AUGUST 26, 2021

Capacity Auction
Review of Performance Obligations and Assessment Framework

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Agenda

- Recap of Capacity Auction enhancements workplan and timeline
- Overview of performance assessment framework
- Current design issues and recommendations
- Next Steps

Purpose

- To present, discuss and request feedback on proposed changes to the Capacity Auction performance obligation and assessment framework
- The proposed changes are intended to be in effect for December 2022 Capacity Auction (2023 obligation period)

Recap: Auction Enhancements – Work plan and Timeline

Recap: Auction Goal

Goal

Acquire reliable and cost-effective capacity while acting as an enduring balancing mechanism as needs evolve

How

Growing the Market

Increase participation in the auction from diversity of resource types and improving certainty

+

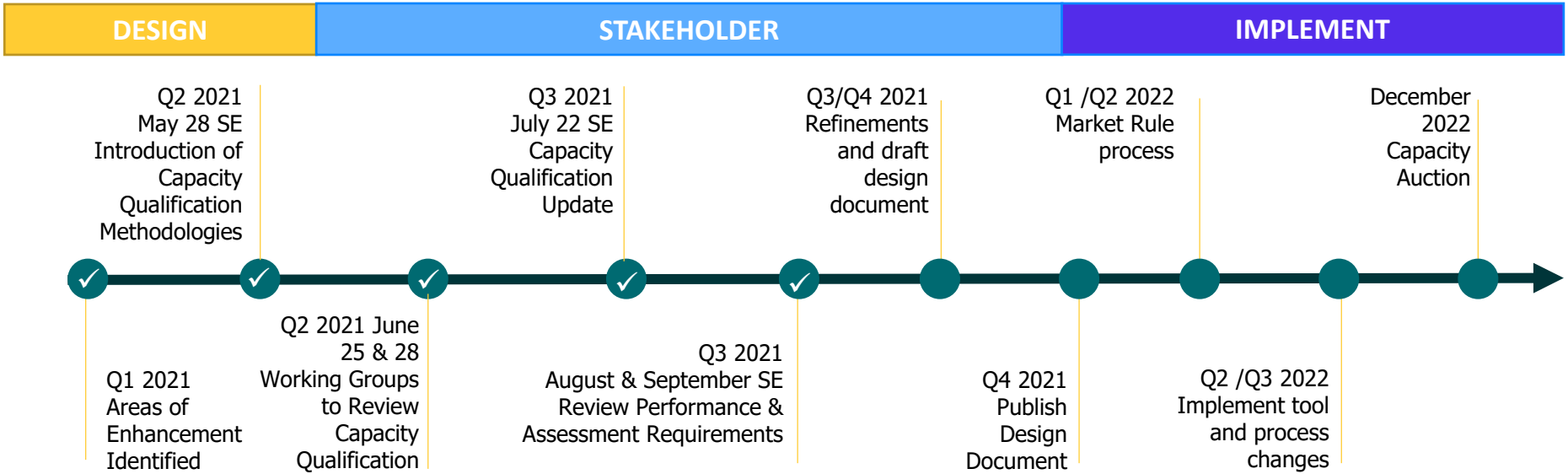
Improving Performance

Enhance the reliability and market performance of acquired capacity resources

Recap: Auction Work Plan

Improve Performance (2022 Auction)	Build Certainty (2021 Auction)	Expand Participation (2022 Auction)
• **UCAP**: Develop agreed upon capacity qualification methodologies to facilitate transition to UCAP for enabled resources in the December 2022 auction and other mechanisms • **Performance obligations**: Review current obligations and assessment criteria and identify improvements	• **Administrative enhancements**: Identify process and administrative improvements and update Market Rules ahead of the December 2021 Auction • **Provide certainty**: Provide greater guidance and certainty on key auction parameters and future needs	• **Resource-backed imports**: Detailed design work enabling additional resource types, with particular focus on resource-backed imports from eligible resource types.

