ISO New England Manual for

Forward Reserve

Manual M-36

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ISO New England Manual for

Forward Reserve

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About This Manual

Welcome to the ***ISO New England Manual for Forward Reserve***. The ***ISO New England Manual for Forward Reserve*** is one of a series of manuals concerning the wholesale electricity markets administered by the ISO. This manual details the Forward Reserve Market including how Forward Reserve is acquired in the Forward Reserve Auction and how the value of Forward Reserve is determined in accordance with Market Rule 1. Market Rule 1 is Section III of the ISO Tariff and can be obtained from the ISO website at www.iso-ne.com.

This manual assumes that the reader has reviewed Market Rule 1 before or in conjunction with using the manual. Terms that are capitalized in this manual generally are defined in Section I of the ISO Tariff.

The reader is referred first to Market Rule 1 for an explanation and information regarding the operation of the Forward Reserve Market.

The ***ISO New England Manual for Forward Reserve*** consists of six Sections. The Sections are as follows:

Section 1: Overview of Forward Reserve Market Operations
Section 2: Forward Reserve Auction Process
Section 3: Assignment of Forward Reserve Obligation
Section 4: Delivery of Forward Reserve in Real-Time
Section 5: Consequences of Non-Delivery of Forward Reserve
Section 6: Overview of Forward Reserve Settlements

Target Users

The target users for the ***ISO New England Manual for Forward Reserve*** are:

- *Market Participants* – Any Market Participants requesting to sell Operating Reserve to the Forward Reserve Market.

- *ISO market operations administrators* – The ISO market operations administrators are responsible for conducting the Forward Reserve Auction and calculating the Forward Reserve Threshold Price.

- *ISO settlement administrators* – The ISO settlement administrators are responsible for determining the weekly billing statements.

References

The references to other documents that provide background or additional detail directly related to the ***ISO New England Manual for Forward Reserve*** are:

- Market Rule 1
- ***ISO New England Manual for Market Operations, M-11***
- ***ISO New England Manual for Installed Capacity, M-20***
- ***ISO New England Manual for Market Rule 1 Accounting, M-28***
- ***ISO New England Manual for Definitions & Abbreviations, M-35***
- Applicable ISO New England Operating Procedures

Section 1: Overview of Forward Reserve Market Operations

Welcome to the *Overview of Forward Reserve Market Operations* Section of the ***ISO New England Manual for Forward Reserve***. In this Section you will find the following information:

- A description of the Forward Reserve Market (see "Overview").

1.1 Overview

The Forward Reserve Market is a market to acquire forward commitments to Ten-Minute Non-Spinning Reserve (TMNSR) and Thirty-Minute Operating Reserve (TMOR) for delivery in Real-Time. The Forward Reserve Market includes a Forward Reserve Delivery Period auction (Forward Reserve Auction) to acquire, in advance, capability to supply required Operating Reserve to meet the Forward Reserve Requirements in each identified Reserve Zone.

Forward Reserve Auctions are held twice per year, corresponding to the Forward Reserve Procurement Periods. The Forward Reserve Auctions occur approximately 2 months prior to the beginning of each Forward Reserve Procurement Period. Prior to each auction, the ISO calculates the Forward Reserve Requirements in accordance with the methodology described under Section 2 of this manual and in accordance with Market Rule 1 Section III.9.2.

Forward Reserve Auction Offers are submitted on a portfolio basis. The Forward Reserve Auction simultaneously clears Forward Reserve Auction Offers to meet Forward Reserve Requirements using a mathematical programming algorithm. The mathematical algorithm produces separate clearing prices for the Forward Reserve purchased in each Reserve Zone. The Forward Reserve Auction Offers and Forward Reserve Clearing Prices are in $/MW-month. The Forward Reserve Clearing Prices for each Reserve Zone are based on the marginal costs to simultaneously serve an incremental increase in Forward Reserve Requirement, similar to the manner in which LMPs are calculated. The Forward Reserve Auction Offers cannot exceed the Forward Reserve Offer Cap.

Each Forward Reserve Auction substitutes higher quality TMNSR for lower quality TMOR when it is economical to do so after the TMNSR requirement has been met within the applicable Reserve Zones. The Forward Reserve Auction will also utilize excess TMNSR and TMOR in one Reserve Zone to meet the TMNSR and TMOR requirements of another Reserve Zone provided that no constraints exist that would prevent the excess TMNSR and TMOR from being delivered to that Reserve Zone. In addition, price cascading is applied to ensure that the Forward Reserve Clearing Price for TMOR in a Reserve Zone is always less than or equal to the Forward Reserve Clearing Price for TMNSR in that Reserve Zone.

