



# Monthly Market Operations Report December 2013

ISO New England Inc.  
Market Analysis and Settlements  
January 14, 2014

## **1. Introduction**

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### **1.1 About ISO New England**

Created in 1997, ISO New England Inc. (the ISO) is the not-for-profit regional transmission organization (RTO) responsible for the day-to-day reliable operation of New England's bulk power generation and transmission system, oversight and administration of the region's wholesale electricity markets, and management of a comprehensive regional bulk power system planning process.

### **1.2 Market Reporting**

The ISO's FERC Electric Tariff No. 3, Section III – Market Rule 1 – Standard Market Design, Appendix A – Market Monitoring, Reporting and Market Power Mitigation Section III.A.11.2.1 requires the ISO to publish a monthly report, “which will be available to the public...containing an overview of the market's performance in the most recent period.”

The ISO produces many reports that summarize the operations of New England's wholesale electricity markets. The weekly report provides summaries of key market activities for the trading week encompassing Monday-Sunday. This report, generally posted on Wednesdays, can be found on the ISO's web site [here](#). This report is also supplemented by a Mid-Week Market Update, generally posted on Fridays, that reports pricing and congestion highlights from Monday through Thursday. This update may be accessed [here](#).

Monthly summaries of certain wholesale market concepts are reported monthly by the ISO's Chief Operating Officer at the NEPOOL Participants Committee Meeting. These summaries are posted on the ISO's web site [here](#), under the link entitled “Materials.”

Additionally, in compliance with federal requirements, the ISO issues quarterly reports of key statistics for the region's wholesale electric power markets. These reports can be found on the ISO's web site [here](#).

### **1.3 About This Report**

This report summarizes aspects of New England's wholesale electricity markets that are generally not discussed in the first two reports noted above. There are many interrelationships between the various markets that the ISO administers – each of the concepts presented in this report may interact with others, and second order effects cannot be included here. Additional information can be found on the ISO's web site [here](#).

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### 3. Monthly Summary

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Day-ahead and real-time LMPs at the New England Hub averaged \$92.96/MWh and \$98.53/MWh, respectively, during December 2013. Day-ahead and real-time prices at the Hub and in the Load Zones averaged 97-116% higher than November 2013 averages. In the aggregate, December 2013 day-ahead and real-time LMPs were approximately 114% higher during December 2013 than during December 2012. Average natural gas prices were 139% above the prior year's average prices, while residual fuel prices were down 5% from a year ago.

Overall, the average of the hourly real-time LMPs at the Hub and in the Load Zones ranged between 2.1% higher than day-ahead in the Maine (ME) Load Zone to 10.2% higher than its day-ahead counterpart in the Connecticut (CT) Load Zone. In the Day-Ahead Market, Load Zone average LMPs ranged between 5.3% lower than the Hub average LMPs in the CT Load Zone to 3.8% higher than the Hub in the Southeastern Massachusetts (SEMA) Load Zone. In the Real-Time Market, Load Zone average LMPs ranged from 3.9% lower than the Hub average LMPs in the ME Load Zone to 1.2% higher than the Hub in the SEMA Load Zone. Price differentials between on-peak and off-peak hours at the Hub and in the Load Zones ranged between 34% and 47% in both the Day-Ahead and Real-Time Markets.

The New England Control Area was a net importer of electricity in the Real-Time Market during December. In the Day-Ahead Energy Market, there were approximately 203,000 MWh of total exports and 2,566,000 MWh of imports, yielding a net import of approximately 2,363,000 MWh. In the Real-Time Energy Market, there were approximately 311,000 MWh of total exports and 2,642,000 MWh of imports, yielding a net import of approximately 2,331,000 MWh. This was about 605,000 MW higher than a year ago.

The Monthly FTR Auction (December 2013) had 37 participants and the awarded value of FTRs in the auction totaled \$1.4 million. This represented an increase of \$338,000 over the previous month and an addition of about \$895,000 over the prior year's monthly FTR auction. The allocation of FTR Auction Revenue for December 2013 resulted in \$2.2 million awarded to eligible entities, with \$116K allocated to Incremental Auction Revenue Rights (IARR).

The Marginal Loss Revenue Fund totaled \$10.3 million for December, up \$6.2 million from its November 2013 total.

Total Forward Reserve Credits to eligible assets of \$11.0 million were reduced by \$820,000 in Failure to Reserve Penalties and \$0 in Failure to Activate Penalties during December 2013. The net Forward Reserve Payment of \$10.2 million represented 88% of the maximum possible payment of \$11.5 million. Real-Time Reserve Prices occurred in 103 separate hours during the month, and those yielded real-time payments to designated assets of \$8.5 million. These payments were reduced by Forward Reserve Energy Obligation Charges totaling \$1.6 million yielding a net compensation of \$6.9 million during the month.

Regulation Market Payments totaled \$3.8 million during the month, an increase of \$2.2 million over the November 2013 value of \$1.6 million.

For the month of December 2013, Forward Capacity payments were made to a total of 32,827 MW of capacity and totaled \$86.6 million.

The Transitional Demand Response program is the method through which demand assets can participate in the Energy Market. Payments during December 2013 totaled \$443,000 for interruptions associated with Day Ahead, \$187,000 for interruptions associated with the Real Time, and \$169,991 associated with FCM/Audit. Total Transitional Demand Response payments for the month, \$800,390, were up approximately \$591,000 from their November levels.

*Capacity Deficiency Event on December 14, 2013* - On Saturday, December 14, 2013 the New England Balancing Area experienced a capacity deficiency due to high loads that ran over the forecast, with generator outages and reductions of approximately 400 MW, in addition to interchange curtailments from neighboring systems. The ISO implemented Master/Local Control Center Procedure # 2 (M/LCC #2), and [Operating Procedure No. 4 \(OP-4\)](#) Actions 1, 2, and 5. A Forward Capacity Market (FCM) shortage event as defined under [FCM Market Rules](#) was experienced for 85 minutes from 4:50 p.m. to 6:15 p.m. Event penalties were assessed to 132 generators and 3 importers, and totaled approximately \$6.7 million. For more information on this event, see the OP 4 Action Archive located [here](#).

*Winter 2013/14 Reliability Program Update* - As of January 2, 2014, the New England Fleet Fuel Oil Survey Inventory reflected approximately 3.4 million barrels of oil available. As of January 5, the total program oil burned was approximately 732,000 barrels, or the equivalent of 439,000 MWh<sup>1</sup>. For more information on the Winter Reliability Program, see Appendix K to Market Rule 1 located [here](#).

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<sup>1</sup> Based on an average heat content of 6,000,000 btu/Barrel and proxy heat rate of 10,000 MWh/MMBtu.

## 4. Locational Marginal Prices (LMPs)

Under Standard Market Design (SMD), the LMP is the cost of supplying an increment of load at a particular location. LMPs are calculated for each Internal and External Node as well as the eight Load Zones and the internal Hub in both the Day-Ahead and Real-Time Markets. LMPs are made up of three components: energy, congestion and marginal loss. The energy component of an LMP is the cost of providing an additional MW of energy to the distributed market reference bus. In any hour, the energy component is the same for all locations, while the congestion and marginal loss components vary among locations. If there were no congestion and losses, LMPs would be the same for all locations. Although the three components of the LMP are separated in some stages of the accounting process, the cost of energy at a location is the total LMP.

The following tables summarize Hub, zonal, and external node LMPs during the month on an overall, on-peak, and off-peak basis. On-peak hours are weekdays between 7:00 a.m. and 11:00 p.m. Off-peak hours are weekdays between 11:00 p.m. and 7:00 a.m., Saturdays, Sundays, and North American Electric Reliability Council (NERC) holidays.

### 4.1 LMP Summary Statistics

The following tables show summary statistics for LMPs for the Hub, eight internal Load Zones, and five external nodes for both the Day-Ahead and Real-Time Markets:

#### 4.1.1 All Hours, December 2013

| Hub/Zone/<br>Ext. Node | Avg DA<br>LMP<br>(\$/MWh) | Avg RT<br>LMP<br>(\$/MWh) | Min DA<br>LMP<br>(\$/MWh) | Min RT<br>LMP<br>(\$/MWh) | Max DA<br>LMP<br>(\$/MWh) | Max RT<br>LMP<br>(\$/MWh) | DA %<br>of<br>Hub | RT %<br>of<br>Hub | RT %<br>of<br>DA | DA<br>Std<br>Dev | RT<br>Std<br>Dev | RT<br>Std<br>/DA<br>Std |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------------|
| Hub                    | \$92.96                   | \$98.53                   | \$10.37                   | \$0.00                    | \$291.88                  | \$1,289.93                | 201%              | 226%              | 106.0%           | \$60.19          | \$86.50          | 1.44                    |
| ME                     | \$92.72                   | \$94.69                   | \$10.29                   | \$0.00                    | \$305.59                  | \$1,257.48                | 200%              | 217%              | 102.1%           | \$61.58          | \$83.29          | 1.35                    |
| NH                     | \$94.32                   | \$97.58                   | \$10.39                   | \$0.00                    | \$301.24                  | \$1,274.29                | 204%              | 224%              | 103.5%           | \$61.83          | \$85.56          | 1.38                    |
| VT                     | \$88.50                   | \$96.26                   | \$9.52                    | \$0.00                    | \$256.29                  | \$1,246.54                | 191%              | 221%              | 108.8%           | \$56.68          | \$84.36          | 1.49                    |
| CT                     | \$88.01                   | \$96.97                   | \$9.29                    | \$0.00                    | \$259.45                  | \$1,274.10                | 190%              | 222%              | 110.2%           | \$55.99          | \$84.98          | 1.52                    |
| RI                     | \$94.93                   | \$98.73                   | \$10.42                   | \$0.00                    | \$322.04                  | \$1,499.26                | 205%              | 226%              | 104.0%           | \$63.20          | \$91.08          | 1.44                    |
| SEMA                   | \$96.52                   | \$99.72                   | \$10.42                   | \$0.00                    | \$324.95                  | \$1,323.15                | 208%              | 229%              | 103.3%           | \$63.96          | \$87.93          | 1.37                    |
| WCMA                   | \$92.59                   | \$98.40                   | \$10.39                   | \$0.00                    | \$286.60                  | \$1,281.28                | 200%              | 226%              | 106.3%           | \$59.70          | \$86.16          | 1.44                    |
| NEMA                   | \$96.20                   | \$99.34                   | \$10.43                   | \$0.00                    | \$315.86                  | \$1,310.13                | 208%              | 228%              | 103.3%           | \$63.48          | \$87.29          | 1.38                    |
| NB Ext                 | \$88.38                   | \$92.20                   | \$9.88                    | \$0.00                    | \$296.53                  | \$1,230.41                | 191%              | 211%              | 104%             | \$59.62          | \$82.51          | 1.38                    |
| NYN Ext                | \$86.48                   | \$95.25                   | \$10.20                   | \$0.00                    | \$248.52                  | \$1,210.04                | 187%              | 218%              | 110%             | \$54.81          | \$82.37          | 1.50                    |
| HQ Ext                 | \$93.94                   | \$97.13                   | \$10.27                   | \$0.00                    | \$313.83                  | \$1,278.06                | 203%              | 223%              | 103%             | \$62.17          | \$85.29          | 1.37                    |
| HG Ext                 | \$82.15                   | \$89.49                   | \$7.92                    | \$0.00                    | \$238.94                  | \$1,171.20                | 177%              | 205%              | 109%             | \$53.02          | \$78.95          | 1.49                    |
| CSC Ext                | \$87.61                   | \$96.82                   | \$9.20                    | \$0.00                    | \$258.26                  | \$1,211.84                | 189%              | 222%              | 111%             | \$55.40          | \$82.99          | 1.50                    |
| NNC Ext                | \$87.06                   | \$95.65                   | \$9.26                    | \$0.00                    | \$255.61                  | \$1,203.02                | 188%              | 219%              | 110%             | \$55.20          | \$82.55          | 1.50                    |

4.1.2 On-Peak Hours, December 2013

| Hub/Zone/<br>Ext. Node | Avg DA<br>LMP<br>(\$/MWh) | Avg RT<br>LMP<br>(\$/MWh) | Min DA<br>LMP<br>(\$/MWh) | Min RT<br>LMP<br>(\$/MWh) | Max DA<br>LMP<br>(\$/MWh) | Max RT<br>LMP<br>(\$/MWh) | DA %<br>of<br>Hub | RT %<br>of<br>Hub | RT %<br>of<br>DA | DA<br>Std<br>Dev | RT<br>Std<br>Dev | RT<br>Std<br>/DA<br>Std |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------------|
| Hub                    | \$111.12                  | \$115.22                  | \$34.28                   | \$15.60                   | \$291.88                  | \$527.03                  | 223%              | 244%              | 104%             | \$61.53          | \$75.49          | 1.23                    |
| ME                     | \$109.61                  | \$110.18                  | \$32.66                   | \$15.43                   | \$298.54                  | \$479.85                  | 220%              | 234%              | 101%             | \$62.41          | \$71.24          | 1.14                    |
| NH                     | \$112.10                  | \$114.08                  | \$34.20                   | \$15.53                   | \$299.15                  | \$520.23                  | 225%              | 242%              | 102%             | \$63.03          | \$74.49          | 1.18                    |
| VT                     | \$107.42                  | \$112.61                  | \$33.67                   | \$15.11                   | \$256.29                  | \$517.37                  | 216%              | 239%              | 105%             | \$57.83          | \$73.89          | 1.28                    |
| CT                     | \$106.69                  | \$113.59                  | \$33.75                   | \$15.37                   | \$259.45                  | \$527.48                  | 214%              | 241%              | 106%             | \$57.36          | \$74.42          | 1.30                    |
| RI                     | \$111.68                  | \$114.63                  | \$34.37                   | \$8.31                    | \$322.04                  | \$522.75                  | 224%              | 243%              | 103%             | \$64.62          | \$75.51          | 1.17                    |
| SEMA                   | \$114.26                  | \$116.61                  | \$34.62                   | \$15.83                   | \$324.95                  | \$525.84                  | 229%              | 247%              | 102%             | \$65.22          | \$76.19          | 1.17                    |
| WCMA                   | \$110.85                  | \$115.05                  | \$34.33                   | \$15.58                   | \$286.60                  | \$527.30                  | 223%              | 244%              | 104%             | \$61.03          | \$75.27          | 1.23                    |
| NEMA                   | \$113.96                  | \$116.29                  | \$34.55                   | \$15.83                   | \$313.58                  | \$530.57                  | 229%              | 247%              | 102%             | \$64.60          | \$75.77          | 1.17                    |
| NB Ext                 | \$104.52                  | \$107.65                  | \$30.40                   | \$15.10                   | \$290.93                  | \$477.81                  | 210%              | 228%              | 103%             | \$60.45          | \$71.66          | 1.19                    |
| NYN Ext                | \$104.68                  | \$111.29                  | \$33.20                   | \$15.11                   | \$248.52                  | \$507.19                  | 210%              | 236%              | 106%             | \$56.00          | \$72.44          | 1.29                    |
| HQ Ext                 | \$111.15                  | \$113.56                  | \$33.69                   | \$15.45                   | \$313.83                  | \$517.32                  | 223%              | 241%              | 102%             | \$63.39          | \$74.08          | 1.17                    |
| HG Ext                 | \$100.01                  | \$104.73                  | \$31.26                   | \$13.87                   | \$238.94                  | \$482.78                  | 201%              | 222%              | 105%             | \$54.11          | \$69.07          | 1.28                    |
| CSC Ext                | \$106.07                  | \$113.39                  | \$33.66                   | \$15.53                   | \$258.26                  | \$519.18                  | 213%              | 240%              | 107%             | \$56.59          | \$73.63          | 1.30                    |
| NNC Ext                | \$105.60                  | \$111.99                  | \$33.73                   | \$15.17                   | \$255.61                  | \$519.41                  | 212%              | 238%              | 106%             | \$56.65          | \$73.13          | 1.29                    |

4.1.3 Off-Peak Hours, December 2013

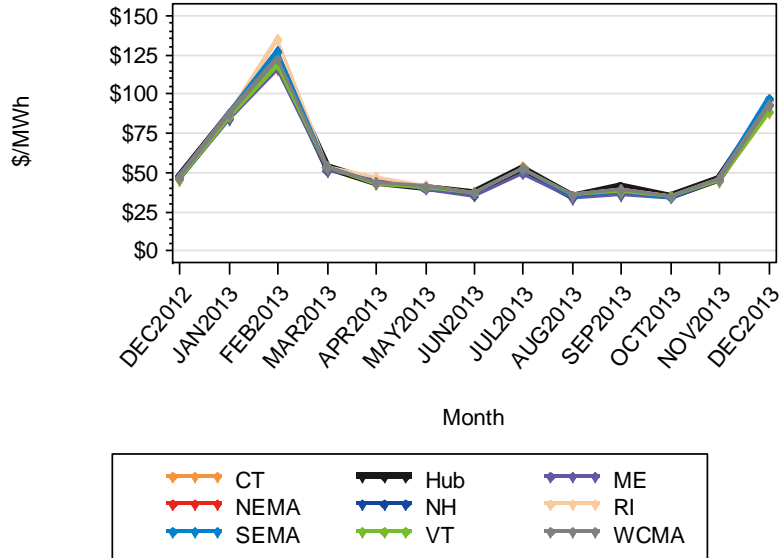
| Hub/Zone/<br>Ext. Node | Avg DA<br>LMP<br>(\$/MWh) | Avg RT<br>LMP<br>(\$/MWh) | Min DA<br>LMP<br>(\$/MWh) | Min RT<br>LMP<br>(\$/MWh) | Max DA<br>LMP<br>(\$/MWh) | Max RT<br>LMP<br>(\$/MWh) | DA %<br>of<br>Hub | RT %<br>of<br>Hub | RT %<br>of<br>DA | DA<br>Std<br>Dev | RT<br>Std<br>Dev | RT<br>Std<br>/DA<br>Std |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------------|
| Hub                    | \$78.01                   | \$84.80                   | \$10.37                   | \$0.00                    | \$287.71                  | \$1,289.93                | 179%              | 207%              | 109%             | \$54.77          | \$92.46          | 1.69                    |
| ME                     | \$78.81                   | \$81.93                   | \$10.29                   | \$0.00                    | \$305.59                  | \$1,257.48                | 180%              | 200%              | 104%             | \$57.33          | \$90.15          | 1.57                    |
| NH                     | \$79.67                   | \$83.99                   | \$10.39                   | \$0.00                    | \$301.24                  | \$1,274.29                | 182%              | 205%              | 105%             | \$56.87          | \$91.58          | 1.61                    |
| VT                     | \$72.93                   | \$82.80                   | \$9.52                    | \$0.00                    | \$252.50                  | \$1,246.54                | 167%              | 202%              | 114%             | \$50.73          | \$89.97          | 1.77                    |
| CT                     | \$72.63                   | \$83.29                   | \$9.29                    | \$0.00                    | \$250.60                  | \$1,274.10                | 166%              | 203%              | 115%             | \$49.89          | \$90.61          | 1.82                    |
| RI                     | \$81.14                   | \$85.64                   | \$10.42                   | \$0.00                    | \$317.37                  | \$1,499.26                | 186%              | 209%              | 106%             | \$58.59          | \$100.35         | 1.71                    |
| SEMA                   | \$81.92                   | \$85.81                   | \$10.42                   | \$0.00                    | \$319.06                  | \$1,323.15                | 188%              | 209%              | 105%             | \$59.11          | \$94.39          | 1.60                    |
| WCMA                   | \$77.55                   | \$84.69                   | \$10.39                   | \$0.00                    | \$282.47                  | \$1,281.28                | 178%              | 207%              | 109%             | \$54.20          | \$92.04          | 1.70                    |
| NEMA                   | \$81.58                   | \$85.39                   | \$10.43                   | \$0.00                    | \$315.86                  | \$1,310.13                | 187%              | 208%              | 105%             | \$58.72          | \$93.55          | 1.59                    |
| NB Ext                 | \$75.09                   | \$79.47                   | \$9.88                    | \$0.00                    | \$296.53                  | \$1,230.41                | 172%              | 194%              | 106%             | \$55.57          | \$88.55          | 1.59                    |
| NYN Ext                | \$71.49                   | \$82.04                   | \$10.20                   | \$0.00                    | \$244.26                  | \$1,210.04                | 164%              | 200%              | 115%             | \$49.03          | \$87.63          | 1.79                    |
| HQ Ext                 | \$79.77                   | \$83.60                   | \$10.27                   | \$0.00                    | \$308.04                  | \$1,278.06                | 183%              | 204%              | 105%             | \$57.46          | \$91.42          | 1.59                    |
| HG Ext                 | \$67.44                   | \$76.95                   | \$7.92                    | \$0.00                    | \$238.26                  | \$1,171.20                | 154%              | 188%              | 114%             | \$47.35          | \$84.28          | 1.78                    |
| CSC Ext                | \$72.40                   | \$83.18                   | \$9.20                    | \$0.00                    | \$249.42                  | \$1,211.84                | 166%              | 203%              | 115%             | \$49.53          | \$87.73          | 1.77                    |
| NNC Ext                | \$71.79                   | \$82.19                   | \$9.26                    | \$0.00                    | \$245.69                  | \$1,203.02                | 164%              | 201%              | 114%             | \$49.03          | \$87.39          | 1.78                    |



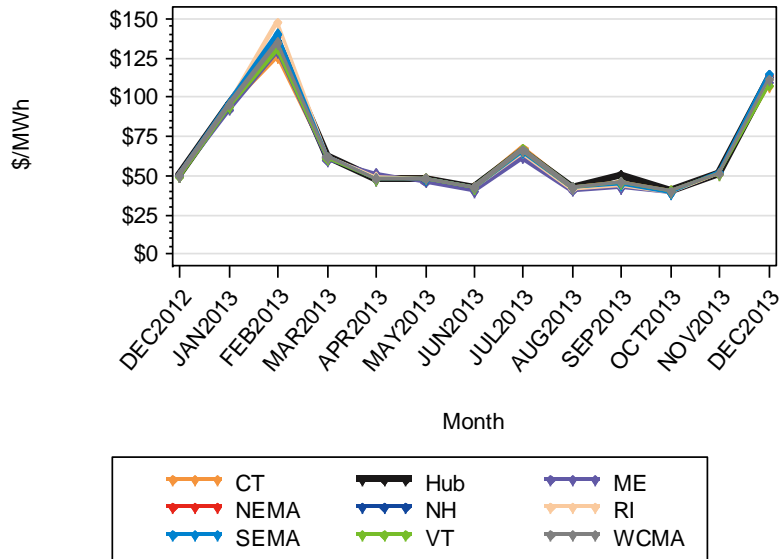
## 4.2 LMP Graphs, Day-Ahead Market, 13 Months Ending December 2013

The following four graphs show the 13 month history of average hourly Day-Ahead LMPs for the Hub, Load Zones, and External Nodes on an overall and on-peak basis.

