Examples of Solutions Incorporating CIRs into Accreditation

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Planning Committee Special Sessions on CIRs for ELCC Resources

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.

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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 (prior to 2023/24) 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.*

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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.

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Solution A Treatment Under ELCC with Changing ELCC Class Ratings

- **Under ELCC, different hours “count” more or less towards accreditation, with a pattern that shifts in time. Such pattern shifts are what drive changing ELCC Class Ratings.**
- Imagine that in 2023, the 26MW hours and 0MW hours “count” equally under ELCC (and no other hours “count”). This ELCC would have the same outcome as the 368-hour rule.
  - *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****.*
- Imagine that in 2026, ELCC results are 3x more sensitive to output in the 26 MW hours vs the 0MW hours (and no other hours “count”):
  - Each hour’s output is capped at CIRs, so HourlyOutputForELCC = MIN(ActualOutput,CIRs).
  - Farm A, with 26 MW of CIRs, has a UCAP now of 0.75*MIN(26,26) + 0.25*MIN(0,26) = 19.5 MW, and all output is deliverable.
  - **Farm B, with 20 MW of CIRs, has a UCAP now of** 0.75*MIN(26,20) + 0.25*MIN(0,20) = **15 MW**, since 6 MW is not deliverable.

Treatment Under ELCC with Changing ELCC Class Ratings

- Battery example: in 2023, the ELCC Class Rating for 4-hour storage is 75% (not the real value). In 2026, it goes up to 100% (also not real).
- Battery X and Battery Y both have 100 MW, 400 MWh and are in the 4 hour class.
- Battery X has 100 MW of CIRs. Battery Y has 75 MW of CIRs.
- The AUCAP of batteries is: EffectiveNameplateCapacity*ClassRating*(1-EFORd). Assume a 0% EFORd for this example (not the actual class average EFORd for batteries).
- Under Solution A, the EffectiveNameplateCapacity of a battery cannot exceed the CIRs.
- In 2023, the AUCAPs are:
  – Battery X = 100*75%*1 = 75 MW
  – Battery Y = 75*75%*1 = 56.25 MW
- In 2026, the AUCAPs are:
  – Battery X = 100*100%*1 = 100 MW
  – Battery Y = 75*100%*1 = 75 MW

Contact

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Examples of Solutions Incorporating CIRs into Accreditation

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