A Market Participant whose offers have cleared in the Forward Reserve Auction receives a Forward Reserve Obligation for each Reserve Zone equal to the amount of that Market Participant's Forward Reserve Auction Offers that cleared in the auction. A Market

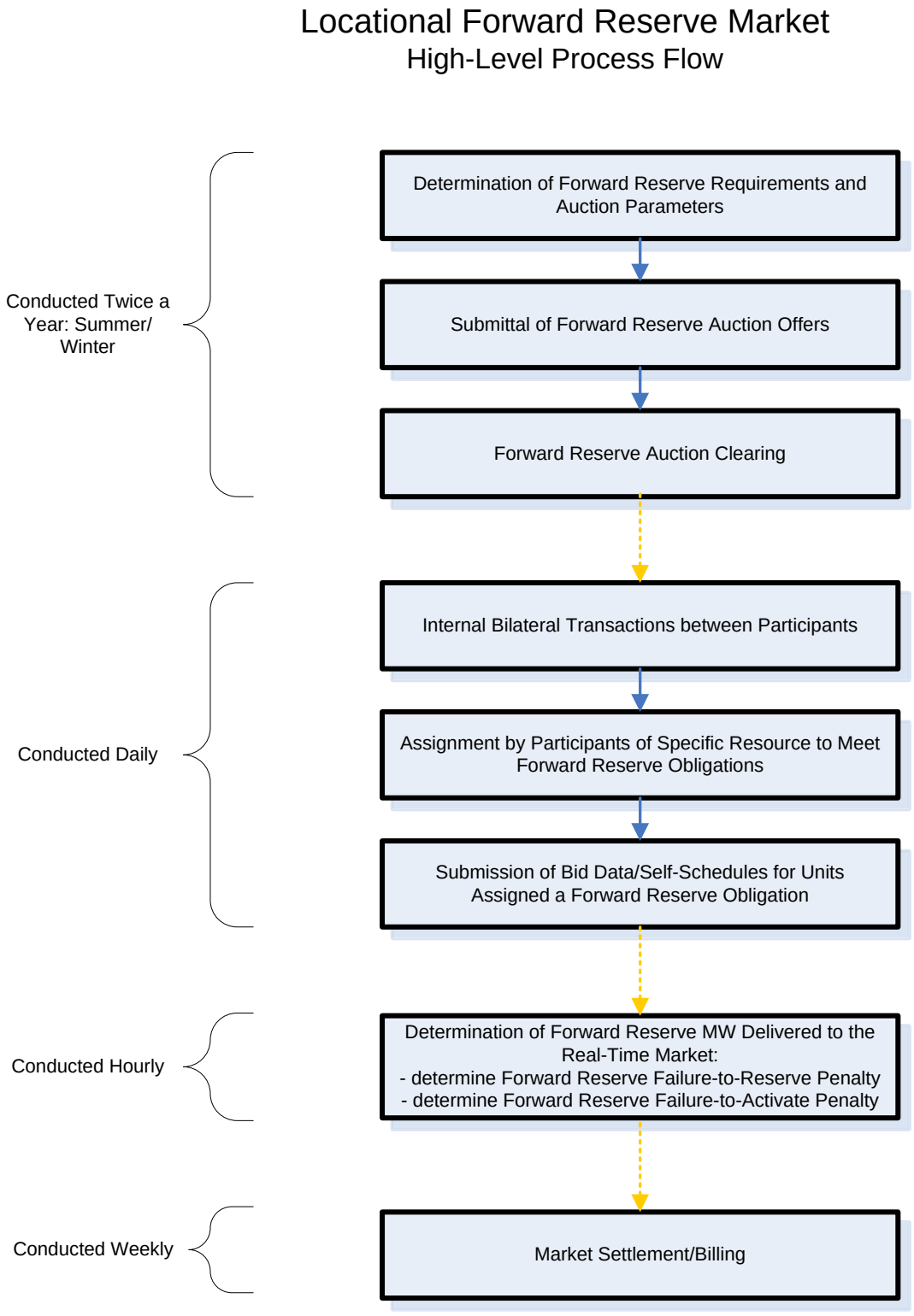
Participant's Forward Reserve Obligation also reflects any Internal Bilateral Transactions for Forward Reserve that Market Participant may have entered into. To meet their Forward Reserve Obligations, Market Participants must assign Forward Reserve to their Forward Reserve Resources on a daily basis at any time prior to start of the Operating Day such that, the aggregate assignments are greater than or equal to their Forward Reserve Obligations. Market Participant's must submit Supply Offer or Demand Bid prices associated with their Forward Reserve Resources at or above the Forward Reserve Threshold Price.

A failure-to-reserve occurs when a Market Participant's Forward Reserve Delivered Megawatts associated with a Reserve Zone is less than that Market Participant's associated Forward Reserve Obligation. Failure-to-reserve results in a forfeiture of payment for any Forward Reserve megawatts not delivered plus a financial penalty. Penalties are assessed based upon the applicable penalty rates and the megawatt amounts of non-delivery.

Each Forward Reserve Resource is expected to activate Forward Reserve if requested to do so by the ISO. Failure-to-activate Forward Reserve, i.e., failure to deliver the energy when called, will result in a financial penalty separate and distinct from the failure-to-reserve financial penalty.

Suppliers of Forward Reserve are paid for their services on an hourly basis during the Forward Reserve Service Period and not at the time the Forward Reserve Auction clears. The applicable costs of the Forward Reserve Market as allocated to each Load Zone are allocated to Market Participants on the basis of hourly Real-Time Load Obligations within the applicable Load Zone for each hour.

