

Transmission Congestion Contracts Manual Attachments

[Attachment H](#) Auction Example
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This document was prepared by:
NYISO TCC Market Operations

New York Independent System Operator
[10 Krey Blvd](#)~~3890 Carman Road~~
[Rensselaer, NY 12144](#)~~Schenectady, NY 12303~~
(518) 356-6060
www.nyiso.com

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Attachment H. Auction Example

The following example is for purposes of illustration. This example illustrates the application of scaling factors¹, and the fact that Market Participants may bid to buy, or offer to sell TCCs in any single round of the Centralized TCC Auction or in multiple rounds as desired. For this example, assume that ~~the Transmission Owners have decided that the One-Year TCC Sub-Auction~~ Centralized TCC Auction Stage 1 will consist of four rounds, and that one-fourth of the system transfer capability that is available to support TCCs purchased in ~~Stage 1 of the Sub-Auction~~ Centralized TCC Auction will be used to support TCCs purchased in each of those rounds.

Round 1

In the first round of ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction (round 1), suppose that 100 Megawatts (MWs) are feasible ~~Residual TCCs~~ from location X to location Y ~~are available for sale in Stage 1 of the Auction~~, and four (4) ~~B~~ bids have been received by the NYISO for TCCs from location X to location Y, as follows:

Company A Bids for 50 TCCs @ \$5.00/TCC
 Company B Bids for 50 TCCs @ \$4.00/TCC
 Company C Bids for 20 TCCs @ \$2.00/TCC
 Company D Bids for 10 TCCs @ \$1.00/TCC

~~For the sake of simplicity, assume in this example that precisely 100 TCCs from location X to location Y will actually be allocated feasible in Stage 1 of the Auction~~ Centralized TCC Auction, although in practice, the number of TCCs that would be available from location X to location Y between those locations in ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction would depend on the number of TCCs that were ~~allocated~~ sold between other locations on the transmission system, and could actually change from round to round within ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction. For the sake of simplicity, assume in this example that precisely 100 TCCs between those locations will actually be feasible in the Centralized TCC Auction.

Since one-fourth of the system transfer capability that can be used to support TCCs purchased in ~~Stage 1 the One-Year TCC Sub-Auction~~ Centralized TCC Auction is available to support TCCs purchased in round 1, the number of TCCs specified in each of the ~~B~~ bids above is multiplied by a scaling factor of four:

<u>Company</u>	<u>TCC Bid</u>	<u>Scaled TCC Bid</u>	<u>Bid Price</u>
<u>A</u>	<u>50</u>	<u>200</u>	<u>\$5/TCC</u>
<u>B</u>	<u>50</u>	<u>200</u>	<u>\$4/TCC</u>
<u>C</u>	<u>20</u>	<u>80</u>	<u>\$2/TCC</u>
<u>D</u>	<u>10</u>	<u>40</u>	<u>\$1/TCC</u>

¹ Scaling factors provide a mechanism to distribute offered system capacity across multiple Auction rounds

Company	Scaled TCC Bids	Bid Price
A	200	\$5/TCC
B	200	\$4/TCC
C	80	\$2/TCC
D	40	\$1/TCC

Since 100 TCCs are available from location X to location Y, Company A would be the only company that would receive TCCs in the current round, because its **Bbid** is the highest **Bbid**, in \$/TCC terms, and its scaled **Bbid** for 200 TCCs exceeds the 100 TCCs available. Company A would be the winning bidder and the Market-clearing Price (MCP) for TCCs in this round would be set by Company A's **Bbid** of \$5/TCC.

However, Company A would not actually be awarded 100 TCCs. Each winning **Bbid** in each ~~Stage 1 Centralized TCC Auction Sub-Auction~~ round will be divided by the scaling factor used for that round to determine the number of TCCs that would be awarded to each winning bidder. Thus, Company A's winning **Bbid** for 100 scaled TCCs would be converted into an actual award of $100 \text{ TCCs} / 4 = 25 \text{ TCCs}$. Company A would be awarded 25 TCCs at the conclusion of round 1, at a price of \$5/TCC.

Round 2

Three-fourths of the system transfer capability that can be used to support TCCs purchased in ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction will still be available to support TCCs purchased after round 1. So, if one-fourth of all the system transfer capability that can be used to support TCCs purchased in ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction is to be available to support TCCs purchased in the second round of ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction (round 2), then one-third of the system transfer capability that is still available following round 1 must be available to support TCCs purchased in round 2 (since $(1/4) / (3/4) = 1/3$); ~~c~~ Consequently, the scaling factor for round 2 would be three. ~~We have assumed that 75 MW TCCs will now be available feasible~~ from location X to location Y in round 2, once the 25 TCCs awarded to Company A in round 1 have been taken into account. Bids (including scaled **Bbids**) into round 2 for TCCs between these locations are given below.

