Reflecting Winter Capability in Accreditation: Analysis & Initial Proposal

ELCCSTF

May 22, 2025

Today's Presentation

Discussion on reflecting deliverable winter capability in accreditation:

- Recap background on this piece of the accreditation methodology PS/IC.
- Review analysis of winter capability to inform changes to accreditation methodology.
- Build upon design considerations presented at the 4/3/2025 meeting and discuss PJM's initial proposal in this area.
- We welcome stakeholder feedback on this initial proposal.

Recap of Status Quo & Opportunity to Enhance Methodology

- The modeled hourly output of resources has historically been limited to levels assessed in PJM RTEP deliverability studies, which is equivalent to a Summer ICAP / CIRs for some resources all year around. This approach may underrepresent some resources' full winter capability.
- Capturing winter capability of all resources in accreditation would allow the capacity market to more fully reflect the reliability benefit of those resources.
- Changes to winter deliverability test procedures in the RTEP and interconnection process will study higher winter output, presenting an opportunity to do the same in resource adequacy modeling.

Deliverability Caps	Unlimited	Limited Duration	Variable & Combination
Summer	CIRs	CIRs	CIRs
Winter Daytime	**CIRs**	**CIRs**	Assessed Deliverability
Winter morning & evening peaks	**CIRs**	**CIRs**	Assessed Deliverability

* CIRs include transitional capability awarded for the delivery year

* Changes that require a sub-annual market are out of scope per the issue charge.

Winter Capability Analysis Approach

PJM performed analysis to determine how much winter capability can be reasonably relied upon for resource adequacy.

For each Unlimited Resource in the 2026/27 portfolio:

1. Estimated **"Winter ICAP"** as the maximum Winter Net Capability Test since 22/23 DY, capped at Maximum Facility Output (MFO).

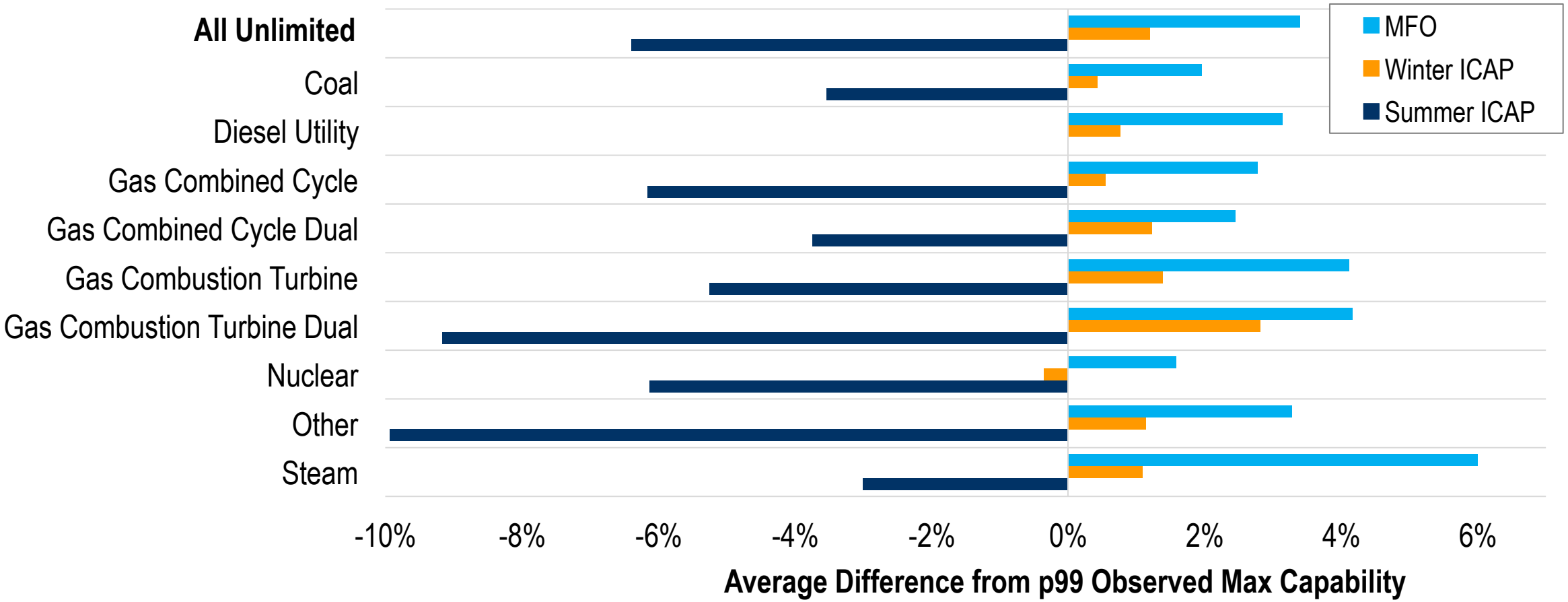
2. Calculated hourly **"Observed Max Capability"** as the maximum of actual output or emergency max, in hours where the unit had no outages. This was calculated using all available data for each unit back to 2012, November through April.

