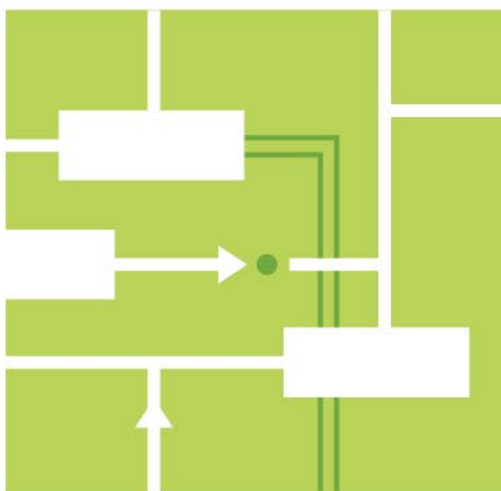
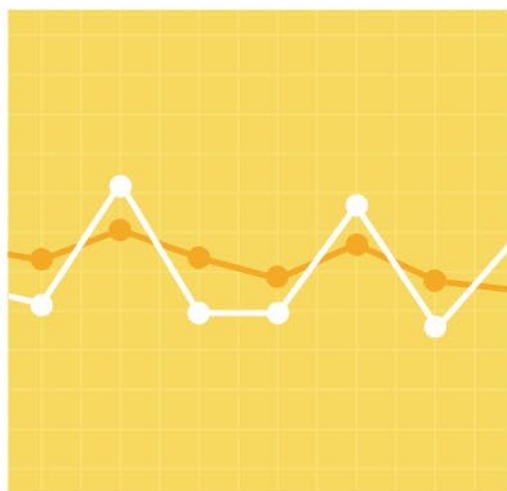




# Monthly Market Operations Report September 2020

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Market Analysis and Settlements  
October 14, 2020

ISO-NE PUBLIC



# 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](#)<sup>1</sup>. 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](#). There is also a summary of weekly Net Commitment Period Compensation (NCPC) credits posted [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 heading entitled “Participants Committee 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](#)<sup>2</sup>.

## 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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<sup>1</sup> Select “Weekly Markets Reports” from the document type filter on the left hand side of the page.

<sup>2</sup> Select “Quarterly Markets Reports” from the document type filter on the left hand side of the page.

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### 3. Monthly Summary

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Day-ahead and real-time LMPs at the New England Hub averaged \$20.46/MWh and \$19.88/MWh, respectively, during September 2020. Day-ahead and real-time prices at the Hub and in the Load Zones averaged 17% lower to 12% lower than August 2020 averages. In the aggregate, September 2020 day-ahead and real-time LMPs were approximately 3% lower during September 2020 than during September 2019. Average natural gas prices were 26% below the prior year's average prices, while residual fuel prices were down 27% from a year ago.

Overall, the average of the real-time LMPs at the Hub and in the Load Zones ranged between 4.4% lower than its day-ahead counterpart in the Southeastern Massachusetts (SEMA) Load Zone to the same as its day-ahead counterpart in the Connecticut (CT) Load Zone. In the Day-Ahead Market, Load Zone average LMPs ranged between 5.2% lower than the Hub average LMPs in the CT Load Zone to 3.3% higher than the Hub in the Maine (ME) Load Zone. In the Real-Time Market, Load Zone average LMPs ranged between 2.4% lower than the Hub average LMPs in the CT Load Zone to 3.6% higher than the Hub in the ME Load Zone. Price differentials between on-peak and off-peak hours at the Hub and in the Load Zones ranged between 42% and 54% 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 September. In the Day-Ahead Energy Market, there were approximately 172,000 MWh of total exports and 1,550,000 MWh of imports, yielding a net import of approximately 1,378,000 MWh. In the Real-Time Energy Market, there were approximately 395,000 MWh of total exports and 1,837,000 MWh of imports, yielding a net import of approximately 1,442,000 MWh. This was about 506,000 MWh lower than a year ago.

The Monthly or Prompt Month FTR Auction (September 2020) had 28 participants and the awarded value of FTRs in the auction totaled \$313K. This represented an increase of \$195K over the previous month and a decrease of about \$557K from the prior year's monthly FTR auction. The allocation of FTR Auction Revenue for September 2020 resulted in \$1.5 million awarded to eligible entities, with \$72K allocated to Incremental Auction Revenue Rights (IARR).

The Marginal Loss Revenue Fund totaled \$1.9 million for September, down \$800K from its August 2020 total.

Total Forward Reserve Credits to eligible assets of \$2.66 million were reduced by \$84K in Failure to Reserve penalties and \$4K in Failure to Activate Penalties during September 2020. The net Forward Reserve Payment of \$2.57 million represented 94.7% of the maximum possible payment of \$2.71 million. Real-Time Reserve Prices occurred in 257 separate hours during the month, and those yielded real-time payments to designated assets of \$994K. These payments were reduced by Forward Reserve Energy Obligation Charges totaling \$276K, yielding a net compensation of \$718K during the month.

Regulation Market Payments totaled \$1.42 million during the month, a decrease of \$1.85 million from the August 2020 value of \$3.27 million.

For the month of September 2020, Forward Capacity payments were made to a total of 35,042 MW of eligible capacity and totaled \$201 million.

Energy payments paid to Price Responsive Demand (PRD) assets during September 2020 totaled \$43K for reduction obligations associated with Day Ahead, \$19K for reduction deviations associated with the Real Time, yielding a total PRD payment for the month of approximately \$62K. These resources received \$0 in the Forward Reserve Market and \$45K in the Real-Time Reserve Market.

For the month of September 2020, no payments were made under FCM Pay-for-Performance (PFP) due to there being no capacity scarcity conditions observed during the month.

## 4. Locational Marginal Prices (LMPs)

For a discussion of LMPs in the New England markets, please visit the website [here](#). The following tables summarize Hub, zonal, and external node hourly (DA) and 5-minute (RT) 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 hourly DA and 5-minute RT 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 Intervals, September 2020

Hub/Zone/ Ext. Node	Avg DA LMP (\$/MWh)	Avg RT LMP (\$/MWh)	Min DA LMP (\$/MWh)	Min RT LMP (\$/MWh)	Max DA LMP (\$/MWh)	Max RT LMP (\$/MWh)	DA % of Hub	RT % of Hub	RT % of DA	DA Std Dev	RT Std Dev	RT Std /DA Std
Hub	\$20.46	\$19.88	\$9.94	-\$20.01	\$50.29	\$246.45	97%	97%	97.1%	\$7.27	\$14.03	1.93
ME	\$21.14	\$20.59	\$9.73	-\$20.25	\$53.22	\$279.10	100%	101%	97.4%	\$8.17	\$15.78	1.93
NH	\$21.00	\$20.25	\$9.90	-\$20.14	\$52.00	\$254.57	99%	99%	96.4%	\$7.83	\$14.55	1.86
VT	\$19.80	\$19.68	\$9.82	-\$20.30	\$49.45	\$243.16	94%	96%	99.4%	\$6.87	\$13.91	2.02
CT	\$19.41	\$19.41	\$9.80	-\$19.76	\$47.56	\$237.54	92%	95%	100.0%	\$6.50	\$13.53	2.08
RI	\$20.51	\$19.64	\$9.81	-\$19.98	\$49.42	\$242.96	97%	96%	95.7%	\$7.64	\$13.82	1.81
SEMA	\$20.84	\$19.93	\$9.94	-\$20.06	\$50.38	\$247.27	99%	97%	95.6%	\$7.78	\$14.08	1.81
WCMA	\$20.43	\$19.88	\$9.95	-\$20.03	\$50.22	\$246.27	97%	97%	97.3%	\$7.22	\$14.03	1.94
NEMA	\$21.07	\$20.16	\$9.98	-\$20.09	\$51.45	\$252.95	100%	99%	95.7%	\$7.95	\$14.40	1.81
NB Ext	\$20.90	\$20.49	\$9.47	-\$40.33	\$53.69	\$454.79	99%	100%	98%	\$8.24	\$17.54	2.13
NYN Ext	\$18.94	\$18.34	\$9.80	-\$20.32	\$46.38	\$180.35	90%	90%	97%	\$5.91	\$11.12	1.88
HQ Ext	\$20.71	\$19.81	\$9.92	-\$19.76	\$50.08	\$246.13	98%	97%	96%	\$7.75	\$14.02	1.81
HG Ext	\$18.19	\$18.10	\$9.08	-\$20.39	\$45.57	\$225.72	86%	89%	100%	\$6.28	\$12.94	2.06
CSC Ext	\$19.24	\$19.37	\$9.82	-\$19.75	\$46.32	\$235.40	91%	95%	101%	\$6.23	\$13.41	2.15
NNC Ext	\$19.30	\$19.42	\$9.83	-\$19.76	\$46.50	\$236.17	91%	95%	101%	\$6.27	\$13.45	2.15

#### 4.1.2 On-Peak Intervals, September 2020

Hub/Zone/ Ext. Node	Avg DA LMP (\$/MWh)	Avg RT LMP (\$/MWh)	Min DA LMP (\$/MWh)	Min RT LMP (\$/MWh)	Max DA LMP (\$/MWh)	Max RT LMP (\$/MWh)	DA % of Hub	RT % of Hub	RT % of DA	DA Std Dev	RT Std Dev	RT Std /DA Std
Hub	\$24.80	\$24.15	\$13.09	\$8.10	\$50.29	\$246.45	103%	103%	97%	\$7.61	\$18.31	2.41
ME	\$26.01	\$25.35	\$13.04	\$7.99	\$53.22	\$259.24	108%	108%	97%	\$8.73	\$20.29	2.32
NH	\$25.69	\$24.73	\$13.15	\$8.10	\$52.00	\$254.57	107%	106%	96%	\$8.27	\$18.99	2.30
VT	\$23.66	\$23.91	\$12.87	\$7.92	\$49.45	\$243.16	98%	102%	101%	\$7.39	\$18.18	2.46
CT	\$23.06	\$23.51	\$12.94	\$7.89	\$47.56	\$237.54	96%	100%	102%	\$6.90	\$17.65	2.56
RI	\$25.06	\$23.83	\$12.97	\$8.07	\$49.42	\$242.96	104%	102%	95%	\$8.13	\$18.03	2.22
SEMA	\$25.49	\$24.22	\$13.08	\$8.13	\$50.38	\$247.27	106%	104%	95%	\$8.25	\$18.35	2.23
WCMA	\$24.73	\$24.15	\$13.10	\$8.08	\$50.22	\$246.27	103%	103%	98%	\$7.57	\$18.31	2.42
NEMA	\$25.83	\$24.58	\$13.13	\$8.17	\$51.45	\$252.95	107%	105%	95%	\$8.44	\$18.80	2.23
NB Ext	\$25.78	\$25.55	\$12.78	\$0.00	\$53.69	\$259.42	107%	109%	99%	\$8.83	\$21.84	2.47
NYN Ext	\$22.25	\$21.77	\$12.81	-\$20.32	\$46.38	\$180.35	93%	93%	98%	\$6.15	\$14.21	2.31
HQ Ext	\$25.36	\$24.12	\$12.86	\$8.10	\$50.08	\$246.13	105%	103%	95%	\$8.21	\$18.29	2.23
HG Ext	\$21.67	\$21.97	\$11.87	\$7.33	\$45.57	\$225.72	90%	94%	101%	\$6.93	\$17.04	2.46
CSC Ext	\$22.73	\$23.42	\$12.92	\$7.83	\$46.32	\$235.40	95%	100%	103%	\$6.54	\$17.49	2.67
NNC Ext	\$22.81	\$23.49	\$12.94	\$7.86	\$46.50	\$236.17	95%	100%	103%	\$6.58	\$17.53	2.66

#### 4.1.3 Off-Peak Intervals, September 2020

Hub/Zone/ Ext. Node	Avg DA LMP (\$/MWh)	Avg RT LMP (\$/MWh)	Min DA LMP (\$/MWh)	Min RT LMP (\$/MWh)	Max DA LMP (\$/MWh)	Max RT LMP (\$/MWh)	DA % of Hub	RT % of Hub	RT % of DA	DA Std Dev	RT Std Dev	RT Std /DA Std
Hub	\$16.67	\$16.14	\$9.94	-\$20.01	\$31.84	\$74.98	89%	89%	97%	\$4.20	\$6.78	1.61
ME	\$16.88	\$16.43	\$9.73	-\$20.25	\$32.11	\$279.10	90%	91%	97%	\$4.44	\$8.34	1.88
NH	\$16.90	\$16.32	\$9.90	-\$20.14	\$32.40	\$76.52	90%	90%	97%	\$4.37	\$6.96	1.59
VT	\$16.42	\$15.98	\$9.82	-\$20.30	\$30.64	\$71.50	87%	88%	97%	\$4.05	\$6.66	1.65
CT	\$16.21	\$15.82	\$9.80	-\$19.76	\$30.86	\$72.95	86%	88%	98%	\$3.97	\$6.58	1.66
RI	\$16.54	\$15.98	\$9.81	-\$19.98	\$31.45	\$74.21	88%	88%	97%	\$4.23	\$6.69	1.58
SEMA	\$16.78	\$16.17	\$9.94	-\$20.06	\$32.04	\$75.53	89%	89%	96%	\$4.32	\$6.82	1.58
WCMA	\$16.67	\$16.14	\$9.95	-\$20.03	\$31.83	\$74.90	89%	89%	97%	\$4.19	\$6.77	1.62
NEMA	\$16.90	\$16.30	\$9.98	-\$20.09	\$32.39	\$76.31	90%	90%	96%	\$4.38	\$6.91	1.58
NB Ext	\$16.62	\$16.06	\$9.47	-\$40.33	\$32.37	\$454.79	88%	89%	97%	\$4.48	\$10.84	2.42
NYN Ext	\$16.04	\$15.34	\$9.80	-\$19.58	\$29.60	\$65.23	85%	85%	96%	\$3.80	\$5.99	1.58
HQ Ext	\$16.64	\$16.03	\$9.92	-\$19.76	\$31.57	\$74.48	88%	89%	96%	\$4.27	\$6.76	1.59
HG Ext	\$15.14	\$14.72	\$9.08	-\$20.39	\$28.45	\$48.43	80%	81%	97%	\$3.47	\$5.94	1.71
CSC Ext	\$16.20	\$15.82	\$9.82	-\$19.75	\$30.73	\$72.58	86%	88%	98%	\$3.93	\$6.54	1.66
NNC Ext	\$16.23	\$15.87	\$9.83	-\$19.76	\$30.91	\$73.04	86%	88%	98%	\$3.95	\$6.57	1.66

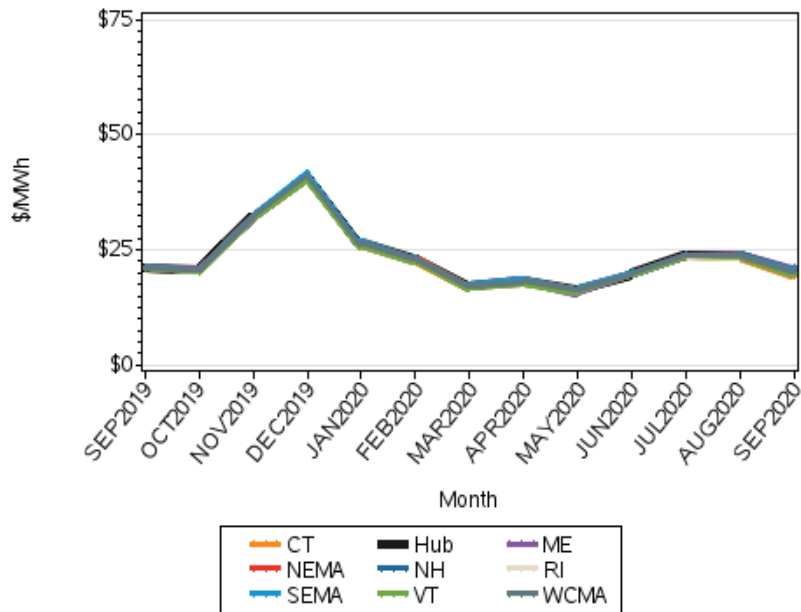


## 4.2 LMP Graphs, Day-Ahead Market, 13 Months Ending September 2020

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.

