Proposed December 2020 Capacity Auction

Design Features

January 23, 2020

ieso
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Meeting Objectives

- December 2020 Design Proposals
  - Broadening Participation
    - Resource-backed Capacity Imports
    - Self Schedulers
  - Market Power Mitigation Mechanisms
  - Auction Engine Mechanics

- Next Steps

IESO Response to Stakeholder Feedback

Capacity Qualification and Performance Obligations Assessment

- Participants asked for details on the qualification criteria

- **IESO Response:** The IESO will qualify some types of resources (for e.g. self-schedulers) by assessing their average historical production over a set period of hours/days of the season. The details on these timeframe will be published in the Capacity Auction (Dec 2020) design document

IESO Response to Stakeholder Feedback

Capacity Qualification and Performance Obligations Assessment

- Participants suggest to apply $EFOR_d$ to DR resources, considering they also report outage (non-performance) events

- **IESO Response:**
  - Qualification methodologies will need to vary by technology type, to recognize the unique operating characteristics
  - Given that HDR aggregators can change their portfolio of contributors significantly over different commitment periods, historical EFORd is not an appropriate parameter to be used to qualify DR resources
  - Enhanced performance assessments framework is expected to provide sufficient disincentives to poor performance

BROADENING PARTICIPATION
RESOURCE-BACKED CAPACITY IMPORTS

IESO response to Stakeholder Feedback

- Stakeholders requested the assessment of the total maximum quantity of imports that will be allowed to clear in the December 2020 Auction

- **IESO Response:** For the June 2020 Auction, the import allowance is 80 MW. The IESO expects to allow up to 200 MW for the December 2020 Auction.

Resource-backed Capacity Imports

Eligibility

- Resource-backed imports who may be eligible to participate must come from generators located in the neighboring jurisdictions who are willing to supply capacity
  - An external generator, including storage, must be a resource type eligible to participate in the Ontario Capacity Auction (i.e., no coal, wind, etc.)
- Both the IESO and applicable balancing authority under which resource-backed capacity import participant falls under must have appropriate agreements in place
- The capacity sold to the IESO via Capacity Auction from the resource-backed capacity import participant must not be included in the Balancing Authority's adequacy in which the generator is located
- The backing generator for the resource-backed capacity import must not have any portion of its capacity committed to any external jurisdiction other than Ontario at the time of the auction

Resource-backed Capacity Imports

Obligations

- Participants who clear the auction are required to submit an hourly import energy offer of at least their obligation into the IESO-administered market, in each hour of the Availability Window
- The import offer will be scheduled as consistent with all other import transactions
- In the event of an emergency condition, a "call" of a resource backed capacity import can be made starting in the day-ahead and up to 2 hours prior to the beginning of the dispatch hour in which it is required
  - When a capacity call is made, the participant must ensure the resource-backed import is scheduled and the backing generator is injecting at least the amount equal to the called capacity. The called capacity will be equal or less than their capacity obligation

Resource-backed Capacity Imports

Capacity Obligation and Non-Performance

- Participants who clear the Capacity Auction will receive an availability payment consistent with their capacity obligation

- The following charges for non-performance will apply when participants fail to fulfil their energy market participation obligations:
  - Availability Charge with a seasonal true-up
  - Capacity Charge

Resource-backed Capacity Imports

Capacity Obligations and Non-Performance

- Availability performance will be assessed for each hour of the availability window on:
  - The offer quantity (up to their capacity obligation) submitted day ahead
  - The offer quantity (up to their capacity obligation) submitted in real-time

- Failure to satisfy the availability requirements will result in an Availability Charge

- A seasonal true up of the Availability Charge will occur at the end of each obligation period based on the average availability across the season

Resource-backed Capacity Imports

Capacity Obligation and Non-Performance

- Capacity may be assessed using test activations (up to two per obligation period)
  - Tests will be scheduled to occur during the availability window of the dispatch day with a constraint applied to the import transaction
  - Capacity auction resource will be provided notifications in advance of test
  - Test success will be measured based on capacity resource's ability to get scheduled and if the backing generator can deliver the capacity obligation
  - Tests may be scheduled for a duration of up to 4 hours
- Failure during test activation will result in a Capacity Charge

