ISO New England Manual for

Forward Reserve and Real-Time Reserve

Manual M-36

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Prepared by
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ISO New England Manual for

Forward Reserve and Real-

Section 4: Delivery of Forward Reserve

Section 5: Non-Delivery Consequences

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List of Figures and Tables

References

The references to other documents that provide background or additional detail directly related to the ***ISO New England Manual for Forward Reserve and Real-Time 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

Forward Reserve

2.2.3 Local Forward Reserve Requirements

Consistent with ISO New England Operating Procedure 19 (OP-19) and the ISOôs 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

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 Participantsô 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

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.

Forward Reserve

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 and Real-Time 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.

Forward Reserve

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 and Real-Time 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 Resourceôs 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.

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

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Section 6: Forward Reserve and Real-Time Reserve Accounting

6.1 Forward Reserve and Real-Time Reserve Accounting Overview

The Forward Reserve Market is a market for the procurement of forward commitments for delivery of TMNSR and TMOR that is administered by the ISO. Market Participants submit portfolio-based offers to provide TMNSR and TMOR on a Reserve Zone basis. The ISO clears the Forward Reserve Market based on the portfolio offers submitted and the Forward Reserve Requirement. There is a separate Forward Reserve Auction held each year for the summer and winter Forward Reserve Procurement Period.

A Market Participant whose offers have cleared in the Forward Reserve Auction receives a Forward Reserve Obligation that is equal to that Market Participantôs amount of cleared TMNSR and/or TMOR in the auction. These obligations are Reserve Zone specific. These Market Participant obligations are then adjusted by any Internal Bilateral Transactions for Forward Reserve. For each day of the Forward Reserve Procurement Period, Market Participants must assign their Forward Reserve Obligations to eligible Forward Reserve Resources such that, in aggregate, the total assigned TMNSR and TMOR megawatts are equal to or greater than the Market Participantôs Reserve Zone specific obligations. Market Participants that fail to reserve sufficient Forward Reserve to meet their Forward Reserve Obligations in the Real-Time Energy Market are penalized for the megawatts not reserved.

In addition to penalties for failure to reserve, a failure to activate penalty is also imposed on Forward Reserve Resources that fail to provide the energy associated with Forward Reserve Delivered Megawatts when requested to activate by the ISO in real-time.

Market Participants are paid based upon their Final Forward Reserve Obligations, such obligations accounting for the failure to reserve in the Real-Time Energy Market, and the applicable Forward Reserve Payment Rate.

During each hour of the Operating Day, generally on a 5-minute periodicity, the ISO designates TMSR, TMNSR and TMOR to available Resources to meet the Operating Reserve Requirement in Real-Time. Real-Time Reserve Designations can occur on any available eligible Resource, including a Forward Reserve Resource.

Market Participants with Resources that are designated by the ISO as providing TMSR, TMNSR, and/or TMOR are paid based on the designated amounts and the applicable Real-Time Reserve Clearing Price. Compensation is paid to the extent that the amounts designated exceed in MW quantitycs35OrQ in Reants with eTime.

Market Participants are charged a share of Forward Reserve costs and Operating Reserve costs in Real-Time attributable to each Load Zone based upon their Real-Time Load Obligations (as adjusted to account for Real-Time Reserve Designations relating to Dispatchable Asset Related Demand) within each Load Zone.

Forward Reserve and Real

Example: Calculation of Real-Time Supply Offer prices for Off-Line Forward Reserve Resource used for determination of qualifying megawatts:

Assumptions

Forward Reserve Threshold Price for the operating day	110	$/MWH
Number of Offer Blocks	4	
Real-Time Cold Start-up Fee	2000	$/start
Real-Time No-Load Fee	800	$/hr
Real-Time Economic Maximum	80	MW

Calculations

Pro-rated No-Load and Start-up Fees	35	$/MWH

	Offer Block			
	1	2	3	4
Energy Block Size (MW)	25	20	20	15
Real-Time Energy Offer ($/MWH)	70	75	110	115
No-Load and Start-up Fees	35	35	35	35
Real-Time Off-Line Energy Price				

The effective Real-Time On-Line Energy Offer (i) = The effective Real-Time Energy Offer (i), where

The effective Real-Time Energy Offer (i) = the on-line Resource's Real-Time Energy Offer or Demand Bid for Energy Offer Block (i)

(3) The ISO calculates Forward Reserve Qualifying Megawatts for each Forward Reserve Resource applicable for each Reserve Zone for each hour of the Operating Day as follows.

