

Updated Proposal for Allocating Scarce Interconnection Queue Positions in Forward Capacity Auctions

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April 10, 2008

Introduction

In November 2007, we presented a proposed solution for allocating scarce interconnection rights to generation resources through sub-auctions in the FCA so that the most efficient resource would receive the interconnection. We envisioned that the auction and sub-auction would function as follows:

1. Potential new plants compete in the FCA on the basis of their anticipated income and total costs, including the uncontested costs of connecting to the grid.
2. The FCA clears at a price that leaves only the most efficient plants.
3. If any of these winning plants need to use the same connection, the contested connection is allocated to the most efficient plant in the sub-auction.
4. At the end of the process, this additional competition insures that only the most efficient new plants are added to the grid.

New Refinements and Modifications

- Over the course of several meetings, others have suggested modifications and raised questions that have led to refinements and clarifications to address:
 - Long-lead time plants
 - Energy-only, export plants
 - Different sized plants
 - Multiple connections with increasing connection costs

Proposed Approach

- We will review the allocation problem and our recommended approach, addressing many of the comments made and incorporating additional mechanisms to eliminate the deficiencies.
- This iteration is still not definitive, and we welcome proposed improvements that will address likely real-world scenarios.

Guiding Principles

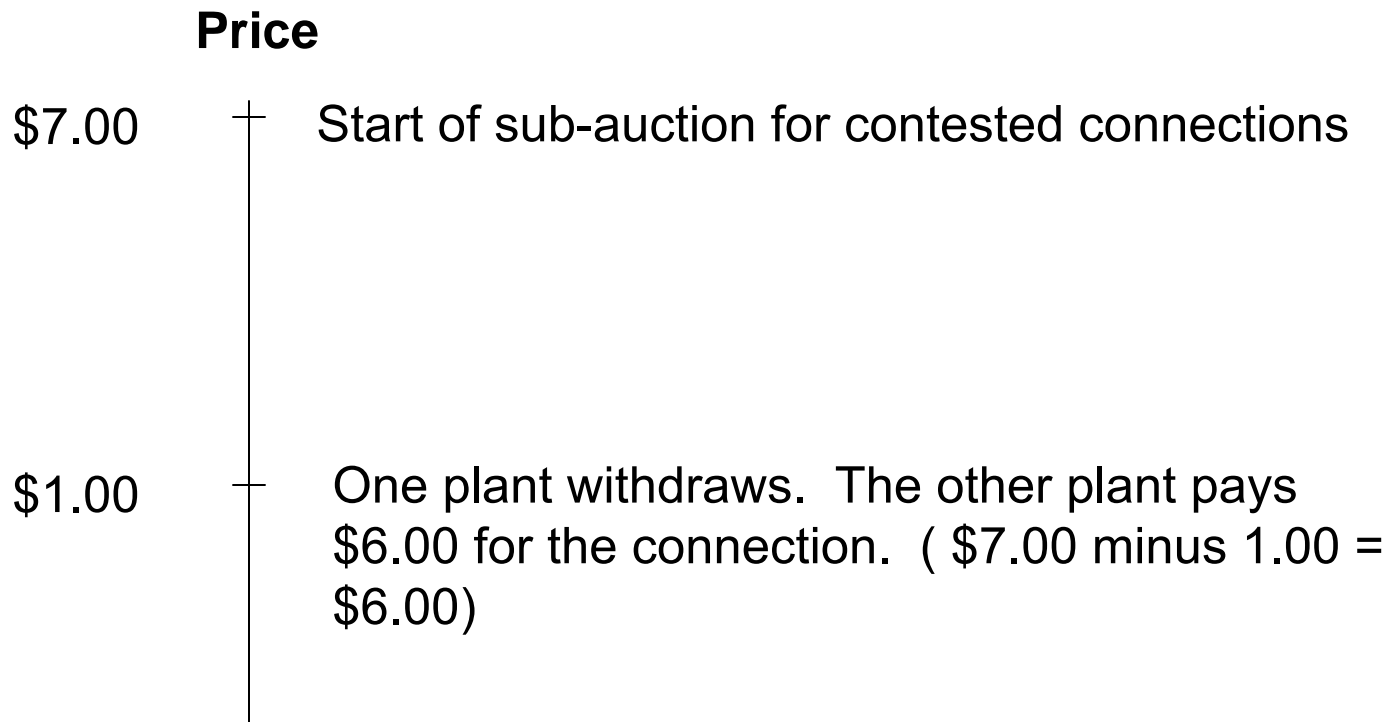
- Allocate connections to the most efficient resources through sub-auctions that reveal competitive value.
- Assess an additional payment from sub-auction winners above actual interconnection costs.
- Encourage maximum competition (*e.g.*, long-lead time, different-size resources).
- Make actual connection costs as transparent and predictable as possible.
- Pause the primary auction to conduct sub-auctions when the sub-auction results could increase the amount of offered capacity.