**Monthly Avg Day-Ahead LMPs for Hub and Load Zones**  
13 Mos Ending December 2013, All Hours

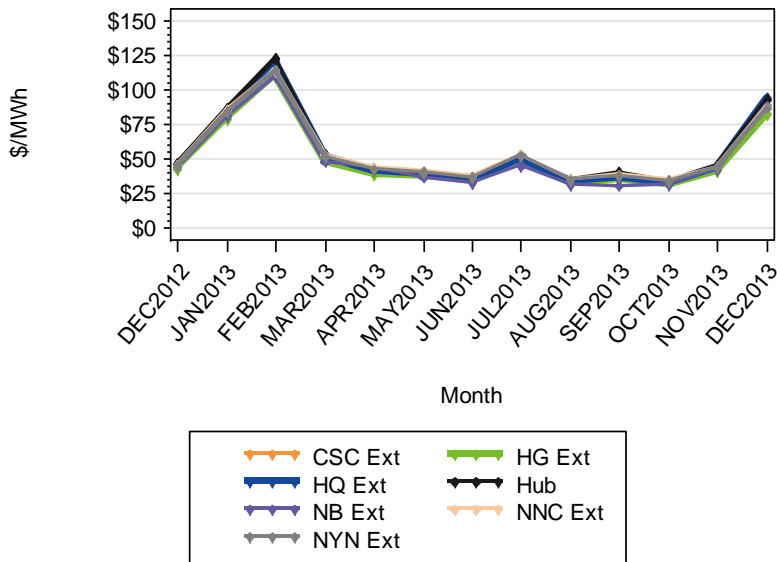


**Monthly Avg Day-Ahead LMPs for Hub and Load Zones**  
13 Mos Ending December 2013, On-Peak Hours



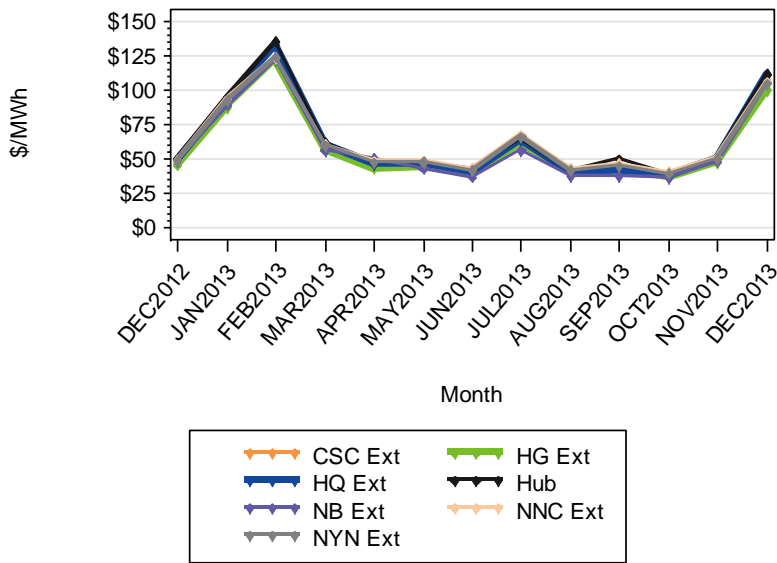
### Monthly Avg Day-Ahead LMPs for Hub and External Nodes

13 Mos Ending December 2013, All Hours



### Monthly Avg Day-Ahead LMPs for Hub and External Nodes

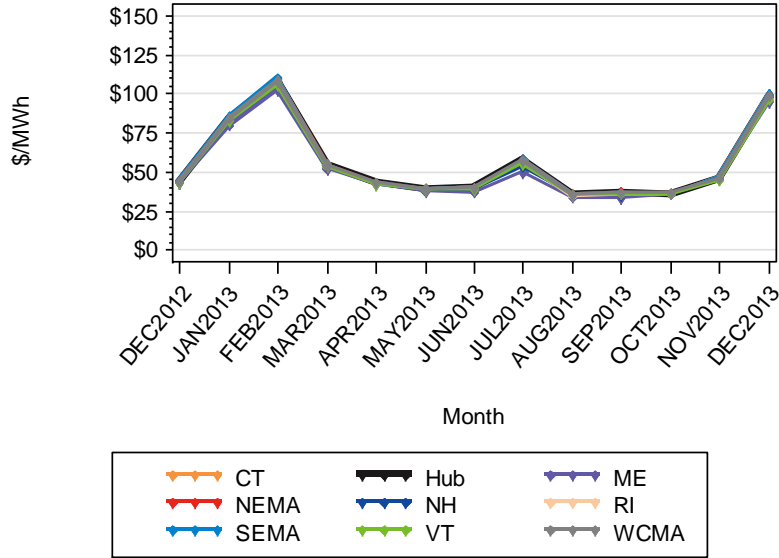
13 Mos Ending December 2013, On-Peak Hours



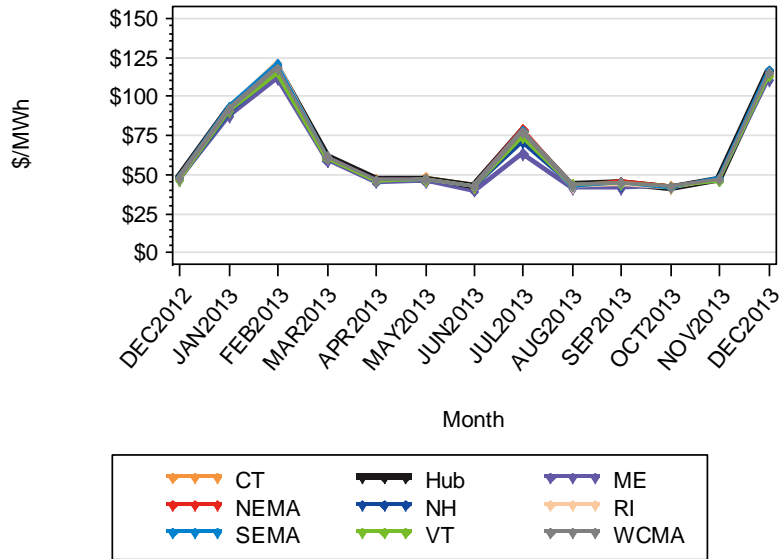
### 4.3 LMP Graphs, Real-Time Market, 13 Months Ending December 2013

The following four graphs show the 13 month history of average hourly Real-Time LMPs for the Hub, Load Zones, and External Nodes on an overall and on-peak basis.

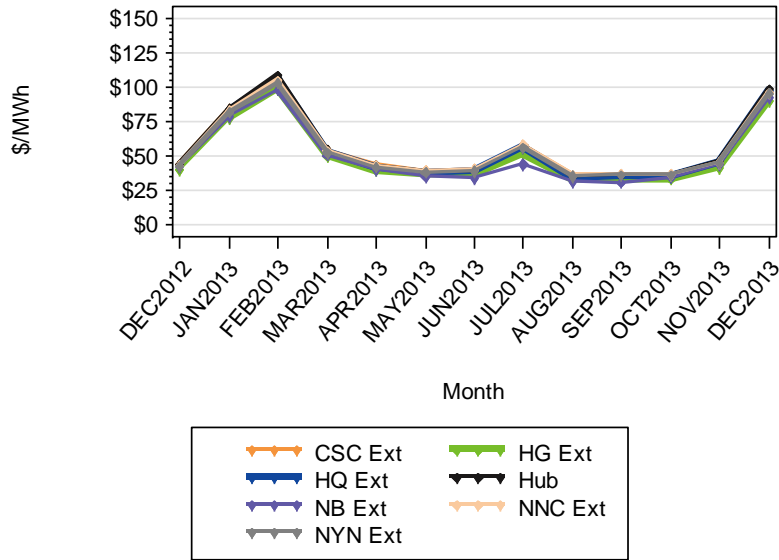
**Monthly Avg Real-Time LMPs for Hub and Load Zones**  
13 Mos Ending December 2013, All Hours



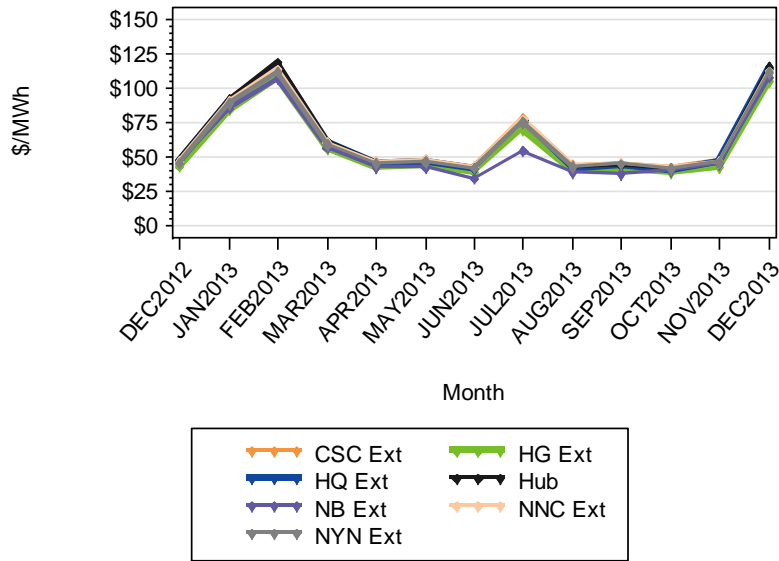
**Monthly Avg Real-Time LMPs for Hub and Load Zones**  
13 Mos Ending December 2013, On-Peak Hours



**Monthly Avg Real-Time LMPs for Hub and External Nodes**  
 13 Mos Ending December 2013, All Hours



**Monthly Avg Real-Time LMPs for Hub and External Nodes**  
 13 Mos Ending December 2013, On-Peak Hours



**4.4 For More Information**

The ISO provides a discussion of LMP results on a weekly basis in its Weekly Market Performance Report, located [here](#).

The ISO also provides a discussion of LMP results on an annual basis in its Annual Market Performance Reports, located [here](#).

Downloadable Hub and Load Zone weekly and monthly LMP indices are located [here](#).

Customizable downloads of Day-Ahead and Real-Time Hourly LMPs can be performed [here](#).

Current Day-Ahead and Real-Time LMPs for the Hub and Load Zones can be monitored [here](#).

A discussion of the calculation of LMPs can be found in the ISO's Market Rule 1 located [here](#).

## 5. Imports and Exports

Market Participants can submit hourly Fixed External Transaction quantities for which they commit to import at Day-Ahead LMPs for delivery in the next Operating Day. They can also submit hourly Fixed External Transaction quantities for which they commit to import at Real-Time LMPs for physical delivery within the Operating Day. There are also several types of price-dependent transactions that can be submitted.

### 5.1 Net Interchange Summary, December 2013

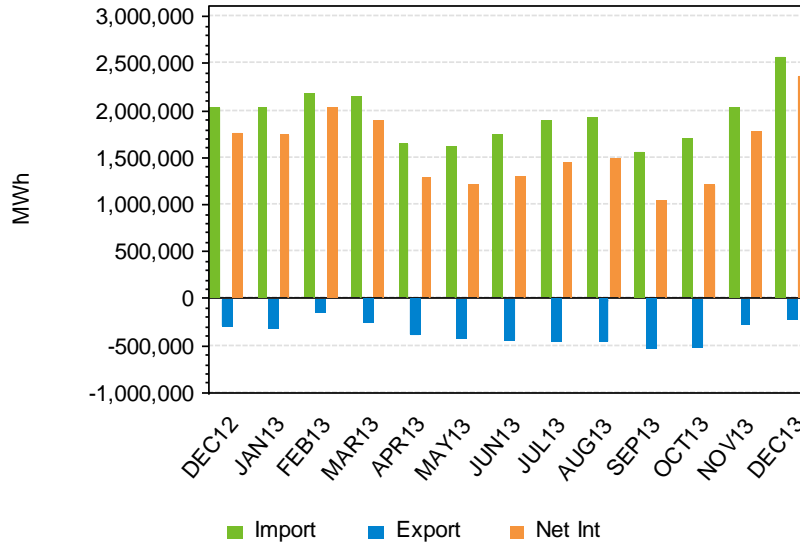
The following tables show summary statistics for imports and exports on the six external interfaces for both the Day-Ahead and Real-Time Markets:

#### 5.1.1 Day-Ahead and Real-Time Market Summary by Interface

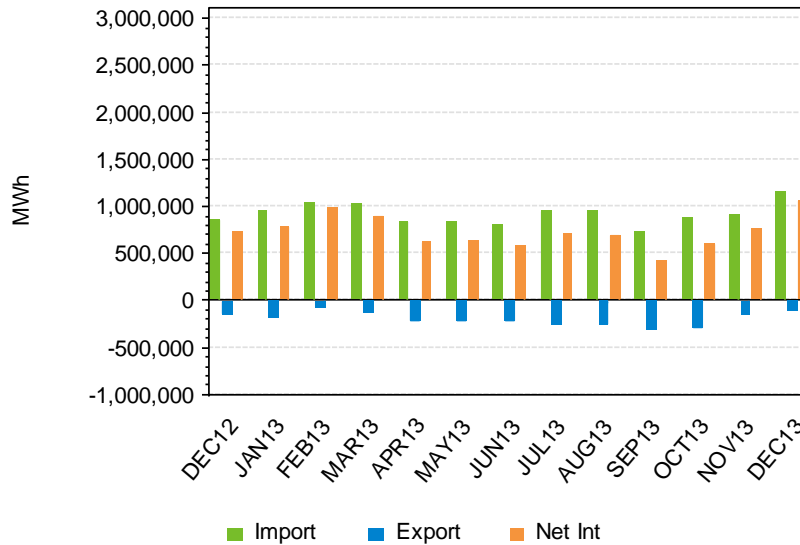
| On/Off Peak | Interface    | DA Total Exports (MWh) | DA Total Imports (MWh) | DA Net Int (MWh) | RT Total Exports (MWh) | RT Total Imports (MWh) | RT Net Int (MWh) |
|-------------|--------------|------------------------|------------------------|------------------|------------------------|------------------------|------------------|
| All Hours   | NNC          | -13,184                | 49,389                 | 36,205           | -15,453                | 66,268                 | 50,815           |
|             | NY-CSC       | -71,070                | 10,191                 | -60,879          | -63,058                | 26,958                 | -36,100          |
|             | HQ HG        | 0                      | 161,225                | 161,225          | 0                      | 159,498                | 159,498          |
|             | HQ I/II      | 0                      | 1,067,378              | 1,067,378        | 0                      | 1,054,159              | 1,054,159        |
|             | NY-N AC      | -110,271               | 857,625                | 747,355          | -160,287               | 887,952                | 727,665          |
|             | NB           | -8,423                 | 420,157                | 411,734          | -72,469                | 447,348                | 374,879          |
|             | <b>Total</b> | <b>All Hours</b>       | <b>-202,947</b>        | <b>2,565,964</b> | <b>2,363,017</b>       | <b>-311,267</b>        | <b>2,642,183</b> |
| Off-Peak    | NNC          | -4,941                 | 27,868                 | 22,926           | -7,333                 | 34,695                 | 27,362           |
|             | NY-CSC       | -41,420                | 1,140                  | -40,280          | -33,408                | 11,038                 | -22,370          |
|             | HQ HG        | 0                      | 87,977                 | 87,977           | 0                      | 86,348                 | 86,348           |
|             | HQ I/II      | 0                      | 584,018                | 584,018          | 0                      | 572,563                | 572,563          |
|             | NY-N AC      | -53,265                | 481,939                | 428,674          | -81,899                | 497,490                | 415,591          |
|             | NB           | -4,848                 | 234,276                | 229,428          | -33,371                | 249,090                | 215,719          |
|             | <b>Total</b> | <b>Off-Peak</b>        | <b>-104,474</b>        | <b>1,417,218</b> | <b>1,312,743</b>       | <b>-156,011</b>        | <b>1,451,224</b> |
| On-Peak     | NNC          | -8,243                 | 21,521                 | 13,279           | -8,120                 | 31,573                 | 23,453           |
|             | NY-CSC       | -29,650                | 9,051                  | -20,599          | -29,650                | 15,920                 | -13,730          |
|             | HQ HG        | 0                      | 73,248                 | 73,248           | 0                      | 73,150                 | 73,150           |
|             | HQ I/II      | 0                      | 483,360                | 483,360          | 0                      | 481,596                | 481,596          |
|             | NY-N AC      | -57,005                | 375,686                | 318,681          | -78,388                | 390,462                | 312,074          |
|             | NB           | -3,575                 | 185,881                | 182,306          | -39,098                | 198,258                | 159,160          |
|             | <b>Total</b> | <b>On-Peak</b>         | <b>-98,473</b>         | <b>1,148,747</b> | <b>1,050,274</b>       | <b>-155,256</b>        | <b>1,190,959</b> |

## 5.2 Day-Ahead and Real-Time Net Interchange Summary, Last 13 Months

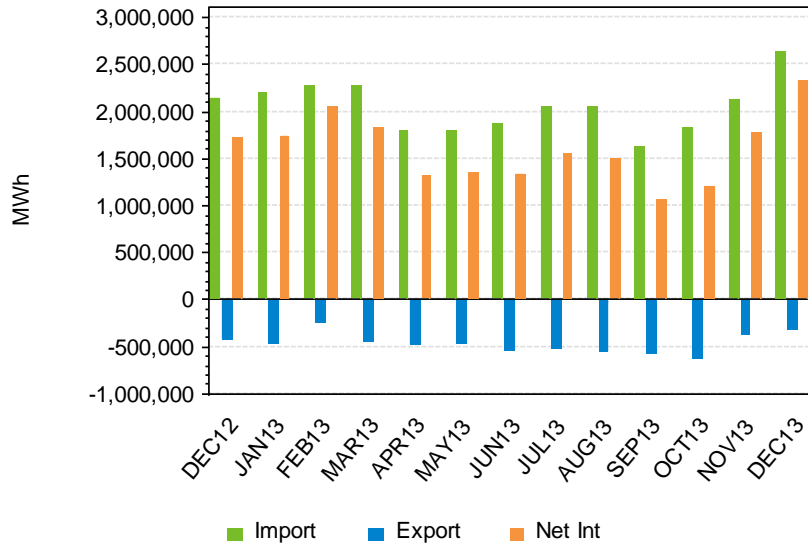
**Net Interchange, Last 13 Mos., New England Control Area**  
Day-Ahead Market, All Hours



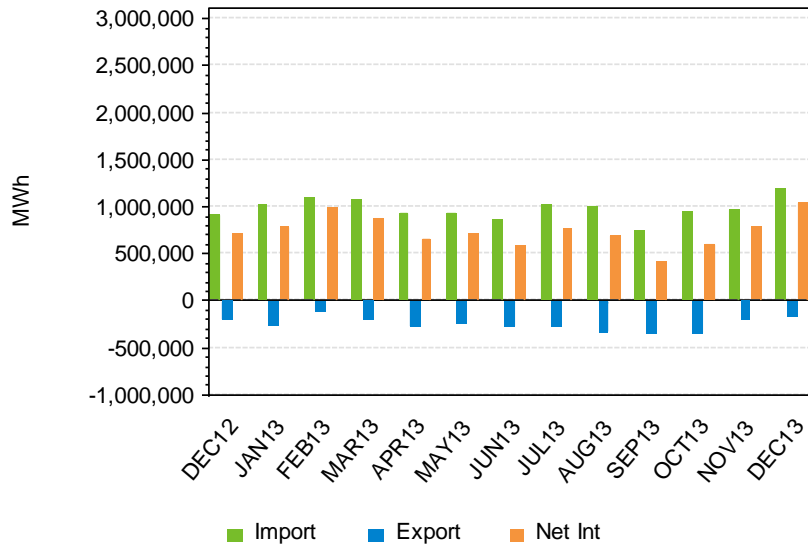
**Net Interchange, Last 13 Mos., New England Control Area**  
Day-Ahead Market, On-Peak Hours



**Net Interchange, Last 13 Mos., New England Control Area**  
Real-Time Market, All Hours



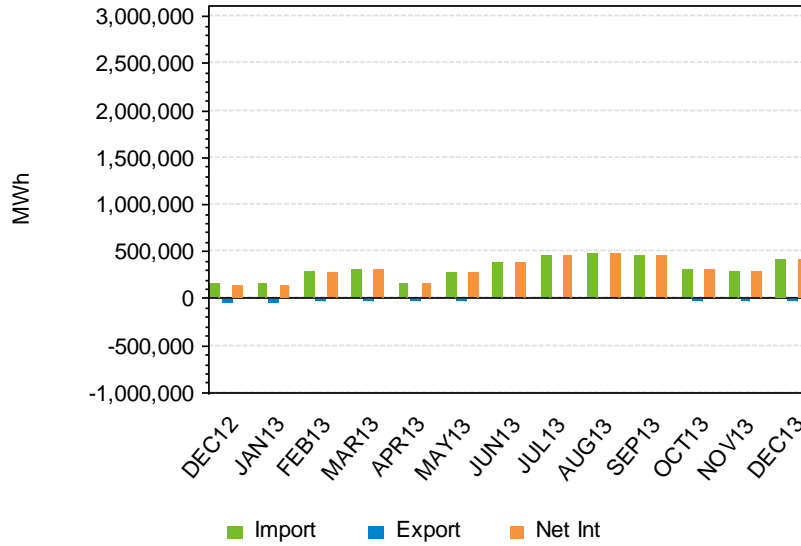
**Net Interchange, Last 13 Mos., New England Control Area**  
Real-Time Market, On-Peak Hours



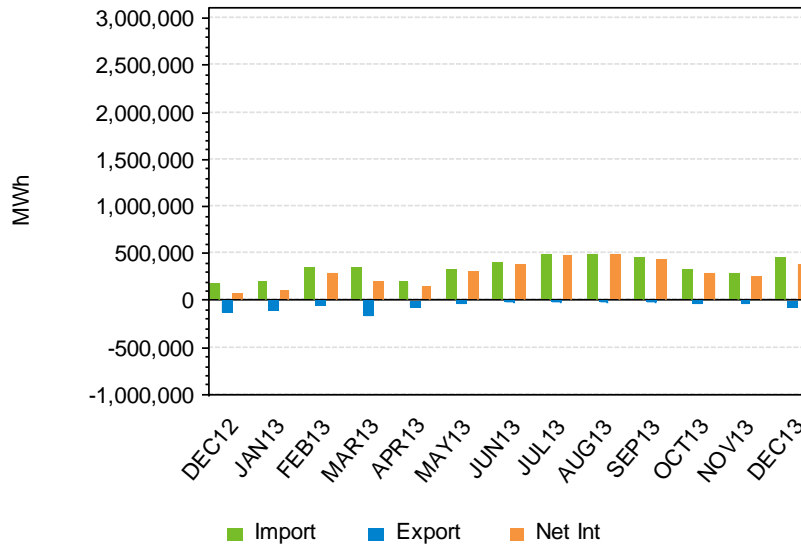


### 5.3 Net Interchange Summary by Interface, Last 13 Months

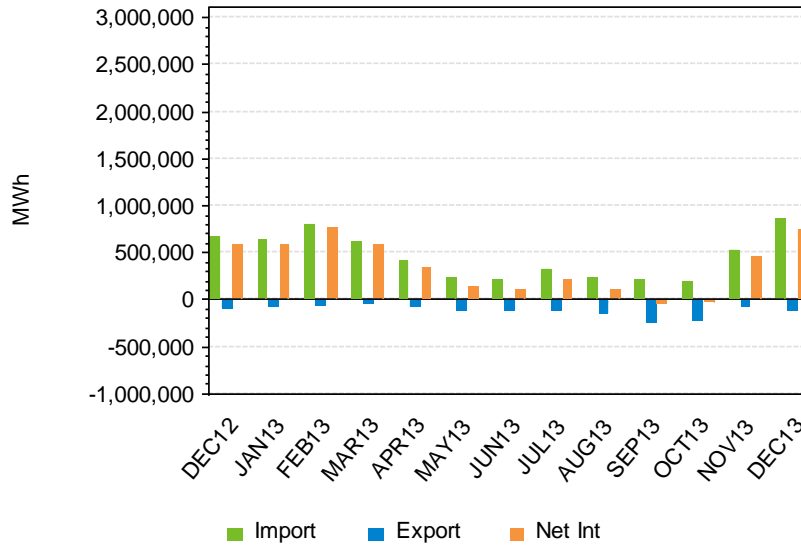
**Net Interchange, Last 13 Mos., New Brunswick**  
Day-Ahead Market, All Hours



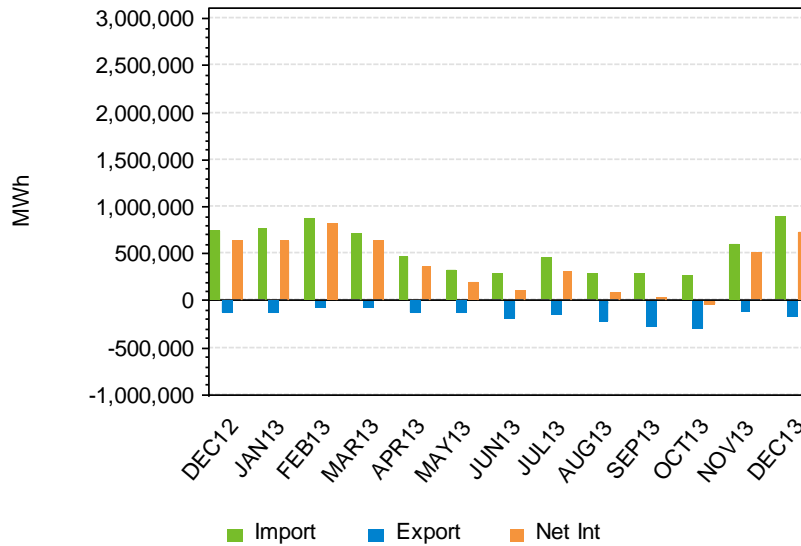
**Net Interchange, Last 13 Mos., New Brunswick**  
Real-Time Market, All Hours



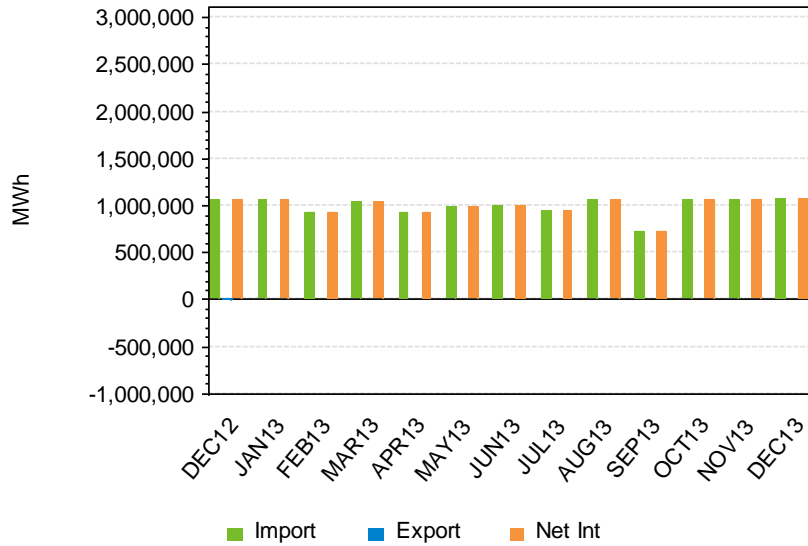
**Net Interchange, Last 13 Mos., New York N-AC Ties**  
Day-Ahead Market, All Hours



