**Issue 1 Proposal**

Working Group One

R.17-07-007

*PRELIMINARY FINAL DRAFT*

*Issue 1: Should the Commission* *modify Fast Track Screen Q to minimize the number of distributed energy resource projects subjected to transmission cluster studies and, if so, how?*

1. **Proposal Summary**

The Commission should minimize the number of distributed energy resource (DER) projects subjected to transmission cluster studies by:

1. Expanding the existing Screen Q exemption for NEM facilities with net export less than or equal to 500 kW by:
	1. Changing the exemption size threshold to 1 MVA nameplate capacity
	2. Extending the exemption from NEM projects to all projects
	3. Increasing the exemption size threshold to a size larger than 1 MVA
2. Creating a soft link within Screen Q to the CAISO Tariff
3. Directing the utilities to identify engineering review guidelines related to the evaluation of Screen Q
4. Creating a “Cost Cap” for qualifying DERs that fail Screen Q to proceed despite transmission interdependence

This section represents a general summary of the proposals only. Some proposals are non-consensus. The “Working Group Proposals” section discusses the variations on the proposals and the different party support for each.

1. **Background**

***Screen Q: Electrical Independence Test for Transmission System***

For all interconnection applicants applying under Rule 21’s Detailed Study Track, as well as applicants that have failed Rule 21’s Fast Track, the specific study path for which the applicant is eligible is determined in part by the application of Screen Q.[[1]](#footnote-1)

Screen Q is an engineering test that evaluates whether a project is electrically independent of the transmission system. The utility determines, based on knowledge of interdependencies with earlier-queued interconnection requests under any tariff, whether the project is of sufficient size and located at a point of interconnection such that it is reasonably anticipated to require or contribute to the need for upgrades to the transmission system (“Network Upgrades”).

Projects that are found to not have interdependencies as described above will pass Screen Q and continue to be studied under Rule 21.[[2]](#footnote-2) Projects that are found to have interdependencies as described above will fail Screen Q, be withdrawn from Rule 21, and have the option of applying for interconnection under the Transmission Cluster Study Process of the Wholesale Distribution Tariff.[[3]](#footnote-3)

The Transmission Cluster Study Process is administered by the utility and is designed to allocate costs for transmission system upgrades to responsible projects. Projects are grouped by geographical and system areas to be studied together (as a cluster): upgrades are identified for the clustered group and the cost of the upgrades are then allocated to projects in that clustered group. A request for interconnection under the cluster study can only be submitted during a Cluster Application Window in March. Projects that become part of the Transmission Cluster Study Process cannot move forward until the study is completed, typically 2 years later. Projects may need to wait an additional 1-2 years after that for construction of upgrades before they receive permission to operate in parallel with the grid.

***500 kW Exemption Threshold***

Screen Q in Rule 21 currently contains an exemption for NEM projects with net exports 500 kW or under to proceed as part of the Rule 21 Independent Study Process, which has substantially shorter study timelines:

*Note 1: NEM Generating Facilities with net export less than or equal to 500 kW that may flow across the Point of Common Coupling will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.* (Rule 21, Section G.3.a)

The 500 kW threshold was chosen by settlement parties during the last major update to Rule 21 in 2012. The basis for choosing 500 kW as the threshold, and for limiting the exemption to NEM, is not well-documented, but working group members recall that 500 kW was deemed sufficiently large to potentially contribute to requiring transmission system upgrades, that NEM projects were deemed less likely to contribute to the need for upgrades, and that 500 kW was seen as a high enough threshold to cover the majority of customer-sited projects.

***Initial Stakeholder Concerns***

Solar parties are concerned that the 500 kW exemption still leads to the inclusion of systems that are likely to have negligible impact on the transmission system. For example, a 1 MW DER project can fail screen Q because 50 kW of generation is modeled to back feed onto a transmission level device rated for 1 GW. This additional 50 kW represents a +0.00005% impact on the transmission system device. It is unlikely that a project of that size will ultimately be assessed cost responsibility for transmission system upgrades, and solar developers therefore believe that such projects should not be subject to the untenable timelines of the Transmission Cluster Study Process.

Solar parties are concerned that Rule 21 projects will increasingly be caught in the Transmission Cluster Study Process even though their contribution to Network Upgrades may not be significant. They believe there is an urgent need to address the issue before it becomes an unnecessary roadblock for a large portion of projects.

1. **Working Group Consensus on Whether to Modify Screen Q**

Non-utility working group members agree that the multi-year timelines of the Transmission Cluster Study Process are injurious to Rule 21 projects and that modifications to Screen Q are needed to ensure that projects which are highly unlikely to be assigned cost responsibility for upgrades are exempted from the process.

The utilities represent that within their respective territories only a small number of projects have failed Screen Q (PG&E 9 projects, SDG&E 0 and SCE 1). Furthermore, PG&E represents that the 9 projects would not have failed Screen Q if the updated CAISO Appendix DD had been in place. Notwithstanding, the utilities support further clarifications as to the Screen Q application and discussion of whether the existing 500 kW exemption allowing study under the Independent Study Process could be supported at a greater level.