Recap: Capacity Auction Enhancements - Timeline



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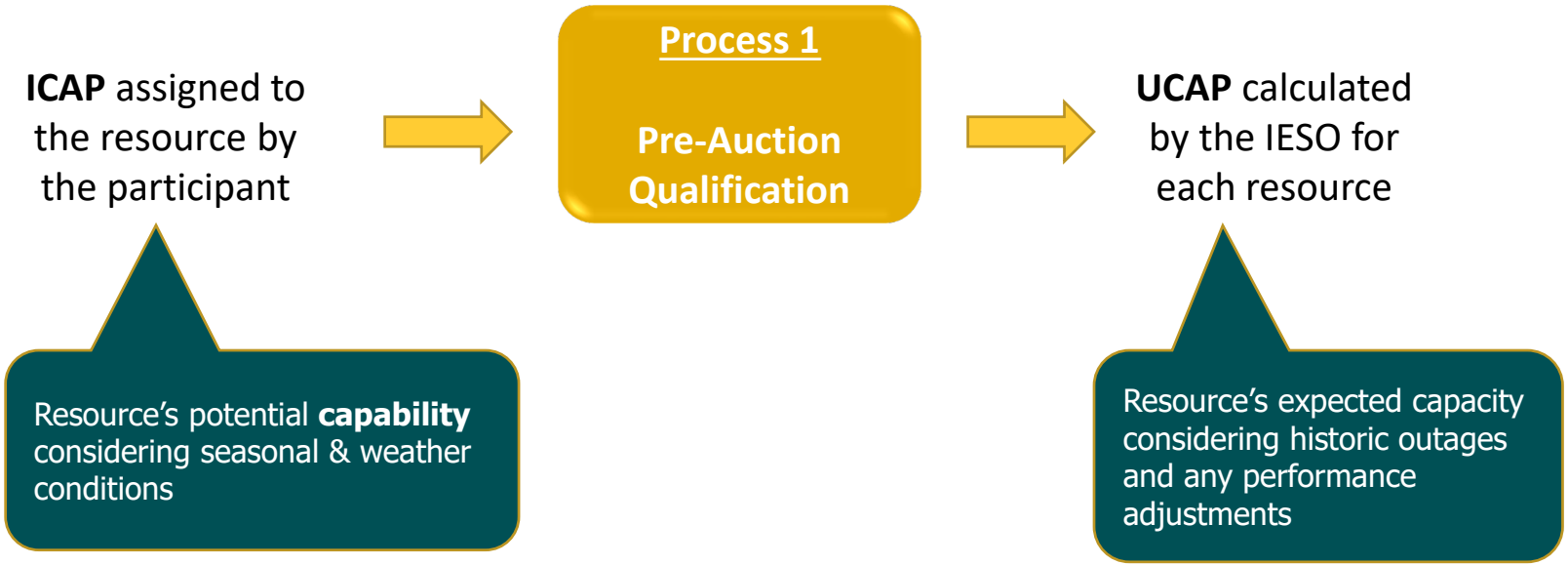
CA Performance Assessment Framework: Overview and Context for Review

