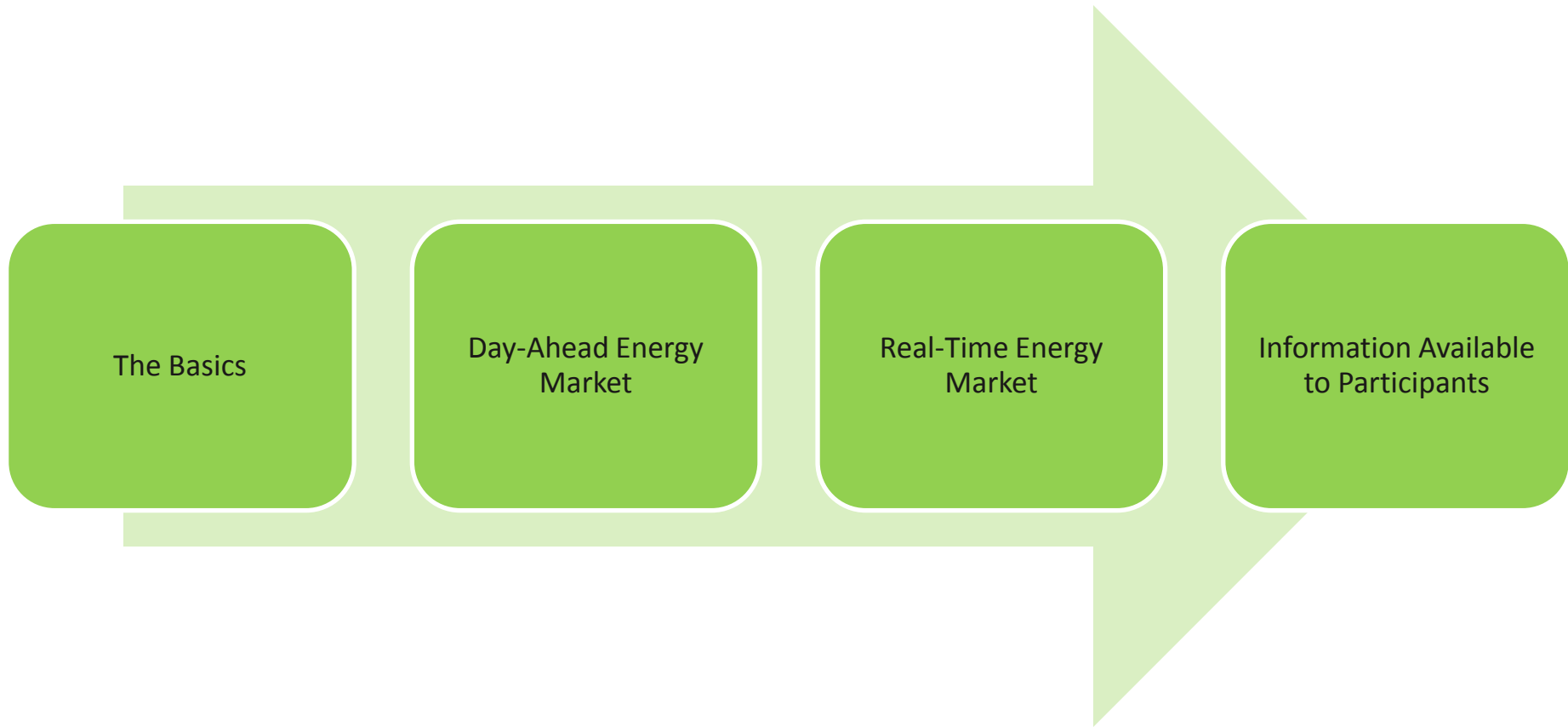


External Transactions

Michael Zeoli
Lead Analyst, System Operations Support

Topics Covered in this Module



What are External Transactions?

External Transactions (ET) provide Participants a means to move energy between Control Areas

- Energy can come into New England from anywhere
- Energy can move out of New England to anywhere

In the Day-Ahead (DA) Energy Market:

- ETs are a financial instrument and do not create physical energy flow
- ETs clearing the DA Energy Market have obligations in the Real-Time Market

For the energy to flow in Real-Time (RT):

- There must be a corresponding energy transaction in New England and the neighboring Control Area
- Where required, transmission reservations must be in place

Who Uses External Transactions?

Participants serving load in New England:

- May make arrangements with generation in another system
- May speculate to purchase energy off the NYISO spot market

Participants with generation assets in New England:

- May make arrangements to serve load in another system
- May speculate to sell energy in NYISO spot market

A Power Marketer may speculate on the price difference between energy Markets (NYISO versus ISO-NE for example)

Where are External Transactions Priced?

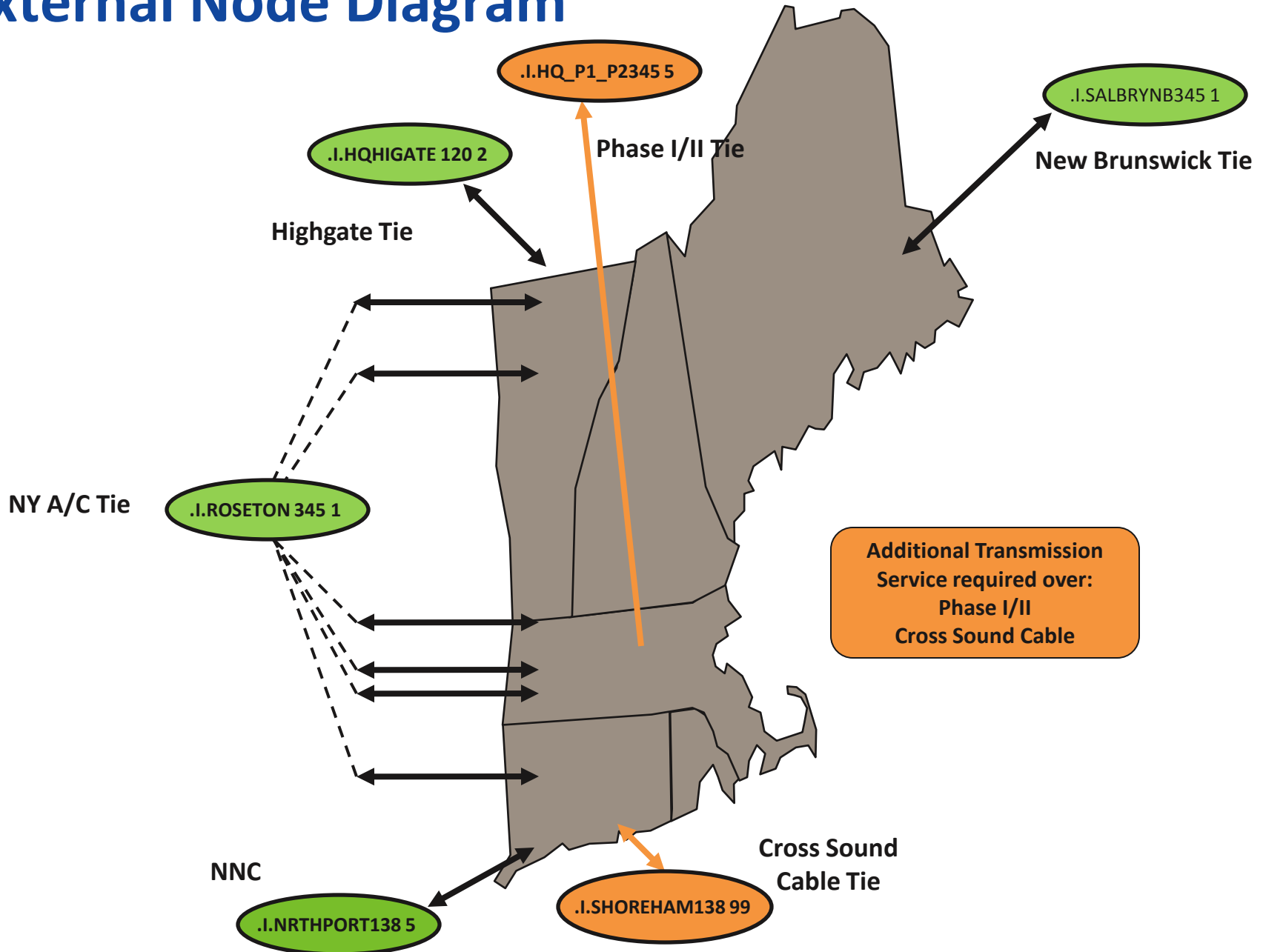
External Transactions occur at External PNodes

- External Nodes represent trading points between New England and neighboring control areas.
- External Nodes may represent a single transmission line or a group of transmission lines
- There may be multiple External Nodes with the same neighbor

Pricing at External PNodes occurs in the same manner as all other Pnodes

- The price at the External PNodes are based on the energy bids/offers within ISO New England, not on those in the neighboring system

