

COMMENTS OF EDF-RENEWABLES ON DELIVERABILITY ASSESSMENT METHODOLOGY INITIATIVE ISSUE PAPER

EDF-Renewables (EDF-R) appreciates the opportunity to comment on the CAISO's April 24th Deliverability Assessment Methodology - Issue Paper (Paper), and the May 2nd stakeholder meeting discussion about the Paper.

This initiative follows proposals the CAISO first advanced in the 2018-2019 Transmission Planning Process (TPP). That effort was put on hold after stakeholders (including EDF-R) expressed several concerns, and CAISO committed to this separate stakeholder process to address them.

EDF-R very much appreciates the CAISO's willingness to re-start this effort as a new initiative, with posting of an Issue Paper, to allow consideration of other approaches. In addition to providing very helpful additional information about the prior proposal (called here the "TPP Proposal"), the Paper and meeting discussion posed some interesting ideas in response to stakeholder comments in the TPP discussions.

EDF-R continues to have significant concerns about the TPP Proposal and similar approaches – specifically:

- Inconsistencies between the amount of deliverability that generation projects are studied for (and in many cases have paid for) and the amount of Resource Adequacy they can provide (Net Qualifying Capacity (NQC))
- Congestion and curtailment impact of the new methodology on earlier-queued projects, and all future projects in general
- Implications of the new methodology for "behind-the-interconnection" (BTI) deliverability transfers
- Interactions with the TPP and the Transmission Economic Assessment Methodology (TEAM).

These concerns, and mitigation ideas to address them, are explained further below. Like the Paper and the stakeholder-meeting discussion, EDF-R's comments focus on solar projects, which would be the most heavily impacted (adversely) under the approaches discussed thus far.

In addition, EDF-R supports PG&E's stakeholder meeting request for the CAISO to include more examples in the upcoming Straw Proposal of how the methodology would work for different project types. It was very clear from the discussion that there is widespread confusion about how both the current and TPP proposal methodology apply/would apply to individual projects.

Disconnects between study dispatch and NQC

These disconnects exist also under the current methodology, but there could be reliability impacts of that disconnect under the proposed methodology. To illustrate these issues, assume a sample solar project with 100 MW Pmax (maximum output at the Point of Interconnection (POI)) in the SCE area, dispatched in the Deliverability Assessment under the current methodology at a representative 90% of Pmax, with the off-taker under CPUC jurisdiction.

If the project is found to be fully deliverable, it can count for 100% of the CPUC-specified Qualifying Capacity (QC), i.e., the monthly Net Qualifying Capacity (NQC) would peak at 44.8% of nameplate (44.8 MW) under the 2019 Solar Technology Factors. So, currently that project must finance upgrades to provide 90 MW of deliverability but can only provide 44.8 MW of NQC.

This could be an issue for the developer, but the CAISO can rely on at least the amount of NQC that the project counts for, because its studies have verified that it is actually deliverable up to 90 MW.

Under the new methodology, under the HSN scenario, it would be dispatched in Deliverability Assessments at about 11% of Pmax, i.e., 11 MW. If the project is found to be fully deliverable, based on the CAISO's clarifications at the stakeholder meeting, it can still count for 100% of the CPUC-specified QC, i.e., the monthly NQC would still peak at 44.8% of nameplate (44.8 MW) under the 2019 Solar Technology Factors,

So, the project would only be studied at 11 MW, its deliverability would be verified up to that amount, but it would actually count for 44.8 MW of NQC. This is nice for the developer, which only must finance upgrades to provide 11 MW of deliverability. However, the CAISO would not have studied the project at 44.8 MW and would really have no idea whether any capacity over 11 MW would be deliverable, yet it would technically rely on that level of NQC from the project.

One way to mitigate this problem would be for the CAISO to dispatch projects in deliverability studies at the higher of the current applicable QC and the otherwise applicable output level for the new adopted methodology. Though QC methodologies can change going forward, this approach could better ensure that the CAISO can count on deliverable capacity equal to the NQC it needs.