Key Concepts: Capability and Capacity Obligation



Key Concepts: Capability and Capacity Obligation

UCAP offered in Auction by the participant

Process 2

Auction Clearing

Cleared UCAP/Cleared ICAP after the Auction

Resource's Capacity Obligation

Performance Obligations and Assessment Framework

Purpose: Verify the reliability and market performance of capacity resources

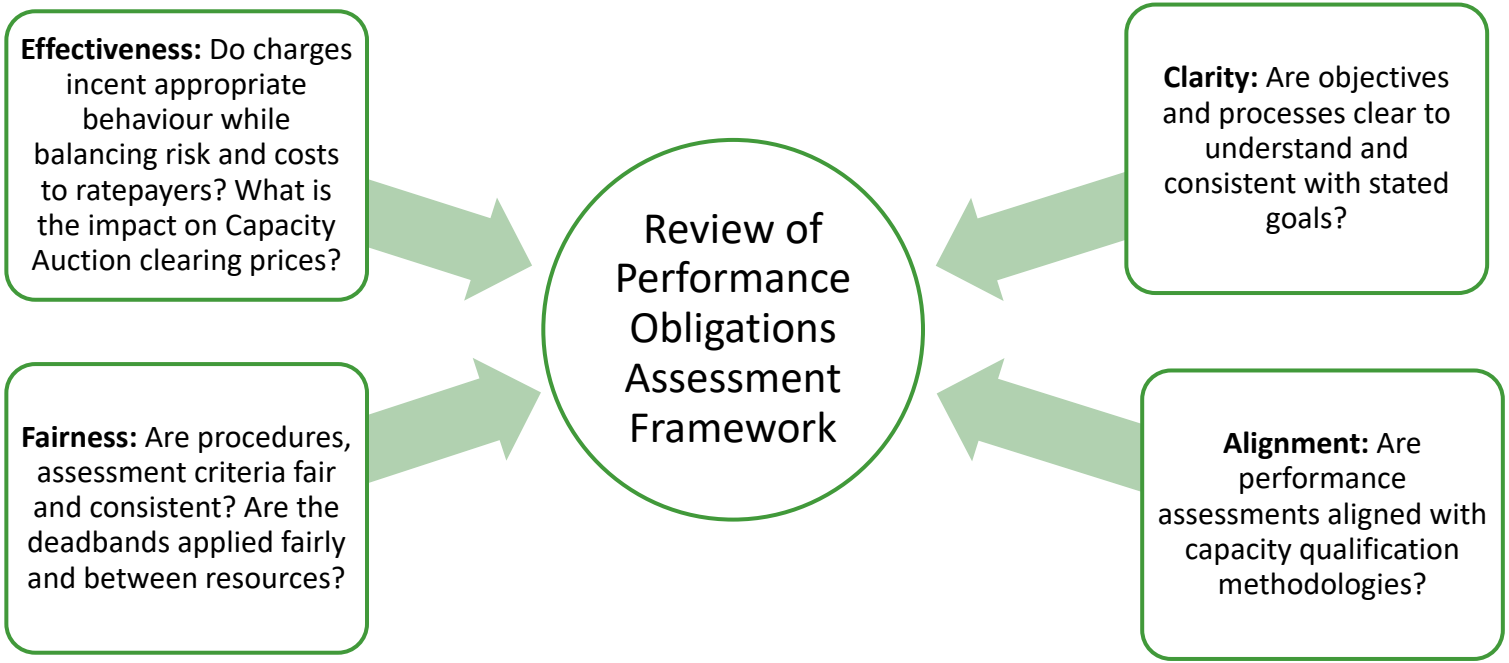
Obligations and Assessment: Rationale

- Incents proper behavior (e.g., availability, offers, etc.) from acquired resources during the obligation period
- Reduces the risk of low performance from acquired resources when delivering upon their capacity during hours of system need
- Works in conjunction with the qualified capacity process to improve confidence and addresses concerns related to the value provided by resources secured in the auction

Obligations and Assessment: IESO Tools

- Capacity Performance Assessment
  - **Objective**: Test/verify that a resource can deliver to their ICAP when called upon
- Availability Performance Assessment
  - **Objective**: Assess whether a resource was able to meet its availability obligation in the energy market during the availability window
- Charges and factors incent participants to maintain reliable resources that can be available and deliver their capacity obligation when needed, and also establish consequences for poor performance

Review: Considerations



Review of Performance Assessment Framework: Recommendations

Scope of Review

- Next slides will outline aspects of the current assessment framework where issues have been identified and proposed changes to address these issues

Capacity Test: What is being assessed?

Capacity Test: Notifications

Capacity Test: Thresholds

Performance at Times of Need

Capacity Test: Impact in Future Auctions

Availability Assessment and Capacity Qualification

Capacity Test: What is Being Assessed?

- **Current Framework**
- Under the current framework some resources are assessed to their full capacity obligation when tested whereas others including Hourly Demand Response (HDR) are assessed against their bids only
- This creates misalignment in how the IESO assesses the capability of different resources to deliver on their obligation

Proposed Change #1: Test to Capability for All Resources

- IESO recommends that all resources should be tested against their **ICAP*** value when tested

Rationale

- Ensures a more level playing-field when assessing different resource types
- This measure will help the IESO better assess whether a resource can deliver to their capability (ICAP) in the energy market

*Or cleared ICAP if a resource clears only a portion of its capacity

Capacity Test: Threshold

Current Framework

- If a resource fails the capacity check test, a capacity charge is applied equal to its monthly availability payment
- Under the current framework, HDR resources are afforded a 20% threshold when assessed whereas other resources have no allowance during the test
- This creates an imbalance in how capacity performance is assessed

Proposed Change #2: Changes to Thresholds

- IESO is proposing to reduce the Capacity Test threshold for HDR resources from 20% to 10% and allow a 5% threshold for all other capacity resources
- The end goal is to create more alignment over time between different assessments pending findings and recommendations from HDR Baseline Review – to be presented in September

Rationale

This creates a more level playing field where all resources are being assessed for their performance capability within a reasonable threshold while accounting for different characteristics and participation models

Capacity Test: Impact in Future Auctions

Current Framework

- Under the current market design, if a resource fails the capacity check test there is no impact on that resource's qualified capacity in a future auction

Proposed Change #3: Future De-Rates

- The result of the capacity test will also impact a resource's capacity value for the following auction through application of a performance factor de-rate reflecting its test performance in the last season
- Resources may request a second test at IESO's discretion (e.g., only for truly unforeseen or extraordinary circumstances that the participant could not have made reasonable efforts to mitigate)