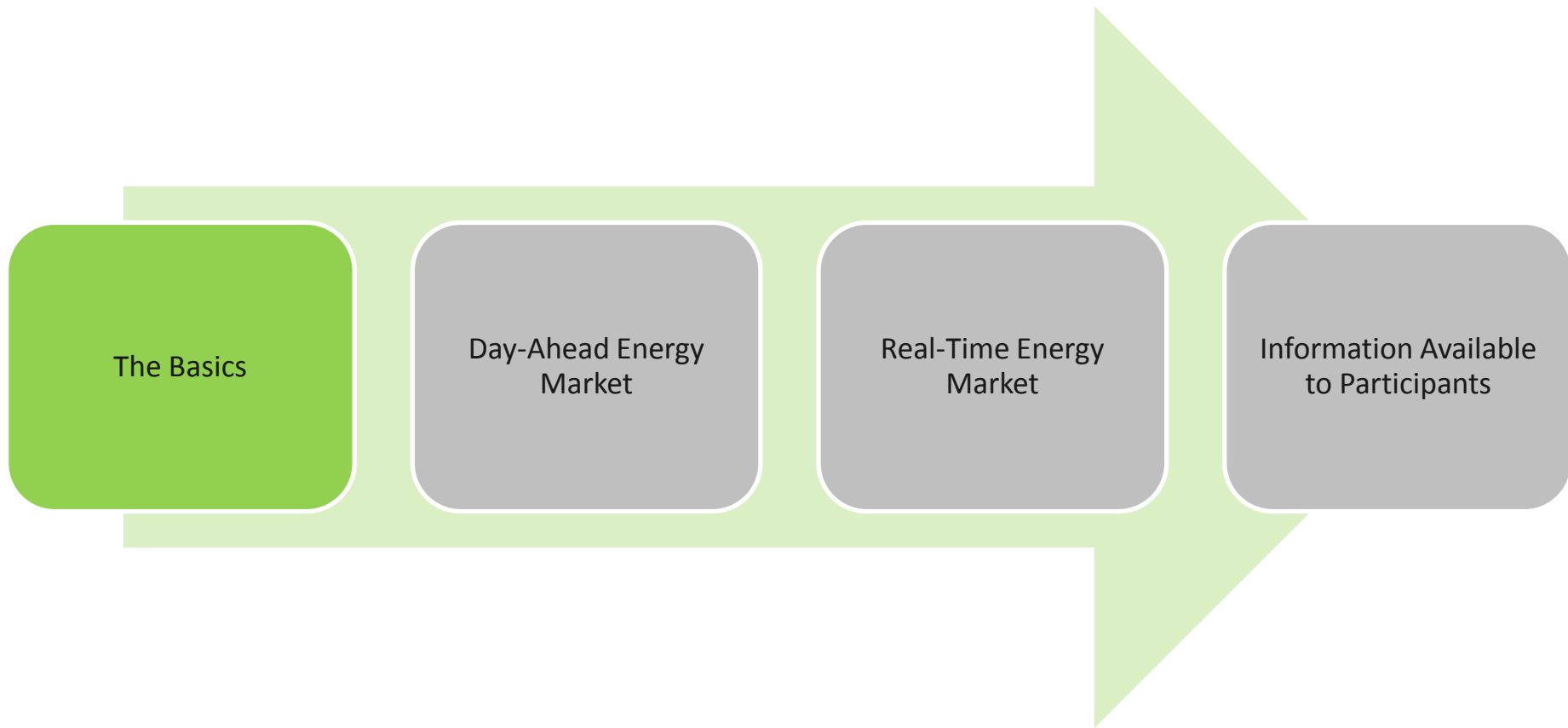
External Node Diagram



Historical Trends

- Typically, more ETs are submitted in the Real-Time Market (RTM) than in Day-Ahead Market (DAM)
 - Hundreds of individual transactions are submitted to the RTM every day
- Typically, between 40 and 60 Participants submit ETs on a daily basis
- Direction of Flow:
 - ISO-NE is typically a net importer
 - ISO-NE typically imports on the HQ and NB interfaces and exports on the CSC interface
 - The direction of flow on the NY AC ties is extremely dynamic





Governance Documents

- Transmission, Markets & Services Tariff
 - Section II: Open Access Transmission Tariff
 - Section III: Market Rule 1
- Manuals
 - Manual M-11: Market Operations
 - Manual M-28: MR1 Accounting
- Operating Procedure 9, Scheduling and Dispatch of External Transactions



Registration Requirements

- Standard Market Design (SMD) Company and User Registration
- Transmission Service Agreement
 - Market Participant Service Agreement
 - Non-Participant Transmission Service Agreement for Through or Out Service
- Register as a transmission customer
 - Support > Registration Information > OASIS
 - External Transaction Contact form
 - NERC Transmission Service Information Network (TSIN) registration
 - Register with Open Access Technologies International Inc (OATI)
 - Transmission Service Agreements (TSA) with all Transmission Owners with whom you intend to do business

Source: OP 9

External Transaction (ET) Distinctions

- Must be submitted via the Enhanced Energy Scheduling (EES) software
 - Market User Interface (MUI)
 - File upload
 - Programmatic File Upload (machine to machine)
- ETs are submitted only to the Energy Market
 - If Participant has an Import Resource Contract then an ET must be submitted to support that Contract per Manual 20
 - Are not related to bids or offers made in eMarket

Source: Manual 11

Differences Between DAM and RTM

There is a fundamental difference between DA and RT ETs



DAM ETs produce
financial obligation



RTM ETs produce
physical flow

Source: Manual 11

Differences Between DAM and RTM (cont.)

DAM & RTM ETs are independent



DAM ETs do not carry over into the RTM



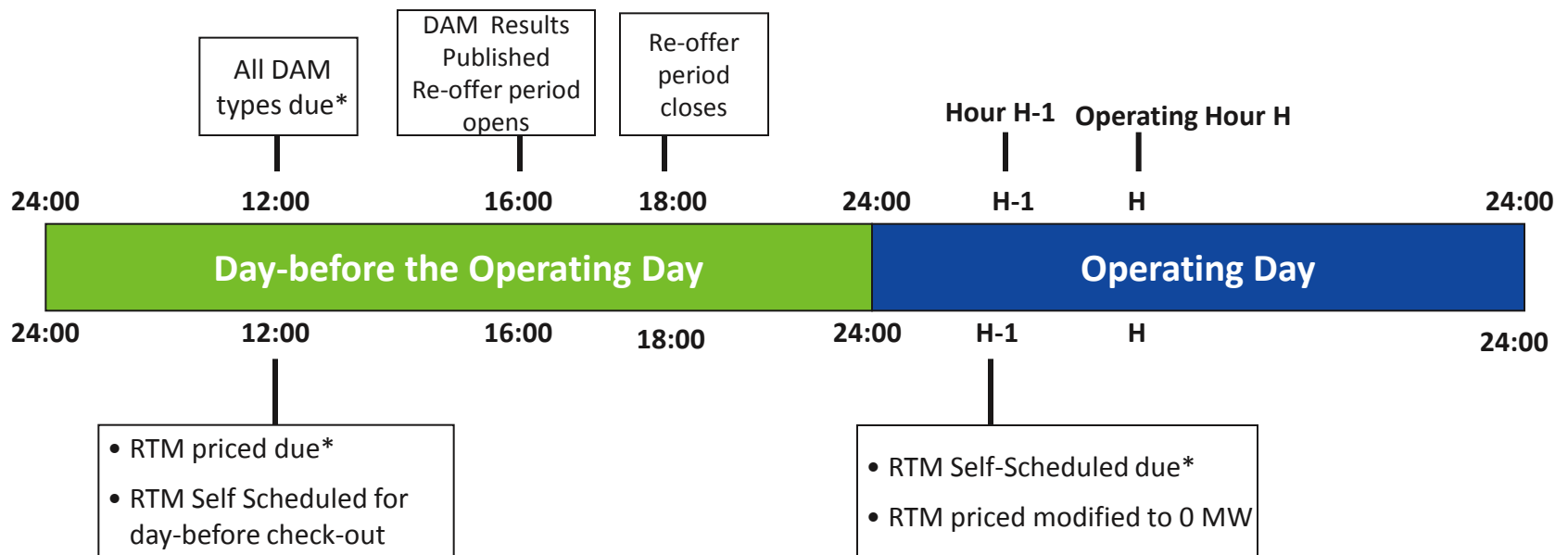
RTM ETs are not considered in the DAM

However, DAM and RTM ETs can be submitted on the same transaction

ETs that clear the DAM and have a corresponding RTM component will have priority in RTM scheduling

Source: Manual 11

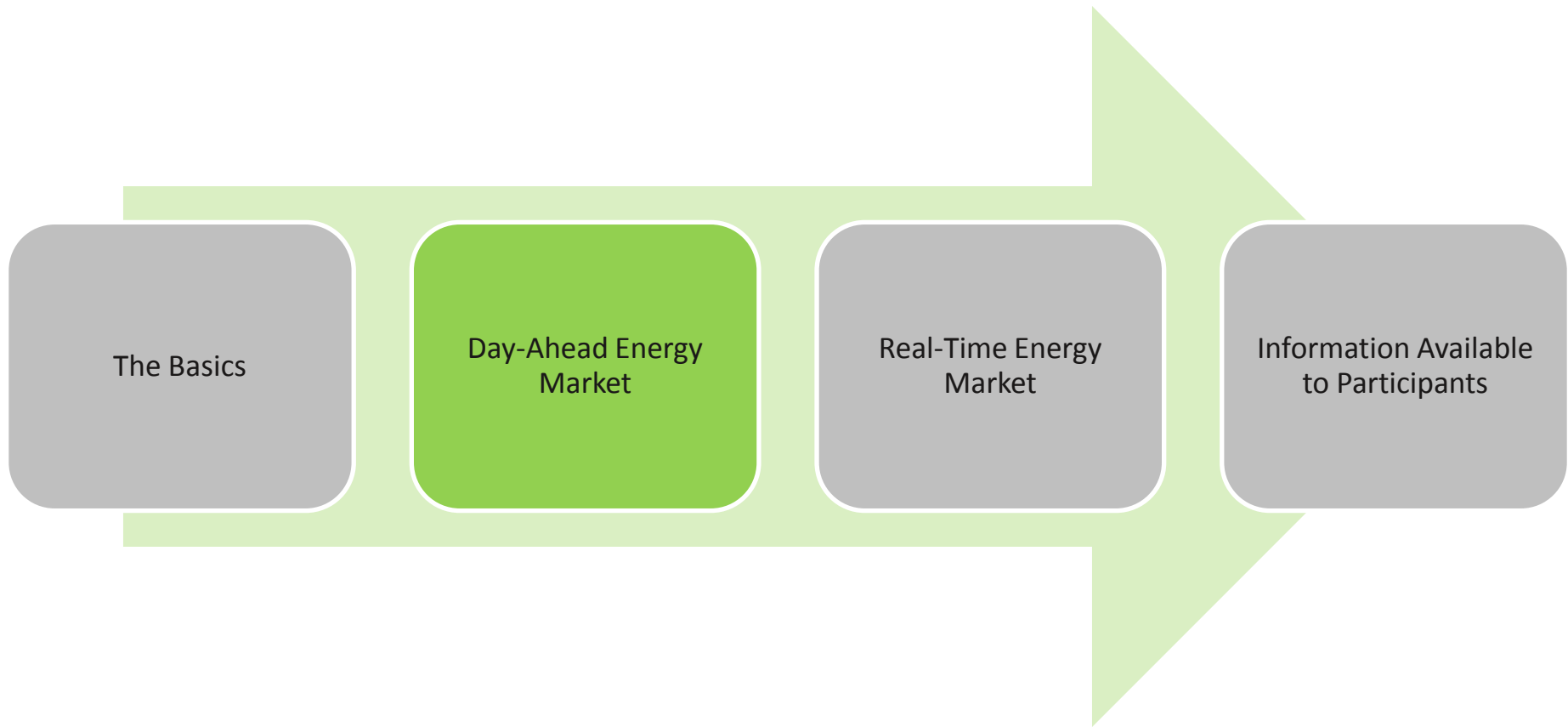
External Transaction Submission Deadlines



