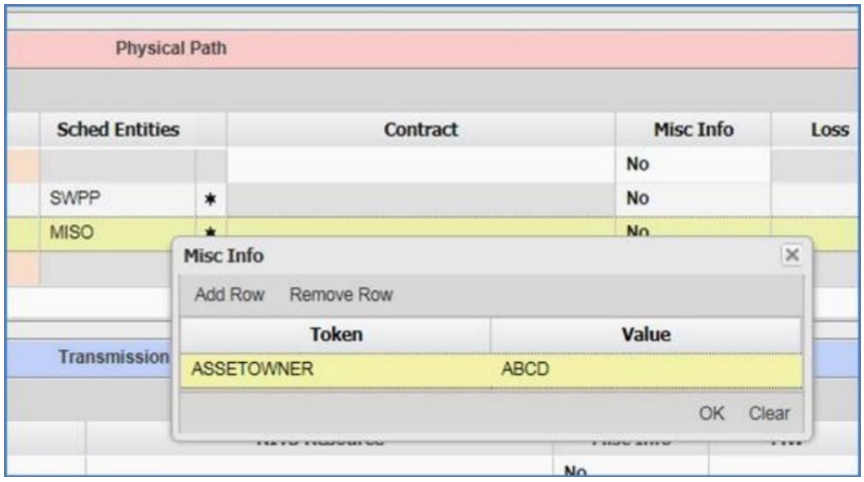
17.1. Redirection of Firm Point-to-Point Transmission Service

Redirection of Firm Point-to-Point Transmission Service cannot be done on a non-firm secondary basis at scheduling time. The redirection of Firm PTP Transmission Service must be requested on the MISO OASIS prior to scheduling time. The redirection of Firm PTP Transmission Service can be done on a non-firm secondary basis or a firm basis depending on the availability of ATC/AFC. Tariff Attachment J timing requirements apply.

17.2. NITS Inclusion on Fixed Interchange Schedules

While Schedules using Point-to-Point TSRs or Spot products are settled to the Asset Owner listed on the associated OASIS reference, there is no AO field in FERC-defined NITS template. In order to facilitate an accurate energy settlement of Interchange Schedules using NITS transmission service, the customer must include all of the following criteria:

- E-tag Transmission Allocation Product = 7-FN
- E-tag Transmission Allocation OASIS = Application Ref from OASIS
  - (4-digit number) field, i.e. 1942
- E-tag Transmission Allocation NITS Resource = OASIS Resource Name
  - Must match *exactly* i.e. AMIL Net Res Load
- E-tag Physical Path Sink = Sink from OASIS
  - Must match *exactly* i.e. AMIL.NITS022
- E-tag Physical Path MISO TP line Misc. Info:
  - Token = ASSETOWNER (must be exact all caps, one word)
  - Value = Customer Code to be used with Market Settlements



18. MISO Back-up Procedures

18.1. When webTrans is Unavailable and the OATI Tagging System is Available

The MISO will make every effort to treat e-Tag submissions as normally during these times as if webTrans was available. *(see Operations Procedure SO-I-AOP-00-219).* MISO will communicate any non-normal e-Tag denials within its denial description.

18.2. When webTrans is Available and the Tagging System is Unavailable

If MISO elects to begin accepting non-e-Tag submissions (i.e. faxed templates), market exploder email notification, as well as notification on the MISO Communication System (MCS) will be made to inform MPs the direction to take to submit all requests. *(see Operations Procedure SO-I-AOP-00-207)* The MISO will be working with Balancing Authorities and Reliability Coordinators to manually adhere to all reliability limits with e-Tag communication is down.

18.3. When MISO OASIS is Unavailable

When the MISO OASIS is unavailable, MISO will accept schedules with an OASIS reservation of TBD on next hour schedules only. *(see Operations Procedure SO-I-AOP-00-206)*

The NERC priority on the TBD transactions should be 1-NS, 2NH or 6NN. 1-NS and 2NH can be used for all types of transactions, drive in, drive out, drive through and drive within. 6NN can only be used on drive-ins where the entity is serving Network Load.

MISO will review tagged transactions that have a Transmission Service Reservation of TBD. Schedules will be approved or denied after an AFC check on the tagged transactions. *(see BPM-013 for Module B – Transmission Service)*.

18.4. Operations Scheduling Fax Numbers

- (317) 249-5860

18.5. When the Ramp Reservation System is Unavailable

When the MISO RRS is unavailable, MISO will normally only accept schedules for the next hour. MISO will manually track the effect of each transaction on the MISO ramp limitations and approve or deny it accordingly.

MISO will also accept Schedules for the next Day-Ahead market, if the time of un-availability occurs while approaching the Day-Ahead Market close. MISO will manually track the effect of each transaction on the MISO ramp limitations and approve or deny accordingly. If the RRS becomes available before that next day begins, reservations will be created to account for the new schedules.

19. Checkouts

19.1. Net Scheduled Interchange (NSI)

The following applies to NSI:

- ***External Balancing Authority NSI*** – Sum of External BAs' Interchange Schedules with the MISO, including reserve shares.

The MISO checks out External BAs' NSI in accordance with existing checkout procedures.

19.2. Net Actual Interchange (NAI)

MISO Members upload their NAIs via XML or manually into webTrans. NAIs must be submitted within 48 hours after the operating hour.

Net Actual Interchange can be updated up to 52 days past the Operating Day. On the 53rd day, the system will be locked for NAI changes. A request must be made to make any modifications to the NAI after the lock is in place. NAI updates must be submitted to webTrans by 1100 hours EST on each day of a Market Settlements run in order to be included on the Member's Settlements statement. NAI updates are not sent to Market Settlements until the day of a Settlements run.

For example:

Calendar Day - Records for All Operating Days must be Staged before 12:00 PM	Operating Day for the E4	Operating Day for the S7	Operating Day for the S14	Operating Day for the S55	Operating Day for the S105	Dispute Deadline (120 Days)
1/1/2024	12/29/2023	12/26/2023	12/19/2023	11/8/2023	9/19/2023	9/4/2023
1/2/2024	12/30/2023	12/27/2023	12/20/20231	11/9/2023	9/20/2023	9/5/2023
1/3/2024	12/31/2023	12/28/2023	12/21/2023	11/10/2023	9/21/2023	9/6/2023
1/4/2024	1/1/2024	12/29/2023	12/22/2023	11/11/2023	9/22/2023	9/7/2023
1/5/2024	1/2/2024	12/30/2023	12/23/2023	11/12/2023	9/23/2023	9/8/2023

The MISO does not perform checkouts on the values provided. If the MISO Members enter actual MW values for each other that do not match, the MISO may contact the Members to facilitate checkouts. These discrepancies can be viewed by the Members on the 'Actual Interchange' screen in webTrans.

The LBAs shall be responsible for after-the-fact corrections made to the actual values and responsible for ensuring agreement of those changes with the Adjacent Balancing Authority(ies). The LBAs have final authority on agreement of those changes. The LBAs shall also be responsible for ensuring that the MISO is notified of any changes that are made. That process will be documented in a procedure as stated above.

19.3. Next Hour Checks

All external Balancing Authorities and RTOs that are parties to Interchange Schedules with MISO are contacted and each hour of NSI is checked. Individual Interchange Schedules are not verified unless the discrepancy is found, in which case the individual schedules are verified.

Checkout is only performed with adjacent entities. These calls start at 30 minutes prior to the Operating Hour and are only performed if the NSI has not already been verified at a previous time, or if the check is made automatically in webTrans (only available to external BAs with access to MISO's webTrans view).

19.4. IESO (ONT) Checkout

The checkouts will consist of validating the Net Scheduled Interchange between the IESO and the MISO across three separate Interfaces.

1) Michigan Electric Coordinated System, (DECO) ... MI-ONT
2) Minnesota Power ..... MP-ONT
3) Manitoba Hydro ..... MH-ONT

19.5. Day-Ahead Checks

Other than IESO, all adjacent BAs and RTOs that are parties to Interchange Schedules with the MISO are called to checkout the Day-Ahead Schedules. Checkout is done in the same manner as the hourly checkouts described in Section 19.3 of this BPM and are completed prior to the start of the operating day. If a discrepancy cannot be resolved prior to the start of the schedule, the parties involved are notified that applicable schedule(s) will not flow

19.6. After-the-Fact Checkouts

After-the-Fact (ATF) schedules that had not previously been entered into webTrans because an e-Tag is not required are added to the list of ATF schedules. These are:

- Reserve Sharing Schedule
- Schedules created as part of an Operating Guide

Beginning at 0000 hours EST during daylight savings time and at 0100 hours EST when daylight savings time ends, all adjacent External Balancing Authorities and RTOs are contacted by the MISO Generation & Interchange Department to check the Net Schedule Total for the previous day. External BAs with access to webTrans may not be contacted, but rather an automated system checkout is performed. Both Before-the-Fact and After-the-Fact schedules will be verified between the two parties. This process shall be completed by the end of the following business day.

19.7. Region Reporting Procedures

Net Scheduled Interchange (NSI):
The MISO will check out for the previous month with all external adjacent BAs and RTOs by the 15th calendar day of each current month. By the 15th calendar day, MISO must report the on-peak and off-peak totals with each External Balancing Authority and RTO to the necessary regions using the appropriate tools. If the MISO Generation & Interchange Department is unable to complete end of the month checkouts by the 15th calendar day, the ATF Representative must submit a report to the respective Regional Entity or Regional Reliability Organization Survey Contact describing the nature and cause of the disagreement, per NERC Standard BAL-006-2 – Inadvertent Interchange.

Net Actual Interchange (NAI):
It is the responsibility of the Balancing Authorities to verify and report their Net Actual Interchange and their Net Scheduled Interchange via standard procedure. Discrepancies to the NSI should be reported to the MISO BA ATF contact within 3 business days.