The following diagram provides an overview of the bid to bill process associated with the Forward Reserve Market:


Locational Forward Reserve Market
High-Level Process Flow
Conducted Twice a Year: Summer/ Winter
Determination of Forward Reserve Requirements and Auction Parameters
Submittal of Forward Reserve Auction Offers
Forward Reserve Auction Clearing
Conducted Daily
Internal Bilateral Transactions between Participants
Assignment by Participants of Specific Resource to Meet Forward Reserve Obligations
Submission of Bid Data/Self-Schedules for Units Assigned a Forward Reserve Obligation
Conducted Hourly
Determination of Forward Reserve MW Delivered to the Real-Time Market:
- determine Forward Reserve Failure-to-Reserve Penalty
- determine Forward Reserve Failure-to-Activate Penalty
Conducted Weekly
Market Settlement/Billing

Section 2: Forward Reserve Auction Process

Welcome to the *Forward Reserve Auction Process* Section of the ***ISO New England Manual for Forward Reserve***. In this Section you will find the following information:

- Definition of the Forward Reserve Procurement Period.
- Methodology used to determine the Forward Reserve Requirements.
- Determination of the Forward Reserve Threshold Price.
- Timing of the Forward Reserve Auctions.
- Submittal of Forward Reserve Auction Offers.
- Forward Reserve Auction Clearing.

The ISO conducts Forward Reserve Auctions for each Forward Reserve Procurement Period that simultaneously clears the submitted Forward Reserve Auction Offers to meet the Forward Reserve Requirements for each Reserve Zone in accordance with the following business rules.

2.1 Forward Reserve Procurement Period

The Forward Reserve Procurement Period is the period during which delivery of Forward Reserve is required. In accordance with Section III.9.1 of Market Rule 1, the Forward Reserve Procurement Period shall coincide with the Summer Capability Period (June 1 through September 30) or the Winter Capability Period (October 1 through May 31).

Delivery of Forward Reserve is only required during the Forward Reserve Delivery Period. The Forward Reserve Delivery Period, as defined in Section III.9.1 of Market Rule 1, shall be hour ending 0800 through hour ending 2300 for each weekday of the Forward Reserve Procurement Period excluding those weekdays that are defined as NERC holidays.

2.2 Determination of Forward Reserve Requirements

The following methodology is used to establish Forward Reserve Market local Forward Reserve Requirements. These calculations are performed by the ISO for an applicable Forward Reserve Procurement Period and the results are communicated to Market Participants prior to each Forward Reserve Auction.

2.2.1 Reserve Zone Definition

A Reserve Zone represents an area within the ISO New England Transmission System that is identified by the ISO as requiring specific amounts of Operating Reserve that must be procured within that area. The required amount of Operating Reserve within a Reserve Zone is calculated in accordance with criteria specified in ISO New England Operating Procedure No. 8 and ISO New England Operating Procedure No. 19. Except for the Rest of System Reserve Zone, a Reserve Zone must be contained completely within a single Load Zone and may be comprised of a subset of Nodes contained within a Load Zone. A Rest of System Reserve Zone has been established by the ISO, in accordance with Section III.2.7 (d) of Market Rule 1. The currently defined Reserve Zones and their relationship to Load Zones are defined in Table 2.1.

Reserve Zone	Associated Load Zone(s)
SW Connecticut	Connecticut
Connecticut	Connecticut
NEMA/Boston	NEMA/Boston
Rest of System (ROS)	Vermont, New Hampshire, Maine, WCMASS, SEMASS, Rhode Island

Table 2.1: Reserve Zone Definition

Forward Reserve Clearing Prices are calculated for each Reserve Zone.

2.2.2 System Forward Reserve Requirements

The Forward Reserve requirements for the New England Control Area will be calculated based on the criteria specified in ISO New England Operating Procedure 8 (OP-8). The amount of Forward Reserve to be procured in the auction will be the Forward Reserve requirement for the New England Control Area as calculated pursuant to Section III.9.2.1 of Market Rule 1.

2.2.3 Local Forward Reserve Requirements

Consistent with ISO New England Operating Procedure 19 (OP-19) and the ISO's operational practice, local Forward Reserve Requirements for applicable Reserve Zones will reflect the need for 30-minute contingency response to provide 2nd contingency coverage in import-constrained areas. The Forward Reserve Requirement for each applicable Reserve Zone can be satisfied only by Resources capable of providing TMOR or higher quality reserve products that are located within the applicable Reserve Zone. The Forward Reserve Auction will clear the amount of TMOR required to meet the Reserve Zone local Forward Reserve Requirement as defined in Sections 2.2.4 and 2.2.5.

2.2.4 Calculation of Local Forward Reserve Requirements

Under current operating practice, the locational Operating Reserve Requirement is calculated each day according to the following formulae.

(a) The 2nd contingency in each Reserve Zone shall be calculated as follows:

$$\text{2nd Gen} = \text{Limit}_{\text{N-1}} - \text{Limit}_{\text{N-2, Gen}} + \text{CONTG} - 30\ \text{ACT}$$

$$\text{2nd Line} = \text{Limit}_{\text{N-1}} - \text{Limit}_{\text{N-2, Line}} - 30\ \text{ACT}$$

(b) The External Reserve Support (ERS) will be calculated as follows:

$$\text{ERS} = \text{Limit}_{\text{N-1}} - (\text{LOAD} - \text{GEN})$$

(c) The daily Locational Reserve Requirement ("dLRR"), which is the amount of 30-minute contingency response, given the available transfer capability on the interface, that must be physically located within the import-constrained area to ensure recovery from the loss of the 2nd contingency, will be calculated as follows:

$$\text{dLRR} = \text{MAX}(\text{2nd Gen}, \text{2nd Line}) - \text{ERS}$$

Where:

LOAD = Forecast daily peak load

GEN = Minimum capacity commitments required for 1st contingency coverage

CONTG = Second generation contingency

$\text{Limit}_{\text{N-1}}$ = First contingency interface limit

$\text{Limit}_{\text{N-2, Gen}}$ = Second generation contingency interface limit

$\text{Limit}_{\text{N-2, Line}}$ = Second line contingency interface limit

30ACT = Non-generation based 30-minute actions

LRR = The Locational Reserve Requirement is the amount of 30-minute contingency response, given the available transfer capability on the interface, that must be physically located within the import-constrained area to ensure recovery from the loss of the 2nd contingency.

