



White Paper

# ISO-NE FCA 11 Auction Results and Future Expectations

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## Shareables

- Forward Capacity Auction (FCA) 11 capacity prices cleared at \$5.30/kW-mo, higher than the historical average, but lower than the previous auction.
- While no new units cleared the auction, FCA 11 saw approximately 640 MW of new demand response resources clear the auction.
- ICF believes that the prices are close to the lowest expected levels.

## Executive Summary

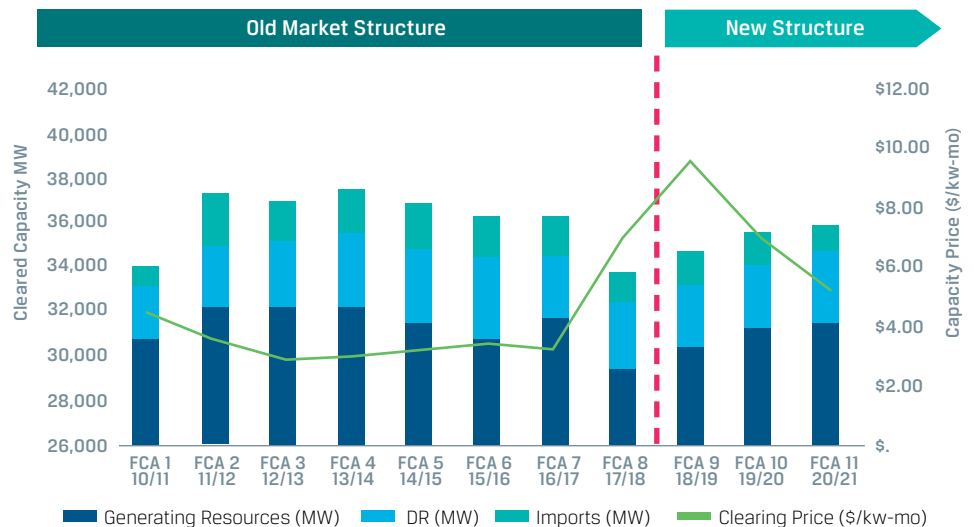
On February 6<sup>th</sup>, 2017 ISO-NE conducted its latest Forward Capacity Auction (FCA 11) for the June 1, 2020 through May 31, 2021 period. All regional prices were the same, \$5.3/kW-mo and lower than the previous auction result of \$7.03/kW-mo. This was ISO-NE's first auction conducted using zonal demand curves shaped to reflect the marginal reliability impact (MRI) of capacity. However, demand curve changes did not affect the results. Rather, about half of the decrease in pricing reflects greater than expected increases in government approved and utility sponsored energy efficiency (EE) programs. EE bids are subject to a minimum, but it is below the soft capacity price "floor". The other half appears to be lower bidding behavior of market participants associated with lower expected scarcity hours. This is in turn reflective of new ISO-NE studies on scarcity. There are several changes for the next auction (FCA 12) most of which are likely to add even more downward pressure on the prices. Nonetheless, ICF believes that the prices are close to the lowest expected levels because further decreases will trigger retirements.



## Summary of the Auction Results

FCA 11 capacity prices cleared at \$5.30/kW-mo, higher than the historical average of \$4.79/kW-mo but lower than the previous auction, which cleared at \$7.03/kW-mo. Capacity prices were also lower than market expectation.

### EXHIBIT 1. HISTORICAL FCA CLEARING PRICES



Source: ICF, ISO-NE FCA Results

Some key outcomes from the FCA 11 auction results are summarized below:

1. Similar to FCA 10, there was no price separation between the zones.
2. Prices cleared lower than the Dynamic De-list Bid Threshold (DDBT) Price (\$5.50/kW-mo) which is considered to be a "soft floor" for the prices.
3. Unlike FCA 10, no new thermal units cleared the auction. However, 640 MW of new demand response resources cleared the auction. Additionally, approximately 264 MW of new resources which reflect mostly generator uprates also cleared the auction. Lastly, pursuant to tariff changes no real time emergency generators cleared the market.<sup>1</sup>
4. The auction concluded with the commitments from 35,835 MW to be available in 2020-2021, which is 1,760 MW above the Net Installed Capacity Requirement (NICR). No large resources retired in FCA 11; only a few small oil generators delisted<sup>2</sup> during the auction. ISO- NE, in its filing to FERC, noted that the entire quantity of the Dynamic De-List Bid was not needed to meet the requirement and thus was rationed.<sup>3</sup>

<sup>1</sup> RTEGs will be removed from the Forward Capacity Market as of June 1, 2018

<sup>2</sup> Not eligible for capacity payment for that capacity commitment period, but can sell energy during that time and can compete again in future auctions.