19.8. NERC Inadvertent Tool

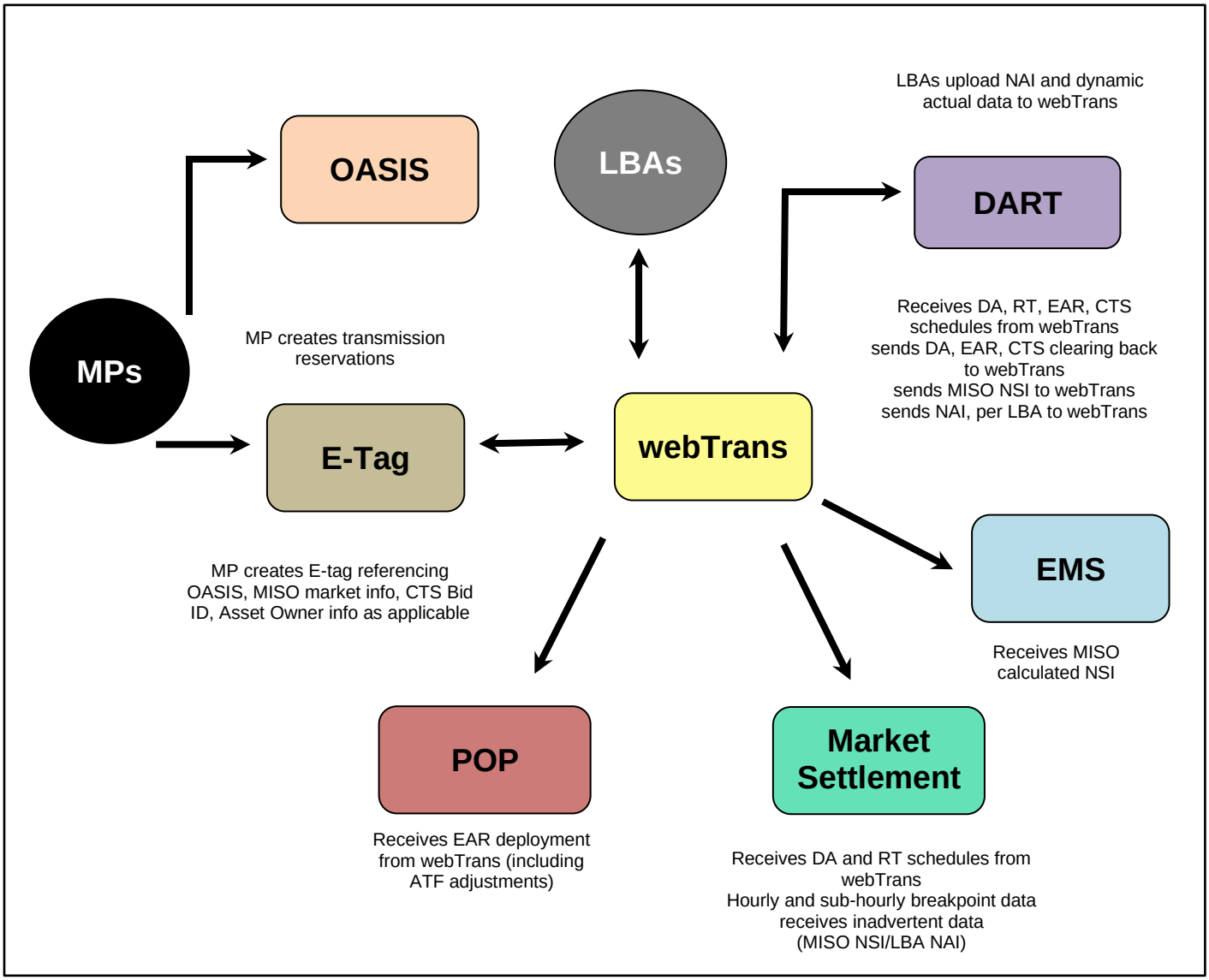
By the 15th calendar day of each month, the MISO will enter both Net Scheduled Interchange and Net Actual Interchange into the NERC Inadvertent tool for on- and off-peak totals for the previous month. If data has been already entered into the NERC tool by the MISO and the Local Balancing Authority would like to make an adjustment to its NAI values with an adjacent BA, the requesting LBA will provide the updated values in webTrans along with an email to its MISO After-The-Fact representative, The MISO After-The-Fact representative will confirm the updated value with the appropriate party and will make modifications to the on-peak and off-peak totals in the NERC Inadvertent tool as it reflects actual operating conditions. Changes that do not reflect actual operating conditions will not be considered.

MISO Local Balancing Authorities do not report in the NERC Inadvertent Tool.

If the MISO Generation & Interchange Department is unable to complete end of the month checkouts by the 15th calendar day, the ATF Representative must submit a report to the respective Regional Entity Regional Reliability Organization Survey Contact describing the nature and cause of the disagreement, per NERC Standard BAL-006-2 – Inadvertent Interchange.

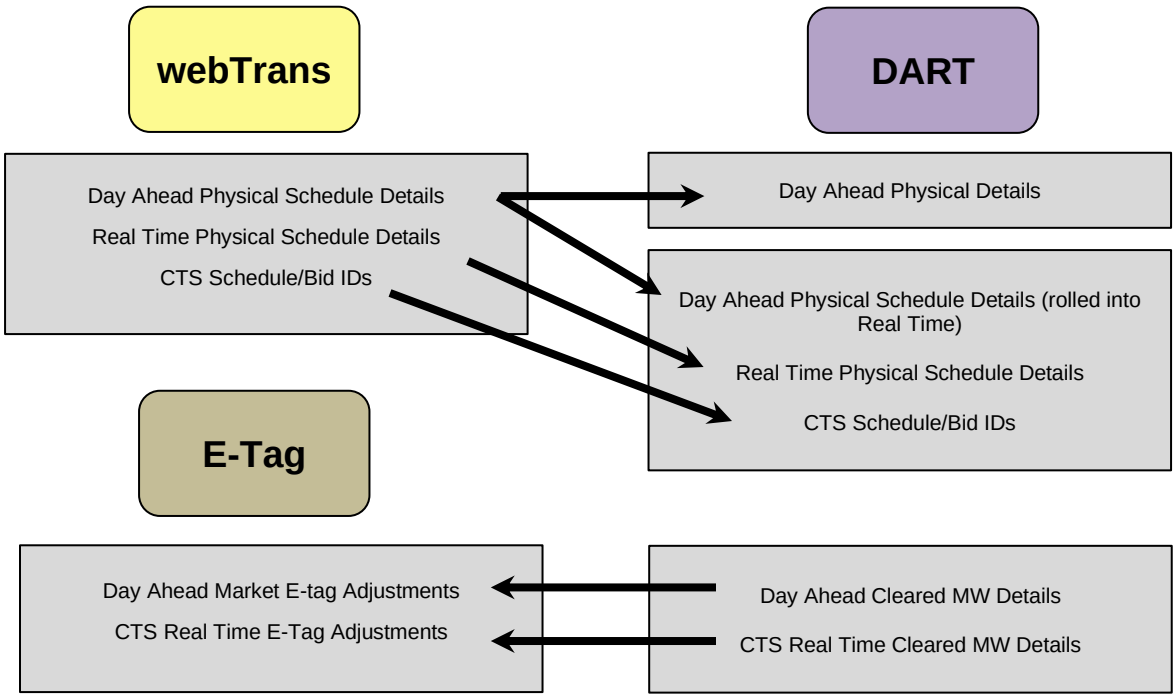
20. Interfaces

Exhibit 20-1: Physical Scheduling Process



20.1. webTrans to DART

Exhibit 20-2: Transfer Process to DART



Day Ahead Physical Schedules will automatically roll into Real Time as Fixed (excluding EAR schedules

DART will receive each Day Ahead Physical Schedule into the Day Ahead and Real Time market (RT market as Fixed)

After Day Ahead market clearing, any adjustments implemented on a Day Ahead Physical Schedule for OD+1 will transfer to the Real Time only market

Approved DA Market Adjustments transfer to the Real Time market

Denied DA Market Adjustments will keep the submitted Day Ahead profile in Real Time (unless adjusted aftermarket clearing results have been posted)

Denied CTS Market Adjustments will result in no energy flow and a 0 MW settlement for the interval. Denied CTS Market Adjustments may result in curtailment of the E-tag and removal of the CTS Bid from consideration.

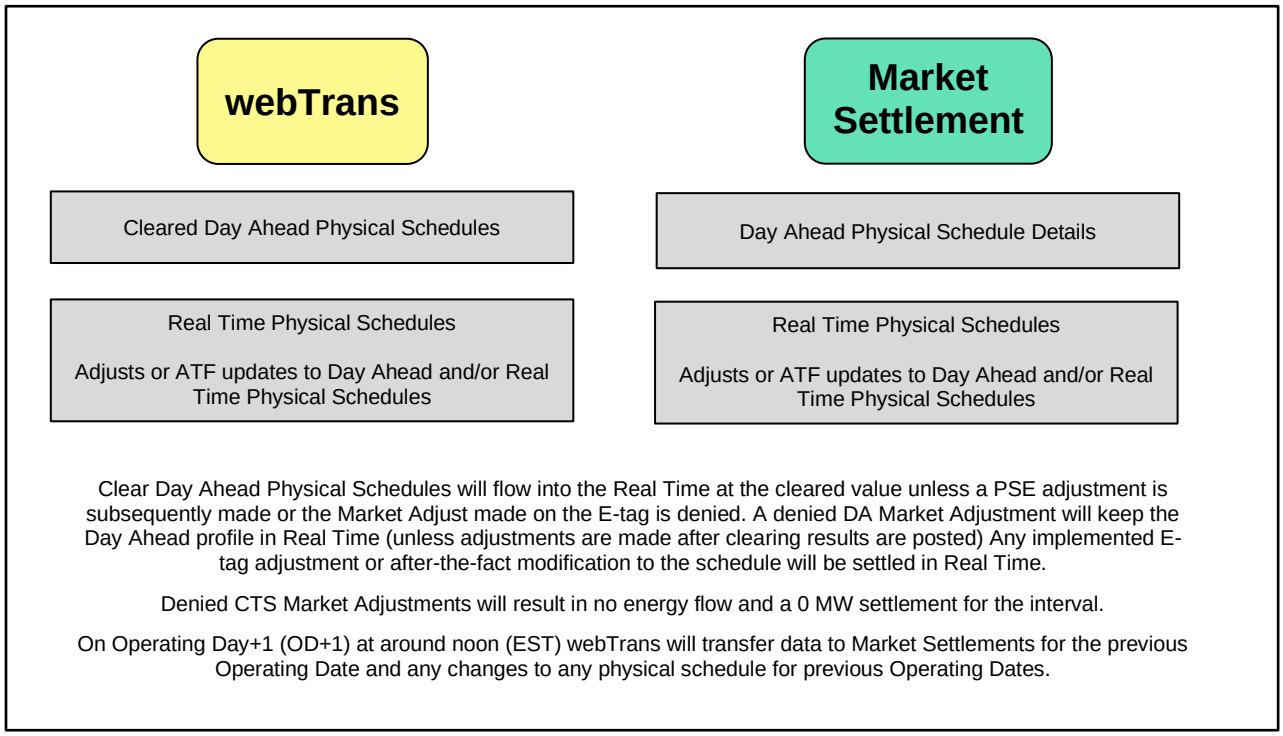
20.2. webTrans to Settlements

20.3. 20.2.1 Interfaces to Settlements

The logic for which the webTrans assigns interface nodes that are communicated to MISO Settlements under normal conditions follows the hierarchical rules below:

1.) The source node (for Imports) or the sink node (for Exports) as listed on the associated e-Tag is recognized as an interface node in the MISO commercial model.
2.) The Generating Control Area (for Imports) or the Load Control Area (for Exports) as listed on the associated e-Tag is recognized as an interface node in the MISO commercial model.
3.) The Point of Receipt (for Imports) or the Point of Delivery (for Exports) as listed on the associated e-Tag is recognized as an interface node in the MISO commercial model.

Exhibit 20-3: Transfer Process to Mkt Sttl



20.4. Interfaces to Settlements Exceptions

webTrans is designed with the ability to create an exception table which will change the Interface node that is sent to MISO Settlements regardless of the logic listed in 20.2.1. MISO Settlements will then settle the energy with an LMP for an interface node that may not be listed on the e-Tag.

> **Example:**
> A MISO Import e-Tag is approved with a commercially-modeled Source node ABC.Generator. However, because the MISO POR is XYZ, the Interface node that is reported to Settlements is changed to DEF.Gen1. Instead of being settled at $7.45 LMP for ABC.Generator, the customer is now settled at the $4.56 LMP for DEF.Gen1.