2.2.5 Establishing Local Forward Reserve Requirements

Using the formulae stated in Section 2.2.3, a historical set of dLRR values will be calculated for each season in each Reserve Zone.[1] The historical period will be a rolling two years. The initial local Forward Reserve Requirements for each applicable Reserve Zone will be set to the 95th percentile value from distributions of historical requirements data for the previous two like Forward Reserve Procurement Periods for each applicable Reserve Zone. The percentile value will be evaluated as part of the auction parameters. In the event of a change in the configuration of the transmission system or the addition or retirement of a major generating resource, the 2nd contingency or the ERS values will be recalculated on a going forward basis (for use in future auctions) using modified assumptions that reflect actual performance of the reconfigured system.

[1] Should operating practice change in the future requiring a change to the applicable formulas, these changes will be brought before the Markets Committee for its review.

2.3 Determination of Forward Reserve Threshold Price

Market Participants with Forward Reserve Resources must offer corresponding Blocks of energy associated with these Resources at or above the Forward Reserve Threshold Price in order for the Forward Reserve assigned to these Resources to qualify as meeting the Market Participants' Forward Reserve Obligation. The formula for determining the Forward Reserve Threshold Price is fixed for the duration of a Forward Reserve Procurement Period. The Forward Reserve Threshold Price changes daily with fuel price indices. In successive auctions, the ISO will reevaluate the Forward Reserve Threshold Price formula on the basis of experience, expected operating conditions and other relevant information.

The Forward Reserve Threshold Price is calculated as the product of the Forward Reserve Heat Rate and the Forward Reserve Fuel Index. The calculation of the Forward Reserve Threshold Price is described in Section III.9.6.2 of Market Rule 1. The Forward Reserve Threshold Price shall not exceed $1,000/MWh, consistent with the Supply Offer and Demand Bid price limitation specified in Market Rule 1.

The Forward Reserve Heat Rate is fixed in the notice of the auction. It does not change during a Forward Reserve Procurement Period. The Forward Reserve Heat Rate will be specified for each successive auction.

The Forward Reserve Fuel Index used for the purposes of calculating the Forward Reserve Threshold Price is a daily index applicable to the New England Control Area as specified in Section III.9.6.2 of Market Rule 1.

The ISO will provide notice to Market Participants at least twenty (20) business days prior to a Forward Reserve Auction of the proposed components of the Forward Reserve Threshold Price (the proposed fixed heat rate and fuel index) for the next Forward Reserve Auction. The ISO notice will provide an explanation of the factors used to determine the proposed Forward Reserve Threshold Price.

2.4 Forward Reserve Auction Timeline

A Forward Reserve Auction schedule for upcoming auctions will be provided on the ISO's website. Forward Reserve Auctions will be held in advance of the applicable Forward Reserve Procurement Period. Each Forward Reserve Procurement Period will have separate offers and separate clearing prices. The sequence of events for Forward Reserve Auctions is as follows:

(1) No later than twenty (20) business days before the auction-quoting period begins for the applicable Forward Reserve Procurement Period, the ISO will publish the Forward Reserve Requirement for each Reserve Zone and the Forward Reserve Heat Rate to be used to calculate the Forward Reserve Threshold Price. In exigent circumstances, the ISO may publish revisions to the Forward Reserve Requirements and Forward Reserve Heat Rate on its website during the twenty business days prior to the auction-quoting period for use in the Forward Reserve Auction.

(2) Beginning ten (10) business days before the first business day of the month preceding the applicable Forward Reserve Procurement Period, the ISO opens a five (5) business day auction-quoting period. Market Participants may then submit offers to sell Forward Reserve that are specific to a Reserve Zone and that are applicable to the Forward Reserve Delivery Period.

(3) Within five (5) business days of the quoting period closing, or such later time as may be approved by the ISO Board, the ISO performs the Forward Reserve Auction clearing analysis and posts the Forward Reserve Clearing Prices and the Forward Reserve megawatts cleared for each Reserve Zone. The ISO will also perform a simulated Forward Reserve Auction to calculate and post the TMNSR and TMOR proxy system clearing prices for the purposes of cost allocation.

Following the posting of the auction results, Market Participants may begin submitting information related to Internal Bilateral Transactions for Forward Reserve and assignments of Forward Reserve Obligations to Forward Reserve Resources. Internal Bilateral Transaction information must be submitted prior to 1700 hours (prevailing Eastern Time) on the second (2^{nd}) Business Day after the applicable Operating Day within the Forward Reserve Procurement Period. Assignment of Forward Reserve Obligations to specific Forward Reserve Resources may occur at anytime prior to the applicable Operating Day within the Forward Reserve Procurement Period.