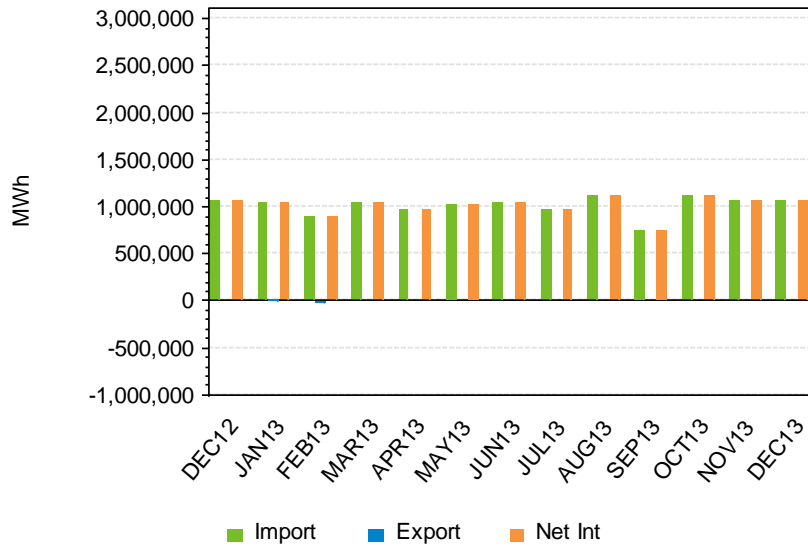
**Net Interchange, Last 13 Mos., New York N-AC Ties**  
Real-Time Market, All Hours



**Net Interchange, Last 13 Mos., Hydro-Quebec Phase I/II**  
Day-Ahead Market, All Hours

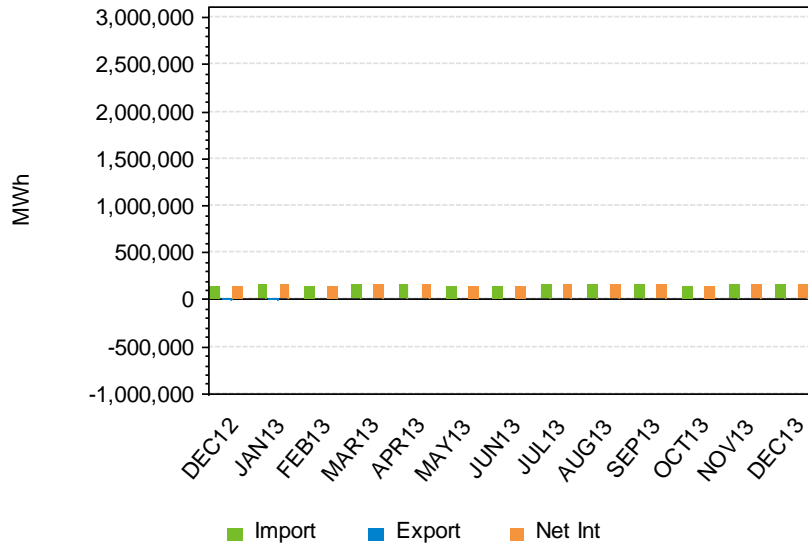


**Net Interchange, Last 13 Mos., Hydro-Quebec Phase I/II**  
Real-Time Market, All Hours



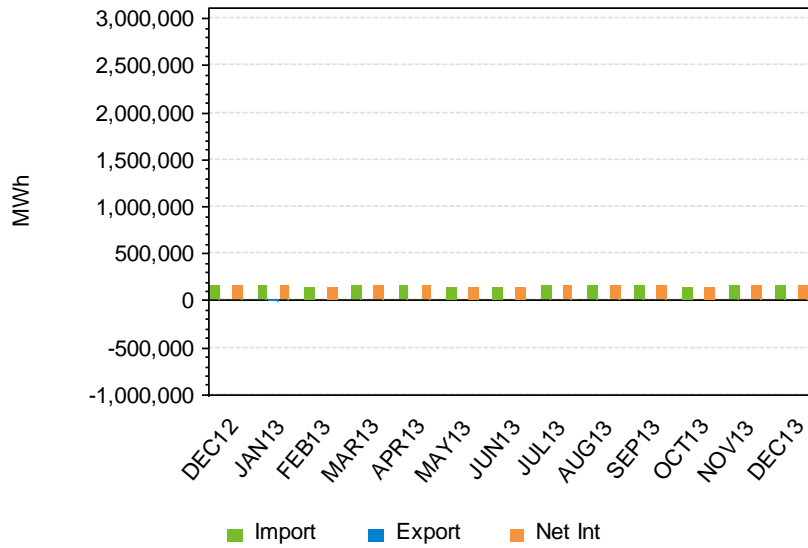
### Net Interchange, Last 13 Mos., HQ Highgate

Day-Ahead Market, All Hours

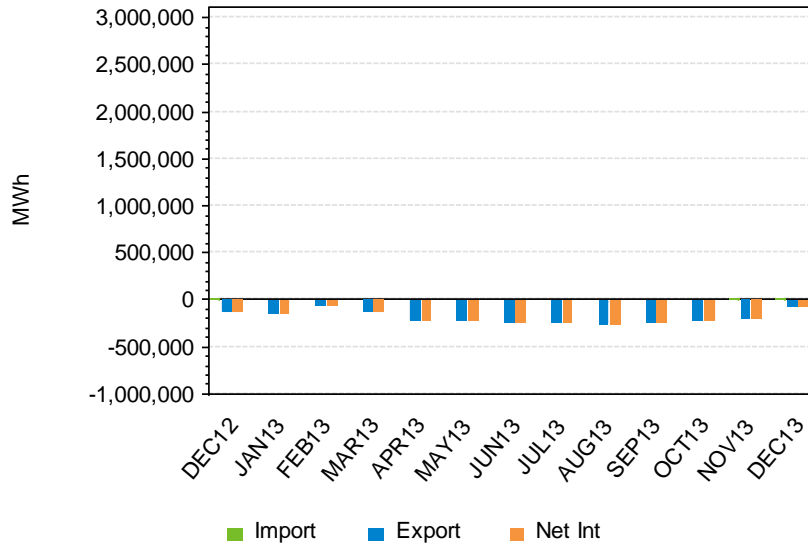


### Net Interchange, Last 13 Mos., HQ Highgate

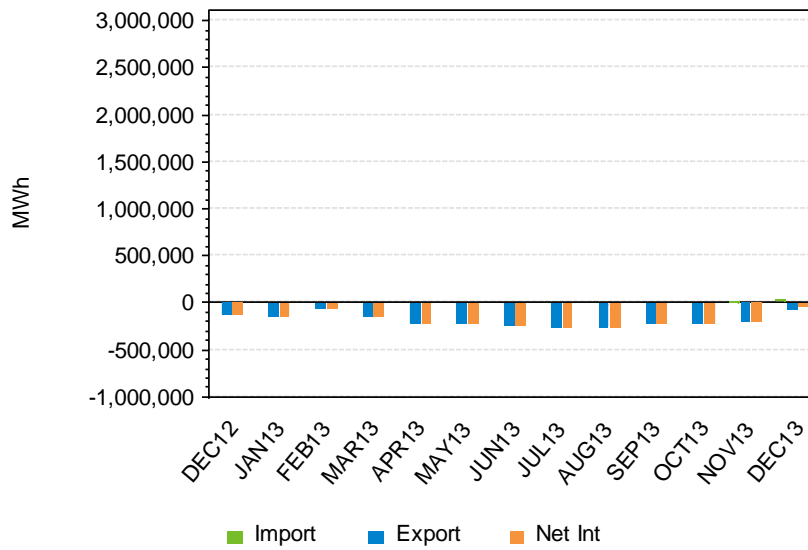
Real-Time Market, All Hours



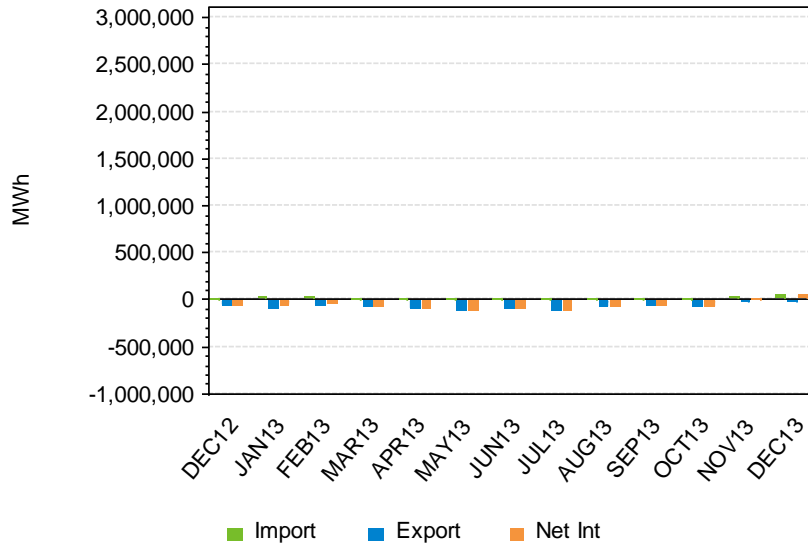
**Net Interchange, Last 13 Mos., NY Cross Sound Cable**  
Day-Ahead Market, All Hours



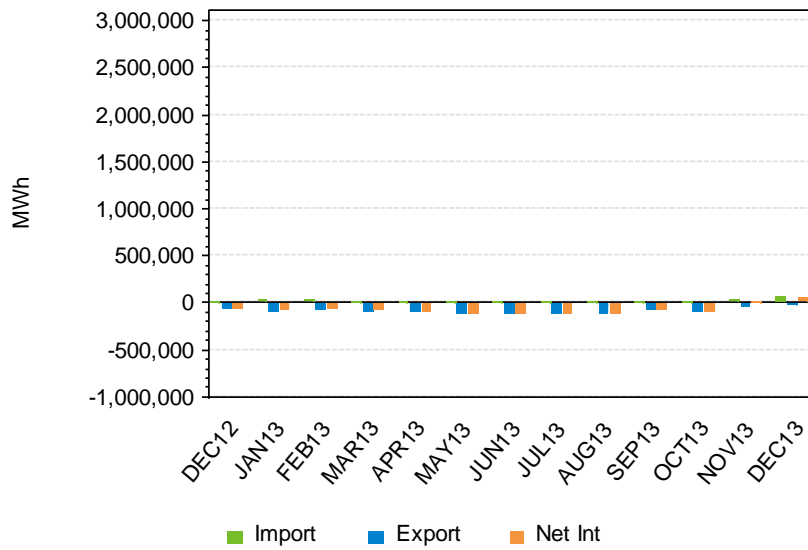
**Net Interchange, Last 13 Mos., NY Cross Sound Cable**  
Real-Time Market, All Hours



**Net Interchange, Last 13 Mos., Northport-Norwalk Cable**  
Day-Ahead Market, All Hours



**Net Interchange, Last 13 Mos., Northport-Norwalk Cable**  
Real-Time Market, All Hours



#### **5.4 For More Information**

Selectable historical hourly net interchange for the New England Control can be found on the ISO's website (select 'Interchange' in the drop-down under 'Step 1') [here](#).

Monthly, daily, and hourly summaries of New England Control Area net interchange can be found on the ISO's web site [here](#).

The market rules governing the scheduling of external transactions can be found in Section III.1.10 "Scheduling" of the ISO's Market Rule 1 located [here](#).

The business rules and procedures for external transactions can be found in Section 6.5, "External Transactions" in the ISO's Manual 11 – Market Operations located [here](#).

A history of emergency purchases and sales from and to neighboring control areas can be found [here](#).

## 6. Financial Transmission Rights (FTR) Auctions

FTRs are financial instruments that entitle the holder to a share of congestion collections in the Day-Ahead Market. The difference in prices (excluding losses) along a path or between any two locations on the system in the Day-Ahead Market reflects the marginal cost of transmission along that path. An FTR allows its purchaser to collect up to the full value of such congestion as consistent with the FTR's specified path and MW value.

FTRs can be acquired in three ways:

- FTR Auction – the ISO conducts periodic auctions to allow bidders to acquire and sell monthly and long-term FTRs. The bidders in the FTR auction initially define all FTRs.
- Secondary Market – The FTR secondary market is an ISO-administered bulletin board where existing FTRs are electronically bought or sold on a bilateral basis.
- Unregistered Trades – FTRs can be exchanged bilaterally outside of the ISO-administered process. However, the ISO compensates only FTR holders of record and does not recognize business done in this manner for day-ahead congestion settlement purposes.

### 6.1 FTR Auction Results

The results of the monthly FTR auction and any applicable long-term FTR auction are shown below.

#### 6.1.1 Monthly Auction Summary, December 2013

| Bids to Buy or Offers to Sell | On-Peak or Off-Peak | No. of Bids or Offers | Bid or Offered MW-Mos. | Bid or Offered Dollars | No. of Awards | Awarded MW-Mos. | Awarded Dollars |
|-------------------------------|---------------------|-----------------------|------------------------|------------------------|---------------|-----------------|-----------------|
| Buy                           | Off                 | 13,765                | 93,055                 | -\$553,212             | 5,526         | 27,218          | \$572,751       |
| Buy                           | On                  | 14,637                | 110,848                | -\$2,152,417           | 5,345         | 29,863          | \$910,498       |
| Buy                           | Buy Total           | 28,402                | 203,903                | -\$2,705,630           | 10,871        | 57,081          | \$1,483,248     |
| Sell                          | Off                 | 3,106                 | 4,928                  | \$1,305,398            | 402           | 897             | -\$61,185       |
| Sell                          | On                  | 2,965                 | 5,490                  | \$1,883,794            | 489           | 1,161           | -\$33,619       |
| Sell                          | Sell Total          | 6,071                 | 10,418                 | \$3,189,192            | 891           | 2,058           | -\$94,804       |
| Grand Total                   | Grand Total         | 34,473                | 214,321                | \$483,562              | 11,762        | 59,139          | \$1,388,444     |

#### 6.1.2 Number of Auction Participants, December 2013

| Auction Period | Monthly or Long-Term | No. of Bidders |
|----------------|----------------------|----------------|
| Dec 2013       | MO                   | 37             |

#### 6.1.3 Monthly FTR Auction Results, Last 13 Months

| Auction Month | Bids to Buy or Offers to Sell | No. of Bids or Offers | Bid or Offered MW-Mos. | Bid or Offered Dollars | No. of Awards | Awarded MW-Mos. | Awarded Dollars |
|---------------|-------------------------------|-----------------------|------------------------|------------------------|---------------|-----------------|-----------------|
| DEC 2012      | Buy                           | 14,114                | 95,684                 | -\$4,730,889           | 6,028         | 31,803          | \$447,414       |
| DEC 2012      | Sell                          | 5,589                 | 11,864                 | \$1,261,531            | 635           | 2,232           | \$45,738        |
| DEC 2012      | Tot                           | 19,703                | 107,548                | -\$3,469,357           | 6,663         | 34,036          | \$493,151       |
| JAN 2013      | Buy                           | 16,902                | 139,930                | -\$4,516,734           | 6,484         | 41,000          | \$501,686       |
| JAN 2013      | Sell                          | 5,656                 | 10,865                 | \$1,850,618            | 64            | 382             | \$107,627       |
| JAN 2013      | Tot                           | 22,558                | 150,796                | -\$2,666,115           | 6,548         | 41,382          | \$609,314       |
| FEB 2013      | Buy                           | 20,017                | 138,409                | -\$5,309,132           | 8,440         | 43,578          | \$387,345       |
| FEB 2013      | Sell                          | 5,552                 | 10,469                 | \$1,741,271            | 50            | 386             | \$37,419        |

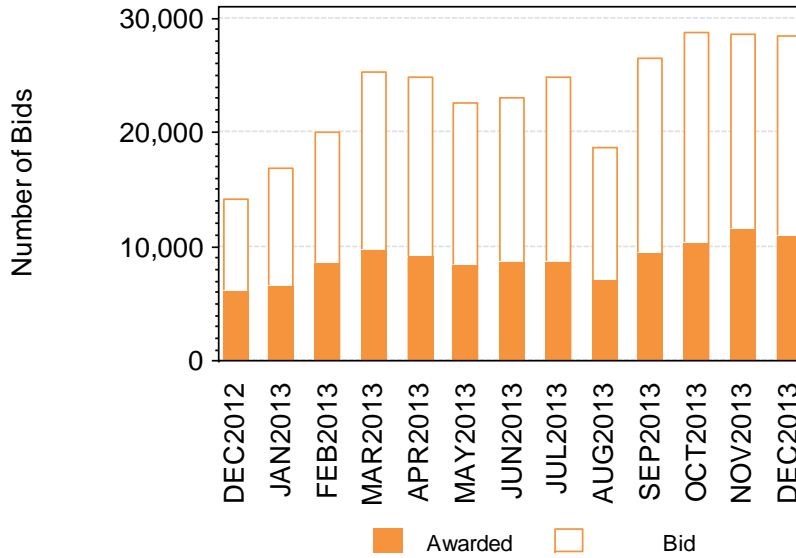


| Auction Month | Bids to Buy or Offers to Sell | No. of Bids or Offers | Bid or Offered MW-Mos. | Bid or Offered Dollars | No. of Awards | Awarded MW-Mos. | Awarded Dollars |
|---------------|-------------------------------|-----------------------|------------------------|------------------------|---------------|-----------------|-----------------|
| FEB 2013      | Tot                           | 25,569                | 148,878                | -\$3,567,861           | 8,490         | 43,964          | \$424,764       |
| MAR 2013      | Buy                           | 25,262                | 148,141                | -\$7,889,283           | 9,666         | 41,945          | \$857,323       |
| MAR 2013      | Sell                          | 5,929                 | 10,847                 | \$3,766,561            | 265           | 997             | \$9,421         |
| MAR 2013      | Tot                           | 31,191                | 158,987                | -\$4,122,722           | 9,931         | 42,942          | \$866,744       |
| APR 2013      | Buy                           | 24,920                | 142,316                | -\$6,433,530           | 9,017         | 36,947          | \$587,672       |
| APR 2013      | Sell                          | 5,965                 | 10,077                 | \$3,260,657            | 473           | 1,146           | -\$10,085       |
| APR 2013      | Tot                           | 30,885                | 152,392                | -\$3,172,873           | 9,490         | 38,093          | \$577,588       |
| MAY 2013      | Buy                           | 22,614                | 143,919                | -\$4,286,670           | 8,306         | 37,921          | \$866,980       |
| MAY 2013      | Sell                          | 3,271                 | 8,737                  | \$3,030,102            | 244           | 1,158           | \$20,776        |
| MAY 2013      | Tot                           | 25,885                | 152,656                | -\$1,256,569           | 8,550         | 39,079          | \$887,756       |
| JUN 2013      | Buy                           | 23,080                | 157,174                | -\$5,612,733           | 8,639         | 42,266          | \$812,663       |
| JUN 2013      | Sell                          | 5,855                 | 9,622                  | \$2,989,609            | 381           | 959             | -\$86,030       |
| JUN 2013      | Tot                           | 28,935                | 166,796                | -\$2,623,125           | 9,020         | 43,226          | \$726,634       |
| JUL 2013      | Buy                           | 24,885                | 163,244                | -\$5,791,144           | 8,526         | 39,885          | \$742,559       |
| JUL 2013      | Sell                          | 5,916                 | 10,065                 | \$3,281,166            | 616           | 1,260           | -\$54,186       |
| JUL 2013      | Tot                           | 30,801                | 173,308                | -\$2,509,979           | 9,142         | 41,145          | \$688,373       |
| AUG 2013      | Buy                           | 18,640                | 151,964                | \$2,138,361            | 7,000         | 42,476          | \$650,974       |
| AUG 2013      | Sell                          | 2,764                 | 7,499                  | \$2,604,753            | 253           | 1,070           | -\$13,011       |
| AUG 2013      | Tot                           | 21,404                | 159,464                | \$4,743,114            | 7,253         | 43,546          | \$637,963       |
| SEP 2013      | Buy                           | 26,457                | 159,953                | -\$5,844,986           | 9,332         | 41,537          | \$606,395       |
| SEP 2013      | Sell                          | 6,125                 | 10,570                 | \$2,991,914            | 859           | 1,672           | -\$41,171       |
| SEP 2013      | Tot                           | 32,582                | 170,523                | -\$2,853,072           | 10,191        | 43,208          | \$565,224       |
| OCT 2013      | Buy                           | 28,794                | 169,050                | -\$5,727,804           | 10,209        | 40,337          | \$818,036       |
| OCT 2013      | Sell                          | 5,879                 | 10,008                 | \$3,202,743            | 662           | 1,703           | -\$54,686       |
| OCT 2013      | Tot                           | 34,673                | 179,058                | -\$2,525,061           | 10,871        | 42,040          | \$763,350       |
| NOV 2013      | Buy                           | 28,592                | 190,551                | -\$5,890,403           | 11,413        | 57,248          | \$1,104,161     |
| NOV 2013      | Sell                          | 5,918                 | 10,282                 | \$3,137,958            | 633           | 1,616           | -\$54,043       |
| NOV 2013      | Tot                           | 34,510                | 200,832                | -\$2,752,445           | 12,046        | 58,864          | \$1,050,119     |
| DEC 2013      | Buy                           | 28,402                | 203,903                | -\$2,705,630           | 10,871        | 57,081          | \$1,483,248     |
| DEC 2013      | Sell                          | 6,071                 | 10,418                 | \$3,189,192            | 891           | 2,058           | -\$94,804       |
| DEC 2013      | Tot                           | 34,473                | 214,321                | \$483,562              | 11,762        | 59,139          | \$1,388,444     |

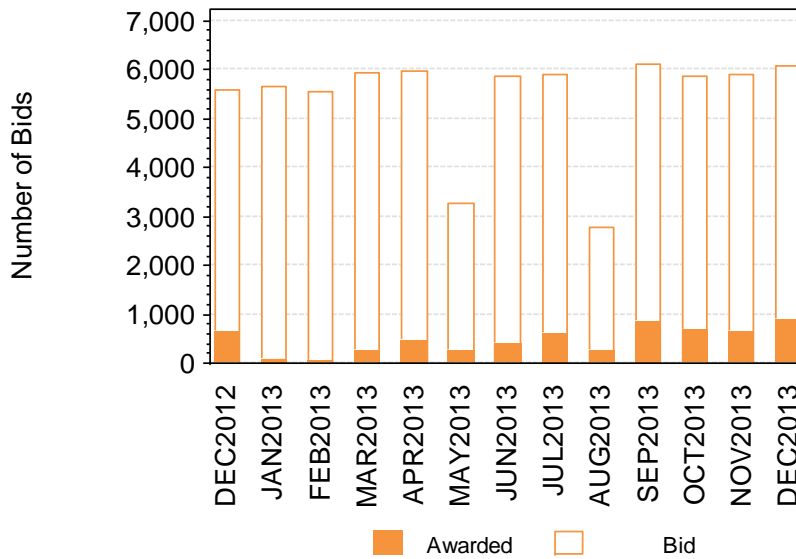
## 6.2 Monthly FTR Auction Results, Last 13 Months

The next series of graphs show summaries of FTR Auction activity over the last 13 months, including bids to buy monthly FTRs and offers to sell long-term FTRs into each monthly auction.