3. Compared these metrics to Summer ICAP and MFO.

The delta between Summer ICAP and "Winter ICAP" for Unlimited Resources in this portfolio is 8,561 MW. See sensitivity analysis, slides 16-18.

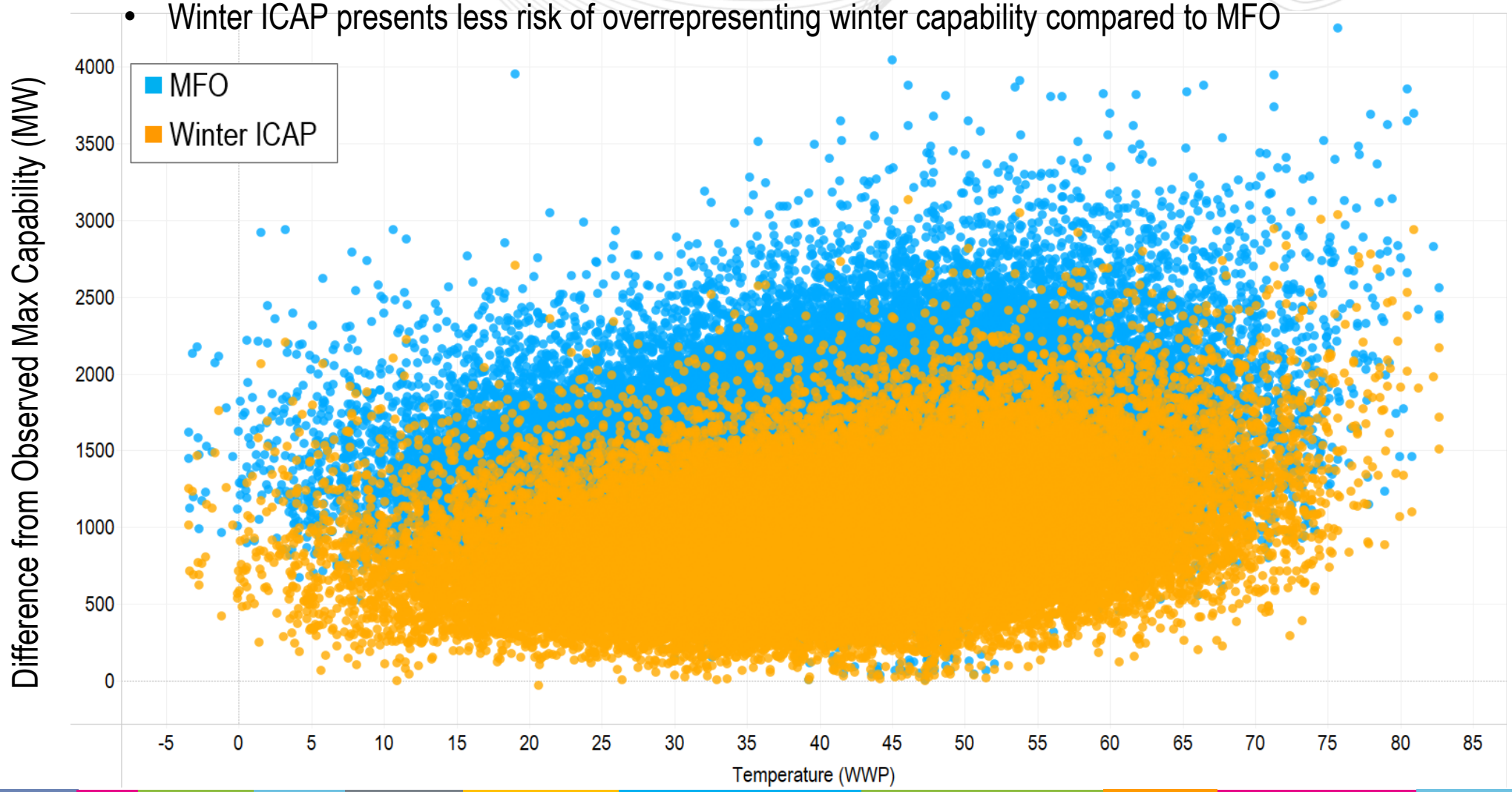
Winter ICAP is Most Aligned with Observed Winter Capability