BROADENING PARTICIPATION
SELF-SCHEDULERS

Self-Schedulers

Eligibility

- Resources registered in IESO's Administered Market with a bid type of "Self Scheduled" will be eligible to participate in the December 2020 Capacity Auction

Obligations

- Participants who receive an obligation in the Capacity Auction will be required to submit dispatch data, in the form of a schedule, for every hour of the availability window to an amount equal to or greater than their obligation

- Scheduling of Self-Schedulers in the energy market will not change

Self-Schedulers

Capacity Obligation and Non-Performance

- Participants who clear the Capacity Auction will receive an availability payment consistent with their capacity obligation

- The following charges for non-performance will apply when participants fail to fulfil their energy market participation obligations:
  - Availability Charge with a seasonal true-up
  - Capacity Charge

Self Schedulers

Capacity Obligations and Non-Performance

- Availability performance will be assessed for each hour of the availability window on:
  - Their schedules submitted day ahead through to pre-dispatch being equal to or greater than their obligation

- Failure to satisfy the availability requirements will result in an Availability Charge

- A seasonal true up of the Availability Charge will occur at the end of each obligation period based on the average availability across the season

Self Schedulers

Capacity Obligation and Non-Performance

- Capacity may be assessed using test activations (up to two per obligation period)
  - Tests will be scheduled to occur during the availability window of the dispatch day
  - Capacity auction resource will be provided notifications in advance of the test
  - Test success will be measured based on capacity resource's ability to meet their schedule at an amount equal to or greater than their obligation
  - Tests may be scheduled for a duration of up to 4 hours

- Failure during test activation will result in a Capacity Charge

MARKET POWER MITIGATION MECHANISM

DEFAULT OFFER CAP

IESO response to Stakeholder Feedback

- Stakeholders requested the rationale for the small fish threshold

- **IESO Response:** The IESO selected the 100MW threshold because of the early indications of supply and demand conditions that are likely to be present in the system-wide Dec 2020 auction. As the IESO gains experience with the implementation of the market power framework it may be able to refine the small-fish threshold. Similarly, if zonal constraints emerge where the exercise of market power may be possible by smaller market participants the IESO may consider lower small fish thresholds for constrained zones in future auctions

Default Offer Cap Methodology - Recap

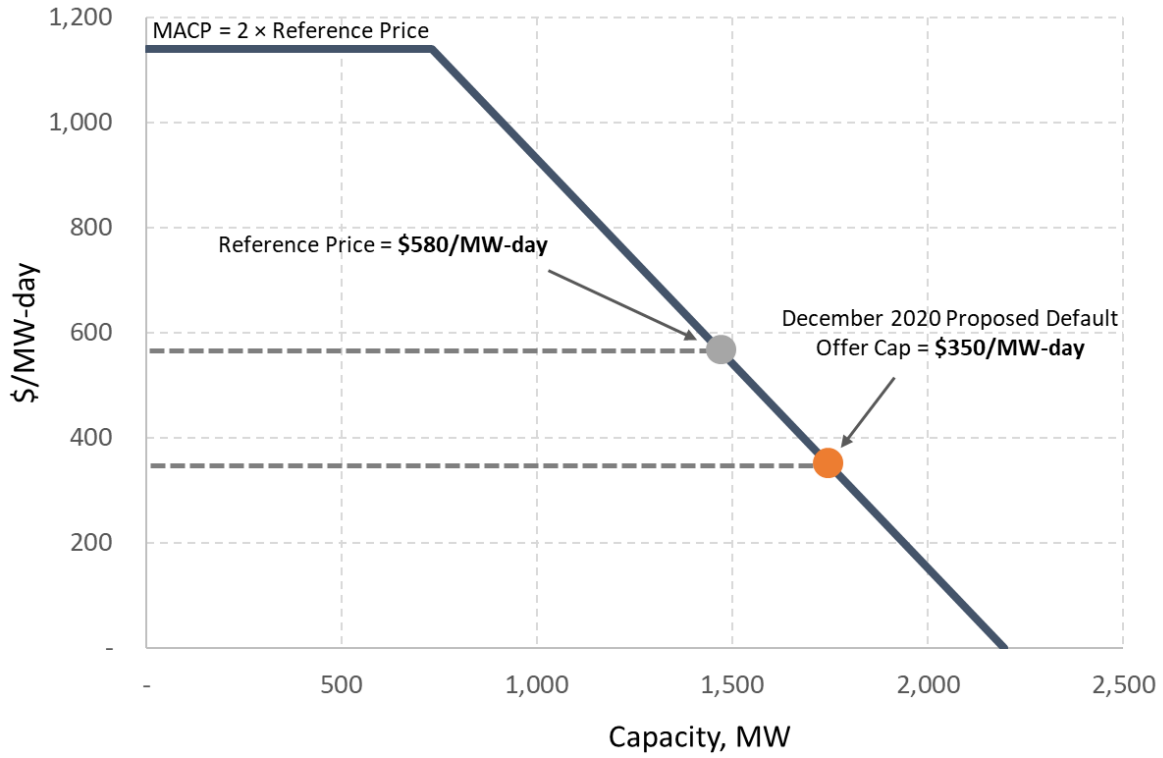
- The proposed methodology* for calculating the Default Offer Cap in Ontario is based on the estimated competitive auction outcome determined by the IESO on the basis of the applicable demand curve and the supply curve
  - For simplicity and in alignment to the chosen approach for Reference Price, the Default Offer Cap will be non-differentiated by season, by zone and by resource type for December 2020 capacity auction