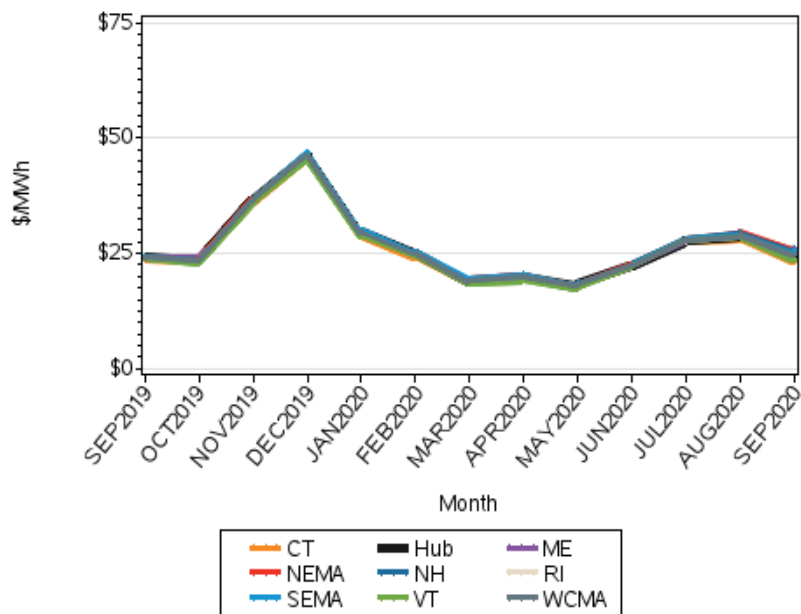
### Monthly Avg Day-Ahead LMPs for Hub and Load Zones

13 Mos Ending September 2020, All Hours

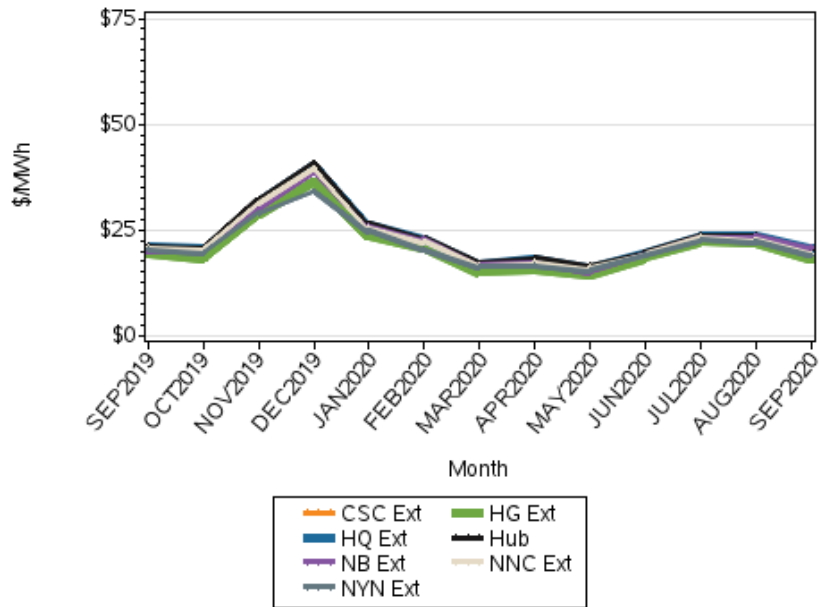


### Monthly Avg Day-Ahead LMPs for Hub and Load Zones

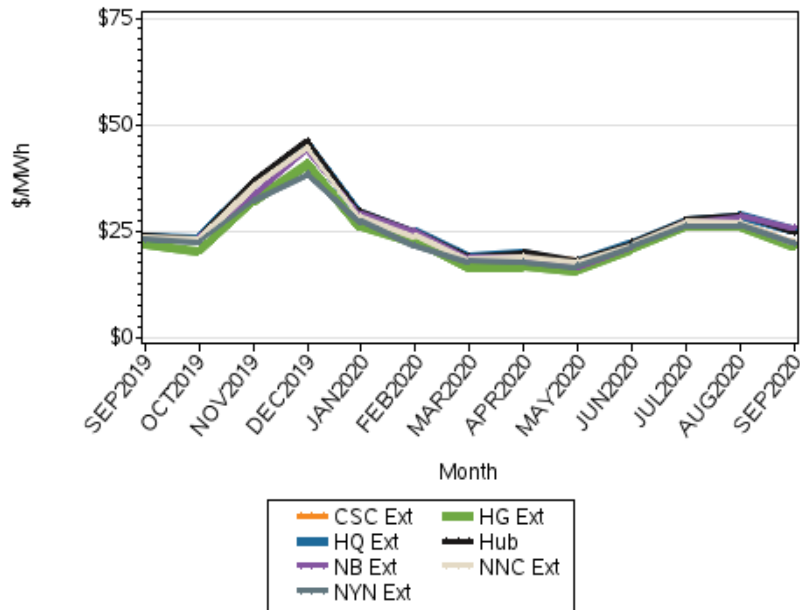
13 Mos Ending September 2020, On-Peak Hours



### Monthly Avg Day-Ahead LMPs for Hub and External Nodes 13 Mos Ending September 2020, All Hours



### Monthly Avg Day-Ahead LMPs for Hub and External Nodes 13 Mos Ending September 2020, On-Peak Hours

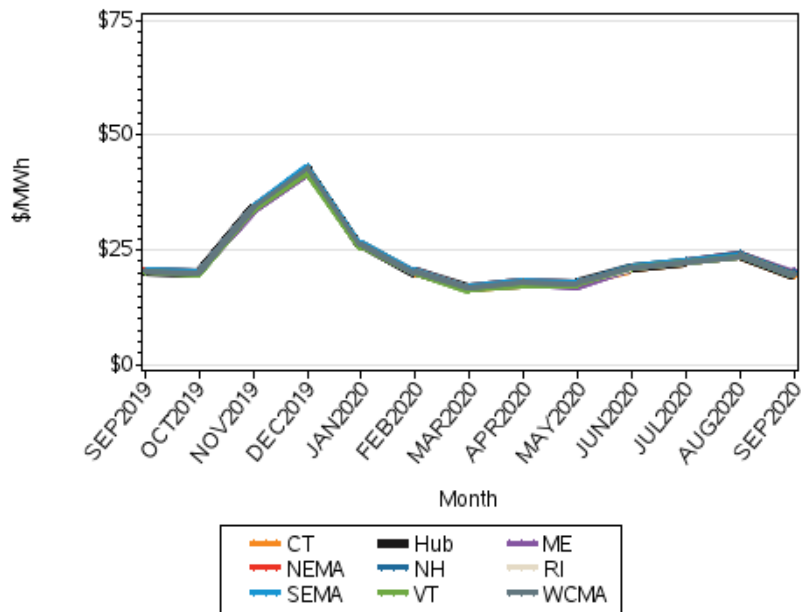


### 4.3 LMP Graphs, Real-Time Market, 13 Months Ending September 2020

The following four graphs show the 13 month history of average hourly (and 5-minute) Real-Time LMPs for the Hub, Load Zones, and External Nodes on an overall and on-peak basis.

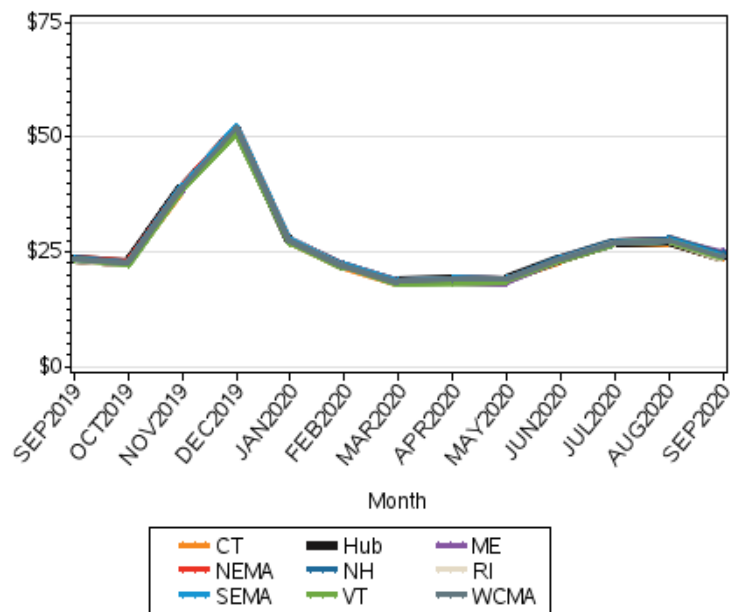
#### Monthly Avg Real-Time LMPs for Hub and Load Zones

13 Mos Ending September 2020, All Hours

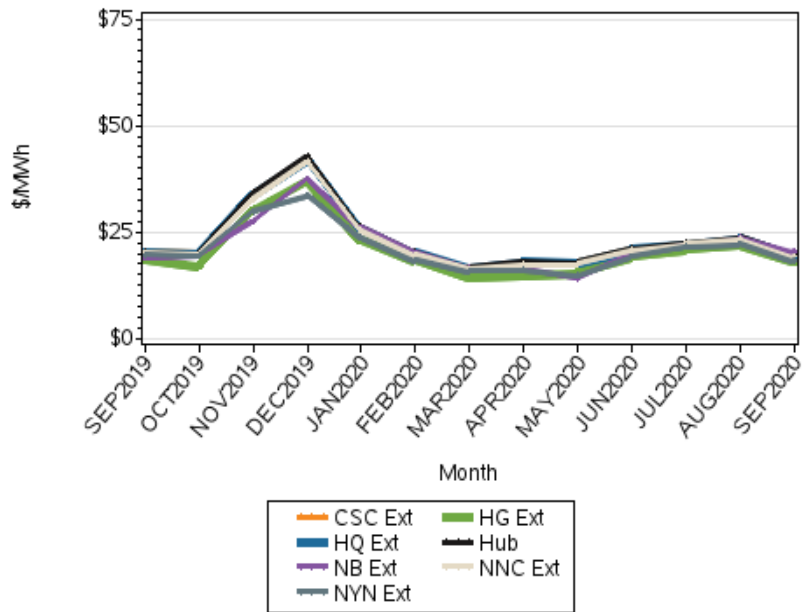


#### Monthly Avg Real-Time LMPs for Hub and Load Zones

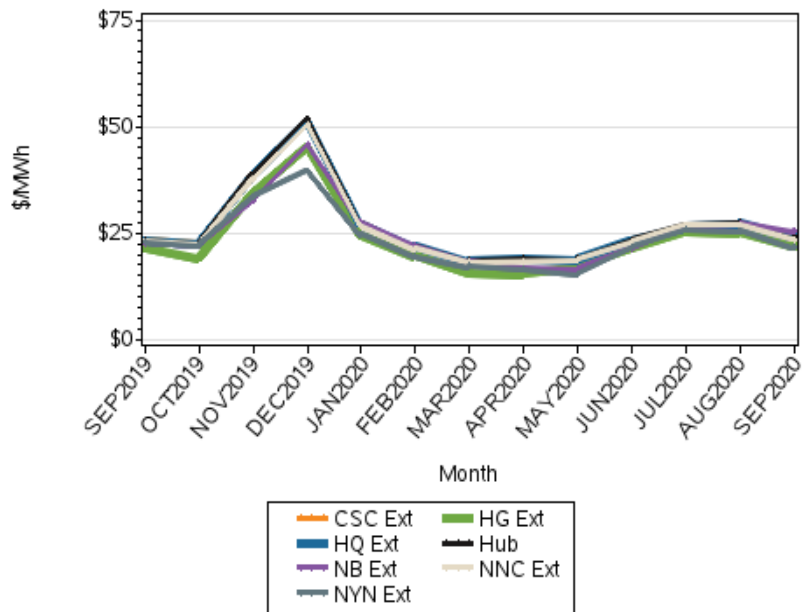
13 Mos Ending September 2020, On-Peak Hours



**Monthly Avg Real-Time LMPs for Hub and External Nodes**  
13 Mos Ending September 2020, All Hours



**Monthly Avg Real-Time LMPs for Hub and External Nodes**  
13 Mos Ending September 2020, 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](#)<sup>3</sup>.

The ISO also provides a discussion of LMP results on an annual basis in its Annual Market Performance Reports, located [here](#)<sup>4</sup>.

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

Customizable downloads of Day-Ahead and Real-Time Hourly and 5-minute 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](#).

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<sup>3</sup> Select "Weekly Markets Reports" from the document type filter on the left hand side of the page

<sup>4</sup> Select "Annual Markets Reports" from the document type filter on the left hand side of the page

## 5. Imports and Exports

For more information on import and export scheduling, visit the ISO website [here](#).

### 5.1 Net Interchange Summary, September 2020

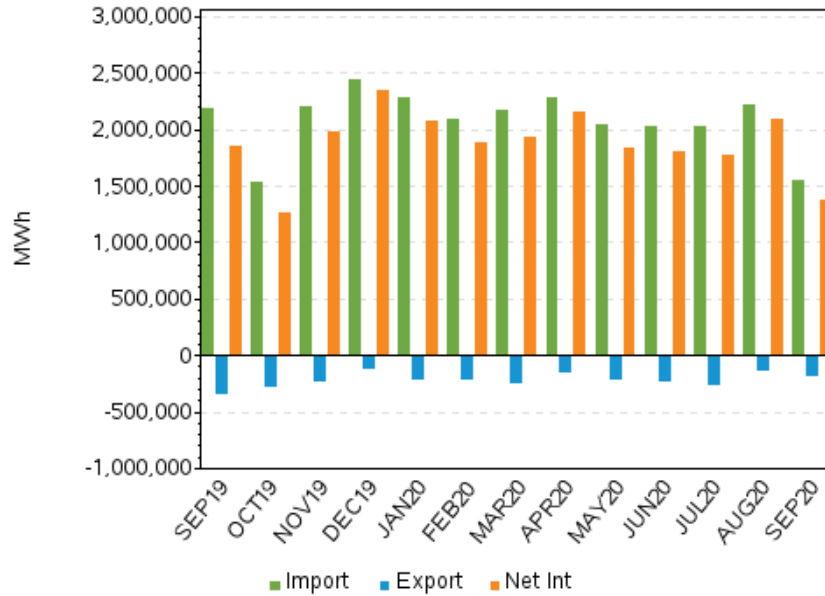
The following tables show summary statistics for imports and exports on the six external interfaces for both the Day-Ahead and Real-Time Markets:

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

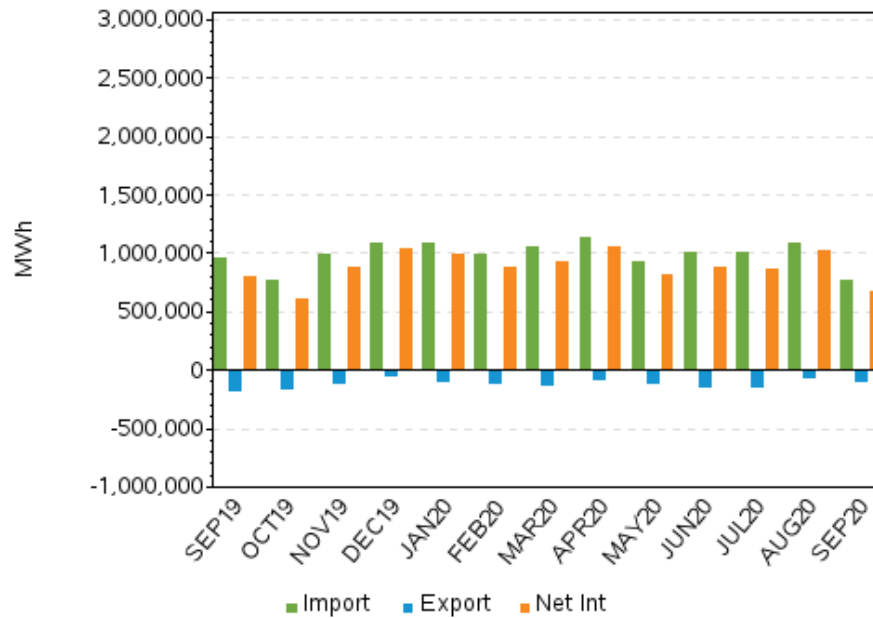
On/Off Peak	Interface	DA Total Exports (MWh)	DA Total Imports (MWh)	DA Net Int (MWh)	RT Total Exports (MWh)	RT Total Imports (MWh)	RT Net Int (MWh)
All Hours	NNC	-60,503	563	-59,941	-69,305	4,599	-64,706
	NY-CSC	0	0	0	0	0	0
	HQ HG	0	149,860	149,860	0	154,440	154,440
	HQ I/II	-50	567,963	567,913	0	649,092	649,092
	NY-N AC	-69,478	712,215	642,738	-263,658	910,749	647,091
	NB	-42,141	119,126	76,986	-62,122	117,846	55,724
<b>Total</b>	<b>All Hours</b>	<b>-172,172</b>	<b>1,549,727</b>	<b>1,377,555</b>	<b>-395,085</b>	<b>1,836,727</b>	<b>1,441,642</b>
Off-Peak	NNC	-30,562	231	-30,331	-34,304	910	-33,394
	NY-CSC	0	0	0	0	0	0
	HQ HG	0	74,439	74,439	0	78,918	78,918
	HQ I/II	0	317,119	317,119	0	363,655	363,655
	NY-N AC	-39,315	327,500	288,185	-138,585	446,779	308,194
	NB	-13,302	62,950	49,649	-24,610	65,656	41,046
<b>Total</b>	<b>Off-Peak</b>	<b>-83,178</b>	<b>782,240</b>	<b>699,061</b>	<b>-197,499</b>	<b>955,917</b>	<b>758,418</b>
On-Peak	NNC	-29,941	332	-29,609	-35,000	3,689	-31,311
	NY-CSC	0	0	0	0	0	0
	HQ HG	0	75,421	75,421	0	75,522	75,522
	HQ I/II	-50	250,843	250,793	0	285,438	285,438
	NY-N AC	-30,163	384,715	354,552	-125,073	463,971	338,898
	NB	-28,839	56,176	27,337	-37,512	52,190	14,678
<b>Total</b>	<b>On-Peak</b>	<b>-88,993</b>	<b>767,487</b>	<b>678,494</b>	<b>-197,585</b>	<b>880,809</b>	<b>683,224</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

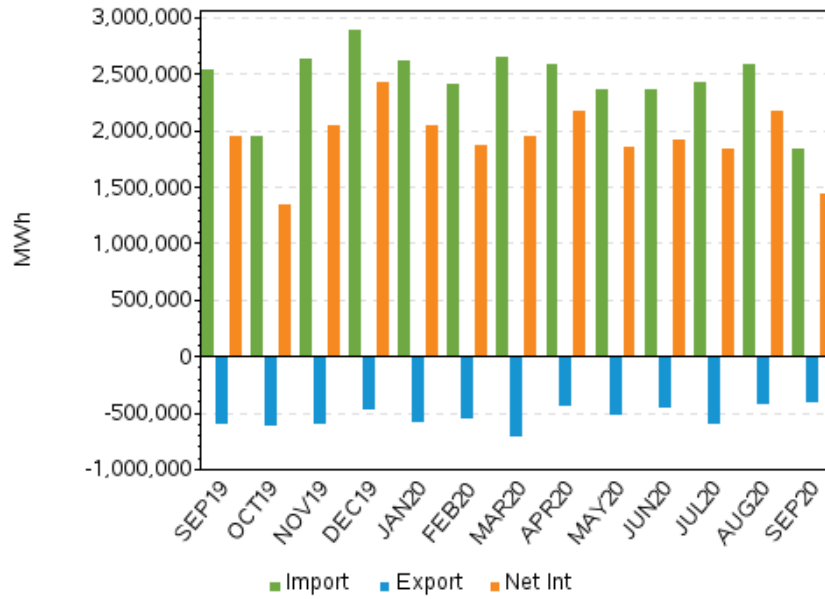


**Net Interchange, Last 13 Mos., New England Control Area**  
Day-Ahead Market, On-Peak Hours



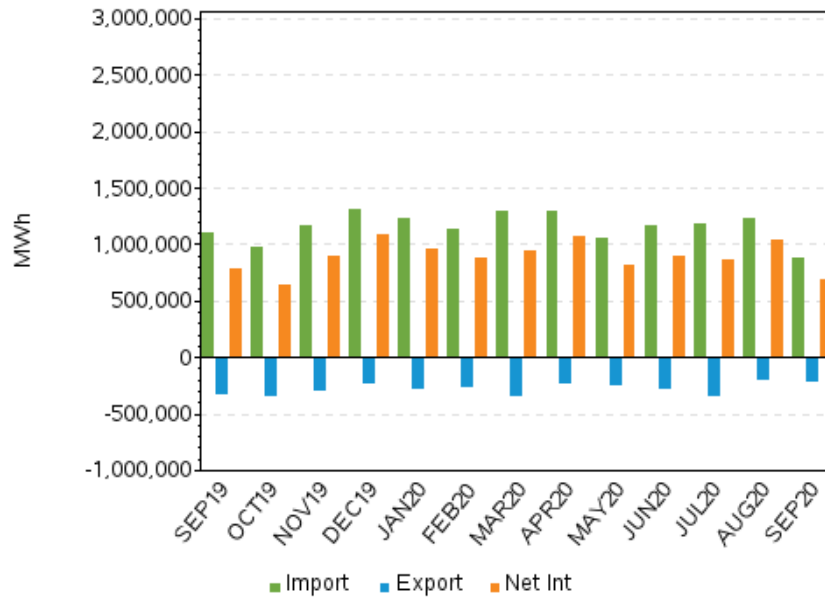
### Net Interchange, Last 13 Mos., New England Control Area

