



**JUNE 13, 2023**

# Technical Panel Education Capacity Auction Enhancements – Stream 2

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# Today's Discussion

- Discuss the 2023 Capacity Auction Enhancements included in Stream 2 and how they relate to enhancements included in Stream 1
- Provide the opportunity for an open dialogue around the Stream 2 Enhancements that will be reflected in the Market Rules for July
- Gain an understanding of the design intentions behind the proposed Market Rule and Manual Amendments

# Agenda

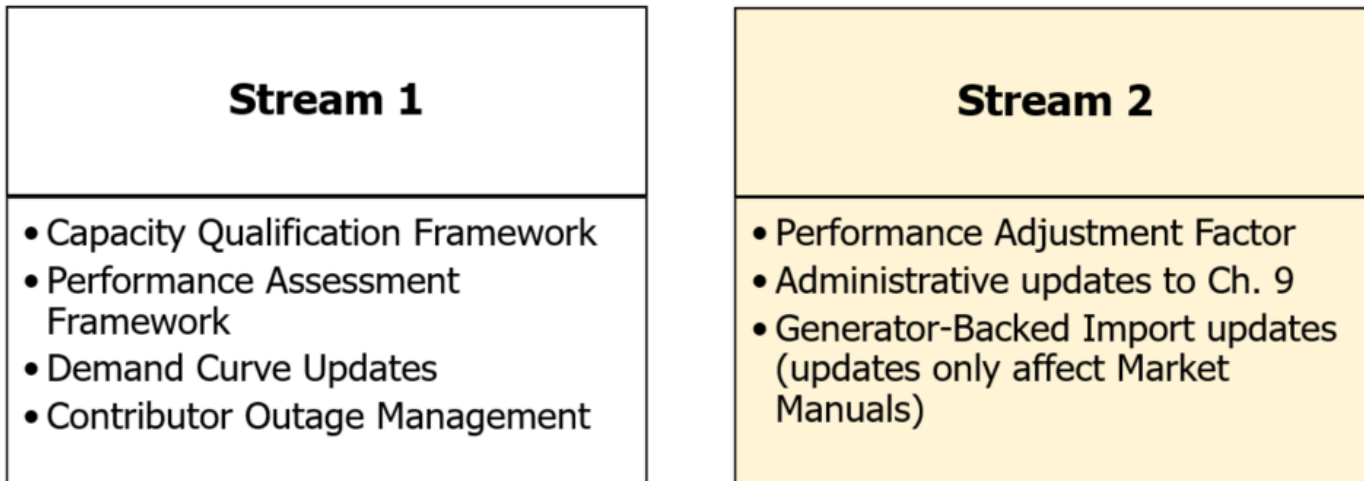
- Engagement Process
- Enhancements Objectives and Timelines
- Stream 2 Enhancements
  - Performance Adjustment Factor
  - Administrative Updates – Chapter 9
- Wrap-up

# Objectives of Proposed 2023 Enhancements

- The enhancements have been designed to:
  - **Ensure Reliability:** contribute to a more accurate assessment of the reliability contributions resources can provide during times of need
  - **Deliver Value:** better align compensation with resource's capability
  - **Promote Fairness and Transparency:** procure capacity transparently, openly, and fairly
  - **Procure Sufficient Capacity in the Future:** provide appropriate investment signals, and drive competition and ratepayer value