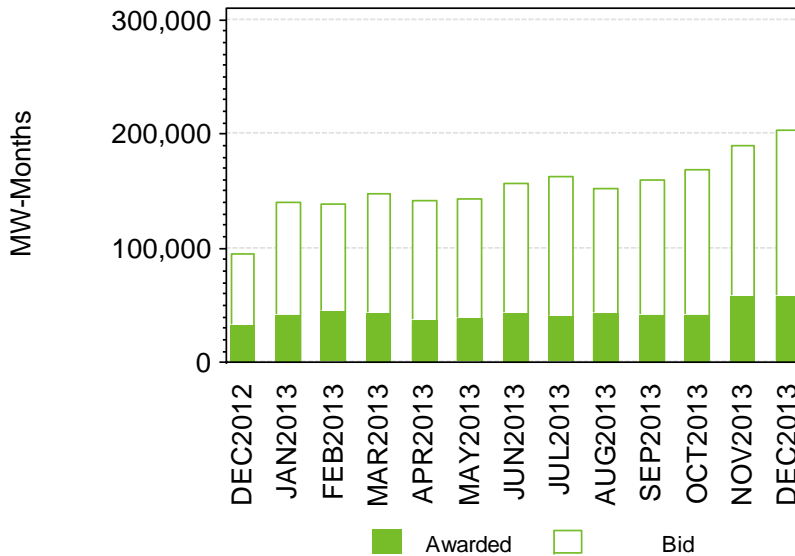
**Monthly FTR Auctions: Number of Bids, Buy Activity**  
13 Months Ending December 2013



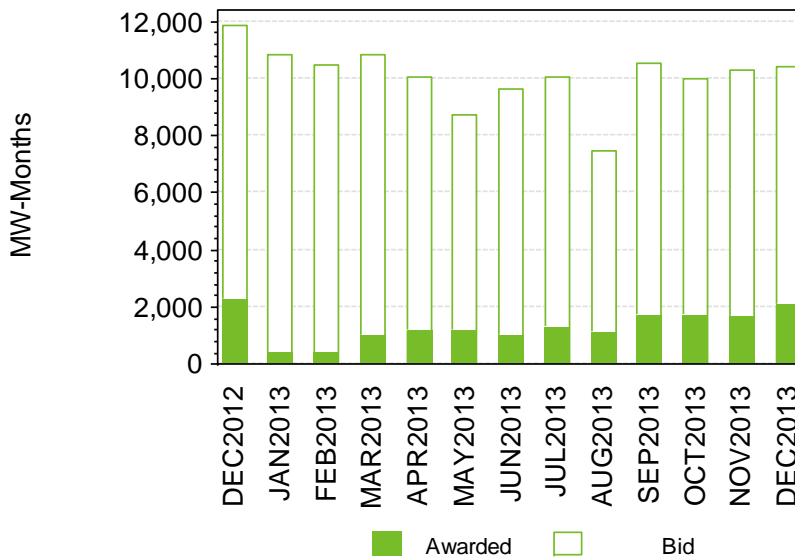
**Monthly FTR Auctions: Number of Bids, Sell Activity**  
13 Months Ending December 2013



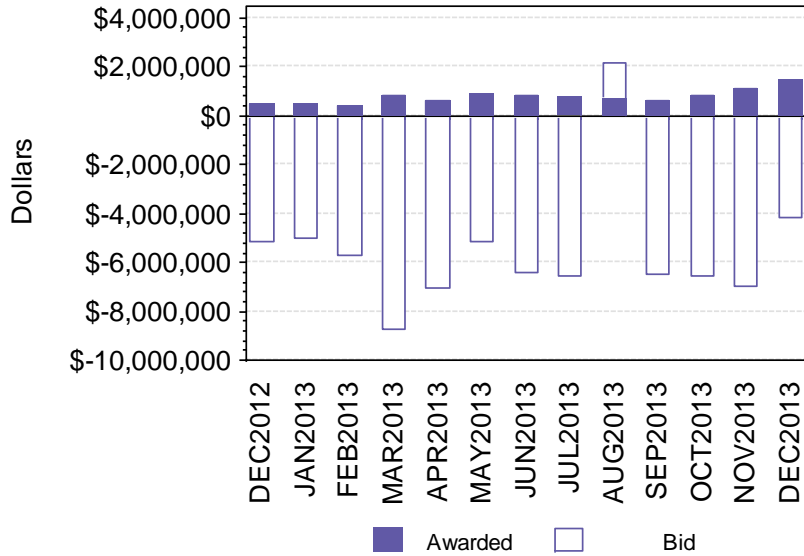
**Monthly FTR Auctions: MW-Months, Buy Activity**  
13 Months Ending December 2013



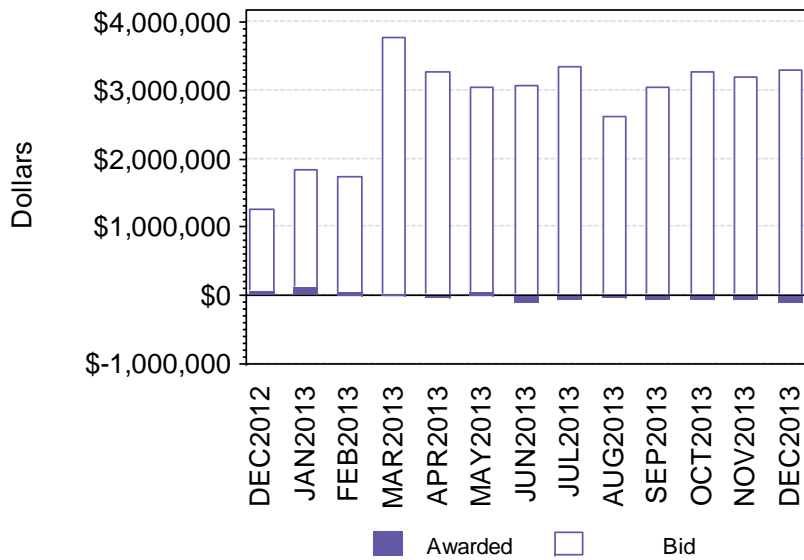
**Monthly FTR Auctions: MW-Months, Sell Activity**  
13 Months Ending December 2013



**Monthly FTR Auctions: Dollars, Buy Activity**  
13 Months Ending December 2013

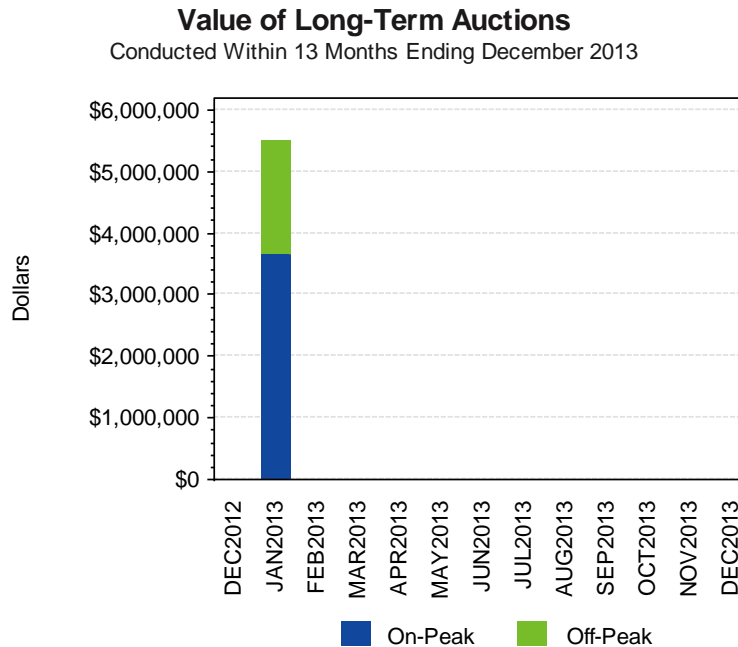
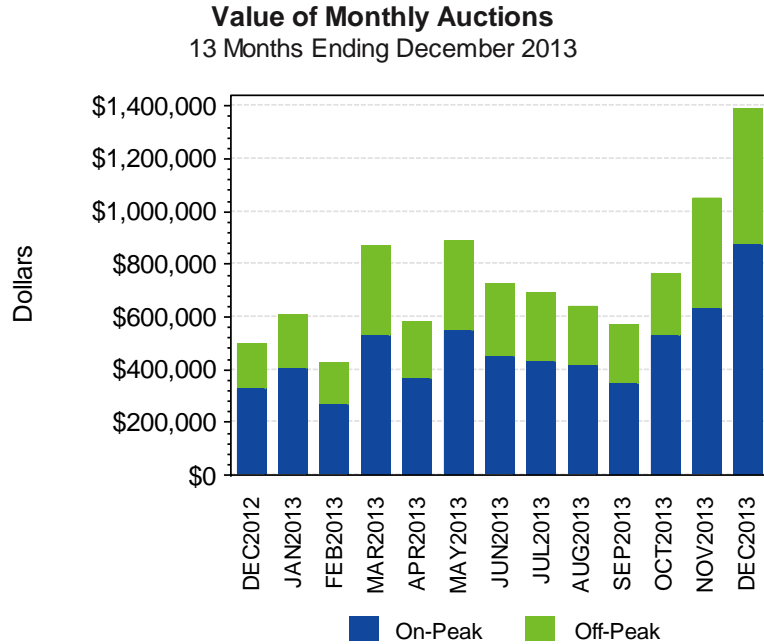


**Monthly FTR Auctions: Dollars, Sell Activity**  
13 Months Ending December 2013

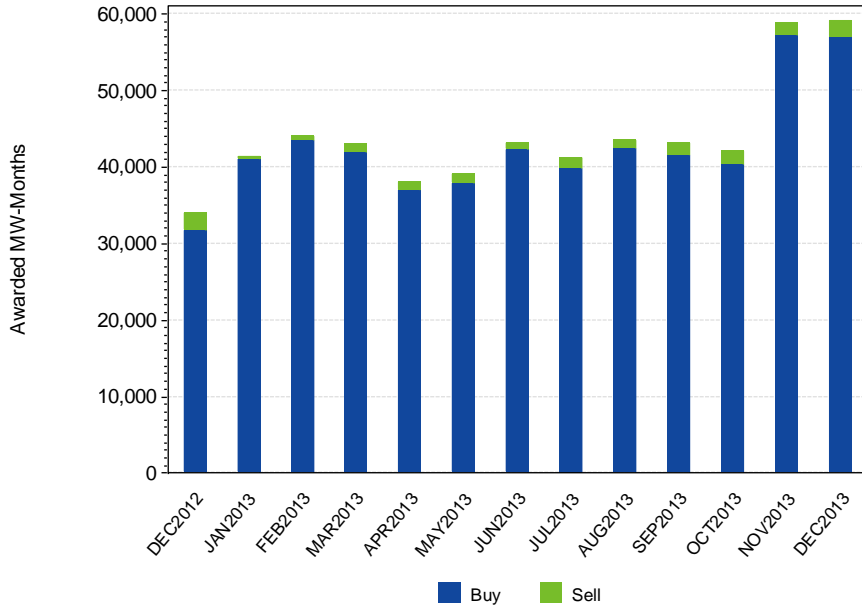


### 6.3 Auction Value, Last 13 Months

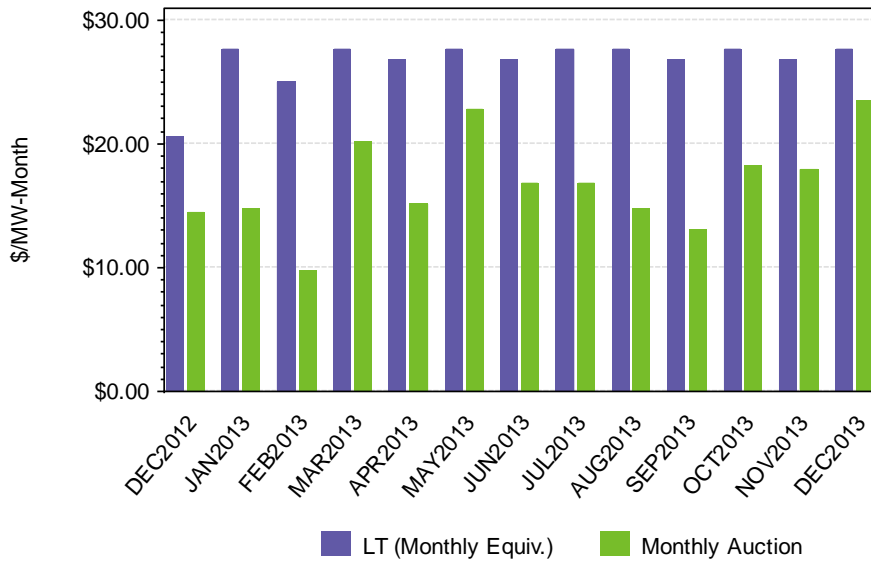
The next series of graphs show summaries of FTR Auction value and on/off-peak activity over the last 13 months.



**Awarded MW-Months, Monthly FTR Auctions**  
Buy/Sell Activity, 13 Mos. Ending December 2013

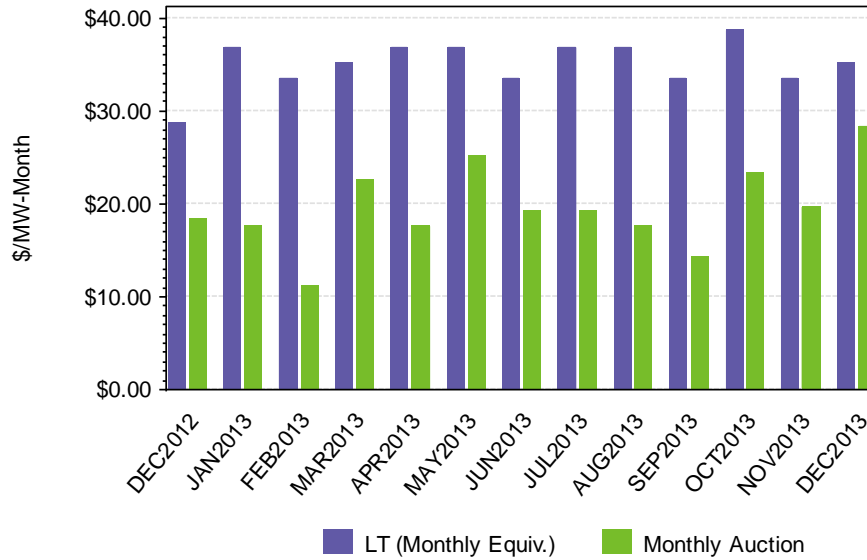


**Monthly and Long-Term FTR Auctions**  
Aggregate Equivalent Cost to Procure, All Hours



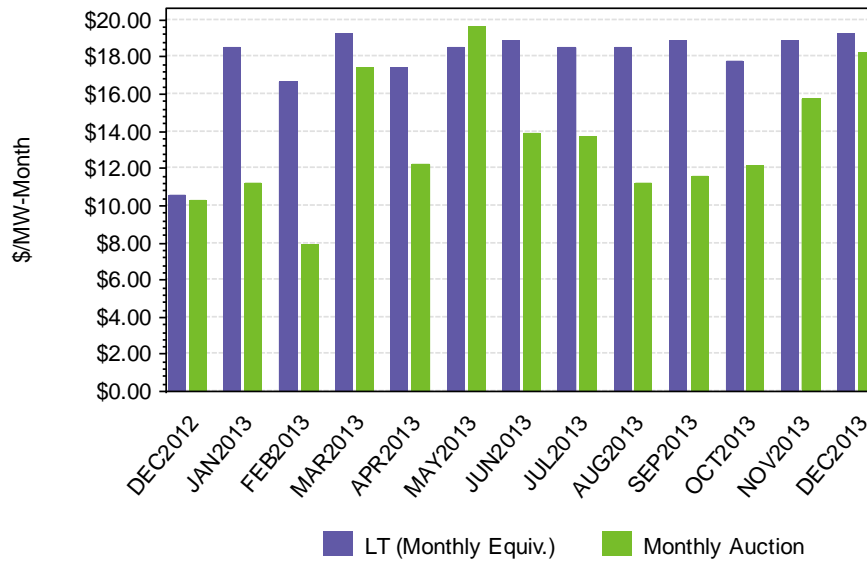
### Monthly and Long-Term FTR Auctions

Aggregate Equivalent Cost to Procure, On-Peak Hours



### Monthly and Long-Term FTR Auctions

Aggregate Equivalent Cost to Procure, Off-Peak Hours



#### **6.4 For More Information**

The market rules governing the FTR auctions can be found in Section III.7 “Financial Transmission Rights Auctions” of the ISO’s Market Rule 1 located [here](#).

The business rules and procedures for FTRs can be found in Section 6.5, “External Transactions” in the ISO’s Manual 6 – Financial Transmission Rights located [here](#).

Information about the monthly and long-term FTR auctions can be found on the ISO’s web site [here](#).



## 7. Effectiveness of FTRs

### 7.1 FTRs as a Congestion Hedging Instrument

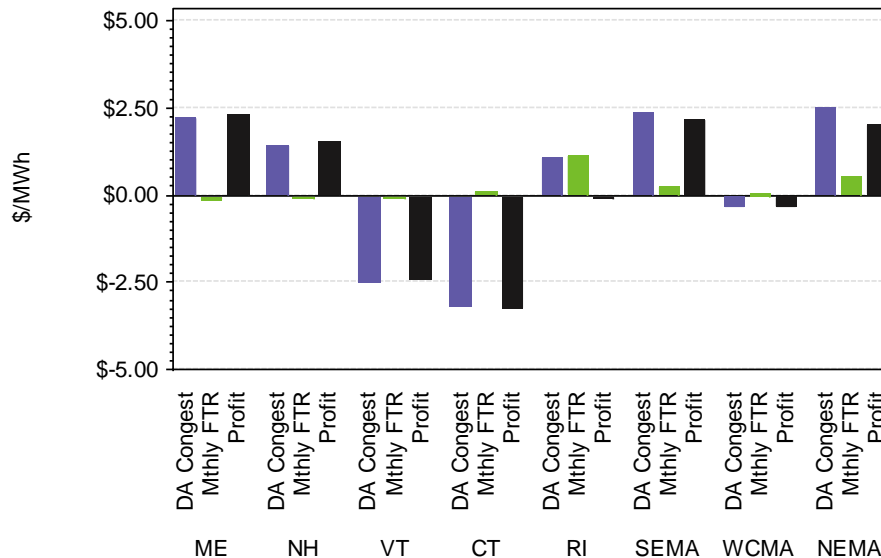
Congestion costs occur in the Day-Ahead and Real-Time Markets between locations on the system when the most economic power cannot be transferred to needed load areas without violating transmission limits. These costs are embedded in the congestion component of LMP and its difference between locations. Customers who wish to protect against these real-time costs can do so by scheduling in the Day-Ahead Market. In turn, to hedge against day-ahead congestion costs, customers can obtain FTRs.

To analyze congestion and the effectiveness of the FTR market in managing the costs of congestion in New England, day-ahead congestion costs are examined in relation to FTR auction path clearing prices. Transmission paths from the Hub to the various New England Load Zones are examined in this section. In the following exhibits, monthly on-peak auction clearing prices are compared to the average day-ahead congestion components of prices for the month for each Hub-to-zone path. All units are presented in \$/MWh equivalents.

Note that the exhibits are for illustration only, and do not indicate whether FTRs were actually owned by any market participant for the paths shown.

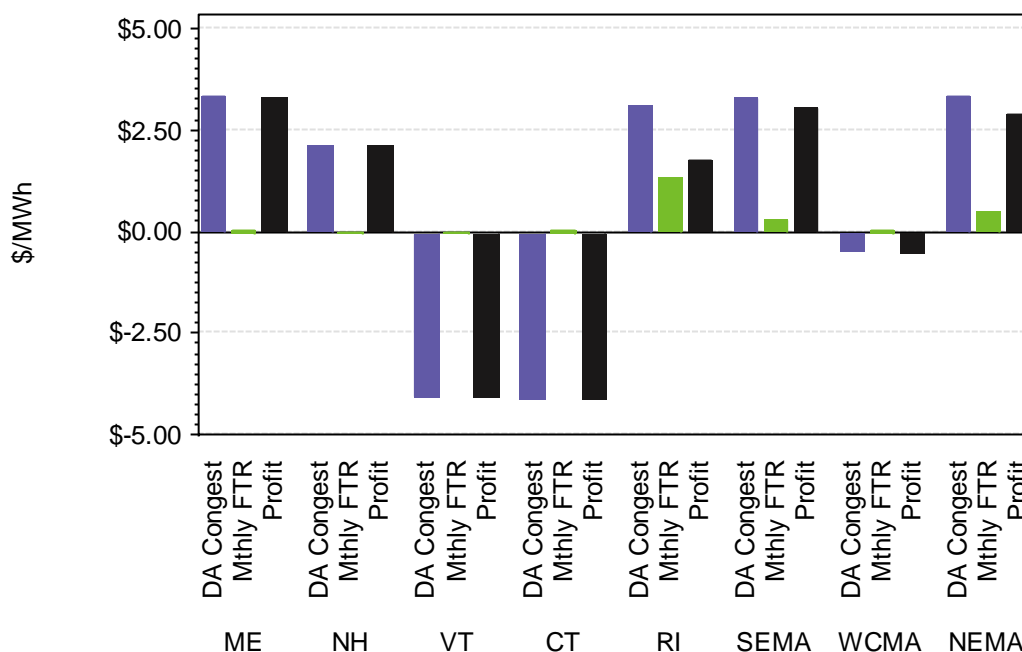
#### Monthly Avg Congestion vs. FTR Cost, DEC2013

Hub to Load Zones, On-Peak Hours



### Monthly Avg Congestion vs. FTR Cost, DEC2013

Hub to Load Zones, Off-Peak Hours



### 7.2 Profitability of Monthly FTRs, 13 Mos. Ending December 2013, On-Peak Hours, in \$/MWh, from Hub to Load Zones

A comparison of the “profitability” or the success of the hedge that the illustrated FTRs provided over the last thirteen months is presented below.

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| ME     | Dec-12 | \$0.46         | \$1.31        | -\$0.84    |
| ME     | Jan-13 | \$0.28         | \$2.19        | -\$1.91    |
| ME     | Feb-13 | -\$0.64        | \$0.56        | -\$1.20    |
| ME     | Mar-13 | -\$0.27        | \$0.48        | -\$0.76    |
| ME     | Apr-13 | \$4.32         | \$0.28        | \$4.04     |
| ME     | May-13 | \$0.01         | \$0.40        | -\$0.40    |
| ME     | Jun-13 | -\$0.52        | -\$0.03       | -\$0.49    |
| ME     | Jul-13 | -\$0.13        | \$0.01        | -\$0.15    |
| ME     | Aug-13 | -\$0.12        | -\$0.01       | -\$0.11    |
| ME     | Sep-13 | -\$6.11        | \$0.03        | -\$6.14    |
| ME     | Oct-13 | \$0.15         | -\$0.02       | \$0.17     |
| ME     | Nov-13 | -\$0.05        | -\$0.10       | \$0.06     |
| ME     | Dec-13 | \$2.16         | -\$0.11       | \$2.27     |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| NH     | Dec-12 | -\$0.05        | \$0.01        | -\$0.06    |
| NH     | Jan-13 | -\$0.03        | -\$0.01       | -\$0.02    |
| NH     | Feb-13 | -\$0.39        | -\$0.02       | -\$0.38    |
| NH     | Mar-13 | \$0.03         | -\$0.03       | \$0.07     |
| NH     | Apr-13 | -\$0.02        | -\$0.04       | \$0.02     |
| NH     | May-13 | \$0.00         | \$0.00        | \$0.00     |
| NH     | Jun-13 | -\$0.46        | -\$0.02       | -\$0.44    |
| NH     | Jul-13 | \$0.01         | \$0.01        | -\$0.01    |
| NH     | Aug-13 | \$0.06         | -\$0.01       | \$0.07     |
| NH     | Sep-13 | -\$5.60        | -\$0.15       | -\$5.45    |
| NH     | Oct-13 | -\$0.01        | -\$0.29       | \$0.28     |
| NH     | Nov-13 | -\$0.21        | -\$0.09       | -\$0.12    |
| NH     | Dec-13 | \$1.41         | -\$0.10       | \$1.51     |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| VT     | Dec-12 | -\$0.04        | \$0.01        | -\$0.05    |
| VT     | Jan-13 | -\$0.01        | \$0.01        | -\$0.02    |
| VT     | Feb-13 | -\$165         | -\$0.01       | -\$165     |
| VT     | Mar-13 | -\$0.08        | -\$0.01       | -\$0.07    |
| VT     | Apr-13 | \$0.00         | -\$0.01       | \$0.01     |
| VT     | May-13 | \$0.00         | \$0.02        | -\$0.02    |
| VT     | Jun-13 | -\$0.46        | \$0.01        | -\$0.47    |
| VT     | Jul-13 | \$0.01         | \$0.02        | -\$0.01    |
| VT     | Aug-13 | \$0.05         | \$0.00        | \$0.04     |
| VT     | Sep-13 | -\$4.99        | -\$0.01       | -\$4.97    |
| VT     | Oct-13 | \$0.04         | -\$0.09       | \$0.13     |
| VT     | Nov-13 | -\$0.09        | -\$0.04       | -\$0.05    |
| VT     | Dec-13 | -\$2.46        | -\$0.07       | -\$2.39    |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| CT     | Dec-12 | \$0.03         | \$0.62        | -\$0.59    |
| CT     | Jan-13 | \$0.03         | \$0.40        | -\$0.37    |
| CT     | Feb-13 | -\$7.69        | \$0.19        | -\$7.88    |
| CT     | Mar-13 | -\$0.12        | \$0.07        | -\$0.19    |
| CT     | Apr-13 | \$0.43         | \$0.28        | \$0.15     |
| CT     | May-13 | \$0.01         | \$0.50        | -\$0.49    |
| CT     | Jun-13 | -\$0.46        | \$0.37        | -\$0.83    |
| CT     | Jul-13 | -\$0.01        | \$0.23        | -\$0.25    |
| CT     | Aug-13 | -\$0.01        | \$0.20        | -\$0.21    |
| CT     | Sep-13 | -\$4.72        | \$0.24        | -\$4.96    |
| CT     | Oct-13 | \$0.59         | \$0.14        | \$0.45     |
| CT     | Nov-13 | \$0.03         | \$0.14        | -\$0.11    |
| CT     | Dec-13 | -\$3.17        | \$0.05        | -\$3.22    |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| RI     | Dec-12 | -\$0.22        | \$0.15        | -\$0.36    |
| RI     | Jan-13 | \$0.02         | \$0.19        | -\$0.17    |
| RI     | Feb-13 | \$9.95         | \$0.07        | \$9.88     |
| RI     | Mar-13 | \$0.45         | \$1.33        | -\$0.88    |
| RI     | Apr-13 | \$2.01         | \$0.68        | \$1.33     |
| RI     | May-13 | \$145          | \$0.81        | \$0.64     |
| RI     | Jun-13 | -\$0.25        | \$2.04        | -\$2.29    |
| RI     | Jul-13 | -\$0.04        | \$1.09        | -\$1.13    |
| RI     | Aug-13 | \$0.18         | \$0.81        | -\$0.63    |
| RI     | Sep-13 | -\$5.49        | \$0.86        | -\$6.34    |
| RI     | Oct-13 | \$0.58         | \$0.66        | -\$0.08    |
| RI     | Nov-13 | \$0.05         | \$0.92        | -\$0.87    |
| RI     | Dec-13 | \$1.04         | \$1.11        | -\$0.07    |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| SEMA   | Dec-12 | -\$0.04        | \$0.04        | -\$0.09    |
| SEMA   | Jan-13 | \$0.03         | \$0.04        | -\$0.01    |
| SEMA   | Feb-13 | \$2.13         | \$0.02        | \$2.11     |
| SEMA   | Mar-13 | \$0.13         | \$0.26        | -\$0.13    |
| SEMA   | Apr-13 | \$0.35         | \$0.14        | \$0.21     |
| SEMA   | May-13 | \$0.28         | \$0.16        | \$0.12     |
| SEMA   | Jun-13 | -\$0.42        | \$0.39        | -\$0.81    |
| SEMA   | Jul-13 | -\$0.07        | \$0.25        | -\$0.32    |
| SEMA   | Aug-13 | -\$0.01        | \$0.15        | -\$0.16    |
| SEMA   | Sep-13 | -\$5.44        | \$0.16        | -\$5.60    |
| SEMA   | Oct-13 | \$0.10         | \$0.16        | -\$0.05    |
| SEMA   | Nov-13 | \$0.20         | \$0.15        | \$0.05     |
| SEMA   | Dec-13 | \$2.35         | \$0.22        | \$2.13     |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| WCMA   | Dec-12 | -\$0.02        | \$0.19        | -\$0.21    |
| WCMA   | Jan-13 | \$0.06         | \$0.12        | -\$0.07    |
| WCMA   | Feb-13 | -\$0.90        | \$0.10        | -\$1.01    |
| WCMA   | Mar-13 | -\$0.01        | \$0.10        | -\$0.11    |
| WCMA   | Apr-13 | \$0.04         | \$0.05        | \$0.00     |
| WCMA   | May-13 | \$0.01         | \$0.07        | -\$0.06    |
| WCMA   | Jun-13 | -\$0.38        | \$0.07        | -\$0.45    |
| WCMA   | Jul-13 | \$0.02         | \$0.12        | -\$0.10    |
| WCMA   | Aug-13 | \$0.03         | \$0.07        | -\$0.05    |
| WCMA   | Sep-13 | -\$4.32        | \$0.06        | -\$4.38    |
| WCMA   | Oct-13 | -\$0.01        | \$0.07        | -\$0.07    |
| WCMA   | Nov-13 | -\$0.01        | \$0.05        | -\$0.06    |
| WCMA   | Dec-13 | -\$0.31        | \$0.00        | -\$0.32    |