<sup>3</sup> If more dynamic delist bids are submitted at a price than needed to clear the market, the bids shall be cleared prorata, subject to honoring the economic minimum limit of the resources

5. 1,035 MW of imports from New York and Quebec will receive the same price as the Rest-of-Pool capacity price, however, 200 MW imports from New Brunswick will receive \$3.38/kW-mo prices for the 2020-2021 capacity commitment period.
6. Roseton Imports from NYISO did not clear the FCA 11 auction. However, there is an increase in the lower priced imports from New Brunswick and Hydro-Quebec. Over all imports have decreased compared to FCA 10. This is likely due to the expectation of tighter supply demand balance in downstate NY, due to the announced Indian point retirement, or higher bidding by these imports due to increases in their opportunity cost.

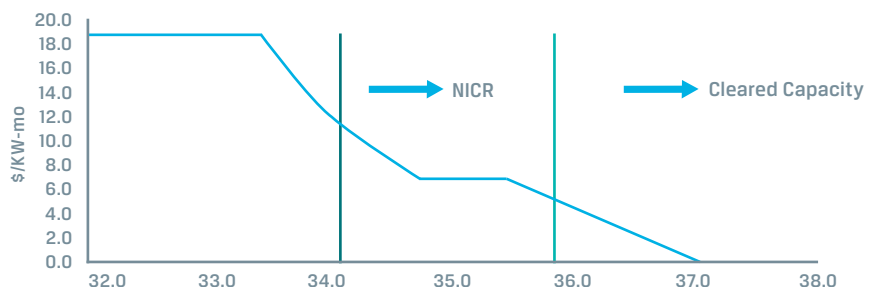
## Price Drivers

Following the results of FCA 10, there had been other structural and market developments that could have an impact on the FCA 11 capacity prices. These changes include:

1. Demand curves based on MRI construct
2. Increase in Net CONE for FCA 11 from \$10.81/kW-mo to \$11.64/kW-mo
3. Implementation of regional demand curve

However, none of these factors had a major impact on the FCA 11 capacity prices. The market cleared at the linear downward sloping portion of the demand curve similar to FCA 10, and thus the MRI curve had no impact on the prices.

### EXHIBIT 2. SYSTEM-WIDE CAPACITY DEMAND CURVE FOR THE 11<sup>TH</sup> FCA



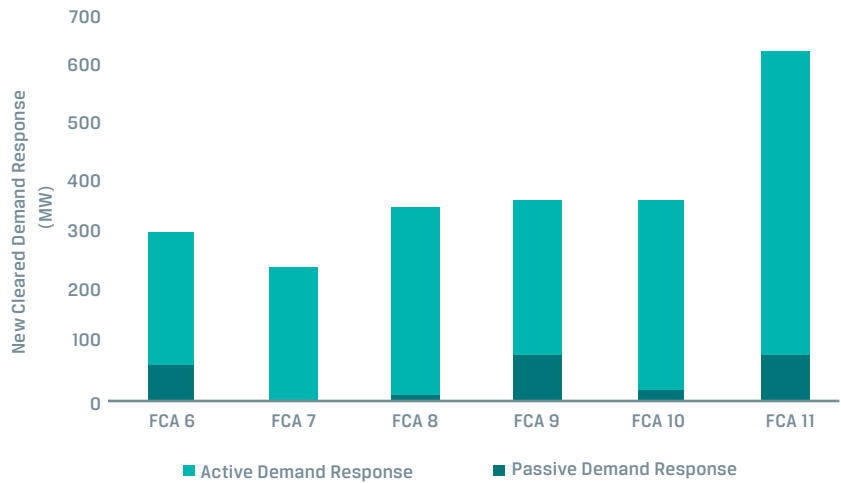
Source: ICF, ISO-NE FCA Results

Additionally, given the current level of excess capacity in the system, there was no potential for regional separation in FCA 11 and possibly even beyond. Lastly, the impact of a marginal increase in the NET CONE would be minimal. ICF estimated the impact of Increase in NET CONE to around +\$0.10/kW-mo.

There are two primary factors that contributed to lower capacity prices in 2020/2021: **1)** Net increase in demand response resources, and **2)** lower bidding from existing units. Below ICF's assess the each of these factors in detail.