For off-line Forward Reserve Resource Generators:

Forward Reserve Qualifying Megawatts = Real-Time Economic Maximum Limit – maximum of (Non-Qualifying Energy Blocks, RT offer External Transaction Sale MW) where:

Non-Qualifying Energy Blocks = total of Energy Blocks with Real-Time Off-Line Energy Price (i) that is less than the Forward Reserve Threshold Price for the Operating Day.

For on-line Forward Reserve Resource Generators:

Forward Reserve Qualifying Megawatts = Real-Time Economic Maximum Limit – the effective Real-Time Economic Minimum Limit (Self-Scheduled MW), - Non-Qualifying Energy Blocks, where:

Non-Qualifying Energy Blocks = total of Energy Blocks above maximum of (Real-Time Economic Minimum Limit, RT offer External Transaction Sale MW) with Real-Time On-Line Energy Price (i) that is less than the Forward Reserve Threshold Price for the Operating Day.

For Dispatchable Asset Related Demand:

Forward Reserve Qualifying Megawatts = Real-Time Maximum Consumption Limit – Real-Time Minimum Consumption Limit - Non-Qualifying Energy Blocks, where:

Non-Qualifying Energy Blocks = total of Real-Time Energy Blocks above Real-Tim

determined based on the Resourceôs ramp rate as adjusted for performance or Redeclarations. For Dispatchable Asset Related Demand Forward Reserve Resources, the reserve capability is determined using the CLAIM10 or CLAIM30 value.

6.2.2.1 ISO ACTIONS

(1) The ISO calculates for each Reserve Zone each Forward Reserve Resourceôs Forward Reserve Available Megawatts for each hour of the Operating Day in Settlement Precedence Order as follows. The following diagram shows the Settlement Precedence Order:

Exhibit 6.1: Forward Reserve Available Megawatts Settlement Precedence Order

For off-

Forward Reserve and Real

6.2.3.1 ISO ACTIONS

(1) The ISO calculates for each Reserve Zone each Forward Reserve Resourceôs Forward Reserve Delivered Megawatts for TMNSR for each hour of the Operating Day as follows:

Forward Reserve Delivered Megawatts for TMNSR = minimum of (Forward Reserve Assigned Megawatts for TMNSR, Forward Reserve Available Megawatts for TMNSR)

(2) The ISO calculates for each Reserve Zone each Forward Reserve Resourceôs Forward Reserve Delivered Megawatts for TMOR for each hour of the Operating Day as follows:

Forward Reserve Delivered Megawatts for TMOR = minimum of (Forward Reserve Assigned Megawatts for TMOR, Forward Reserve Available Megawatts for TMOR)

(3) The ISO calculates for each Reserve Zone for each hour of the Operating Day each Market Participantôs Forward Reserve Delivered Megawatts for TMNSR by summing all of that Market Participantôs Resource related Forward Reserve Delivered Megawatts for TMNSR, taking into account that Market Participantôs Ownership Share in each Resource;

(4) The ISO calculates for each Reserve Zone for each hour of the Operating Day each Market Participantôs Forward Reserve Delivered Megawatts for TMOR by summing all of that Market Participantôs Resource related Forward Reserve Delivered Megawatts for TMOR, taking into account that Market Participantôs Ownership Share in each Resource;

6.2.4 Final Forward Reserve Obligation

A Market Participantôs Final Forward Reserve Obligation for each hour of the Operating Day, as calculated for each Reserve Zone, are the values used to calculate Forward Reserve Credits. A Market Participantôs Final Forward Reserve Obligation may be less than that Market Participantôs Forward Reserve Obligation if that Market Participant fails to reserve sufficient Forward Reserve to meet its Forward Reserve Obligation6(w)-Is550059>6004840003>790320

where IBT purchases and Market Participant Forward Reserve Obligation for TMNSR are positive values and IBT sales are negative values;

(2) The ISO calculates, for each Reserve Zone and for each hour of the Operating Day, each Market Participantôs Final Forward Reserve Obligation for TMNSR:

Market Participant Final Forward Reserve Obligation for TMNSR = minimum of (Market Participant Forward Reserve Obligation for TMNSR, Market Participant Forward Reserve Delivered Megawatts for TMNSR);

(3) The ISO calculates, for each Reserve Zone and for each hour of the Operating Day, each Market Participantôs Forward Reserve Obligation for TMOR to account for Internal Bilateral Transactions for Forward Reserve:

Market Participant Forward Reserve Obligation for TMOR = Market Participant Forward Reserve Obligation for TMOR from Forward Reserve Auction + Market Participant IBT purchases of Forward Reserve Obligations for TMOR + Market