Real-Time Market, All Hours



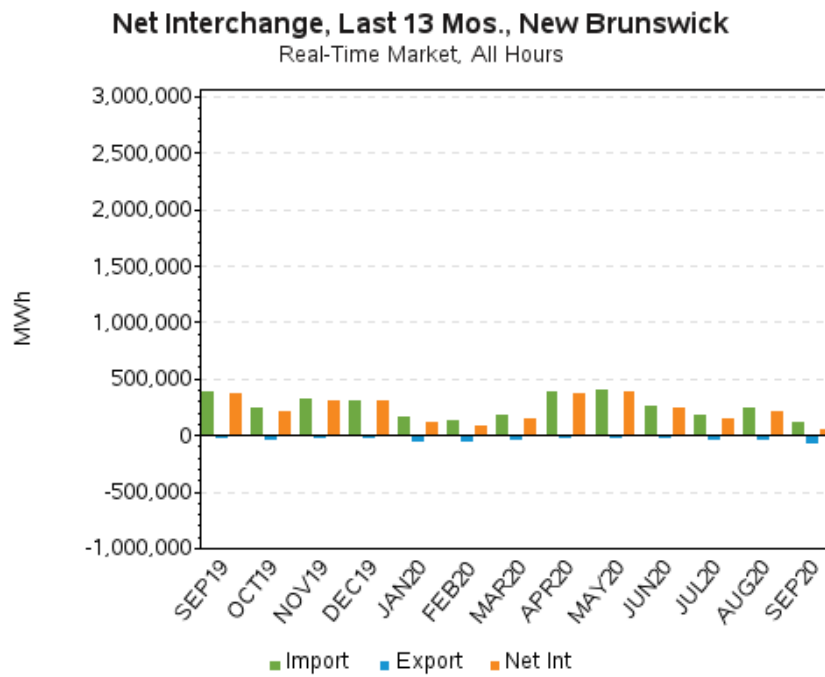
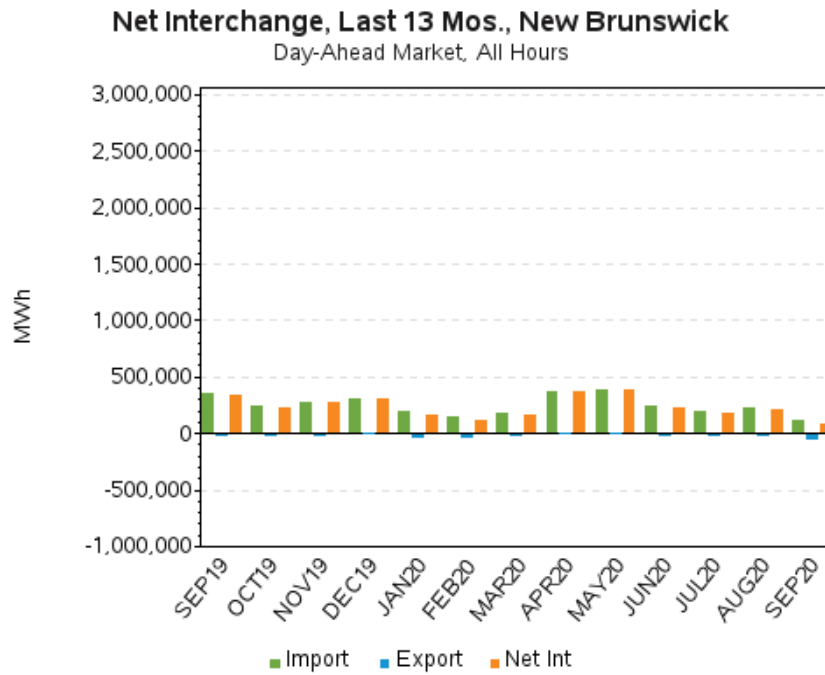
### Net Interchange, Last 13 Mos., New England Control Area

Real-Time Market, On-Peak Hours

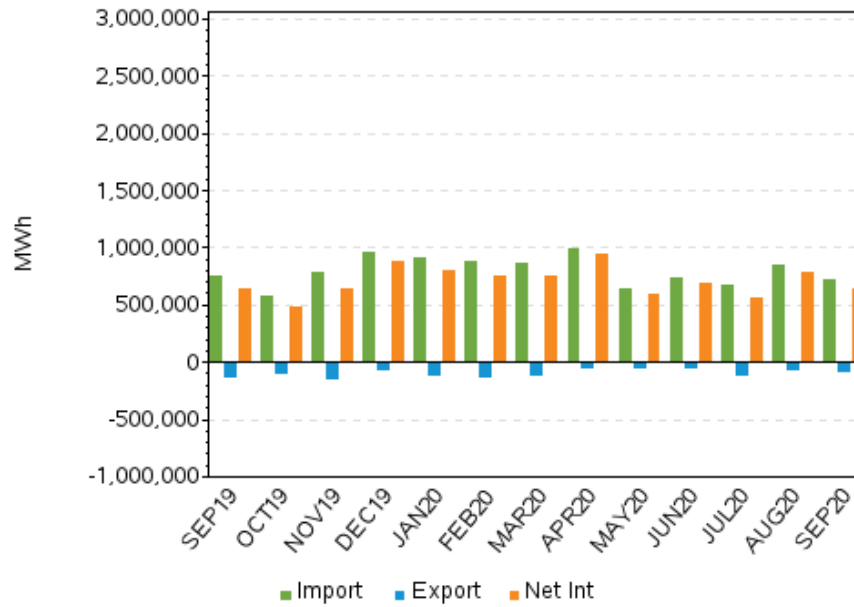




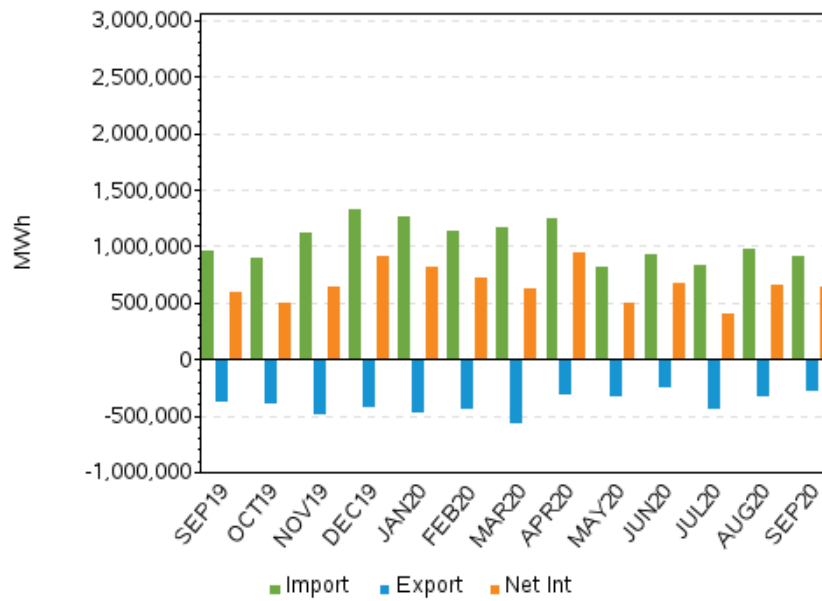
### 5.3 Net Interchange Summary by Interface, Last 13 Months



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

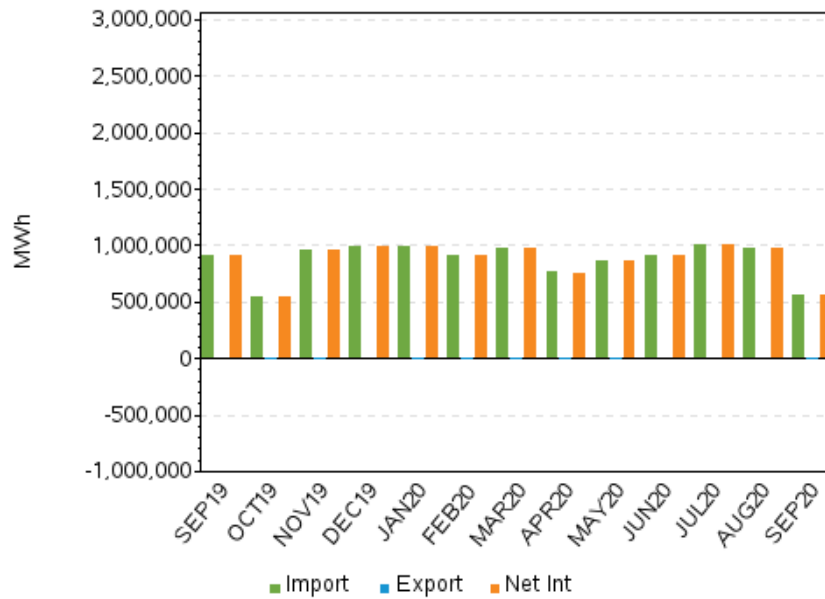


**Net Interchange, Last 13 Mos., New York N-AC Ties**  
Real-Time Market, All Hours



### Net Interchange, Last 13 Mos., Hydro-Quebec Phase I/II

Day-Ahead Market, All Hours



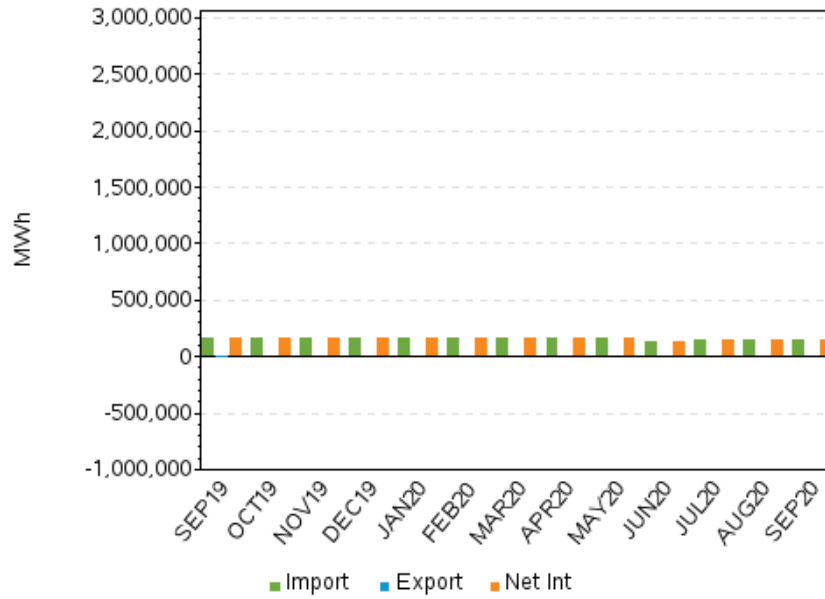
### Net Interchange, Last 13 Mos., Hydro-Quebec Phase I/II

Real-Time Market, All Hours



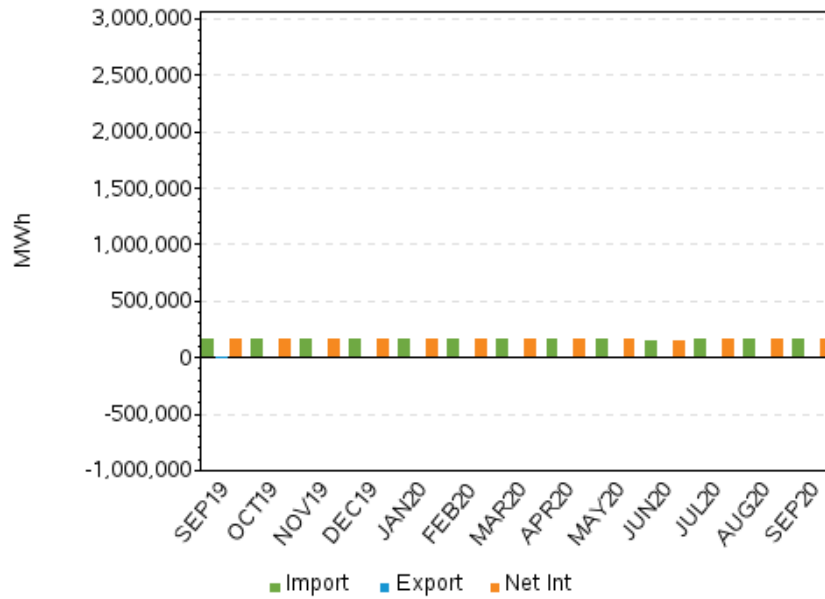
### Net Interchange, Last 13 Mos., HQ Highgate

Day-Ahead Market, All Hours

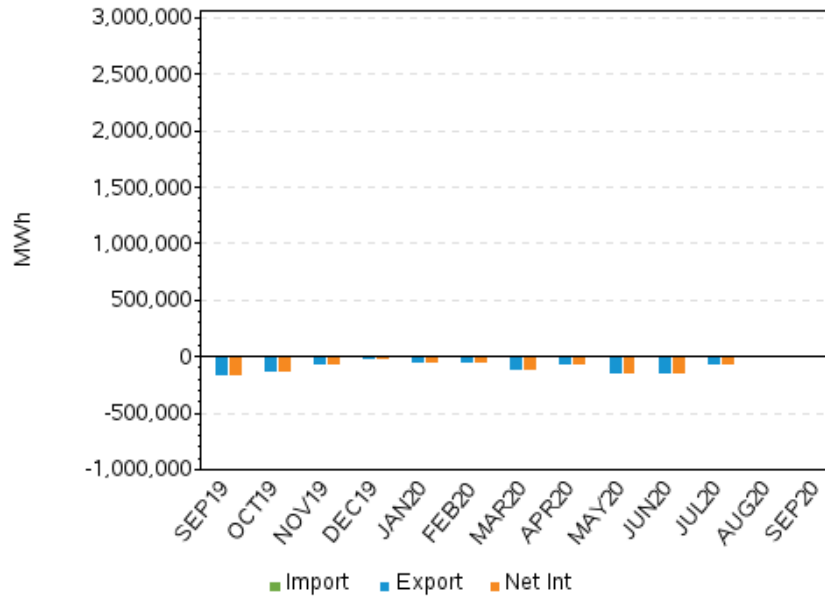


### Net Interchange, Last 13 Mos., HQ Highgate

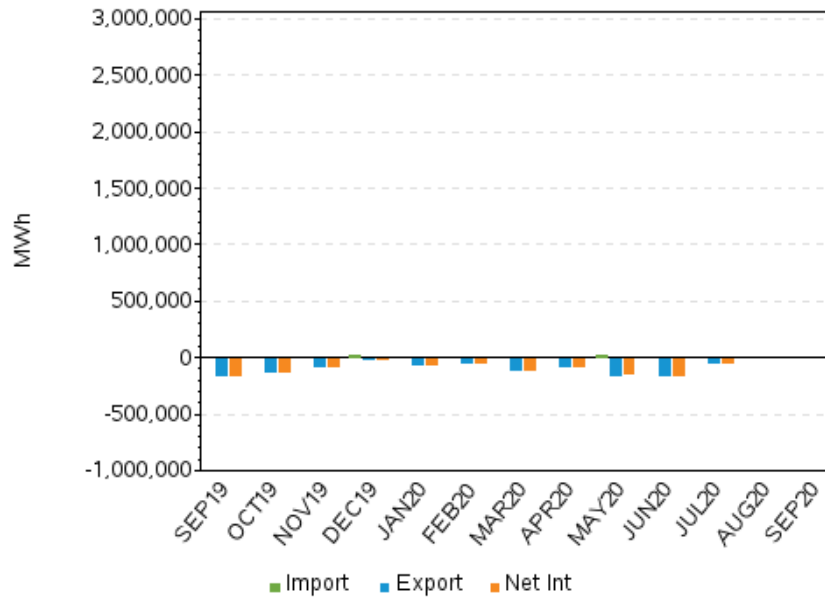
Real-Time Market, All Hours



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

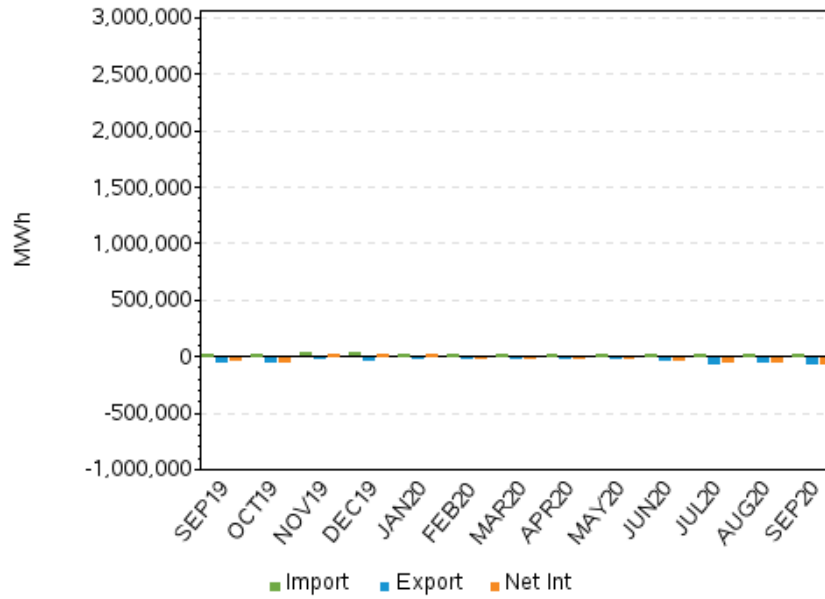


### Net Interchange, Last 13 Mos., NY Cross Sound Cable Real-Time Market, All Hours



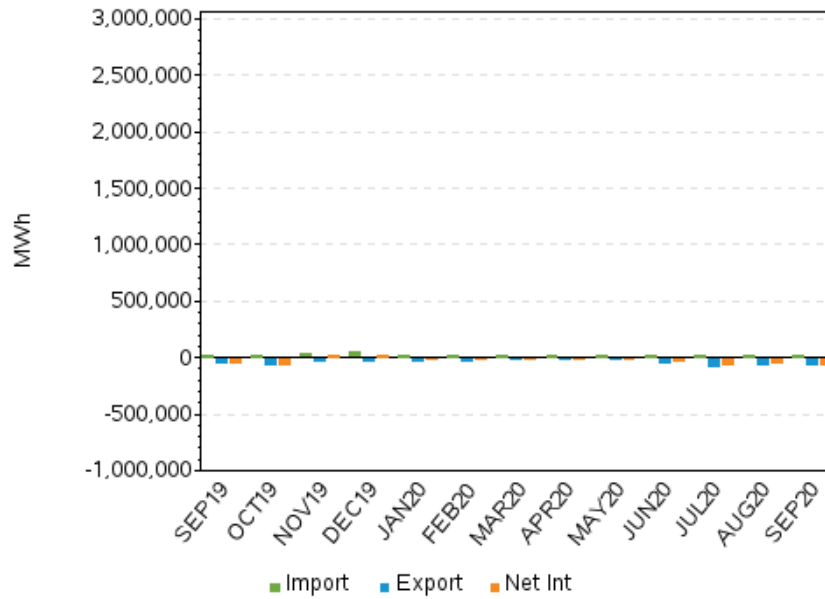
### Net Interchange, Last 13 Mos., Northport-Norwalk Cable

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 [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, and are awarded via auction.