Company	TCC Bid	Scaled TCC Bid	Bid Price
A	30 20	90 60	\$6 4/TCC
B	50	150	\$5. 50 50/TCC
C	20 30	60 90	\$6 3/TCC
D	10	30	\$2/TCC

In addition, Company M offers to sell 15 TCCs from location X to location Y into round 2 at an offer price of \$5/TCC. -As with the bids to purchase TCCs, the offer to sell TCCs is scaled by the same scaling factor.

Company	TCC Offer	Scaled TCC Offer	Offer Price
M	15	45	\$5/TCC

~~Since 75~~ 120 TCCs are now available from location X to location Y (the balance of 75 TCCs remaining after round 1 plus the additional 15 TCCs offered by Company M at a price of \$5/TCC into round 2, scaled up to 45 TCCs by applying the scaling factor for round 2).
 Company ~~A~~ C, with a bid of \$6/TCC, would be awarded 90 TCCs (the actual awarded TCCs will be scaled down to 30 TCCs as the scaling factor of 3 is applied).
 Company B, with a bid of \$5.50/TCC, would be awarded the remaining 30 TCCs (the actual awarded TCCs will be scaled down to 10 TCCs as the scaling factor of 3 is applied). The MCP for TCCs in this round would be set by Company B's bid of \$5.50/TCC.
 Company M sold all 45 TCCs offered for sale (the actual sold TCCs will be scaled down to 15 TCCs as the scaling factor of 3 is applied) as the offer price of \$5/TCC was less than the Market-clearing Price for the round, and the demand for TCCs at that price exceeded the supply available for that round.

Following the application of the scaling factor applied to round 2 of the Centralized TCC Auction, 50 MWs will be feasible from location X to location Y and will be available for sale in rounds 3 and 4 (75 TCCs (balance of available TCCs from round 1) + 15 TCCs sold after scaling TCCs sold by Company M - 40 TCCs awarded after scaling (30 TCCs awarded to Company C and 10 TCCs awarded to Company B)).

~~again would be the only company that would receive TCCs in this round, because its Bid is the highest Bid, in \$/TCC terms, and its scaled Bid for 90 TCCs exceeds the 75 TCCs available. Company A would be the winning bidder, and the MCP for TCCs in this round would be Company A's Bid, which has increased to \$6/TCC in this round.~~

~~However, Company A's winning Bid for 75 scaled TCCs would be converted into an actual award of $75 \text{ TCCs} / 3 = 25 \text{ TCCs}$. Company A would be awarded 25 TCCs at the conclusion of round 2, at a price of \$6/TCC.~~

Round 3

Half of the system transfer capability that ~~is~~ was originally available to support TCCs purchased in ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction remains available after rounds 1 and 2. Therefore, if one-fourth of all of the system transfer capability that can be used to support TCCs purchased in ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction is to be available to support TCCs purchased in the third round of ~~Stage 1 the Sub-Auction~~ Centralized TCC Auction (round 3), then one-half of the system transfer capability that is still available following round 2 must be available to support TCCs purchased in round 3 (since $(1/4) / (\frac{1}{2}) = 1/2$), making the scaling factor for round 3 equal to two. ~~We have assumed that 50 MWs TCCs now~~ will be feasible ~~available~~ from location X to location Y in round 3; once the ~~50~~ TCCs awarded to Company A in rounds 1 and to Company C and Company B in round 2 and the TCCs sold by Company M in round 2 have been taken into account. Bids (including scaled ~~B~~ bids) into round 3 for TCCs between these locations are given below.

Company	TCC Bid	Scaled TCC Bid	Bid Price
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AB	4025	2050	\$5/TCC
BC	4010	8020	\$6/TCC
CD	4040	4080	\$2/TCC
DE	4020	4020	\$7/TCC

In addition, Company A offers to sell, for \$5.50/TCC, 10 of the TCCs acquired in round 1. As with the bids to purchase TCCs, the offer to sell TCCs is scaled by the same scaling factor.

<u>Company</u>	<u>TCC Offer</u>	<u>Scaled TCC Offer</u>	<u>Offer Price</u>
A	10	20	\$5.50/TCC

70 TCCs are now available from location X to location Y (the balance of 50 TCCs remaining after round 2 plus the additional 10 TCCs offered by Company A at a price of \$5.50/TCC into round 3, scaled up to 20 TCCs by applying the scaling factor for round 3).

Company E, which had the highest bid (\$7/TCC), is awarded the scaled amount of 40 TCCs (the actual awarded TCCs will be scaled down to 20 TCCs as the scaling factor of 2 is applied). Company C, with a bid of \$6/TCC, is awarded the scaled amount of 20 TCCs (the actual awarded TCCs will be scaled down to 10 TCCs as the scaling factor of 2 is applied). Since the bids submitted by Company B and Company D were less than the offer price submitted by Company A, only 10 of the 20 scaled TCCs offered by Company A were sold in this round (the actual sold TCCs will be scaled down to 5 TCCs as the scaling factor of 2 is applied). The MCP for TCCs in this round would be set by Company A’s offer of \$5.50/TCC.