2.5 Forward Reserve Auction Offers

Forward Reserve Auction Offers are submitted on a portfolio basis and thus specific physical Resources are not identified prior to the auction. Forward Reserve Auction Offers must specify the following:

(1) The Reserve Zone the offer is applicable to;

(2) For each reserve category (TMNSR and TMOR) a set of Forward Reserve Auction Offers in the form of MW and $/MW-Month amounts. Up to 20 such offer Blocks are permitted per offer per reserve category. Each Block must be at least 1 MW in size and in ascending $/MW-Month cost order.

Only Market Participants may submit Forward Reserve Auction Offers into the Forward Reserve Auction and Forward Reserve Auction Offers cannot exceed the Forward Reserve Offer Cap.

2.6 Forward Reserve Auction Clearing

Forward Reserve Auction Offers will be evaluated using auction clearing software that utilizes an optimization program with the objective function of minimizing the total cost of the Forward Reserve procured to meet the Forward Reserve Requirement based on Forward Reserve Auction Offers, subject to a shortage penalty that is equal to the Forward Reserve Offer Cap. Forward Reserve Clearing Prices for TMNSR and TMOR will be calculated for each Reserve Zone on a simultaneous basis. The Forward Reserve Clearing Prices for each Reserve Zone represent the marginal costs to meet the Forward Reserve requirement, similar to the manner in which LMPs are calculated.

The auction clearing software may use higher quality TMNSR to meet TMOR requirements when it is economical to do so within the applicable Reserve Zones. The auction clearing software also utilizes excess TMNSR and TMOR in one Reserve Zone to meet the TMNSR and TMOR requirements in another Reserve Zone provided that there are no constraints that prevent the excess TMNSR and TMOR from being delivered to that Reserve Zone. As a result, price cascading ensures that the Forward Reserve Clearing Price for TMNSR in a Reserve Zone is always greater than or equal to the Forward Reserve Clearing Price for TMOR in that Reserve Zone.

Additionally, the auction may clear partial amounts of a Market Participant's Forward Reserve Auction Offer to meet the applicable Forward Reserve Requirement. If more than one marginal Forward Reserve Auction Offers contain the same offer prices at a location, the offers will be cleared pro-rata based upon the megawatts of Forward Reserve submitted.

2.6.1 Insufficient Forward Reserve Auction Offer Amounts

In the event that the total Forward Reserve Auction Offer MW amount available to a Reserve Zone is insufficient to satisfy the Forward Reserve requirement (as defined in Section 2.2.5 above), the Forward Reserve Clearing Price for that Reserve Zone is set equal to the Forward Reserve Offer Cap.

Section 3: Assignment of Forward Reserve Obligations

Welcome to the *Assignment of Forward Reserve Obligations* Section of the ***ISO New England Manual for Forward Reserve***. In this Section you will find the following information:

- A description of the process required for assignment of Forward Reserve Obligations to eligible Resources
- Forward Reserve Resource eligibility requirements
- Performance Audit requirements

3.1 Forward Reserve Obligation Assignment

A Market Participant with Forward Reserve Obligation obtained as a result of a Forward Reserve Auction must convert that Forward Reserve Obligation into Resource specific Forward Reserve Obligations by assigning Forward Reserve to its Forward Reserve Resources (see Section 3.2 for eligibility requirements). This Resource specific assignment of Forward Reserve must be completed as provided under Market Rule 1 Section III.9.5.1 by the Lead Market Participant for the Resource(s).

3.1.1 Ownership Share in Forward Reserve Resource

A Market Participant may only fulfill its Forward Reserve Obligation by assigning Forward Reserve to Forward Reserve Resource(s) in which the Market Participant has an Ownership Share. The status of a Market Participant as an affiliate of another Market Participant that has an Ownership Share in a Forward Reserve Resource is not taken into consideration in determining whether the Market Participant has satisfied its Forward Reserve Obligation. If a Market Participant with a Forward Reserve Obligation does not have an Ownership Share in a Forward Reserve Resource, the Market Participant may transfer its Forward Reserve Obligation through an Internal Bilateral Transaction. In the event that more than one Market Participant has an Ownership Share in a Forward Reserve Resource, the Forward Reserve assigned to that Resource will be allocated pro-rata by Ownership Share.

3.1.2 Internal Bilateral Transactions for Forward Reserve

Market Participants may enter into hourly Internal Bilateral Transactions for Forward Reserve on a daily basis. Internal Bilateral Transactions for Forward Reserve must be entered by the buyer and subsequently confirmed by the seller through the Market User Interface prior to 1700 hours (prevailing Eastern Time) on the second (2^{nd}) Business Day after the applicable Operating Day. See the ***ISO New England User Guide for submitting Internal Bilateral Transactions via SMS*** for additional information regarding submittal of Internal Bilateral Transactions for Forward Reserve.