* = Deadline is applicable to new submittals and modifications

Source: Manual 11





DAM External Transactions

- DAM ETs are used to create a financial position in the DAM as well as scheduling priority in the RTM
 - Depending on how ETs are submitted they may create financial positions at one or two locations
 - External transactions in the DAM are similar to increment offers/decrement bids
 - External Transactions that clear the DAM have scheduling priority in the RTM
- ETs that clear the DAM do not automatically create a RTM profile carry forward to the Real-Time Market
 - User must submit a Real-Time profile to physically flow energy in the Real-Time Market

DAM ET Submittal Requirements

- Must be a Participant to submit to DAM

Timing

- Earliest entry =
10 days prior to operating day
- Maximum duration =
one calendar month
- Minimum duration =
one hour

Deadline

New ETs or modification to existing ETs must be submitted by noon the day before the operating day

DAM Data Required in EES

Must contain the following information:

Type	Energy Schedule	Price (if applicable)
<ul style="list-style-type: none">• Self-scheduled: No \$/MWh price• Priced: \$/MWh price must be between \$0.01 and \$1000• Up-to Congestion: \$/MWh price must be between \$0.01 and \$25	<ul style="list-style-type: none">• Timeframe• MW	<ul style="list-style-type: none">• Only one price per calendar day allowed• May not be negative


Source: M11:2

Additional Required Data for DAM ETs

- “Where it is from” and “where it is going”:
 - Direction → import or export
 - Path → identify the neighboring Control Area
 - Interface(s) → which tie line from that neighboring Control Area
 - External location → external node for the selected interface
 - Internal location (if applicable) → either one of the zones or the hub

Source: M11:6

DAM EES Screenshot



EES

File Upload

File Download

Send Email

EES Tools

Organizer

Scheduler

Ramp Viewer


Net Flow

©2004
ISO New England, Inc.
©2001
ALSTOM ESCA Corp.
©1999
DAM Interconnection, L.L.C.

Scheduler

ISO-NE ID: Schedule Name: Outside ID:

User Name: EES Int. Prod. Tester 89 Last Updated By:

Status: 

Path Builder

Direction:

Path	Start	Stop

08/31/2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28 August	29	30	31	1 Septembe	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1 October

Views

Views

Edit

Source IF:

Sink IF:

Source:

Sink:

R/T Only

R/T and D/A

Validation for DAM

- Same for a new or a modified transactions
- All transactions passing data validation checks are given “Requested” status.
 - When using the GUI only valid data can be selected
 - When using File Upload the data validation will produce any applicable error message(s)
- There is no review of DAM ETs by ISO-NE personnel
- No check-out process for DA ETs with neighboring Control Areas
- All transactions with status “Requested” are considered in the DAM

DAM External Interface Constraint

- Interface transfer limits are honored in DAM clearing
 - If submitted MWs > interface transfer limits, External Transactions, Increment Offers, and Decrement Bids will be scheduled economically.
 - In the event of an economic tie, affected bids/offers will be reduced prorata.
 - The prorated reduction can result in clearing of partial MW
- Bids/Offeres at External Node do not set LMP at External Node when interface is constrained.
 - LMP continues to be calculated as if interface is not constrained

Source: OP 9

Clearing and Settlements for DAM

- Selection of type and source/sink locations impact DAM ET clearing and settlement
- The possible variations, listed below, are discussed in the tables on the next slide:

Self-scheduled or priced,
where source location =
sink location
(Option A)

Up-to Congestion,
where source location \neq
sink location
(Option B)

Source: M11:6

Import Summary for DAM

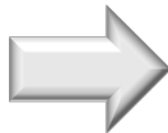
IMPORT	OPTION A	OPTION B
Type	Self-Scheduled or priced	Up-to Congestion
Source	External Location	External Location
Sink	External Location	Internal Location
Modeling	Supply offer @ Ext Location	<ul style="list-style-type: none"> • Supply offer @ Ext Location • Demand bid @ Int Location
Clearing	Based on LMP@ Ext Location	Based on (LMP @ Int - LMP @ Ext)
Settling	Gen obligation @ Ext Location	<ul style="list-style-type: none"> • Gen obligation @ Ext Location • Load obligation @ Int Location

Source: M11, M28

DAM Import Examples

Example 1

Participant
wants to Import
energy
↓
uses Option A



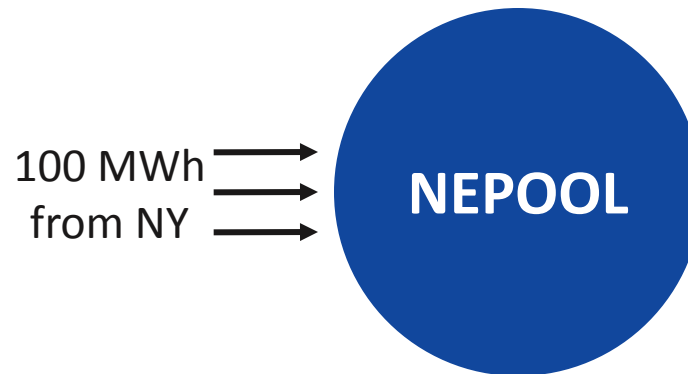
Example 2

Participant
wants to Import
energy based on
congestion costs
↓
uses Option B

Example 1 – Objective

- Participant X:
 - Does not serve load in New England (NE)
 - Intends to deliver 100 MWh to NE

How could Participant X offer in the DAM?



Example 1 – Option A Input

Participant enters two Import transactions:

Transaction 1

- Self-schedule DAM for 50 MWh
- Source location = NY External Node
- Sink location = NY External Node

Transaction 2

- Priced DAM for 50 MWh
- Source location = NY External Node
- Sink location = NY External Node
- Offer price = \$25/MWh

Example 1 – Option A Results

NY External Node LMP is \$20

- Transaction 1, Self-Scheduled
 - All 50 MWh clear DAM
 - Participant receives 50 MWh generation obligation at NY External Node
 - Participant receives $\$20 \times 50 = \1000
- Transaction 2, priced @ \$25
 - Transaction does not clear DAM
 - Participant receives no \$
- Participant does not reach its 100 MWh goal

Example 2 – Objective

- Participant Y:
 - Serves 100 MWh load in ISO NE
 - Has arranged to bring 100 MWh in from NY
- How could Participant Y submit an External Transaction to create both Generation and Load positions in DAM?

Example 2 – Option B Input

- Participant enters one Import transaction:
 - Up-to Congestion DAM for 100 MWh
 - Source location = NY External Node
 - Sink location = Internal Hub
 - Offer price = \$5
- Participant does NOT enter a demand bid for its 100 MWh of load in eMarket.

Example 2 – Option B Results

NY Ext Node LMP is \$20; Internal Hub LMP is \$23.

- \$5 Offer evaluated against (Sink LMP – Source LMP)
 - $(\$23 - \$20) < \$5$, all 100 MWh clear DAM
- Participant receives:
 - 100 MWh generation obligation at NY External Node
 - 100 MWh load obligation at Internal Hub
 - $\$20 \times 100 = \2000 for generation obligation
- Participant pays:
 - $\$23 \times 100 = \2300 for load obligation
- Participant has created desired positions in the DAM.

Export Summary for DAM

EXPORT	OPTION A
Type	Self-Scheduled or priced
Source	External Location
Sink	External Location
Modeling	Demand Bid @ Ext Location
Clearing	Based on LMP@ Ext Location
Settling	Load obligation @ Ext Location

Note: A DAM Export may also be submitted as Up-to Congestion although it is not exemplified in this presentation.

Source: M11, M28

DAM Export Examples

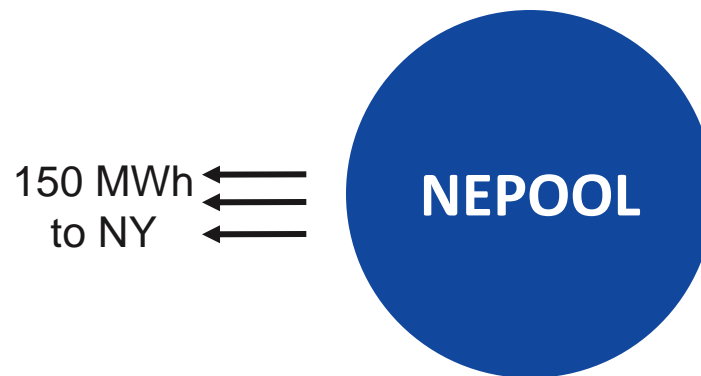
Example 3

Participant
wants to Export
energy
↓
uses Option A

Example 3 – Objective

- Participant Z:
 - Wants to send 150 MWh out of NE

How could Participant Z bid in the DAM?



Example 3 – Option A Input

Participant enters two Export transactions:

Transaction 1

- Self-scheduled DAM for 75 MWh
- Source location = NY External Node
- Sink location = NY External Node

Transaction 2

- Priced DAM for 75 MWh
- Source location = NY External Node
- Sink location = NY External Node
- Bid price of \$25/MWh

Example 3 – Option A Results

NY External Node LMP is \$30.