~~Since 50 TCCs are available between these locations, Company D, which now has the highest Bid, would be awarded 20 scaled TCCs, and Company B, which now has the second highest Bid, would receive the next 30 scaled TCCs. The MCP for TCCs in this round would be \$6/TCC, set by Company B’s Bid.~~

~~However, the winning bids would be converted into actual awards of $20 \text{ TCCs} / 2 = 10 \text{ TCCs}$ to Company D, and $30 \text{ TCCs} / 2 = 15 \text{ TCCs}$ to Company B, each at a price of \$6/TCC.~~

Round 4

All of the system transfer capability available to support TCCs purchased in ~~Stage 1~~ the Sub-Auction Centralized TCC Auction that has not been previously used to support TCCs purchased in rounds 1, 2 and 3 will be available to support TCCs purchased in the fourth round ~~of Stage 1~~ (round 4), so the scaling factor for round 4 would be one. In other words, there would be no scaling in round 4. ~~We have assumed that 25 TCCs MWs now~~ will be ~~available~~ feasible from location X to location Y in round ~~42~~, once the ~~75~~ TCCs purchased and sold awarded in rounds 1, 2, and 3 have been taken into account. Bids into round 4 for TCCs between these locations are given below. (Note that the companies bidding and offering in each round has varied ~~Companies A and D have dropped out of the Auction at this point and Company E has entered the Auction,~~ illustrating that there is no requirement for bidders participants in earlier rounds to Bbid or offer into later rounds or for bidders participants in later rounds to Bbid or offer into earlier rounds.)

Company	TCC Bid	Bid Price
B	30	\$5/TCC

C	20	\$5/TCC
E	20	\$10/TCC

Since 25 TCCs are available between these locations, Company E, which now has the highest Bid, would be awarded all 20 TCCs for which they bid, and Companies B and C, are tied for the second highest Bid. In this case, the remaining award of 5 TCCs would be split between Companies B and C, which are tied for the second highest bid, in proportion to the number of TCCs for which they bid for. As a result, Company B would be awarded 3 TCCs and Company C would be awarded 2 TCCs. The MCP for TCCs in this round would be \$5/TCC, set by Company B's and Company C's Bids.

Stage 1 One-Year TCC Sub-Auction Centralized TCC Auction Summary

TCCs awarded from location X to location Y in Stage 1 the One-Year TCC Sub-Auction Centralized TCC Auction and the prices paid for those TCCs are as follows:

Company	Round	TCCs Awarded	Price
A	1	25	\$5/TCC
A	2	25	\$6/TCC
B	3	15	\$5.50/TCC
B	4	3	\$5/TCC
BC	4	3	\$5/TCC
C	2	30	\$5.50/TCC
CD	3	10	\$5.50/TCC
C	4	2	\$5/TCC
E	4	20	\$5.50/TCC
E	3	20	\$5.50/TCC
E	4	20	\$5/TCC

TCCs sold from location X to location Y in the Centralized TCC Auction and the prices paid to the seller for the sale of those TCCs are as follows:

Company	Round	TCCs Sold	Price
A	3	5	\$5.50/TCC
M	2	15	\$5.50/TCC

In this example, all revenues from this Auction would be paid to the holders of the 100 Residual TCCs from location X to location Y that released those TCCs for sale into Stage 1 the One Year TCC Sub Auction of the Auction.

Stage 2 Six-Month TCC Sub Auction

In the first round of Stage 2 the Six Month TCC Sub Auction (round 5), assume that Company F, which holds 50 TCCs from location X to location Y (that it received as a result of a Grandfathered transmission agreement) releases those TCCs for sale into the Auction. In addition, suppose that Company E releases the 20 TCCs from location X to location Y that it purchased in Stage 1 the One Year TCC Sub Auction for sale into round 5 of the Auction, so that a total of 70 TCCs from location X to location Y have been offered for sale into round 5. Although it is possible that more or fewer than 70 TCCs from location X to location Y will actually be sold, depending on Bids made for TCCs between other locations, assume for purposes of the example that only 70 TCCs between these two locations are actually sold in round 5.

Bids into round 5 are as follows:

Company	TCC Bid	Bid Price
B	40	\$5/TCC
C	40	\$/TCC
G	40	\$9/TCC

Company G, the highest bidder, would be awarded 40 TCCs, and Company B, the second highest bidder, would be awarded the remaining 30 TCCs. The MCP in round 5 would be Company B's Bid, \$5/TCC, so the winning bidders in round 5 would pay \$5/TCC for the TCCs they are awarded in round 5. Companies E and F would be paid \$5/TCC for each TCC from location X to location Y that they offered for sale into the Auction.

Subsequent rounds in Stage 2 the Six Month TCC Sub Auction would proceed in the same manner as round 5.