3.2 Forward Reserve Resource Eligibility

Forward Reserve Resources are off-line or on-line Resources that have been assigned Forward Reserve by Market Participants to meet their Forward Reserve Obligations. To be eligible as a Forward Reserve Resource, a Resource must satisfy the criteria specified in Section III.9.5 of Market Rule 1. Note that the Resource; (a) is not required to have a Capacity Supply Obligation, and (b) the portion of the Resource assigned to provide Forward Reserve must not be supporting an External Transaction sale, both as described in Section III.9.5.2(a)(iv) of Market Rule 1. Furthermore, that portion of a Resource to which a Forward Reserve Obligation is assigned must be offered into the Real-Time Energy Market to be eligible for assignment. A Resource without a Real-Time offer will have zero Qualifying Megawatts, which could result in a Failure-to-Reserve penalty if an assignment is made to such a Resource.

External Resources will be permitted to participate in the Forward Reserve Market when the respective Control Areas implement the technology and processes necessary to support recognition of Operating Reserve from External Resources.

3.3 Forward Reserve Resource Performance Audits

Forward Reserve Resources are subject to all the Resource performance audits and testing as described in Section III.9.5 of Market Rule 1.

Section 4: Delivery of Forward Reserve

Welcome to the *Delivery of Forward Reserve* Section of the ***ISO New England Manual for Forward Reserve***. In this Section you will find the following information:

- An overview description of how the amount of delivered Forward Reserve is determined
- Mitigation of Forward Reserve Resource Supply Offers

4.1 Overview of Forward Reserve Delivery Accounting

In order to be eligible to receive Forward Reserve Credits, Market Participants must successfully deliver their Forward Reserve Resource's capability to the Real-Time Energy Market by offering such capability as Supply Offers or Demand Bids at or above the Forward Reserve Threshold Price. In the case of Supply Offers, offering at or above the Forward Reserve Threshold Price should provide a high probability that the generating Resource will not be producing Energy, thus allowing the Resource to supply the delivered reserve megawatts when needed. In the case of Demand Bids, offering at or above the Forward Reserve Threshold Price should provide a high probability that the Dispatchable Asset Related Demand Resource will be consuming Energy at is Maximum Consumption Limit, thus allowing the Resource to supply the delivered reserve megawatts when needed. The Forward Reserve Resource is then scheduled, dispatched, operated and accounted for in accordance with ISO New England System Rules in the same manner as other Resources.

The amount of Forward Reserve Delivered Megawatts associated with a Forward Reserve Resource is dependent upon the amount of Forward Reserve Qualifying Megawatts (amount of capability offered at or above the Forward Reserve Threshold Price), the amount of Forward Reserve the Resource is actually capable of providing (available megawatts) and the Forward Reserve Assigned Megawatts. Please see the ***ISO New England Manual for Market Rule 1 Accounting, M-28*** for details concerning the calculation of qualifying megawatts and delivered megawatts.

4.2 Mitigation of Forward Reserve Resource Offers

The Internal Market Monitor will receive information that will identify Forward Reserve Resources, the Forward Reserve Threshold Price and the assigned Forward Reserve Obligation. Prior to mitigation of Supply Offers or Demand Bids associated with a Forward Reserve Resource, the Internal Market Monitor shall consult with the Market Participant in accordance with Market Rule 1, *Appendix A*, Section III.A.3. The Internal Market Monitor and the Market Participant shall consider the impact on meeting any Forward Reserve Obligations in those consultations. If mitigation is imposed, any mitigated offers shall be used in the calculation of qualifying megawatts under Section III.9.6.4 of Market Rule 1 and Section 2.2.1 of the ***ISO New England Manual for Market Rule 1 Accounting, M-28***.

Section 5: Non-Delivery Consequences

Welcome to the *Non-Delivery Consequences* Section of the ***ISO New England Manual for Forward Reserve***. In this Section you will find the following information:

- Consequences of failing to reserve Forward Reserve
- Consequences of failing to activate Forward Reserve

Market Participants that fail to reserve an amount of Forward Reserve that is equal to their Forward Reserve Obligation are subject to forfeiture of Forward Reserve Credits and penalties. Market Participants that fail to activate the amount of Forward Reserve delivered when requested by the ISO in Real-Time are subject to penalties. These consequences are generally described in the following Sections. Please see the ***ISO New England Manual for Market Rule 1 Accounting, M-28***, for detailed calculations.

5.1 Failure-to-Reserve Consequences

A failure-to-reserve occurs when the total of a Market Participant's Forward Reserve Delivered Megawatts are less than that Market Participant's Forward Reserve Obligation. Under these circumstances the Market Participant pays a penalty for the Forward Reserve Failure-to-Reserve Megawatts. Please see Section III.9 of Market Rule 1 for calculation details regarding Forward Reserve Failure-to-Reserve Megawatts and penalty charges.

5.2 Failure-to-Activate Consequences

Market Participants with Forward Reserve Resources that fail to activate their delivered Forward Reserve per Dispatch Instructions are required to pay a performance penalty calculated pursuant to Section III.9 of Market Rule 1.

5.2.1 Failure-to-Activate Determination

A failure-to-activate is determined using the criteria as specified in Section III.9.7.2 of Market Rule 1.

Failure-to-Activate determination in Real-Time will be made on the basis of telemetered instantaneous MW values.