- The Default Offer Cap will be set for each auction at a level which corresponds to a minimum of the competitive auction offer from a likely marginal resource in the two obligation periods
  - Selecting the minimum of two obligation periods ensures that the IESO will avoid the risk of under mitigation in one of the two obligation periods

* The proposed approach is most similar to the methodology used in NYISO market.

Proposed Default Offer Cap – Dec 2020 CA

- The IESO proposes to set the Default Offer Cap at **$350/MW-day** for the December 2020 Capacity Auction



Default Offer Cap in Other Markets

- The data in the table is provided for informational purposes and is based on the IESO research of the latest publicly available data in other jurisdictions

Jurisdiction	Default Offer Cap (original units)	Default Offer Cap (CAD* $/MW day**)
ISO-NE	$4.22/kW-month *(equivalent to ~ 52% of Net CONE; however, the methodology for Default Offer Cap is not directly linked to Net CONE)*	**~ CAD $262/MW-day**
PJM	Zonal range (existing): $229/MW-Day - $309/MW-Day Zonal range (proposed): $155/MW-Day - $232/MW-Day *(equivalent to ~ 60%-123% of Net CONE)*	Zonal range (existing tariff): **~ CAD $434/MW-day – CAD $585/MW-day** Zonal range (proposed tariff): **~ CAD $293/MW-day – CAD $437/MW-day**
NYISO	$3.50/kW-month *(equivalent to ~ 22% of Net CONE)*	**~ CAD $218/MW-day**
UK	50% of Net CONE = 0.5 × £49/kW-year = £24.5/kW-year	**~ CAD $166/MW - day**
AESO (Former Design)	Min (CC): 80% of Net CONE = 0.8 × CAD $41/kW-year = CAD $32.8/kW-year Max (AERO): 80% of Net CONE = 0.8 × CAD $132/kW-year = CAD $105.6/kW-year	Min: **CAD $130/MW-day** Max**: CAD $419/MW-day**
Ontario	Proposed: **CAD $350/MW-day** *(equivalent to ~ 60% of Net CONE)*	Proposed: **CAD $350/MW-day**