Starting in October 2019, ISO New England implemented a Balance of Planning Period (BoPP) auction system within the FTR market. These auctions are intended to improve price discovery, and allow participants more opportunities to reconfigure their FTR portfolio. There are on-peak and off-peak auctions held for each month remaining in the annual period, and these auctions offer the same 50% of network capacity that was auctioned in the Long-Term auctions. The Monthly FTR Auction is now referred to as Prompt Month FTR auction in the following exhibits, despite the fact that the concept was implemented for the October auction.

### 6.1 FTR Auction Results

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

#### 6.1.1 Prompt Month Auction Summary, September 2020

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	3,788	18,833	\$349,190	2,167	10,113	\$106,050
Buy	On	3,878	24,145	\$649,832	2,061	11,206	\$227,965
Buy	Buy Total	7,666	42,978	\$999,022	4,228	21,319	\$334,015
Sell	Off	671	6,084	\$3,381,074	06	09	-\$05
Sell	On	644	6,478	\$3,353,523	10	63	-\$20,933
Sell	Sell Total	1,315	12,562	\$6,734,597	16	72	-\$20,937
Grand Total	Grand Total	8,981	55,540	\$7,733,619	4,244	21,391	\$313,078

#### 6.1.2 Number of Auction Participants, September 2020

Auction Period	Monthly, Long-Term, or BoPP	No. of Auctions	No. of Bidders
Sep 2020	MO	1	28
2020	BoPP	8	98

#### 6.1.3 Prompt Month 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
SEP 2019	Buy	14,547	82,304	\$2,307,705	6,558	30,253	\$901,488
SEP 2019	Sell	1,198	4,927	\$3,899,260	51	920	-\$30,961
SEP 2019	Tot	15,745	87,231	\$6,206,965	6,609	31,173	\$870,527
OCT 2019	Buy	7,615	40,761	\$1,293,529	3,901	21,347	\$490,848
OCT 2019	Sell	47	992	\$65,398	26	696	-\$29,249
OCT 2019	Tot	7,662	41,753	\$1,358,927	3,927	22,043	\$461,600

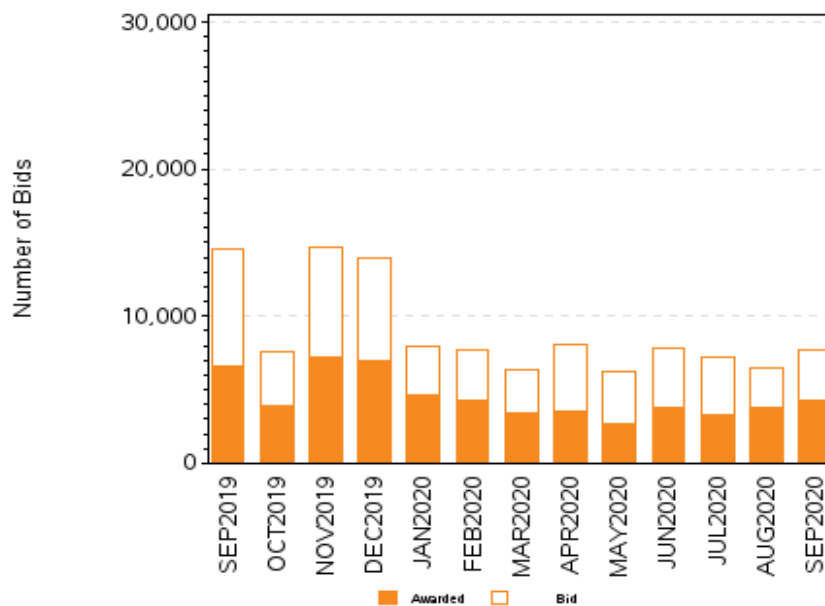


Auction Month	Bids to Buy or Offers to Sell	No. of Bids or Offers	Bid or Offered MW-Mos.	Bid or Offered Dollars	No. of Awards	Awarded MW-Mos.	Awarded Dollars
NOV 2019	Buy	14,645	76,233	\$2,451,673	7,156	31,076	\$1,233,492
NOV 2019	Sell	1,199	4,387	\$3,708,762	41	740	-\$48,460
NOV 2019	Tot	15,844	80,620	\$6,160,434	7,197	31,816	\$1,185,032
DEC 2019	Buy	13,934	76,122	\$2,575,071	6,982	33,357	\$1,552,198
DEC 2019	Sell	1,492	6,658	\$4,103,494	35	394	-\$15,155
DEC 2019	Tot	15,426	82,780	\$6,678,565	7,017	33,751	\$1,537,043
JAN 2020	Buy	7,980	48,101	\$3,304,886	4,627	26,594	\$1,372,179
JAN 2020	Sell	2,071	17,786	\$16,859,027	37	239	\$4,321
JAN 2020	Tot	10,051	65,887	\$20,163,913	4,664	26,833	\$1,376,501
FEB 2020	Buy	7,701	43,247	\$1,734,618	4,278	23,447	\$1,008,513
FEB 2020	Sell	1,915	17,452	\$15,929,330	107	428	-\$2,036
FEB 2020	Tot	9,616	60,699	\$17,663,948	4,385	23,875	\$1,006,477
MAR 2020	Buy	6,418	41,570	\$1,161,378	3,478	22,614	\$867,298
MAR 2020	Sell	1,545	13,596	\$11,338,540	126	374	\$18,846
MAR 2020	Tot	7,963	55,166	\$12,499,917	3,604	22,988	\$886,144
APR 2020	Buy	8,074	37,102	\$798,658	3,484	18,068	\$584,906
APR 2020	Sell	1,870	14,562	\$10,889,778	360	1,309	-\$31,300
APR 2020	Tot	9,944	51,664	\$11,688,436	3,844	19,377	\$553,606
MAY 2020	Buy	6,194	36,700	\$475,318	2,725	15,177	\$454,084
MAY 2020	Sell	1,497	12,689	\$11,175,396	159	185	-\$26,322
MAY 2020	Tot	7,691	49,389	\$11,650,715	2,884	15,362	\$427,762
JUN 2020	Buy	7,844	40,661	-\$149,356	3,774	19,692	\$252,353
JUN 2020	Sell	1,402	12,547	\$10,862,957	80	91	-\$253
JUN 2020	Tot	9,246	53,208	\$10,713,602	3,854	19,783	\$252,100
JUL 2020	Buy	7,234	37,380	-\$437,114	3,307	19,696	\$250,913
JUL 2020	Sell	1,343	12,643	\$11,182,083	40	64	-\$130
JUL 2020	Tot	8,577	50,024	\$10,744,969	3,347	19,760	\$250,783
AUG 2020	Buy	6,437	35,962	-\$703,273	3,750	20,906	\$118,168
AUG 2020	Sell	1,319	12,606	\$6,743,824	08	06	-\$12
AUG 2020	Tot	7,756	48,567	\$6,040,552	3,758	20,912	\$118,156
SEP 2020	Buy	7,666	42,978	\$999,022	4,228	21,319	\$334,015
SEP 2020	Sell	1,315	12,562	\$6,734,597	16	72	-\$20,937
SEP 2020	Tot	8,981	55,540	\$7,733,619	4,244	21,391	\$313,078

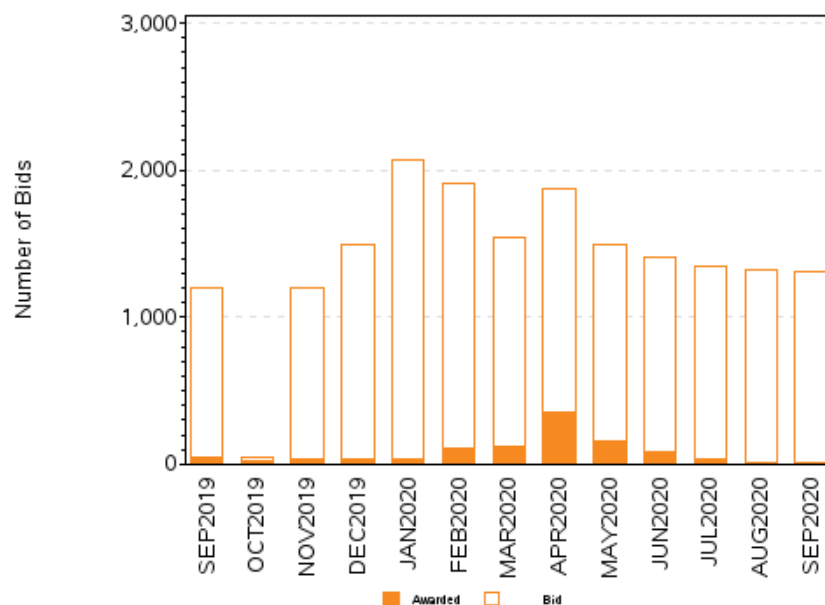
## 6.2 Monthly FTR Auction Results, Last 13 Months

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

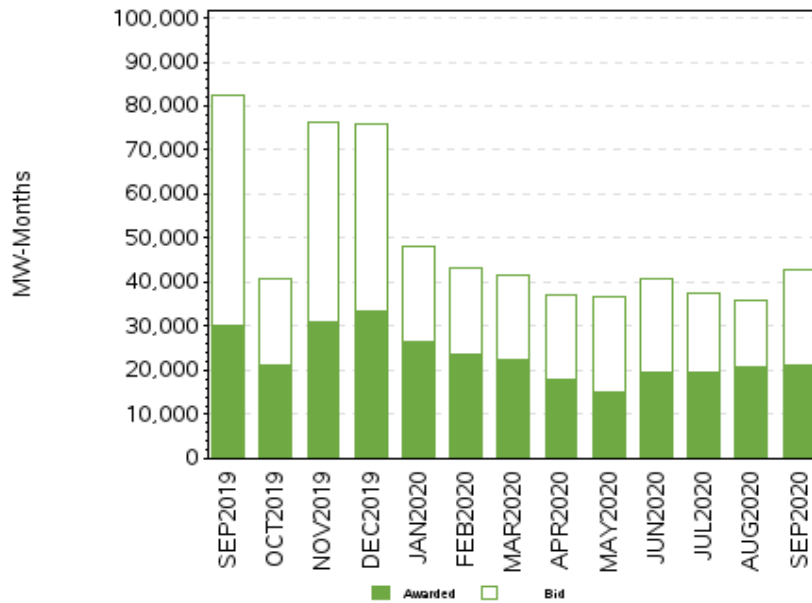
**Prompt Month FTR Auctions: Number of Bids, Buy Activity**  
13 Months Ending September 2020



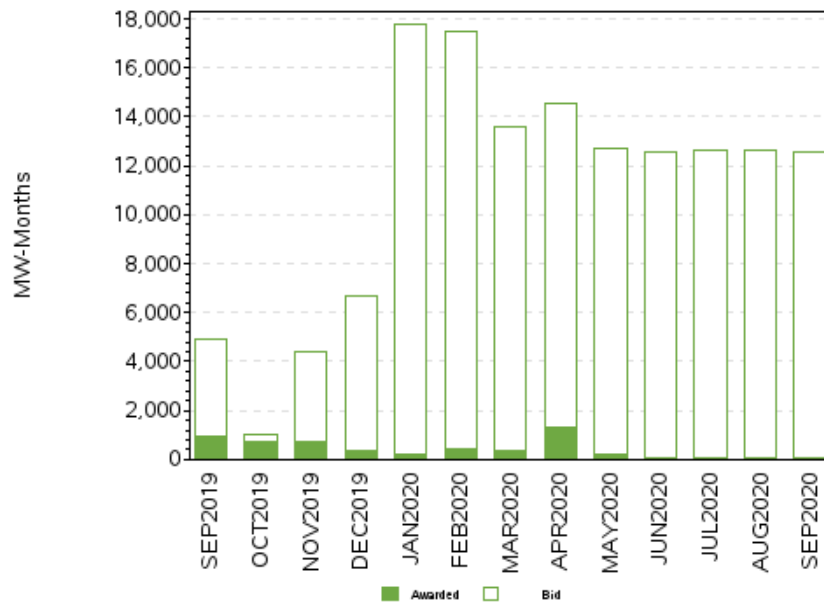
**Prompt Month FTR Auctions: Number of Bids, Sell Activity**  
13 Months Ending September 2020



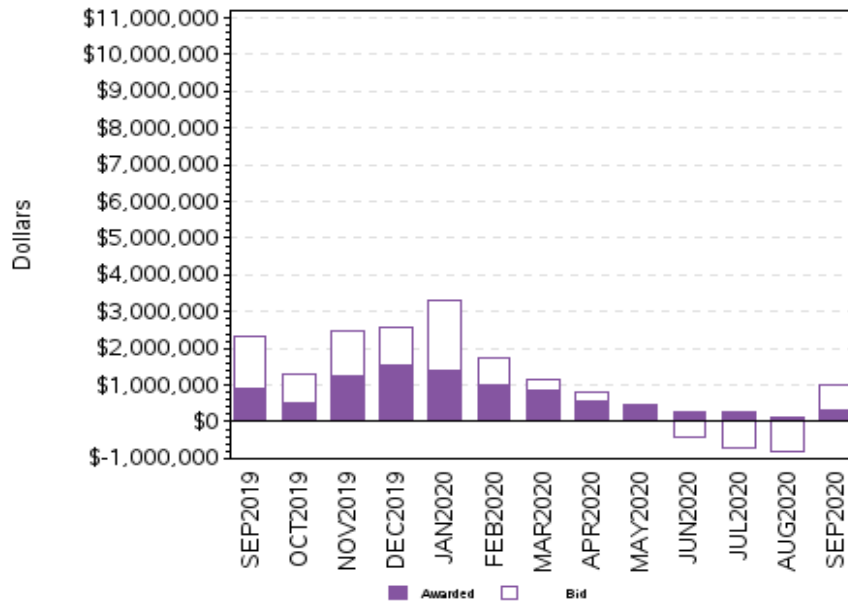
### Prompt Month FTR Auctions: MW-Months, Buy Activity 13 Months Ending September 2020



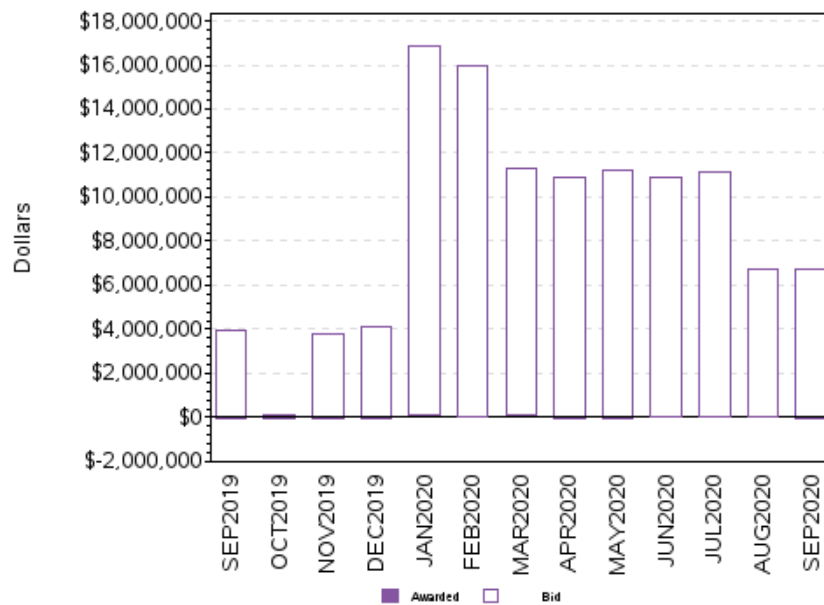
### Prompt Month FTR Auctions: MW-Months, Sell Activity 13 Months Ending September 2020