5.2.2 Further Consequences of Failure-to-Activate

A Market Participant's Forward Reserve Resource that fails to activate its delivered Forward Reserve will have its reserve related Offer Data parameters adjusted in accordance with Section III.9.7 of Market Rule 1. These adjusted parameters will be used on a going forward basis for the purposes of calculating that Resource's qualifying, available and delivered megawatts (see Section 2 of the ***ISO New England Manual for Market Rule 1 Accounting, M-28*** for calculation details) until such time that these parameters are subsequently modified in accordance with Sections III.1.11.3(c), III.9.7.2 and III.9.7.3 of Market Rule 1. In the case of a Forward Reserve Resource that is a Fast Start Generator that fails to activate Forward Reserve through a Failure to Start, the Resource's Forward Reserve Delivered Megawatts shall be set to zero in each subsequent hour in the applicable Forward Reserve Service Period until the Market Participant notifies the ISO that the Forward Reserve Resource is capable of providing the Forward Reserve Delivered Megawatts. In the case of a Forward Reserve Resource that fails to activate by virtue of starting but not achieving the desired level of operation consistent with its Offered CLAIM10, Offered CLAIM30, or redeclared CLAIM10 or CLAIM30 parameters, the ISO may adjust the Resource's Offer Data parameters to be consistent with actual performance. Consequently, a Market Participant may also incur a Forward Reserve Failure-to-Reserve Penalty as a direct result of the reduction in delivered Forward Reserve associated with that Market Participant's Forward Reserve Resource that failed to activate. If a Market Participant has assigned Forward Reserve megawatts in excess of that Market Participant's Forward Reserve Obligation and this excess is greater than or equal to the reduction in that Market Participant's Forward Reserve Resource's delivered megawatts, no Forward Reserve Failure-to-Reserve Penalty will be incurred as a result of the Forward Reserve Resource delivered megawatt reduction.

Section 6: Forward Reserve Market Settlement

Please see the ***ISO New England Manual for Market Rule 1 Accounting, M-28*** for Forward Reserve Market settlement calculation details.

Revision History

Approval

Approval Date: October 3, 2003
Effective Date: November 1, 2003

Revision History

Revision: 1 - Approval Date: June 28, 2004

Section No.	Revision Summary
Entire Manual	revised to reflect RTO terminology and to reflect the Market Rule 1 and Transmission Markets and Service Tariff provisions filed with the FERC (e.g., the elimination of Internal Point-to-Point Transmission Service).

Revision: 2 - Approval Date: March 11, 2005

Section No.	Revision Summary
1.1	Deletes "monthly" from the first paragraph to reflect weekly billing process.
2.4.3(3)	Adds language clarifying the amounts cleared in the Forward Reserve Auction.
3.1.1	Revises language to clarify that Resources must be listed as ICAP Resources during the Forward Reserve Service Period.
3.3.7	Replaces the word "done" with "calculated".
3.3.7.1&2	Language is added to state that Delivered Off-Line Forward Reserve cannot exceed the Resource's Claim 10 and Claim 30 values.
	The following revisions are contingent upon FERC acceptance of corresponding revisions to Market Rule 1 to be filed by the ISO.
3.1.2	Clarifies the dispatch control requirement by specifically referring to eligibility to submit Supply Offers and inclusion of the Resource in the ISO Settlement Market System (SMS).
4.1.1&2	Adds language to provide for Partial Planned Outage Treatment.

Revision: 3 - Approval Date: May 6, 2005

Section No.	Revision Summary
3.3.3	Revises title of Section 3.3.3 and text within Section 3.3.3 to use "Internal Market Monitoring Unit" instead of "Market Monitoring Unit".

Revision: 4 - Approval Date: May 27, 2005

Section No.	Revision Summary
3.1.1	Revises the section "ICAP Resource Requirement" to reflect the existence of partially de-listed Resources.

Revision: 5 - Approval Date: September 9, 2005	
Section No.	Revision Summary
3.3.4 & 3.3.6.1……	References to Section 5 of M-28 are replaced by references to Appendix F to Market Rule 1.

Revision: 6 - Approval Date: October 14, 2005	
Section No.	Revision Summary
3.3.1 & 3.3.6.1……	Replaces the term "Operating Reserve" with "NCPC".
4.4.1……...	Replaces the term "Daily RMR Resource" with "Local Second Contingency Protection Resource".

Revision: 7 - Approval Date: June 2, 2006	
Section No.	Revision Summary
Entire Manual rewritten to reflect ASM Phase II subjects which include the Locational Forward Reserve Market, Real-Time Reserve Clearing Prices, and Asset Related Demands.	

Revision: 8 - Approval Date: March 2, 2007	
Section No.	Revision Summary
List of Figures And Tables….	Adds "ISO New England Business Procedures" to the Table 1.1 title.
Introduction…	Adds "ISO New England Business Procedures" to this section.
Table 1.1……	Adds "ISO New England Business Procedures" to the title and adds "Ancillary Service Schedule No. 2 Business Procedure" to the Transmission column.
5.1……...	Defines the ISO approved annual maintenance schedule as of September 30 for the winter period and the ISO approved annual maintenance schedule as of May 31 for the summer period for the purpose of determining a Forward Reserve Failure-to-Reserve Penalty.

Revision: 9 - Approval Date: December 7, 2007	
Section No.	Revision Summary
3.2…….	Deletes subsections (a), (b), (c), (d), (e), (f), (g) and (h).
3.3……...	Revises the sentence to include a reference to Section III.9.5 of Market Rule 1.
4.3……...	Deletes this section in its entirety.