- Transaction 1, Self-Scheduled
 - All 75 MWh clear DAM.
 - Participant receives 75 MWh generation obligation at NY External Node.
 - Participant pays $\$30 \times 75 = \2250 .
- Transaction 2, Priced @ \$25
 - Transaction does not clear DAM.
 - Participant pays no \$.
- Participant does not reach its 150 MWh goal.

Quick Review

Q. If a customer submits a transaction to the DAM will energy flow in RT?

A. The energy will only flow in RT if a specific energy profile is submitted to the RTM

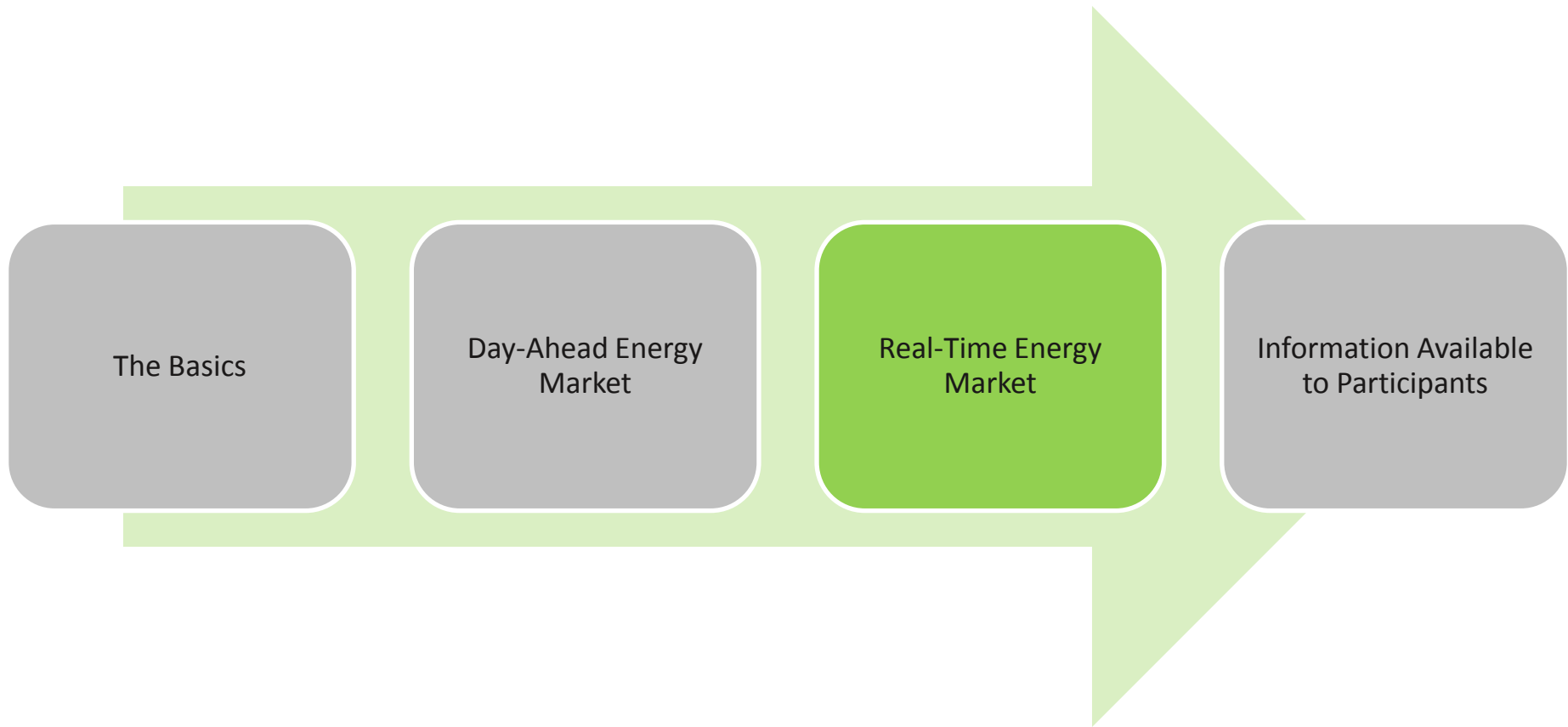
Q. What are the restrictions on the price of transactions in the DAM?

A. Priced may have a value be between \$0.01 and \$1000.00
Up-to Congestion may have a value between \$0.01 and \$25.00

Q. What is the difference between a Priced and an Up-to Congestion transaction?

A. Priced is cleared based on the LMP at one location. Up-to Congestion is cleared based on the difference in LMP between Sink and Source





RTM External Transactions (ET)

- RTM ETs are used to physically flow energy across the external interface(s)
 - May be used to satisfy financial positions created in the DAM
 - May be submitted to the RTM even if no DAM transactions were submitted
- ETs and Net Commitment Period Compensation (NCPC)
 - Market Rule 1 Appendix F should be reviewed to understand the impact that ET bidding behavior can have on NCPC charges

RTM Submittal Requirements

- Participant Transmission customers can submit all types of RT ETs.
 - Import
 - Export
 - Wheel-Through
- Non-Participant Transmission customers can only request RT wheel-through ETs.
- Timing:
 - Earliest entry = 10 days prior to operating day
 - Maximum duration = one calendar month
 - Minimum duration = one hour

RTM Data Required in EES

Must contain the following information:

Type	Energy Schedule	Price (if applicable)	eTag & OASIS Reservation (where applicable)
<ul style="list-style-type: none">• Self-scheduled: No \$/MWh price• Priced: \$/MWh price must be between \$0.01 and \$1000	<ul style="list-style-type: none">• Timeframe• MW	<ul style="list-style-type: none">• Price Can change hourly• May not be negative	<ul style="list-style-type: none">• Needed for Real-Time transactions


Source: M11:2

Additional Required Data

- “Where it’s from” and “where it’s going”:
 - Direction → import, export, or wheel-through
 - Path → identify the neighboring Control Area
 - Interface(s) → which tie line from that neighboring Control Area
- Data specific to Real-Time ETs
 - NERC E-Tag
 - OASIS reference (if applicable)
 - From IRH Member for Phase I/II
 - Cross Sound Cable LLC for CSC

Source: M11:6

RTM EES Screenshot



EES

File Upload

File Download

Send Email

EES Tools

Organizer

Scheduler

Ramp Viewer


Net Flow

©2004
 ISO New England, Inc.
 ©2001
 ALSTOM ESCA Corp.
 ©1999
 PJM Interconnection L.L.C.

Scheduler

ISO-NE ID: Schedule Name: Outside ID:

User Name: EES Int. Prod. Tester 89 Last Updated By:

Status: 

Path Builder

Direction:

Path	Start	Stop
Path: <input style="width: 100%;" type="text"/>		

08/31/2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28 August	29	30	31	1 September	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1 October

R/T Only	R/T and D/A
<input type="button" value="Options"/> <input type="button" value="Save"/>	<input type="button" value="Create New"/> <input type="button" value="Retrieve"/> <input type="button" value="Clear"/> <input type="button" value="Submit"/>

Status Color Key - Windows Internet E...

<p>Real Time</p> <p> Approved</p> <p> Pre-Approved</p> <p> Pending Action</p>	<p> Denied</p> <p> Submitted</p> <p> Working</p>
<p>Day-Ahead</p> <p> Requested</p> <p> Invalid</p> <p> Result</p> <p style="text-align: right;"><input type="button" value="Close"/></p>	

Day Ahead

Source/Sink

Real Time

Real Time/Price

Interface

OASIS

NERC Tag

Start:

Stop:

MW:

GraphIt

Start	Stop	MW

MWh:

Optional Data

- Special Exception information is entered by user, as required
 - May be added or edited until transaction has “Approved” status

ISO Use

Participant Use

The screenshot shows a web browser window titled "Schedule Options - Windows Internet Explorer provided by ISO New England". The window contains a form with two main sections: "ISO Use" and "Participant Use".

Special Exception Type	Special Exception Comments
<input type="checkbox"/> CA-to-CA Emergency	<input type="text"/>
<input type="checkbox"/> CA-CA Security	<input type="text"/>
<input type="checkbox"/> Inadvertent	<input type="text"/>
<input type="checkbox"/> Excepted Transaction	<input type="text"/>
<input type="checkbox"/> Non-CSO Export	<input type="text"/>
<input type="checkbox"/> Generation Information System	<input type="text"/>
<input type="checkbox"/> EET Emergency	<input type="text"/>
<input type="checkbox"/> Security Energy Transactions	<input type="text"/>
<input type="checkbox"/> Grandfathered	<input type="text"/>
<input type="checkbox"/> Import Resource	<input type="text"/>
<input type="checkbox"/> Flex Reservation	<input type="text"/>
<input type="checkbox"/> LSCC Export	<input type="text"/>
<input type="checkbox"/> Unconstrained Export	<input type="text"/>

Below the list is a "User Comments" text area with a scroll bar. At the bottom of the window are "OK" and "Cancel" buttons.