Simple Sub-auction Example

Assume:

FCA clears at \$7.00

Two plants seek the same 150MW connection



We Refined our Original Proposal To

1. Encourage investment in plants that have longer construction periods,
2. Include energy-only and export plants in a non-discriminatory fashion,
3. Address bilateral trading,
4. Assure the equitable treatment of existing queue holders,
5. Provide for plants of different sizes seeking the same connection, and,
6. Allocate connections when a particular site can accommodate multiple connections but at escalating costs for each successive connection.

Encouraging Investment in Plants with Longer Construction Periods

If a long-lead-time project has met specified construction milestones, ISO would allocate the interconnection on an indivisible basis.

Example: The long-lead-time project seeks to connect 1400 MW.

Any projects seeking to interconnect at that location must pay for the total 1400 MW of connection capability. The long-lead-time project would participate in the next FCA only to the extent necessary to allocate interconnection rights. Competitors may include other long-lead-time projects that also achieved the specified construction milestones or a group of smaller, shorter-lead-time projects that could use and pay for the entire, indivisible 1400 MW connection.

The project that remained in that sub-auction would be awarded the connection (which would be reserved for the project's expected completion date) and would pay the difference between the Capacity Clearing Price and the closing price in the sub-auction as an additional fee for the connection.

Encouraging Investment in Plants with Longer Construction Periods

- This method will not make meeting the ICR uncertain or interfere with smooth operation of the FCA.
- The sub-auction for the long-lead-time plants will take place before other sub-auctions.
- The FCA will pause when the offered capacity excluding the contested connection equals ICR – *i.e.*, assuming that the long-lead time plant wins the connection.
- If the long-lead time plant wins the sub-auction, the cleared capacity equals ICR, and the FCA closes.
- In the unlikely event that the long-lead-time plant does not win the connection, the FCA will have more offered capacity than ICR and will, therefore, continue.

Provision for Energy-only and Export Plants

- For interconnection purposes only, energy-only/export plants would be treated like new plants that intended to participate in the FCA.
- ISO determines whether the energy-only/export plant seeks the same limited connection as an FCA-participating plant.
- Sub-auction for connection sought by energy-only/export plant will be conducted before other sub-auctions.
- If the FCA-participating plant remains in the primary auction when the total capacity offered equals ICR without including the contested connection, the FCA will pause.
- If the energy-only/export plant wins the sub-auction and the right to interconnect, the offered capacity in the FCA equals ICR, and the FCA will close.
- If the new energy-only/export plant does not win the connection, there would be a surplus of capacity over the ICR, and the auctioneer would resume the auction until the surplus supply had been eliminated.

Bilateral Trading

- Some suggested that sub-auctions could be replaced with bilateral trades.
- There must always be a fail-safe mechanism, however, to resolve interconnection overlaps if there is no agreement.
- We propose to permit bilateral agreements between parties with overlapping interconnection impacts, but within the framework of the sub-auction mechanism.
- The sub-auction mechanism places all parties on an equal footing so that they can compete for a scarce resource on the basis of efficiency and costs, and will permit efficient bilateral agreements.

Treatment of Existing Queue Holders

Because payments that may result from the connection rights sub-auctions are uncertain, we recommend that those payments be placed in a single fund to be used solely to provide limited compensation to those projects with interconnection overlap impacts that

- remained in the auction at the clearing price in the FCA,
- did not win the connection in the sub-auction,
- had acquired a queue position prior to the effective date of the new interconnection rules, and
- had a superior queue position to the project that won the connection in the sub-auction. Only grandfathered projects with queue positions would be eligible for any compensation.

Compensation would cover only those reasonably incurred direct costs that were necessary to acquire or to maintain the project's queue position.

We do not seek to have these funds returned to load, but they should be used in a way that benefits the New England electrical system, including both load and supply.

Competition by Different Size Plants

The sub-auction should be structured to permit projects of different sizes to be considered on a comparable basis (e.g., 175 MW and 200 MW projects competing for a 200 MW connection).