| Hub to | Month  | Avg DA Congest | FTR Path Cost | FTR Profit |
|--------|--------|----------------|---------------|------------|
| NEMA   | Dec-12 | \$0.03         | \$0.10        | -\$0.06    |
| NEMA   | Jan-13 | \$0.10         | \$0.09        | \$0.01     |
| NEMA   | Feb-13 | \$2.22         | \$0.06        | \$2.16     |
| NEMA   | Mar-13 | \$0.06         | \$0.17        | -\$0.11    |
| NEMA   | Apr-13 | -\$0.02        | \$0.18        | -\$0.20    |
| NEMA   | May-13 | \$0.00         | \$0.13        | -\$0.13    |
| NEMA   | Jun-13 | -\$0.27        | \$0.17        | -\$0.43    |
| NEMA   | Jul-13 | \$0.21         | \$0.80        | -\$0.60    |
| NEMA   | Aug-13 | \$0.20         | \$0.24        | -\$0.04    |
| NEMA   | Sep-13 | -\$4.92        | \$0.30        | -\$5.22    |
| NEMA   | Oct-13 | -\$0.01        | \$0.24        | -\$0.25    |
| NEMA   | Nov-13 | \$0.00         | \$0.16        | -\$0.16    |
| NEMA   | Dec-13 | \$2.49         | \$0.50        | \$1.99     |

## 8. Auction Revenue Rights

Auction Revenue is allocated to two main categories. First, it is allocated in the form of Incremental Auction Revenue Rights (IARRs) to entities, which, by paying for transmission upgrades, have increased the transfer capability of the NEPOOL transmission system and have enabled more FTRs to be available in the FTR auction. Second, it is allocated through the Auction Revenue Rights (ARR) process, where it is primarily received by congestion paying load-serving entities (LSEs). The majority of auction revenue is allocated through the ARR process.

The ARR process allocates dollars to:

- *Excepted Transactions* – special grandfathered transactions (listed in Attachment G of NEPOOL Tariff)
- *NEMA Contracts* – other long-term contracts having delivery in Northeastern Massachusetts.
- *Long-Term Firm Through or Out Service*.
- *Load Share* – the proportional Real-Time Load Obligation share of Congestion paying entities at the time of the pool’s coincident peak for the month.

The following table provides a more detailed view of how auction revenues are allocated through the ARR and IARR process by including the dollars allocated to each component of the ARR process for each of the last 13 months.

| Month  | Net FTR Auction Revenue | Excepted Transactions | NEMA Contracts | Load Share  | Total ARR Allocation | IARR Allocation | Total Auction Distribution |
|--------|-------------------------|-----------------------|----------------|-------------|----------------------|-----------------|----------------------------|
| Dec-12 | -\$1,347,855            | \$0                   | \$5,822        | \$1,257,384 | \$1,263,206          | \$84,649        | \$1,347,855                |
| Jan-13 | -\$1,534,438            | \$0                   | \$18,285       | \$1,427,291 | \$1,445,576          | \$88,862        | \$1,534,438                |
| Feb-13 | -\$1,260,361            | \$0                   | \$16,897       | \$1,159,290 | \$1,176,187          | \$84,174        | \$1,260,361                |
| Mar-13 | -\$1,791,869            | \$0                   | \$22,848       | \$1,673,627 | \$1,696,475          | \$95,394        | \$1,791,869                |
| Apr-13 | -\$1,472,870            | \$0                   | \$21,593       | \$1,347,999 | \$1,369,592          | \$103,278       | \$1,472,870                |
| May-13 | -\$1,812,881            | \$0                   | \$21,351       | \$1,685,038 | \$1,706,389          | \$106,492       | \$1,812,881                |
| Jun-13 | -\$1,621,915            | \$0                   | \$19,330       | \$1,500,786 | \$1,520,116          | \$101,800       | \$1,621,915                |
| Jul-13 | -\$1,613,498            | \$0                   | \$40,381       | \$1,465,642 | \$1,506,023          | \$107,475       | \$1,613,498                |
| Aug-13 | -\$1,563,088            | \$0                   | \$26,250       | \$1,434,483 | \$1,460,733          | \$102,355       | \$1,563,088                |
| Sep-13 | -\$1,460,506            | \$0                   | \$27,886       | \$1,340,162 | \$1,368,047          | \$92,458        | \$1,460,506                |
| Oct-13 | -\$1,688,474            | \$0                   | \$34,113       | \$1,527,590 | \$1,561,703          | \$126,771       | \$1,688,474                |
| Nov-13 | -\$1,945,400            | \$0                   | \$27,438       | \$1,817,061 | \$1,844,498          | \$100,902       | \$1,945,400                |
| Dec-13 | -\$2,313,569            | \$0                   | \$47,949       | \$2,149,383 | \$2,197,332          | \$116,237       | \$2,313,569                |

The following tables display the total distribution of On- and Off-Peak ARR dollars to the various Load Zones for each of the last 13 months. The sum across zones totals to the ‘Total ARR Allocation’ column in the preceding table.

| On Peak |           |          |          |           |           |           |           |           |
|---------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| Month   | ME        | NH       | VT       | CT        | RI        | SEMA      | WCMA      | NEMA      |
| Dec-12  | \$214,061 | \$15,023 | \$24,798 | \$427,944 | \$14,073  | \$19,972  | \$119,254 | \$85,815  |
| Jan-13  | \$480,851 | \$6,552  | \$7,495  | \$91,354  | \$38,893  | \$33,309  | \$185,646 | \$119,062 |
| Feb-13  | \$301,583 | \$7,137  | \$7,417  | \$85,350  | \$34,884  | \$33,190  | \$186,010 | \$119,436 |
| Mar-13  | \$291,004 | \$7,522  | \$8,357  | \$113,689 | \$198,132 | \$90,072  | \$205,156 | \$171,572 |
| Apr-13  | \$236,492 | \$6,649  | \$7,607  | \$166,220 | \$97,020  | \$52,987  | \$174,939 | \$158,936 |
| May-13  | \$267,794 | \$8,679  | \$8,882  | \$269,459 | \$127,752 | \$60,441  | \$192,619 | \$160,130 |
| Jun-13  | \$182,666 | \$8,102  | \$8,393  | \$161,225 | \$209,953 | \$90,019  | \$180,600 | \$144,112 |
| Jul-13  | \$189,247 | \$9,018  | \$8,018  | \$121,060 | \$117,921 | \$61,744  | \$192,534 | \$285,555 |
| Aug-13  | \$194,973 | \$13,012 | \$9,943  | \$153,026 | \$127,134 | \$70,650  | \$192,926 | \$205,593 |
| Sep-13  | \$192,106 | \$8,785  | \$8,732  | \$164,994 | \$109,225 | \$58,324  | \$179,618 | \$162,217 |
| Oct-13  | \$221,762 | \$14,640 | \$12,376 | \$186,710 | \$132,888 | \$87,411  | \$210,875 | \$193,932 |
| Nov-13  | \$196,822 | \$21,466 | \$16,664 | \$166,345 | \$223,615 | \$118,718 | \$214,041 | \$204,707 |
| Dec-13  | \$209,750 | \$28,308 | \$18,623 | \$184,649 | \$214,865 | \$129,908 | \$222,109 | \$409,163 |

| Off Peak |           |         |         |           |           |          |          |           |
|----------|-----------|---------|---------|-----------|-----------|----------|----------|-----------|
| Month    | ME        | NH      | VT      | CT        | RI        | SEMA     | WCMA     | NEMA      |
| Dec-12   | \$176,550 | \$2,598 | \$4,516 | \$89,856  | \$12,744  | \$9,383  | \$30,268 | \$16,352  |
| Jan-13   | \$247,510 | \$2,122 | \$2,874 | \$63,623  | \$47,170  | \$25,944 | \$50,674 | \$42,497  |
| Feb-13   | \$175,661 | \$2,629 | \$2,789 | \$59,396  | \$43,666  | \$24,490 | \$53,775 | \$38,775  |
| Mar-13   | \$185,344 | \$2,554 | \$3,129 | \$74,219  | \$150,782 | \$62,310 | \$58,986 | \$73,646  |
| Apr-13   | \$127,515 | \$2,474 | \$2,995 | \$75,138  | \$106,879 | \$46,062 | \$48,021 | \$59,657  |
| May-13   | \$146,460 | \$3,399 | \$3,347 | \$83,163  | \$192,361 | \$70,571 | \$54,043 | \$57,287  |
| Jun-13   | \$108,015 | \$3,598 | \$3,238 | \$75,453  | \$178,219 | \$70,099 | \$49,336 | \$47,088  |
| Jul-13   | \$110,863 | \$3,199 | \$3,193 | \$70,628  | \$96,478  | \$43,210 | \$54,137 | \$139,218 |
| Aug-13   | \$112,864 | \$4,440 | \$3,790 | \$81,397  | \$119,851 | \$53,857 | \$53,973 | \$63,302  |
| Sep-13   | \$113,177 | \$3,976 | \$3,643 | \$103,112 | \$104,008 | \$47,677 | \$52,524 | \$55,930  |
| Oct-13   | \$127,346 | \$3,976 | \$4,556 | \$81,600  | \$101,863 | \$50,885 | \$60,539 | \$70,342  |
| Nov-13   | \$112,538 | \$8,298 | \$7,093 | \$95,438  | \$214,055 | \$93,743 | \$66,182 | \$84,773  |
| Dec-13   | \$126,613 | \$7,290 | \$5,415 | \$86,249  | \$198,202 | \$85,384 | \$58,220 | \$212,586 |

## 8.1 For More Information

The market rules governing the FTR auctions can be found in Section III.7 “Financial Transmission Rights Auctions” of the ISO’s Market Rule 1 located [here](#).

The business rules and procedures for FTR Auction Revenue Settlement for September can be found in Section 7 and the Qualified Upgrade Award procedures can be found in Section 8 of the ISO’s Manual 6 – Financial Transmission Rights located [here](#).

The methodology for and details of ARR Contracts can be found [here](#).

## 9. Reserve Markets

The fourteenth Forward Reserve Market Auction, covering the Winter 2013-2014 Procurement Period (October-May) cleared on August 29, 2013. The results may be found on the ISO's website [here](#).

Participants must meet their cleared portfolio-based obligations by assigning them to eligible generating or dispatchable asset related demand through offering or bidding them into the Energy Market at a \$/MWh rate that is greater than or equal to the Forward Reserve Threshold Price. For the month of December 2013, the threshold price ranged from \$66.40/MWh to \$293.86/MWh and averaged \$129.98/MWh.

### 9.1 Forward Reserve Market Results

Each month, the ISO calculates an individual hourly Forward Reserve Payment Rate for each reserve product and reserve zone by reducing (on a \$/MWh basis) their auction clearing price by the Forward Capacity Auction clearing price for the capacity zone associated to the reserve zone in effect for that month, adjusted pursuant to Section III.13.2.7.3(b)<sup>2</sup>. Payments will be further reduced by any Failure-to-Reserve or Failure-to-Activate Penalties. FRM payments by reserve zone made during the month are shown in the following table. These figures are preliminary and subject to revision during the Settlement process.

#### 9.1.1 FRM Payment Summary by Reserve Zone, December 2013

| Reserve Zone | Reserve Product | Max FRM Payment | Final FRM Credits | Failure to Reserve Penalties | Failure to Activate Penalties | Total FRM Performance | Pct. of Max. |
|--------------|-----------------|-----------------|-------------------|------------------------------|-------------------------------|-----------------------|--------------|
| SYSTEM       | TMNSR           | \$8,426,490     | \$8,026,699       | -\$643,802                   | \$0                           | \$7,382,897           | 88%          |
| SYSTEM       | TMOR            | \$3,055,954     | \$2,952,558       | -\$176,046                   | \$0                           | \$2,776,512           | 91%          |
| SYSTEM       | TOTAL           | \$11,482,444    | \$10,979,258      | -\$819,848                   | \$0                           | \$10,159,409          | 88%          |
| ROS          | TMNSR           | \$6,086,621     | \$5,901,365       | -\$307,515                   | \$0                           | \$5,593,851           | 92%          |
| ROS          | TMOR            | \$840,638       | \$787,563         | -\$89,500                    | \$0                           | \$698,064             | 83%          |
| ROS          | TOTAL           | \$6,927,259     | \$6,688,929       | -\$397,015                   | \$0                           | \$6,291,914           | 91%          |
| SWCT         | TMNSR           | \$0             | \$0               | \$0                          | \$0                           | \$0                   | n/a          |
| SWCT         | TMOR            | \$656,947       | \$637,283         | -\$33,643                    | \$0                           | \$603,640             | 92%          |
| SWCT         | TOTAL           | \$656,947       | \$637,283         | -\$33,643                    | \$0                           | \$603,640             | 92%          |
| CT           | TMNSR           | \$2,339,869     | \$2,125,334       | -\$336,288                   | \$0                           | \$1,789,046           | 76%          |
| CT           | TMOR            | \$1,558,369     | \$1,527,712       | -\$52,903                    | \$0                           | \$1,474,809           | 95%          |
| CT           | TOTAL           | \$3,898,238     | \$3,653,046       | -\$389,191                   | \$0                           | \$3,263,855           | 84%          |
| NEMABSTN     | TMNSR           | \$0             | \$0               | \$0                          | \$0                           | \$0                   | n/a          |
| NEMABSTN     | TMOR            | \$0             | \$0               | \$0                          | \$0                           | \$0                   | n/a          |
| NEMABSTN     | TOTAL           | \$0             | \$0               | \$0                          | \$0                           | \$0                   | n/a          |

<sup>2</sup> Prior to the start of the Forward Capacity Market on June 1, 2010, the auction clearing price was reduced by the ICAP Transition Rate for Unforced Capacity in effect for that month.

The ISO allocates Forward Reserve Credits, net of Forward Reserve Failure-to-Reserve Penalties and Forward Reserve Failure-to-Activate Penalties, to each Load Zone. The Forward Reserve charge allocation method changed on June 1, 2011. Under the new Forward Reserve Cost Allocation, the Forward Reserves Credits for TMNSR and TMOR are not allocated separately. Instead, the Forward Reserve Credits are allocated based upon System Requirements (Step 1) and Remaining Forward Reserve Credit (Step 2), if applicable. The System Requirements include the cost of procuring TMNSR and TMOR to meet the minimum requirements for the New England Control Area (Market Rule 1, Section III.9.2.1). The remaining Forward Reserve Credit includes the Incremental Cost associated with procuring Forward Reserves above the System Requirements. See Market Rule 1, Section III.9.9 Forward Reserve Charges and Manual 28, Section 2.6.2 Forward Reserve Charges for details on the two-step cost allocation approach.

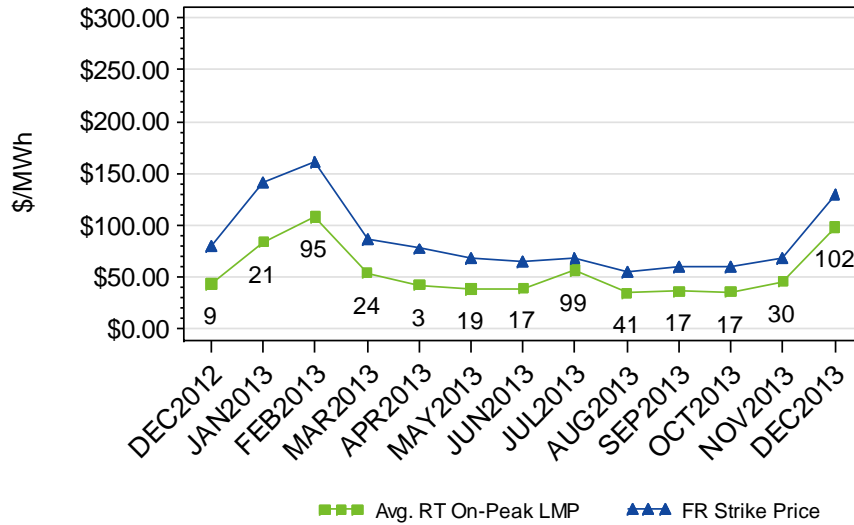
FRM charges allocated to each Load Zone during the prior week are shown in the following table. These figures are also preliminary and subject to revision during the Settlement process.

*9.1.2 FRM Charge Summary by Load Zone, December 2013*

| <b>Load Zone</b> | <b>FRM Charge</b> |
|------------------|-------------------|
| ME               | \$939,247         |
| NH               | \$960,721         |
| VT               | \$480,694         |
| CT               | \$2,496,746       |
| RI               | \$645,608         |
| SEMA             | \$1,203,593       |
| WCMA             | \$1,415,326       |
| NEMA             | \$2,017,474       |
| ALL              | \$10,159,409      |

**9.2 Real-Time On-Peak LMP vs. Forward Reserve Threshold Price, Last 13 Mos.**

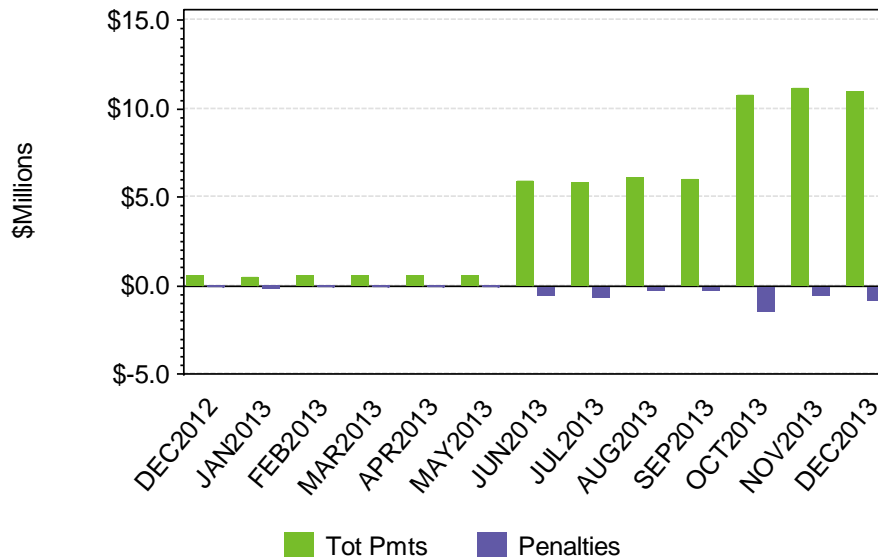
**On-Peak LMP Average vs. Forward Reserve Strike/Threshold Price  
13 Mos. Ending December 2013**



Number of times hourly RT LMP exceeded strike/threshold price during on-peak hours noted

**9.3 Composition of Forward Reserve Market Payments, Last 13 Mos.**

**Monthly Forward Reserve Market Payments  
By Component, 13 Mos. Ending, December 2013**





#### 9.4 Real-Time Reserve Markets

Resources that are providing Real-Time Reserves are designated in the ISO's Energy Management System. When reserves are ample, the Real-Time Reserve price is \$0. However, if there is a shortage of available reserves in a reserve zone or system-wide or reserve requirements are met through a re-dispatch of the system, non-zero Real-Time Reserve prices can result.

During the month, there were non-zero real-time reserve prices in 103 separate hours. On a reserve zone basis, non-zero prices occurred thus: CT-103 hours; NEMABSTN-103 hours; ROS-103 hours; SWCT-103 hours. The total compensation paid to assets providing real-time reserves during December 2013, and reductions in those payments for the Forward Reserve Obligation Charge are shown in the following table:

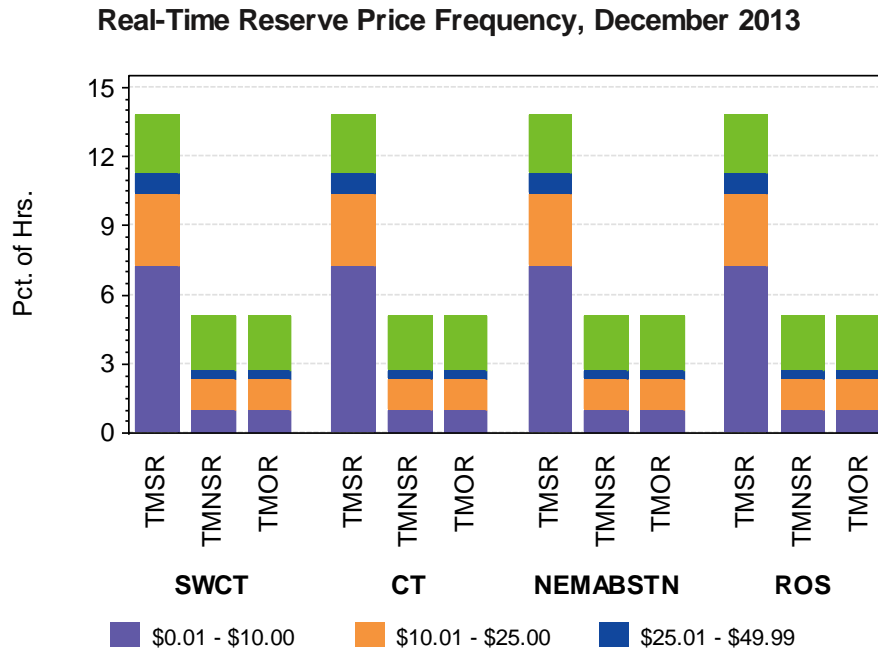
| Reserve Zone | Real-Time Reserve Credits | Fwd Reserve Obligation Charges | Net Real-Time Reserve Payments |
|--------------|---------------------------|--------------------------------|--------------------------------|
| SYSTEM       | \$8,502,242               | (\$1,628,083)                  | \$6,874,159                    |
| ROS          | \$4,813,685               | (\$1,137,352)                  | \$3,676,334                    |
| SWCT         | \$2,076,362               | (\$160,064)                    | \$1,916,298                    |
| CT           | \$1,195,112               | (\$330,668)                    | \$864,444                      |
| NEMABSTN     | \$417,083                 | \$0                            | \$417,083                      |

The ISO allocates Real Time Reserve Credits, net of Forward Reserve Energy Obligation Charges, to each Load Zone. The Real Time Reserve charges allocated to each Load Zone during the month are shown in the following table. These figures are also preliminary and subject to revision during the Settlement process.

| Load Zone | Reserve Product | RT Reserve Charge |
|-----------|-----------------|-------------------|
| ME        | TMSR            | \$202,581         |
| ME        | TMNSR           | \$324,133         |
| ME        | TMOR            | \$94,045          |
| ME        | ALL             | \$620,759         |
| NH        | TMSR            | \$210,136         |
| NH        | TMNSR           | \$334,575         |
| NH        | TMOR            | \$95,048          |
| NH        | ALL             | \$639,760         |
| VT        | TMSR            | \$104,544         |
| VT        | TMNSR           | \$167,284         |
| VT        | TMOR            | \$48,046          |
| VT        | ALL             | \$319,874         |
| CT        | TMSR            | \$551,499         |
| CT        | TMNSR           | \$877,424         |
| CT        | TMOR            | \$247,584         |
| CT        | ALL             | \$1,676,507       |
| RI        | TMSR            | \$141,132         |
| RI        | TMNSR           | \$224,666         |
| RI        | TMOR            | \$63,471          |

| Load Zone | Reserve Product | RT Reserve Charge |
|-----------|-----------------|-------------------|
| RI        | ALL             | \$429,269         |
| SEMA      | TMSR            | \$266,151         |
| SEMA      | TMNSR           | \$424,154         |
| SEMA      | TMOR            | \$119,419         |
| SEMA      | ALL             | \$809,724         |
| WCMA      | TMSR            | \$335,417         |
| WCMA      | TMNSR           | \$546,042         |
| WCMA      | TMOR            | \$162,878         |
| WCMA      | ALL             | \$1,044,337       |
| NEMA      | TMSR            | \$437,075         |
| NEMA      | TMNSR           | \$697,796         |
| NEMA      | TMOR            | \$199,059         |
| NEMA      | ALL             | \$1,333,930       |

The following chart shows the frequency (in percent of total hours in the month) that there were non-zero reserve market prices by reserve zone and market product.