1. **Net increase in demand response (DR):** FCA 11 cleared approximately 640 MW of new active and passive demand response, a level unprecedented compared to historical auctions. The increase was mostly driven by an increase in demand response- 72% increase from FCA 10.

EXHIBIT 3. CLEARED NEW MWS OF DEMAND RESPONSE IN THE LAST 5 AUCTIONS



Source: ICF, ISO-NE FCA Results

Over all, the total amount of DR cleared also increased in FCA 11 however as discussed before pursuant to tariff changes no new real time emergency generators cleared the auction.<sup>4</sup> Between FCA 10 and FCA 11, the state of Massachusetts saw the highest increase in passive demand resources that cleared the auction.

EXHIBIT 4. CLEARED GWS OF DR IN ISO-NE AUCTIONS



Source: ICF, ISO-NE FCA Results

The increase in Energy Efficiency can be attributed to the increase in budget spend rate. According to a preliminary 2016 Draft Energy-Efficiency Forecast for 2020-2025 report, in particular, the states of Massachusetts and Rhode Island saw the greatest increases. Although energy efficiency is subject to Offer Review Trigger price (ORTP) i.e. buyer side mitigation, it is not a meaningful floor because it is set at a level below the "soft floor".

<sup>4</sup> RTEG will be removed from the forward capacity market as of June 1, 2018.



However, the capacity from the existing demand response resources reduced by approximately 174 MW, which leads to a net increase of 465 MW compared to FCA 10. All else being equal, these new resources decreased capacity prices by approximately \$0.8/kW-mo.

- 2. Lower Bidding from Participants:** The DDBT Price establishes a value below which existing resources that have chosen to be price takers in the FCA can opt to leave the auction. The DDBT price is set using a formula that reflects the cost of a representative fossil steam unit since these existing resources are most likely to leave the auction. The ISO generally re-evaluates and proposes changes to the DDBT no less than once in every three years. In their last analysis, ISO-NE had reviewed the de-list bids from 31 oil and dual-fuel units in FCA 9 to set the current DDBT price. Below we show the ISO's breakout of the different components of the DDBT.

***Net Going Forward Cost+Capacity Performance Payment+Risk Premium=Dynamic DelistBid Threshold Price***

Based on the Net Going Forward Cost, Capacity Performance charge, and Risk Premium, the ISO had set the DDBT price to \$5.50/kW-mo<sup>5</sup>. DDBT price will increase over time as the Performance Payment Rate (PPR) increases which affects the Capacity Performance Payment and the Risk Premium components of the DDBT. A common misconception with the DDBT price was that it was interpreted by many market participants to be a floor for the capacity auction. However, it should be viewed as a soft floor i.e. prices could go below the level of DDBT depending on the cost assumed for the different components by the participants. This is exactly what happened in FCA 11. With the prices in FCA 11 going below DDBT levels, it is most likely that the generators were bidding lower compared to FCA 10. With no significant regulation/market changes influencing going forward cost, and no change in the penalty rate that would largely influence the Capacity Performance Payment, it is likely that market participants had a lower expectation of the risk premiums. ICF believes that participants have a lower expectation of scarcity.

In fact, the ISO has also revised its study from 2013 to reflect the same. In the last study, the ISO provided expected scarcity hours in the system as a function of supply-demand balance. ISO-NE projected approximately 21 hours of scarcity during equilibrium i.e. when supply is at ICR. However, the new study conducted in October 2016, projects a lower level of scarcity hours at almost every supply level.

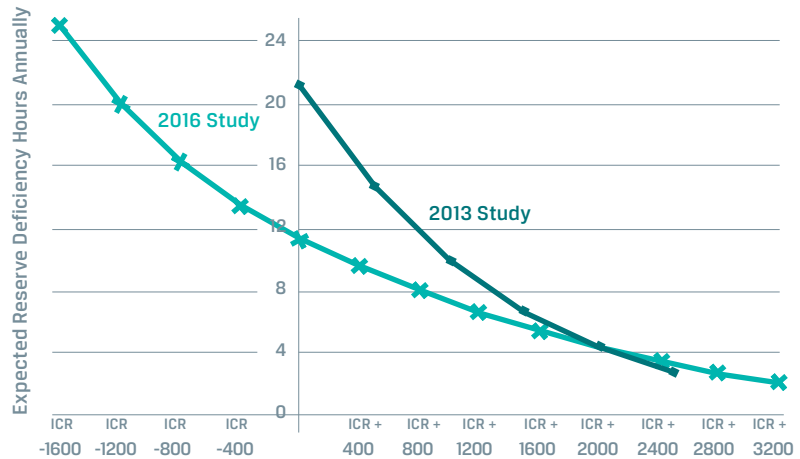
<sup>6</sup>As illustrated below in Exhibit 6, the expected number of scarcity hours at ICR has decreased to half from around 21 hours to 11 hours.