The sub-auction for the connection could be in terms of the price per MW or the total cost of the 200 MW connection.

The per MW approach appears to permit greater competition with fewer complications.

For purposes of meeting ICR, if the 200 MW connection is contested by different sized plants, the size of the smaller plant should be used in the auction supply calculation – not the size of the connection.

Competition by Different Size Plants (cont.)

In this example, ISO would treat the connection as supplying 175 MW and would pause the auction when this supply equaled ICR.

If the 200 MW plant won the sub-auction, the FCA would continue until the surplus over ICR was eliminated.

Like the sub-auction for the long-lead-time plant and the energy-only/export plant, this sub-auction will be held before the general sub-auctions.

Allocating Multiple, Increasing-cost Connections

Two scenarios:

- “Uncontested” – the number of plants seeking to connect is equal to or less than the number of available connections.
- “Contested” – the number of plants seeking to connect is more than the number of available connections.

Only contested connections require a sub-auction following the FCA.

The Uncontested Multiple Connection

Example:

- Three plants seek to connect at a location where all three can connect at a steeply increasing cost per plant.
- ISO qualifies exactly three plants that seek to connect at this location.
- Connection is uncontested.
- ISO announces it will charge an average of the three connection costs to each of the three plants, thus paying the entire costs of the three connections with no surplus.

If all qualified plants accept the average cost of the connection, each will be connected at this average connection cost.

If only two of the plants win the FCA, the two plants will be connected at the lower average cost of two connections.

The Contested Multiple Connection

Example:

- At this location, there are a maximum of three connections that can be made at a steeply increasing cost per connection.
- The first connection costs \$10,000; the second costs \$50,000; and the third costs \$100,000.

Two methods can be used to allocate contested multiple connections:

- ISO can provide some guidance on the estimated costs of establishing the connections.
- ISO cannot provide any cost guidance, but investors make their own estimates of connection costs, without guidance.
- The problem and the possible inefficiencies caused by plants having to choose a location before knowing the connection costs exists under the present queuing system and is not new to this sub-auction proposal.

Contested Multiple Cost Connections With ISO Cost Information

If ISO could provide non-binding cost estimates, it could hold an informational clock auction for contested connections at or before qualification.

Example:

- Four or more plants seek to locate where only three connections are possible, and ISO holds an informational ascending-clock auction.
- The first price in the auction would be \$10,000 (the approximate cost of establishing only one connection). If only one plant was willing to pay \$10,000, the connection would be uncontested at \$10,000 and the other three plants could seek other locations.

Contested Multiple Cost Connections With ISO Cost Information (cont.)

- If all four plants are willing to pay a low connection price, ISO would then announce the second price of \$30,000 (the average cost of the first two connections) to determine how many plants will purchase a connection at that price.
- If no plant wanted to pay \$30,000, then there would be only one connection with a starting auction price of \$10,000 in the sub-auction in which the four plants would participate if they were FCA winners.
- If all four plants are willing to pay \$30,000, the auctioneer would raise the price to the average cost of the three connections or \$53,000, and if all four plants accepted this, \$53,000 would be the starting price in the contested auction.

Contested Multiple Cost Connections With ISO Cost Information (cont.)

- If no plant would pay as much as \$53,000, there would only be two connections offered in the subsequent sub-auction and the sub-auction starting price would again be the average cost of the first two connections or \$30,000.
- At this point in the qualification process, the plants would not have purchased anything but they could expect to pay at least the minimum auction starting price if they were among the winners of the FCA and then won the subsequent sub-auction, or to pay exactly the average cost if the connections were uncontested after the FCA.