### 9.5 For More Information

The market rules governing the Forward Reserve Market can be found in Section III.9 “Forward Reserve Market” of the ISO’s Market Rule 1 located [here](#).

The market rules governing Real-Time Reserve can be found in Section III.10 “Real-Time Reserve” of the ISO’s Market Rule 1 located [here](#).

The business rules and procedures for forward and real-time reserve can be found in the ISO's Manual 28 –Market Rule 1 Accounting located [here](#).

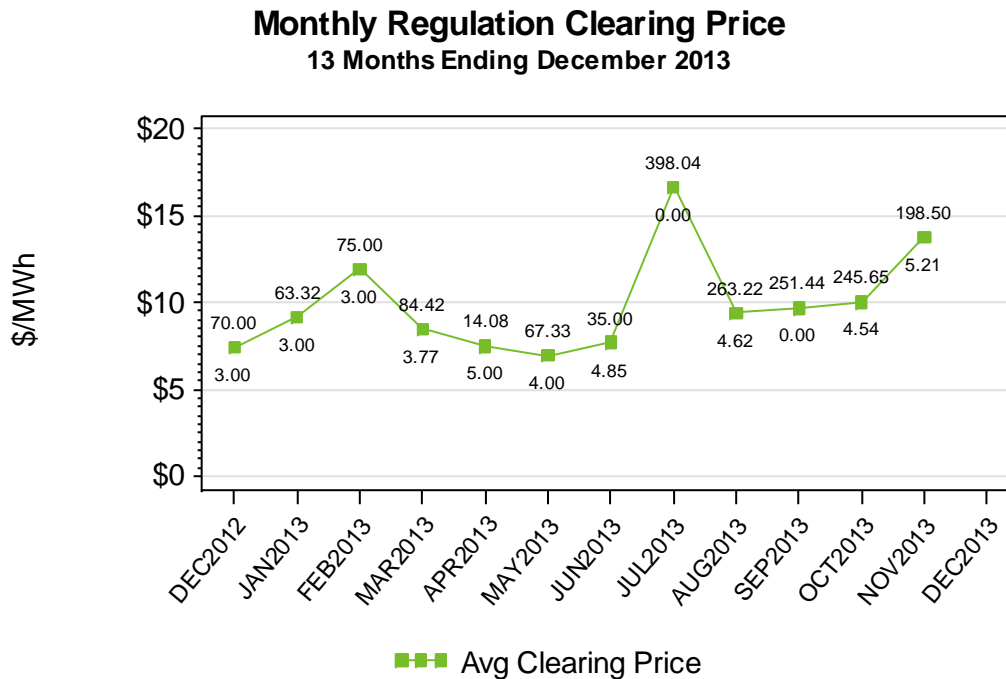
Information about the monthly forward reserve auctions and assumptions can be found on the ISO's web site located [here](#).

## 10. Regulation Market

Regulation, or Automatic Generation Control (AGC), is necessary to balance supply levels against second-to-second variations in demand.

On July 1, 2013, the ISO implemented changes to the Regulation market design. The new design reflects lost opportunity costs of regulating generators within the Regulation clearing price, rather than in a separate payment. Additionally, to ensure that total regulation costs are compensated through the clearing price, a 'make-whole cost' payment category was added.

### 10.1 Monthly Average of Hourly Regulation Market Clearing Price, Last 13 Months



Value of monthly maximum and minimum clearing price also shown

### 10.2 Monthly Regulation Market Clearing Price Statistics, Last 13 Months

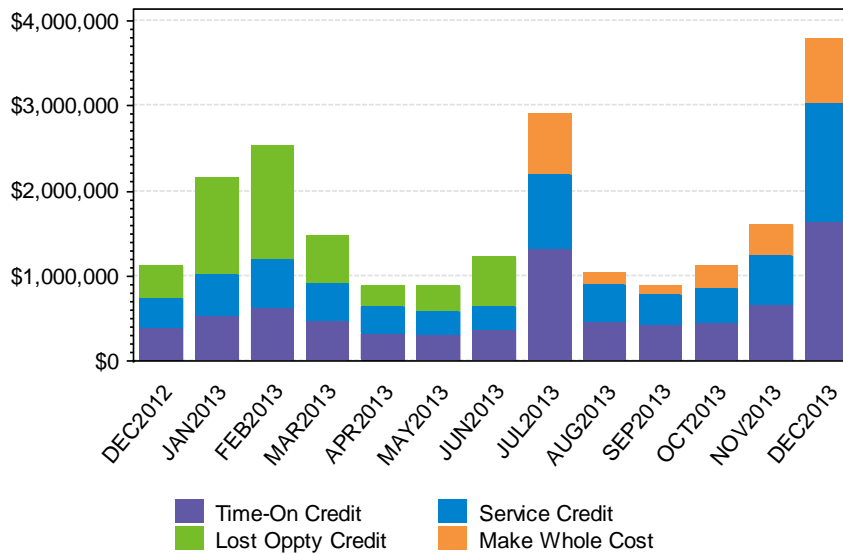
| Month  | On-Peak Clearing Price Statistics |          |        |         |
|--------|-----------------------------------|----------|--------|---------|
|        | Mean                              | Max      | Min    | StdDev  |
| Dec-12 | \$7.22                            | \$70.00  | \$3.00 | \$4.24  |
| Jan-13 | \$9.02                            | \$63.32  | \$3.00 | \$7.14  |
| Feb-13 | \$12.15                           | \$75.00  | \$4.00 | \$10.57 |
| Mar-13 | \$8.37                            | \$26.29  | \$3.77 | \$4.02  |
| Apr-13 | \$7.67                            | \$13.00  | \$5.00 | \$1.65  |
| May-13 | \$7.19                            | \$67.33  | \$4.83 | \$3.57  |
| Jun-13 | \$7.52                            | \$35.00  | \$5.00 | \$2.61  |
| Jul-13 | \$23.25                           | \$398.04 | \$4.94 | \$49.72 |
| Aug-13 | \$10.64                           | \$263.22 | \$5.07 | \$14.83 |
| Sep-13 | \$11.02                           | \$251.44 | \$0.00 | \$21.64 |

| Month  | On-Peak Clearing Price Statistics |          |        |         |
|--------|-----------------------------------|----------|--------|---------|
|        | Mean                              | Max      | Min    | StdDev  |
| Oct-13 | \$10.48                           | \$245.65 | \$5.05 | \$14.95 |
| Nov-13 | \$11.29                           | \$141.27 | \$5.21 | \$11.26 |
| Dec-13 | \$26.08                           | \$360.53 | \$6.00 | \$29.71 |

| Month  | Off-Peak Clearing Price Statistics |          |        |         |
|--------|------------------------------------|----------|--------|---------|
|        | Mean                               | Max      | Min    | StdDev  |
| Dec-12 | \$7.58                             | \$18.50  | \$3.64 | \$2.10  |
| Jan-13 | \$9.31                             | \$56.71  | \$3.64 | \$5.63  |
| Feb-13 | \$11.76                            | \$75.00  | \$3.00 | \$8.37  |
| Mar-13 | \$8.57                             | \$84.42  | \$4.00 | \$5.14  |
| Apr-13 | \$7.33                             | \$14.08  | \$5.14 | \$1.36  |
| May-13 | \$6.72                             | \$11.37  | \$4.00 | \$1.01  |
| Jun-13 | \$7.83                             | \$26.65  | \$4.85 | \$2.53  |
| Jul-13 | \$10.73                            | \$99.17  | \$0.00 | \$7.08  |
| Aug-13 | \$8.26                             | \$41.14  | \$4.62 | \$3.06  |
| Sep-13 | \$8.61                             | \$38.46  | \$4.98 | \$3.95  |
| Oct-13 | \$9.58                             | \$163.73 | \$4.54 | \$12.17 |
| Nov-13 | \$15.78                            | \$198.50 | \$5.77 | \$18.03 |
| Dec-13 | \$30.70                            | \$692.08 | \$6.06 | \$45.62 |

### 10.3 Components of Monthly Regulation Market Cost, Last 13 Months

**Monthly Regulation Market Cost**  
By Component, 13 Mos. Ending, December 2013



| Month  | Time on Regulation Cost | Regulation Service Cost | Lost Opportunity Credit Cost | Regulation Make Whole Cost | Total Regulation Cost |
|--------|-------------------------|-------------------------|------------------------------|----------------------------|-----------------------|
| Dec-12 | \$382,581               | \$354,807               | \$377,549                    | \$0                        | \$1,114,937           |
| Jan-13 | \$528,642               | \$495,792               | \$1,133,928                  | \$0                        | \$2,158,362           |
| Feb-13 | \$611,533               | \$578,276               | \$1,342,413                  | \$0                        | \$2,532,222           |
| Mar-13 | \$460,641               | \$466,422               | \$552,763                    | \$0                        | \$1,479,827           |
| Apr-13 | \$321,065               | \$319,488               | \$232,191                    | \$0                        | \$872,745             |
| May-13 | \$298,723               | \$276,899               | \$293,893                    | \$0                        | \$869,516             |
| Jun-13 | \$357,200               | \$290,787               | \$572,385                    | \$0                        | \$1,220,373           |
| Jul-13 | \$1,322,914             | \$857,321               | \$0                          | \$716,193                  | \$2,896,428           |
| Aug-13 | \$467,696               | \$432,491               | \$0                          | \$139,265                  | \$1,039,452           |
| Sep-13 | \$417,076               | \$357,372               | \$0                          | \$101,670                  | \$876,118             |
| Oct-13 | \$443,060               | \$416,506               | \$0                          | \$252,085                  | \$1,111,651           |
| Nov-13 | \$661,195               | \$580,475               | \$0                          | \$354,217                  | \$1,595,888           |
| Dec-13 | \$1,627,605             | \$1,401,506             | \$0                          | \$742,532                  | \$3,771,644           |

#### 10.4 For More Information

The market rules governing the Regulation Market can be found in Section III.1.11.5 “Regulation” of the ISO’s Market Rule 1 located [here](#).

The business rules and procedures for the Regulation Market can be found in the ISO’s Manual 11 – Market Operations located [here](#):

Information about current regulation clearing prices can be found on the ISO’s web site [here](#).

Selectable hourly historical regulation clearing prices can be found on the ISO’s web site [here](#).

## 11. Marginal Loss Revenue Fund

The Marginal Loss Revenue Fund is allocated back to customers hourly in a pro-rata format based on customer share of the Pool's RT Adjusted Load Obligation. It consists of six components, as displayed in the following formula:

$$\text{Monthly Marginal Loss Revenue} = (-1) * [\text{Loss Revenue (DA+RT)} + \text{Energy Settlement (DA+RT)} + \text{RT Inadvertent Energy Cost} + \text{RT Emergency Energy Sales}]$$

The following table shows the contribution of each component to the Marginal Loss Revenue Fund and the fund total for last thirteen months.

### 11.1 Marginal Loss Revenue Fund by Month, 13 Mos. Ending December 2013

| Month  | Day-Ahead Energy Stlmnt | Real-Time Energy Stlmnt | Day-Ahead Loss Rev | Real-Time Loss Rev | Real-Time Inadvrt Energy | Real-Time Emergency Energy | Day-Ahead Marginal Loss Total | Real-Time Marginal Loss Total | Marg Loss Rev Fund Total |
|--------|-------------------------|-------------------------|--------------------|--------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|--------------------------|
| Dec-12 | \$7,207,071             | \$1,705,082             | -\$13,587,964      | -\$624,408         | -\$354,529               | \$0                        | \$6,380,893                   | -\$726,145                    | \$5,654,748              |
| Jan-13 | \$14,911,656            | \$2,045,139             | -\$28,643,647      | -\$2,046,543       | -\$1,435,701             | \$0                        | \$13,731,992                  | \$1,437,104                   | \$15,169,096             |
| Feb-13 | \$20,622,852            | \$2,616,841             | -\$41,067,549      | -\$2,266,143       | -\$1,984,710             | \$0                        | \$20,444,696                  | \$1,634,013                   | \$22,078,709             |
| Mar-13 | \$8,203,310             | \$919,210               | -\$15,004,716      | -\$680,705         | -\$44,433                | \$0                        | \$6,801,406                   | -\$194,072                    | \$6,607,334              |
| Apr-13 | \$5,661,509             | \$1,041,406             | -\$10,316,981      | -\$465,335         | -\$23,712                | \$0                        | \$4,655,473                   | -\$552,358                    | \$4,103,115              |
| May-13 | \$5,910,351             | \$343,426               | -\$11,137,654      | -\$585,531         | \$712,649                | \$0                        | \$5,227,303                   | -\$470,545                    | \$4,756,758              |
| Jun-13 | \$6,433,997             | \$134,750               | -\$12,145,177      | -\$908,698         | \$831,724                | \$0                        | \$5,711,180                   | -\$57,776                     | \$5,653,404              |
| Jul-13 | \$12,547,955            | \$353,351               | -\$24,147,858      | -\$1,491,276       | \$82,705                 | \$0                        | \$11,599,903                  | \$1,055,220                   | \$12,655,123             |
| Aug-13 | \$6,512,984             | \$844,700               | -\$12,406,250      | -\$352,754         | \$204,756                | \$0                        | \$5,893,266                   | -\$696,701                    | \$5,196,565              |
| Sep-13 | \$7,055,924             | \$620,905               | -\$13,404,537      | -\$164,903         | -\$157,993               | \$0                        | \$6,348,614                   | -\$298,009                    | \$6,050,604              |
| Oct-13 | \$5,299,001             | \$804,297               | -\$10,180,581      | \$79,740           | -\$846,852               | \$0                        | \$4,881,580                   | -\$37,185                     | \$4,844,396              |
| Nov-13 | \$6,950,641             | \$1,055,700             | -\$10,414,367      | -\$481,006         | -\$1,161,078             | \$0                        | \$3,463,726                   | \$586,383                     | \$4,050,109              |
| Dec-13 | \$16,719,862            | \$2,139,120             | -\$24,565,784      | -\$1,768,048       | -\$2,929,551             | \$146,145                  | \$7,845,922                   | \$2,412,334                   | \$10,258,256             |

### 11.2 For More Information

Rules governing the calculation of the Marginal Loss Revenue Fund can be found in Section III.3.2.1 Accounting and Billing of the ISO's Market Rule 1 located [here](#).

## 12. Forward Capacity Market

The Forward Capacity Market (FCM) is an auction based approach to meeting New England’s forecasted capacity requirements for a future year. A portfolio of supply and demand resources is selected to provide this capacity through a competitive Forward Capacity Auction (FCA) process. Resources clearing in the FCA are paid the market clearing price for capacity and acquire a capacity supply obligation (CSO), a financially binding obligation to provide the cleared amount of capacity. FCM was implemented in June 2010, corresponding with the termination of the Forward Capacity Transition Period. For more information on the Forward Capacity Transition Period, see Section 12 of the Monthly Market Reports published prior to June 2011.

### 12.1 FCM Auction Results and Monthly Modifications

The outcome of the Forward Capacity Auction (FCA) determines the initial CSOs for Resources. In the event that the Capacity Clearing Price Floor condition is reached in the FCA, the ISO will adjust (prorate) the per-MW rate of each CSO to adjust the over-purchased capacity. After the FCA is finalized, Lead Participants of obligated Resources may have the option to leave the CSO of these resources based upon the default proration (full CSO with a reduced payment rate - referred to as ‘price proration’) or opt to prorate the CSO MWs and receive the full CCP (described as ‘MW proration’). The proration elections chosen by resources will not have an effect on the total amount of charges to load. The following table shows the aggregated CSO values by resource type from FCA 4, the 2013-2014 commitment period, with prorated amounts and change from the FCA for each resource type.

#### 2013-2014 Forward Capacity Auction

| Resource Type | FCA CSO MW | Prorated CSO MW | Proration Change MW |
|---------------|------------|-----------------|---------------------|
| Demand        | 3,349      | 3,015           | -335                |
| Generator     | 32,247     | 28,634          | -3,613              |
| Import        | 1,993      | 1,726           | -266                |
| Total         | 37,589     | 33,355          | -4,235              |

Each month, CSO values can change for a variety of reasons, which are referred to below as CSO modifications. Typically, changes result from the monthly or annual Reconfiguration Auctions. Additional examples of CSO modifications include ISO participation in annual reconfiguration auctions and termination of resource supply obligations. The table below displays the CSO modifications for the current month.

#### CSO Modifications for December 2013

| Capacity Zone | Resource Type   | Balance Net CSO MW for Multiyear Offer MW | Existing Capacity Obligation MW | Multi-Year Existing Capacity Obligation MW | New Capacity Obligation MW | Retained for Reliability Capacity Obligation MW | Self-Supply Capacity Obligation MW | Total MW |
|---------------|-----------------|---|---------------------------------|--|----------------------------|---|------------------------------------|----------|
| Rest-of-Pool  | Demand Resource | 0.00                                      | 0.00                            | -15.94                                     | -13.14                     | 0.00  | 0.00                               | -29.08   |
| Maine         | Demand Resource | 0.00                                      | 0.00                            | -0.29                                      | 0.00                       | 0.00  | 0.00                               | -0.29    |
| Rest-of-Pool  | Generator       | 0.00                                      | 0.00                            | -87.01                                     | -11.15                     | -604.25   | -5.92                              | -708.32  |
| Maine         | Generator       | 0.00                                      | 0.00                            | -2.25                                      | 0.00                       | 0.00  | 0.00                               | -2.25    |
| Rest-of-Pool  | Import          | 0.00                                      | 0.00                            | 0.00                                       | 0.00                       | 0.00  | 0.00                               | 0.00     |
| Maine         | Import          | 0.00                                      | 0.00                            | 0.00                                       | 0.00                       | 0.00  | 0.00                               | 0.00     |
| Total         |                 | 0.00                                      | 0.00                            | -105.49                                    | -24.29                     | -604.25   | -5.92                              | -739.94  |



The table below displays a summary of the prorated CSO MW and dollars from the FCA, along with the CSO modifications for the current month. The CSO modification MWs are totaled for each Resource and Capacity Zone from the table above. These CSO modifications are used in the calculation of the final CSO MW and Dollars.

### Final CSO MW and Dollars for December 2013

| Capacity Zone | Resource Type   | CSO MW | CSO Dollars  | CSO Modification MW | CSO Modification Dollars | Final CSO MW | Final CSO Dollars |
|---------------|-----------------|--------|--------------|---------------------|--------------------------|--------------|-------------------|
| Rest-of-Pool  | Demand Resource | 1,946  | \$6,992,509  | -29.15              | -\$91,260                | 1,916.67     | \$6,901,250       |
| Maine         | Demand Resource | 313    | \$1,070,678  | -0.30               | -\$728                   | 312.55       | \$1,069,950       |
| Rest-of-Pool  | Generator       | 27,713 | \$68,796,754 | -708.58             | -\$1,778,807             | 27,004.08    | \$67,017,948      |
| Maine         | Generator       | 2,944  | \$7,800,139  | -2.60               | -\$6,083                 | 2,941.49     | \$7,794,056       |
| Rest-of-Pool  | Import          | 652    | \$3,061,506  | 0.00                | \$0                      | 652.10       | \$3,061,506       |
| Maine         | Import          | 0      | \$749,405    | 0.00                | \$0                      | 0.00         | \$749,405         |

|       |        |              |         |              |           |              |
|-------|--------|--------------|---------|--------------|-----------|--------------|
| Total | 33,568 | \$88,470,992 | -740.62 | -\$1,876,877 | 32,826.90 | \$86,594,115 |
|-------|--------|--------------|---------|--------------|-----------|--------------|

### 12.2 FCM Payments and Charges

Supply Credit is the total credit paid to customer resources for incurring a CSO and is the sum of the following types of CSO-related payments: Forward Capacity Auction (FCA) Credits, Bilateral Dollars, and Reconfiguration Auction (RA) Dollars. The following table shows total Supply Credit and its aforementioned components by Capacity Zone for the last thirteen months.

| Month  | Capacity Zone | FCA Credit   | Bilateral Dollars | Reconfiguration Auction Dollars | Supply Credit |
|--------|---------------|--------------|-------------------|---------------------------------|---------------|
| Dec-12 | Rest-of-Pool  | \$79,704,149 | \$328,483         | -\$225,814                      | \$79,806,818  |
| Dec-12 | Maine         | \$9,789,108  | -\$328,483        | \$214,638                       | \$9,675,264   |
| Jan-13 | Rest-of-Pool  | \$79,704,149 | \$330,888         | -\$217,187                      | \$79,817,850  |
| Jan-13 | Maine         | \$9,789,108  | -\$330,888        | \$206,011                       | \$9,664,232   |
| Feb-13 | Rest-of-Pool  | \$79,704,149 | \$328,483         | -\$217,128                      | \$79,815,504  |
| Feb-13 | Maine         | \$9,789,108  | -\$328,483        | \$205,952                       | \$9,666,578   |
| Mar-13 | Rest-of-Pool  | \$79,704,149 | \$330,888         | -\$210,031                      | \$79,825,006  |
| Mar-13 | Maine         | \$9,789,108  | -\$330,888        | \$198,855                       | \$9,657,076   |
| Apr-13 | Rest-of-Pool  | \$79,664,936 | \$321,112         | -\$185,604                      | \$79,800,445  |
| Apr-13 | Maine         | \$9,790,043  | -\$321,112        | \$174,372                       | \$9,643,303   |
| May-13 | Rest-of-Pool  | \$79,664,936 | \$353,682         | -\$186,731                      | \$79,831,887  |
| May-13 | Maine         | \$9,790,043  | -\$353,682        | \$175,499                       | \$9,611,861   |
| Jun-13 | Rest-of-Pool  | \$76,547,624 | \$36,269          | -\$60,916                       | \$76,522,977  |
| Jun-13 | Maine         | \$9,486,419  | -\$36,269         | \$60,916                        | \$9,511,066   |
| Jul-13 | Rest-of-Pool  | \$76,547,624 | \$35,140          | \$198,721                       | \$76,781,485  |
| Jul-13 | Maine         | \$9,486,419  | -\$35,140         | -\$216,506                      | \$9,234,773   |
| Aug-13 | Rest-of-Pool  | \$76,547,624 | \$35,140          | \$230,534                       | \$76,813,298  |
| Aug-13 | Maine         | \$9,486,419  | -\$35,140         | -\$242,316                      | \$9,208,963   |
| Sep-13 | Rest-of-Pool  | \$76,547,624 | \$35,140          | \$83,546                        | \$76,666,310  |
| Sep-13 | Maine         | \$9,486,419  | -\$35,140         | -\$83,546                       | \$9,367,733   |

| Month  | Capacity Zone | FCA Credit   | Bilateral Dollars | Reconfiguration Auction Dollars | Supply Credit |
|--------|---------------|--------------|-------------------|---------------------------------|---------------|
| Oct-13 | Rest-of-Pool  | \$76,884,183 | \$36,259          | \$97,450                        | \$77,017,892  |
| Oct-13 | Maine         | \$9,676,613  | -\$36,259         | -\$97,450                       | \$9,542,904   |
| Nov-13 | Rest-of-Pool  | \$76,861,676 | \$36,259          | \$100,125                       | \$76,998,060  |
| Nov-13 | Maine         | \$9,676,613  | -\$36,259         | -\$100,125                      | \$9,540,229   |
| Dec-13 | Rest-of-Pool  | \$76,915,997 | \$35,140          | \$64,471                        | \$77,015,608  |
| Dec-13 | Maine         | \$9,678,117  | -\$35,140         | -\$64,471                       | \$9,578,506   |

The initial supply credit paid for the CSO, as shown above, can be further adjusted based upon computed values for Peak Energy Rent (PER), the participation of the ISO in reconfiguration auctions, and actual resource performance. PER is a downward adjustment of FCM payments to reflect energy market revenues earned during high priced hours. In reconfiguration auctions, credits are reduced by the sale of excess CSO by the ISO or increased by the purchase of additional CSO. Resource availability during shortage events (generator and import resources) or performance during dispatch events and performance hours (demand resources) result in additional penalties and credits. The supply credit adjusted for reasons just stated results in the pool of money called the Net Regional Clearing Price (NRCP) Credit, which is the basis for charges for capacity allocated to real-time load obligation. Additional credits may be earned by resources retained for reliability and their cost is allocated to Regional Network Load through the Open-Access Transmission Tariff rather than to Capacity Load Obligation (CLO).