Any exceptions to the normal condition Settlements interface will be posted in the Notice to Customers section of the MISO OASIS, including effective dates for the exception.

Attachment A

SPOT-IN MARKET PRODUCT

Spot-In Market Product

A.1 Introduction

This document will explain the purpose and OASIS requirements of the Spot Market Product, its use in settlements, and how to schedule using this product.

A.2 Background

To ensure appropriate settlement of the MISO market, all financial dealings with Market Participants (MPs) must be identifiable down to the Asset Owner (AO). In accordance with existing e-Tag Functional Specifications, a responsible Market Participant (the entity who is financially responsible for the Energy portion of the transaction) is the owner of the Transmission Service on a tag. Accordingly, MISO can utilize the information provided by e-Tags to verify entities purchasing Transmission Service meet the various requirements of Market Participants – this allows the MISO to identify which MP needs to be paid or invoiced for a particular transaction.

The Asset Owner (AO) is not identified on an e-Tag, so another method is needed to identify the AO with whom the MP must settle. All financial dealings with MPs must be identifiable down to the AO.

To identify the AO for a Spot-In Market transaction, the OASIS will be used. The Spot Market Product will be created on the OASIS at the request of an MP, as a method to correlate the AO with a particular transaction. It will be used as a record for which the AO is for a specific transaction and will identify to settlements which AO to invoice or pay.

A.2.1 Function

The Spot-In Market product shall be used to bring Energy to the MISO border, using the Interface bus for an External Balancing Authority where the Energy is being offered into the MISO market at an Interface point.

The Spot Market product is used by all Market Participants whether they have Network Load to serve or not in the MISO Footprint but want to offer into or be a price taker in the market at the MISO border. The Spot In Market Product or transaction should not be utilized for any situation where Transmission Service needs to be purchased.

A.2.2 Information

There is NO charge for the Spot-In Market product.

The required transaction information is as follows:

- Customer – MP
- Asset Owner – Designated AO
- Capacity Type – Yearly non-firm network spot
- Service Description – Yearly non-firm network spot
- Service Increment – Yearly
- Type – Network
- Class – Non-firm
- NERC Curtailment Priority – 6
- Other Curtailment Priority – 6
- Period – Full Period
- Window – Fixed
- Subclass – Spot
- Reservable – No (created by Tariff Admin)
- Profile Allowed – No
- Profile Fixed Cap – No
- Profile Increment – No
- Min Service Duration – One Year
- Max Service Duration – Negotiable
- Allow on Redirect – No
- Account on Reduction – No
- Billable – No

A.2.3 ATC/AFC Information

ATC/AFC calculations are not performed for Spot In Market transactions as they convey no transmission service rights.

A.2.4 Scheduling

Settlements

The AO from the associated Spot In Market product will be included with the Interchange Schedule (i.e., the schedule) information to settlements in order to settle the Energy component of the transaction. The MP will be paid at the source interface price.

Attachment B
PHYSICAL PATH EXAMPLES

DISCLAIMER: The following examples for physical paths demonstrate the rules for scheduling with the MISO. They were created for demonstration purposes and are not indicative of actual transactions occurring across the MISO Footprint. The transactions and MPs used are in no way related to Real-Time Energy and Operating Reserve Market transactions.

B.0 Introduction

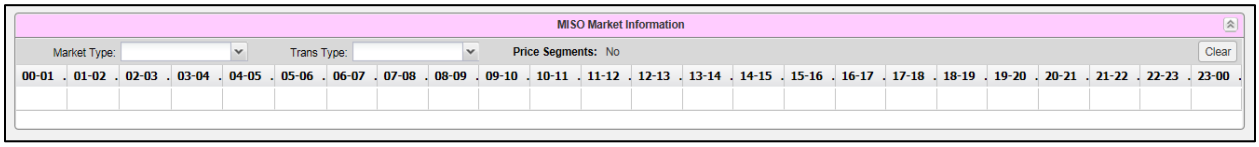
General Rules for Physical Scheduling

1) **NO** Physical Supply of losses is allowed across the MISO portion of the e-Tag. **Losses must be FIN**.
2) MISO ***must*** be listed in the scheduling entities column on every e-Tag for a transaction within the MISO whether Transmission Service is used or not.
3) For the transactions where a non-MISO entity has to be listed within a MISO path – the MISO has developed an OASIS naming convention to be used when an actual OASIS number is not required. That naming convention is **"MISO S/A" – this stands for MISO Scheduling Agent**.
4) The POR/POD and the NERC Priority of the actual OASIS number on that transaction should be used for the "MISO S/A" transaction.
5) Grandfathered Carved-Out (GFACO) transactions:
    a) MISO will be in the Sched Entities for any GFACO transaction on the line in which a MISO member LBA is listed as Transmission Provider.

General Rules for the Transmission Allocation Profile

1) The Transmission Profile must be equal to or exceed the Energy profile of the e-Tag. The amount used in the Transmission Profile will decrement the available usage limits from the associated TSR listed.
2) See NAESB e-Tag Specifications for more specific information.

B.1 Market Information



OATI users:

- MISO Market Information must be completed for transactions involving the MISO Market.
- For those entities using Open Access Technology, International (OATI) as their tagging vendor the MISO market information of the e-Tag can be added as follows:
    - After logging into OATI tagging software
    - Click on Misc. from the main toolbar
    - Select Tagging Settings

- Under Tag Display Options - Click the box entitled “Enable MISO market information”
- Click Apply

No MISO Market Information:

- When an OATI user submits an e-Tag with no MISO Market Information, the schedule will be settled with a default setting of Real-Time Only Market Type with a Fixed Price Type.

Non-OATI Users:

- See Attachment E in this BPM

Data Entry Errors in OATI e-Tagging:

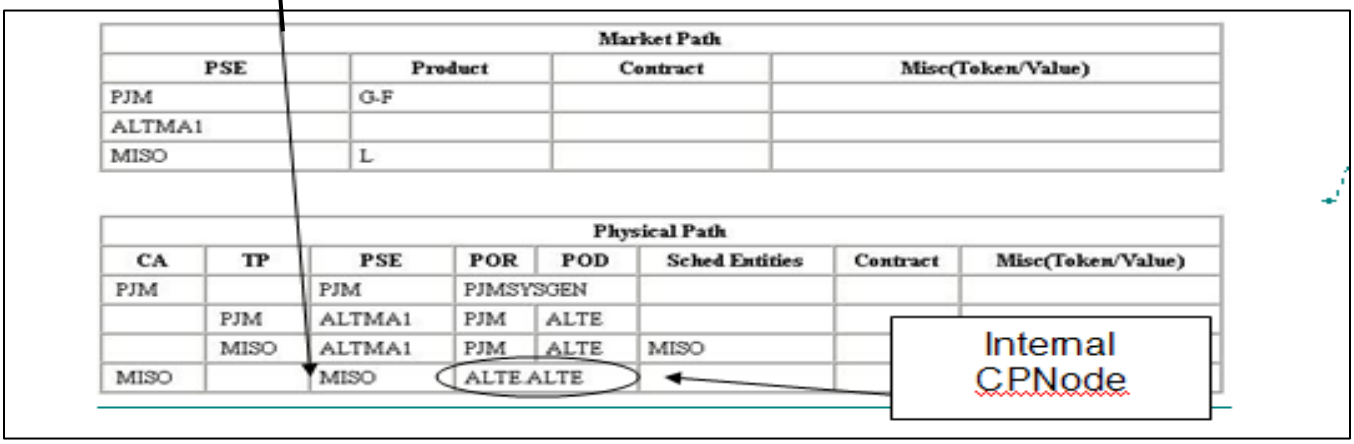
- When incompatible market information is selected the user will receive an error message such as:
  ‘You have selected an invalid MISO transaction type, for Normal-RT only tags, the MISO transaction type must be fixed’

B.1.1 MISO CPNodes

- The MISO has registered approximately 2,300 CPNodes within its Market Footprint.
- The CPNodes are available in OATI e-Tag and OASIS live and test environments.
- MISO may be used in the market path of an e-Tag as a PSE in order to choose MISO CPNodes. *(see B.1.1.1)*
- MPs should register MISO CPNodes for use in e-Tag software in accordance with their transmission rights.
- The sources and sinks must be registered with the exact CPNode naming convention that the MISO registered.
- If they are not exact, the MISO will deny the sources and sinks in the Registry software.

B.1.1.1 MISO in the Market & Physical Path as PSE

When an MP does not register MISO CPNodes, MISO may be used in the market path as a PSE. Then MISO may be used as a PSE in the physical path in order to select the appropriate MISO source or sink CPNode.



Market Path

PSE	Product	Contract	Misc(Token/Value)
PJM	G-F		
ALTMA1			
MISO	L		

Physical Path

CA	TP	PSE	POR	POD	Sched Entities	Contract	Misc(Token/Value)
PJM		PJM	PJMSYSGEN				
	PJM	ALTMA1	PJM	ALTE			
	MISO	ALTMA1	PJM	ALTE	MISO		
MISO		MISO	ALTE	ALTE			

Internal CPNode

B.2 Spot-In Market Transactions

Transaction Type:	**Normal**
Transaction Information:	• MISO is POD, LCA, and Sink • **See Attachment A in this BPM for Spot-In Market Product.**

Example 2.1 – Spot-In Market					
Source	DUK				Misc. Field
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
DUK					
	DUK	DUK	PJM	DUK	
	PJM	DUK	CIN	PJM	
	MISO	PJM	MISO	MISO	
MISO					
Sink	MISO				

Example 2.2 – Spot-In Market					
Source	WAUE				Misc. Field
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SWPP					
	SWPP	WAUE	AMMO	SWPP	
	MISO	SWPP	MISO	MISO	
MISO					
Sink	MISO				

B.3 Drive-In Transactions

Transaction Type:	Normal
Transaction Information:	• MISO is LCA • Source/Sink/POR/POD should be in accordance to associated TSR(s) • The 2nd MISO TP line in a non-contiguous path is a MISO S/A • Physical losses needed when scheduling across MHEB • Transactions that come through/from MHEB into the United States require a Canadian Export License number to be displayed in the Contract Field of the Physical Path

Example 3.1 – Contiguous Path					
Source	TVA				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
TVA					
	TVA	TVA	MISO	TVA	
	MISO	TVA	CIN	MISO	
MISO					
Sink	CIN.xxxx				

Example 3.2 – Non-Contiguous Path					
Source	ONT				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
ONT					
	ONT	ONT	ONT	ONT	
	MISO	MH-ONT	OTP	MISO	
	MHEB	MHEB.MISO	OTP	MHEB	
	MISO	ONT	OTP	MISO	
MISO					
Sink	OTP.xxxx				

B.4 Drive-Out Transactions

Transaction Type:	Normal
Transaction Information:	• MISO is GCA • Source is always an internal CPNode. MISO is never the source.

