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Outline for a Forward Capacity Market for NYISO

Preliminary Concepts

August 7, 2007

How Markets Work℠

Agenda

1. Present overview of proposed NYISO forward market

2. Discuss whether proposed market structure meets objectives of market participants or whether alternative constructs need further development

3. Briefly review alternatives

Key Features of the Forward Capacity Market

A Forward Capacity Market is an NYISO-run market enabling participants to buy and sell capacity 3 to 5 years in the future.

- Continued reliance on the spot demand curve as the ultimate value (cost to load and revenue to generation) of capacity
- Need to continue demand curve update process and, if mitigation is required, to mitigate in the spot demand curve market
- Development of a two-sided voluntary forward market or auction to enable sellers and buyers to hedge exposure to the spot demand curve market
- Consideration to be given to making a percentage of the forward procurement mandatory (for example, 30%)

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Proposed NYISO Forward Capacity Market Design – Extension of Current Strip Auctions

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Product Definition

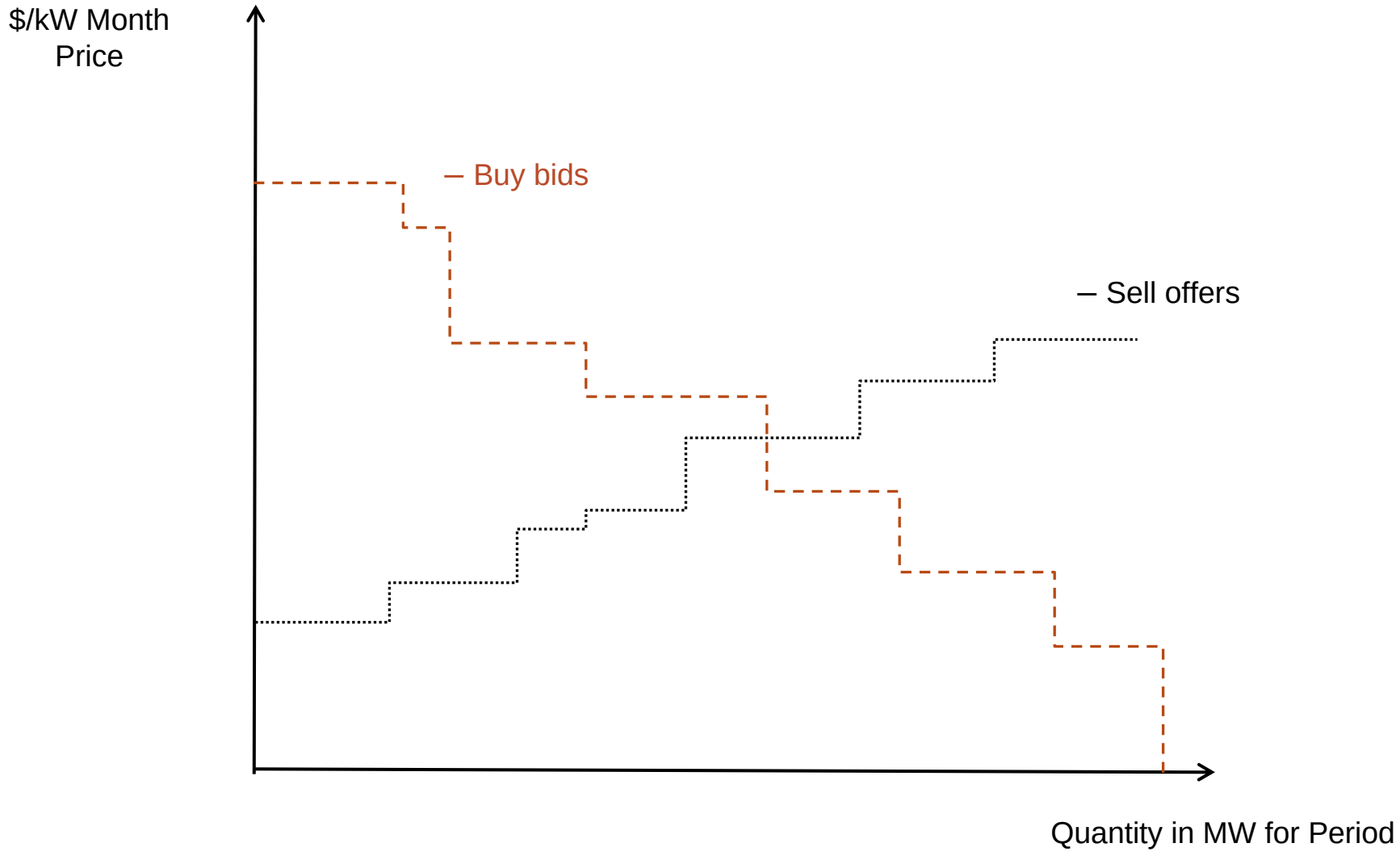
- Suppliers offer through a forward capacity auction to make a binding commitment to provide capacity at a set price for the three summer and the three winter capability periods beginning with the first summer period three years after the forward capacity auction
- Buyers bid through a forward capacity auction to make a binding commitment to buy capacity at a set price for the three summer and the three winter capability periods beginning with the first summer period three years after the forward capacity auction
- There could be separate auctions for each capability period or products could be bundled into one-, two- and three-year terms for the convenience of market participants