The following table shows the various credit adjustments and total payments in the FCM made over the last 13 obligation months.

| Month  | Capacity Zone | CSO MW | Supply Credit (A) | PER Adjustment (B) | Excess DR Penalties (C) | NRCP Credit (D=A+B+C) | Reliability Credit (E) | Total Payment (F=D+E) |
|--------|---------------|--------|-------------------|--------------------|-------------------------|-----------------------|------------------------|-----------------------|
| Dec-12 | Rest-of-Pool  | 29,362 | \$79,806,818      | \$0                | \$0                     | \$79,806,818          | \$1,623,350            | \$81,430,168          |
| Dec-12 | Maine         | 3,637  | \$9,675,264       | \$0                | \$0                     | \$9,675,264           | \$0                    | \$9,675,264           |
| Jan-13 | Rest-of-Pool  | 29,388 | \$79,817,850      | \$0                | \$0                     | \$79,817,850          | \$1,623,350            | \$81,441,200          |
| Jan-13 | Maine         | 3,611  | \$9,664,232       | \$0                | \$0                     | \$9,664,232           | \$0                    | \$9,664,232           |
| Feb-13 | Rest-of-Pool  | 29,381 | \$79,815,504      | -\$367,929         | \$0                     | \$79,447,575          | \$1,623,350            | \$81,070,925          |
| Feb-13 | Maine         | 3,618  | \$9,666,578       | -\$34,587          | \$0                     | \$9,631,991           | \$0                    | \$9,631,991           |
| Mar-13 | Rest-of-Pool  | 29,417 | \$79,825,006      | -\$368,462         | \$0                     | \$79,456,544          | \$1,623,350            | \$81,079,894          |
| Mar-13 | Maine         | 3,582  | \$9,657,076       | -\$34,037          | \$0                     | \$9,623,039           | \$0                    | \$9,623,039           |
| Apr-13 | Rest-of-Pool  | 29,508 | \$79,800,445      | -\$367,167         | \$0                     | \$79,433,278          | \$1,623,350            | \$81,056,628          |
| Apr-13 | Maine         | 3,475  | \$9,643,303       | -\$32,334          | \$0                     | \$9,610,969           | \$0                    | \$9,610,969           |
| May-13 | Rest-of-Pool  | 29,503 | \$79,831,887      | -\$368,520         | \$0                     | \$79,463,366          | \$1,623,350            | \$81,086,716          |
| May-13 | Maine         | 3,480  | \$9,611,861       | -\$31,926          | \$0                     | \$9,579,935           | \$0                    | \$9,579,935           |
| Jun-13 | Rest-of-Pool  | 29,255 | \$76,522,977      | -\$352,598         | \$0                     | \$76,170,379          | \$1,459,945            | \$77,630,324          |
| Jun-13 | Maine         | 3,370  | \$9,511,066       | -\$34,251          | \$0                     | \$9,476,815           | \$0                    | \$9,476,815           |
| Jul-13 | Rest-of-Pool  | 29,490 | \$76,781,485      | -\$460,650         | \$0                     | \$76,320,835          | \$1,459,945            | \$77,780,781          |
| Jul-13 | Maine         | 3,135  | \$9,234,773       | -\$31,715          | \$0                     | \$9,203,058           | \$0                    | \$9,203,058           |
| Aug-13 | Rest-of-Pool  | 29,442 | \$76,813,298      | -\$1,890,030       | \$0                     | \$74,923,268          | \$1,459,945            | \$76,383,213          |
| Aug-13 | Maine         | 3,183  | \$9,208,963       | -\$32,231          | \$0                     | \$9,176,732           | \$0                    | \$9,176,732           |
| Sep-13 | Rest-of-Pool  | 29,357 | \$76,666,310      | -\$1,871,057       | \$0                     | \$74,795,253          | \$1,459,945            | \$76,255,199          |

| Month  | Capacity Zone | CSO MW | Supply Credit (A) | PER Adjustment (B) | Excess DR Penalties (C) | NRCP Credit (D=A+B+C) | Reliability Credit (E) | Total Payment (F=D+E) |
|--------|---------------|--------|-------------------|--------------------|-------------------------|-----------------------|------------------------|-----------------------|
| Sep-13 | Maine         | 3,268  | \$9,367,733       | -\$33,172          | \$0                     | \$9,334,561           | \$0                    | \$9,334,561           |
| Oct-13 | Rest-of-Pool  | 29,581 | \$77,017,892      | -\$1,964,305       | \$0                     | \$75,053,587          | \$1,459,945            | \$76,513,532          |
| Oct-13 | Maine         | 3,230  | \$9,542,904       | -\$32,712          | \$0                     | \$9,510,192           | \$0                    | \$9,510,192           |
| Nov-13 | Rest-of-Pool  | 29,624 | \$76,998,060      | -\$1,971,944       | \$0                     | \$75,026,116          | \$1,459,945            | \$76,486,061          |
| Nov-13 | Maine         | 3,182  | \$9,540,229       | -\$32,176          | \$0                     | \$9,508,053           | \$0                    | \$9,508,053           |
| Dec-13 | Rest-of-Pool  | 29,573 | \$77,015,608      | -\$2,202,113       | \$0                     | \$74,813,495          | \$1,459,945            | \$76,273,441          |
| Dec-13 | Maine         | 3,254  | \$9,578,506       | -\$59,975          | \$0                     | \$9,518,532           | \$0                    | \$9,518,532           |

For each month and Capacity Zone, Load Serving Entities (LSEs) have capacity requirements which are calculated as their share of the total CSO purchased, based on their contribution to the system peak load from the previous year. Customers pay for capacity based on CLO. A customer's CLO is equivalent to its capacity requirement, adjusted for any Hydro-Quebec Installed Capacity Credits (HQICC), self-supply MWs, and CLO bilateral contracts. CLO bilateral contracts provide a means of transferring a capacity load obligation between two customers. Note that any customer, not just LSEs, can take on or shed CLO through a CLO bilateral contract.

The Net Regional Clearing Price is the rate at which load pays for capacity. It is calculated as:

$$NRCP (\$/kW\text{-month}) = NRCP \text{ Credit} / (CLO \text{ MW} * 1000)$$

$$\text{Where: } CLO \text{ MW} = CSO \text{ MW} - \text{Self Supply MW} - \text{Excess RTEG MW}$$

Excess RTEG MW is composed of the CSO MW of Real Time Emergency Generation purchased in the Forward Capacity Auction in excess of 600 MW.

Charges are calculated as the product of a customer's CLO and the NRCP.

The following table provides details on aggregate FCM charges to load.

| Month  | CSO MW (A) | CLO Bilat MW | HQICC MW (B) | Excess RTEG MW (C) | Self Supply MW (D) | Capacity Req MW (E=A+B-C) | Peak Contrib MW | CLO MW (F=A-C-D) | Net Regional Clearing Price (\$/kW-month) | Capacity Load Obligation Charge |
|--------|------------|--------------|--------------|--------------------|--------------------|---------------------------|-----------------|------------------|---|---------------------------------|
| Dec-12 | 32,999     | 641          | 977          | 0                  | 1,928              | 33,976                    | 27,312          | 31,071           | \$2.879966                                | \$89,655,549                    |
| Jan-13 | 32,999     | 591          | 977          | 0                  | 1,928              | 33,976                    | 27,312          | 31,071           | \$2.879966                                | \$89,627,503                    |
| Feb-13 | 32,999     | 541          | 977          | 0                  | 1,928              | 33,976                    | 27,312          | 31,071           | \$2.867011                                | \$89,228,444                    |
| Mar-13 | 32,999     | 541          | 977          | 0                  | 1,928              | 33,976                    | 27,312          | 31,071           | \$2.867011                                | \$89,189,306                    |
| Apr-13 | 32,983     | 541          | 977          | 0                  | 1,928              | 33,960                    | 27,312          | 31,055           | \$2.867308                                | \$89,046,833                    |
| May-13 | 32,983     | 541          | 977          | 0                  | 1,928              | 33,960                    | 27,312          | 31,055           | \$2.867278                                | \$89,049,904                    |
| Jun-13 | 32,625     | 541          | 998          | 15                 | 2,693              | 33,608                    | 25,543          | 29,917           | \$2.862817                                | \$85,686,382                    |
| Jul-13 | 32,625     | 566          | 998          | 0                  | 2,693              | 33,623                    | 25,543          | 29,932           | \$2.857278                                | \$85,441,457                    |
| Aug-13 | 32,625     | 566          | 998          | 0                  | 2,693              | 33,623                    | 25,543          | 29,932           | \$2.809707                                | \$84,017,280                    |
| Sep-13 | 32,625     | 566          | 998          | 0                  | 2,693              | 33,623                    | 25,543          | 29,932           | \$2.810703                                | \$84,066,878                    |
| Oct-13 | 32,811     | 601          | 998          | 0                  | 2,693              | 33,809                    | 25,543          | 30,118           | \$2.807706                                | \$84,416,622                    |
| Nov-13 | 32,806     | 646          | 998          | 0                  | 2,693              | 33,804                    | 25,543          | 30,113           | \$2.807251                                | \$84,354,773                    |
| Dec-13 | 32,827     | 646          | 998          | 0                  | 2,693              | 33,825                    | 25,543          | 30,134           | \$2.798575                                | \$84,190,970                    |

The calculations below describe how the Capacity Requirement and the Capacity Load Obligations are calculated for each Capacity Zone.

$$\text{Capacity Requirement}_{\text{Capacity Zone}} = (\text{Peak Contribution MW (CCP-2)}_{\text{Capacity Zone}} / \text{Peak Contribution (CCP-2)}_{\text{Pool}}) * (\text{CSO}_{\text{Pool}} + \text{HQICC MW}_{\text{Capacity Zone}}) * (-1)$$

$$\text{CLO}_{\text{Capacity Zone}} = \text{Capacity Requirement}_{\text{Capacity Zone}} - \text{HQICC MW}_{\text{Capacity Zone}} - \text{CLO Self-Supply MW}_{\text{Capacity Zone}}$$

There are two sides to a self-supply agreement – the generator supplying the MW and the entity using the MW to reduce its capacity requirement. During the 2013/2014 commitment period, with multiple capacity zones, a generator in Maine can have self-supply designations in both the Rest-of-Pool (ROP) and Maine. The NRCP is the per MW cost of capacity in a capacity zone. Self-supply MW used in the NRCP calculation are based on where the generator supplying the MWs resides and is presented in that manner below.

The following table provides details on FCM charges to load at the Capacity Zone level.

| Month  | Capacity Zone | CSO MW | HQICC MW | Self Supply MW | Capacity Req MW | Peak Contrib MW | CLO MW | Net Regional Clearing Price (\$/kW-month) | Capacity Load Obligation Charge |
|--------|---------------|--------|----------|----------------|-----------------|-----------------|--------|---|---------------------------------|
| Dec-12 | Rest-of-Pool  | 29,362 | 977      | 1,919          | 31,594          | 25,400          | 28,693 | \$2.896166                                | \$83,099,357                    |
| Dec-12 | Maine         | 3,637  | 0        | 9              | 2,382           | 1,913           | 2,378  | \$2.757424                                | \$6,556,192                     |
| Jan-13 | Rest-of-Pool  | 29,388 | 977      | 1,919          | 31,594          | 25,400          | 28,693 | \$2.893736                                | \$83,029,633                    |
| Jan-13 | Maine         | 3,611  | 0        | 9              | 2,382           | 1,913           | 2,378  | \$2.774953                                | \$6,597,870                     |
| Feb-13 | Rest-of-Pool  | 29,381 | 977      | 1,919          | 31,594          | 25,400          | 28,693 | \$2.881057                                | \$82,665,837                    |
| Feb-13 | Maine         | 3,618  | 0        | 9              | 2,382           | 1,913           | 2,378  | \$2.760122                                | \$6,562,607                     |
| Mar-13 | Rest-of-Pool  | 29,417 | 977      | 1,919          | 31,594          | 25,400          | 28,693 | \$2.877566                                | \$82,565,683                    |
| Mar-13 | Maine         | 3,582  | 0        | 9              | 2,382           | 1,913           | 2,378  | \$2.785784                                | \$6,623,623                     |
| Apr-13 | Rest-of-Pool  | 29,508 | 977      | 1,919          | 31,580          | 25,400          | 28,678 | \$2.867573                                | \$82,237,508                    |
| Apr-13 | Maine         | 3,475  | 0        | 9              | 2,381           | 1,913           | 2,377  | \$2.865200                                | \$6,809,325                     |
| May-13 | Rest-of-Pool  | 29,503 | 977      | 1,919          | 31,580          | 25,400          | 28,678 | \$2.867952                                | \$82,248,375                    |
| May-13 | Maine         | 3,480  | 0        | 9              | 2,381           | 1,913           | 2,377  | \$2.861920                                | \$6,801,529                     |
| Jun-13 | Rest-of-Pool  | 29,255 | 998      | 2,687          | 31,254          | 23,885          | 27,565 | \$2.867175                                | \$79,032,958                    |
| Jun-13 | Maine         | 3,370  | 0        | 6              | 2,354           | 1,658           | 2,352  | \$2.828415                                | \$6,653,424                     |
| Jul-13 | Rest-of-Pool  | 29,490 | 998      | 2,687          | 31,268          | 23,885          | 27,579 | \$2.846167                                | \$78,493,177                    |
| Jul-13 | Maine         | 3,135  | 0        | 6              | 2,355           | 1,658           | 2,353  | \$2.952455                                | \$6,948,280                     |
| Aug-13 | Rest-of-Pool  | 29,442 | 998      | 2,687          | 31,268          | 23,885          | 27,579 | \$2.799047                                | \$77,193,686                    |
| Aug-13 | Maine         | 3,183  | 0        | 6              | 2,355           | 1,658           | 2,353  | \$2.899473                                | \$6,823,594                     |
| Sep-13 | Rest-of-Pool  | 29,357 | 998      | 2,687          | 31,268          | 23,885          | 27,579 | \$2.803154                                | \$77,306,941                    |
| Sep-13 | Maine         | 3,268  | 0        | 6              | 2,355           | 1,658           | 2,353  | \$2.872424                                | \$6,759,937                     |
| Oct-13 | Rest-of-Pool  | 29,581 | 998      | 2,687          | 31,442          | 23,885          | 27,752 | \$2.789340                                | \$77,409,772                    |
| Oct-13 | Maine         | 3,230  | 0        | 6              | 2,368           | 1,658           | 2,366  | \$2.960909                                | \$7,006,850                     |
| Nov-13 | Rest-of-Pool  | 29,624 | 998      | 2,687          | 31,436          | 23,885          | 27,747 | \$2.783883                                | \$77,243,661                    |
| Nov-13 | Maine         | 3,182  | 0        | 6              | 2,367           | 1,658           | 2,366  | \$3.005471                                | \$7,111,112                     |
| Dec-13 | Rest-of-Pool  | 29,573 | 998      | 2,687          | 31,456          | 23,885          | 27,766 | \$2.781304                                | \$77,226,769                    |
| Dec-13 | Maine         | 3,254  | 0        | 6              | 2,369           | 1,658           | 2,368  | \$2.941540                                | \$6,964,200                     |

### 12.3 Capacity Transfer Rights (CTRs)

CTRs are a mechanism to distribute excess revenue that results from differences in payment rates between Capacity Zones; a CTR fund will be calculated for each constrained capacity zone. There are two types of CTRs: Specifically Allocated CTRs (defined in Market Rule 1 and always paid), and Residual CTRs (remaining funds or shortfall of funds after Specifically Allocated CTRs are paid). Residual CTRs will be allocated to the load serving entities with CLO on the import-constrained side of the interface. For the 2013/2014 Capacity Commitment Period (CCP), Maine is the export-constrained Capacity Zone, while Rest of Pool is on the import-constrained side of the interface. The Capacity Load Obligation Charge above can change depending on the CTRs associated with the Capacity Zone. The Capacity Transfer Rights Fund consists of the following:

- Pool Planned Unit CTRs for certain municipal utilities
- Maine Export Interface CTRs for Casco Bay
- Provisions for Transmission Upgrade CTRs

The following table provides detail, by month and capacity zone, of the Capacity Transfer Rights Dollars, the Specifically Allocated CTR MW and Dollars, along with the Residual CTR MW and Dollars.

| Month  | Export-constrained Capacity Zone (Charged) | Import-constrained Capacity Zone (Paid) | CTR Fund Dollars | Specifically Allocated CTR MW | Specifically Allocated CTR Dollars | Residual CTR MW | Residual CTR Dollars |
|--------|--|---|------------------|-------------------------------|------------------------------------|-----------------|----------------------|
| Dec-12 | Maine                                      | Rest-of-Pool                            | \$173,466.62     | 329.97                        | \$23,097.89                        | -28,687.91      | \$150,368.73         |
| Jan-13 | Maine                                      | Rest-of-Pool                            | \$145,420.75     | 329.97                        | \$23,097.89                        | -28,687.91      | \$122,322.86         |
| Feb-13 | Maine                                      | Rest-of-Pool                            | \$148,878.10     | 329.97                        | \$23,097.89                        | -28,687.91      | \$125,780.21         |
| Mar-13 | Maine                                      | Rest-of-Pool                            | \$109,722.42     | 329.97                        | \$23,097.89                        | -28,687.91      | \$86,624.53          |
| Apr-13 | Maine                                      | Rest-of-Pool                            | \$2,586.50       | 329.97                        | \$23,097.89                        | -28,673.46      | -\$20,511.39         |
| May-13 | Maine                                      | Rest-of-Pool                            | \$6,601.97       | 329.97                        | \$23,097.89                        | -28,673.46      | -\$16,495.92         |
| Jun-13 | Maine                                      | Rest-of-Pool                            | \$39,188.61      | 329.94                        | \$59,388.95                        | -27,559.81      | -\$20,200.34         |
| Jul-13 | Maine                                      | Rest-of-Pool                            | -\$82,436.52     | 329.94                        | \$59,388.95                        | -27,573.62      | -\$141,825.47        |
| Aug-13 | Maine                                      | Rest-of-Pool                            | -\$82,720.09     | 329.94                        | \$59,388.95                        | -27,573.62      | -\$142,109.04        |
| Sep-13 | Maine                                      | Rest-of-Pool                            | -\$62,935.98     | 329.94                        | \$59,388.95                        | -27,573.62      | -\$122,324.93        |
| Oct-13 | Maine                                      | Rest-of-Pool                            | -\$147,156.40    | 329.97                        | \$59,394.60                        | -27,747.03      | -\$206,551.00        |
| Nov-13 | Maine                                      | Rest-of-Pool                            | -\$179,395.79    | 329.97                        | \$59,394.60                        | -27,741.77      | -\$238,790.39        |
| Dec-13 | Maine                                      | Rest-of-Pool                            | -\$141,057.39    | 329.97                        | \$59,394.60                        | -27,761.42      | -\$200,451.99        |

### 12.4 PER Adjustment

As stated above, PER is a payment adjustment made to reflect revenues earned by resources during high priced hours in the Energy markets. Generation and Import resources with a CSO are subject to PER adjustments (excluding self-supply CSO MWs). Demand resources are not subject to PER adjustments.

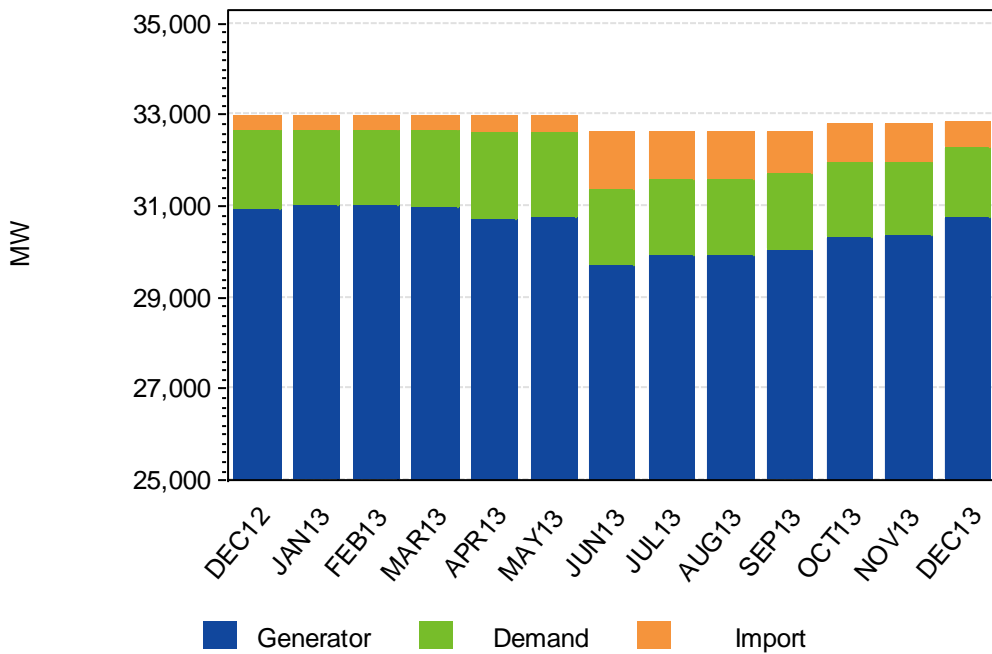
The following table provides detail, by month and capacity zone, of the CSO subject to PER, the rate at which these CSO are charged, and the total PER adjustment. It is important to note that individual resources are subject to an overall PER cap. Therefore, the product of the CSO and the rate in the table below will not necessarily equal the total PER adjustment.

| Month  | Capacity Zone | PER CSO MW | Average PER (\$/kW-month) | Total PER Adjustment |
|--------|---------------|------------|---------------------------|----------------------|
| Dec-12 | Maine         | 3,146      | 0.000                     | \$0                  |
| Dec-12 | Rest-of-Pool  | 26,230     | 0.000                     | \$0                  |
| Jan-13 | Maine         | 3,139      | 0.000                     | \$0                  |
| Jan-13 | Rest-of-Pool  | 26,300     | 0.000                     | \$0                  |
| Feb-13 | Maine         | 3,144      | 0.011                     | \$34,587             |
| Feb-13 | Rest-of-Pool  | 26,281     | 0.014                     | \$367,929            |
| Mar-13 | Maine         | 3,094      | 0.011                     | \$34,037             |
| Mar-13 | Rest-of-Pool  | 26,319     | 0.014                     | \$368,462            |
| Apr-13 | Maine         | 2,939      | 0.011                     | \$32,334             |
| Apr-13 | Rest-of-Pool  | 26,226     | 0.014                     | \$367,167            |
| May-13 | Maine         | 2,902      | 0.011                     | \$31,926             |
| May-13 | Rest-of-Pool  | 26,323     | 0.014                     | \$368,520            |
| Jun-13 | Maine         | 3,114      | 0.011                     | \$34,251             |
| Jun-13 | Rest-of-Pool  | 25,186     | 0.014                     | \$352,598            |
| Jul-13 | Maine         | 2,883      | 0.011                     | \$31,715             |
| Jul-13 | Rest-of-Pool  | 25,592     | 0.018                     | \$460,650            |
| Aug-13 | Maine         | 2,930      | 0.011                     | \$32,231             |
| Aug-13 | Rest-of-Pool  | 25,541     | 0.074                     | \$1,890,030          |
| Sep-13 | Maine         | 3,016      | 0.011                     | \$33,172             |
| Sep-13 | Rest-of-Pool  | 25,285     | 0.074                     | \$1,871,057          |
| Oct-13 | Maine         | 2,974      | 0.011                     | \$32,712             |
| Oct-13 | Rest-of-Pool  | 25,510     | 0.077                     | \$1,964,305          |
| Nov-13 | Maine         | 2,925      | 0.011                     | \$32,176             |
| Nov-13 | Rest-of-Pool  | 25,610     | 0.077                     | \$1,971,944          |
| Dec-13 | Maine         | 2,999      | 0.020                     | \$59,975             |
| Dec-13 | Rest-of-Pool  | 25,606     | 0.086                     | \$2,202,113          |

## 12.5 Sources of Capacity

The following graph shows, in MW, the amount of capacity procured by type in New England for each of the last 13 months. The subsequent table displays the data underlying the graph.