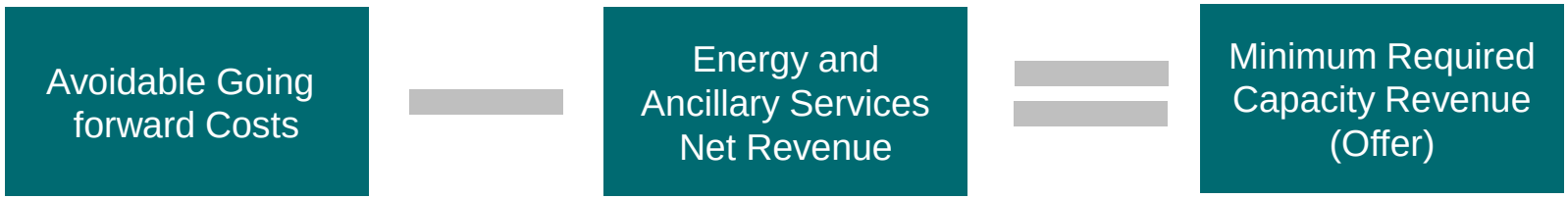
* All currency conversions were conducted on Jan 13, 2020, based on the Bank of Canada exchange rate.
** Business days: 252 business days are used for conversion, as per the methodology used in Ontario.

Analysis Description

- When setting the Default Offer Cap, the IESO will determine the estimated competitive auction outcome on the basis of the analysis incorporating a set of assumptions and data, including:
  - Projected by the IESO demand curve
  - Estimated by the IESO supply curve based on the estimated prices at which resources will be willing to take on a capacity obligation by technology type or, as appropriate, by specific resource:
    - Offer levels from previous auctions
    - Avoidable going-forward costs – IESO Planning estimates and 3rd party sources
    - Average energy and ancillary services net revenues based on the historical approach, which uses the past three years of realized energy revenues and variable costs (i.e., offers) as a proxy for net Energy and Ancillary Services revenues where available
      - Supplemented with IESO and 3rd party estimates

Supply Curve Mechanics

- The Supply curve for this analysis is based on the estimates of the auction offers by technology type or, as appropriate, by specific resource
- Resources are assumed to offer at net avoidable going-forward cost (GFC)
  - Net Avoidable GFC costs are equal to the expected costs to be incurred during the obligation period which are necessary for operating the resource to provide capacity net of all expected net revenues to be made by the resource in the obligation period, not including revenues made from capacity payments



Key Analysis Assumptions

- For this analysis the Target Capacity is assumed to be 1136 MW for winter, and 1464 WM for summer
  - These values are subject to change but the final values will be published in the pre-auction report for December 2020

- Assumed that everyone who is eligible will offer including:
  - Existing generators over 10 MW, including mothballed resources
  - Demand response from latest auction
  - No new entry or uprates

AUCTION ENGINE MECHANICS

Background

- Currently, CAPs could only submit a single offer for the same qualified MW, and the two obligation periods are cleared separately
- The IESO is proposing two additional methods of offer submission
  - Multiple Offers
    - Allows resources to offer multiple offers for the same qualified MWs
    - The auction engine will clear only one of the multiple offers
  - Contingent Offers
    - Provides an opportunity for resources with an annual revenue requirement to manage the risk of only clearing in a single season
    - Participants will be able to submit a summer and winter offer that are dependent on one another clearing the auction
- The original method of submitting one offer with 20 laminations will remain

Multiple Offers

- Feedback from Market participants revealed a desire to be able to submit offers that don't necessarily have monotonically increasing prices (e.g., declining offers) to represent their economies of scale

- Aside from having the option to submit one offer with 20 laminations, eligible Capacity Auction Participants (CAPs) may choose instead to submit up to 20 offers with one lamination each with the condition that only one offer will be accepted

Multiple Offers (cont'd)

- As an example, if a CAP wants to provide their first 10MWs @ $10/MW-day, and then the next 5MWs @ $7/MW-day…
- They can now have the ability to submit:
  - Offer 1: 10MWs @ $10/MW-day
  - Offer 2: 15MWs @ $\left(\frac{10MW \times \$10 + 5MW \times \$7}{10MW + 5MW}\right) = \$9$/MW-day
- Only one of the two offers can be accepted
- Offer 2 being selected would represent the CAP's original desire to offer the 5MWs @ the lower price