Example 4.1 – Contiguous Path					
Source	ALTW.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	ALTW	PJM	MISO	
	PJM	ALTW	PJM		
PJM					
Sink	PJM				

Example 4.2 – Contiguous Path					
Source	IP.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	IP	TVA	MISO	
	TVA	IP	TVA	TVA	
	SOCO	TVA	GTC	SOCO	
	GTC	SOCO	JEA	GTC	
	JEA	SOCO	FPL	JEA	
	FPL	JEA	TEC	FPL	
	TEC	FPL	TEC	TEC	
TEC					
Sink	TEC				

Transaction Type:	Normal
Transaction Information:	• **MISO S/A** is required as 2nd MISO transmission number.

Example 4.3 – Non-Contiguous Path					
Source	WEC.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	WEC	TVA	MISO	
	PJM	WEC	NIPS	PJM	
	MISO	WEC	TVA	MISO	
	TVA	MISO	TVA	TVA	
TVA					
Sink	TVA				

B.5 Drive-Through Transactions

Transaction Type:	Normal
Transaction Information:	• Source/Sink/POR/POD should be in accordance to associated TSR(s)

Example 5.1 – Contiguous Path					
Source	PJM				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
PJM					
	PJM	PJM	CIN		
	MISO	PJM	TVA	MISO	
	TVA	MISO	TVA	TVA	
TVA					
Sink	TVA				

B.6 Grandfathered Agreement Carve Out (GFACO)

Transaction Type:	Normal
Transaction Information:	• Asset Owner information needed in Misc. Field of MISO BA line. This information is needed to properly settle losses, congestion and Ancillary Service charges. • In example 6.1 OTP is serving its Load inside of MDU's Local Balancing Authority. Therefore, only OTP transmission is needed within the MISO footprint. • In example 6.2 transmission rights are needed across two MISO Local Balancing Authority Areas.

Example 6.1 – GFACO Drive-In					
Source	WAUE.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SWPP					
	SWPP	HURONGEN	ANTELOPEVAL	WAUE	
	OTP	SWPP	OTP	MISO	
MISO					ASSETOWNER ABC123
Sink	MDU.NWPS				

Example 6.2 – GFACO Drive-In					
Source	TVA				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
TVA					
	TVA	TVA	MISO	TVA	
	AMMO	TVA	AMMO	MISO	
	SIPC	TVA	SIPC	MISO	
MISO					ASSETOWNER ABC123
Sink	SIPC.xxxx				

Transaction Type:	Normal
Transaction Information:	• Asset Owner information needed in Misc. Field of MISO BA line. This information is needed to properly settle losses and congestion charges.

Example 6.3 – GFACO Drive-Out					
Source	CIN.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	CIN	CIN	PJM	MISO	
	PJM	CIN	PJM		
PJM					
Sink	PJM				

Example 6.4 – GFACO Drive-Out					
Source	SIGE.xxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	SIGE	SIGE	LGEE	MISO	
	LGEE	MISO	LGEE	LGEE	
LGEE					
Sink	LGEE				

Transaction Type:	Dynamic
Transaction Information:	• Asset Owner information needed in Misc. Field of MISO BA line. This information is needed to properly settle losses, congestion and Ancillary Service charges.

Example 6.5 – GFACO Dynamic Drive-Out					
Source	DECO.xxxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	ITC	DECO	PJM	MISO	
	PJM	DECO	PJM		
PJM					
Sink	PJM				

Transaction Type:	Normal
Transaction Information:	• Asset Owner information needed in Misc. Field of MISO CA lines. This information is needed to properly settle losses, congestion and Ancillary Service charges.

Example 6.6 – GFACO Within					
Source	AMIL.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	AMIL	AMIL	CWLD	MISO	
	CWLD	AMIL	CWLD	MISO	
MISO					ASSETOWNER XYZ456
Sink	CWLD.xxxx				

Example 6.7 – GFACO Within					
Source	NSP.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	NSP	NSP	MP	MISO	
	MP	NSP	MP	MISO	
MISO					ASSETOWNER XYZ456
Sink	MP.xxxx				

Transaction Type:	Normal
Transaction Information:	• Asset Owner information needed in Misc. Field of MISO CA lines. This information is needed to properly settle losses, congestion and Ancillary Service charges. • In Example 6.8– NSP GFACO transmission is serving its Load in OTP's Local Balancing Authority. No other transmission is needed.

Example 6.8 – GFACO Drive-In					
Source	OAHE				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SWPP					
	SWPP	WAPA…	WAUE.OTP	SWPP	
	NSP	SWPP	OTP	MISO	
MISO					ASSETOWNER ABC123
Sink	OTP.NSP.UND				

B.7 Options A, B, & C Grandfathered Transactions

- Options A, B, and C will have non-billable Transmission Service Request (TSR) created on the MISO OASIS page
  - Transactions must be physically tagged:
    - All e-Tag attributes remain the same as Normal energy tags using MISO Point-to-Point transmission
    - See section of the Tariff - Treatment of Grandfathered Agreements - for additional information
    - Options A and C follow market timing rules for e-Tag submittal
- In order to receive the losses and congestion benefit of Option B, three steps are required to be performed before the clear of the Day-Ahead Energy and Operating Reserve Market:
  - Offer generation prior to Market Close
  - Implemented physical e-Tag prior to Market Close
  - Create special internal bilateral transaction (IBT) prior to market close
    - MISO will create the contract for the special IBT. Option B Interchange Schedule can be submitted in Real Time, but will not receive the benefits of losses and congestion.

Example 7.1 – Option B Import					
Source	TVA				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
TVA					
	TVA	TVA	MISO	TVA	
	MISO	TVA	CIN	MISO	
MISO					
Sink	CIN.xxxx				

B.8 Controlled Interface Transactions with IESO (ONT)

Transaction Type:	ONT
Transaction Information:	• Transactions involving ONT will include one of three different controlled Interfaces, which must be designated on the POR or POD of the MISO TP line in the physical path. • This designation is needed to give the BAs numbers to regulate their phase shifters. • These options will either be **MI-**ONT, **MP-**ONT or **MH-**ONT – and it will be used as the POR if ONT is the GCA; or POD if ONT is the LCA.

Example 8.1 – Drive-Out to ONT					
Source	DECO.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	DECO	MI-ONT	MISO	
	ONT	ONT	ONT	ONT	
ONT					
Sink	ONT				

Example 8.2 – Drive-In from ONT					
Source	ONT_W				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
ONT					
	ONT	ONT	ONT	ONT	
	MISO	MP-ONT	MP	MISO	
MISO					
Sink	MP.xxxx				

Transaction Type:	Normal
Transaction Information:	• Here, the MISO TPs listed here are the non-billable **MISO S/A** provided that the physical path of the transaction remain outside of MISO's Market Footprint.

Example 8.3 – Drive-Through into ONT					
Source	SPC				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SPC					
	SPC	SPC	MHEB	SPC	
	MISO	SPC	MHEB	MISO	
	MHEB	SPC	MHEB.xxxx	MHEB	
	MISO	SPC	MHEB-ONT	MISO	
	ONT	ONT	ONT	ONT	
ONT					
Sink	ONT				

B.9 MHEB Transactions

Transaction Type:	MHEB
Transaction Information:	• MISO is listed as the TP and Scheduling Entity on **ALL** MHEB transactions whether or not the transactions involve the Market • Not all MHEB transactions will involve the MISO Market • For transactions that involve the MISO Market, **MHEB.MISO** is required as POR or POD on MHEB's transmission line • MHEB losses are NOT REQUIRED for transactions that source or sink in MHEB • Transactions that come through/from MHEB into the United States require a Canadian Export License number to be displayed in the Contract Field of the Physical Path

Example 9.1 – Spot-In Market from MHEB					
Source	MHEB				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MHEB					
	MHEB	MHEB	MHEB.MISO	MHEB	
	MISO	MHEB	MISO	MISO	
MISO					
Sink	MISO				

Example 9.2 – Spot In Market through MHEB					
Source	SPC				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SPC					
	SPC	SPC	MHEB	SPC	
	MISO	SPC	MHEB	MISO	
	MHEB	SPC	MHEB.MISO	MHEB	
	MISO	SPC	MISO	MISO	
MISO					
Sink	MISO				

Transaction Type:	MHEB Transactions that involve the MISO Market
Transaction Information:	• **MHEB.MISO** is required as POR or POD on MHEB's transmission line For transactions that involve the MISO Market • MHEB losses are REQUIRED for transactions that pass through MHEB • **MISO S/A** is required as 2nd MISO transmission number

Example 9.3 – Drive-Out through MHEB					
Source	MP.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	MP	SPC	MISO	
	MHEB	MHEB.MISO	SPC	MHEB	
	MISO	MP	SPC	MISO	
	SPC	MISO	SPC	SPC	
SPC					
Sink	SPC				

Example 9.4 – Drive-Through MISO and MHEB					
Source	WR				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
WR					
	SWPP	WR	MPS	SWPP	
	MISO	MPS	SPC	MISO	
	MHEB	MHEB.MISO	SPC	MHEB	
	MISO	MPS	SPC	MISO	
	SPC	MISO	SPC	SPC	
SPC					
Sink	SPC				

Transaction Type:	MHEB Transactions that involve the MISO Market
Transaction Information:	• **MHEB.MISO** is required as POR or POD on MHEB's transmission line for transactions that involve the MISO Market • MHEB losses are REQUIRED for transactions that pass through MHEB • The correct ONT phase shifter designation must be designated as a POR or POD on the ONE MISO TP line only. That designation must NOT be made on the 2nd MISO TP line. • **MISO S/A** is required as 2nd MISO transmission number

Example 9.5 – Drive-Through MISO through MHEB to ONT, within the Market					
Source	SPC				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SPC					
	SPC	SPC	MHEB	SPC	
	MISO	SPC	MHEB	MISO	
	MHEB	SPC	MHEB.MISO	MHEB	
	MISO	SPC	MP-ONT	MISO	
	ONT	ONT	ONT	ONT	
ONT					
Sink	ONT_W				

Transaction Type:	MHEB Transactions that DO NOT involve the MISO Market
Transaction Information:	• MHEB.MISO will not be used as POR or POD on MHEB's transmission line for transactions that do not involve the MISO Market • The MISO TPs listed in 9.6 are the non-billable **MISO S/A** provided that the physical path of the transaction remain outside of MISO's Market Footprint. • If MHEB.MISO is used as a POR/POD on a non-market transaction, they will be sent to Market Settlements for losses and congestion calculations. • Transactions that come through/from MHEB into the United States require a Canadian Export License number to be displayed in the Contract Field of the Physical Path

Example 9.6 – Drive Into MHEB, outside of Market					
Source	SPC				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SPC					
	SPC	SPC	MISO	SPC	
	MISO	SPC	MHEB	MISO	
	MHEB	SPC	MHEB	MHEB	
MHEB					
Sink	MHEB				

Transaction Type:	MHEB Transactions that DO NOT involve the MISO Market
Transaction Information:	• For transactions that do not involve the MISO Market, MHEB.MISO will not be used as POR or POD on MHEB's transmission line • MHEB losses are REQUIRED for transactions that pass through MHEB • The ONT Interface node must be designated as a POR or POD on ONE MISO TP line only. That designation must NOT be made on the 2nd MISO TP line. • **MISO S/A** is required as 1st and 2nd MISO transmission number when no MISO TSR is being used.