# Enhancement Implementation Timeline

- Today's education session is focused on enhancements included in **Stream 2**



*The implementation of Stream 1 is not dependent on Stream 2*



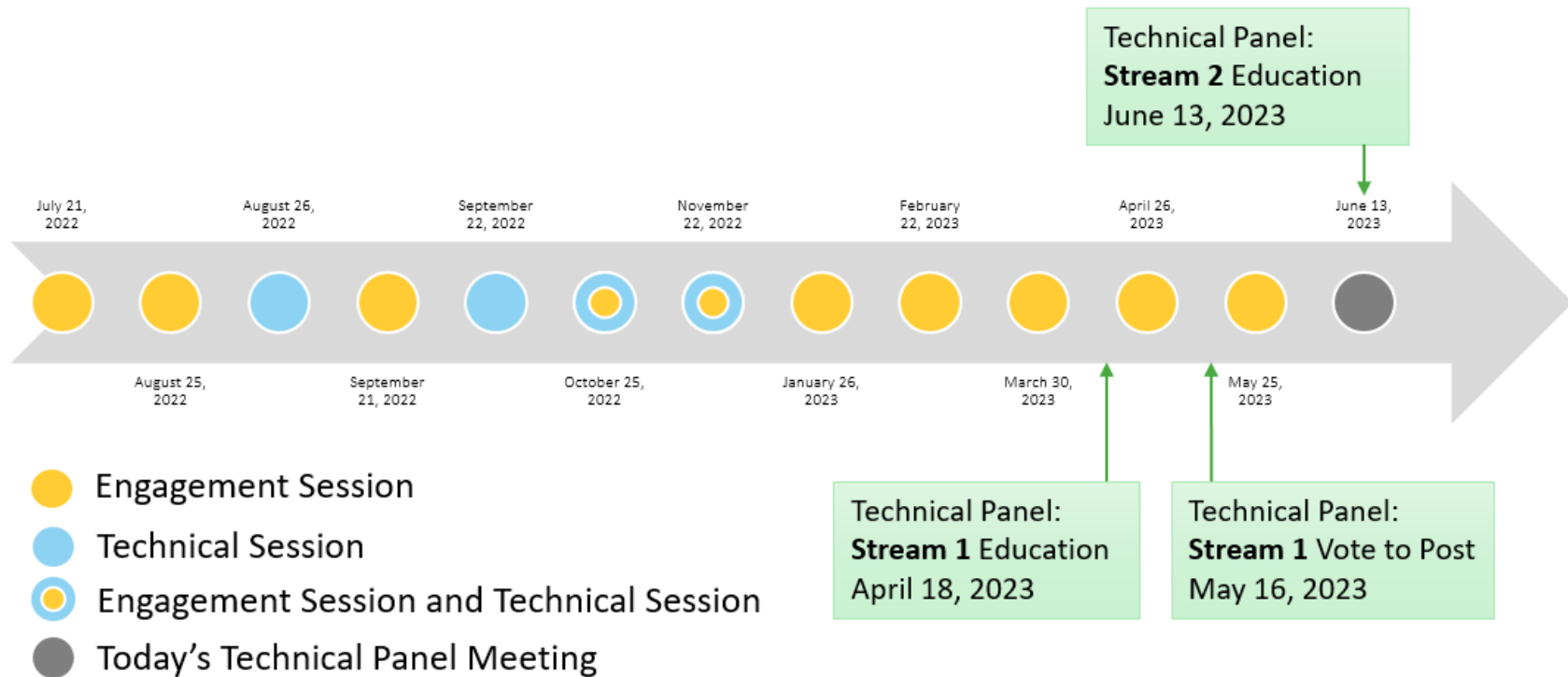
# Engagement Process

# Stakeholder Input Process

The Capacity Auction Enhancements engagement has aimed to provide a timely, transparent, and inclusive process for participants:

- IESO initiated engagement process in "listening mode" to ensure feedback and insights were understood. Monthly meetings increased opportunities for discussion and feedback
- Multiple revisions to engagement timelines, process and designs based on stakeholder feedback
- Introduced new documentation format with design memos and discussion briefs as part of the technical sessions for more effective stakeholder understanding
- Facilitated meetings with individuals or smaller groups for detailed discussion on design topics – this includes technical sessions with the HDR community and others

# 2023 Enhancements: Engagement Journey To Date





# Design Changes Driven by Stakeholder Feedback

Stream 2 Design Enhancements implemented as a result of feedback:

- Final PAF design that encourages participants to submit accurate ICAP values that are supported by historical performance data
- Using historical capacity test data from the most recent summer obligation period to determine summer PAFs
- Clarifying how a limit to the PAF will be applied in situations when the testing requirements are not fulfilled

# Stakeholder Input - Pending Items

- Stakeholders requested the IESO to include additional provisions in the Capacity Auction Enhancements, such as the following:
  - Review of the audit process
  - Multiple HDR Resources per Zone
  - Monthly Buy-Outs
  - Including loss factors in the HDR capacity qualification methodology
- These suggestions require additional time for discussion and consideration
- Discussions will continue to enhance and grow the auction