<sup>5</sup> Net Going Forward Cost=\$3.70/kW\_mo; Capacity Performance Charge= \$0.50/kW-mo; Risk Premium=\$1.30/kW-mo; Total = \$3.70/kW-mo+\$0.50/kW-mo+\$1.30/kW-mo= \$5.5/kW-mo

<sup>6</sup> Earlier ISO-NE used to consider RTEG resources (approx. 700 MW) as OP4 resources i.e. whenever you have to dispatch RTEG resources, you have an OP4 situation (scarcity). However now they have shifted these resources from OP4 to non-OP4 resources which implies you have more non-OP4 resources (700 MW more) to meet load and reserve requirement before needing to invoke OP4. This results in lower frequency for OP4 events and thus lower scarcity hours.

Going forward, while the Internal Marketing Monitor (IMM) did not begin the analysis for FCA 12 however, based on a preliminary analysis, IMM estimates a reduction in DDBT price by approximately \$0.95/kW-mo. While the penalty rate will increase in FCA 12, putting an upward pressure on DDBT price, this impact will be more than offset by lower scarcity hours, which drop from 21 to 7<sup>7</sup>. Thus, if a unit is unwilling to stay in the system below the FCA 11 price, it will have to submit a non-price request to retire permanently from the system or submit a static de-list bid.

EXHIBIT 5. PRIOR AND CURRENT SCARCITY HOUR PROJECTIONS



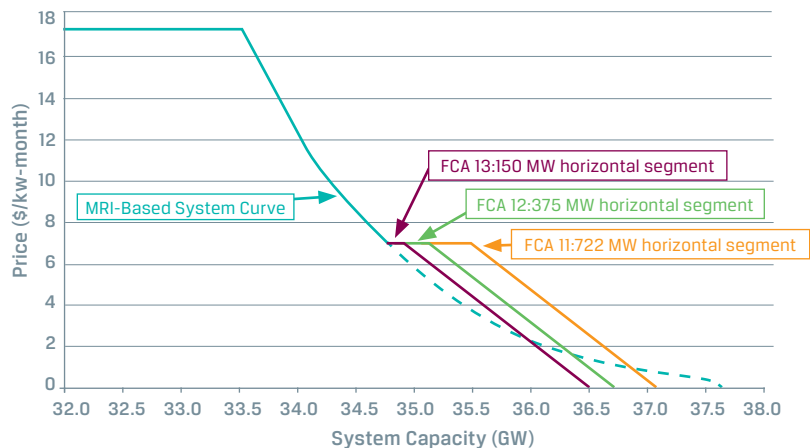
Source: ISO-NE

### Looking Ahead

We can draw the following preliminary conclusions from these results for the short and medium terms:

1. The linear portion of the transition demand curve reduces from 722 MW to 375 MW. As the market is expected to clear at the linear downward sloping portion of the demand curve, it would put a downward impact on the prices.