Example 9.7 – Drive Through MISO and MHEB to ONT, outside of the Market					
Source	SPC				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SPC					
	SPC	SPC	MHEB	SPC	
	MISO	SPC	MHEB	MISO	
	MHEB	SPC	MHEB.xxxx	MHEB	
	MISO	SPC	MH-ONT	MISO	
	ONT	ONT	ONT	ONT	
ONT					
Sink	ONT				

Transaction Type:	MHEB EAR Transactions
Transaction Information:	• MH.EAR is required as the MHEB POR for Import EAR transactions • MH.EAR is required as the MHEB POD for Export EAR transactions • Transactions that come through/from MHEB into the United States require a Canadian Export License number to be displayed in the Contract Field of the Physical Path

Example 9.8 – MHEB EAR Import					
Source	MHEB				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MHEB					
	MHEB	MH.EAR	MHEB.MISO	MHEB	
	MISO	MHEB	MISO	MISO	
MISO					
Sink	MISO				

Example 9.9 – MHEB EAR Export					
Source	NSP.NSP				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	NSP	MHEB	MISO	
	MHEB	MHEB.MISO	MH.EAR	MHEB	
MHEB					
Sink	MHEB				

B.10 Dynamic Transactions

Transaction Type:	Dynamic
Transaction Information:	• Dynamics will be scheduled to MISO as the Balancing Authority • Dynamic schedules must be updated with actuals by LBA

Example 10.1 – Drive-In Dynamic					
Source	PJM				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
PJM					
	PJM	PJM	WEC		
	MISO	PJM	WEC	MISO	
MISO					
Sink	WEC.xxxx				

Example 10.2 – Dynamic GFACO Drive-Out					
Source	DECO.xxxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					ASSETOWNER ABC123
	ITC	DECO	PJM	MISO	
	PJM	DECO	PJM		
PJM					
Sink	PJM				

B.11 HVDC Transactions

Transaction Type:	Normal
Transaction Information:	• The MISO POR/PODs “MP.HVDCW” and “MP.HVDCE” must only be used on a tag once. • True ultimate source/sink not necessary. • Paths may be defined with MP.HVDCW as the POR or the POD, depending on the direction of flow.

Example 11.1 – MISO-within					
Source	MP.HVDCW				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	MP.HVDCW	MP.HVDCE	MISO	
MISO					
Sink	MP.HVDCE				

Transaction Type:	Normal
Transaction Information:	• The MISO POR/PODs “MP.HVDCW” and “MP.HVDCE” must only be used on an e-Tag once. • True ultimate source/sink not necessary. • Paths may be defined with MP.HVDCW as the POR or the POD, depending on the direction of flow. • MP HVDC transactions may only net to a West-to-East flow at any given time.

Example 11.2 – MISO HVDC Drive-in					
Source	WAUE				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
SWPP					
	SWPP	xxxx	xxxx	SWPP	
	MISO	SWPP	MP	MISO	
	MISO	MP.HVDCW	MP.HVDCE	MISO	
	MISO	MP	CONS	MISO	
MISO					
Sink	CONS,xxxx				

Example 11.3 – MISO “Counter” HVDC Drive-out					
Source	DECO.xxxx				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	DECO	MP	MISO	
	MISO	MP.HVDCE	MP.HVDCW	MISO	
	MISO	MP	SWPP	MISO	
	SWPP	xxxx	xxxx	SWPP	
SWPP					
Sink	WAUE				

B.12 MOWR Transactions

Transaction Type:	Normal, Dynamic
Transaction Information:	• MOWR is a Balancing Authority external to MISO, using SWPP as a Scheduling Entity

Example 12.1 – MISO checkout with AECI					
Source	AMIL.PSGC1.TEA or AMIL.COFFEEN1 *(=MISO TSR Source)*				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	AMIL	AECI	MISO	
	AECI	MISO	AECI	AECI	
SWPP					
Sink	MOWR_MOPEPAECI *(MISO TSR sink = MOWR)*				

Example 12.2 – MISO checkout with SWPP					
Source	AMIL.PSGC1.TEA or AMMO.LABADIE1 *(=MISO TSR Source)*				**Misc. Field**
GCA/LCA	**TP**	**POR**	**POD**	**S/E**	
MISO					
	MISO	AMIL or AMMO	MOWR	MISO	
	SWPP	AMRN	WR	SWPP	
SWPP					
Sink	MOWR_MOPEPAMMO *(MISO TSR sink = AMMO.AEM.MO)*				

Attachment C
RAMP RESERVATION SYSTEM

Ramp Reservation System

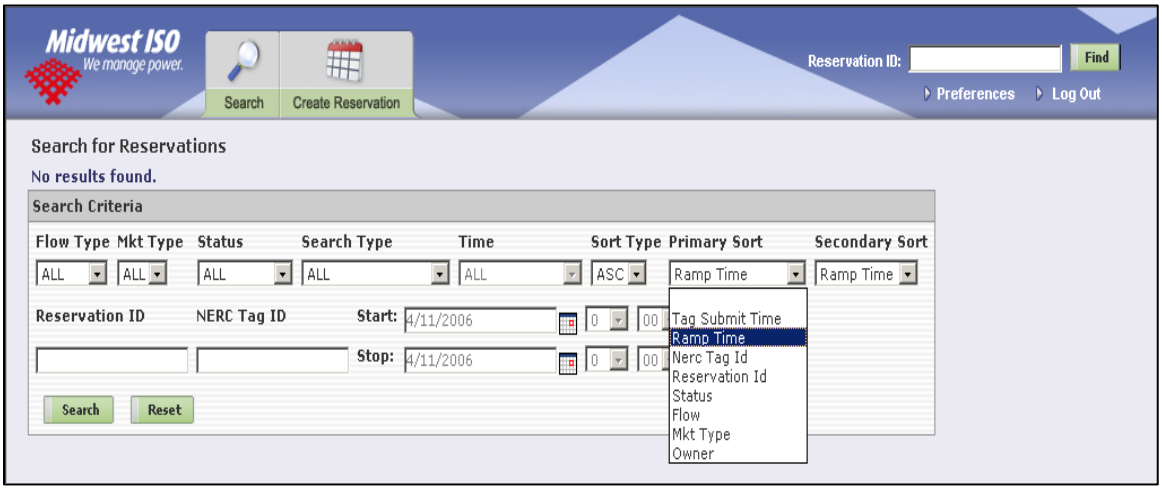
The Ramp Reservation System (RRS) interfaces directly with webTrans. This tool allows Market Participants (MPs) to view Ramp Availability, reserve Ramp prior to scheduling time, or to automatically create Ramp Reservations with submitted schedules. The RRS is available via the MISO Market Portal. (https://markets.midwestiso.org/MISO/)

C.1 Reservation Search Screen

MP can view a list of all of the Ramp Reservations owned by that MP. The screen offers various filters shown below. See Exhibit C-1.

- **Flow Type** – Filters include: All, Import, or Export
- **MP** – A Market Participant will only be able to choose its own MP code. A MISO user will be able to choose from each one specifically.
- **Status** – Filters include: All, Approved, Curtailed, Dead, Denied, Held, In Queue, New, Pending, Withdrawn
- **Search Type** – Filters include: Start Date, Stop Date, Active Dates, Created Dates, e-Tag Submittal, and Ramp Contribution
- **Time** – Filters include: Next Ramp, Next Hour, Today, Today Forward, Before Today, Tomorrow, and a User Range may be selected.
- **Sort** – There are also several options in which you can sort your search results, including a secondary sort if more than one of the primary sort criteria results are the same.

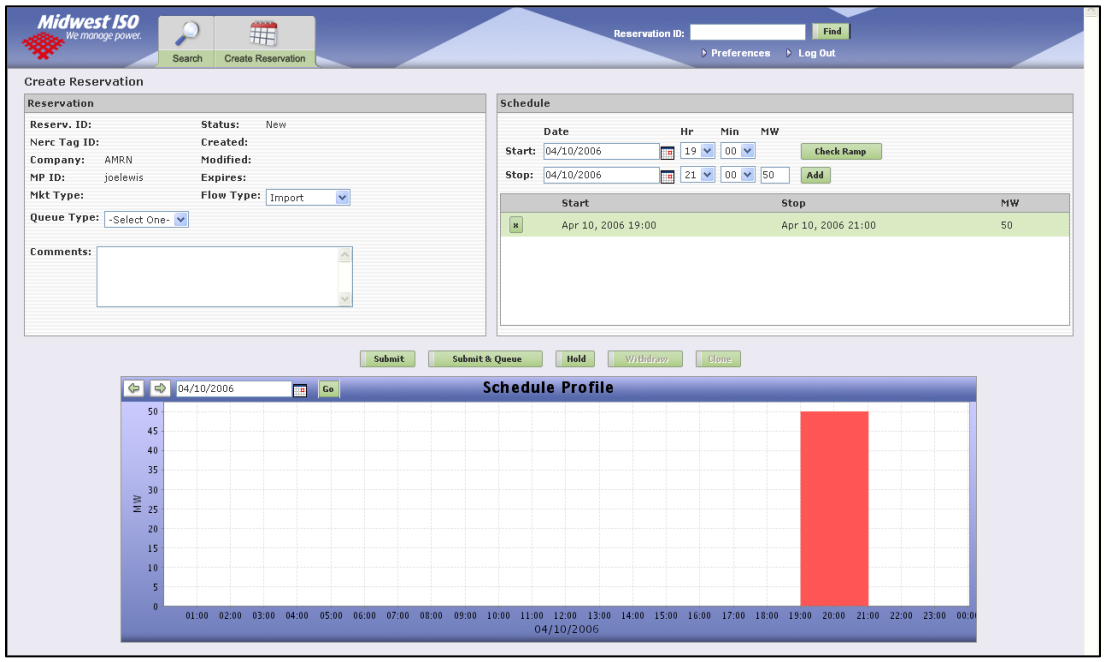
Exhibit C-1: Ramp Reservation System Search Screen



C.2 Creating a Reservation

When creating a Ramp Reservation (see Exhibit C-2), the Company field will already be auto-completed with the MP identifier. Select the flow type, choose the date(s), with start and stop times of the profile. The “Add” button is used to select various time frames and MW amounts to add to the total profile. Once the total profile is considered complete, it may be submitted.

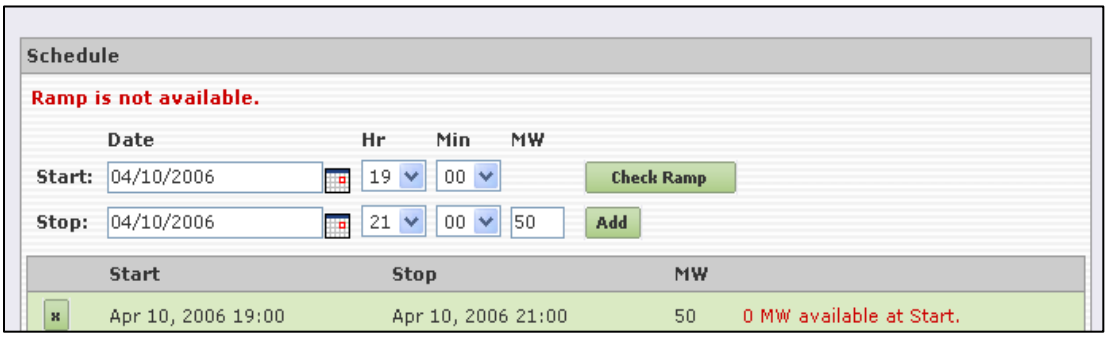
Exhibit C-2: Ramp Reservation System Create Reservation Screen



C.3 Check Ramp

Once the total profile is created, “Check Ramp” may be used to run the Ramp Validation on the created profile without submitting the reservation request. Check Ramp (see Exhibit C-3) may be performed on individual reservations or batch reservations. This function has no relationship to the validation performed when the reservation profile is submitted. There is no guarantee that a passed validation when “checking ramp” will result in a passed validation when submitting that request.

