NYISO Zone J Summer 2021 Capacity Auction

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NYISO's 2021 Capacity Auction

The 2021 summer New York Independent System Operator (NYISO) capacity prices saw a 70 percent decline for the New York City (Zone J) locational capacity zone (LCZ) when compared to 2020, with prices clearing at $5.54/kW-month in the summer strip auction versus $18.36/kW-month in the prior summer auction. Concurrently, the Rest of State (ROS) prices increased from $2.71/kW-month to $4.09/kW-month.

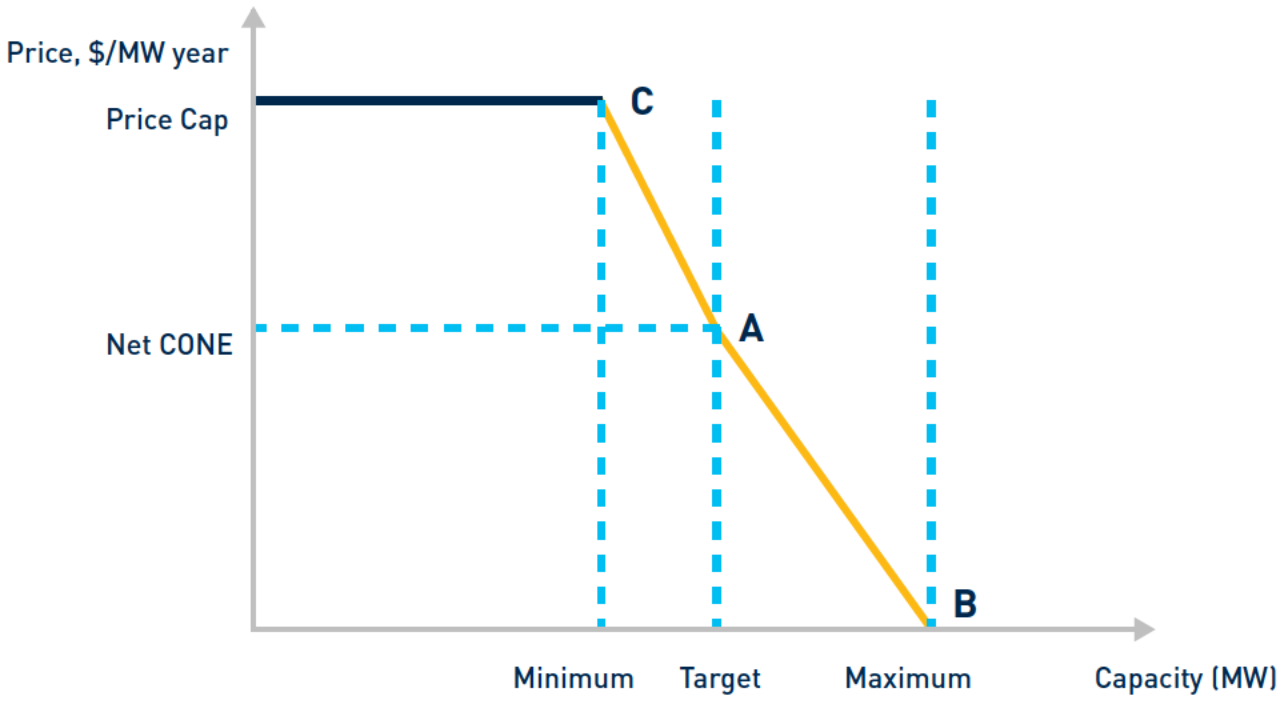
The underlying drivers for this change in price were a shift in the locational capacity requirement (LCR), change in total capacity required in-zone despite the LCR shift, and the statewide installed reserve margin (IRM).

Auction Parameter Changes

LCRs represent the amount of in-zone capacity required in any given LCZ. These are set for transmission constrained zones to ensure there is enough local capacity to maintain reliability criteria. A unique capacity price is determined within each LCZ, and this price can be higher, but not lower, than the statewide price. Therefore, the internal capacity requirements within each LCZ, such as Zone J, are a driving factor for capacity prices within that LCZ.

The net cost of new entry (net CONE) is the cost of new entry considering expected revenue from energy and ancillary services. The technology that represents the lowest net CONE within each LCR is used as a reference plant to determine this value (e.g., an H-class simple cycle plant in Zone J). This value is a key parameter in determining the administrative demand curve used in conjuncture with supply bids to set capacity market clearing prices.

Figure 1 Illustrative Capacity market Demand Curve



Source: BRG data

At a high level, the NYISO utilizes the GE MARS probabilistic resource planning model to determine a baseline set of values for the statewide IRM and LCRs. This methodology, known as the IRM Anchoring Methodology, looks at various solutions between the statewide reserve level and the LCR in Zone J, and then in Zone K, that lead to a loss of load expectation (LOLE) of 0.1 or better, the required value in the NYISO. The optimal values on this curve of solutions determine the statewide IRM and the initial LCR values for Zones J and K.

After this step, a separate study is conducted to finalize the LCRs. In this study, the NYISO uses an economic optimization algorithm around the GE MARS model for calculating LCRs that minimize the total cost of capacity. This optimization takes into account the net CONE curves of each LCZ that are developed every two years in conjuncture with the capacity demand curve reset.

Table 1 shows the comparison between the 2020 and 2021 summer capacity prices and capacity requirement in Zone J.

Table 1. Zone J Capacity Requirement and Prices

	May Spot Auction Price *($/kw-month)*	LCR (%)	ICAP at LCR (MW)
2020	19.17	86.60%	9,939
2021	5.35	80.30%	9,007

Several factors led to this large drop in the Zone J capacity price, LCR, and resulting capacity requirement. Key factors include:

1. The UPNY-ConEd limit, representing the transfer capability from Zones G to H, was increased by 1,000 MW due to improved controllable cable performance into Zones J and K.
2. Changes to the load forecast uncertainty model and the modeling of energy limited resources increased the statewide IRM by 1.8 percent.
3. The Zone J demand forecast decreased by 260 MW.
4. The Equivalent Forced Outage Rate on demand (EFORd) for Zone J resources decreased by nearly 1 percent.
5. Reference net CONE values decreased in all zones by 15 percent to 30 percent.

Subject to the requirements to maintain reliability, there is a balance between the amount of resources that can be sited upstate versus the amount required downstate to meet the required LOLE threshold. Upstate capacity is generally less valuable in reducing the LOLE; however, it is also less costly to build, so the optimal least-cost solution will take both factors into account. By both increasing the transfer capability on UPNY-ConEd and creating additional need for upstate capacity due to other factors and modeling changes (point 2 above), the relative value of upstate capacity was increased. Additionally, a lower demand forecast and lower zone-wide forced outages rates in Zone J result in less total capacity needed in Zone J.

Finally, the change in net CONE was a result of the reset demand cure parameters that occur every two years. The lower net CONE values put downward pressure on capacity prices.

Other factors could move LCRs in either direction in future auctions. It is important to note that they have a floor set by the transmission security limits, currently at 78.7 percent for Zone J.

Implications for future auction prices

The fundamental changes that have driven the drop in capacity prices are not likely to shift back, and thereby we do expect suppressed prices in Zone J relative to recent historical results for several auction periods, though with a steady rebound occurring in the near-term auctions. Through the mid- to late 2020s, we see additional retirements of older thermal units combined with demand growth, helping to work out the oversupply and prices approaching net CONE values again by the late 2020s.

References

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