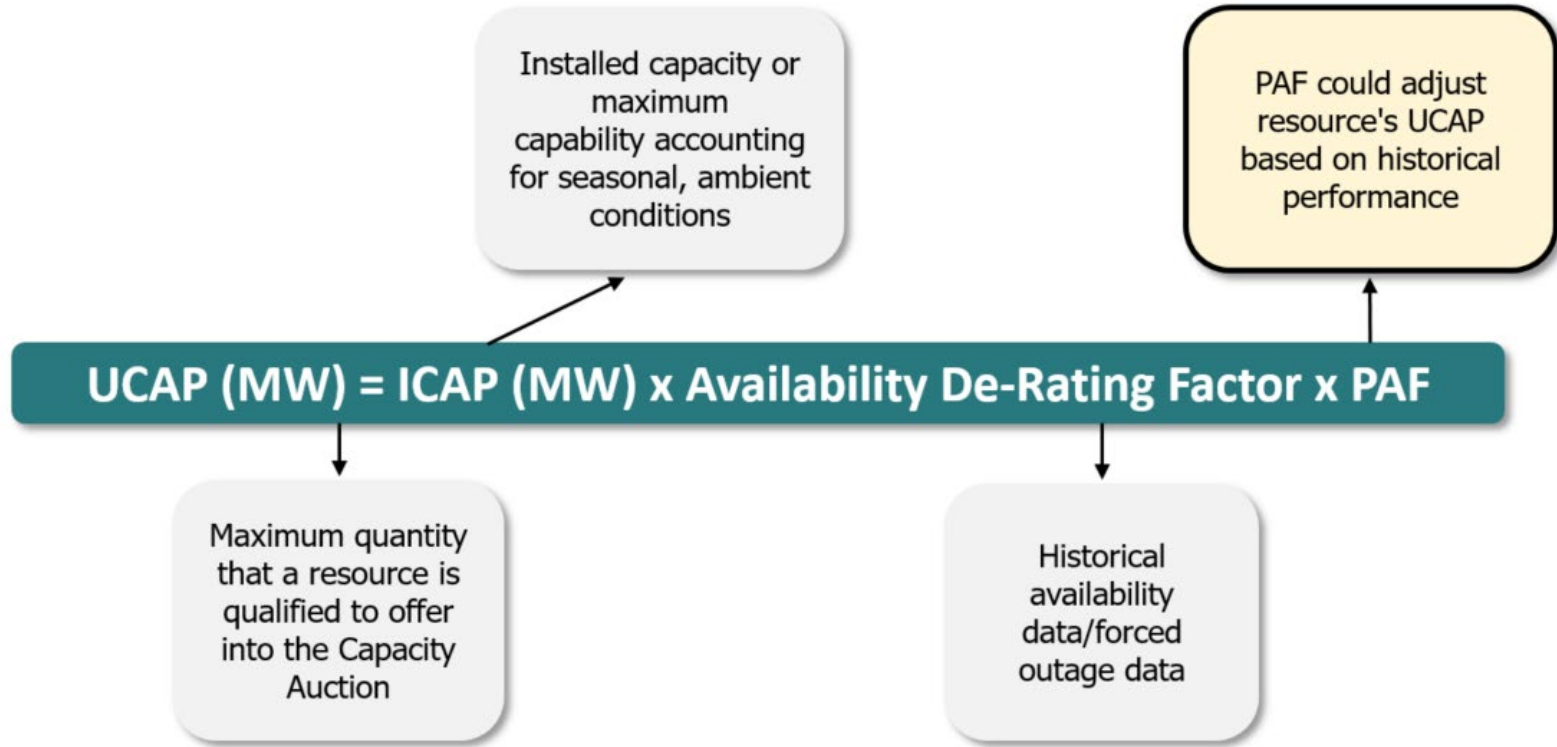
# Performance Adjustment Factor (PAF)

# Capacity Qualification

The Capacity Qualification process is used to derive an Unforced Capacity (UCAP) value that reflects the amount of capacity a resource can be expected to provide on average, during peak hours by accounting for historic availability and performance.

- Availability de-rate accounts for historic availability and is unique to each resource type
- PAF accounts for historic performance and applies uniformly to all resource types

# Generalized UCAP Formula



## Stream 2 – PAF Final Design Updates (1 of 3)

- The final PAF design, which incorporates feedback, will encourage participants to submit accurate ICAP values that are supported by historical performance data, while applying a de-rating factor based on historical data for installed capacity (ICAP) values that exceed previously demonstrated performance
- The final design is reflected in the following documents, posted to the [Engagement webpage](#)
  - [Design Memo 10.1 - Performance Adjustment Factor Final Design](#)
  - [Illustrative Examples – Capacity Qualification](#)

## Stream 2 – PAF Final Design Updates (2 of 3)

The PAF will be calculated and applied to the capacity qualification methodology based on three main data inputs:

1. The cleared ICAP the resource was required to have delivered during the previous seasonal obligation period's capacity auction test
2. The capacity the resource was assessed by the IESO to have delivered during the previous seasonal obligation period's capacity auction test
3. The submitted ICAP for the seasonal obligation period for which the resource's capacity is being qualified.

