JUNE 25, 2024

Capacity Auction Enhancements

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Today's Discussion

- Stakeholder feedback from May 23, 2024 engagement
- Updates on 2024 Capacity Auction enhancements
  - Market Rule & Manual Amendments
  - Reference Price Review
  - Virtual Zonal Limits (Niagara, West) Review

Summary of Stakeholder Feedback (May 2024 session)

May Stakeholder Feedback

- **Feedback**: Support was expressed related to both enabling participation of wind and solar resources in 2025, and performing a demand curve review.

2024 Enhancements Updates: Market Rule & Manual Amendments

Market Rule & Manual Amendments

Administrative Topic	Market Rule or Manual	Updates and Next Steps
Performance Adjustment Factor (PAF)	MM 12: Capacity Auctions	- No feedback received from May 2024 engagement - June 26: Draft Market Manuals will be posted for review as part of the baseline process - Early August: Market Manuals effective
Settlements	MM 5.5: Physical Markets Settlement Statements	
Import Operations	MM 4.2: Submission of Dispatch Data	
Cleared ICAP	MR Ch. 7	Market Rules: A Technical Panel member provided feedback regarding the applicability of the Cleared ICAP formula to all capacity auction participants; subsequently discussed at the June 11 TP meeting Upcoming: - July 16: Technical Panel Vote to Recommend - August: IESO Board Approval - September: Market Rules effective
Availability Charge	MR Ch. 9	

Technical Panel Feedback on Market Rule Amendments

- A technical panel member asked whether the proposed cleared ICAP market rule amendment should be modified to address how some resource types' capacity qualification methodologies do not include an availability de-rating factor (ADF)
  - Hourly demand response and system-backed capacity imports are not subject to an ADF
- The current proposed amendment lays out a single formula to calculate cleared ICAP for all resource types that includes the ADF component
- IESO is reviewing this feedback and will respond prior to the July 16 Technical Panel meeting

Availability Charge Market Rule Amendment

- For the Summer 2024, Winter 2024/25 obligation periods, availability charges will be applied to HDR resources as they have always have. On days when a standby notice has been issued, the charge applies when HDR resources submit bids below their capacity obligation from-day ahead until real-time. On days when no standby notice has been issued, the charge applies when HDR resources submit bids below their capacity obligation from-day ahead until 7 a.m. of the dispatch day. The charges that are applied on days when no standby notice has been issued will be corrected through the re-settlement process at a later date but no later than July 2025. Participants are not required to submit Notices of Disagreement (NODs) to trigger this correction. Otherwise, NODs can be submitted according to normal protocol, if there is disagreement with other applications of this charge or any other that has been applied.

Availability Charge Market Rule Amendment

- This does not change the obligations that all market participants have under chapter 7, section 3.3.8 to submit energy market bids and offers to accurately reflect their resources' capability each day.

2024 Enhancements Updates: Reference Price Review

Reference Price Review

Overview: During the May engagement, the IESO detailed two approaches under consideration for updating the reference price for the 2024 Capacity Auction:

1. Update the reference price for inflation only
2. Update the reference price/technology to better reflect the cost of capacity in Ontario using the results of the LT1 procurement

The IESO returns this month with the results of its reference price analysis. The following slides step through the process of reviewing and updating this important demand curve parameter.

