

Capacity Interconnection Rights for Variable Resources

Issue Source

PJM's adoption of effective load carrying capability (ELCC) analysis to determine the capacity market capability of resources that cannot run at their maximum output for 24+ hours (ELCC Resources) raises questions and opportunities to address concerns related to the permissible amount of Capacity Interconnection Rights (CIRs) requested for planned ELCC Resources, the relationship between CIRs and the amount of capacity offered into the capacity market, the role CIRs should play in determining ELCC and CIR retention policies that may result in unnecessary baseline upgrades to support CIR levels that are never or rarely attained in the energy market.

Issue Content

The CCSTF developed an ELCC method to establish a cap on the amount of capacity that variable resources and limited duration resources can sell in the capacity market. That effort did not change the amount of CIRs that such ELCC Resources are eligible to request and retain. On the one hand, for some types of ELCC Resources such as storage and potentially hydro, CIR requests for planned units and the retention of CIRs is based on their Installed Capacity (ICAP). CIR retention for these resources is either based on adjusted test output during particular summer afternoons, or based on the amount of power that can be provided continuously over 10 hours. On the other hand, for wind and solar resources, CIR requests for planned units are administratively set at generic, pre-defined values based on the class average summer capacity factor set forth in the PJM manuals unless the developers of the resources submit meteorological data supporting higher outputs. CIR retention for these resources is based on average outputs during the afternoon window from 3 PM – 6 PM in each of the most recent 3 summer periods.

While CIR values for all resources today (generally based on ICAP) are not expected to be the same value as the amount of capacity a resource can sell (unforced capacity, or UCAP), ELCC highlights existing concerns for certain ELCC Resources related to their firm deliverability and introduces new potential discrepancies. First, basing CIRs on average resource outputs will not ensure that higher than average outputs will be deliverable. As a result, the effective UCAP may be significantly lower than the assigned UCAP because transmission limitations are not considered. Further, under the current ELCC proposal, CIRs are not accounted for in the determination of the accredited UCAP, and there is a question about the extent to which the ELCC analysis should take CIRs into account in order to not overstate the accredited UCAP. These concerns will likely increase under higher renewable penetrations and merely considering historic transmission limitations may not be sufficient. Second, in recognition of their unique performance risk profile under Capacity Performance, Capacity Storage Resources and Intermittent Resources (which together are the main types of ELCC Resources) may choose the level of capacity that they offer or otherwise provide (that is, they are exempt from the Capacity Market Must Offer policy). This results in a mismatch between the CIRs and the amount of capacity offered. Because ELCC accreditations can change with time, ELCC magnifies this issue.

PJM is proposing to initiate a stakeholder process to address these issues prior to year-end 2021, to allow ELCC resources to achieve appropriate CIR values in time for the 2024/25 Base Residual Auction.