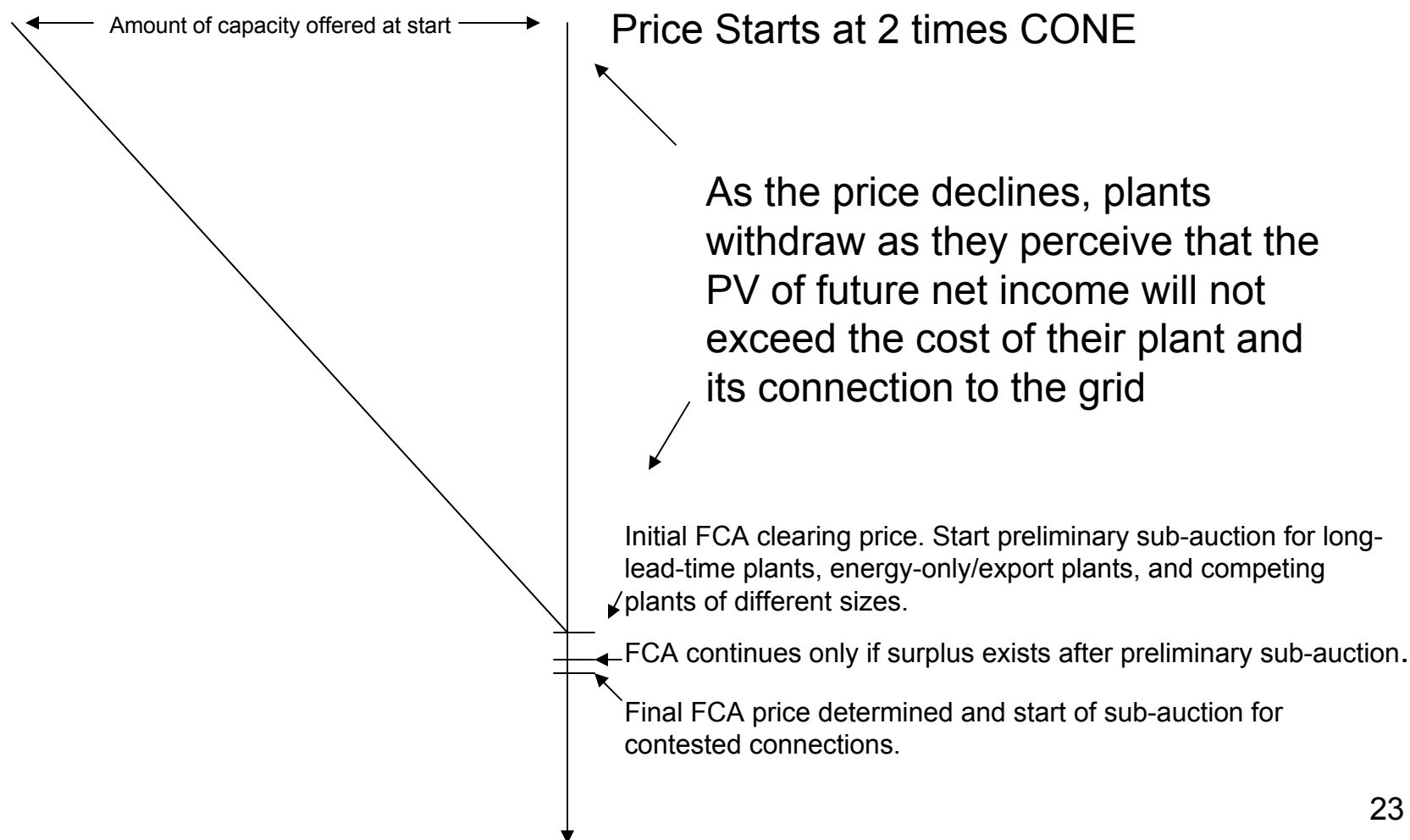
Contested Multiple-increasing Cost Connections Without ISO Cost Information

- If ISO does not provide cost guidance, the approach will basically be the same but without the informational auction.
- Investors will make their own estimates of the connections costs at particular locations.
- ISO would identify how many other plants sought to connect at a particular site.
- Investors would know that the costs of a connection at that site would be steeply increasing with the number of connections.
- Each successful project would pay the average cost of the number of connections allocated.
- This method could work almost as well as the informational auction approach, if the projects were able to estimate the costs of the connections.

Good Cost Estimates Increase Efficiency

- To the extent the plants do not have good information about the costs of the connections, they are less able to identify the best locations or to know when to withdraw from the FCA.
- Without accurate cost information in advance of the FCA, projects may be surprised by the connection cost after having won in the FCA, but this concern exists to a significant extent in the current system and can only be prevented by making the costs known before the FCA.

Summary of FCA with Sub-auction Allocation of Scarce Connections



Price at Different Stages of the FCA

The Auction pauses at this initial FCA clearing price to conduct preliminary sub-auctions for long-lead-time plants, energy-only/export plants, and competing plants of different sizes. The supply exactly meets ICR under the most likely FCA outcomes. If the long-lead-time, export/energy-only, or smaller of different-size plants do not win, the auction will have a surplus and will continue.

FCA continues only if surplus exists after preliminary sub-auction.

Final FCA price determined and start of sub-auction for contested connections. At this point, the ICR is exactly supplied. The sub-auction only determines which are the best plants to supply the capacity over the scarce connections.