Exhibit C-3: Check Ramp Function



C.4 Submitting a Reservation

Reservations are primarily checked for logic. If any of these checks fail, the RRS will halt the validation process and return any of the following relevant errors to the user:

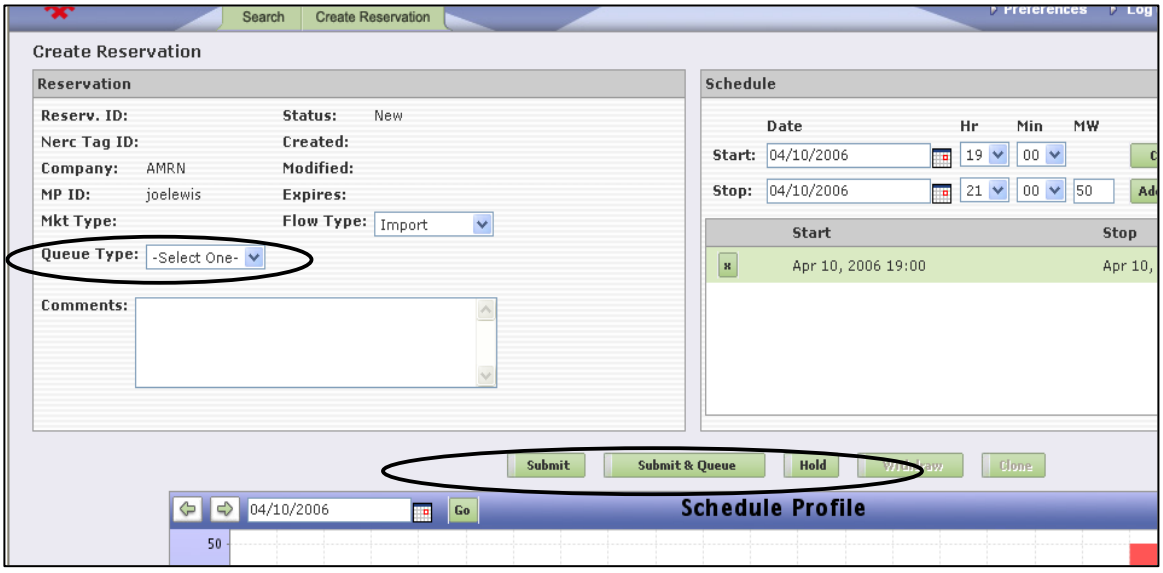
- Profile start time proceeds the stop time.
- Profile start time is in the future.
- Profile does not surpass timing requirements.
- MW profile includes only whole numbers.
- Flow type is selected.

Once all of the preceding validations pass, then the profile will complete a validation process for ramp availability. The reservation will be stored with an automatically generated unique ID number. The Reservation Status will change to show the result of the validation and will be time-stamped. An audit log will keep a record of every system function for the duration of the Reservation. For example, every validation result and reservation status change will appear in this log, including a timestamp for every entry.

C.5 Submitting Options (see Exhibit C-4)

- **Submit** – The reservation request will go through the validation process. If all validations pass, the reservation status will update to Pending. If any of the validations fail, the status will update to Denied. Auto-created may only be “Submitted”. They cannot be held or queued.
- **Hold** – The reservation request will not go through the validation process. The profile will be saved for the user to access and submit at a later time. A reservation in hold that reaches its timing deadline will update to a status of Dead. (See: Reservation Deadlines)
- **Submit & Queue** – The reservation request will go through the validation process. If all validations pass, the reservation status will update to Pending. If the validation for ramp availability fails, the status will update to Queued. The RRS will revalidate the reservation with any event that affects ramp availability. (i.e. Opposite flow creation, withdrawn reservations, etc.)
  - **All Or None** – The reservation will be updated from the Queued status to a Pending status only if the entire profile passes the ramp availability validation.
  - **Partial Fill** – The reservation will be updated from the Queued status to a Pending status if the area of the profile that fails for ramp can be adjusted to fit within the ramp availability limits. This option is only available to reservation requests that have a static MW profile from beginning to end. Requests for varied MW amounts across the duration of a profile cannot be submitted with a Partial-fill option.

Exhibit C-4: Submitting Options



Note that reservations are validated on a first come, first served basis. Reservations that are waiting in Queued status are re-validated on a first come, first served basis.

C.6 Reservation Validations

Upon submission of a Reservation, the profile is validated to ensure that it does not exceed the ramp capabilities of the MISO Market footprint. There is no limit to how far in the future that a reservation request can be submitted for. Ramp limits are defined within the RRS and are adjustable at any time. The MISO current default ramp limit is always displayed on the “Ramp Limits” section of the Ramp Reservation System (RRS) on the MISO Portal. Any adjustments to MISO’s available limit will be publicly posted in advance.

The ramp is validated by calculating the amount of change at every quarter hour in the Reservations profile

- At the start of the schedule
- At the end of the schedule
- At each quarter hour point of MW change within the schedule

Each point of MW change is added to all other contributing Reservations with MW change in the same points of time. If any point in the reservation contributes to an overage of ramp capabilities, the request will be denied. A message will appear on the reservation to describe the time(s) in the profile that failed.

The validation will deny the ramp reservation request if the profile contributes to a ramp overage. If a profile is scheduled to flow through a point where ramp is over its capabilities, and the profile is not changing, the validation will ignore the overage.

Upon passing of the validation for ramp availability, the status of the reservation will update to "Pending" and may be scheduled upon. Unless auto-created, the e-Tag must have the ramp reservation ID placed in the Miscellaneous section of the MISO or MISO-Member) TP line in the physical path. Additional validations are then performed against the e-Tag that is submitted. Those validations include:

- There may be only one active e-Tag for one ramp reservation.
- The physical path of the e-Tag must be consistent with the flow type listed on the reservation.

C.7 Reservation Status

In addition to being "Submitted," there are several other actions that will affect the status of a ramp reservation. Listed below are the various statuses that a ramp reservation can exist with:

- **Pending** – This reservation has been submitted. It is currently reserving ramp, and taking up ramp availability. It has no e-Tag association. This reservation ID number should be placed correctly on an e-Tag.
- **Approved** – This reservation has an e-Tag association that has been correctly submitted. The status of this reservation should only change if the associated e-Tag is withdrawn. A withdrawn e-Tag for a manually created reservation would result in that reservation changing from Approved status to Pending. A withdrawn e-Tag for an auto-created reservation would result in that reservation changing from Approved status to Dead.
- **Curtailed** – The e-Tag associated with this reservation has been curtailed, either as a function of a Control Area, Transmission Provider or Security Coordinator. Curtailments are not validated for ramp, but the Reservation profile is changed automatically to reflect the profile of the e-Tag. The RRS will take steps to round the profile, should that be necessary, to exist on the quarters. Once a Reservation is given a "Curtailed" status, the status will not change again.
- **In Queue** – This reservation has been submitted, but ramp was not available for the given profile. The user chose the Queue option, which holds the reservation and revalidates it until such time that either ramp becomes available, or the timing deadline is reached. If ramp becomes available, the status will change from **In Queue** to

Pending. If the timing deadline is reached prior to ramp becoming available, the status will change to **Dead**.

- **Held** – This reservation request was created and saved by the user. No validation for ramp availability has been performed for this request. Held reservations may not be used on an e-Tag. This reservation request must be submitted in order to change a status to **Pending** or **In Queue**. If the timing deadline is reached, the reservation status will change to **Dead**.
- **Dead** – This reservation is not available for use. A reservation may go dead if the timing deadline is reached to provide an e-Tag. Also, reservations that are not submitted to be queued or held will go Dead if they fail ramp availability validations. Auto-created reservations will go dead if they fail ramp availability validations.

C.8 Reservation Deadlines

Deadlines for submission of a new ramp reservation:

Duration of Ramp Reservation	Deadline for Submission
Less than or equal to 24 hours (<= 24 hours)	30 minutes prior to the start of the schedule
Greater than 24 hours (>24 hours)	4 hours prior to the start of the schedule
Any Auto-Created Reservation	20 minutes prior to the start of the schedule

Some reservations have no timing deadlines that cause a status change.

- **Approved** – No deadlines. An Approved reservation will only change status if its associated e-Tag is curtailed, withdrawn or dies.
- **Curtailed** – No deadlines. A curtailed reservation will never change its status.
- **Dead** – No deadlines. A Dead reservation will never change its status.

Some reservations do have timing deadlines that cause a status change.

- **Pending** –The Ramp Reservation must have a correctly submitted e-Tag associated to it in order to change the reservation status to Approved before deadlines are reached. Otherwise, the Ramp availability will be returned to the pool to be used by Real Time schedules. A reservation with a Pending status will change to Dead status if any of the following deadlines are reached:
    - The current time is 30 minutes prior to the start of the profile
    - The current time is 9:00 EST for a profile set to start current day +1
    - The reservation has been in Pending status for two hours.

If the Ramp Reservation becomes denied, an e-Tag may still be submitted with no reservation association. This e-Tag will auto-create a new reservation. Any auto-created Ramp Reservation may be submitted up to 20 minutes before the start of a profile.

- **In Queue** – If ramp does not become available for an In Queue reservation before the listed deadline, the status of that reservation will change to Dead.

In-Queue Reservations		
Reservation Duration	Time Before Start of Reservation Submitted	Length of time to hold reservation
<= 24 hours	**Any time**	**Until 30 minutes prior to the start of the reservation**
> 24 hours	**Any time**	**Until 5 hours prior to the start of the reservation**

- **Held** – A held reservation request will change its status to Dead 20 minutes before its listed start time.

C.9 Reservation Adjustments

Ramp Reservations that are in a Pending or In Queue state and have not obtained an e-Tag association, may adjust the Ramp Reservation to a different MW volume, or to a different start/stop time. The reservation will be calculated to validate the impact of the request and will approve or deny accordingly.

C.10 Auto-Created Reservations

Tagged transactions that are subject to ramp validation, but are created with no MISO Ramp Reservation on the e-Tag will have a reservation created automatically in the RRS. The reservation will match the profile of the e-Tag exactly. The RRS will immediately perform validations for ramp availability.

If the validations pass, the status of the reservation will update to Approved.

If the validations fail, the status of the reservation will update to Denied and a MISO Scheduler will deny the e-Tag.

If the e-Tag with an auto-created reservation is withdrawn or dies for any reason, the reservation status will update from Approved to Dead.

C.11 Tag vs. Reservation volume

The RRS will support a difference between the e-Tag and the Ramp Reservation with regard to MW volume and time. If an e-Tag is submitted with a listed reference of a Ramp Reservation of a different MW volume than the e-Tag, then the RRS will perform the validation to ensure that ramp is available with regard to the change that is being requested. If ramp is available, the Reservation will move to Approved status and the e-Tag will be approved (or, at least, will not be denied for ramp.)