## Stream 2 – PAF Final Design Updates (3 of 3)

- The IESO will use historical capacity test data from the most recent summer obligation period to determine summer PAFs
- Capacity test activation data to determine a PAF for winter obligation periods will have to be sourced from the most recently completed winter obligation period



# PAF Calculation Method (1 of 2)

The PAF will be calculated and applied based on the following three scenarios if a resource fails the previous applicable capacity test:

1. If submitted ICAP is less than or equal to capacity delivered during the most recent applicable seasonal capacity test, then PAF is equal to one

$$\mathbf{PAF = 1}$$

2. If submitted ICAP is greater than or equal to the ICAP cleared in the last capacity auction, then a PAF is applied and calculated as follows, based on data from the previous seasonal obligation period capacity test:

$$\mathbf{PAF = Delivered Capacity / Cleared ICAP in previous obligation period}$$

## PAF Calculation Method (2 of 2)

3. If submitted ICAP is less than the ICAP cleared in the last auction, and greater than the capacity delivered during the most recent seasonal capacity test, then a PAF is applied and calculated as follows:

$$\text{PAF} = \text{Delivered Capacity in previous test} / \text{Submitted ICAP in current obligation period}$$



# Administrative Updates (Chapter 9 Updates)

## Chapter 9 Updates

- Settlements equations, and the definitions of their variables, are typically populated in Chapter 9 of the market rules for all settlement activities except the capacity auction, which are populated in Market Manual 5.5 and Charge Types and Equations.
- As part of a larger effort to update the market rules, in part to prepare for the revisions coming with Market Renewal, this administrative update will bring the sections of Chapter 9 pertaining to the capacity auction in line with the rest of the Chapter, with all settlements equations and variables defined in the market rules themselves.

# Summary

- Completing the Chapter 9 updates resulted in extensive red-lines, which may give the appearance that impactful changes were made to settlement of capacity obligations. Note, no changes were made to:
  - The settlement system as a result of this update
  - The settlement activities associated with a capacity obligation
  - The obligations placed on a participant with a capacity obligation when moving equations into the market rules
- Due to the extent of the red-line changes, a reference guide is available to assist with the review



# Summary

# Summary of 2023 Capacity Auction Enhancements

- The Capacity Auction will be an increasingly important component of the Resource Adequacy Framework as we prepare to meet emerging capacity needs
- Enhancements are needed to drive competition and ratepayer value as auction targets increase
- A collaborative engagement process has resulted in more robust designs informed by stakeholder feedback

# Next Steps

## Stream 2:

- **July 11** - Vote to Post
- **September 12** – Vote to Recommend

## 2023 Capacity Auction Activities:

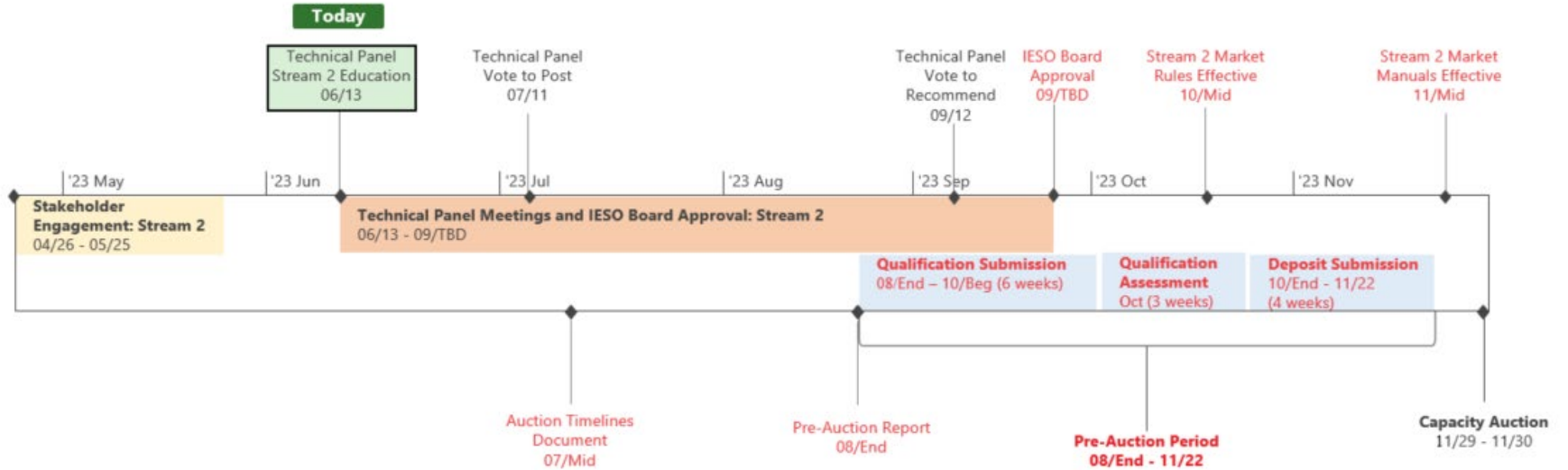
- **August** - Capacity qualification submission window opens
- **November** – Capacity Auction runs





