

REVISED QUESTIONS FOR PJM ELCC-CIR
RESPONSES EXPECTED TO BE POSTED PRIOR TO 4/28 MEETING

The following questions are revisions of the questions submitted to PJM on 3/23/2022 incorporating the changes resulting from a productive discussion with PJM on April 7, 2022 in regards to the “end” state (e.g., removing the “multiplier” and confirming CIRS = Deliverability). That said, we look forward to further discussions with PJM regarding the transition from the current accreditation and deliverability requirements for existing (executed ISAs) intermittent resources to the proposed end state and remain concerned about whether PJM will reflect the absence of such upgraded deliverability and accreditation for those resources prior to the June 2022 BRA for DY 23/24, and if not, when.

PJM RESPONSE: As background, the PJM Board of Managers (PJM Board) responded to letters addressed to the PJM Board dated March 4, 2022 relating to capacity accreditation (<https://www.pjm.com/-/media/about-pjm/who-we-are/public-disclosures/20220304-board-response-to-p3.ashx>).

Changes to existing rules will take effect once FERC approves governing document changes associated with an approved stakeholder package.

1. In our discussion on April 7 PJM indicated that, at least for the “end” state, PJM will abandon the concept of a “multiplier” to determine the CIRs for intermittent resources and will instead implement a deliverability method where CIRs are equal to deliverability. (This eliminates LS Power’s concerns with among other things, the ownership and transferability of the CIRs as well as how changes in output would be analyzed and determined.) How does PJM plan to memorialize this methodology? Will PJM revise the OATT, RAA, or Manuals? When will this be presented to the rest of stakeholder group?

PJM RESPONSE: PJM believes manual changes will be required, however PJM is still assessing the impact to other governing documents.

2. The previously submitted questions below regarding the subject of headroom that PJM has stated will validate most of the accredited UCAP (AUCAP) for intermittent resources with executed ISAs remain open:
 - a. Does PJM continue to believe that the majority if not all of the headroom in the transmission system needed to make intermittent Generation Capacity Resources deliverable to the proposed levels currently exists or requires only modest enhancements.
 - b. If the answer to (a) is yes, does PJM continue to believe that the cause of this was the fact that intermittent facilities made MFO related upgrades beyond those needed for deliverability, and these would, to an unspecified extent, overlap with the upgrades needed to establish deliverability for these intermittent resources?

- c. With no variable multiplier, has PJM changed the level of deliverability PJM was referring to the currently recommended values, e.g. 52% for wind in PJM West and 38% in MAAC etc?
- d. Does PJM still agree per its earlier statements that any headroom created by such MFO related upgrades would be co-mingled with any other existing headroom, does PJM still agree with that statement?
- e. Does PJM still believe its analyses of the “existing” deliverability that concluded virtually all intermittent resources were already deliverable with minimal upgrades, (which includes all such existing headroom that resulted not only from the MFO upgrades of the specific unit, but upgrades from the RTEP and upgrades from other generators and possibly other sources, e.g. supplemental projects; energy only projects (Energy Resources, or partial Energy Resources)) is still valid; if not what has changed?
- f. Please confirm that none of this existing headroom was contractually dedicated by ISA’s or any other agreement to the Variable Resource/intermittent units that PJM proposes to provide increased deliverability.
- g. Please confirm whether PJM has energy only resources (Energy Resources) that are thermal, wind, and solar.
 - i. If yes, would basically the same or similar MFO requirements and upgrades exist for such resources (E.g., for a 100 MW wind farm with 13 MWs of CIRs versus a 100 MW identical wind farm right next door with the same queue date and on line dates that choose to be an energy only (Energy Resource).
 - ii. Please confirm that these MFO type upgrades would potentially create headroom for incremental deliverability to meet summer peak requirements as well.
 - iii. Does PJM agree that such incremental capability from all resources would have been available to any new resource or addition in the interconnection queue but for PJM’s existing proposal to first provide additional deliverability to the existing Variable Resources with ISAs? I.e. does PJM’s proposal decrease headroom for later dated interconnection resources?
- h. Does the existing headroom also include upgrades that may have been made for non-firm transmission withdrawal rights?
- i. Did PJM quantify how much of the existing headroom needed to be allocated to existing intermittent resources in its proposal? (Please state this in MW’s of additional deliverability). Was this headroom related only to additional/other upgrades these resources made (e.g. MFO) versus the total headroom that would have been created by any of the other examples posed above? (See 2 a above if already addressed).
 - i. Is this possible to determine other than by multiple “with/without comparison” due to the “co-mingling” type effects mentioned above? (See PJM comments in FERC Docket ER22-634)