Similarly, if an e-Tag is submitted with a listed reference of a Ramp Reservation of a different start and/or stop time than the e-Tag, then the RRS will perform the validation to ensure that ramp is available with regard to the change that is being requested. If ramp is available, the Reservation will move to Approved status and the e-Tag will be approved (or, at least, will not be denied for ramp.)

NOTE: Ramp is a function of generation movement, the ability to increase and decrease generation. It is not a function of capacity. Customers should understand that an E-tag request that is lower in volume than the associated Ramp Reservation is by no means guaranteed to pass validations.

C.12 Tag Corrections

If an e-Tag must be corrected, it may not correct the Ramp Reservation ID#. Any attempt to "correct" the field will result in a validation failure in the RRS, and a denied e-Tag.

C.13 Tag Withdrawals

If a Pending e-Tag must be withdrawn, an associated Ramp Reservation that was auto-created will automatically change to a status of Dead. This Reservation will not be able to be scheduled in conjunction with any another e-Tag. If a Pending e-Tag must be withdrawn, an associated Ramp Reservation that was manually created will automatically change to a status of Pending. This Reservation will be able to be scheduled in conjunction with another e-Tag.

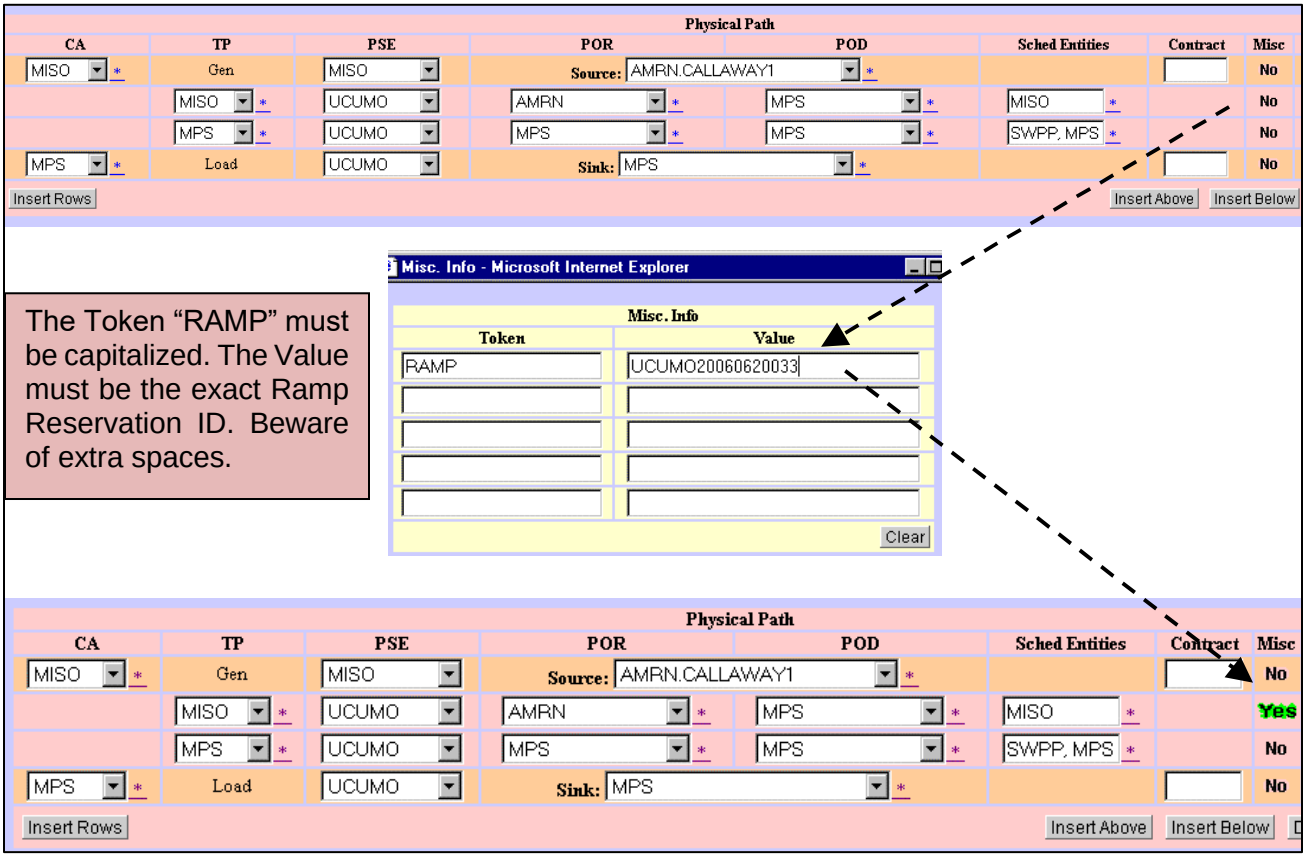
C.14 Tag Cancellations

If an Implemented e-Tag must be cancelled, the associated Ramp Reservation will automatically adjust its profile to zero. This Reservation will not be able to be scheduled in conjunction with any another e-Tag.

C.15 How to Tag Previously Submitted Reservations (see Exhibit C-5)

When submitting an e-Tag, you will need to include the ramp reservation ID# in the Miscellaneous field in the Physical path portion of the e-Tag. Click on the Miscellaneous field on the MISO or MISO Member Transmission Provider line to pull up the dialogue box, enter the Ramp Reservation number and click OK.

Exhibit C-5: Tagging Reservations



C.16 Ramp Availability Monitor (see Exhibit C-6)

The RRS tool includes an availability tab that provides MPs with a snapshot of the MISO's current Import/Export capabilities. The monitors contain all Ramp Reservations with the status of "Approved", "Curtailed" or "Pending"; historical data and pending schedules are not displayed.

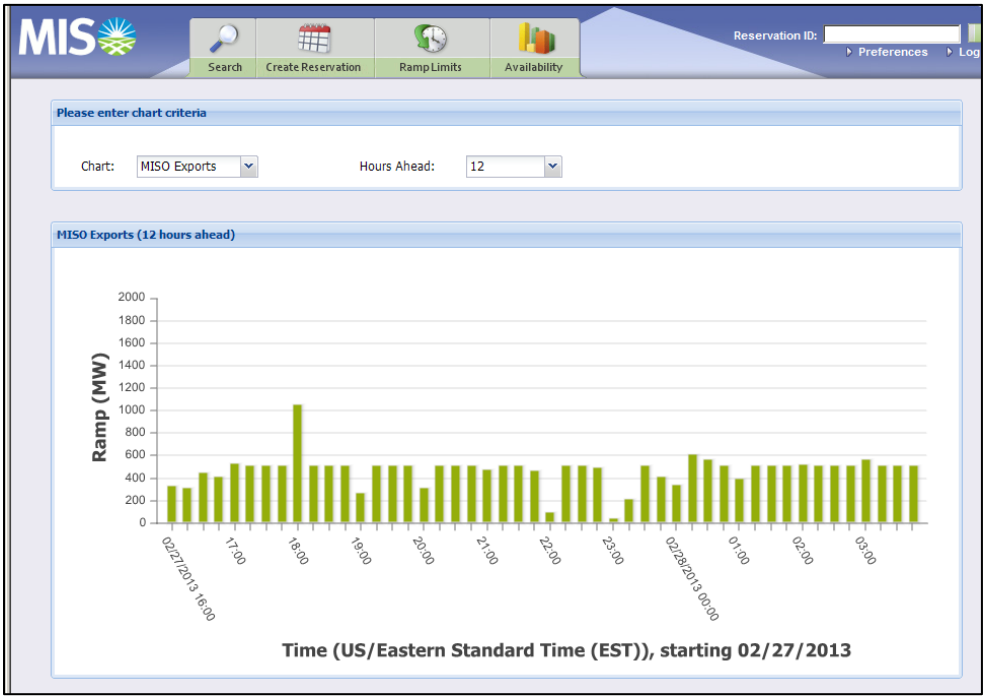
Ramp availability is based on a first come, first serve basis. The information provided here does not guarantee ramp availability for every transaction.

Ramp is calculated as the summation of all MW changes within the profiles of all valid Ramp Reservations from one 15-minute period to the next. If the import screen shows availability of 0 MW, the change in NSI has reached its MW limit change from the previous 15 minutes in the direction of the increased imports. As a direct result of this change, the export screen will show a maximum availability of the sum of the Import and Export MW limit, which is then available to use in scheduling exports before the MISO reaches its export limit.

Additionally, if the end of a schedule or schedule change causes the MISO Market Footprint to exceed its ramp capabilities at the following 15-minute period, that transaction will be denied. Bear in mind that an Import transaction will decrement Export capability when it ends. Alternatively, an Export transaction will decrement Import capability when calculating the end of the transaction profile.

While ramp is calculated at any time in the future, the ramp availability monitor will show a graph for 48 hours out from the current time. It can also be configured to specify points of time within those 48 hours. For any time range, the Viewer will show the Import and Export capabilities. The monitor will be updated with the current ramp availability every 20-30 seconds.

Exhibit C-6: Ramp Availability Monitor



C.16.1 PJM Ramp Availability Monitor

MISO has entered an information sharing agreement where, in addition to seeing MISO's ramp availability in this screen, a user will be able to see PJM's availability for the same time period. At the same time, MISO is sharing the data displayed here for use in PJM's ExSchedule tool.

C.17 Tag Curtailments/Reloads

If an e-Tag is curtailed, either as a function of a Balancing Authority, Transmission Provider or Reliability Coordinator, the associated reservation is automatically updated to match the curtailed profile. Curtailments are not validated for ramp, but the Reservation profile is changed automatically to reflect the profile of the e-Tag. The RRS will take steps to round the profile, should that be necessary, to make all changes on the quarters. Ramp availability calculations will change within the entire footprint as a result.

Reloads follow the same logic as curtailments. Reloads are also not validated for ramp, but the Reservation profile is changed automatically to reflect the profile of the e-Tag. The RRS will take steps to round the profile, should that be necessary, to exist on the quarters. Ramp availability calculations will change within the entire footprint as a result.

C.18 MISO Market Adjusts

If an e-Tag is Market Adjusted by the MISO, the associated reservation is automatically updated to match the adjusted profile. Market Adjusts are not validated for ramp, but the Reservation profile is changed automatically to reflect the profile of the e-Tag. Ramp availability calculations will change within the entire footprint as a result.