**Prompt Month FTR Auctions: Dollars, Buy Activity**  
13 Months Ending September 2020

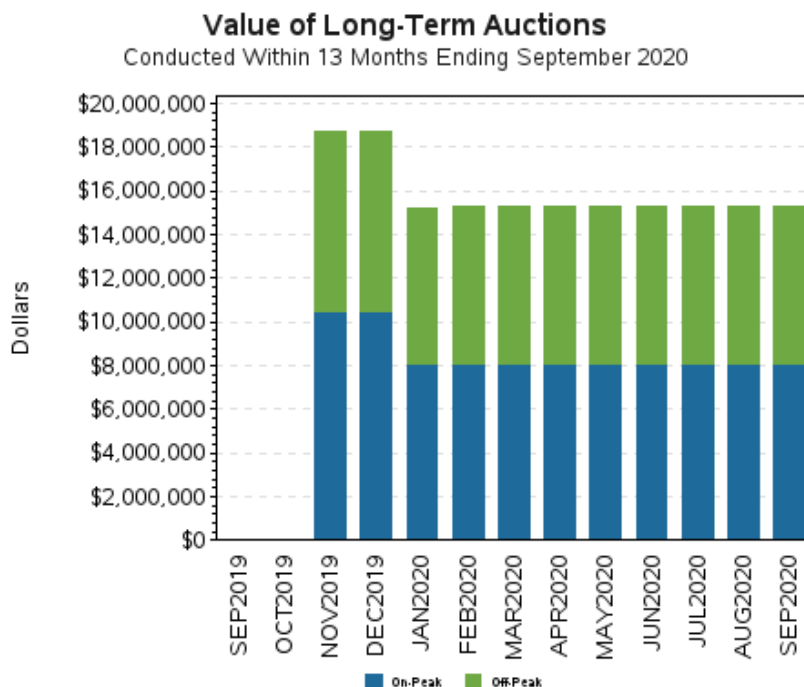
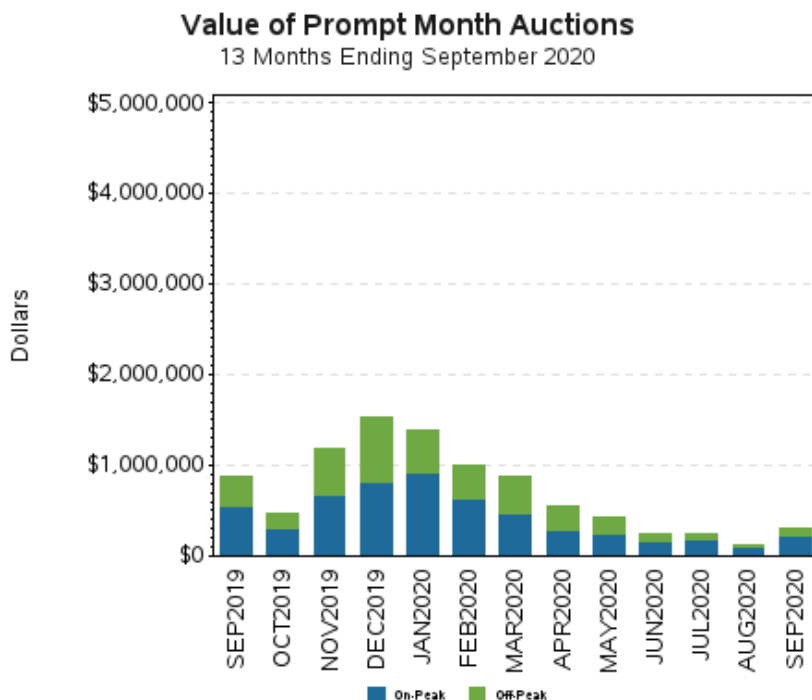


**Prompt Month FTR Auctions: Dollars, Sell Activity**  
13 Months Ending September 2020



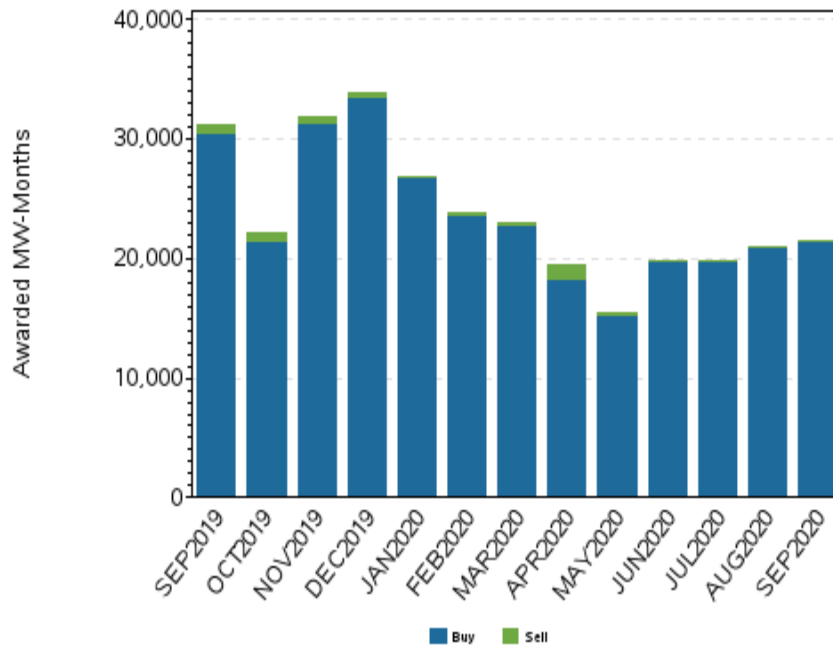
### 6.3 Auction Value, Last 13 Months

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



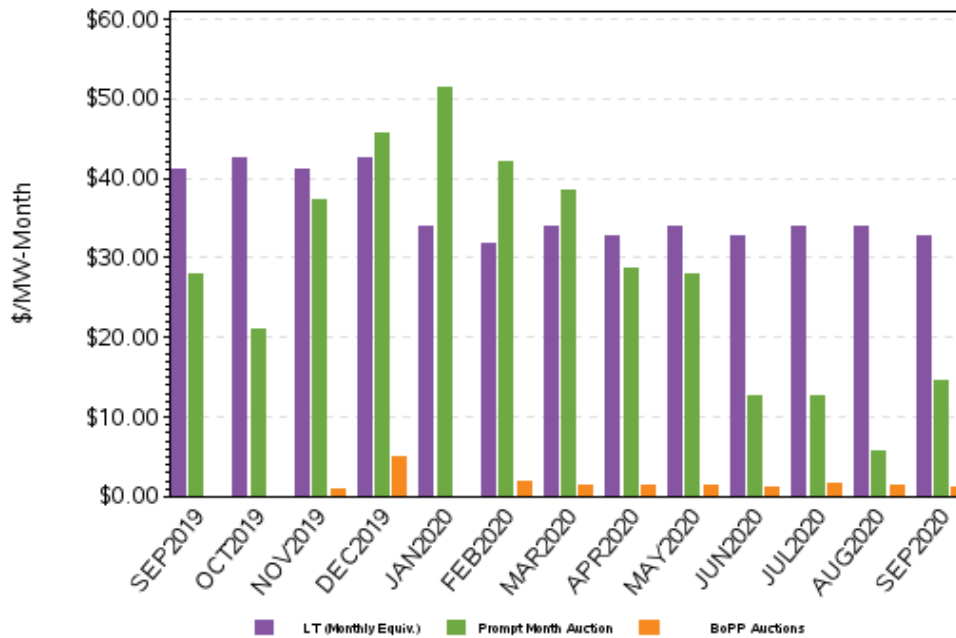
### Awarded MW-Months, Prompt Month FTR Auctions

Buy/Sell Activity, 13 Mos. Ending September 2020



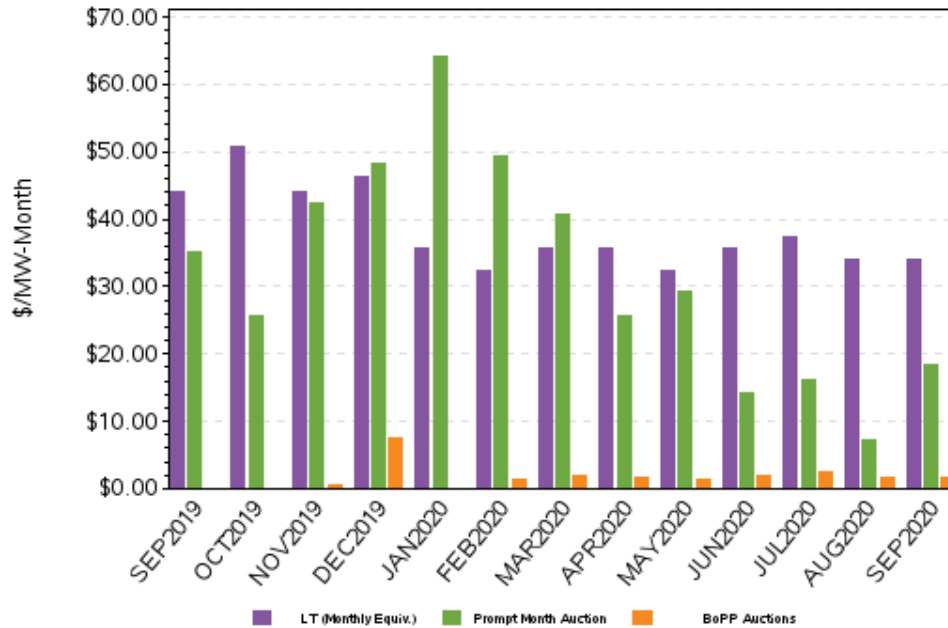
### Prompt Month, Long-Term, and BoPP FTR Auctions

Aggregate Equivalent Cost to Procure, All Hours



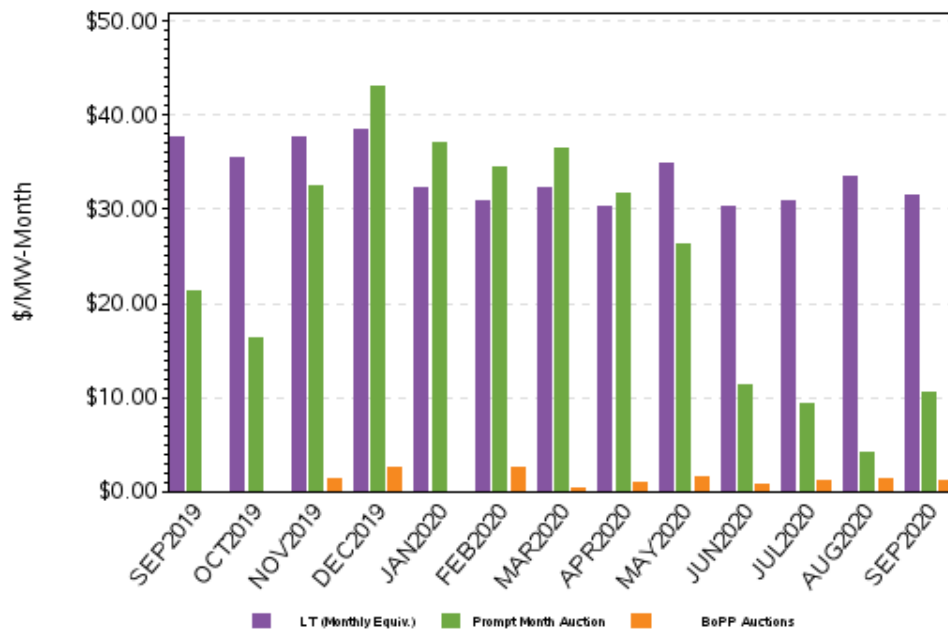
## Prompt Month, Long-Term, and BoPP FTR Auctions

Aggregate Equivalent Cost to Procure, On-Peak Hours



## Prompt Month, Long-Term, and BoPP 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 Prompt Month, Long-Term, and BoPP FTR auctions can be found on the ISO’s web site [here](#).



## 7. 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	NEMA Contracts	Load Share	Total ARR Allocation	IARR Allocation
Sep-19	-\$2,407,741	\$34,192	\$2,240,160	\$2,274,353	\$133,389
Oct-19	-\$2,050,055	\$28,318	\$1,893,467	\$1,921,785	\$128,269
Nov-19	-\$2,723,269	\$32,530	\$2,555,110	\$2,587,640	\$135,629
Dec-19	-\$3,142,371	\$43,413	\$2,932,048	\$2,975,461	\$166,910
Jan-20	-\$2,667,822	\$46,428	\$2,533,417	\$2,579,845	\$87,977
Feb-20	-\$2,218,636	\$36,693	\$2,091,352	\$2,128,044	\$90,591
Mar-20	-\$2,180,898	\$27,274	\$2,074,012	\$2,101,287	\$79,612
Apr-20	-\$1,806,640	\$24,792	\$1,714,779	\$1,739,571	\$67,069
May-20	-\$1,723,903	\$22,090	\$1,627,212	\$1,649,302	\$74,601
Jun-20	-\$1,506,641	\$21,974	\$1,408,296	\$1,430,270	\$76,371
Jul-20	-\$1,549,580	\$21,904	\$1,436,905	\$1,458,808	\$90,772
Aug-20	-\$1,413,809	\$21,560	\$1,318,550	\$1,340,110	\$73,699
Sep-20	-\$1,569,208	\$23,921	\$1,473,156	\$1,497,077	\$72,131

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
Sep-19	\$57,991	\$64,352	\$24,827	\$169,149	\$113,357	\$482,611	\$84,368	\$312,780
Oct-19	\$55,128	\$56,841	\$24,091	\$151,680	\$88,820	\$329,513	\$78,958	\$304,390
Nov-19	\$99,626	\$111,820	\$40,741	\$259,072	\$107,856	\$297,882	\$132,334	\$382,516
Dec-19	\$111,425	\$124,220	\$39,112	\$251,198	\$124,482	\$357,816	\$149,646	\$440,086
Jan-20	\$128,656	\$129,960	\$34,602	\$236,735	\$128,447	\$334,459	\$146,912	\$389,646
Feb-20	\$103,604	\$100,343	\$29,967	\$190,324	\$105,794	\$218,712	\$120,923	\$320,801
Mar-20	\$80,380	\$77,883	\$31,194	\$196,344	\$90,644	\$214,489	\$105,739	\$292,602
Apr-20	\$65,901	\$67,424	\$27,000	\$159,044	\$63,374	\$173,400	\$81,773	\$236,794
May-20	\$55,495	\$62,139	\$26,269	\$201,493	\$61,091	\$149,787	\$76,472	\$234,035
Jun-20	\$50,605	\$55,236	\$23,238	\$135,383	\$57,180	\$147,370	\$68,616	\$221,641
Jul-20	\$51,083	\$56,411	\$23,999	\$142,639	\$57,883	\$162,562	\$70,593	\$217,222
Aug-20	\$45,139	\$48,358	\$21,528	\$120,034	\$52,203	\$152,175	\$61,508	\$208,500
Sep-20	\$51,205	\$52,885	\$22,432	\$132,765	\$60,749	\$212,589	\$67,349	\$225,224

Off Peak								
Month	ME	NH	VT	CT	RI	SEMA	WCMA	NEMA
Sep-19	\$58,432	\$63,433	\$22,884	\$139,462	\$77,888	\$260,989	\$77,703	\$264,127
Oct-19	\$51,353	\$52,822	\$21,184	\$122,911	\$62,305	\$218,732	\$68,915	\$234,142
Nov-19	\$93,727	\$106,233	\$39,443	\$202,062	\$85,208	\$223,332	\$122,244	\$283,544
Dec-19	\$96,014	\$112,610	\$37,757	\$258,900	\$107,857	\$279,203	\$146,208	\$338,927
Jan-20	\$89,094	\$90,098	\$26,929	\$158,038	\$85,676	\$242,463	\$102,554	\$255,575
Feb-20	\$82,935	\$83,567	\$27,518	\$157,951	\$76,334	\$179,037	\$97,996	\$232,239
Mar-20	\$79,687	\$81,237	\$30,958	\$196,987	\$84,295	\$205,373	\$104,495	\$228,979
Apr-20	\$67,915	\$71,909	\$30,351	\$178,671	\$64,386	\$169,788	\$89,276	\$192,563
May-20	\$59,847	\$68,091	\$28,111	\$154,735	\$60,427	\$142,738	\$81,041	\$187,532
Jun-20	\$49,045	\$54,498	\$23,355	\$127,914	\$53,968	\$125,343	\$68,956	\$167,923
Jul-20	\$49,900	\$53,700	\$22,706	\$127,876	\$54,498	\$128,835	\$68,419	\$170,481
Aug-20	\$45,244	\$48,732	\$20,989	\$113,314	\$50,867	\$126,667	\$62,634	\$162,218
Sep-20	\$48,373	\$52,862	\$22,270	\$123,221	\$54,179	\$132,402	\$67,704	\$170,868

## 7.1 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 can be found in Section 7 and the Incremental Auction Revenue Rights 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](#).

## 8. Reserve Markets

The Forward Reserve Market Auction, covering the Summer 2020 Procurement Period (June-September) cleared on April 29, 2020. The results may be found on the ISO's website [here](#). For the month of September 2020, the threshold price ranged between \$23.10/MWh and \$44.88/MWh, and averaged \$30.48/MWh.

### 8.1 Forward Reserve Market Results

Each month, the ISO calculates an individual hourly Forward Reserve Payment Rate for each reserve product and reserve zone. Payments will be reduced by any Failure-to-Reserve or Failure-to-Activate Penalties<sup>5</sup>. 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.

#### 8.1.1 FRM Payment Summary by Reserve Zone, September 2020

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	\$2,004,872	\$1,979,223	-\$38,512	-\$1,450	\$1,939,261	97%
SYSTEM	TMOR	\$706,877	\$677,542	-\$45,706	-\$2,851	\$628,985	89%
SYSTEM	TOTAL	\$2,711,748	\$2,656,765	-\$84,218	-\$4,302	\$2,568,246	95%
ROS	TMNSR	\$1,622,184	\$1,597,133	-\$37,616	-\$1,035	\$1,558,483	96%
ROS	TMOR	\$538,613	\$511,336	-\$42,621	-\$3	\$468,712	87%
ROS	TOTAL	\$2,160,797	\$2,108,469	-\$80,237	-\$1,037	\$2,027,195	94%
SWCT	TMNSR	\$0	\$0	\$0	-\$416	-\$416	n/a
SWCT	TMOR	\$83,745	\$83,745	\$0	-\$37	\$83,707	100%
SWCT	TOTAL	\$83,745	\$83,745	\$0	-\$453	\$83,291	99%
CT	TMNSR	\$382,688	\$382,090	-\$896	\$0	\$381,193	100%
CT	TMOR	\$84,519	\$82,461	-\$3,085	-\$2,777	\$76,600	91%
CT	TOTAL	\$467,207	\$464,551	-\$3,981	-\$2,777	\$457,793	98%
NEMABSTN	TMNSR	\$0	\$0	\$0	\$0	\$0	n/a
NEMABSTN	TMOR	\$0	\$0	\$0	-\$34	-\$34	n/a
NEMABSTN	TOTAL	\$0	\$0	\$0	-\$34	-\$34	n/a

<sup>5</sup> Prior to market rule changes effective on June 1, 2016, the auction clearing price was reduced by the Forward Capacity Auction clearing price for the capacity zone associated with the reserve zone in question which was in effect for that month. After June 1, 2016, the FCM clearing price is not subtracted from the FRM clearing price.

