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Capacity Auction Design Memo 3.0

Tie Break Methodology

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Objective

The objective of enhancing the tie break methodology for the Capacity Auction is to ensure capacity is awarded as equitably as possible when two or more participants are tied in price for the last available quantity of capacity in a zone or virtual zone.

Background

In the capacity auction clearing optimization, a tie break can occur when two or more offers are submitted at the same price but the remaining capacity to be allocated cannot satisfy all tied offers. In these instances, a set of criteria must be used, the tie-break methodology, to determine how the capacity is awarded to the tied offers.

In the past, stakeholders have identified issues with the existing tie-break methodology, including that it doesn't allocate capacity to competing offers based on quantity or other market-based criteria, but rather rewards the participant who submitted the offer the fastest (earliest time stamp). As part of the 2025 Capacity Auction Enhancements work plan, the IESO agreed to conduct a review of the existing tie-break methodology with the objective of determining if a more equitable solution, one that encourages participants to submit the most competitive offers possible, could be implemented.

Existing Design

In the current auction, if the IESO receives two or more offers at the same price for the last available quantity of capacity, the offer with the earlier time stamp is selected as the successful capacity auction offer. The time stamp refers to the time recorded by Online IESO when a participant submits or revises an offer during the 2-business day offer submission window. In some cases, this methodology may result in a single participant clearing all available capacity in a given zone even if multiple participants are tied for the last available quantity.

Post-Implementation Design

The IESO is aiming to design a revised tie-break methodology, with the goal of considering all tied offers and allocating capacity amongst them as equitably as possible.

The proposed methodology will allocate capacity to the tied offers in sequence, according to the three-step solution outlined below. Where the methodology references an offer, this means an offer lamination. Where a participant has submitted multiple offer laminations, the quantity of any given offer lamination is equal to the quantity that is incremental to its previous, lower priced lamination.

Revised Tie Break Methodology Steps

1. Divide the remaining available capacity by the number of offers involved in the tie, rounded down to one decimal place, to determine an equal share of capacity per offer.
    a. For any offer that is less than or equal to the equal share, award capacity equal to the offer quantity.
    b. For any offer flagged as full and for a quantity greater than the equal share, no capacity is awarded, and the offer lamination will not be considered further in the tie break.
    c. For any offer flagged as partial and for a quantity greater than the equal share, award capacity equal to the equal share.

    After completion of this step, full offers will either be fully awarded or eliminated from further consideration.

2. If there continues to be capacity remaining after step 1, award each tied offer flagged as partial that was not fully allocated in step 1 a proportional share of the remaining capacity, rounded down to the nearest 1 decimal place. Each offer's proportional share of the remaining capacity will be determined based on the remaining quantity of the tied offer after allocating the equal share in step 1 relative to the remaining quantity of all tied offers after step 1.

3. If there continues to be capacity unallocated after step 2, it shall be awarded using the following steps:
    a. Rank the tied offer from earliest to latest time stamp, which is the time recorded by Online IESO when a capacity auction participant submits or revises an offer during the 2-business day offer submission window.

    b. Award the remaining capacity to the offer with the earliest time stamp. If the offer with the earliest time stamp is fully met and there is still capacity remaining, continue allocating capacity in rank order.

Where there is capacity still unallocated after completion of these three steps, that remainder will not be allocated.

Tie Break Example

Consider a simple example where six resources are being offered, each with 1 lamination in their offer structure. These offers are all in the same zone with 100 MW available to clear in the zone.

Resource	Offer Price ($)	Offer Quantity (MW)	Full/Partial
A	50	25	Partial
B	15	5	Full
C	30	20	Partial
D	50	5	Full
E	10	35	Partial
F	50	40	Partial

First, offers are stacked and capacity is awarded in order from lowest to highest offer price, respecting the zonal limit of 100 MW.

Resource	Offer Price ($)	Offer Quantity (MW)	Full/Partial	Status
E	10	35	Partial	Accepted
B	15	5	Full	Accepted
C	30	20	Partial	Accepted
A	50	25	Partial	Tied
D	50	5	Full	Tied
F	50	40	Partial	Tied

The engine optimization will fulfill the first three offers for a total of 60 MW, leaving 40 MW to be allocated in the zone. There are three remaining offers totaling 70 MW that are tied at the same price and cannot all be filled with the remaining capacity.

