Reflecting Winter Capability in Accreditation: Education & Design Considerations

ELCCSTF

April 3, 2025

Today's Presentation

Discussion on reflecting deliverable winter capability in accreditation:

- Review accreditation design principles and concerns raised in the Issue Charge on use of transmission system headroom in accreditation.
- Education on winter deliverability studies and status quo application in ELCC model.
- Design considerations for allowing all resource types to reflect winter capability above CIRs in accreditation within an annual* capacity market construct.

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

Key Accreditation Design Principles

- Reflects resources' expected contribution to resource adequacy and ability to perform during periods of reliability risk during the Delivery Year
- Captures correlated outage risks and the relationship between weather, load, and resource performance
- Compensates resources in a manner that incentivizes cost-effective investment and retirement of resources
- Accredits different resource types and resources in a non-discriminatory manner
- Sufficiently transparent and stable to enable investors to make informed decisions when considering going forward investments

Accreditation Methodology Problem Statement

Use of Transmission System Headroom to Accredit Non-Dispatchable Resources

In accrediting intermittent and environmentally limited resources using the marginal ELCC model, PJM calculates their deliverability and resulting contribution to reliability based on the use of system transmission system headroom. Importantly, under the current methodology, only those resources are eligible to apply to receive the benefit of winter Capacity Injection Rights (CIRs). Dispatchable resources do not receive the same treatment in the ELCC model, instead being limited in production in the model to the level of CIRs the unit already owns. While non-dispatchable resources are not able to sell UCAP over the amount of CIRs they own, their ELCC accreditations are affected by the credit they receive for production above that amount when PJM conducts the ELCC analysis.

Like non-dispatchable resources, dispatchable resources also can provide more capacity to the system under different system conditions. This is particularly relevant given the move toward higher risk in winter periods under PJM's ELCC modelling, when certain dispatchable resources can provide capacity meaningfully above their CIR values in those periods.

For that reason, PJM should make the ELCC calculation methodology consistent with respect to the treatment of CIRs and system headroom, regardless of resource type.

Status Quo Application of System Headroom in Accreditation

Included in ELCC Analysis for Annual Accreditation

- Modeled hourly output of resources is limited to levels assessed in PJM RTEP deliverability studies, which determine if the aggregate of generators in an area can be reliably transferred to the remainder of PJM.
- CIRs include transitional system capability awarded for th

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

Separate Winter CIR Studies

- Separate deliverability study of additional CIRs for winter period of delivery year.
- In support of resources eligible to submit sell offers as a Winter-Period Capacity Performance Resources.

RTEP Winter Deliverability Background

- In early 2023, stakeholders approved changes to PJM's generator deliverability test procedures.
  - Changes started to be implemented with the 2023 RTEP
  - Changes will be implemented starting with Transition Cycle 2 in the interconnection process
- The changes were primarily approved to update the test to better handle the evolving resource mix.
- One of the changes that was approved was consideration of seasonal output capabilities and expected operating levels of generators.
  - Summer, winter and light load
  - Summer single contingency testing continues to be limited to the CIR level
- The next slide provides a comparison of the winter deliverability MW under the old generator deliverability rules to those under the new generator deliverability rules.

RTEP Winter Deliverability MW

Capacity Resource Type	Contingency Type	Winter Gen Deliv Test Levels	
		Old	New
All Thermal	single common mode	CIR CIR	MFO MFO
Onshore Wind	single common mode	80% MFO MFO	p90%* p90%*
Solar (Fixed & Tracking)	single common mode	10% MFO MFO	5% MFO 5% MFO
Offshore Wind	single common mode	80% MFO MFO	p80%* p80%*
Batteries	single common mode	CIR MFO	MFO MFO
Pumped Storage / Hydro	single common mode	CIR CIR	MFO MFO
Hybrid Resource	All	Based on test levels for each resource type	MFO

*p90% for onshore wind in 2025 RTEP is 71% MFO for MAAC, 84% MFO for PJM West and 77% MFO for Dominion

*p80% for offshore wind in 2025 RTEP is 95% MFO for MAAC and 97% for Dominion

Winter CIR Studies

Who?

Generation Owners of Intermittent Resources and Environmentally Limited Resources

Existing resources & planned resources eligible for BRA

When are Winter CIRs requested?

Modified auction schedule
10-day request window opening 145 days prior to the BRA

3-Year auction schedule
Request window is Aug. 31 – Oct. 31 of the year prior to the May BRA

What?

Eligible to request additional CIRs for the winter period of each delivery year.

Requests for CIRs greater than 40% of MFO must provide supporting documentation to verify the facility is capable of reliably achieving the requested output

Study details

- Single contingency generator deliverability study is performed
- Winter RTEP model for the delivery year under study (latest winter peak load forecast, winter transmission facility ratings)
- Additional/requested Winter CIRs are found either fully deliverable, partially deliverable, or not deliverable
- Results are published prior to the DR Sell Offer Plan due date

Considerations for Reflecting Winter Capability in Accreditation

Deliverability Assessment of Winter Capability to Include in Accreditation	• Consider whether resources would opt-in to be accredited with additional winter capability, or whether winter capability would be evaluated for all resources. • Alignment of existing processes with transition mechanism would be needed (between RTEP, Interconnection, and separate Winter CIR studies).
Application in ELCC Modeling	• Deliverable winter capability would be applied as output cap during winter hours. • Additional review needed to accurately estimate past availability above CIRs, including potential approaches to rewrite forced outage rates and utilize ambient uprates.
Impact on Accreditation	• May impact patterns of risk and resulting accreditation of resources. • Resources with demonstrated capability above CIRs (and not on outage) during times of winter risk in the ELCC modeling may receive a higher annual Accredited UCAP.
Obligations	• Higher PAI obligations with higher Accredited UCAP. • Winter testing & verification requirements would apply up to winter capability level. • Update to energy market must offer requirement in winter period given additional capability in accreditation.
Seasonal Capacity Offers	• If AUCAP > annual CIRs, after recognizing increased winter capability, consider approaches to count AUCAP in excess of CIRs as capacity.

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Appendix

Winter CIRs - References

- OATT Part VIII, section 430 - Winter CIRs

  https://agreements.pjm.com/oatt/43206

- M18 – Sections 4.10 and 5.2 for seasonal capacity performance requirements and RPM Auction timeline

  https://www.pjm.com/-/media/documents/manuals/m18.ashx

- M14H - Section 4.10.2 for Winter CIR Planning study

  https://pjm.com/-/media/documents/manuals/m14h.ashx

- Latest RPM auction schedule

  https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/rpm-auction-schedule.ashx

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