Rationale

- The application of a future de-rate provides a fair and proportional adjustment for future auctions based on a resource's demonstrated capability

Future De-Rates: Example

Generator Resource A Secures a Capacity Obligation

ICAP – 100 MW
UCAP – 90 MW
Cleared UCAP – 90 MW

- **Scenario 1**
  - Resource A is subject to a capacity test
  - Resource A is able to deliver within the 5% threshold of its ICAP value
  - **Result**: Resource A passes the test –no further implications
- **Scenario 2**
  - Resource A is subject to a capacity test
  - Resource A was unable to deliver within the 5% threshold of its ICAP value
  - **Result**: Resource fails the test and a performance de-rate factor is applied to its qualified capacity methodology for the following year (in addition to other de-rates to account for forced outage rates, etc.)

Future De-rates: Example (cont'd)

- With a test to ICAP and 5% threshold, Resource A has to deliver 95MW to pass the capacity check test
- If Resource A delivers 94MW in year 1, it fails the capacity check test
- Based on year 1 performance, qualified capacity for Resource A in year 2, based on a 100MW ICAP value, will be

$$\text{ICAP: } 100\text{MW} * (1 - 0.06) = 94\text{MW}$$

- If we use the same forced outage rate as year 1, UCAP value is

$$\text{UCAP} = 94\text{MW} * (1 - 0.1) = 84.6\text{MW}$$

Capacity Test: Notifications

Current Framework

- Quick start generators, storage and dispatchable load resources can be informed up to **1 hour** in advance of the test
- HDR resources and non-quick start generators are informed **1 day** in advance of the test whereas capacity imports are given a **2 hour** advance notice

Proposed Change #4: Common Notification

- A day ahead capacity test notification should be provided for all resources

Rationale

- A day ahead capacity test notification provides greater consistency and fairness for all resources

Performance at times of need

Current Framework

- The current framework for the auction is around ‘availability’ where the availability must-offer is the main assessment tool
- IESO does have the ability to activate/dispatch resources for an Emergency Operating State Control Action (EOSCA) event but there are no specific performance charges if a resource fails to deliver on its obligation during this event

Proposed Change #5: Incenting Performance at the Right Time

- A capacity charge equal to two months availability payments will be applied when a resource fails to deliver on its obligation when it is activated/dispatched in an out-of-market control action leading up to or during an Emergency Operating State

Rationale

- This recommendation helps enhance a key objective of capacity performance assessment: to ensure resources are available and reliable at times of system need

Additional Considerations re: Capacity Testing

- HDR participants raised questions about management of planned outages and its impact on performance assessment
  - IESO is open to further discussions to explore potential impact of outages on performance assessment for HDR resources and develop a process to register planned outages with the IESO to account for operational issues
- Recommendations will need to closely align with and be implemented alongside findings related to review of HDR baseline performance study results and recommendations – to be presented in September

Availability Assessment and Capacity Qualification

Current Framework

- All participating resources are assessed on an hourly basis for the MW amount they offer in each hour of the availability window
- Availability charge is applied to the resource if its bid/offer MW amount is less than its obligation amount

Availability Assessment and Capacity Qualification

- With the introduction of a capacity qualification process, most resource types will be qualified based on an average (e.g., average historical production and/or forced outage rate)
- The introduction of an averaging process necessitates a review of the current availability assessment to ensure they are aligned
- The Availability Charge assessment only applies to charges related to under-availability
  - Using an hourly availability assessment alone, a resource would receive a charge when it is *below* its average, but no credit when it is *above* its average

Proposed Change #6: Availability Assessment True-Up

- Resources will be eligible to be assessed a "true-up" payment at the end of the obligation period. The true-up would compensate for some availability charges if, on average, the availability of the resource is determined to be greater than or equal to it obligation amount

Rationale

- The true-up ensures fairness by aligning the average assessment in qualification with an average assessment for availability
- Incents resources to offer their full capability to the market while relying on other tools (compliance with dispatch, dispatch charge and capacity testing) to measure performance

Availability Assessment: Additional Considerations

The True-up payment/credit calculation will average the availability of a resource throughout the entire obligation period considering the following:

- The availability of the resource for each hour is capped at the minimum of either 15% above a resource's capacity obligation or its cleared ICAP
- The true-up payment is capped to the total availability charges incurred; i.e., no extra payment for over availability