Contingent Offers

- Provides an opportunity for resources with annual revenue requirements to offer more competitively by providing a mechanism to manage the risk of only clearing in one season
- Allows CAPs to submit summer and winter offers that are dependent on one another (i.e., contingent)
  - This is in addition to their normal (standalone) offers
- Contingent offers can either be both accepted or both rejected
- Standalone and contingent offers cannot be selected at the same time
- Contingent offers must be cleared in full (i.e., partial offers are not allowed)
- More details on contingent offers and its impact on auction clearing will be shared in the next stakeholder engagement

Contingent Offers (cont'd)

- Consider the following example of contingent offer:
  - Summer stand-alone 100MW @ $50/MW-day
  - Summer contingent 100MW @ $30/MW-day
  - Winter stand-alone 120MW @ $40/MW-day
  - Winter contingent 120MW @ $20/MW-day
- If a contingent offer does not clear in their respective obligation period, the offer in the adjacent period will also not be selected
- However, one of the stand-alone offers could still potentially clear in their respective obligation periods if it is economical

Transfers and Buyouts for Contingent Obligations

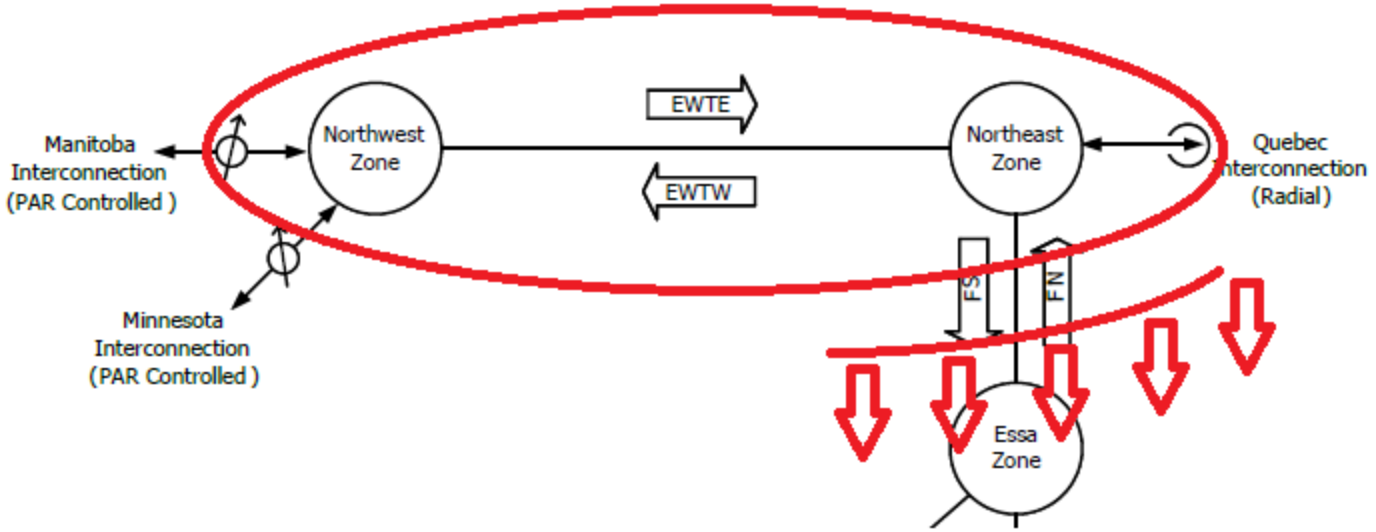
- Due to the fact that contingent offers were only accepted as a pair, the transfers and buyouts will also be linked between the seasons

- A buyout or transfer out of an obligation in one season might result in the removal of the obligation, and applicable payment, in the other season

- The IESO will provide more details on the proposal at the next stakeholdering session

Zonal Grouping

- An ability was added to the auction engine to allow the IESO to apply a separate set of constraints on a collection of zones
  - For example, a maximum procurement in two zones behind the same limiting interface



NEXT STEPS

Next Steps

- Feedback is being requested by **February 7**
- The next Capacity Auction engagement meeting will be schedule during the last week of February
- The draft December 2020 Design Document will be posted for stakeholder review prior to the February engagement meeting

Please send all questions and feedback to engagement@ieso.ca

Timeline – December 2020 Capacity Auction

Capacity Auction Stakeholder Engagement Schedule – December 2020 Auction