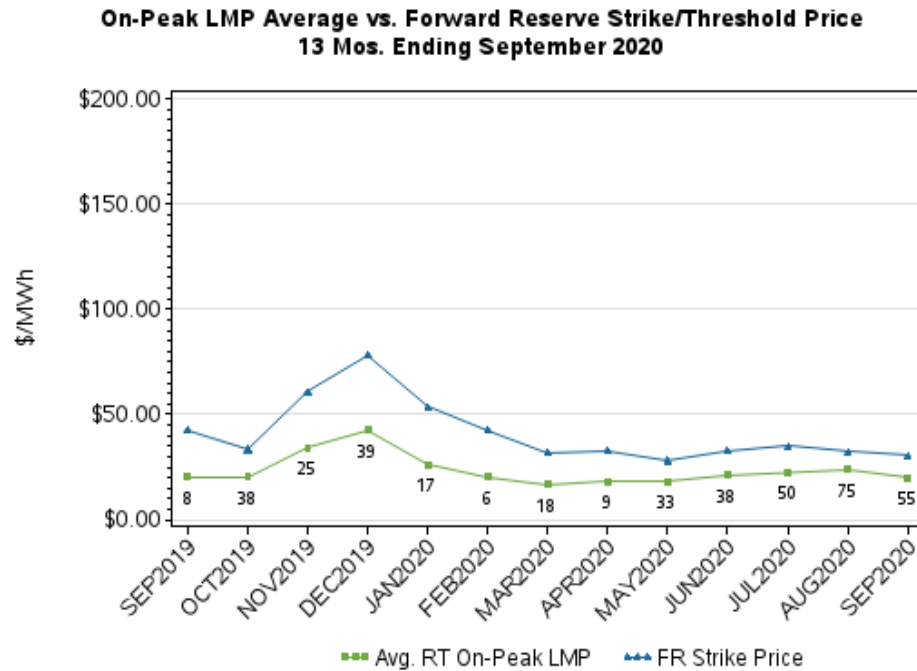
The ISO allocates Forward Reserve Credits, net of Forward Reserve Failure-to-Reserve Penalties and Forward Reserve Failure-to-Activate Penalties, to each Load Zone. Forward Reserve Credits are allocated based upon System Requirements (Step 1) and Remaining Forward Reserve Credit (Step 2), if applicable. 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 month are shown in the following table. These figures are also preliminary and subject to revision during the Settlement process.

8.1.2 *FRM Charge Summary by Load Zone, September 2020*

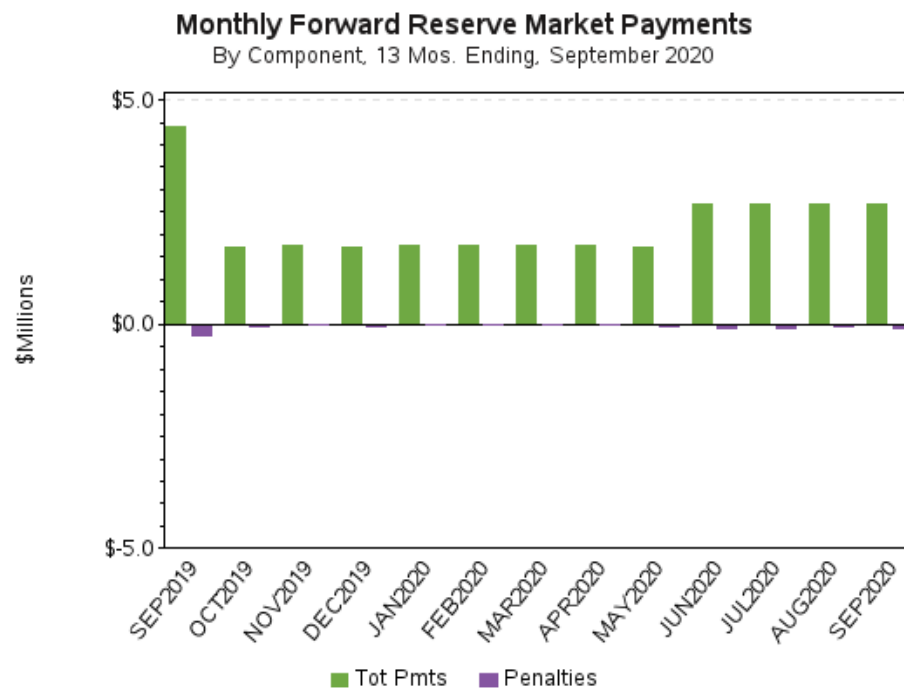
Load Zone	FRM Charge
ME	\$251,889
NH	\$250,117
VT	\$99,184
CT	\$624,096
RI	\$177,617
SEMA	\$311,073
WCMA	\$339,735
NEMA	\$514,533
ALL	\$2,568,246

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



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

## 8.3 Composition of Forward Reserve Market Payments, Last 13 Mos.



## 8.4 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 257 separate hours. On a reserve zone basis, non-zero prices occurred thus: CT-257 hours; NEMABSTN-257 hours; ROS-257 hours; SWCT-257 hours. The total compensation paid to assets providing real-time reserves during September 2020, 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	\$994,411	(\$275,937)	\$718,474
ROS	\$649,559	(\$210,857)	\$438,702
SWCT	\$163,738	(\$6,657)	\$157,081
CT	\$139,465	(\$58,422)	\$81,043
NEMABSTN	\$41,649	\$0	\$41,649

Asset Related Demand, Generator, and Demand Response Resource assets all participate in the in the Real-Time Reserve market. Here is a breakdown of the payments by type:

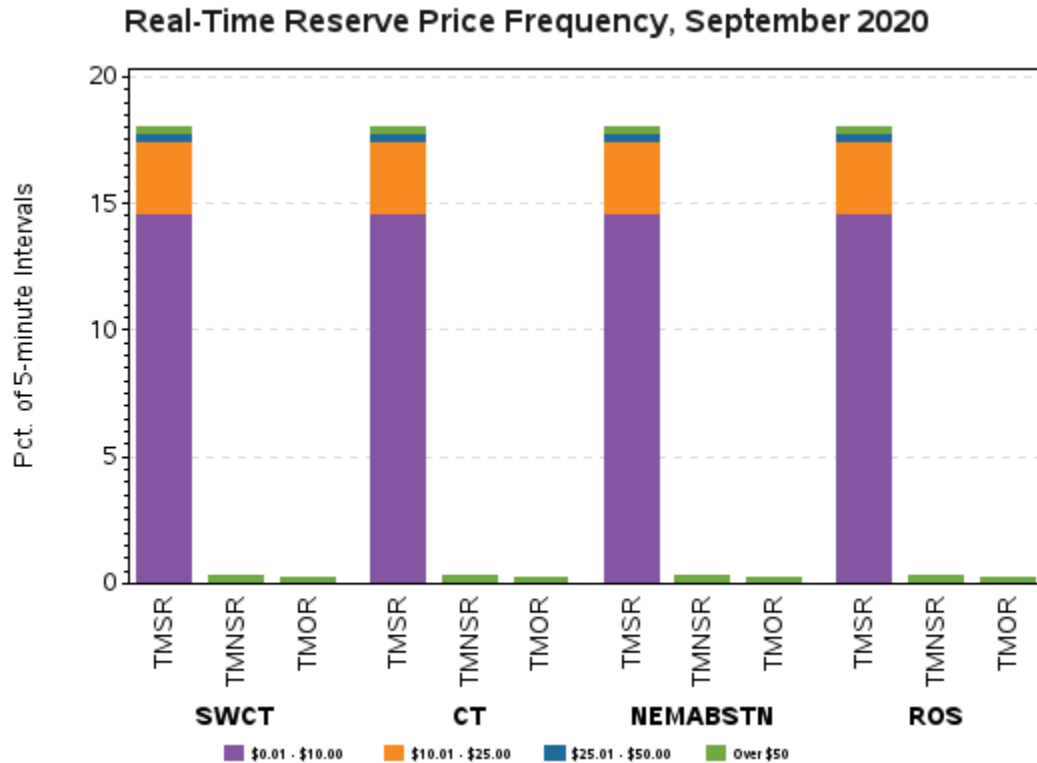
Asset Type	Real-Time TMSR Credits	Real-Time TMNSR Credits	Real-Time TMOR Credits
Asset Related Demand	\$9,042	\$0	\$0
Demand Response Resource	\$0	\$227	\$45,179
Generator	\$643,301	\$222,099	\$74,563

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	\$60,761
ME	TMNSR	\$1,333
ME	TMOR	\$4,160
ME	ALL	\$66,255
NH	TMSR	\$63,192
NH	TMNSR	\$1,558
NH	TMOR	\$4,873
NH	ALL	\$69,623
VT	TMSR	\$24,946

Load Zone	Reserve Product	RT Reserve Charge
VT	TMNSR	\$579
VT	TMOR	\$1,831
VT	ALL	\$27,356
CT	TMSR	\$161,357
CT	TMNSR	\$4,062
CT	TMOR	\$12,707
CT	ALL	\$178,125
RI	TMSR	\$45,234
RI	TMNSR	\$1,117
RI	TMOR	\$3,474
RI	ALL	\$49,825
SEMA	TMSR	\$80,250
SEMA	TMNSR	\$2,013
SEMA	TMOR	\$6,325
SEMA	ALL	\$88,588
WCMA	TMSR	\$86,315
WCMA	TMNSR	\$2,142
WCMA	TMOR	\$6,737
WCMA	ALL	\$95,194
NEMA	TMSR	\$130,289
NEMA	TMNSR	\$3,210
NEMA	TMOR	\$10,008
NEMA	ALL	\$143,507

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.



### 8.5 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](#).

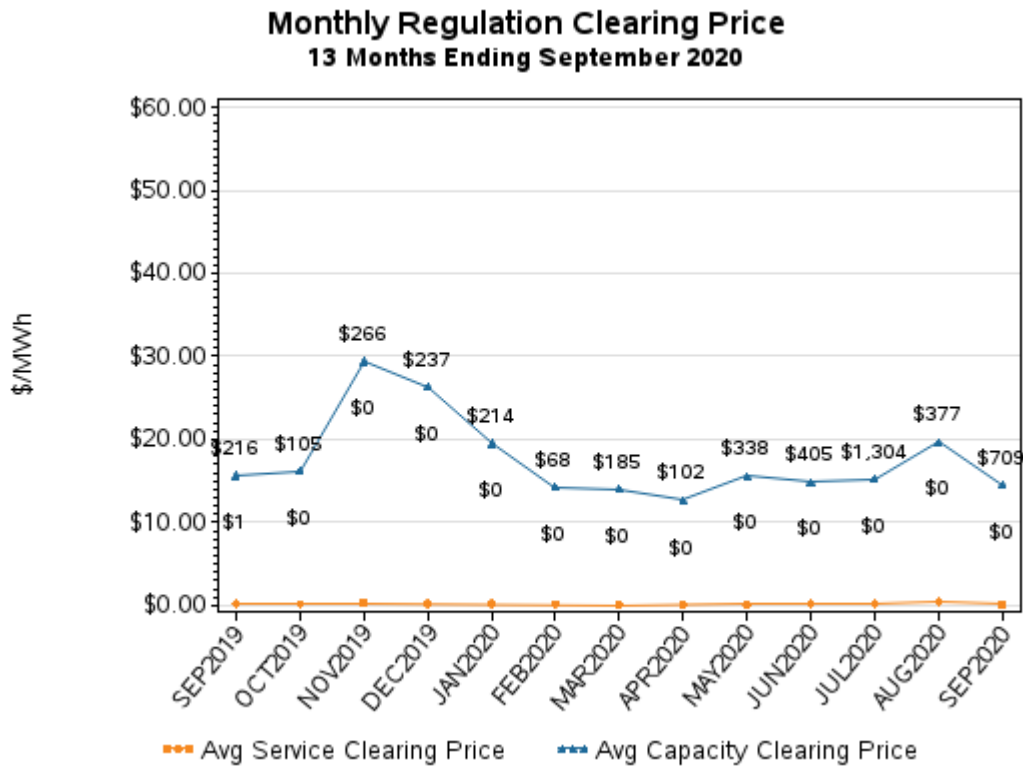
Information about the monthly forward reserve auctions and assumptions can be found on the ISO’s web site located [here](#).



## 9. Regulation Market

Regulation, or Automatic Generation Control (AGC), is necessary to balance supply levels against second-to-second variations in demand. Effective December 1, 2017, ISO New England moved from hourly to sub-hourly (5-minute) settlements for both the service and capacity components of regulation.<sup>6</sup>

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



NOTE: Starting on December 1, 2017, Average Clearing Prices above, along with the Min and Max Labels are calculated based on 5-minute settlement values.

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

Month	On-Peak Service Clearing Price Statistics				Off-Peak Service Clearing Price Statistics			
	Mean	Max	Min	StdDev	Mean	Max	Min	StdDev
Sep-19	\$0.28	\$10.00	\$0.00	\$1.24	\$0.17	\$10.00	\$0.00	\$0.71
Oct-19	\$0.18	\$10.00	\$0.00	\$0.53	\$0.17	\$1.99	\$0.00	\$0.24
Nov-19	\$0.33	\$10.00	\$0.00	\$1.09	\$0.33	\$10.00	\$0.00	\$0.92
Dec-19	\$0.32	\$10.00	\$0.00	\$0.88	\$0.19	\$10.00	\$0.00	\$0.60
Jan-20	\$0.21	\$10.00	\$0.00	\$0.69	\$0.18	\$10.00	\$0.00	\$0.36
Feb-20	\$0.16	\$2.99	\$0.00	\$0.30	\$0.16	\$2.99	\$0.00	\$0.29

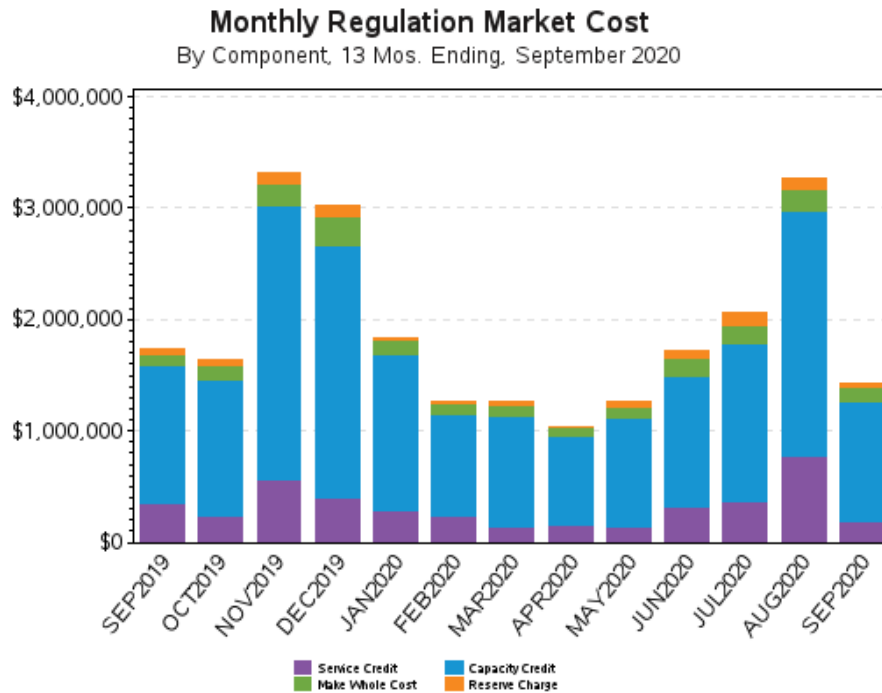
<sup>6</sup> To accommodate the change from hourly to sub-hourly settlements for Regulation, clearing price statistics shown in these exhibits prior to the December 1, 2017 boundary reflect the average of hourly prices, while price averages subsequent to that are derived from 5-minute values.

Month	On-Peak Service Clearing Price Statistics				Off-Peak Service Clearing Price Statistics			
	Mean	Max	Min	StdDev	Mean	Max	Min	StdDev
Mar-20	\$0.09	\$1.99	\$0.00	\$0.15	\$0.08	\$1.50	\$0.00	\$0.16
Apr-20	\$0.12	\$4.50	\$0.00	\$0.19	\$0.11	\$0.99	\$0.00	\$0.14
May-20	\$0.08	\$1.00	\$0.00	\$0.12	\$0.11	\$10.00	\$0.00	\$0.36
Jun-20	\$0.29	\$10.00	\$0.00	\$1.27	\$0.16	\$10.00	\$0.00	\$0.83
Jul-20	\$0.31	\$10.00	\$0.00	\$1.20	\$0.17	\$1.50	\$0.00	\$0.20
Aug-20	\$0.58	\$10.00	\$0.00	\$1.97	\$0.37	\$10.00	\$0.00	\$1.36
Sep-20	\$0.16	\$10.00	\$0.00	\$0.44	\$0.10	\$1.89	\$0.00	\$0.14

Month	On-Peak Capacity Clearing Price Statistics				Off-Peak Capacity Clearing Price Statistics			
	Mean	Max	Min	StdDev	Mean	Max	Min	StdDev
Sep-19	\$14.81	\$152.46	\$1.38	\$15.52	\$16.32	\$215.54	\$1.70	\$15.29
Oct-19	\$14.85	\$100.32	\$0.00	\$9.94	\$17.51	\$104.77	\$5.17	\$11.43
Nov-19	\$26.95	\$183.83	\$0.00	\$26.73	\$31.33	\$266.25	\$0.00	\$35.33
Dec-19	\$29.20	\$237.25	\$0.00	\$31.51	\$23.95	\$215.40	\$1.12	\$23.67
Jan-20	\$19.50	\$152.98	\$0.00	\$15.46	\$19.50	\$213.57	\$0.18	\$20.50
Feb-20	\$14.70	\$67.78	\$0.00	\$8.46	\$13.90	\$63.58	\$0.34	\$9.08
Mar-20	\$13.42	\$63.70	\$0.00	\$7.62	\$14.51	\$184.87	\$0.00	\$14.94
Apr-20	\$13.70	\$101.52	\$0.00	\$8.91	\$11.66	\$101.52	\$1.19	\$6.86
May-20	\$14.73	\$137.87	\$2.31	\$14.11	\$16.26	\$338.13	\$0.00	\$19.60
Jun-20	\$17.71	\$404.67	\$4.44	\$25.72	\$12.11	\$221.74	\$0.00	\$13.87
Jul-20	\$19.04	\$1304.05	\$0.00	\$34.00	\$11.53	\$117.40	\$0.00	\$7.00
Aug-20	\$22.63	\$241.21	\$4.15	\$30.50	\$17.32	\$377.20	\$0.00	\$24.72
Sep-20	\$17.34	\$708.53	\$0.00	\$25.30	\$11.93	\$216.88	\$0.00	\$8.42