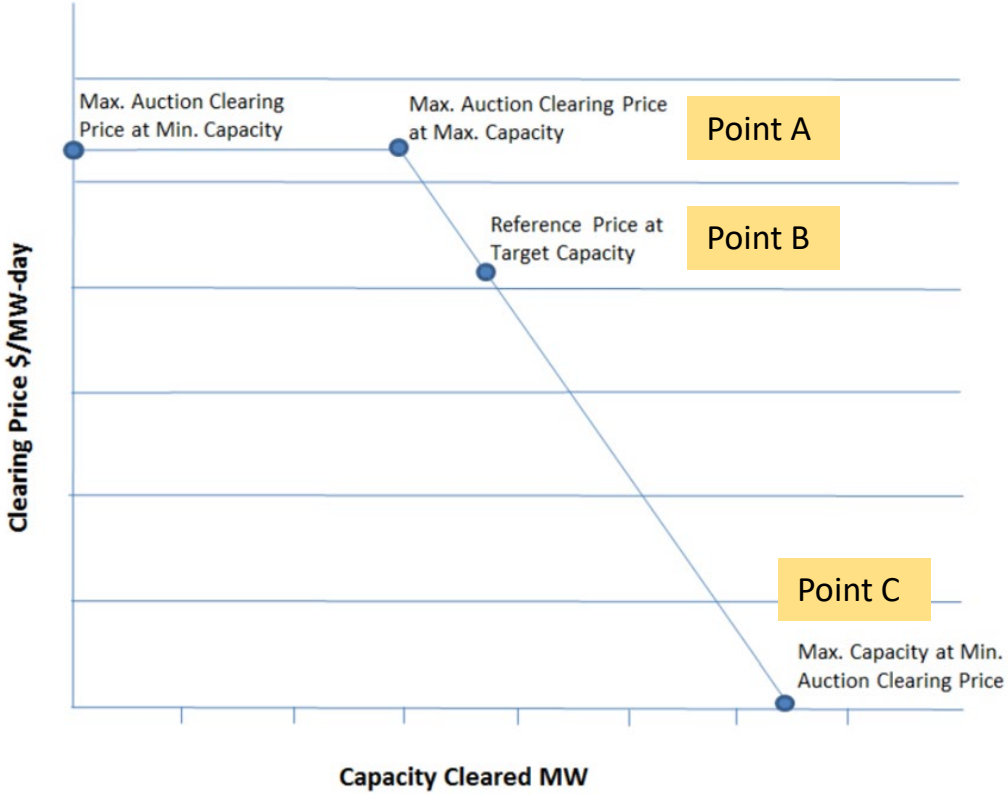
Reference Price Review: Context

- Regularly updating the Capacity Auction demand curve ensures it is reflective of the current market environment and remains competitive with other jurisdictions
- The reference price should be set high enough that a wide range of potentially economic resource types can participate on a competitive basis
- This review also considered best practices from recent demand curve reviews in other jurisdictions
- The IESO engaged Brattle to support this review

Reference Price and the Demand Curve

The reference price is set based on the indicative estimate of the net cost of new entry, or **Net CONE**, of a reference resource.

The reference resource is an economic and scalable, grid-capacity resource that is capable of meeting the system's capacity and operational requirements and is broadly representative of what is being built or likely to be built if new capacity supply is needed.



Net CONE

- Adopting a reference price aligned with the Net CONE of a new build resource is an appropriate market signal because:
  - The Capacity Auction offers commitments to existing resources. If the auction clearing price were to exceed the reference price, it is a clear signal that new capacity resources are needed and more cost-effective.
  - Enabling market-based capacity prices to rise to and above Net CONE informs the current market conditions for capacity supply and demand

Current Reference Technology and Price

- The reference technology, a simple cycle gas turbine (SCGT), has not changed since the Demand Response Auction, last held in 2019
- The current reference price of $644/MW-bd was last updated in 2023
- In their supporting analysis for this update, Brattle recommended the reference price be updated regularly, and at least, for inflation each year
- With the release of the LT1 RFP weighted average and individual contract prices resulting from the IESO's most recent procurements for capacity, there is an opportunity to assess whether these results should inform the Capacity Auction reference price and technology

Reference Price Review: Approach

The IESO assessed the results, by following these steps:

1. Review the LT1 RFP successful technologies and prices and determine whether they are appropriate to inform the Capacity Auction reference price and technology
2. If a reference price and technology update is warranted, assess the appropriate reference price that should be used
   a) Within the range of net CONE values from this procurement, should a weighted average of all prices or a median value of individual project prices be used
   b) Should the LT1 prices in 2028$ be applied, or de-escalated for inflation to 2025$ to reflect the delivery year the 2024 Capacity Auction will procure for

Step 1 - Reference Technology Review

- The LT1 procurement had a target capacity of 1,600 MW of storage and 918 MW of non-storage. The successful proponents included:
  - Ten (10) 4-hour duration battery storage resources in the **storage category,** and
  - Three (3) resources in the **non-storage category** (two gas resources and one biogas)