6.3 Failure-to-Reserve and Failure-to-Activate Megawatts

If a Market Participant fails to reserve sufficient Forward Reserve in the Real-Time Energy Market to meet its Forward Reserve Obligation, a Forward Reserve Failure-to-Reserve Penalty is assessed for each hour of the Operating Day during which failure-to-reserve occurs. A Forward Reserve Failure-to-Activate Penalty is assessed if a Market Participantôs Forward Reserve Resource fails to provide the energy associated with that Resourceôs Forward Reserve Delivered Megawatts when activated by the ISO in any hour of the Forward Reserve Delivery Period during an Operating Day. The ISO determines Forward Reserve Failure-to-Reserve Megawatts and Forward Reserve Failure-to-Activate Megawatts as follows:

6.3.1 ISO Actions for Failure-to-Reserve Megawatts

The ISO calculates, for each Reserve Zone and for each hour of the Operating Day, each Market Participantôs Forward Reserve Failure-to-Reserve Megawatts for TMNSR and for TMOR. (See Market Rule 1 Section III.9 for Failure-to-Reserve Megawatt calculations.)

6.3.2 ISO Actions for Failure-to-Activate Megawatts

The ISO calculates for each hour of the Operating Day, the Forward Reserve Failure-to-Activate MW for each Forward Reserve Resource for which the failure-to-activate flag is set to ñYesò. (See Section 5 of this manual for details regarding determination of failure-to-activate, and Market Rule 1 Section III.9 for Failure-to-Activate Megawatts calculations.)

Forward Reserve and Real

6.5 Reserve Related Credits and Forward Reserve Obligation Charges

The ISO uses the previously calculated amounts in Sections 6.2 and 6.4 of this manual along with Forward Reserve Clearing Prices and Real-Time Reserve Clearing Prices to calculate Market Participant Forward Reserve and Real-Time Reserve Credits. The ISO calculates these credits as follows:

6.5.1 Forward Reserve Credits

The ISO calculates credits associated with Final Forward Reserve Obligations as follows:

6.5.1.1 ISO ACTIONS

(1)

Reserve Zone Forward Reserve Credits = sum of all Market Participants' Forward

Reserve Zone Real-

This calculation is performed for each Resource to which the Market Participant assigned a Forward Reserve Obligation and in which the Market Participant has an Ow0(a)t 37.8ship Ohre

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6.6 Reserve Related Charges

The ISO allocates the total payments and penalty charges associated with Forward Reserve and the total payments associated with Real-Time Operating Reserve to Market Participants based on Real-Time Load Obligations within the applicable Load Zone. The total costs attributed to each Load Zone are calculated based upon the Forward Reserve and Operating Reserve load weighted clearing price ratios associated with meeting Reserve Zone specific Forward Reserve Requirements and Reserve Zone specific Real-Time Operating Reserve Requirements and the total credits associated with provision of Forward Reserve and Real-Time Operating Reserve within each Load Zone.

Calculation and allocation of penalty charges for failure-to-deliver and failure-to-activate Forward Reserve, allocation of Forward Reserve Credits and Real-

Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMNSR = sum of all Market Participants' Forward Reserve Failure-to-Reserve Penalties for TMNSR within that Reserve Zone;

(4) The ISO calculates for each Reserve Zone, the sum of all Market Participantsô Forward Reserve Failure-to-Reserve Penalties for TMOR:

Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMOR = sum of all Market Participants' Forward Reserve Failure-to-Reserve Penalties for TMOR within that Reserve Zone;

(5) The ISO calculates for each Reserve Zone, the sum of all Market Participantsô Failure-to-Reserve Penalties as:

Reserve Zone Forward Reserve Failure-to-Reserve Penalty = Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMNSR + Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMOR;

6.6.1.2 ISO ACTIONS FOR FAILURE-TO-ACTIVATE

(1) The ISO calculates for each Reserve Zone, each Resourceôs Forward Reserve Failure-to-Activate Penalty as:

*Resource Forward Reserve Failure-to-Activate Penalty for TMNSR = Forward Reserve Failure-to-Activate Megawatts for TMNSR * maximum of (2.25 * Forward Reserve Payment Rate for TMNSR, applicable nodal LMP) * (-1);*

(2) The ISO calculates for each Reserve Zone, each Market Participantôs Forward Reserve Failure-to-Activate Penalty for TMNSR by summing each Market Participantôs Forward Reserve Failure-to-Activate Penalties for TMNSR for each Resource taking each Market Participantôs Ownership Share of each Resource into account:

*Market Participant Forward Reserve Failure-to-Activate Penalty for TMNSR = sum (Resource Forward Reserve Failure-to-Activate Megawatts for TMNSR * Market Participant Ownership Share);*