\* Starting on December 1, 2017, statistics based on 5-minute settlement values

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



Month	Regulation Service Cost	Regulation Capacity Cost	Regulation Make Whole Cost	Regulation Up Reserve Charge	Total Regulation Cost
Sep-19	\$329,664	\$1,238,654	\$100,995	\$65,315	\$1,734,628
Oct-19	\$223,098	\$1,213,866	\$132,044	\$66,648	\$1,635,657
Nov-19	\$552,187	\$2,452,714	\$196,608	\$113,006	\$3,314,514
Dec-19	\$376,757	\$2,265,160	\$262,177	\$117,234	\$3,021,329
Jan-20	\$276,078	\$1,389,718	\$129,787	\$44,348	\$1,839,931
Feb-20	\$214,492	\$921,878	\$95,785	\$31,944	\$1,264,099
Mar-20	\$121,149	\$1,000,012	\$88,832	\$52,137	\$1,262,130
Apr-20	\$147,468	\$791,075	\$74,709	\$24,024	\$1,037,276
May-20	\$125,429	\$968,355	\$99,783	\$65,878	\$1,259,444
Jun-20	\$306,035	\$1,167,701	\$167,404	\$78,341	\$1,719,482
Jul-20	\$352,360	\$1,412,600	\$160,789	\$131,770	\$2,057,519
Aug-20	\$756,094	\$2,195,045	\$206,497	\$113,833	\$3,271,470
Sep-20	\$169,768	\$1,076,232	\$124,255	\$50,716	\$1,420,972

### 9.4 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](#).

## 10. 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.

### 10.1 Marginal Loss Revenue Fund by Month, 13 Mos. Ending September 2020

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
Sep-19	\$3,192,496	\$538,182	-\$4,533,619	-\$53,360	-\$96,312	\$0	\$1,341,123	-\$388,510	\$952,614
Oct-19	\$2,986,273	\$390,145	-\$4,248,158	-\$86,401	-\$71,263	\$0	\$1,261,885	-\$232,481	\$1,029,405
Nov-19	\$5,390,559	\$280,239	-\$7,890,220	-\$80,148	-\$56,509	\$0	\$2,499,662	-\$143,583	\$2,356,079
Dec-19	\$7,590,886	\$830,991	-\$10,988,934	-\$250,429	-\$282,250	\$4,043	\$3,398,048	-\$302,355	\$3,095,693
Jan-20	\$4,628,157	\$297,264	-\$6,661,805	-\$93,992	-\$9,093	\$0	\$2,033,648	-\$194,179	\$1,839,469
Feb-20	\$4,598,691	-\$685,887	-\$5,443,234	\$34,223	\$50,186	\$0	\$844,543	\$601,478	\$1,446,022
Mar-20	\$2,793,090	\$109,114	-\$3,996,512	-\$7,090	\$91,307	\$0	\$1,203,422	-\$193,331	\$1,010,091
Apr-20	\$3,064,702	\$67,194	-\$4,494,606	-\$4,929	-\$41,023	\$0	\$1,429,904	-\$21,242	\$1,408,662
May-20	\$2,507,072	\$138,726	-\$3,532,249	-\$62,209	\$77,274	\$0	\$1,025,177	-\$153,791	\$871,386
Jun-20	\$3,232,111	\$318,754	-\$4,529,566	-\$235,721	\$146,432	\$0	\$1,297,455	-\$229,465	\$1,067,990
Jul-20	\$4,584,698	-\$157,992	-\$5,985,612	-\$137,240	-\$447,312	\$0	\$1,400,914	\$742,544	\$2,143,458
Aug-20	\$4,715,329	-\$65,939	-\$6,446,381	-\$182,240	-\$779,588	\$0	\$1,731,052	\$1,027,767	\$2,758,819
Sep-20	\$3,476,381	\$56,358	-\$4,894,493	-\$159,854	-\$419,408	\$0	\$1,418,112	\$522,904	\$1,941,016

### 10.2 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](#).

## 11. 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.

For the 2020-21 capacity commitment period (CCP), the capacity zones consist of Rest-of-Pool (ROP), Northern New England, and Southeast New England. The relationship between capacity zones to load zones are described in the table below:

Capacity Zone	Load Zones
Rest-of-Pool	Western/Central Massachusetts (WCMA) Connecticut (CT)
Northern New England	New Hampshire (NH) Vermont (VT) Maine (ME)
Southeast New England	Northeastern Massachusetts (NEMA) Southeastern Massachusetts (SEMA) Rhode Island (RI)

### 11.1 FCM Auction Results and Monthly Modifications

The outcome of the Forward Capacity Auction (FCA) determines the initial CSO 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 MW 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 11, the 2020-2021 commitment period, with prorated amounts and changes from the FCA for each resource type.

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 capacity supply obligations. The table below displays the CSO modifications for the current month.

**CSO Modifications for September 2020**

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	Reconfig/ Bilateral MW	Total MW
Rest-of-Pool	Demand Resource	0.00	-0.81	0.00	0.00	0.00	0.00	218.05	217.25
Northern New England	Demand Resource	0.00	-0.19	0.00	0.00	0.00	0.00	44.06	43.87
Southeast New England	Demand Resource	0.00	-2.42	-1.77	0.00	0.00	0.00	164.85	160.67

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	Reconfig/ Bilateral MW	Total MW
Rest-of-Pool	Generator	0.00	0.00	-1.41	-0.56	0.00	0.00	23.93	21.96
Northern New England	Generator	0.00	-20.47	0.00	0.00	0.00	-0.09	-219.02	-239.58
Southeast New England	Generator	0.00	-4.76	-2.06	-15.62	0.00	0.00	-528.98	-551.42
Rest-of-Pool	Import	0.00	0.00	0.00	0.00	0.00	0.00	-415.36	-415.36
Northern New England	Import	0.00	0.00	0.00	0.00	0.00	0.00	-31.00	-31.00

Total	0.00	-28.65	-5.24	-16.19	0.00	-0.09	-743.46	-793.61
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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 September 2020

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	1,191	\$6,434,283	217	\$455,924	1,408	\$6,890,208
Northern New England	Demand Resource	511	\$2,806,031	44	\$88,435	554	\$2,894,467
Southeast New England	Demand Resource	1,510	\$9,301,735	161	\$360,746	1,671	\$9,662,481
Rest-of-Pool	Generator	13,577	\$74,626,904	22	\$373,258	13,599	\$75,000,161
Northern New England	Generator	7,586	\$36,704,688	-240	-\$224,591	7,347	\$36,480,097
Southeast New England	Generator	10,226	\$65,440,883	-551	-\$1,395,068	9,675	\$64,045,815
Rest-of-Pool	Import	980	\$4,997,216	-415	\$219,656	565	\$5,216,872
Northern New England	Import	255	\$967,535	-31	-\$60,760	224	\$906,775

Total	35,836	201,279,276	-794	-182,400	35,042	201,096,876
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For the capacity commitment period (CCP) 2020-2021, the ISO implemented marginal reliability impact (MRI) zonal demand curves. Under the MRI-based zonal curves, capacity is no longer considered fully substitutable on a kW-for-kW basis across zonal boundaries. Due to this reason, annual bilateral contracts have been replaced by annual reconfiguration transactions (ART). The new ART model allows participants and their counterparties to acquire or shed CSO with price certainty. The table below is the ART true up for the agreed upon MW and dollars from the annual Reconfiguration Auction (ARA).

Capacity Zone	Resource Type	Transaction Type	ART MW	ART Dollars
Rest-of-Pool	Demand Resource	ACQUIRE	1.3	\$4,257
Rest-of-Pool	Demand Resource	TRANSFER	-1.7	-\$5,651
Northern New England	Demand Resource	ACQUIRE	1.7	\$5,651

Capacity Zone	Resource Type	Transaction Type	ART MW	ART Dollars
Southeast New England	Demand Resource	ACQUIRE	12.8	\$62,086
Southeast New England	Demand Resource	TRANSFER	-14.1	-\$66,342
Rest-of-Pool	Generator	ACQUIRE	4.2	\$6,699
Rest-of-Pool	Generator	TRANSFER	-7.2	-\$699
Northern New England	Generator	ACQUIRE	3.0	-\$6,000
Northern New England	Generator	TRANSFER	-95.3	-\$143,171
Rest-of-Pool	Import	ACQUIRE	95.3	\$143,171
Northern New England	Import	ACQUIRE	31.0	\$44,051
Northern New England	Import	TRANSFER	-31.0	-\$44,051

## 11.2 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
Sep-19	Rest-of-Pool	\$162,449,483	-\$9,953	\$589,634	\$163,029,164
Sep-19	Southeast New England	\$87,600,091	\$9,953	-\$1,738,430	\$85,871,614
Oct-19	Rest-of-Pool	\$162,013,218	\$13,797	\$432,136	\$162,459,151
Oct-19	Southeast New England	\$89,509,365	-\$13,797	-\$1,580,938	\$87,914,630
Nov-19	Rest-of-Pool	\$162,013,218	\$13,797	\$494,971	\$162,521,986
Nov-19	Southeast New England	\$89,509,365	-\$13,797	-\$1,643,773	\$87,851,796
Dec-19	Rest-of-Pool	\$162,041,641	\$30,577	\$697,188	\$162,769,406
Dec-19	Southeast New England	\$89,488,152	-\$30,577	-\$1,845,990	\$87,611,585
Jan-20	Rest-of-Pool	\$162,041,472	\$30,563	\$975,511	\$163,047,546
Jan-20	Southeast New England	\$89,485,136	-\$30,563	-\$2,124,280	\$87,330,292
Feb-20	Rest-of-Pool	\$162,041,156	\$30,092	\$887,556	\$162,958,804
Feb-20	Southeast New England	\$89,485,136	-\$30,092	-\$2,036,325	\$87,418,719
Mar-20	Rest-of-Pool	\$162,035,489	\$27,674	\$806,269	\$162,869,433
Mar-20	Southeast New England	\$89,485,136	-\$27,674	-\$2,005,724	\$87,451,738
Apr-20	Rest-of-Pool	\$162,007,067	\$13,649	\$563,677	\$162,584,394
Apr-20	Southeast New England	\$89,485,136	-\$13,649	-\$1,761,051	\$87,710,436
May-20	Rest-of-Pool	\$162,007,067	\$13,677	\$499,769	\$162,520,513
May-20	Southeast New England	\$89,485,136	-\$13,677	-\$1,697,142	\$87,774,317
Jun-20	Rest-of-Pool	\$86,039,449	-\$57,944	\$1,655,817	\$87,637,322
Jun-20	Northern New England	\$40,368,792	\$0	-\$67,878	\$40,300,914
Jun-20	Southeast New England	\$74,579,705	\$57,944	-\$1,495,159	\$73,142,490
Jul-20	Rest-of-Pool	\$86,039,449	-\$147,944	\$1,710,635	\$87,602,140
Jul-20	Northern New England	\$40,368,792	\$0	-\$186,594	\$40,182,198



Month	Capacity Zone	FCA Credit	Bilateral Dollars	Reconfiguration Auction Dollars	Supply Credit
Jul-20	Southeast New England	\$74,579,705	\$147,944	-\$1,415,111	\$73,312,538
Aug-20	Rest-of-Pool	\$86,039,449	-\$146,832	\$1,888,027	\$87,780,643
Aug-20	Northern New England	\$40,368,792	-\$19,576	-\$154,257	\$40,194,959
Aug-20	Southeast New England	\$74,579,705	\$166,408	-\$1,624,839	\$73,121,273
Sep-20	Rest-of-Pool	\$86,039,449	-\$180,598	\$1,248,391	\$87,107,241
Sep-20	Northern New England	\$40,368,792	-\$19,576	-\$67,878	\$40,281,338
Sep-20	Southeast New England	\$74,579,705	\$200,174	-\$1,071,583	\$73,708,296

For the 2020-2021 commitment period, the initial supply credit paid for the CSO is the same 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 that were retained for reliability with their cost allocated to Regional Network Load through the Open-Access Transmission Tariff rather than to Capacity Load Obligation (CLO). Beginning June 1, 2019, FCM participants with resources unable to fulfill their CSO during each month within a capacity commitment period (CCP), will be subject to a failure to cover charge.

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	NRCP Credit (A)	ART Credit (B)	Reliability Credit (C)	Failure to Cover Charge (D)	Total Payment (E=C+D+E)
Sep-19	Rest-of-Pool	24,222	\$163,029,164	\$0	\$0	-\$54,328	\$162,974,836
Sep-19	Southeast New England	11,174	\$85,871,614	\$0	\$0	-\$10,264	\$85,861,350
Oct-19	Rest-of-Pool	23,977	\$162,459,151	\$0	\$0	-\$42,447	\$162,416,704
Oct-19	Southeast New England	11,657	\$87,914,630	\$0	\$0	-\$24,914	\$87,889,716
Nov-19	Rest-of-Pool	23,993	\$162,521,986	\$0	\$0	-\$31,951	\$162,490,034
Nov-19	Southeast New England	11,641	\$87,851,796	\$0	\$0	-\$27,234	\$87,824,561
Dec-19	Rest-of-Pool	24,235	\$162,769,406	\$0	\$0	-\$27,839	\$162,741,567
Dec-19	Southeast New England	11,402	\$87,611,585	\$0	\$0	-\$12,577	\$87,599,008
Jan-20	Rest-of-Pool	24,528	\$163,047,546	\$0	\$0	-\$34,637	\$163,012,910
Jan-20	Southeast New England	11,109	\$87,330,292	\$0	\$0	-\$20,436	\$87,309,856
Feb-20	Rest-of-Pool	24,516	\$162,958,804	\$0	\$0	-\$38,967	\$162,919,837
Feb-20	Southeast New England	11,122	\$87,418,719	\$0	\$0	-\$27,494	\$87,391,224
Mar-20	Rest-of-Pool	24,494	\$162,869,433	\$0	\$0	-\$23,565	\$162,845,868
Mar-20	Southeast New England	11,127	\$87,451,738	\$0	\$0	-\$40,387	\$87,411,351
Apr-20	Rest-of-Pool	24,043	\$162,584,394	\$0	\$0	-\$20,471	\$162,563,922
Apr-20	Southeast New England	11,575	\$87,710,436	\$0	\$0	-\$18,531	\$87,691,905
May-20	Rest-of-Pool	23,965	\$162,520,513	\$0	\$0	-\$11,719	\$162,508,794
May-20	Southeast New England	11,652	\$87,774,317	\$0	\$0	-\$10,594	\$87,763,723
Jun-20	Rest-of-Pool	15,723	\$87,637,322	\$147,777	\$0	-\$41,698	\$87,743,401
Jun-20	Northern New England	8,135	\$40,300,914	-\$143,520	\$0	-\$8,624	\$40,148,771
Jun-20	Southeast New England	11,184	\$73,142,490	-\$4,257	\$0	-\$2,447	\$73,135,785

Month	Capacity Zone	CSO MW	NRCP Credit (A)	ART Credit (B)	Reliability Credit (C)	Failure to Cover Charge (D)	Total Payment (E=C+D+E)
Jul-20	Rest-of-Pool	15,781	\$87,602,140	\$147,777	\$0	-\$37,476	\$87,712,441
Jul-20	Northern New England	8,076	\$40,182,198	-\$143,520	\$0	-\$927	\$40,037,751
Jul-20	Southeast New England	11,185	\$73,312,538	-\$4,257	\$0	-\$2,447	\$73,305,833
Aug-20	Rest-of-Pool	15,869	\$87,780,643	\$147,777	\$0	-\$33,408	\$87,895,012
Aug-20	Northern New England	8,086	\$40,194,959	-\$143,520	\$0	-\$927	\$40,050,512
Aug-20	Southeast New England	11,087	\$73,121,273	-\$4,257	\$0	\$0	\$73,117,016
Sep-20	Rest-of-Pool	15,667	\$87,107,241	\$147,777	\$0	-\$39,118	\$87,215,900
Sep-20	Northern New England	8,135	\$40,281,338	-\$143,520	\$0	-\$5,975	\$40,131,843
Sep-20	Southeast New England	11,240	\$73,708,296	-\$4,257	\$0	-\$6,759	\$73,697,281

For each month and capacity zone, Load Serving Entities (LSE) 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 capacity load obligation (CLO). A customer's CLO is equivalent to its capacity requirement, adjusted for any Hydro-Quebec Installed Capacity Credits (HQICC), self-supply MW, 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:

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

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

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
Sep-19	35,396	926	954	0	1,585	36,350	25,559	33,811	\$7.361434	\$251,778,969
Oct-19	35,635	927	954	0	1,586	36,589	25,559	34,049	\$7.353288	\$252,301,356
Nov-19	35,635	926	954	0	1,586	36,589	25,559	34,049	\$7.353288	\$252,335,551
Dec-19	35,637	919	954	0	1,586	36,591	25,559	34,052	\$7.352906	\$253,203,794
Jan-20	35,637	919	954	0	1,586	36,591	25,559	34,052	\$7.352856	\$254,415,530
Feb-20	35,637	906	954	0	1,586	36,591	25,559	34,052	\$7.352856	\$254,397,890
Mar-20	35,621	915	954	0	1,586	36,575	25,559	34,036	\$7.354686	\$254,314,386
Apr-20	35,618	924	954	0	1,586	36,572	25,559	34,032	\$7.354635	\$252,438,895
May-20	35,618	921	954	0	1,586	36,572	25,559	34,032	\$7.354635	\$252,173,567
Jun-20	35,042	889	940	0	1,550	35,982	23,929	33,492	\$6.003872	\$204,560,588
Jul-20	35,042	950	940	0	1,550	35,982	23,929	33,492	\$6.004354	\$204,597,813

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
Aug-20	35,042	950	940	0	1,550	35,982	23,929	33,492	\$6.004354	\$204,896,450
Sep-20	35,042	961	940	0	1,550	35,982	23,929	33,492	\$6.004354	\$204,548,674

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

Capacity Requirement<sub>Capacity Zone</sub> = (Peak Contribution MW (CCP-2)<sub>Capacity Zone</sub> / Peak Contribution (CCP-2)<sub>Pool</sub>) \* (CSO<sub>Pool</sub> + HQICC MW<sub>pool</sub>) \* (-1)

CLO<sub>Capacity Zone</sub> = Capacity Requirement<sub>Capacity Zone</sub> - HQICC MW<sub>Capacity Zone</sub> - CLO Self-Supply MW<sub>Capacity Zone</sub>