Optional Data – Explained

Exception	Description	Comment
Excepted Transaction	When this is selected by Participants with active items in Tariff Section II Attachment G-3 and submitted in accordance with Tariff Section II.44(a), special priority is assigned in real-time scheduling.	There are currently no active items in Attachment G-3
Non-Capacity Supply Obligation Export	Participants must reference this exception for transactions to be considered during system-wide capacity deficient conditions.	Reference the numerical Asset ID
Generation Information System	Used to indicate transaction is associated with Generation Information System	Must contain a comment
EET Emergency	When emergency transactions are requested by ISO-NE, allows user to submit priced transactions within the operating day.	Does not require a comment
Security Energy Transactions	When security transactions are requested by ISO-NE, allows user to submit priced transactions within the operating day.	Must contain a comment – “NB” is the suggested value
Grandfathered	When this is selected by Participants with active items in Tariff Section II Attachment H and submitted in accordance with Tariff Section II.44(a), special priority assigned in real-time scheduling.	Reference MEPCO Grandfathered Transmission Service Agreements (MGTSA). Also link an OASIS reservation
Import Resource	Use this exception to notify ISO that transaction is backing an Import Capacity Resource.	Reference the Import Capacity Resource ID
Flex Reservation	Submitting priced transaction backing Import Capacity Resources over interfaces where advance reservations are required. Allows the user to link an OASIS reservation, and NERC eTag, up to one hour before the start of the transaction.	Reference the Import Capacity Resource ID
LSCC Export (Capacity Export Through Import Constrained Zone or FCA Cleared Export Transaction)	When this is selected by Participants that have bid and cleared appropriately in the FCA and submitted the transaction. Participant is requesting that the transaction be considered in local second contingency commitment and will be allocated a share of certain costs Transactions with this exception are considered supported in real-time scheduling.	Must reference the numerical Asset ID backing the FCA de-list bid
Unconstrained Export (Same Reserve Zone or Unconstrained Export Transaction)	When this option is selected and the referenced generator meets criteria in Section III.1.10.7(f) iii or iv, transaction is considered supported in real-time scheduling as defined in Section II.44.	Reference the numerical Asset ID

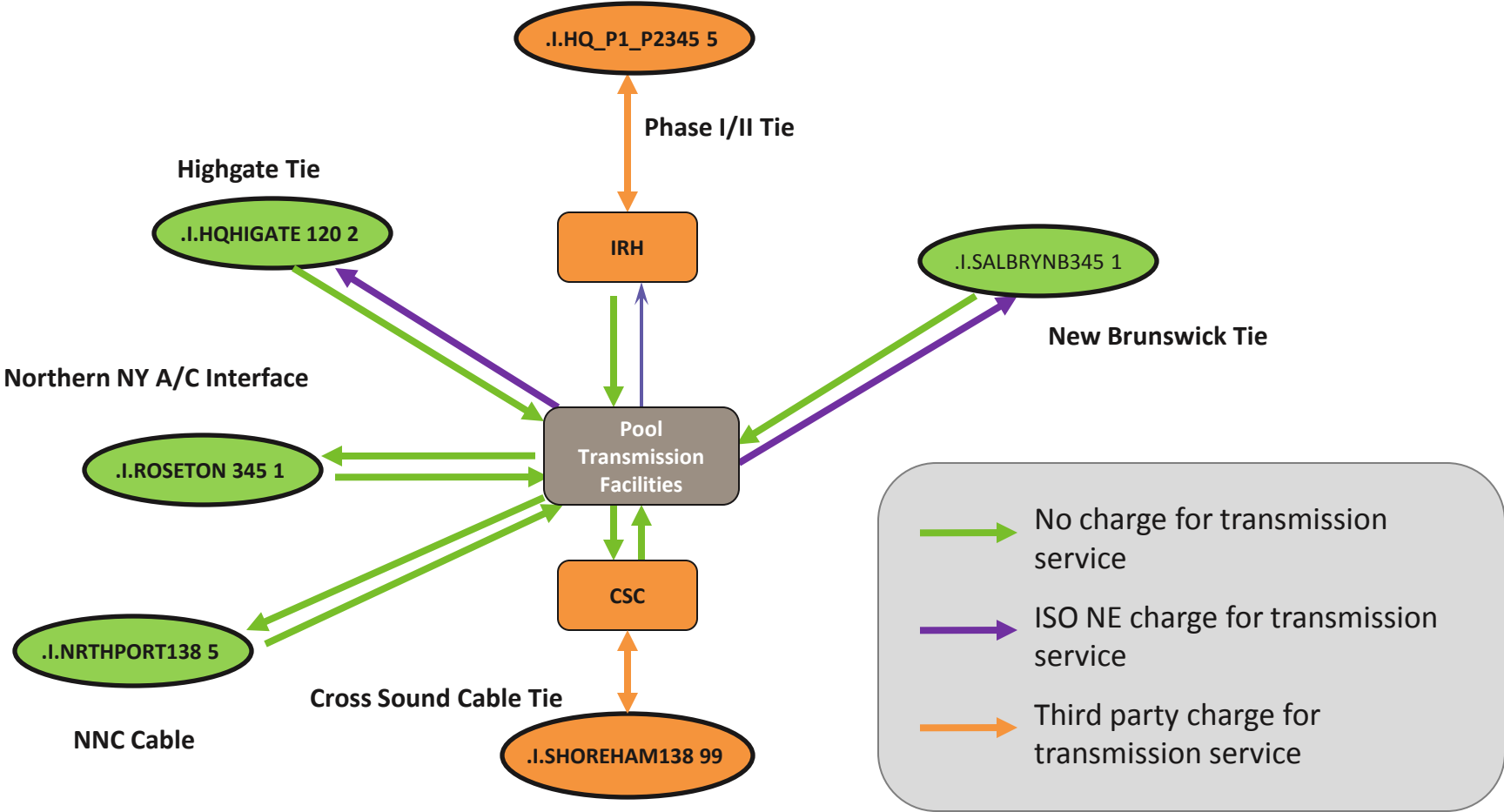
Transmission Service Reservations

- Advanced transmission reservations are not required for ETs in the ISO New England market
 - Transmission reservations are automatically generated after the fact for all ETs that are scheduled to flow in RT
 - Only those reservations generated for Exports to NB or HQ will be charged for the associated transmission service
- Advanced transmission reservations are required for RT ETs over the following facilities:

Phase I/II Interface → from IRH

Cross Sound Cable Interface → from CSC, LLC

Transmission Service Charges



ISO New England OASIS Node

	Reservations	Sys Data	Offerings	Resale	NITS/NLS	Reductions	Data	Company	Home
	Ancillary	Offerings	Security	Deals	CG Deals	Schedules	Notices	User	Bulletin

Select Provider

Hydro Quebec / New England Tie Lines
Click for TransEnergy OASIS

New Brunswick / New England Tie Lines
Click for NBP OASIS

VElec Coop Radial Load when fed by Hydro Quebec

Derby Tie

Highgate Tie

Phase III Tie

VECT

VTTR

CVPS

GMP

IRH

UES

ISNE

NU

ETEEC

UI

CSC

CSC Tie

New York / New England Tie Lines
Click for NYISO OASIS

NYPA - Vermont Tie (PV-20)
(a subset of the New York / New England Tie Lines)

LILCo - Connecticut Tie (1385 Line)
(a subset of the New York / New England Tie Lines)

New York / New England Tie Lines
Click for NYISO OASIS

Legend:
○ - individual transmission provider.
□ - multiple transmission providers.

RTM Automated Validation in EES

- NERC E-Tag Name
 - User is able to submit ET without entering a NERC E-Tag Name
 - However, E-Tag must be linked and match EES energy profile to reach “Pre-Approved” status
- OASIS
 - User is able to submit ET without entering a OASIS reference
 - However, OASIS reference must be linked if the scheduling path requires advance purchase of transmission to reach “Pre-Approved” status
- Preemptive message will be provided for all other missing data.
- Same validation process applies for both new and modified transactions

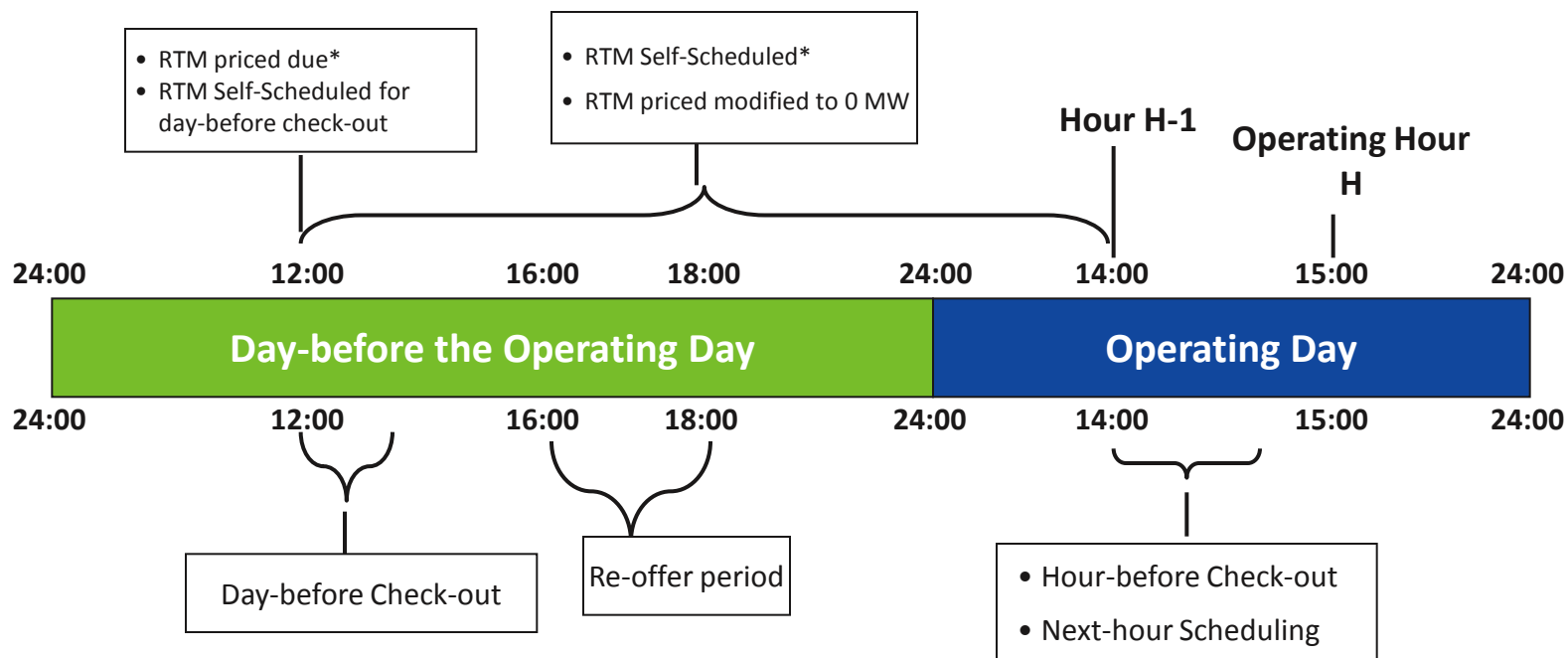
Modification of Existing Transactions

- Participant may modify energy profile of transaction
- Requested modification receives current timestamp
- NERC E-Tag should be updated by Participant before an ET is updated in EES.
 - A change in energy profile on one system will not change the corresponding data on the other system.
 - EES Profile will not go “Pre-Approved” until E-Tag is in Implemented state
 - EES will monitor E-Tag state and update EES Profile without user intervention