Revision: 10 - Approval Date: September 5, 2008	
Section No.	Revision Summary
3.1……...	Clarifies the time when Resource specific assignment of Forward Reserve must be completed and who must perform the specific assignment.
3.1.1……	Adds a new subsection titled Ownership Share in Forward Reserve Resource.
3.1.2……	Adds a new subsection titled Internal Bilateral Transactions for Forward Reserve.
5.1 & 5.2……	Replaces the reference to ISO New England Manual for Market Rule 1 Accounting, M-28 with a reference to Section III.9 of Market Rule 1.

Revision: 11 - Approval Date: May 7, 2010

Section No.	Revision Summary
Entire Manual revised to reflect the Forward Capacity Market as contained in Section III.13 of Market Rule 1.	

Revision: 12 - Approval Date: November 18, 2010

Section No.	Revision Summary
3.3, 5.2.1 & 5.2.2	Replaces the reference to ISO New England Manual for Market Operations, M-11 with a reference to ISO New England Manual for Registration and Performance Auditing, M-RPA.

Revision: 13 - Approval Date: January 7, 2011 and April 1, 2011

Section No.	Revision Summary
This set of revisions was approved on January 7, 2011	
2.2.1	Deletes the phrase "to ensure that delivery of Forward Reserve is distributed reliably throughout the ISO New England Transmission System" in the fourth sentence.
2.2.2.1	Deletes this Section (Rest-of-System Reserve Zone Minimum Requirements) in its entirety.
2.2.4(c)	Deletes the load shed information contained in the term "30ACT".
2.2.6	Deletes this Section (Indicative Local Forward Reserve Requirement Values) in its entirety.
2.2.7	Deletes this Section (Adjustments to Forward Reserve Requirements) in its entirety.
2.4	Deletes Exhibit 2.1: Forward Reserve Auction Timeline – 2006/2007 Winter Procurement Period.
2.6.2	Deletes this Section (Forward Reserve Auction Example) in its entirety.
3.2	Revises "Failure-To-Deliver" to "Failure-to-Reserve" in the fifth sentence.
5.1	Deletes the second sentence regarding the exemption from the Failure-to-Reserve penalty for resources that are on the ISO's approved annual maintenance outage.
This set of revisions was approved on April 1, 2011	
2.4	Deletes the third paragraph regarding Exhibit 2.1 (Exhibit 2.1 was deleted in a previous edit to the Manual).
2.4(3)	Added provisions for the calculation and posting of the proxy prices for the purposes of Forward Reserve Market cost allocation.

Revision: 14 - Approval Date: May 4, 2012

Section No.	Revision Summary
2.3 & 2.4(1)	Revises these two sections to reflect the change of the Forward Reserve Threshold Price and Forward Reserve Fuel Index to be a daily value instead of a monthly value.

Revision: 15 - Approval Date: April 5, 2013

Section No.	Revision Summary
2.2.2	Revises this section to point to Section III.9.2.1 of Market Rule 1 for the calculation of the amount of the Forward Reserve requirement to be procured in the auction for the New England Control Area and deletes the actual language contained in Section III.9.2.1 of Market Rule 1.

Revision: 16 - Approval Date: June 7, 2013

Section No.	Revision Summary
3.3	Deletes reference to Section 5 of ISO New England Manual M-RPA (Registration and Performance Auditing).
5.2.1	Replaces reference to Section 5 of ISO New England Manual M-RPA (Registration and Performance Auditing) with a Market Rule 1 cross reference.
5.2.2	Deletes reference to Section 5 of ISO New England Manual M-RPA (Registration and Performance Auditing). Clarifies Offered CLAIM10, Offered CLAIM30, redeclared CLAIM10 and redeclared CLAIM30 parameters.

Revision: 17 - Approval Date: November 2, 2012

Section No.	Revision Summary
4.2	Replaces "Internal Market Monitoring Unit" with "Internal Market Monitor".

Revision: 18 - Approval Date: June 7, 2012

Section No.	Revision Summary
5.2	Revises the sentence to refer to Section III.9 of Market Rule 1 for the performance penalty calculation.
5.2.1	Revises the Market Rule 1 reference from "Section III.9.5.3" to "Section III.9.7.2" for the specific Failure-to-Activate Tariff section. Deletes descriptive language that is not needed given the specific penalty calculation as specified in Market Rule 1.
5.2.2	Deletes descriptive language that is not needed given the specific penalty calculation as specified in Market Rule 1.

Revision: 19 - Approval Date: November 7, 2014

Section No.	Revision Summary
2.3 & 2.5(2)	Replaces "block" with "Block".
3.1	Revises the section to refer the reader to Market Rule 1 Section III.9.5.1 regarding the Resource specific assignment of Forward Reserve.

Revision: 20 - Approval Date: November 6, 2015

Section No.	Revision Summary
2.4	Revises the Internal Bilateral Transactions for Forward Reserve information submittal timeframe to "1700 hours (prevailing Eastern Time) on the second (2^{nd}) Business Day after the applicable Operating Day within the Forward Reserve Procurement Period".

3.1.2……..	Revises the Internal Bilateral Transactions for Forward Reserve information submittal and confirmation timeframe to "1700 hours (prevailing Eastern Time) on the second (2^{nd}) Business Day after the applicable Operating Day".