### CSO Sources by Type 13 Months Ending December 2013



| Month  | Demand Resource MW | Generation MW | Import MW | Total MW |
|--------|--------------------|---------------|-----------|----------|
| Dec-12 | 1,724              | 30,938        | 337       | 32,999   |
| Jan-13 | 1,662              | 31,000        | 337       | 32,999   |
| Feb-13 | 1,675              | 30,987        | 337       | 32,999   |
| Mar-13 | 1,687              | 30,975        | 337       | 32,999   |
| Apr-13 | 1,919              | 30,702        | 362       | 32,983   |
| May-13 | 1,888              | 30,734        | 362       | 32,983   |
| Jun-13 | 1,665              | 29,702        | 1,258     | 32,625   |
| Jul-13 | 1,655              | 29,931        | 1,039     | 32,625   |
| Aug-13 | 1,658              | 29,927        | 1,039     | 32,625   |
| Sep-13 | 1,663              | 30,046        | 917       | 32,625   |
| Oct-13 | 1,640              | 30,314        | 858       | 32,811   |
| Nov-13 | 1,604              | 30,344        | 858       | 32,806   |
| Dec-13 | 1,535              | 30,740        | 552       | 32,827   |

#### 12.6 Capacity Imports

The following table shows the monthly CSO MW resulting from imports for each of the last 13 months.

| Month  | Capacity Zone | NY AC Ties | New Brunswick | HQ Phase I/II | HQ Highgate | Total |
|--------|---------------|------------|---------------|---------------|-------------|-------|
| Dec-12 | Rest-of-Pool  | 104        | 0             | 0             | 193         | 297   |
| Dec-12 | Maine         | 0          | 0             | 0             | 0           | 0     |
| Jan-13 | Rest-of-Pool  | 104        | 0             | 0             | 193         | 297   |
| Jan-13 | Maine         | 0          | 0             | 0             | 0           | 0     |
| Feb-13 | Rest-of-Pool  | 104        | 0             | 0             | 193         | 297   |
| Feb-13 | Maine         | 0          | 0             | 0             | 0           | 0     |
| Mar-13 | Rest-of-Pool  | 104        | 0             | 0             | 193         | 297   |
| Mar-13 | Maine         | 0          | 0             | 0             | 0           | 0     |
| Apr-13 | Rest-of-Pool  | 104        | 0             | 25            | 193         | 322   |
| Apr-13 | Maine         | 0          | 0             | 0             | 0           | 0     |
| May-13 | Rest-of-Pool  | 104        | 0             | 25            | 193         | 322   |
| May-13 | Maine         | 0          | 0             | 0             | 0           | 0     |
| Jun-13 | Rest-of-Pool  | 459        | 0             | 396           | 194         | 1,049 |
| Jun-13 | Maine         | 0          | 209           | 0             | 0           | 209   |
| Jul-13 | Rest-of-Pool  | 234        | 0             | 402           | 194         | 830   |
| Jul-13 | Maine         | 0          | 209           | 0             | 0           | 209   |
| Aug-13 | Rest-of-Pool  | 234        | 0             | 402           | 194         | 830   |
| Aug-13 | Maine         | 0          | 209           | 0             | 0           | 209   |
| Sep-13 | Rest-of-Pool  | 134        | 0             | 380           | 194         | 708   |
| Sep-13 | Maine         | 0          | 209           | 0             | 0           | 209   |
| Oct-13 | Rest-of-Pool  | 84         | 0             | 380           | 194         | 658   |
| Oct-13 | Maine         | 0          | 200           | 0             | 0           | 200   |
| Nov-13 | Rest-of-Pool  | 84         | 0             | 380           | 194         | 658   |
| Nov-13 | Maine         | 0          | 200           | 0             | 0           | 200   |
| Dec-13 | Rest-of-Pool  | 84         | 0             | 274           | 194         | 552   |
| Dec-13 | Maine         | 0          | 0             | 0             | 0           | 0     |

## 12.7 Performance

All capacity resources with a CSO are subject to evaluation during each obligation month of a commitment period to ensure they can deliver the capacity for which they are paid. Generation and Import resources are evaluated for performance during shortage events. Demand resources are evaluated during dispatch events and performance hours.

### 12.7.1 Generation and Import Resource Availability

A shortage event reflects a shortage of operating reserves, as defined by 30 or more consecutive minutes of system Reserve Constraint Penalty Factor activation. Available MWs from Generation and Import resources are measured during shortage events, and availability scores are calculated based on this performance. Available MWs can be adjusted by Supplemental Availability Bilateral (SAB) agreements as well as exempt outage MWs. A resource's availability score is then used to compute the availability penalty associated with the shortage event.



| Month  | Hours with Shortage Events | Total Duration of Shortage Events (Minutes) | Resource Type | SAB MW (Sold) | SAB MW (purchased) | Shortage Event Penalty |
|--------|----------------------------|---|---------------|---------------|--------------------|------------------------|
| Dec-12 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Dec-12 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Jan-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Jan-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Feb-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Feb-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Mar-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Mar-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Apr-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Apr-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| May-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| May-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Jun-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Jun-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Jul-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Jul-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Aug-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Aug-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Sep-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Sep-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Oct-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Oct-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Nov-13 | 0                          | 0.00  | Generator     | 0             | 0                  | \$0                    |
| Nov-13 | 0                          | 0.00  | Import        | 0             | 0                  | \$0                    |
| Dec-13 | 3                          | 85.00                                       | Generator     | 352           | 352                | -\$6,550,130           |
| Dec-13 | 3                          | 85.00                                       | Import        | 0             | 0                  | -\$45,439              |

### 12.7.2 Demand Resource Performance

Demand Resources are collections of assets which reduce their consumption of energy in order to provide capacity to the system. There are four types of Demand Resources: Real-Time Demand Response resources (RTDR), Real-Time Emergency Generation resources (RTEG), On-Peak resources, and Seasonal Peak resources. RTDR and RTEG are active demand resources, and are required to respond to dispatch instructions from ISO-NE. During these dispatch events, active resources are expected to curtail their energy consumption for the system by an amount equal to that requested by ISO-NE. On-Peak and Seasonal Peak resources, on the other hand, are passive demand resources, and do not receive dispatch instructions from ISO-NE. Instead, these resources curtail their electricity use at set times throughout the year. On-Peak resources must reduce consumption during summer peak hours (non-holiday weekdays, 1:00 p.m. to 5:00 p.m., during June, July, and August) and winter peak hours (non-holiday weekdays, 5:00 p.m. to 7:00 p.m., during December and January). Seasonal Peak resources must reduce consumption during the summer months of June, July, and August and during the winter months of December and January in hours on non-holiday weekdays when the Real-Time System Hourly Load is equal to or greater than 90% of the most recent “50/50” System Peak Load Forecast.

Demand Resource performance is measured during hours with dispatch events for active resources, and during performance hours for passive resources. Resources with a capacity value less than their CSO will be assessed a penalty, while those with a capacity value greater than their CSO are eligible for a performance incentive. In the absence of a performance event during performance months, a resource's capacity value and resulting variance will be based on its effective audit result; and in non-performance months, a resource's capacity value and resulting variance will be based upon its Seasonal Demand Reduction Value.

The following table displays a pool-level summary of Demand Resource performance by type for the past 13 months.

| Month  | DR Type       | Performance Hours | CSO MW | Capacity Value (MW) | Negative Capacity Variance (MW) | Positive Capacity Variance (MW) | Performance Penalty (\$) | Performance Incentive (\$) |
|--------|---------------|-------------------|--------|---------------------|---------------------------------|---------------------------------|--------------------------|----------------------------|
| Dec-12 | ON_PEAK       | 40                | 723.07 | 1,084.82            | -13.47                          | 375.23                          | -\$34,365                | \$65,822                   |
| Dec-12 | REAL_TIME     | 0                 | 446.18 | 511.17              | -29.29                          | 77.64                           | -\$73,735                | \$22,451                   |
| Dec-12 | REAL_TIME_EG  | 0                 | 299.08 | 331.66              | -5.89                           | 38.47                           | -\$14,210                | \$6,454                    |
| Dec-12 | SEASONAL_PEAK | 0                 | 255.73 | 454.53              | 0.00                            | 198.80                          | \$0                      | \$27,584                   |
| Jan-13 | ON_PEAK       | 44                | 727.90 | 1,221.06            | -12.69                          | 505.86                          | -\$32,172                | \$209,488                  |
| Jan-13 | REAL_TIME     | 3                 | 387.62 | 331.56              | -82.05                          | 9.35                            | -\$207,775               | \$4,269                    |
| Jan-13 | REAL_TIME_EG  | 0                 | 282.47 | 278.17              | -29.16                          | 24.86                           | -\$70,320                | \$8,869                    |
| Jan-13 | SEASONAL_PEAK | 25                | 263.62 | 472.83              | 0.00                            | 209.21                          | \$0                      | \$87,641                   |
| Feb-13 | ON_PEAK       | 0                 | 726.98 | 1,153.53            | -10.36                          | 436.91                          | -\$26,260                | \$74,426                   |
| Feb-13 | REAL_TIME     | 0                 | 401.89 | 424.78              | -24.54                          | 30.79                           | -\$62,060                | \$4,744                    |
| Feb-13 | REAL_TIME_EG  | 0                 | 282.77 | 304.93              | -11.18                          | 33.35                           | -\$26,977                | \$4,824                    |
| Feb-13 | SEASONAL_PEAK | 0                 | 263.62 | 463.68              | 0.00                            | 200.06                          | \$0                      | \$31,303                   |
| Mar-13 | ON_PEAK       | 0                 | 727.65 | 1,153.53            | -10.18                          | 436.06                          | -\$25,794                | \$82,528                   |
| Mar-13 | REAL_TIME     | 0                 | 435.89 | 424.78              | -33.18                          | 22.07                           | -\$83,921                | \$4,158                    |
| Mar-13 | REAL_TIME_EG  | 0                 | 260.07 | 291.21              | -7.11                           | 38.26                           | -\$17,154                | \$6,111                    |
| Mar-13 | SEASONAL_PEAK | 0                 | 263.62 | 463.68              | 0.00                            | 200.06                          | \$0                      | \$34,071                   |
| Apr-13 | ON_PEAK       | 0                 | 724.06 | 862.38              | -4.20                           | 142.52                          | -\$11,845                | \$8,065                    |
| Apr-13 | REAL_TIME     | 0                 | 578.80 | 622.48              | -0.43                           | 44.11                           | -\$1,098                 | \$2,075                    |
| Apr-13 | REAL_TIME_EG  | 0                 | 369.61 | 394.20              | -0.09                           | 24.68                           | -\$208                   | \$1,186                    |
| Apr-13 | SEASONAL_PEAK | 0                 | 246.43 | 308.46              | -0.57                           | 62.61                           | -\$1,455                 | \$3,280                    |
| May-13 | ON_PEAK       | 0                 | 723.78 | 862.38              | -4.20                           | 142.81                          | -\$11,845                | \$7,279                    |
| May-13 | REAL_TIME     | 0                 | 547.45 | 622.48              | -0.43                           | 75.46                           | -\$1,098                 | \$3,344                    |
| May-13 | REAL_TIME_EG  | 0                 | 369.45 | 394.20              | -0.10                           | 24.85                           | -\$234                   | \$1,072                    |
| May-13 | SEASONAL_PEAK | 0                 | 246.93 | 308.46              | -0.57                           | 62.11                           | -\$1,455                 | \$2,937                    |
| Jun-13 | ON_PEAK       | 80                | 822.18 | 1,043.32            | -21.82                          | 242.75                          | -\$60,652                | \$96,230                   |
| Jun-13 | REAL_TIME     | 0                 | 355.32 | 429.33              | -24.63                          | 98.64                           | -\$69,764                | \$21,987                   |
| Jun-13 | REAL_TIME_EG  | 0                 | 169.78 | 190.42              | -6.95                           | 27.58                           | -\$15,240                | \$9,654                    |
| Jun-13 | SEASONAL_PEAK | 11                | 318.02 | 362.33              | 0.00                            | 44.31                           | \$0                      | \$17,785                   |
| Jul-13 | ON_PEAK       | 88                | 814.53 | 1,066.65            | -8.92                           | 260.83                          | -\$22,964                | \$98,519                   |
| Jul-13 | REAL_TIME     | 8                 | 347.32 | 401.27              | -37.60                          | 91.55                           | -\$95,889                | \$7,532                    |
| Jul-13 | REAL_TIME_EG  | 0                 | 164.70 | 190.86              | -6.23                           | 32.38                           | -\$13,664                | \$10,793                   |
| Jul-13 | SEASONAL_PEAK | 64                | 328.02 | 367.85              | 0.00                            | 39.83                           | \$0                      | \$15,674                   |

| Month  | DR Type       | Performance Hours | CSO MW | Capacity Value (MW) | Negative Capacity Variance (MW) | Positive Capacity Variance (MW) | Performance Penalty (\$) | Performance Incentive (\$) |
|--------|---------------|-------------------|--------|---------------------|---------------------------------|---------------------------------|--------------------------|----------------------------|
| Aug-13 | ON_PEAK       | 88                | 814.89 | 1,078.65            | -9.52                           | 273.07                          | -\$24,551                | \$132,177                  |
| Aug-13 | REAL_TIME     | 0                 | 352.08 | 369.09              | -48.76                          | 65.77                           | -\$128,857               | \$14,347                   |
| Aug-13 | REAL_TIME_EG  | 0                 | 163.43 | 181.17              | -11.77                          | 29.50                           | -\$25,768                | \$12,700                   |
| Aug-13 | SEASONAL_PEAK | 0                 | 328.02 | 367.85              | 0.00                            | 39.83                           | \$0                      | \$19,953                   |
| Sep-13 | ON_PEAK       | 0                 | 814.86 | 1,056.37            | -12.89                          | 254.19                          | -\$32,975                | \$119,745                  |
| Sep-13 | REAL_TIME     | 0                 | 353.21 | 385.83              | -38.65                          | 71.27                           | -\$100,550               | \$6,771                    |
| Sep-13 | REAL_TIME_EG  | 0                 | 166.47 | 178.83              | -9.28                           | 21.64                           | -\$20,360                | \$8,936                    |
| Sep-13 | SEASONAL_PEAK | 0                 | 328.02 | 366.01              | 0.00                            | 37.99                           | \$0                      | \$18,434                   |
| Oct-13 | ON_PEAK       | 0                 | 811.69 | 1,056.37            | -9.80                           | 254.27                          | -\$25,211                | \$75,143                   |
| Oct-13 | REAL_TIME     | 0                 | 340.54 | 386.21              | -21.83                          | 67.50                           | -\$67,220                | \$3,983                    |
| Oct-13 | REAL_TIME_EG  | 0                 | 159.75 | 178.83              | -1.74                           | 20.82                           | -\$3,811                 | \$5,536                    |
| Oct-13 | SEASONAL_PEAK | 0                 | 328.02 | 366.01              | 0.00                            | 37.99                           | \$0                      | \$11,581                   |
| Nov-13 | ON_PEAK       | 0                 | 811.38 | 1,056.25            | -9.75                           | 254.41                          | -\$25,087                | \$33,744                   |
| Nov-13 | REAL_TIME     | 0                 | 302.62 | 383.38              | -7.14                           | 87.90                           | -\$18,114                | \$5,879                    |
| Nov-13 | REAL_TIME_EG  | 0                 | 161.97 | 178.83              | -1.74                           | 18.60                           | -\$3,813                 | \$2,212                    |
| Nov-13 | SEASONAL_PEAK | 0                 | 328.02 | 366.01              | 0.00                            | 37.99                           | \$0                      | \$5,180                    |
| Dec-13 | ON_PEAK       | 42                | 811.88 | 1,425.38            | -14.12                          | 627.49                          | -\$38,080                | \$205,842                  |
| Dec-13 | REAL_TIME     | 4                 | 268.42 | 218.00              | -79.43                          | 29.01                           | -\$202,224               | \$9,282                    |
| Dec-13 | REAL_TIME_EG  | 0                 | 126.72 | 125.15              | -16.38                          | 14.80                           | -\$35,339                | \$3,632                    |
| Dec-13 | SEASONAL_PEAK | 31                | 328.02 | 530.22              | 0.00                            | 202.20                          | \$0                      | \$56,887                   |

## 12.8 For More Information

Detailed information on the FCM, including information on the qualification process, auction results, and FERC filings and orders can be found [here](#).

Detailed information about FCM Charge calculation summaries can be found [here](#).

## 13. Energy Market Payments to Demand Assets

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Energy Market payments to demand assets are administered through the Transitional Demand Response (TDR) program.

### 13.1 Transitional Demand Response

The Transitional Demand Response (TDR) program represents, in the aggregate, agreements between wholesale providers and retail customers to encourage reduction of their electricity consumption during periods of peak demand. Transitional Demand Response in New England is administered post the Day-Ahead Energy Market clearing and the scheduling of demand reductions by Market Participants in real-time based upon system conditions.

#### 13.1.1 Transitional Demand Response Payments

- A Real-Time Demand Response Asset with an offer that clears in the post Day-Ahead Energy Market clearing will receive a payment for its Day-Ahead Demand Reduction Obligation at the applicable Day-Ahead Zonal Locational Marginal Price (LMP) and will be paid or charged for the difference between its Real-Time Demand Reduction Obligation and its Day-Ahead Demand Reduction Obligation in Real-Time at the applicable Real-Time Zonal LMP.
- A Real-Time Demand Response Asset with an offer that does not clear in the post Day-Ahead Energy Market clearing will be eligible to receive a payment for its Real-Time Demand Reduction Obligation at the applicable Real-Time Zonal LMP when the hourly provisional Real-Time Zonal LMP is greater than or equal to the its Demand Reduction Offer price.
- A Real-Time Demand Response Asset or Real-Time Emergency Generation Asset that is associated to a Demand Resource in the Forward Capacity Market will receive a payment at the applicable Real-Time Zonal LMP, for its demand reduction, when the Demand Resource is dispatched or audited pursuant to Section III.13 of Market Rule 1.

#### 13.1.2 Transitional Demand Response Charges

- The total credits associated with Transitional Demand Response are allocated proportionally on an hourly basis to Market Participants with Real-Time Load Obligations on a system-wide basis. Excluded are Real-Time Load Obligations incurred at all External Nodes or incurred by Dispatchable Asset Related Demand Postured by the ISO.

The following table includes Day-Ahead Demand Reduction Obligation megawatt-hours MWh (Day-Ahead Cleared MWh, plus average avoided peak distribution losses of 6.5%), Real-Time Demand Reduction MWh, Real-Time Demand Reduction Obligation MWh, RT Demand Reduction Deviation Set to Zero MWh, Real-Time Demand Reduction Deviation MWh, Average Pool Demand Response Charge Allocation MWh, and the FCM/Audit Demand Reduction MWh (Also adjusted for average avoided peak distribution losses of 6.5%).

$$\text{RT Demand Reduction Obligation MWh} = \text{Average Avoided Peak Distribution Losses (1.065)} * \text{RT Demand Reduction MWh}$$

$$\text{RT Demand Reduction Deviation MW} = \text{RT Demand Reduction Obligation MWh} - \text{DA Demand Reduction Obligation MWh} + \text{RT Demand Reduction Deviation Set to Zero MWh}$$

| Month  | Transitional Demand Response Settlement MW |                             |   |   |   | Other Statistics                                   |                                 |
|--------|--|-----------------------------|---|---|---|--|---------------------------------|
|        | DA Demand Reduction Obligation MWh (A)     | RT Demand Reduction MWh (B) | RT Demand Reduction Obligation MW (C)=(B)*1.065 | RT Demand Reduction Deviation Set to Zero MWh (D) | RT Demand Reduction Deviation MWh (E)=(C)-(A)+(D) | Average Pool Demand Response Charge Allocation MWh | FCM/ Audit Demand Reduction MWh |
| Dec-12 | 1,699                                      | 2,051                       | 2,184   | 0   | 485   | 16,146   | 104                             |
| Jan-13 | 3,205                                      | 4,506                       | 4,798   | -35   | 1,558   | 17,082   | 2,113                           |
| Feb-13 | 2,918                                      | 3,722                       | 3,964   | -3  | 1,044   | 16,448   | 1                               |
| Mar-13 | 2,133                                      | 1,994                       | 2,124   | -12   | -21   | 15,686   | 0                               |
| Apr-13 | 1,793                                      | 1,883                       | 2,005   | -13   | 198   | 14,484   | 0                               |
| May-13 | 2,484                                      | 2,917                       | 3,106   | -5  | 618   | 15,290   | 0                               |
| Jun-13 | 2,111                                      | 2,673                       | 2,847   | 0   | 736   | 17,128   | 78                              |
| Jul-13 | 3,666                                      | 4,374                       | 4,659   | -7  | 986   | 20,693   | 1,515                           |
| Aug-13 | 3,283                                      | 4,516                       | 4,810   | -2  | 1,525   | 17,815   | 136                             |
| Sep-13 | 3,035                                      | 3,434                       | 3,657   | -59   | 563   | 15,902   | 9                               |
| Oct-13 | 2,756                                      | 2,468                       | 2,629   | 0   | -127  | 14,782   | 0                               |
| Nov-13 | 2,817                                      | 3,687                       | 3,927   | 0   | 1,111   | 15,521   | 0                               |
| Dec-13 | 3,002                                      | 3,809                       | 4,057   | 0   | 1,054   | 16,916   | 506                             |

In the above table the RT Demand Reduction Deviation Set to Zero MWh column is the difference between DA Demand Reduction Obligation MW and RT Demand Reduction Obligation MW when the RT Demand Reduction Deviation MWh has been set to zero in the settlement, which occurs when the following is true:

- Control Room denies interruption of an Asset
- DA Demand Reduction Obligation MW > 0, Load Zone Real-Time Net Benefit Hour Flag = N, and RT Demand Reduction MWh > DA Demand Reduction Obligation MW

The following table displays Day-Ahead payments, Real-Time Payment Dollars, Total Payment (sum of total Day-Ahead and Real-Time Payments), and the Charge per MWh.

| Month  | DA Payment Dollars | RT Payment Dollars | FCM Audit Demand Reduction Dollars | Total Payment (Charge) Dollars | Charge per MWh |
|--------|--------------------|--------------------|------------------------------------|--------------------------------|----------------|
| Dec-12 | \$95,551           | \$34,062           | \$4,167                            | \$133,781                      | \$0.00         |
| Jan-13 | \$373,673          | \$224,934          | \$329,758                          | \$928,365                      | \$0.00         |
| Feb-13 | \$449,914          | \$166,771          | \$69                               | \$616,754                      | \$0.00         |
| Mar-13 | \$125,943          | \$1,207            | \$0                                | \$127,150                      | \$0.00         |
| Apr-13 | \$100,848          | \$12,772           | \$0                                | \$113,620                      | \$0.00         |
| May-13 | \$127,273          | \$32,802           | \$0                                | \$160,075                      | \$0.00         |
| Jun-13 | \$105,827          | \$44,809           | \$2,551                            | \$153,187                      | \$0.00         |
| Jul-13 | \$329,350          | \$213,288          | \$522,247                          | \$1,064,885                    | \$0.00         |
| Aug-13 | \$149,589          | \$81,289           | \$5,818                            | \$236,695                      | \$0.00         |
| Sep-13 | \$148,319          | \$59,962           | \$465                              | \$208,747                      | \$0.00         |
| Oct-13 | \$110,377          | -\$6,571           | \$0                                | \$103,806                      | \$0.00         |

| Month  | DA Payment Dollars | RT Payment Dollars | FCM Audit Demand Reduction Dollars | Total Payment (Charge) Dollars | Charge per MWh |
|--------|--------------------|--------------------|------------------------------------|--------------------------------|----------------|
| Nov-13 | \$144,804          | \$65,018           | \$0                                | \$209,822                      | \$0.00         |
| Dec-13 | \$443,245          | \$187,155          | \$169,991                          | \$800,390                      | \$0.05         |

**13.2 For More Information:**

Rules governing the calculation of the Transitional Demand Response can be found in Section III.13 Market Rule 1 and Section III, Appendix E located [here](#).

## 14. Document History

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| <b>Date</b> | <b>Version</b>   | <b>Description</b> |
|-------------|------------------|--------------------|
| 1/14/2014   | Original Posting |                    |