Market Clearing

The market clearing of the Forward Capacity Market would be similar to the current strip auctions.

- NYISO would determine the amount of MW cleared and a clearing price by comparing the supply and demand bids submitted
- Sellers would enter into an enforceable commitment to make capacity available at the clearing price in the future and the Buyer (or NYISO) would have an enforceable obligation to pay for capacity provided at the clearing price with payments occurring at the time capacity is supplied
- Buyers would enter into an enforceable commitment to pay for capacity at the clearing price in the future and the Seller (or NYISO) would have an enforceable obligation to provide such capacity at the clearing price with payments occurring at the time capacity is bought

Graphical Illustration of Clearing Process



What Obligations Does the Product Entail?

- A seller must provide the quantity of capacity won in the forward capacity auction in the future at the price of the forward auction and a buyer must buy the quantity of capacity won in the forward capacity auction at the price of the forward auction
  - If a seller does not provide this capacity, shortage will be bought in the spot auction
  - If a buyer does not need the capacity, surplus will be sold in the spot auction
- Capacity provided by the seller and purchased by the buyer will settle at the forward capacity auction clearing price
- The effective net settlement for capacity not provided by the seller or not required by the buyer to meet load obligations will be the difference between the forward capacity auction clearing price and the spot price
- The consequences of failing to meet obligations are financial and are measured and liquidated through the spot auction

NYISO Role in Administration

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- NYISO would collect payments from buyers at time when the spot auctions for the relevant periods are settled
- NYISO would make payments to sellers at time when the spot auctions for the relevant periods are settled
- There would be no need to match buyers and sellers
- NYISO would need to manage credit risk and may need to develop a specific capacity contract and credit requirements

Credit/Performance Issues are Significant Challenge

- Alternatives include
  - a maximum exposure calculation
  - if the forward capacity price can be observed on an on-going basis mark-to-market margining
- Generators with physical plant may want to be able to offer uncommitted resources as evidence of ability to perform
- Loads with supply obligations may want to rely on regulatory cost recovery assurances
- Both sellers and buyers may want to establish unsecured credit lines
- Credit issues differ from spot energy market and NYISO will need to examine and decide upon appropriate policies
- It would be reasonable for NYISO to insist on fully collateralized financial security

Additional Performance Penalties

- The obligation could be structured so that a failure to provide capacity won by a seller carried a penalty over and above the spot auction price (e.g., 1.5 to 2.0 times)
- While this is worth thinking through, it is unlikely to have any impact if a seller is providing a fraction of its actual capacity
- This provision would have an impact on speculators and that may be positive or negative