EXHIBIT 6. ISO-NE SYSTEM WIDE CONVEX DEMAND CURVE PHASE-IN



Source: ISO-NE

<sup>7</sup> 7 hours of scarcity indicates ICR+1000MW excess of capacity

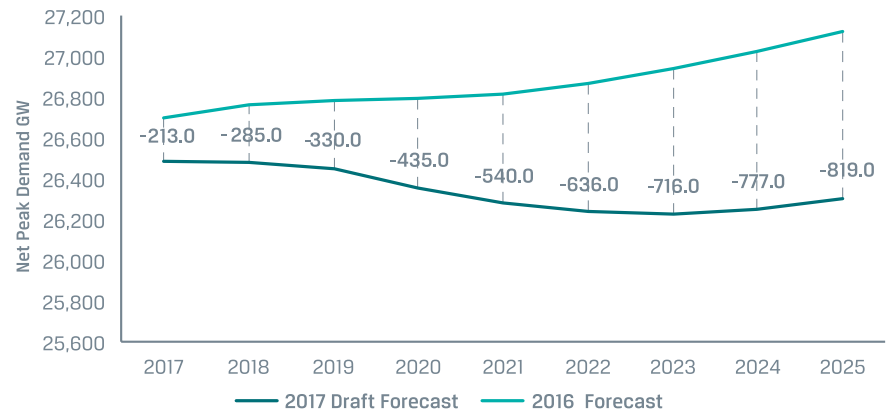


ISO-NE has updated its CONE and Net CONE assumptions with a new bottom-up study. The most significant change is that starting with FCA 12, ISO-NE will start using Combustion Turbine (CT) technology as the Net CONE reference point, aligning it with other capacity markets. The Net CONE values were similar to the previous findings, but the shift to CT reference will lower the Net CONE used for demand curve design to \$8.04/kW-mo. This will shift the demand curves to the left and put downward pressure on capacity prices.

- 2.** ISO-NE is currently working on the 2017 Capacity, Energy, Load and Transmission (CELT) forecast. In the draft version of the report, the ISO reports a decrease in both the net energy and peak demand forecast compared to the 2016 projection. In particular the peak demand is decreasing in the upcoming forecast due to the following reasons-
- Increase in EE forecast due to revision in production cost methodology.
  - Increase in Solar PV forecast.
  - Lower gross demand forecast

Decreasing the peak demand decreases the Net Installed Capacity Requirement (NICR) for the auction which puts downward pressure on the capacity prices. In contrast, lowering the net energy demand will put upward pressure on the bids of the plant in the capacity market.

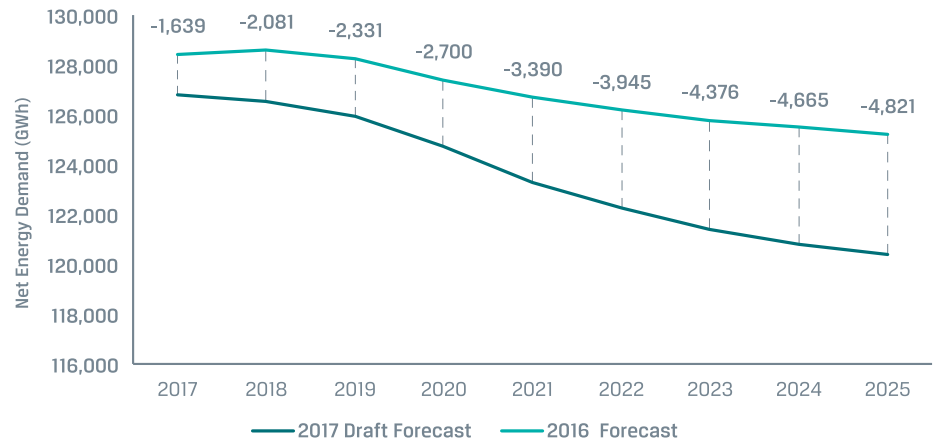
EXHIBIT 7 (A). COMPARISON OF NET PEAK DEMAND (MW)



Source: ISO-NE, ICF

- 3.** In August 2016, NEPOOL, concerned over nuclear retirements and the inability of Forward Capacity Market (FCM) to attract renewable resources, initialized discussions aimed to integrate the market and public policy. The initiative tries to reach consensus among market participants on how to expand the ISO's mission of low electricity prices as well as additional objectives such as achieving a diverse fuel supply and state environmental requirements. Various proposals are currently being evaluated including pricing carbon in the energy markets, a Forward Clean Energy Market (FCEM) with and without FCM co-optimization, and two-tier pricing in the FCM. Depending on the policy it can have either a positive or negative impact on the capacity market.

EXHIBIT 7 (B). COMPARISON OF NET ENERGY DEMAND



Source: ISO-NE, ICF

- Penalty rates are increasing from \$2000/MWh to \$3500/MWh. ICF expects participants' bid prices to increase as a result.

With the marginal supply being mostly large oil/gas plants whose bids are close to each other, ICF expects the impact of these parameters to put minimal downward impact on the capacity prices. Additionally, ICF believes that the capacity prices are close to the lowest expected levels and potential retirements could provide the necessary support or uplift, especially if before the auction there are scarcity events that support bidding behavior. Lastly, given the level of supply cleared in the FCA 11 auction, upcoming market changes and projected market spark spreads, ICF does not see it to be economic for a new combined cycle (CC) power plant to clear in the auction. ICF believes market dynamics in ISO-NE are quite different from PJM because of the uniformity of its gas prices and its smaller market size, which do not support the lower capacity price requirements for new CC units.



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