Proposed Reference Technology Update

- The majority of projects and amount of MWs that cleared were four-hour battery storage
- The LT1 results show that the storage category it is the lowest cost technology to provide new-build capacity
- Four-hour storage resources are scalable and capable of meeting some of the system's capacity and operational requirements
- Proposed new reference technology:

Four-hour battery storage

Step 2 - Reference Price Analysis

Best practice for determining the reference price involves looking at a range of Net CONE values across a technology and determining an appropriate value within that range

- Within the LT1 RFP storage category, the weighted average cost or a median of the individual contract prices can be considered
- The weighted average price reflects all project prices bundled into a single value, and may include pricing impacts for some projects based on special circumstances; ultimately, the reference price should be based on what the unsubsidized market should support

Step 2 - Reference Price Analysis

- The range of individual contract prices from the LT1 storage category is an appropriate range of net CONE values to inform the reference price
- Determining the reference price based on the median in this range of prices would represent not the lowest, nor the highest, but the middle range of the results
- The LT1's median storage price is $690/MW-bd in 2028$
- To reflect this price in 2025$, the delivery year the 2024 Capacity Auction is procuring for, the IESO applied annual inflation estimates to de-escalate the price, resulting in a price of **$651/MW-bd**

Proposed 2024 Capacity Auction Reference Price

Parameter	Current	Updated: LT1 RFP Results
Reference Technology	Simple cycle gas turbine	4-hour battery storage
Reference Price ($/MW-bd)	$644	$651
Maximum Auction Clearing Price ($/MW-bd) (calculated by multiplying the reference price by 1.5)	$966	$976.50

2024 Capacity Auction Reference Price Update – Next Steps

- The IESO will continue to conduct reviews of the reference technology and price, based on new sources of data that are relevant to consider for the Capacity Auction demand curve
- Comprehensive reviews of demand curve parameters will be conducted every 3-4 years
- Stakeholder feedback on the proposed reference price should be submitted by July 9, 2024 to engagement@ieso.ca
- Pending stakeholder feedback, the Pre-Auction Report, which will be published on August 8, will reflect this updated price of $651/MW-bd

2024 Enhancements Updates:
Review of Virtual Zonal Limits (short-term solution)

Review of Virtual Zonal Limits

Overview: The Niagara and West zones met their respective virtual zonal limits (VZLs) in the last auction. Stakeholders requested the IESO review these limits, and provided existing and potential contributor information to support the review.

Update: The consumption activities of contributors within virtual demand response resources cannot be accurately modelled which can increase the risk of modelling error in the IESO's tools. The IESO is investigating whether the additional contributor location information provided by aggregators can reduce the risk of this modelling error. If the results of this investigation demonstrate that increases to the virtual zonal limits will not create an unacceptable level of modelling error, the IESO may be able to accommodate an increase for this year's auction.

Review of Virtual Zonal Limits

Next Steps:

- Analysis will be completed and virtual zonal limits will be determined by mid-July; VZLs will be shared with stakeholders for awareness in advance of the pre-auction report release
- Performance from virtual resources in these two zones will be closely monitored to ensure these increases do not exacerbate reliability concerns associated with this change
- Investigation into the long-term VZL solution, scheduled for implementation in the 2026 auction, will begin shortly

Summary and Next Steps

Next Steps (1 of 2)

- Using the feedback form provided, stakeholders are invited to submit questions and comments by July 9, 2024, on the following items:
  - IESO's reference price analysis and proposed reference technology and price update for this year's auction
  - The ongoing virtual zonal limits analysis
  - General comments on enhancements work plan

Next Steps (2 of 2)

- Market Rule Amendments
  - Technical Panel vote to recommend will be held July 16
- Market Manual Amendments
  - MM 4.2, 5.5, and 12 will be posted to "Pending Changes - Documents" on June 26
- July 2025 Engagement Session
  - Begin engagement on 2025 enhancements
  - Capacity Auction Testing: winter 2023/24 activations, summer 2024 capacity testing week performance and participant feedback
- Pre-Auction Report
  - To be posted August 8

Thank You

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