There are two aspects to a self-supply agreement – the generator supplying the MW and the entity using the MW to reduce its capacity requirement. For example, during the 2019/2020 commitment period, a generator in Southeast New England can have self-supply designations in the Rest-of-Pool (ROP). (The detailed requirements for self-supplied FCA resources are available here in III.13.1.6.2). 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
Sep-19	Rest-of-Pool	24,222	954	1,241	21,339	15,027	19,523	\$7.094774	\$138,507,981
Sep-19	Southeast New England	11,174	0	343	15,011	10,532	14,289	\$7.927191	\$113,270,989
Oct-19	Rest-of-Pool	23,977	954	1,241	21,479	15,027	19,663	\$7.144886	\$140,487,621
Oct-19	Southeast New England	11,657	0	344	15,109	10,532	14,387	\$7.772104	\$111,813,735
Nov-19	Rest-of-Pool	23,993	954	1,241	21,479	15,027	19,663	\$7.142594	\$140,442,553
Nov-19	Southeast New England	11,641	0	344	15,109	10,532	14,387	\$7.777614	\$111,892,998
Dec-19	Rest-of-Pool	24,235	954	1,241	21,481	15,027	19,664	\$7.077564	\$139,175,317
Dec-19	Southeast New England	11,402	0	344	15,111	10,532	14,388	\$7.925424	\$114,028,477
Jan-20	Rest-of-Pool	24,528	954	1,241	21,481	15,027	19,664	\$7.000469	\$137,658,498
Jan-20	Southeast New England	11,109	0	344	15,110	10,532	14,388	\$8.115115	\$116,757,032
Feb-20	Rest-of-Pool	24,516	954	1,241	21,481	15,027	19,664	\$7.000384	\$137,656,637
Feb-20	Southeast New England	11,122	0	344	15,110	10,532	14,388	\$8.114029	\$116,741,254
Mar-20	Rest-of-Pool	24,494	954	1,241	21,471	15,027	19,655	\$7.003093	\$137,643,577
Mar-20	Southeast New England	11,127	0	344	15,104	10,532	14,381	\$8.112889	\$116,670,809
Apr-20	Rest-of-Pool	24,043	954	1,241	21,469	15,027	19,653	\$7.129906	\$140,122,047
Apr-20	Southeast New England	11,575	0	344	15,102	10,532	14,380	\$7.810881	\$112,316,849
May-20	Rest-of-Pool	23,965	954	1,241	21,469	15,027	19,653	\$7.151366	\$140,543,787

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
May-20	Southeast New England	11,652	0	344	15,102	10,532	14,380	\$7.763100	\$111,629,780
Jun-20	Rest-of-Pool	15,723	940	543	14,006	9,010	12,769	\$5.777018	\$73,768,224
Jun-20	Northern New England	8,135	0	661	7,149	4,987	6,624	\$5.391856	\$35,716,778
Jun-20	Southeast New England	11,184	0	346	14,827	9,932	14,098	\$6.743726	\$95,075,586
Jul-20	Rest-of-Pool	15,781	940	543	14,006	9,010	12,769	\$5.758627	\$73,533,379
Jul-20	Northern New England	8,076	0	661	7,149	4,987	6,624	\$5.419008	\$35,896,639
Jul-20	Southeast New England	11,185	0	346	14,827	9,932	14,098	\$6.750267	\$95,167,795
Aug-20	Rest-of-Pool	15,869	940	543	14,006	9,010	12,769	\$5.737283	\$73,260,827
Aug-20	Northern New England	8,086	0	661	7,149	4,987	6,624	\$5.415861	\$35,875,794
Aug-20	Southeast New England	11,087	0	346	14,827	9,932	14,098	\$6.792260	\$95,759,828
Sep-20	Rest-of-Pool	15,667	940	543	14,006	9,010	12,769	\$5.771520	\$73,698,014
Sep-20	Northern New England	8,135	0	661	7,149	4,987	6,624	\$5.391856	\$35,716,778
Sep-20	Southeast New England	11,240	0	346	14,827	9,932	14,098	\$6.747861	\$95,133,882

### 11.3 Capacity Transfer Rights

Capacity Transfer Rights (CTR) 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 2019/2020 capacity commitment period (CCP), Southeast New England is import-constrained. Payments from the import-constrained zone will be made to the Rest-of-Pool Capacity Zone. The FCM charge above can change depending on the CTRs associated with the capacity zone. The specifically allocated CTR Fund consists of the following:

- Pool planned unit CTRs for certain municipal utilities
- Provisions for transmission upgrade CTRs

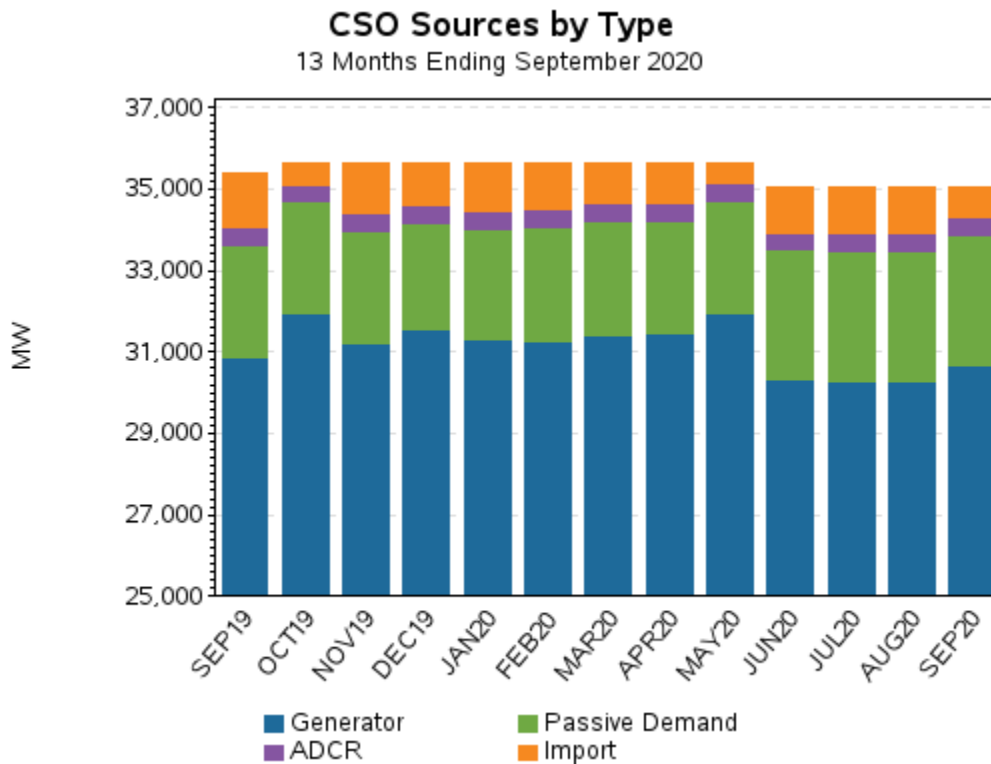
The following table provides detail, by month and capacity zone, of the CTR dollars, the specifically allocated CTR MW and dollars, along with the residual CTR MW and dollars.

Month	Import or Export Constrained	CTR Fund Dollars	Specifically Allocated CTR MW	Specifically Allocated CTR Dollars	Residual CTR MW	Residual CTR Dollars
Sep-19	Southeast New England	\$2,878,192	0	\$0	-14,289	\$2,878,192
Oct-19	Southeast New England	\$1,927,575	0	\$0	-14,387	\$1,927,575
Nov-19	Southeast New England	\$1,961,770	0	\$0	-14,387	\$1,961,770
Dec-19	Southeast New England	\$2,822,803	0	\$0	-14,388	\$2,822,803
Jan-20	Southeast New England	\$4,037,691	0	\$0	-14,388	\$4,037,691
Feb-20	Southeast New England	\$4,020,368	0	\$0	-14,388	\$4,020,368
Mar-20	Southeast New England	\$3,993,216	0	\$0	-14,381	\$3,993,216
Apr-20	Southeast New England	\$2,144,066	0	\$0	-14,380	\$2,144,066

Month	Import or Export Constrained	CTR Fund Dollars	Specifically Allocated CTR MW	Specifically Allocated CTR Dollars	Residual CTR MW	Residual CTR Dollars
May-20	Southeast New England	\$1,878,737	0	\$0	-14,380	\$1,878,737
Jun-20	Northern New England	\$327,464	0	\$0	-26,868	\$327,464
Jun-20	Southeast New England	\$3,152,398	0	\$0	-14,098	\$3,152,398
Jul-20	Northern New England	\$268,584	0	\$0	-26,868	\$268,584
Jul-20	Southeast New England	\$3,232,353	0	\$0	-14,098	\$3,232,353
Aug-20	Northern New England	\$257,496	0	\$0	-26,868	\$257,496
Aug-20	Southeast New England	\$3,542,078	0	\$0	-14,098	\$3,542,078
Sep-20	Northern New England	\$322,789	0	\$0	-26,868	\$322,789
Sep-20	Southeast New England	\$3,129,009	0	\$0	-14,098	\$3,129,009

### 11.4 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.



Month	Passive Demand Resource MW	Active Demand Capacity Resource MW (ADRC)	Generation MW	Import MW	Total MW
Sep-19	436	2,758	30,798	1,404	35,396
Oct-19	420	2,767	31,875	573	35,635
Nov-19	444	2,762	31,164	1,265	35,635

Month	Passive Demand Resource MW	Active Demand Capacity Resource MW (ADCR)	Generation MW	Import MW	Total MW
Dec-19	455	2,623	31,488	1,071	35,637
Jan-20	456	2,704	31,249	1,228	35,637
Feb-20	445	2,771	31,227	1,194	35,637
Mar-20	433	2,769	31,374	1,045	35,621
Apr-20	422	2,761	31,402	1,032	35,618
May-20	435	2,740	31,892	550	35,618
Jun-20	396	3,167	30,279	1,201	35,042
Jul-20	423	3,177	30,241	1,201	35,042
Aug-20	432	3,181	30,237	1,192	35,042
Sep-20	444	3,189	30,620	789	35,042

### 11.5 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
Sep-19	Rest-of-Pool	987	150	210	58	1,404
Oct-19	Rest-of-Pool	457	110	0	6	573
Nov-19	Rest-of-Pool	1,002	110	147	6	1,265
Dec-19	Rest-of-Pool	808	110	147	6	1,071
Jan-20	Rest-of-Pool	965	110	147	6	1,228
Feb-20	Rest-of-Pool	931	110	147	6	1,194
Mar-20	Rest-of-Pool	782	110	147	6	1,045
Apr-20	Rest-of-Pool	769	110	147	6	1,032
May-20	Rest-of-Pool	287	110	147	6	550
Jun-20	Rest-of-Pool	517	0	460	0	977
Jun-20	Northern New England	0	169	0	55	224
Jul-20	Rest-of-Pool	536	0	441	0	977
Jul-20	Northern New England	0	169	0	55	224
Aug-20	Rest-of-Pool	527	0	441	0	968
Aug-20	Northern New England	0	169	0	55	224
Sep-20	Rest-of-Pool	550	0	15	0	565
Sep-20	Northern New England	0	169	0	55	224

### 11.6 Pay for Performance

Under Pay for Performance (PFP), a Capacity Scarcity Condition (CSC) exists in a Capacity Zone in any five-minute interval when the real-time energy price includes a Reserve Constraint Penalty

Factor triggered by (1) a violation of the system minimum 30-minute reserve requirement, (2) a violation of the system 10-minute reserve requirement, or (3) a violation of the zonal 30-minute reserve requirements.

A balancing ratio, equal to the required capacity divided by the total Capacity Supply Obligation on the system (or in a capacity zone), is computed for each CSC. A Performance Score, equal to the Actual Capacity Provided (MW) – (Balancing Ratio (MW) x CSO (MW)), is then calculated for each Resource. Resources are required to provide an amount of capacity equal to their CSO multiplied by the Balancing Ratio. Resources that provide more than that value during the CSC are eligible to receive a payment, while those that provide less than that value will incur a charge. This payment/charge is determined by multiplying the Resources Performance Score by the Performance Payment Rate in effect for the Capacity Commitment Period (CCP) when the CSC occurs. Units that do not have a CSO are eligible to receive a payment for the capacity that they provide during a CSC, but do not incur a charge.

PFP includes both a monthly and an annual Stop-Loss mechanism to limit losses a Resource may incur during a given month, or over the course of the CCP. Once the total credits and charges are calculated, including any values associated with Stop Loss, any over collection or under collection, referred to as the Balancing Fund Dollars, is distributed/charged to all suppliers with a CSO (pro rata) at the end of each month.

A Resource with a positive Performance Score in an interval may sell all or part of its score to any Resource impacted by the same CSC. This mechanism replaces the Supplemental Availability Bilateral agreements in place prior to PFP.

#### Local Thirty-Minute Operating Reserve Constraint Violation

Capacity Zone	CSC Interval	CSO	Balancing Ratio	Actual Capacity Provided	Capacity Performance Score	Performance Payment Rate	Performance Payment Dollars	Not Charged Due to Stop Loss Dollars	Balancing Fund Dollars
There were no Local Thirty-Minute Operating Reserve Violations over the previous 13 months.									

#### System-Wide Reserve Constraint Violation

CSC Interval Begin Date	10-min Reserve Constraint Violation	30-min Reserve Constraint Violation	Balancing Ratio	CSO	Actual Capacity Provided	Capacity Performance Score	Capacity Performance Payment
There were no Operating Reserve Violations over the previous 13 months.							

Resource Type	Capacity Performance Payment <sup>7</sup>	Not Charged Due to Stop Loss Dollars	Balancing Fund Dollars <sup>8</sup>	Total PFP Payment <sup>9</sup>
There were no Operating Reserve Violations over the previous 13 months.				

### 11.7 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](#).

Detailed information about charges to Network Load can be found [here](#).

<sup>7</sup> Positive values in this table represent a credit, while negative values represent a charge.

<sup>8</sup> If the funds collected from under-performing resources during a CSC exceed the amount needed to compensate the over-performing resources, the balancing fund balance will be positive. At the end of the month, these funds are then distributed pro rata to all suppliers with a CSO. If the funds collected from under-performing resources are less than the amount needed to compensate the over-performing resources, the balancing fund balance will be negative. At the end of the month, the funds needed to complete the payments will be collected pro rata from all suppliers with a CSO.

<sup>9</sup> This column reflects the sum of the Capacity Performance Payment and the Balancing Fund dollars.



## 12. Price Responsive Demand Full Integration

Price Responsive Demand will expand opportunities for demand response in the energy and reserves markets. All Demand Response Resources (DRRs) can participate in the Day-Ahead and Real-Time Energy Market and Real-Time Reserve Market via offers made in the eMarket system. DRRs can also participate in the Forward Reserves Market.

### 12.1 Demand Response participation in the Energy Market

All Demand Response Resources can participate in the Day-Ahead and Real-Time Energy Market.

#### 12.1.1 Price Responsive Demand Payments

- A DRR Asset with an offer that clears in the Day-Ahead Energy Market will receive a payment for its Day-Ahead Demand Reduction Obligation at the applicable Day-Ahead 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 LMP. Day-Ahead cleared and Real-Time reduction MWh are subject to a gross up due to avoided distribution losses.

The following table includes Day-Ahead Demand Reduction Obligation megawatt-hours MWh (Day-Ahead Cleared MWh, plus 5.5% gross up), Real-Time Demand Reduction Energy Quantity MWh, Real-Time Demand Reduction Supply Energy Quantity MWh, RT Demand Reduction Obligation MWh, Real-Time Demand Reduction Deviation MWh, Average Pool Demand Response Charge Allocation MWh, and the Audit Demand Reduction MWh (Also adjusted for gross up of 5.5%).

$$DA \text{ Demand Reduction Obligation MWh} = DA \text{ Cleared MWh} * 1.055$$

$$RT \text{ Demand Reduction Obligation MWh} = RT \text{ Demand Reduction Energy Quantity MWh} * 1.55 + RT \text{ Demand Reduction Net Supply Energy Quantity MW}$$

$$RT \text{ Demand Reduction Deviation MW} = RT \text{ Demand Reduction Obligation MWh} - DA \text{ Demand Reduction Obligation MWh}$$

Month	DA Cleared Demand Reduction MWh (A)	DA Demand Reduction Obligation MWh (B)=(A)*1.055	RT Reduction Energy Quantity MWh (C)	RT Net Supply Energy Quantity MWh (D)	RT Demand Reduction Obligation MWh (E)=(C)*1.055+(D)	RT Demand Reduction Deviation MWh (F)=(E)-(B)
Sep-19	1893	1998	1769	213	2079	81
Oct-19	1,381	1,457	1,194	150	1,410	-48
Nov-19	1,089	1,149	933	528	1,513	364
Dec-19	2,264	2,389	2,498	1,005	3,640	1,251
Jan-20	507	534	356	351	726	192
Feb-20	74	78	111	73	190	112
Mar-20	4	4	107	206	319	315
Apr-20	16	17	73	36	113	96
May-20	815	860	773	54	870	10
Jun-20	1,711	1,805	2,218	107	2,447	642
Jul-20	1,598	1,686	1,670	176	1,937	251
Aug-20	1,442	1,521	1,788	159	2,046	525
Sep-20	1,419	1,497	1,644	52	1,787	290

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

Month	DA Payment Dollars	RT Payment Dollars	Total Payment Dollars
Sep-19	\$53,002	\$7,799	\$60,801
Oct-19	\$38,169	\$1,409	\$39,579
Nov-19	\$54,844	\$23,596	\$78,440
Dec-19	\$198,351	\$106,879	\$305,229
Jan-20	\$26,969	\$13,236	\$40,205
Feb-20	\$2,976	\$4,394	\$7,370
Mar-20	\$141	\$6,697	\$6,838
Apr-20	\$518	\$2,772	\$3,291
May-20	\$16,053	\$6,323	\$22,376
Jun-20	\$42,986	\$19,312	\$62,299
Jul-20	\$52,317	\$13,949	\$66,265
Aug-20	\$51,340	\$19,054	\$70,395
Sep-20	\$42,649	\$19,411	\$62,060

### 12.1 Demand Response participation in the Reserve Market

A DRR may be designated for reserves based on its registration and offer parameters as well as its past performance. For more statistics about DRR performance in the Reserve Markets, see “Section 9. Reserve Markets.”

### 12.2 Demand Response participation in the Forward Capacity Market

DRRs support an obligation in the Forward Capacity Market’s base payment if they are mapped to an Active Demand Capacity Resource (ADCR) with a CSO. DRRs mapped to an ADCR with a non-zero CSO are required to offer in the Day-Ahead and Real-Time Energy Market at the minimum of their availability or net CSO. DRRs support a pay for performance incentive or charge for its associated ADCR based on the energy and/or reserves provided by a DRR during a scarcity condition. If a DRR is not associated with an ADCR, it can earn FCM incentives through pay for performance. For more statistics about DRR performance in the Forward Capacity Market, see “Section 12. Forward Capacity Market”.

### 12.3 For More Information:

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

## 13. Document History

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Date	Version	Description
10/14/2020	Original Posting	