- j. How do any other existing or proposed Generation Capacity Generators gain access to use such headroom to meet their required upgrades necessary to be recognized as a Generation Capacity Resource?
 - i. Please explain if there are other ways for Generation Capacity Generators to utilize such headroom if they wished to increase their CIRs? Could such resources by-pass the interconnection queue as is proposed for intermittent resources that have executed an ISA?
 - ii. Does any type of existing Generation Capacity Resource have priority access to claiming this existing headroom for their use in gaining additional CIRs other than via the queue process?
- k. Is it correct that for all other resources it makes no difference if they paid for some, all or none of the headroom if such resources were utilized in a request for increased deliverability and CIRs?
- l. By way of example, assume a thermal generator has a summer peak test deliverability of 90 MWs and 90 MWs of CIRs. And based on a MFO of approximately 110 MW they were required to make additional upgrades beyond those related for deliverability of the 90 MW to address stability concerns that were identified at an output of 110 MW. Is this type of situation common in the interconnection studies for other units?
 - i. Can PJM confirm that the upgrades over and above that needed for the 90 MW deliverability to address the stability concerns could/might actually allow or contribute to 20 MW of additional deliverability if at some later time the facility could meet the summer testing requirements for accreditation.
 - ii. Could PJM confirm that likewise those upgrades might contribute to the deliverability of other facilities?
(As an aside, like virtually any other thermal facility, this facility likely has the ability to produce greater than its summer test rating most of the time, correct. (I.e., it is simply cooler at almost all other times than the conditions reflected in the performance test.))
 - iii. Under its ELCC process as currently described in the RAA, does PJM credit or recognize OUTPUT above the summer peak deliverability rating and associated CIRs in the UCAP accreditation for a thermal unit like this?
 - iv. Has PJM ever just offered to give such capability and associated additional CIRs to an existing thermal facility if PJM studies determined that greater deliverability and CIRs were possible, using either the facility's directly created headroom or headroom from other sources?
 - v. If the answer is no, why not?

PJM RESPONSE: Over and above the CIRs for existing and ISA wind and solar resources, there is about 7,300 MW (2,900 MW solar and 4,400 MW wind) of increased deliverability for those resources that were examined as part of the 2026 RTEP baseline generator deliverability study under the new generator deliverability test. PJM determined that all but about 5 MW of signed ISA projects not yet in service were deliverable during the

summer, single contingency testing under the new generator deliverability test, as presented on 2/23/2022 at the special PC session “CIRs for ELCC Resources.”

In response to questions about headroom, headroom is created by transmission upgrades (Baseline, Supplemental and Network) and is made available to all system users (generation and load).

3. The pro forma ISA addresses CIRs provided for any/all unit entering into an ISA that wish to be a Generation Capacity Resource, correct?

PJM RESPONSE: Section 2.0 of the Specifications section of the *pro forma* ISA identifies CIRs in megawatts to be granted generation units under the ISA. The term **Generation Capacity Resource** is defined as:

[A] Generating Facility, or the contractual right to capacity from a specified Generating Facility, that meets the requirements of RAA, Schedule 9 and RAA, Schedule 10, and, for Generating Facilities that are committed to an FRR Capacity Plan, that meets the requirements of RAA, Schedule 8.1. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

Given that definition, the ISA identifies the “contractual right to capacity from a specified Generating Facility” provided the Interconnection Customer meets all the requirements set forth in the ISA to be awarded such right. In addition, the Generation Capacity Resource must also meet the requirements of the RAA, Schedules 9 and 10.

4. Does the ISA specify the level of CIR provided?

PJM RESPONSE: As stated above, section 2.0 of the Specifications section of the *pro forma* ISA sets forth the amount of CIRs to be awarded each generation unit in megawatts.