# Appendix

# Key Upcoming Capacity Auction Dates



# Timing of PAF Mechanism

	2023 Capacity Auction		2024 Capacity Auction		2025 Capacity Auction	
Obligation Period	Summer: May to October 2024	Winter: November 2024 to April 2025	Summer: May to October 2025	Winter: November 2025 to April 2026	Summer: May to October 2026	Winter: November 2026 to April 2027
PAF Data Inputs	N/A	N/A	Test performance from 2024 summer obligation period	N/A	Test performance from 2025 summer obligation period	Test performance from 2024/25 winter obligation
			Cleared ICAP from 2024 summer obligation period		Cleared ICAP from 2024 summer obligation period	Cleared ICAP from 2024/25 winter obligation period
			Submitted ICAP for 2025 summer Obligation period		Submitted ICAP for 2026 summer obligation period	Submitted ICAP for 2026/27 winter obligation period

## PAF Example: Non-HDR (Scenario 1)

A non-HDR resource submits an ICAP value of 80 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. Availability de-rate of 7% is applied to the resource.

Since submitted ICAP is equal to the delivered capacity from the previous capacity test, the resource falls under Scenario 1 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 1$
- $UCAP = 80 * (1 - 0.07) * 1 = 74.4 \text{ MW}$

## PAF Example: HDR (Scenario 1)

An HDR resource submits an ICAP value of 80 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. An availability de-rate is not applicable.

Since submitted ICAP is equal to the delivered capacity from the previous capacity test, the resource falls under Scenario 1 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 1$
- $UCAP = 80 * 1 = 80 \text{ MW}$

## PAF Example: Non-HDR (Scenario 2)

A non-HDR resource submits an ICAP value of 100 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. Availability de-rate of 7% is applied to the resource.

Since submitted ICAP is equal to the cleared ICAP from the previous capacity test, the resource falls under Scenario 2 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 80/100 = 0.8$
- $UCAP = 100 * (1 - 0.07) * 0.8 = 74.4 \text{ MW}$

## PAF Example: HDR (Scenario 2)

An HDR resource submits an ICAP value of 100 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. An availability de-rate is not applicable.

Since submitted ICAP is equal to the cleared ICAP from the previous capacity test, the resource falls under Scenario 2 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 80/100 = 0.8$
- $UCAP = 100 * 0.8 = 80 \text{ MW}$

## PAF Example: Non-HDR (Scenario 3)

A non-HDR resource submits an ICAP value of 90 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. Availability de-rate of 7% is applied to the resource.

Since submitted ICAP is greater than the delivered capacity but less than cleared ICAP, the resource falls under Scenario 3 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 80/90 = 0.889$
- $UCAP = 90 * (1 - 0.07) * 0.889 = 74.4 \text{ MW}$



## PAF Example: HDR (Scenario 3)

An HDR resource submits an ICAP value of 90 MW during the qualification process. Cleared ICAP from the previous auction is 100 MW and delivered capacity is 80 MW. An availability de-rate is not applicable.

Since submitted ICAP is greater than the delivered capacity but less than cleared ICAP, the resource falls under Scenario 3 as described in [design memo 10.1](#).

PAF and UCAP will be calculated as follows:

- $PAF = 80/90 = 0.889$
- $UCAP = 90 * 0.889 = 80 \text{ MW}$

# PAF Limit

IESO will limit PAF to 0.75 in the following situations:

- If based on capacity test performance data, the PAF calculation would result in a PAF of less than 0.75
- If a capacity market participant fails to notify the IESO of the specific day, hours and dispatch intervals for which they wish their performance to be assessed, or fails to submit the measurement data for a self-scheduled capacity auction test (for a virtual HDR resource), the PAF will be 0.75 and delivered performance will be assumed to be 0 MW

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# Thank You

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