Unlimited resources' 99th percentile observed max capability in winter is on average **6.4% (11 GW) higher than Summer ICAP**, **3.4% (6 GW) lower than MFO**, and **1.2% (2 GW) lower than Winter ICAP**.

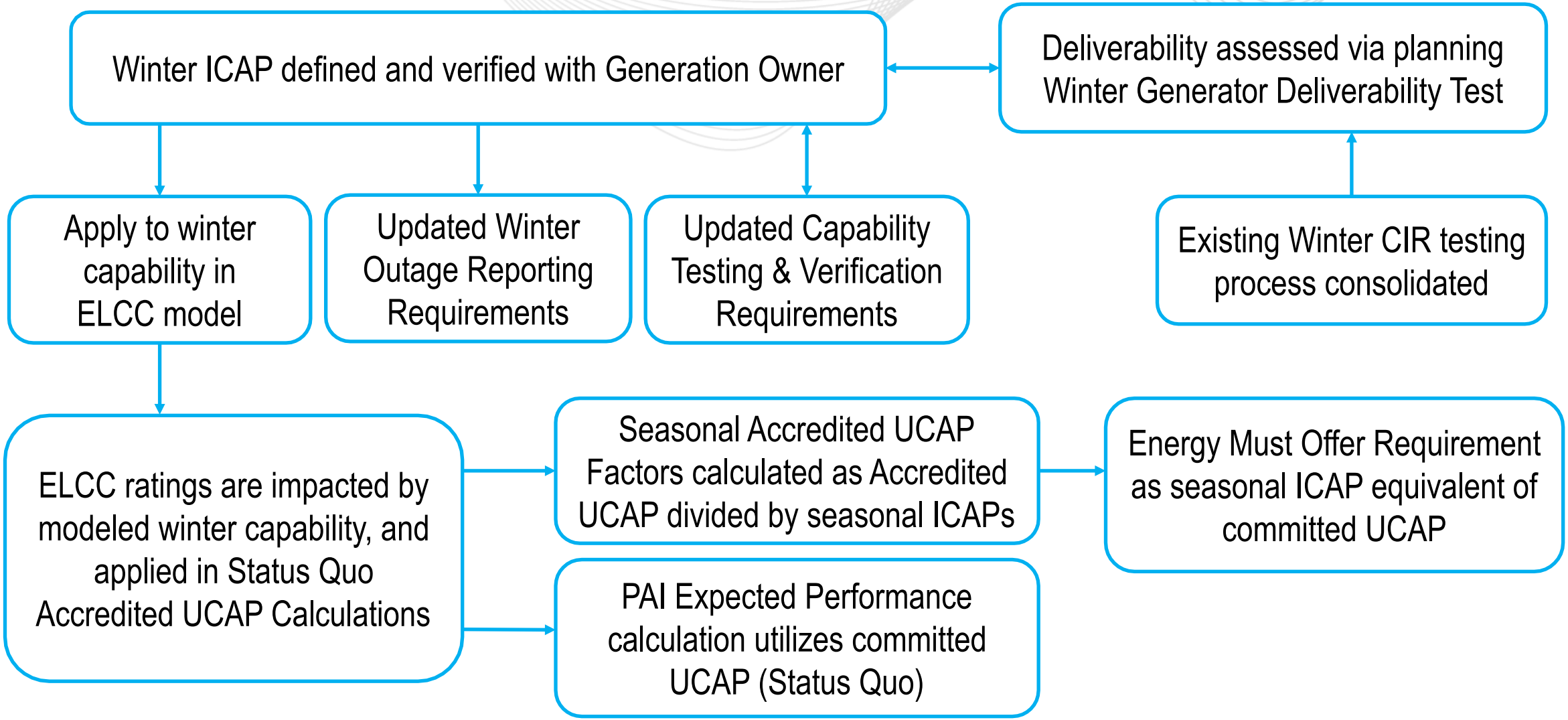


Comparison of Winter ICAP and MFO to Observed Max Capability

- Some decreased variability between observed max capability and ratings as temperature decreases
- Winter ICAP presents less risk of overrepresenting winter capability compared to MFO



Outline of Proposed Winter ICAP in Accreditation



Unlimited Resources: Proposed Definition of Winter ICAP

Winter ICAP set to winter rated capability for capacity resources based on a specified set of winter conditions defined in M21B today:

- Winter rated capability determined by adjusting the generator capability for generator site conditions coincident with the dates and times of the last 15 years PJM winter peaks.
- These are the conditions currently prescribed under the Winter Net Capability Verification Test.
- A review and verification process would require Generation Owner to submit Winter ICAP. PJM would review against Winter Net Capability Verification Test data to confirm the value.
- Winter ICAP may not exceed MFO or studied winter deliverability and granted Winter CIRs.

This approach is consistent with the definition and application of Summer ICAP.