Congestion impacts on existing/prior projects

The new methodology would dispatch solar projects at significantly lower levels than their nameplate capacity, reflecting output levels for later hours in the day. Thus, the number and extent of Deliverability Network Upgrades (DNUs) would be reduced, as shown in the Cluster 10 comparison analysis done by CAISO, and new resources can receive FCDS quicker and cheaper, and with fewer DNUs. During high-output hours for those resources, the congestion risk will apply to both new and existing resources, with both potentially facing high levels of curtailment.

Historically, existing projects at least could assume that new projects seeking Full Capacity Deliverability Status (FCDS) would have to fund enough upgrades to relieve congestion under stressed system conditions that reflected peak output hours (coinciding with hours of peak demand/consumption). Thus, increased congestion was a temporary condition, at best, pending completion of DNUs for the new projects.

The process by which new generation pays for upgrades needed to alleviate congestion they cause is a fundamental part of the decision-making process for developers to build/invest in California renewables, and for Load-

Serving Entities (LSEs – IOUs, munis, CCAs, ESPs) to buy at the POI. This helps to create a reasonable risk profile for developers that helps offset the high costs and hurdles to developing in California.

Moreover, some PPAs require hub delivery, in which case the developer bears the cost and risk of increased congestion between the project location and the settlement location (i.e., "basis"). In addition, most PPAs have 15-25 year terms, while project life is 30-35 years, i.e., after the PPA term, congestion risk reverts to the developer. Buyers with long-term busbar PPAs count on the current DNU allocation process in their assessment of costs and risks related to basis and curtailment – costs that will be ultimately born by the ratepayer.

All this means that CAISO should not revise its Deliverability Assessment methodology without additional changes to keep congestion and curtailment at reasonable levels, as the current deliverability methodology has done to date.

Finally, the new methodology is inequitable. DNUs originally financed by earlier-queued projects would be used to provide deliverability to later-queued projects that could severely impair operations and financial viability of the former.

EDF-R is interested in the CAISO's ideas about requiring new-generation projects seeking deliverability to fund upgrades to relieve congestion, i.e., preserve peak-production deliverability of the area. Though that may sound like a new requirement, in reality this proposal would likely yield similar results as studies today, at least for solar projects. The study would examine conditions of peak flows in the local area (for solar projects, mid-day hours maybe close to the 1-6pm currently used) and identify upgrades to relieve any incremental congestion – in other words, basically the same analysis now performed.

Thus, the Interconnection Studies for projects seeking deliverability would consist of: (1) Reliability Assessments; (2) RA Deliverability Assessments; and (3) “Congestion Deliverability” Assessments. This framework would be better aligned with a concept of “deliverability” that ensures deliverability for peak flows in local areas and not only on peak flows in the system.

These upgrades should be reimbursable, just like other upgrades, on both economic and policy-driven bases. New-generation projects that damage the operating ability of existing renewables projects, and undermine their economics, cause harm to Load-Serving Entities (LSEs) that contracted with those projects and expected them to provide renewable energy to meet their Renewables Portfolio Standard (RPS) requirements. It is in the interest of the state as a whole to help ensure the ability of already existing and approved projects to meet that objective without huge congestion risk or unexpected cost increases.

The case for applying this approach to Energy Only (EO) projects is less clear and requires more consideration. Today, new EO projects locating in renewables-rich areas do not have to fund DNUs and, therefore, could cause congestion and impair the viability of existing/earlier-queued projects there. Because there have been relatively few EO projects, however, that impact has been limited thus far.

That aspect of EO interconnection would not be changed under the TPP Methodology, so arguments for applying the third study above (and upgrade-funding obligations) to EO projects are not as obvious. However, recent CPUC renewables portfolios provided for study in the TPP exhibit a large expected increase in EO projects, and thus negative congestion impacts may greatly increase in the future. Therefore, the CAISO could consider requiring a form of the “Congestion Deliverability Assessment” for new EO projects, and not just those seeking FCDS.