(3) The ISO calculates for each Reserve Zone, each Resourceôs Forward Reserve Failure-to-Activate Charge for TMOR as:

*Resource Forward Reserve Failure-to-Activate Penalty for TMOR = Forward Reserve Failure-to-Activate Megawatts for TMOR * maximum of (2.25 * Forward Reserve Payment Rate for TMOR, applicable nodal LMP) * (-1);*

(4) The ISO calculates for each Reserve Zone, each Market Participantôs Forward Reserve Failure-to-Activate Penalty for TMOR by summing each e

*Market Participant Forward Reserve Failure-to-Activate Penalty for TMOR = sum (Resource Forward Reserve Failure-to-Activate Megawatts for TMOR * Market Participant Ownership Share);*

(5) The ISO calculates for each Reserve Zone, the sum of all Market Participantsô Forward Reserve Failure-to-

(2) The ISO calculates for each procurement period the rate associated with procuring TMOR Forward Reserve to meet only the system-wide reserve requirements as:

Forward Reserve Market TMOR Proxy Price = the TMOR Clearing Price as determined pursuant to Market Rule 1 Section III.9.9.1

(3) The ISO calculates for each hour of the Operating Day and for each procurement period the rate associated with procuring TMNSR Forward Reserve to meet only the system-wide reserve requirements adjusted for the FCA Capacity Clearing Price as:

Hourly Net Forward Reserve Market TMNSR Proxy Price = the maximum of (Forward Reserve Market TMNS

Pool Forward Reserve Market System Credit = minimum of (Pool Forward Reserve Market Proxy Credits, Total Forward Reserve Credits)

(2) The ISO calculates the remaining unallocated credits (i.e., the incremental costs above the cost to meet the system-wide reserve requirement) as:

Pool Forward Reserve Market Remaining Credit = Total Forward Reserve Credits - Pool Forward Reserve Market System Credit

(3) The ISO calculates the sum of all Market Participantsô Failure-to-Activate Penalties and Failure-to-Reserve Penalties as:

Pool Forward Reserve Market Penalty = sum of Reserve Zone Forward Reserve Failure-to-Activate Penalty for TMNSR + sum of Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMOR + sum of Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMNSR + sum of Reserve Zone Forward Reserve Failure-to-Activate Penalty for TMOR

(4) The ISO calculates for each Load Zone where the Forward Reserve Market Constrained Load Zone Flag = Yò, the sum of all Market Participantsô Forward Reserve Penalties as:

Constrained Load Zone Forward Reserve Penalty = sum of Reserve Zone Forward Reserve Failure-to-Activate Penalty for TMNSR + sum of Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMOR + sum of Reserve Zone Forward Reserve Failure-to-Reserve Penalty for TMNSR + sum of Reserve Zone Forward Reserve Failure-to-Activate Penalty for TMOR

(5) The ISO calculates the sum of all Forward Reserve Penalties in constrained Load Zones as:

Total Constrained Load Zone Forward Reserve Penalty = sum of Constrained Load Zone Forward Reserve Penalty

(6) The ISO calculates the sum of all Forward Reserve Penalties in unconstrained Load Zones as:

Total Unconstrained Load Zone Forward Reserve Penalty = Pool Forward Reserve Market Penalty - Total Constrained Load Zone Forward Reserve Penalty

(7) The ISO calculates for each Load Zone, the Forward Reserve penalties associated with the cost to meet the system-wide reserve requirements as:

If Pool Forward Reserve Market Remaining Credit > 0, then

*Pool Forward Reserve Market System Penalty = (Total Unconstrained Load Zone Forward Reserve Penalty + (Total Constrained Load Zone Forward Reserve Penalty * Pool Forward Reserve Market System Credits / Total Forward Reserve Credits)).*

Otherwise, Pool Forward Reserve Market System Penalty = Pool Forward Reserve Market Penalty

(8) The ISO calculates for each Market Participant and for each Load Zone, the Reserve Charge Allocation MWs as:

Reserve Charge Allocation MWs = sum of the Market Participant's Real-Time Load Obligation in the Load Zone (which includes the Market Participant's Real-Time Load Obligation associated with any Capacity Export Through Import Constrained Zone Transaction per Market Rule 1 Section III.1.10.7(f)(i) or with any FCA Cleared Export Transaction per Market Rule 1 Section III.1.10.7(f)(ii)) + sum of the Market Participant's Reserve Designation for ARDs in the Load Zone

(9) The ISO calculates for each Load Zone, the Load Zone Reserve Charge Allocation MWs as:

Load Zone Reserve Charge Allocation MWs = sum of all Market Participants' Reserve Charge Allocation MWs in the Load Zone

(10) The ISO calculates the Total Pool Reserve Charge Allocation MWs as:

Total Pool Reserve Charge Allocation MWs = sum of all Load Zone Reserve Charge Allocation MWs

(11) The ISO calculates the charge rate for the cost to meet the system-wide reserve requirement as:

6.6.2.4 ISO ACTIONS FOR CALCULATING CHARGES

For each hour of the Operating Day,

(1) The ISO calculates for each Market Participant and for each Load Zone, the charge related to the purchase of Forward Reserve to meet the system-wide reserve requirement as:

*Forward Reserve System Charge = Forward Reserve System Charge Rate * Reserve Charge Allocation MWs*

(2) The ISO calculates for each Market Participant and for each Load Zone, the charge related to the purchase of Forward Reserve above the costs to meet the system-wide reserve requirement as:

*Forward Reserve Incremental Charge = Load Zone Forward Reserve Incremental Charge Rate * Reserve Charge Allocation MWs*

(3) The ISO calculates for each Market Participant and for each Load Zone, the charges(e)4(, th)-11(e)4(c)4

*Load Zone Real-Time Rserve Clearing Price for TMNSR =[[the sum of (Real-Time Reserve Clearing Price for TMNSR * sum of all Market Participants' Real-Time Reserve Designations for TMNSR) as calculated for each Reserve Zone associated with the Load Zone] / [sum of all Market Participants' Real-Time Reserve Designations for TMNSR for all Reserve Zones associated with the Load Zone]*,

(3) The ISO calculates the Real-Time Reserve Price Ratio for TMNSR ($RT\_P\_RATIO_{TMNSR}$) for each Ld Z:

Load Zone $RT\_P\_RATIO_{TMNSR}$ = Load Zone Real-Time Reserve Clearing Price for TMNSR / minimum of (non-zero Load Zone Real-Time Reserve Clearing Prices for TMNSR),

(4) The ISO calculates, the total pool related price weighted load obligation for TMNSR ($RT\_P\_WTD\_LD\_OB_{TMNSR}$):

*$RT\_P\_WTD\_LD\_OB_{TMNSR}$ = the sum of (Load Zone $RT\_P\_RATIO_{TMNSR}$ * (sum of Market Participants' Reserve Charge Allocation Megawatts in that Load Zone) as calculated for all Reserve Zones,*

Where, Reserve Charge Allocation Megawatts for a Market Participant is equal to that Market Participant's Real-Time Load Obligation in that Load Zone (which includes the Market Participant's Real-Time Load Obligation associated with any Capacity Export Through Import Constrained Zone Transaction per Market Rule 1 Section III.1.10.7(f)(i) or with any FCA Cleared Export Transaction per Market Rule 1 Section III.1.10.7(f)(ii)), reduced by that Market Participant's Real-Time Reserve Designations associated with Dispatchable Asset Related Demands in that Load Zone;

(5) The ISO calculates, the charge rate for TMNSR ($RT\_CHRG\_RT_{TMNSR}$) for each Ld Z:

*Load Zone $RT\_CHRG\_RT_{TMNSR}$ = [$RT\_SUP\_PMNT_{TMNSR}$ / $RT\_P\_WTD\_LD\_OB_{TMNSR}$] * Load Zone $RT\_P\_RATIO_{TMNSR}$;*

(6) The ISO calculates each Market Participantôs Real-Time Reserve Charge for TMNSR for each Ld Ze as follows:

*Market Participant Load Zone Real-Time Reserve Charge for TMNSR = Load Zone $RT\_CHRG\_RT_{TMNSR}$ * Market Participant Reserve Charge Allocation Megawatts in the Load Zone;*

6.6.3.3 ISO ACTIONS FOR TMOR

(1) The ISO calculates, the total pool-related Real-Time Reserve Charge for TMOR ($RT\_SUP\_PMNT_{TMOR}$):

*$RT\_SUP\_PMNT_{TMOR}$ = (total of Reserve Zone Real-Time Reserve Credits for TMOR + total of all Reserve Zone Forward Reserve Obligation Charges for TMOR) * (-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 ñto ensure that delivery of Forward Reserve is distributed reliably throughout the ISO New England Transmission Systemò in the fourth sentence.
2.2.2.1	Deletes this Section (Rest-of-

Revision: 15 - Approval Date: April 5, 2013
Section No.

3.1.2 é é é ...	Revises the Internal Bilateral Transactions for Forward Reserve information submittal and confirmation timeframe to ñ1700 hours (prevailing Eastern Time)