Deliverability of Winter ICAP

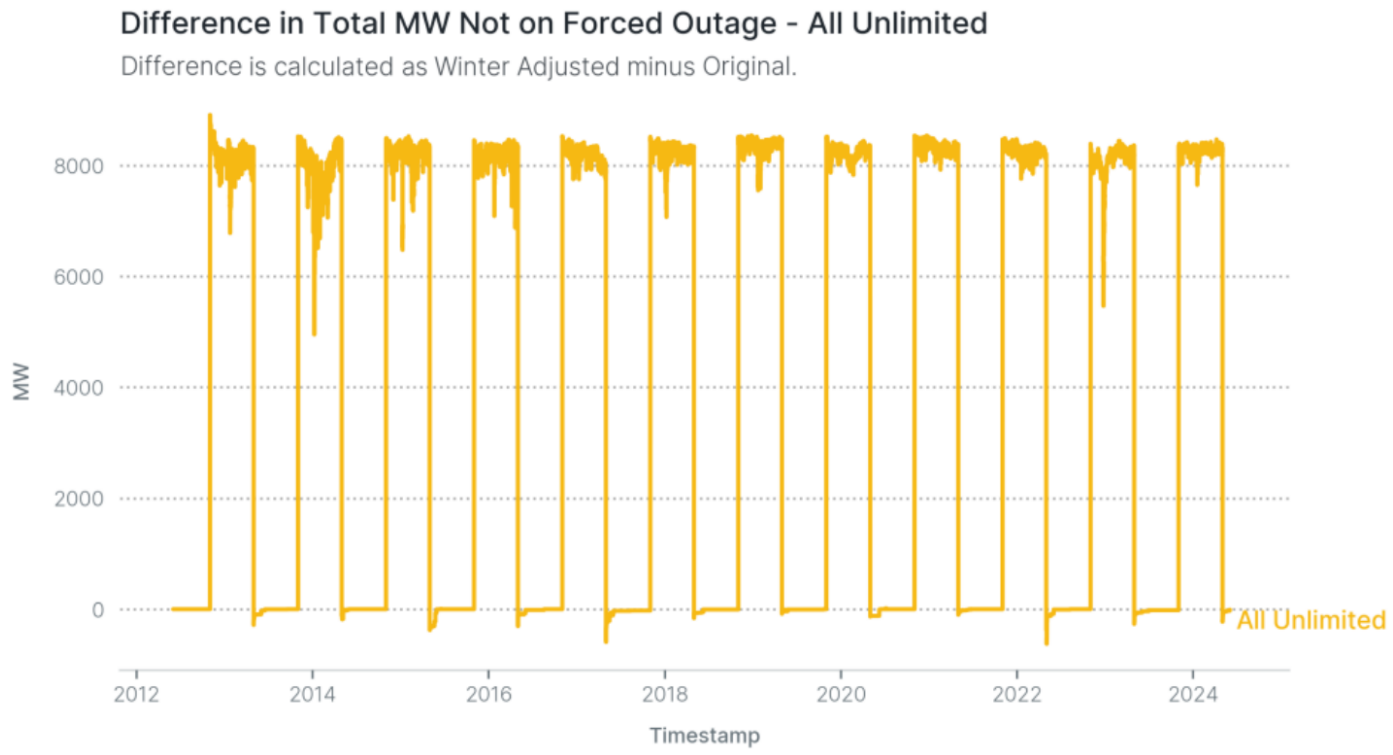
- Deliverability of Winter ICAP would be confirmed via results of PJM planning winter generator deliverability tests.
  - RTEP and interconnection process will both study up to new winter generator deliverability test levels for all resources beginning with 2024 RTEP cycle, with full alignment for the 2029/30 delivery year.
    - RTEP studies up to the new test levels beginning in 2029 winter RTEP model
    - Interconnection studies up to the new test levels beginning with Transition Cycle 2 (2028 winter model)
  - A transitional study will be needed for winter deliverability for 2028/29 delivery year.
- Winter CIRs granted up to the level evaluated in winter generator deliverability studies.
  - Under Status Quo, this only applies to variable and environmentally limited resources.
  - Additional changes will be needed to consolidate the existing Winter CIR study process with this process. Approach to this would be impacted by options on slide 14.

Unlimited Resources: Application in Accreditation Model

During the winter period (November through April) resource capability will be based on Winter ICAP, adjusted for outages.

- In hours with no outages, resource will be available up to Winter ICAP.
- Winter ICAP will be used to calculate outage rates used in the ELCC model during the winter. Outages will be applied in the same manner as today.

Example of availability from sensitivity analysis, slides 16-18:



Unlimited Resources: Downstream Requirements

Reporting Requirements

- EDART Reportable MW reflect Winter ICAP, such that outages and ambient derates are decremented from Winter ICAP
- GADS reporting should reflect higher capability during winter months

Winter Testing and Verification Requirements

- Winter Net Capability Verification Test compared to committed Winter ICAP

Energy Must Offer Requirement

- Seasonal ICAP equivalent of cleared UCAP, defined utilizing seasonal Accredited UCAP Factors

Variable, Combination and Limited Duration Resources

To apply a consistent application of winter capability across resources types, some additional modeling and process changes would be needed for variable, combination, and limited duration resources:

- Winter ICAP would be defined as Equal the Effective Nameplate Capacity of the resource, not to exceed studied winter deliverability and granted Winter CIRs.
- The separate Winter CIR request and study process would be consolidated with new process utilized to assess winter deliverability for all resource types.