Step 1

The available capacity is divided by the number of offers in the tie break and rounded down to one decimal place to give the equal share of capacity per offer. In this example, the equal share is 40 MW divided by 3, which is 13.3 MW. If there are any offers that are equal to or less than 13.3 MW, they are allocated their offered capacity. If there are any partial offers greater than the equal share, they are awarded the equal share.

Resource D offered 5 MW, which is less than the equal share determined in step 1, therefore, Resource D is allocated the full 5 MW indicated in the offer quantity. The other two offers are greater than 13.3 MW, so they are each awarded 13.3 MW. That leaves 8.4 MW unallocated, which will then move to step 2.

Resource	Offer Price ($)	Offer Quantity (MW)	Full/Partial	Step 1 Allocation (MW)
A	50	25	Partial	13.3
D	50	5	Full	5
F	50	40	Partial	13.3

Step 2

The remaining tied partial offers are awarded their proportional share of the capacity remaining after step 1. The proportion is determined using the following formula:

$$\frac{\text{Remaining Offer Quantity after Step 1}}{\text{Total Remaining Offer Quantity of Remaining Partial Offers}} \times \text{Remaining Capacity to be Awarded}$$

Each offer is awarded the calculated proportion of the available capacity, rounded down to the nearest 1 decimal place. In this example, there is 8.4 MW of remaining capacity and 2 partial offers to consider.

Resource	Offer Price ($)	Remaining Offer Quantity (MW) After Step 1	Proportion (MW)	Step 2 Allocation (MW)
A	50	11.7	2.559375000000000	2.5
F	50	26.7	5.840625000000000	5.8
TOTAL	**-**	**38.4**	**8.4**	**8.3**

After the proportional allocation, 0.1 MW remains unallocated due to the rounding down. This remaining capacity will then be allocated using step 3 of the tie break solution.

Step 3

Offers are ranked from earliest to latest time stamp and capacity is awarded in sequence:

Resource	Offer Price ($)	Remaining Offer Quantity (MW) After Step 2	Time Stamp	Rank	Step 3 Allocation (MW)
A	50	9.2	11/27/2024 9:45:32 AM	1	0.1
F	50	20.9	11/27/2024 3:30:55 PM	2	0

Resource	Offer Price ($)	Remaining Offer Quantity (MW) After Step 2	Time Stamp	Rank	Step 3 Allocation (MW)
TOTAL	-	**38.4**		**-**	**0.1**

In this example, all 40 MW of capacity was allocated through the three-step tie break solution. The final capacity awarded is as follows:

Resource	Offer Price ($)	Offer Quantity (MW)	Full/Partial	Step 1 Allocation (MW)	Step 2 Allocation (MW)	Step 3 Allocation (MW)	Final Allocation (MW
A	50	25	Partial	13.3	2.5	0.1	15.9
D	50	5	Full	5	0	0	5
F	50	40	Partial	13.3	5.8	0	19.1
TOTAL	**-**	**70**	**-**	**31.6**	**8.3**	**0.1**	**40**

Market Rule/Market Manual Impacts

Changes will be required to be made to the following Market Rules and Market Manuals:

- Market Rules, Ch. 0.7 s. 18
- Market Manual 0.12: Capacity Auctions, s. 4

Note: The documents referenced under this section are based on the recently approved Market Renewal Program (MRP) Final Alignment versions of the market rules and market manuals.

Next Steps

For these changes to be in effect for the 2025 Capacity Auction (expected to be held in November 2025), amendments need to be made to the above-noted market rules/manuals (as applicable). Stakeholders will have an opportunity to review the proposed amendments and provide feedback, per the standard market rule/manual amendment process, and timing will be communicated via the Capacity Auction Enhancements engagement. Pending stakeholder feedback, the IESO will aim to implement these changes ahead of the 2025 Capacity Auction.