Availability Assessment: True-Up Example

- If a resource has a 10MW ICAP and an outage rate of 10%, its UCAP is 9MW which is the maximum amount it can offer into the auction
- If the resource clears 9MW, it has the obligation to offer an amount greater than or equal to 9MW during the obligation period
- If at any hour, the resource has offers quantities less than 9MW (due to outages, etc.), it will incur availability charges
    - At the end of the obligation period, an average assessment will be conducted and a "true-up" payment will be applied for availability charges if, on average, the availability of the resource is determined to be greater than or equal to 9MW during the obligation period

Availability Assessment True-Up Cap

- Assume a resource with 9 MW UCAP clears only partially in the auction; e.g., 6 MW was only cleared
- When calculating its average availability during the obligation period, the hourly offers for true-up calculation purposes will be capped at 6.6 MW, which is the minimum of:
  - 15% above cleared UCAP; i.e., 6 MW + 15% = 6.9 MW
  - Corresponding ICAP of cleared UCAP; i.e., 6 MW + 10% = 6.6 MW

Summary of Proposed Changes

Level Testing Playing Field	• **Assess to Capability (#1)**: All resources will be assessed to their actual capability when tested removing the incentive to game assessments by reducing bids • **Tighter Performance Thresholds (#2)**: Reduce threshold from 20%-10% for 2022* ~~and to 5% for 2023~~; allow 5% for all other resources • **Uniform Notification (#4):** Recommend issuing a test notice to the participants a day ahead of the scheduled test
Incenting Performance	• **Performance De-rates (Rec#3):** If a resource fails a test, in addition to current charges, their value in the subsequent auction will be de-rated in the following year as part of qualification • **Higher Charges at Times of Need (Rec#5):** Levy of 2x Capacity Charge (2 months of payments) for poor performance during EOSCA activations
Fairness in Assessments	• **Move to seasonal average availability assessment (Rec#6)** by allowing resources to receive a credit where their availability exceeded their UCAP value to complement the current availability charge • Ensures alignment between different processes (qualification and availability)

**Future changes to thresholds pending results of Baseline Review*

Benefits

Improve Performance Metrics

- Higher performance requirements and criteria for all resources
- Failed tests and performance during emergencies have stronger financial consequences *and* future seasonal de-rates

Level playing field

- Closer alignment of performance thresholds while accounting for different measurement approaches
- More uniform notice for different resource types

Assessment aligned with qualification

- Better alignment and integration between performance assessment and capacity qualification

Balanced approach

- Transition to stronger performance framework overall while accounting for unique resource requirements

Next Steps

- Review and refine proposals based on stakeholder feedback
- Further detailed design discussions in September RA engagement days

Appendix

Performance Charges - Today

Payment/Charge	Description	Calculation
Availability Charge	Charge for each hour in the commitment period that a resource offers less than full capacity obligation into energy market	Equal to (capacity obligation – energy bid) x auction clearing price ($/MW) x non-performance factor*
Capacity Charge	Charge for failing to deliver >80% of scheduled capacity during a test (dead-band applies to HDR)	Equal to monthly availability payment
Dispatch Charge	Charge for failing to remain within 15% of five-minute dispatch; applied to HDR resources on an hourly basis	Equal to scheduled quantity (MW) x capacity auction clearing price ($/MW) x non-performance factor*
Administration Charge	Charge for failing to provide meter data for non-IESO-metered HDR contributor loads within certain time after an activation	Equal to monthly availability payment

* The non-performance factor is relatively low (1x) in the shoulder months (e.g. May, October) and high (2x) in the peak months (e.g. July, August).

Performance Charges - Future

Payment/Charge	Changes to Current Charges	Calculation
Availability Charge	No changes to availability charge. However, a true-up is introduced that compensates for availability charges if, on average, the availability of the resource is determined to be greater than or equal to its obligation amount	The availability of a resource for each hour is capped at the minimum of either 15% above a resource's capacity obligation or its cleared ICAP. The true-up payment is capped to the total availability charges incurred; i.e., no extra payment for over availability
Capacity Charge	Test to ICAP, reduced threshold (10% for HDR, 5% for all other resources) A capacity charge equal to two months availability payment for failure to perform during EOSCA activation	Equal to monthly availability payment x 2 (for EOSCA activation) no change for tests
Administration Charge and Dispatch Charge	No Change from Today	
De-rate Factor	It will be determined based on the resource's past year's performance and will impact the resource's UCAP for next year's auction	Equal to 1 minus the ratio of a resource's cleared ICAP MW amount and the MW amount that the resource delivers during the capacity check test