Modification of Priced Transactions

- Participant may modify the price of a previously submitted transaction during the re-offer period
 - MW amount on transaction may only be modified to zero
 - New priced transactions cannot be added during the re-offer period
- All MWs of a priced RTM that clear the DAM are considered self-scheduled unless the RTM price is adjusted during the re-offer period
 - When the price is adjusted the RTM transaction loses its DAM priority and is treated as all other priced RTM transactions

RTM Timing Requirements



* = Deadline is applicable to new submittals and modifications

Source: M11

ISO-NE Review of RT ETs

- As soon as transaction is “Pre-Approved” in EES, TSO Administrator reviews transaction
 - Transactions with “Pending Action” status are not reviewed by TSO Administrator
- TSO Administrator validates E-Tag and any required external OASIS reservations prior to approving transaction.
- If transaction passes all validations, TSO Administrator sets status to “Approved.”

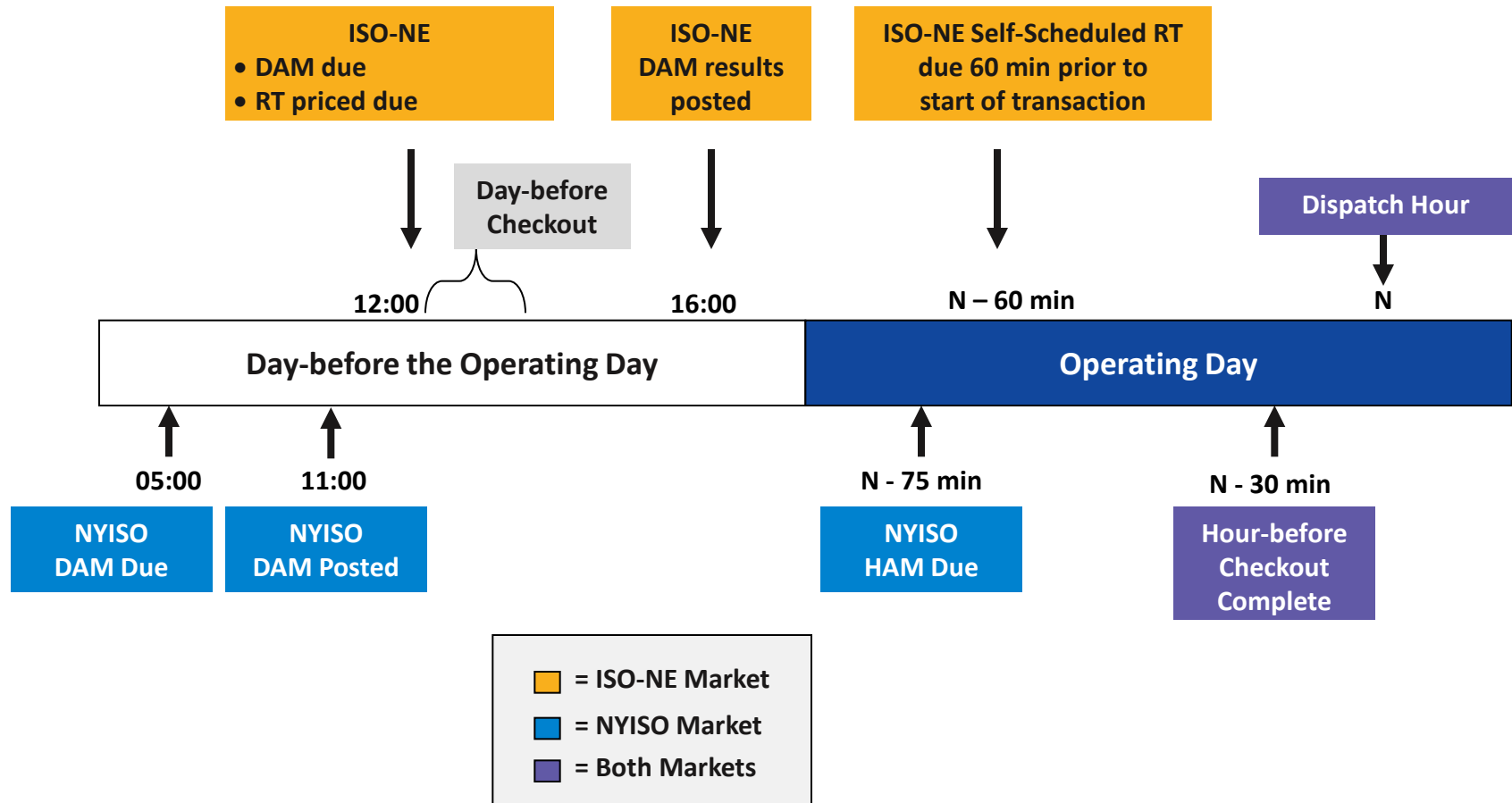
RTM Day Before Check-Out Process

- Transactions considered during the Check-Out process:
 - Must have status of “Approved”
 - Must be submitted to RTM prior to noon
 - E-Tag submitted to both areas must match
 - Energy profile in both areas must match
- ISO NE will not remove transactions that do not “check out” with Neighbor but the neighboring CA may take action if a corresponding transaction is not submitted in the NE market



Interaction of ISO-NE and NYISO

Submission Deadlines



Source: Manual 11

RTM Next Hour Scheduling

- Only “Approved” transactions are considered.
- Priced transactions are dispatched by scheduling software based on the forecasted External location LMP.
- If scheduled to flow by ISO-NE and neighboring control area for the next hour, transaction will flow unless curtailed in-hour.

RTM Next Hour Scheduling (cont.)

- Fundamental principal for scheduling:
 - Energy bid/offer price
 - Then, transmission priority when prices are equal
 - Then, DAM cleared status when priorities are equal
 - Then, submittal timestamp when priority is equal when DAM cleared status are equal
- Details on scheduling rules when external interfaces are constrained or emergency conditions are in effect can be found in OP-9 Appendix B.

Real-Time Market Examples

Example 1

RT Only Priced Import

Example 2

RT Only Priced Export

Example 3

DAM ET clears and RTM ET does not flow due to FRP changing RT price during the reoffer period

Example 4

DAM ET clears and RTM ET does flow

Example 1 – RTM Priced Import

- Participant X:
 - Did not submit any transactions in DAM
 - Submitted a RT priced transaction to bring 100 MWh @ \$25 into NE

Example 1 – RTM Priced Import (cont.)

- Forecasted LMP is \$27
 - \$25 Import is dispatched in next-hour scheduling.
- Resulting hourly LMP at external node = \$27
 - Participant receives $100 \times \$27 = \2700 in the ISO-NE Energy Market.
- Total payment meets and exceeds the \$25/MWh offer.

Example 2 – RTM Priced Export

- Participant Y:
 - Did not submit any transactions in DAM
 - Submitted a RT priced transaction to send 100 MWh @ \$25 out of New England

Example 2 – RTM Priced Export (cont.)

- Forecasted LMP is \$23
 - \$25 Export is dispatched in next-hour scheduling.
- Resulting hourly LMP at external node = \$23
 - Participant will pay $100 \times \$23 = \2300 in the ISO-NE Energy Market.
- Total cost does not exceed the \$25/MWh bid.

Example 3 – DA & RT Markets

- Participant Z:
 - Submitted DAM priced Import at NY External Node for 100 MWh at \$22 that cleared DAM at \$25
 - Submitted RTM priced Import at NY External Node for 100 MWh at \$22
 - Participant adjusted the RT price during the reoffer period to \$30
- What happens when RTM ET is not dispatched?

Example 3 – DA & RT Markets (cont.)

DAM LMP = \$25

RTM LMP = \$28 (RT offer was \$30)

- DAM:
 - Obligation, 100 MWh generation at NY External Node
 - Settlement, participant receives $\$25 \times 100 = \2500
- RTM:
 - RTM ET \$30 Import not dispatched
 - Participant MW deviation between DAM and RTM (100 MW in DAM, 0 MW dispatched in RTM)
 - Participant pays $\$28 \times 100 = \2800 to Energy Market.
- Net outcome: Participant Z had to pay \$300 due to deviation, and did not move any energy.

Example 4 – DA & RT Markets

- Participant Q:
 - Submitted DAM priced Import at NY External Node for 100 MWh at \$22 that cleared DAM at \$25
 - Submitted RTM priced Import at NY External Node for 100 MWh at \$22
- Transaction is scheduled to flow in RTM.

Example 4 – DA & RT Markets (cont.)