Converting Seasonal ICAP to Seasonal Accredited UCAP Factors All Resources

Today, resource Accredited UCAP Factors are calculated as Accredited UCAP / Installed Capacity and are utilized in auction clearing and calculation of daily positions. Under this proposal, Seasonal Accredited UCAP Factors would be calculated to apply downstream in RPM:

- Summer Accredited UCAP Factor = Accredited UCAP / Summer ICAP
- Winter Accredited UCAP Factor = Accredited UCAP / Winter ICAP

Example

- Summer ICAP = 90 MW CIR
- Winter ICAP = 100 MW Winter ICAP
- Accredited UCAP = 60 MW
- Summer AUCAP Factor = 60 MW / 90 MW = 0.667
- Winter AUCAP Factor = 60 MW / 100 MW = 0.6

Potential Approaches for When Accredited UCAP > CIRs All Resources

Status Quo

- Annual offers are allowed up to annual AUCAP, which utilizes an annual AUCAP factor multiplied by annual ICAP and may not exceed annual CIRs.
- Intermittent resources with accredited capability above annual CIRs are eligible to reflect incremental winter capability as winter-period capacity, which may offer into RPM auctions as winter-only offers and may clear if matched with summer-only offers. In practice, this primarily applies to wind.
- In recent auctions, we have observed a significant portion of winter-only offers not being matched and not clearing the auctions. For example, ~1 GW UCAP of winter offers were not matched with summer offers in the 2025/26 BRA.

Option 1: Recognize Winter Capability in Accreditation while Retaining Status Quo Auction Rules

- Annual AUCAP and annual offer capped at annual CIRs, with additional incremental winter capability offered as winter-period capacity.
- Expand eligibility for all resources to reflect the increment of AUCAP > CIR as seasonal capacity.

Option 2: More Fully Recognize Winter Capability in Annual Auction Construct

- Allow annual AUCAP and annual offers to exceed annual CIRs.
- Sunset seasonal matching, with annual offers more fully capturing seasonal capability.

Potential Approaches for When Accredited UCAP > CIRs

Wind Resource Example

ENC = MFO = 100 MW | Winter Deliverability = Winter ICAP = 70 MW

Summer ICAP = 20 MW | CIR = 20 MW | ELCC Rating = 40%

Option 1: Winter Capability in Accreditation, Status Quo Auction Rules

- Accredited UCAP = 20 MW
- Annual Offer = 20 MW
- Incremental Winter-Only Offer = 20 MW

Option 2: More Fully Recognize Winter Capability in Annual Auction Construct

- Accredited UCAP = 40 MW
- Annual Offer = 40 MW

Next Steps

- Review feedback from stakeholders
- Bring additional details and refined proposal to next ELCCSTF

Contact

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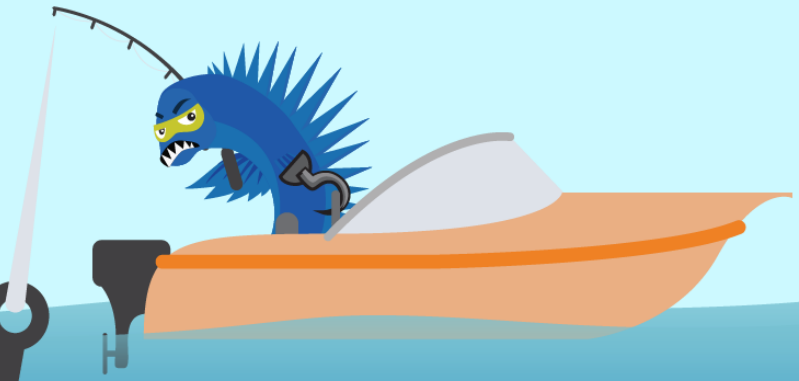

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