C.19 PSE Adjusts/Extensions

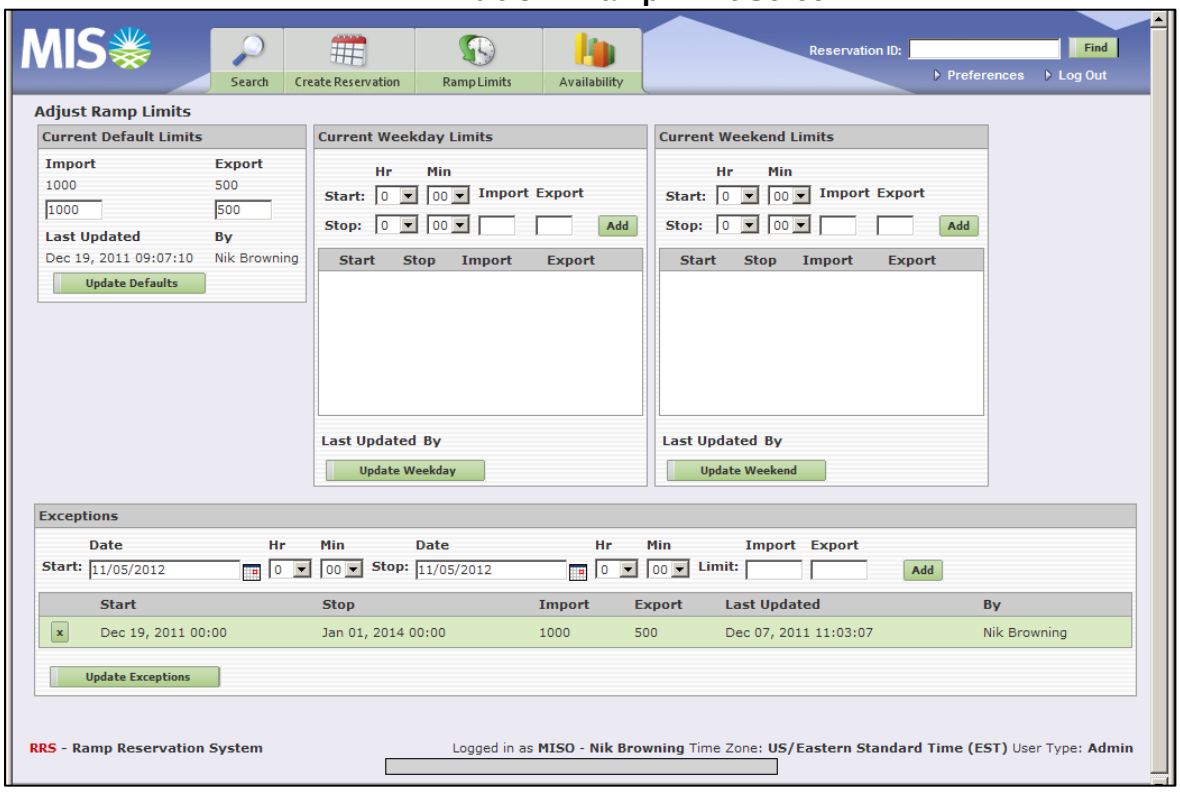
If an e-Tag is adjusted or extended by a PSE, the associated reservation is automatically validated for ramp availability on the new profile. If that validation passes, the RRS will automatically update the reservations profile. If that validation fails, the RRS will return to the current profile and the Adjustment will be denied.

C.20 Ramp Limits

The limits which define the RRS validations to approve / deny requests are set within the application itself. Default limits for Import and Export capabilities are set. The RRS is also capable of defining different values for weekday or weekend peaks, for example. One-time exception definitions may also be made by a MISO operator as appropriate.

While it is rare for MISO to ever stray from its defined default value, the active limits are always available for any RRS user to view via a tab in the RRS.

Exhibit C-7: Ramp Limit Screen



Attachment D
MISO MARKET INFORMATION SPECIFICATION FOR NON-OATI USERS

MISO Market Information Specification for Non-OATI Users

D.1 How MISO Market Information is Stored in an e-Tag

A tag's MISO market information contains the following fields:

Market – must be one of: 'REALTIME ONLY', ' 'BOTH'

Transaction Type – must be one of: 'FIXED', 'DISPATCHABLE', 'UPTOTUC'

Date – a date/time value in UTC

Price List – a comma-separated list of 24 prices (one per hour), or for certain tags, a list containing MW and price values as described below

Before these fields are stored in a tag, the following steps are followed:

- Combine the four fields into a semicolon-separated list of name=value pairs (as an example, the result might be:
- "Market=REALTIME;TransactionType=DISPATCHABLE;Date=2013-10-01 05:00;;PriceList=32.01,32.02,32.03, [. . .] ,32.24").
- Encrypt the list.
- If the resulting text is more than 128 characters, split it into blocks of not more than 128 characters each.

This information is encoded in a market segment's MiscInfo as follows:

MisoMarketCertID – used to indicate which certificate was used for encoding, to facilitate switching to new certificates. Should always be 13 until MISO indicates otherwise. Not encrypted.

MisoMarketBlockCount – specifies how many blocks of market data there are. Not encrypted.

MisoMarketBlock_01, ..., MisoMarketBlock_nn – The blocks into which we split the encrypted market data as described above.

D.2 Notes

- All plaintext tokens and values are case insensitive. Once encryption is enabled, for any XML <Value>...</Value> attribute that contains encrypted data, the data will be case sensitive.
- The order in which Market, TransactionType, Date, CreateFinSched, and PriceList are combined into a list is not important.
- The order in which MisoMarketCertID, MisoMarketBlockCount, MisoMarketBlock_01, etc. appear in a MiscInfoList is not important.
- A PriceList must contain 24 elements, but each individual element may be an empty string.

- If the CPSE is in the tag's market path, then the market data should appear in the MiscInfoList belonging to the CPSE's row in the market path. Otherwise, it should appear in the MiscInfoList belonging to the first row in the market path.
- MisoMarketCertID is an ID, which informs the market which public key was used to encrypt the market information. The initial value will be 1; it will be incremented whenever the MISO public key changes (generally with a transition period during which two values will be acceptable for this field).

Here is an example MiscInfoList in which the market info has not been encrypted.

```
<MiscInfoList>
        <MiscInfo>
                <Token>MisoMarketCertID</Token>
                <Value>13</Value>
        </MiscInfo>
        <MiscInfo>
                <Token>MisoMarketBlockCount</Token>
                <Value>2</Value>
        </MiscInfo>
        <MiscInfo>
                <Token>MisoMarketBlock_01</Token> <!-- contains the first 128-character block of data -->
                <Value>Market=REALTIME;TransactionType=DISPATCHABLE;Date=2004-10-01 05:00;CreateFinSched=1;PriceList=32.01,32.02,32.03,32.04,32.05</Value>
        </MiscInfo>
        <MiscInfo>
                <Token>MisoMarketBlock_02</Token> <!-- contains the rest of the data -->

        <Value>,32.06,32.07,32.08,32.09,32.10,32.11,32.12,32.13,32.14,32.15,32.16,32.17,32.18,32.19,32.20,32.21,32.22,32.23,32.24</Value>
        </MiscInfo>
</MiscInfoList>
```

Attachment E
TIME CHANGE TAGGING

Time Change Tagging

E.1 Converting Tags to Daylight Saving Time

The underlying concept to be addressed is that the e-Tag specification has no mechanism to indicate a different time zone for Start and End times of an e-Tag, so crossover profiles must be defined wholly in one or the other time zone.

E.2 Changing Your Settings (OATI only)

You can control the Time Zone for creating tags by changing the setting located near the top right corner of the Tag Entry Display on the tag creation view. You can change the default of this setting by clicking the green “OPTIONS” button on your OATI Toolbar.

Time Zone Key:

- CD - Central Daylight Saving Time
- ED - Eastern Daylight Saving Time
- CS - Central Standard Time
- ES - Eastern Standard Time
- GM - Greenwich Mean Time (Universal Coordinated Time)

E.3 Recognizing the Right e-Tag/Schedule

If you receive an e-Tag that doesn't look right, check the date and determine if you are viewing it in Standard Time even though it was created to reflect Daylight Saving Time, or vice-versa. Your tag view time zone settings are fixed as a user-controlled default, and imported/delivered tags will be shown according to those settings - not in the time zone setting that they were created in.

E.4 Solution 1 - One e-Tag

E.4.1 One-Day e-Tag

1) For a one-day tag flowing all hours on the day of a time zone change.
2) Open a new e-Tag, and set the Time Zone at the top of the tag to your local Daylight Saving Time setting.
3) Set your Start Date and your Stop Date to the next night.
4) Define an Energy Profile from 01:00 to 00:00 (23 hours total). The first hour of this profile, HE2, is actually HE1 when viewed in Standard Time.
5) To confirm proper creation, save the e-Tag as a Delayed tag.
6) Change your default Time Zone preference to your local Standard Time setting from the Options page.

7) Reopen the e-Tag and confirm that it starts at midnight the morning of the date of change.
8) Change your default Time Zone preference to your local Daylight Saving Time setting from the Options page.
9) Reopen the e-Tag and confirm that it ends at midnight the evening of the date following the change.

E.4.2 Extended Period Tag

You can create an extended period e-Tag in this manner by creating multiple profiles ("Add New Profile" button located under the Energy Profile):

1) For a multi-day e-Tag flowing across the day of a time zone change.
2) Follow the procedures detailed in the previous section to create a one day e-Tag, and save it as a Delayed e-Tag.
3) Change your default Time Zone preference to your local Standard Time setting from the Options page.
4) Reopen the Delayed e-Tag, and click the "Modify" button at the bottom of the tag.
5) Click the "Add Profile" button located at the lower right of the Energy Profile.
6) On the new second Profile, set your Start Date to your desired starting date and your Stop Date to the date of the time zone change.
7) Define an Energy Profile for the days leading up to the date of the time zone change.
8) Re-save the e-Tag as a Delayed tag.
9) Change your default Time Zone preference to your local Daylight Saving Time setting from the Options page.
10) Reopen the Delayed e-Tag, and click the "Modify" button at the bottom of the tag.
11) Click the "Add Profile" button located at the lower right of the Energy Profile again.
12) On the new third profile, define an Energy Profile for the days after the date of the time zone change.

E.5 Solution 2 - Two e-Tags

This eliminates the crossover confusion, but puts a burden on schedulers who now must assign two e-Tag Codes to each schedule.

1) The first e-Tag, with an Energy Profile in Standard Time.
2) Open a new e-Tag, and set the Time Zone at the top of the e-Tag to your local Standard Time setting.
3) Set your Start Date and Stop Date to the date of the time zone change.
4) Define an Energy Profile from 00:00 to 01:00 (1 hour total).
5) **The second e-Tag, with an Energy Profile in Daylight Saving Time.**

6) Open a new e-Tag, and set the Time Zone at the top of the e-Tag to your local Daylight Saving Time setting.
7) Set your Start Date to the date of the time zone change and Stop Date to the date following the time zone change.
8) Define an Energy Profile from 02:00 to 00:00 (22 hours total).
9) When both e-Tags are opened and viewed from one time zone setting or another, you can confirm that no hour was actually skipped, that the two tags actually start and end at the same point. The first tag will start at midnight the morning of the date of the time zone change in Standard Time, and the second tag will end at midnight the evening of the date following the time zone change.

E.6 Which Time Zone to Make the Change?

The "official" procedure for this time change, as defined by U.S. standards, takes place at 2:00 AM on the date of the change. At 2:00, the time becomes 3:00, therefore clocks should advance directly from 1:59 to 3:00. Since no hour ever actually ends with "02:00", HE2 is "skipped". This change occurs once for each Time Zone, which means that the change takes place across the NERC region during five consecutive hours. If you are creating a tag that crosses any Time Zone boundaries during the Daylight Saving change, you will need to coordinate with all participants on that transaction to determine in which specific Time Zone your e-Tag will perform the hour skip.