DAM LMP = \$25

RTM LMP = \$20 (RT Offer \$22)

- DAM:
 - Obligation, 100 MWh generation at NY External Node
 - Settlement, received $\$25 \times 100 = \2500
- RTM:
 - Although the RTM LMP was lower than the submitted offer on the RTM transaction the transaction had cleared the DAM and was treated as a self-scheduled RTM transaction rather than priced; therefore, 100 MW flowed at NY External Node
 - There is no RTM settlement because of no MW deviation between DAM and RTM.
- Net Outcome: Participant receives \$2500 in DAM and no payment or deviation charge is accrued in RTM

Quick Review

Q. Can a user submit both a DAM and RTM transaction at the same time?

A. Yes, customer can enter both DAM and RTM energy profiles before hitting the Submit button

Q. Can a user add a RT profile to an existing DAM transaction after the DAM deadline has passed?

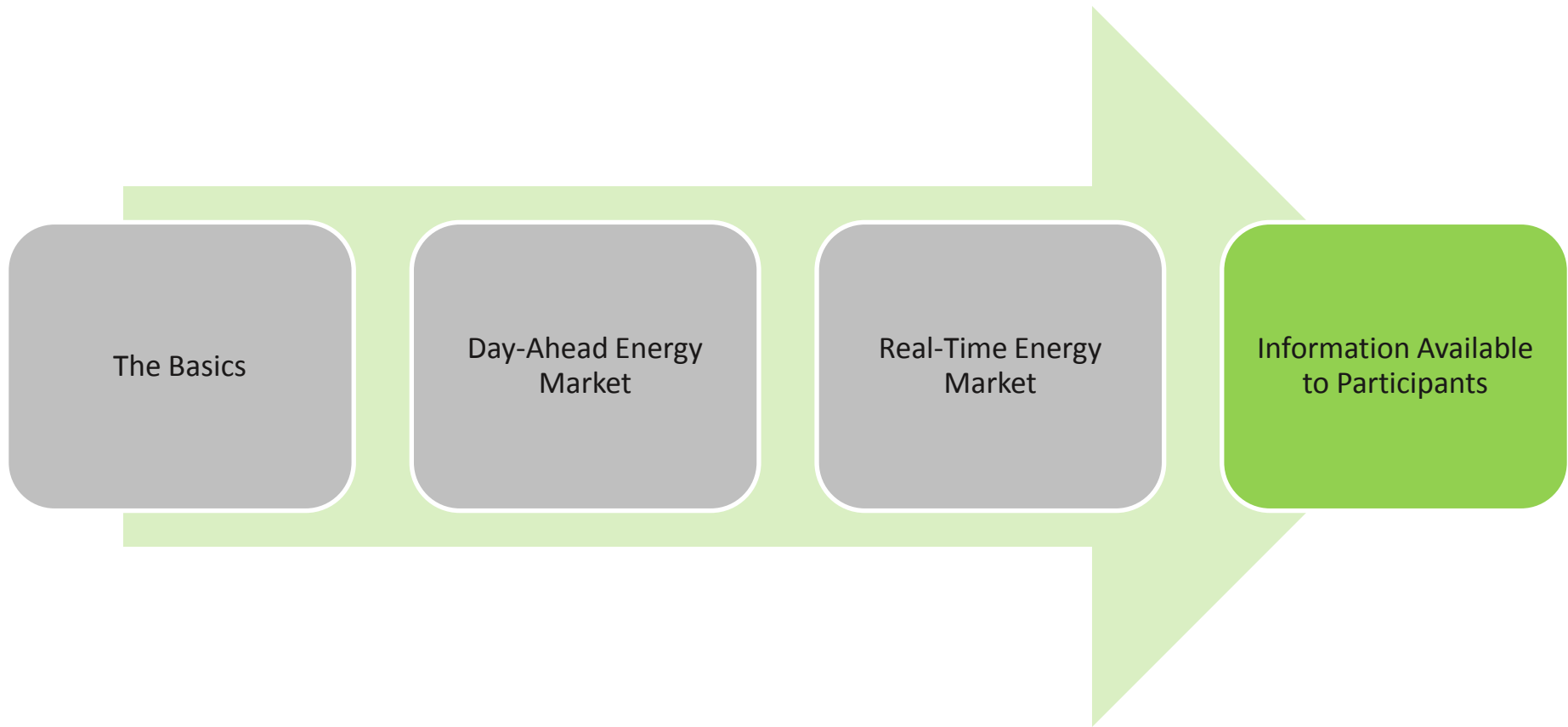
A. Yes, a customer can add or modify their RT energy profile after the DAM deadline has passed, consistent with RTM submittal deadlines

Q. What is required to be submitted with a RTM transaction that is not required in DAM?

A. A NERC eTag and any required OASIS reservation must be link to a RTM transaction and are not required with a DAM transaction



Questions



DAM Participant Notification

- Status viewed in EES after submittal
- DAM clearing results:
 - Published via FTP (OI_DAEXTRANS)
 - Shown in EES Scheduler View
- Daily Settlement via MIS Reports (SD_DATRANSACT)
- Monthly settlement via energy line item on invoice

RTM Participant Notification


- EES used to:
 - Monitor transaction status
 - Download requested and actual schedules
- NERC e-Tag reflects ISO-NE adjustment of scheduled MW.
- Daily Settlement via MIS Reports (SD_RTTRANSACT)
- Monthly settlement via energy line item on invoice

EES Tools for Reviewing Transactions

- ‘Organizer’ screen
 - shows an overview of all transactions
- ‘Scheduler’ screen
 - shows single transaction detail
- ‘Ramp Viewer’ screen
 - shows ramp available in ISO-NE
- ‘Net Flow’ screen
 - shows next hour and hour+1 data on transaction submitted to market



EES Organizer Screen



EES

File Upload

File Download

Send Email

EES Tools

Organizer

Scheduler

Ramp Viewer

Net Flow

©2004
ISO New England, Inc.

Schedule Organizer

Select date

From:

To:

Select status

Working Approved

Pre-Approved Pending Action Day-Ahead

Submitted Denied

Sort


Refresh

Co...	D-A	R-T	ISO-NE ...	Schedule Na...	Tag Name	Outsid...	Start Date	End Date	Interface	Status	Flag	Act...
F	82876		P001048913	ISNE_HQUSRT0...		08/09/2005 12:...	08/09/2005 13:...	NY N Ex...	Approved			
F	82877		P001048917	ISNE_HQUSRT0...		08/09/2005 13:...	08/09/2005 14:...	NY N Ex...	Approved			
F	82878		P001048919	ISNE_HQUSRT0...		08/09/2005 14:...	08/09/2005 15:...	NY N Ex...	Approved			
F	82879		P001048923	ISNE_HQUSRT0...		08/09/2005 15:...	08/09/2005 16:...	NY N Ex...	Approved			
F	82880		P001048927	ISNE_HQUSRT0...		08/09/2005 16:...	08/09/2005 17:...	NY N Ex...	Approved			
F	82881		P001048931	ISNE_HQUSRT0...		08/09/2005 17:...	08/09/2005 18:...	NY N Ex...	Approved			
F	82882		P001048935	ISNE_HQUSRT0...		08/09/2005 18:...	08/09/2005 19:...	NY N Ex...	Approved			
F	82883		P001048939	ISNE_HQUSRT0...		08/09/2005 19:...	08/09/2005 20:...	NY N Ex...	Approved			
F	82884		P001048942	ISNE_HQUSRT0...		08/09/2005 20:...	08/09/2005 21:...	NY N Ex...	Approved			
F	82885		P001048945	ISNE_HQUSRT0...		08/09/2005 21:...	08/09/2005 22:...	NY N Ex...	Approved			
F	82886		P001048949	ISNE_HQUSRT0...		08/09/2005 22:...	08/09/2005 23:...	NY N Ex...	Approved			
F	82887		P001048953	ISNE_HQUSRT0...		08/09/2005 23:...	08/10/2005 00:...	NY N Ex...	Pre-Appr...			
F	82914					08/23/2005 08:...	08/25/2005 17:...	NY N Ex...	Pending ...	Invalid Tag	?	
D	82915					08/23/2005 08:...	08/25/2005 17:...	NY N Im...	Pending ...	Invalid Tag	?	
D	82916					08/23/2005 08:...	08/25/2005 17:...	NB Import	Pending ...	Invalid Tag	?	
D	82917					08/23/2005 08:...	08/25/2005 17:...	HQ III Im...	Pending ...	Invalid Tag	?	
D	82918					08/23/2005 09:...	08/25/2005 17:...	HQ III Im...	Pending ...	Invalid Tag	?	
D	82919					08/23/2005 08:...	08/25/2005 17:...	HQ VT I...	Pending ...	Invalid Tag	?	
D	F		82924	1234567890...		12345...	08/25/2005 05:...	08/26/2005 00:...	NY N Im...	Pending ...	Invalid Tag	?
D	F						08/26/2005 00:...	08/27/2005 00:...	NY N Im...	Working		
F			82925				08/25/2005 00:...	08/26/2005 00:...		Request...		
F	D		82926				08/25/2005 00:...	08/26/2005 00:...	NY N Im...	Pending ...	Invalid Tag	?
F	F		82927				08/25/2005 00:...	08/26/2005 00:...	NB Import	Pending ...	Invalid Tag	?

Create New

Retrieve

EES Scheduler Screen



EES

File Upload

File Download

Send Email

EES Tools

Organizer

Scheduler

Ramp Viewer

Net Flow

©2004
ISO New England, Inc.
©2001
ALSTOM ESCA Corp.
©1999

Scheduler

ISO-NE ID: Schedule Name: Outside ID:

User Name: EES Int. Prod. Tester 89 Last Updated By: Lucy Wang 08/10/2005 15:42

Status: ?

