# Examples Supporting Proposed Solution Options for Variable Resources: CIR Quantities and their Use in the ELCC Analysis

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# Terminology Review

- UCAP is the amount of Capacity a resource can sell or otherwise provide in the Capacity Market.
- CIRs are the amount of deliverability that is maintained on the transmission network for a resource.
- Because of variable availability for all resource types, CIRs are usually higher than UCAP.

# Status Quo (Pre-ELCC) Accreditation and CIR Quantities for Wind/Solar: Insufficient Deliverability

- The “368-hour Rule” in Manual 21 Appendix B sets both UCAP and CIR eligibility/retention of wind/solar based on the average output across all summer afternoons:
  - Summer is June, July, and August
  - Afternoon is hour ending 3, 4, 5, and 6 PM Local Prevailing Time
- For example, a hypothetical 100 MW wind unit that during summer afternoons makes 26 MW half the time, and 0 MW the other half of the time, has a 13 MW UCAP and can retain 13 MW of CIRs.
- *Note: w/ 13 MW of CIRs, only half of the 26 MW is certified as deliverable.*

# Theoretical Alternative Approach to Status Quo CIR Quantities for Wind/Solar

- *For example, a hypothetical 100 MW wind unit that during summer afternoons makes 26 MW half the time, and 0 MW the other half of the time, has a 13 MW UCAP and can retain 13 MW of CIRs.*
- In order to ensure that all of the summer afternoon output of such a unit were deliverable, it could request and retain CIRs up to the maximum (not average) summer afternoon output: i.e., 26 MW.
- In that case, the unit would have a UCAP of 13 MW, a CIR level of 26 MW, and all of its summer afternoon output would be deliverable.

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- *In order to ensure that all of the summer afternoon output of such a unit were deliverable, it could request and retain CIRs up to the maximum (not average) summer afternoon output: i.e., 26 MW.*
- How to handle two identical 100 MW wind farms, where Farm A obtains the full 26 MW of CIRs, and Farm B decides to obtain only 20 MW of CIRs?
- UCAP of Farm A is 13 MW, and all output is deliverable.
- UCAP of Farm B should be lower, since 6 of the 26 MW are not deliverable. Solution: cap the values used for UCAP accreditation at the CIR level (that is, at 20 MW). Half the time the unit makes 0 MW, and half the time it makes 26 MW, but each 26 MW value is capped at 20 MW, and **so the resulting UCAP value for Farm B is 10 MW**.
  - Farm B is still eligible to request and obtain the full 26 MW of CIRs, in which case its UCAP would rise to 13 MW.

# Actual Proposed Solution Options for Variable Resources

*The status quo for UCAP determination is being replaced with ELCC. However, both the 368 hour rule and ELCC are quite sensitive to average summer afternoon output and are otherwise analogous metrics.*

1. In order to ensure that all of the summer afternoon output of Variable Resources (including wind and solar) is deliverable, such resources could request and retain CIRs up to the maximum (not average) summer daytime output.
2. In order to ensure that actual CIR levels are appropriately reflected in the ELCC UCAP accreditation process, cap the values used for UCAP accreditation of Variable Resources at the CIR level.