Eligibility to Participate

- Eligibility could be unconstrained and limited only by ability to meet credit/performance requirements
- Participants would simply need to meet the requirement needed to buy and sell in the spot capacity auctions as settlement would be done in conjunction with those auctions
- There could be additional requirements to ensure that bidders bid independently and competitively

The Strip Auction Structure Has Advantages

1. Maintains the spot auction structure, Reliability Needs Assessment ("RNA") and the physical capacity verification processes as they are
2. Preserves anonymity of buyers and sellers
3. Avoids needs for bilateral credit arrangements
4. Simple contract or tariff arrangement that provides price hedge to buyers and sellers
5. Simple eligibility requirements (no need to demonstrate physical capability)

This Strip Auction Structure May Also Have Disadvantages

- Does not provide added assurance or information that physical capacity is in place – RNA would continue for this purpose
- Will have significant and perhaps complex credit requirements as in event of failure to perform settlement is liquidated at spot prices
- While price hedge is provided, the model does not provide added assurance of capacity adequacy and does not discourage excess capacity

Auction Structure Could Support More Frequent Auctions

- There would be an auction that supported transactions at least three years out for the next three years after that
- Forward auctions could be held with a longer lead time (say 4 or 5 years)
- Forward auctions could cover periods with shorter lead times and be held more frequently (e.g., every six months from five years out to six months before start of contract period)

Mandatory Purchase

- The mandatory purchase framework has not been fully developed
- Two options exists one which is LSE-oriented and the other which has the NYISO as an intermediary from the time of the auction until delivery
- The LSE option would impose a forward requirement on LSEs
  - Complicated by fact that LSEs have no assured future customer base
  - Also complicated by entry issues
- The NYISO option would have NYISO enter mandatory bid on behalf of load and settle with load at time of delivery
  - Complicated by bid level and potential inability to buy
- This issue will be examined further and ideas from Market Participants would be useful

Mitigation Would be Minimal

- Sales only clear at price acceptable to buyer, hence the need for seller mitigation in the forward market would be minimal
- In any case, sellers would not be expected to bid marginal costs, but would be expected to bid no lower than the price they could receive in the spot market, a future auction or a bilateral sale making mitigation of sellers very difficult to implement
- Monopsony mitigation should be considered only for those instances in which the NYISO has identified the potential exercise of market power pursuant to agreed-upon criteria

Using a Floor in Spot and Forward Capacity Markets to Mitigate Monopsony Power

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- Monopsony mitigation needs to be more fully developed and analyzed as it is complicated in practice
- A price floor would apply to new capacity that is offered in the forward market
- A price floor and self-scheduling prohibition may apply in all other capacity auctions to all capacity not cleared in the forward capacity auction
- These provisions would require associating the sell obligation with new physical capacity – e.g., an entity selling 500 MW of capacity in the forward auction would have the right to identify 500 MW of new capacity that was exempt from any monopsony mitigation in monthly capacity auctions

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Fit Between Models and Objectives of Market Participants

Summary of Key Features Needed to Define Market

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Review Objectives

- Is facilitating a forward market that primarily provides price hedges to the spot capacity market sufficient?
- Is the objective to leave items such as the spot capacity market and RNA process in place and functioning in same general way as currently?
- Is there an expectation that the forward market will go further and provide an assurance of sufficient physical capacity?
- What objectives, if any, would not be satisfied by this forward capacity market structure?
- Is it worthwhile to analyze this *vis-à-vis* the CRAM objectives?

Summary of Key Features Needed to Define Market

- Product definition – unidentified or identified capacity
- Eligibility
- Contract or tariff
- Other undertaking including bidder certifications as to independence
- Performance penalties if different from liquidate at spot auction price
- Portion to be mandatory
- Lead time and contract term
- Credit requirements
- New capacity only
- Bidding rules
- Auction frequency
- Mitigation