“Behind-the-interconnection” (BTI) deliverability transfers

The CAISO stated in the meeting discussion that it wants to postpone consideration of the impact of any new deliverability methodology on its framework for transferring deliverability between different parts of a project (assuming multiple Resource IDs) until details of the new methodology are determined. EDF-R asks that the CAISO reconsider this position, and include that topic in this initiative, for two reasons.

First, Deliverability Assessment dispatch levels currently set the “starting point” for any such deliverability transfers; a 100 MW solar project studied at 90% of Pmax, for example, would expect to be able to transfer up to 90 MW of deliverability to other portions of the project (e.g., added energy storage); however, if the new methodology then lowers the study dispatch of this project to something like 11 MW, would the project then have only 11 MW to transfer? This is not a reasonable outcome if the project funded upgrades sufficient to provide 90 MW of deliverability, and made business and contractual decisions based on that expectation.

Second, if the CAISO decides to significantly lower the deliverability dispatch levels for solar (and wind) projects, that could trigger a “gold rush” to preserve project RA value by quickly adding storage and/or transferring deliverability to already-added/approved storage. Our hypothetical 100 MW solar project studied at 90 MW for deliverability could transfer up to 90 MW to added 90 MW/360 MWh energy storage (12 months a year, i.e., without the “shaping” from the CPUC solar QC figures), while it would retain only 11 MW of deliverability under the TPP methodology.

Thus, EDF-R believes that deliverability transfer should be within the scope of this initiative.

Interactions with the TPP and the TEAM methodology

EDF-R appreciates the CAISO’s further consideration of its position that TPP economic assessments could help address potential congestion impacts of the TPP proposal and similar approaches. However, while EDF-R understands the CAISO’s desire to confine discussion of the TEAM methodology to the TPP, it is clear that aspects of the TEAM methodology may prevent it from acting as the mitigation tool that the CAISO originally assumed.

Specifically, as the CAISO stated in its meeting presentation, TEAM only considers upgrades in areas where generation projects in the queue are demonstrably likely to proceed to construction and operation. Currently, the TEAM methodology analyses include:

- Generators owned by the utilities serving CAISO load
- Wind and solar projects with an LSE PPA
- “Other generators under contracts of which the information is available for public may be reviewed for consideration of the type and the length of contract”

The problem is that: (1) Developers and off-takers would want assurance that any expected severe congestion in a promising or already-proven renewables area would be mitigated before committing to a PPA; but (2) the PPAs would be needed in order to justify the transmission expansion needed to support the contracts. Moreover, even where the current criteria might identify economic upgrades, given lead times for developing and building new transmission, those upgrades would lag behind future generation buildup; the resulting increased congestion and curtailment levels, and overall higher risk for developing new generation, will be reflected in the PPA prices (and ultimately borne by ratepayers).

This “chicken and egg” problem indicates that at least some limited aspects of the TEAM methodology should be included in the scope of this initiative.

The methodology should rely less on the status of specific projects and more on maintaining and increasing the ability of projects generally to develop in promising areas, e.g., by assuming development at least to the level indicated in CPUC-provided renewables portfolios.

Generally, it is reasonable to expect that generation developers would gravitate to areas where they know that congestion will not impair their projects. In addition, they and their off-takers are more likely to support CAISO deliverability-methodology changes that could increase congestion if they have some assurance that a realistic tool exists that will not impair their already-contracted projects.

Recommendations

Based on the discussion above, EDF-R recommends that the CAISO do the following:

- Dispatch solar and wind projects in its Deliverability Assessments at the higher of the current applicable QC figures and the level otherwise indicated in its adopted methodology, to help ensure that the NQC relied on by the CAISO for reliability is actually deliverable.
- Add a “Congestion Deliverability” Assessment to the current Interconnection Studies framework, at least for proposed projects seeking deliverability (and perhaps for new Energy Only projects as well), to preserve peak-production ability in affected areas.
- Include the following topics in the scope of this initiative:
 - “Behind-the-Interconnection deliverability transfers
 - Relevant aspects of the TEAM methodology.

EDF-R thanks the CAISO in advance for its consideration of these concepts.