5. If the CIRs are reduced due to failed tests over the running, three-year period how does the Capacity Resource formally know the CIRs have been reduced?

PJM RESPONSE: The resource owner will be informed via email that the amount of CIRs identified in the ISA are to be reduced to a new level and asked to enter the appropriate CAPMOD in Capacity Exchange before the specified date. If the resource owner fails to enter the appropriate CAPMOD, PJM will do so for them.

6. What does the ISA provide for the status of the portion of the resource in excess of the CIR level?

PJM RESPONSE: For that portion of a Customer Facility in excess of the CIR level, Section 2.1a of the Specifications section of the *pro forma* ISA provides that “[t]o the extent any portion of the Customer Facility is not a Capacity Resource with [CIRs] such portion of the Customer Facility shall be an Energy Resource.

7. If PJM agrees with our interpretation, please explain whether Energy Resource can sell Capacity into the PJM Capacity market.

PJM RESPONSE: A Generation Resource that is an Energy Resource only, i.e., not granted any CIRs under the ISA, cannot qualify as a Generation Capacity Resource and, therefore, cannot participate in a capacity auction. The Variable Resource's output above its CIR quantity up to its Maximum Facility Output can contribute to the resource's capacity capability (Accredited UCAP), as accepted by FERC. *PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,056 at P 53 (July 30, 2021).

8. How can energy from an Energy Resource be used to increase the accreditation of any facility under past or future practices in terms of the quantity of Capacity eligible for sale in an RPM auction? LS's understanding of PJM's position is stated below and would ask PJM to provide its view on our understanding:
 - a. It appears that PJM's current proposal will enable only Capacity Resources with CIRs and deliverability to sell Capacity up to their AUCAP into the capacity market.
 - b. Doesn't this reflect a basic problem in the current implementation of the ACCREDITATION (not deliverability) of existing intermittent resources both under past practices and as proposed currently under ELCC? If not seen as a problem, is it at least a fundamentally different view of the nature of what energy qualifies in the accreditation of Variable/Intermittent Resources.
 - c. It appears that PJM recognizes this problem and the related reliance on the *output* (a term undefined in the existing Tariff) of the Energy Resource portion of Variable Resources, at least in part related to PJM's proposal going forward, and in turn is proposing to resolve it by increasing the level of CIRs and deliverability needed by an intermittent resource. E.g. for wind by a factor of 3 or 4 times.
 - d. The new higher level of increased deliverability is needed for the Variable Resource to be *accredited* at approximately the same level of Capacity that PJM is allowing to be sold today (using energy currently from an Energy Resource) as part of the *accreditation* process. This appears to contradict the distinction between output and energy to be accredited via being deliverable and having CIRs, and removes any recognition of the use of the term output from what previously was part of the Energy Resource portion of the Variable Resource, which defined the contribution of the accreditation of AUCAP for the sale of capacity.

PJM RESPONSE: A Generation Resource that is an Energy Resource only, i.e., not granted any CIRs under the ISA, cannot qualify as a Generation Capacity Resource and, therefore, cannot participate in a capacity auction. See also response to Question #7 above. All capacity from ELCC Resources meets PJM's current deliverability standards, which is adequate given current and near-term system conditions. Furthermore, all existing, in-service wind and solar capacity meets PJM's proposed new deliverability standards. In an effort to address concerns specific to the deliverability of ELCC Resources, PJM provided data at the

February 23, 2022 Special Session of the Planning Committee demonstrating that all wind and solar capacity with an executed ISA are fully deliverable under the current deliverability standards and meet PJM's proposed new deliverability standards, but for a *de minimis* 5 MW at a cost of approximately \$ 7M.

PJM is currently working with stakeholders under the Planning Committee Special Session - CIRs for ELCC Resources to (i) identify improvements to the ELCC methodology for accrediting capacity resources given CIR levels (and their relationship to tested transmission deliverability levels) and (ii) examine the appropriate tested deliverability levels such resources should be eligible to receive given the rapidly evolving resource mix and the variable output capability of new resource types.

Changes to existing rulesets will only take effect once FERC approves governing document changes associated with an approved stakeholder package.