Path Builder

Direction:

Path	Start	Stop
HQT-HQUSRT-ISNE	08/23/2005 08:00	08/25/2005 17:00

08/23/2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7 August	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1 September	2	3
4	5	6	7	8	9	10

Views

Edit

Real Time

Start:

Stop:

Min:

Max:

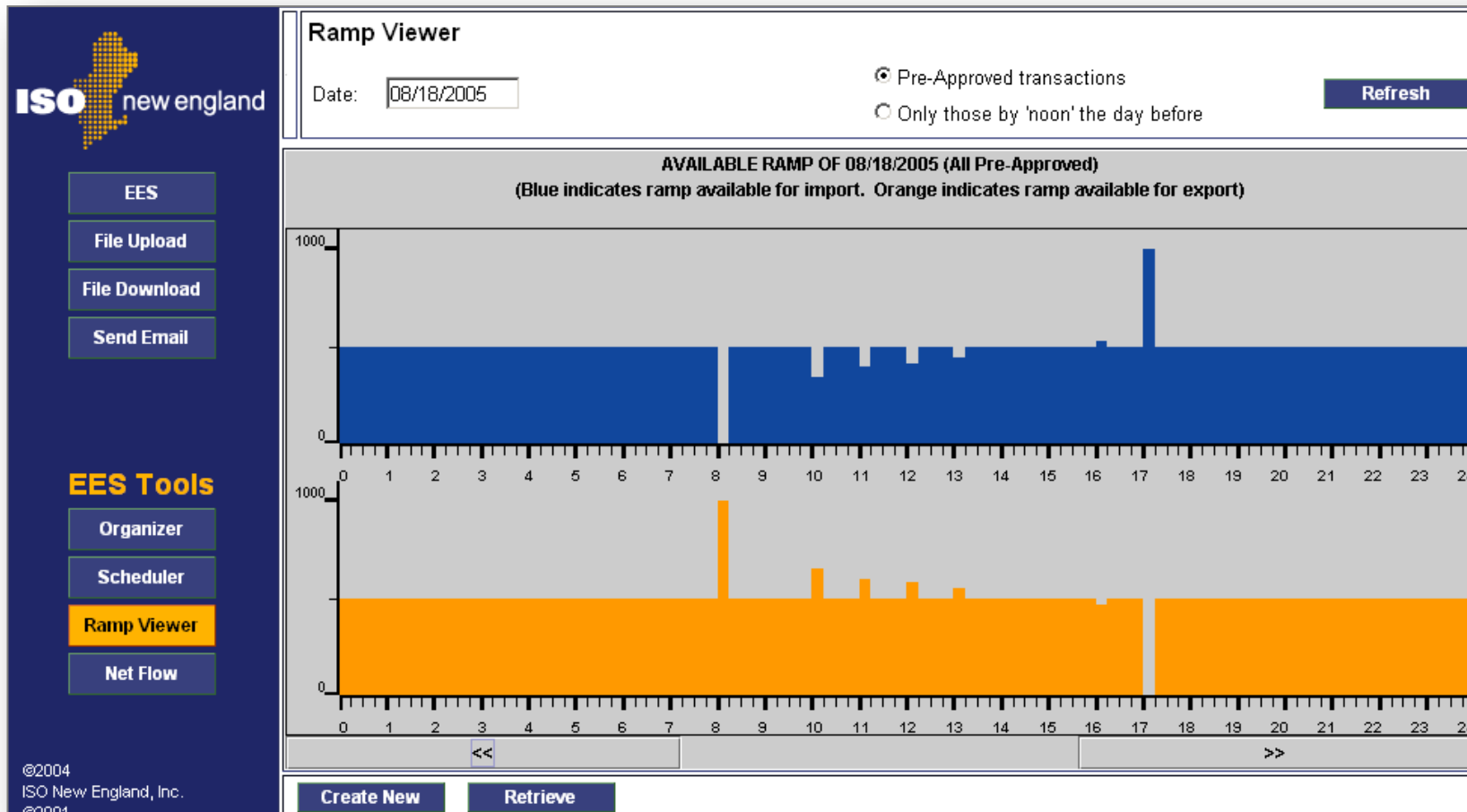
Price:

GraphIt


Start	Stop	Min	Max	Price
08... 09...	0	978	68...	
09... 10...	0	900	77...	
10... 11...	0	900	81...	
11... 12...	0	900	92...	
12... 13...	0	900	10...	

MWh: 8178.0

EES Ramp Viewer Screen



EES Net Flow Screen



EES

File Upload

File Download

Send Email

EES Tools

Organizer

Scheduler

Ramp Viewer

Net Flow

©2004
 ISO New England, Inc.
 ©2001
 ALSTOM ESCA Corp.
 ©1999

Real Time Market Net Flow Information

Last Updated: Refresh

	Current Hour HE 14	Next Hour Preliminary HE 15	Future Hour HE 16	
			from Day Before Checkout	All Approved Requests
Pool Wide	-1438	N/A	-544	-1079
New York	-55	N/A	-8	357
Phase I/II	-1400	N/A	-553	-1453
Highgate	-213	N/A	-213	-213
New Brunswick	-100	N/A	-100	-100
NY CSC	330	N/A	330	330

Note:

- "N/A" indicates that the information for the next hour is not yet available
- MW values in "**From Day Before Checkout**" include all transactions that were submitted by noon the day-before and have passed the day-before checkout with the neighboring Control Areas.>
- MW values in "**All Approved Requests**" include all transactions submitted to-date for that interface.>
- "**Last Updated**" shows the last time the source data was updated; click "Refresh" to update data on the screen.

RTM ET Data Available via Website

- 5-minute RTM External Interface flow
 - Shows what is currently flowing on the system
- RT Daily Net Interchange Requests
 - Shows ETs submitted by 1600 the day-before the Operating Day
- RT Actual Scheduled Interchange
 - Shows hourly net scheduled flow from previous Operating Day



Five-Minute RTM External Interface Flow

ISO new england Search >>
 ● Advanced Search

Markets

- Five-Minute Data
 - Current Five-Minute Marginal Prices
 - Current Five-Minute Ancillary Services Data
 - **Real-Time Market External Interface Summary**
 - Historical Five-Minute Data
- Hourly Data
- Other Markets Data
- Historical Data
- Market Analysis & Reports
- Market Monitoring & Mitigation
- **System Operations**
- Committees
- Rules & Procedures
- Regulatory
- Transmission
- Generation & Resources
- Settlements
- Support
- About ISO-NE

[Home](#)

Real-Time Market External Interface Summary

Disclaimer: This data is updated every five minutes with the exception of "Actual Flow." All other data contained in this posting is derived from the external scheduling software which is normally reflective of real-time operational limits.

2007-08-23 10:55:00 EDT

Interface Name	CSV	Actual Flow	Import Limit	Export Limit	Current Schedule	Purchase	Sale
● 1385 Cable	CSV	40	-100	25	25	0	25
● Cross Sound Cable	CSV	329	-346	330	330	0	330
● Highgate	CSV	-211	-218	0	-216	-216	0
● NY Northern AC	CSV	1012	-1400	1200	956	-205	1161
● New Brunswick	CSV	-143	-100	280	-100	-148	48
● Phase I/II	CSV	-704	-2000	1200	-712	-712	0

Markets > Five-Minute Data > Real-Time Market External Interface Summary

RT Daily Net Interchange Requests

ISO new england

- Markets
- System Operations
 - Morning Report
 - Real-Time Interchange Data
 - Real-Time Daily Net Interchange Requests
 - Real-Time Market Actual Scheduled Interchange
 - Operations Forecasting
 - OP4 Action Archive
 - System Operations Performance Reports
- Committees
 - Rules & Procedures
 - Regulatory
 - Transmission
 - Generation & Resources
 - Settlements
 - Support
- About ISO-NE
 - News & Issues
 - Publications

Home > System Operations

Real-Time Daily Net Interchange Requests

Disclaimer: Published Daily Net Interchange is based on all "Approved" Real-Time transactions received by 1600 the day before the Dispatch day. As such, it is possible for these values to exceed the forecasted interface limits. These values do not reflect those used for dispatch or settlement of the Real-Time Market.

View Report Online

- 1385 Cable
- Cross Sound Cable
- Highgate
- NY Northern AC
- New Brunswick
- Phase I/II

Date	Document Title	Document Type
Aug 23, 2007	Real-Time Daily Net Interchange Requests	csv

Real-Time Daily Net Interchange Requests

Disclaimer: Published Daily Net Interchange is based on all "Approved" Real-Time transactions received by 1600 the day before the Dispatch day. As such, it is possible for these values to exceed the forecasted interface limits. These values do not reflect those used for dispatch or settlement of the Real-Time Market.

Interchange - 1385 Cable
Daily Net Interchange of Real-Time Transaction Requests for Thursday August 23 2007

Trading Interval	Purchase (MWh)	Sale (MWh)	Net (MWh)
01	0	150	150
02	0	50	50
03	0	50	50
04	0	50	50
05	0	50	50
06	0	50	50
07	0	50	50
08	0	150	150
09	0	150	150
10	0	150	150
11	0	150	150
12	0	150	150
13	0	150	150
14	0	150	150
15	0	150	150
16	0	150	150
17	0	150	150
18	0	150	150
19	0	150	150
20	0	150	150
21	0	150	150
22	0	150	150
23	0	150	150
24	0	150	150

[System Operations > Real-Time Interchange Data > Real-Time Daily Net Interchange Requests](#)

RT Actual Scheduled Interchange

ISO new england

- Markets
- System Operations**
 - Morning Report
 - Real-Time Interchange Data
 - Real-Time Daily Net Interchange Requests
 - Real-Time Market Actual Scheduled Interchange
 - Operations Forecasting
 - OP4 Action Archive
 - System Operations Performance Reports
- Committees
- Rules & Procedures
- Regulatory
- Transmission
- Generation & Resources
- Settlements
- Support

[Home](#) > [System Operations](#)

Real-Time Market Actual Scheduled Interchange

Disclaimer: The data in this report is based on Real-time Market Dispatch data and may differ from that reflected in the Real-Time Market Settlement.

View Report Online

- 1385 Cable
- Cross Sound Cable
- Highgate
- NY Northern AC
- New Brunswick
- Phase I/II

Date	Document Title	Document Type
Aug 23, 2007	Real-Time Market Actual Scheduled Interchange	CSV
Aug 22, 2007	Real Time Market Daily Actual Scheduled Interchange	CSV

Real-Time Market Actual Scheduled Interchange

Disclaimer: The data in this report is based on Real-time Market Dispatch data and may differ from that reflected in the Real-Time Market Settlement.

Interchange - NY Northern AC
Real Time Market Daily Actual Scheduled Interchange
 (as of 2007-08-23 09:00:00 EDT)

Trading Interval	Interchange (MWh)
01	-492
02	-510
03	-772
04	-922
05	-1101
06	-581
07	-99
08	508
09	796
10	1044

[System Operations > Real-Time Interchange Data > Real-Time Market Actual Scheduled Interchange](#)