1. **Working Group Proposals**

***Proposal 1-A: The Commission should modify Rule 21 to change the Screen Q exemption size threshold from 500 kW to 1 MVA***

Status: Consensus on the core proposal. IREC objects to measuring system size by nameplate capacity instead of net export. TURN wishes to make clear that if there are any ratepayer cost impacts, they could be addressed in Phase 2 of this proceeding.

Discussion: The working group proposes that the Screen Q exemption be increased from 500 kW to 1 MW, that system size be measured for purposes of the exemption threshold using megavolt-amperes (MVA) instead of MW, and that the threshold level be measured against the nameplate capacity of the proposed system.

In recognition of the limited time allocated to parties to recommend, review and pursue consensus on proposals to Issue 1, the Utilities are agreeable to changing the exemption size to 1 MVA based upon their expectation that projects of that size will commonly not be found to contribute to the need for Network Upgrades.[[4]](#footnote-4) The working group notes that the change from 500 kW to 1 MW aligns with other 1 MW thresholds for NEM cost allocation and telemetry requirements in Rule 21. Project developers, customers, and Utilities are generally accustomed to having different rules for projects smaller and larger than 1 MW.

The working group also proposes that system size be measured for purposes of the exemption threshold using megavolt-amperes (MVA) instead of MW. The change from MW to MVA reflects inverters and transformers increasingly being rated in MVA rather than in MW.

In addition, some members of the working group recommend that the threshold level be measured against the nameplate capacity of the proposed system rather than the system’s anticipated net export. Measuring net export involves comparing expected production with the customer’s historic hourly electricity consumption, and this can lead to disputes and uncertainty. Although net export is the more relevant metric for measuring the impact on the system caused by the proposed generator, using the nameplate capacity as the trigger for study exemption would make the rule much easier to administer for both utilities and project developers. In most cases, it would result in a lower effective threshold than one based on net export, but project developers consider this change to be worthwhile in order to increase predictability and reduce procedural burden. As explained further below, the Interstate Renewable Energy Council (IREC) has a different proposal on how to measure the size threshold.

To implement these recommendations, the working group proposes the following edits to Section G.3.a of Rule 21:[[5]](#footnote-5)

*NEM Generating Facilities with nameplate capacity ~~net export~~ less than or equal to 1 MVA ~~500 kW~~ ~~that may flow across the Point of Common Coupling~~ will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.*[[6]](#footnote-6)

*IREC Proposal to Keep Net Export Measure – Opposed by Joint Utilities*

IREC would prefer that projects which limit net export to 1 MVA or less be eligible for the exemption. It is fine to use the nameplate rating for traditional exporting projects, but for limited-export or non-exporting projects this is not appropriate. While there is effort required to calculate net export, that effort is inconsequential compared to the time that would be required to complete the cluster study process for these projects. Thus, IREC recommends allowing projects with nameplate capacity below 1 MVA to avoid having to go through the net export calculation, but allowing projects with nameplate capacity above 1 MVA but net export below 1 MVA to still benefit. IREC recommends the following edits to Section G.3.a. of Rule 21:

*NEM Generating Facilities with net export less than or equal to 1 MVA ~~500 kW~~ that may flow across the Point of Common Coupling, or with nameplate capacity less than or equal to 1 MVA, will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.*

The Joint Utilities oppose IREC’s proposal. The benefit of avoiding the calculation of net export is eliminated and the proposal of calculating net export of up to 1 MVA for systems with nameplate 1 MVA or above is effectively modifying the exemption to 2 MVA nameplate. This was not discussed in any of the working group discussions and includes projects that may be interdependent and may reasonably contribute to the need for Network Upgrades.

*The Utility Reform Network Support is Contingent on Possible Consideration of Fees in Phase 2*

The Utility Reform Network’s support for expansion of the exemption is contingent on an agreement by parties that should this change be thought to result in the potential for costs otherwise paid by a DER developer to instead be paid by ratepayers, a solution to remove this potential for ratepayer subsidization will be discussed in Phase 2 of this proceeding.

Other working group members wish to state clearly for the record that this proposal does not produce a direct cost shift from developers to ratepayers. If a project is exempted from a Transmission Cluster Study and thus avoids costs that would otherwise be their responsibility to pay, those costs are shifted to other developers in the cluster, not to ratepayers.

With this understanding, the working group does not object to TURN’s request to consider in Phase 2 whether fees are appropriate if such a cost shift does exist. Phase 2 will not consider further changes to Screen Q, but it is recognized that Phase 2 could evaluate whether it is appropriate to establish new fees. There is no agreement that such fees are appropriate; just agreement to discuss in Phase 2 whether fees are needed or appropriate.

***Proposal 1-B: The Commission should modify Rule 21 to expand the Screen Q exemption from NEM-only to all projects***

Status: Non-Consensus. Supported by IREC, Clean Coalition, Green Power Institute, and California Solar Energy Industries Association. Opposed by TURN and the Joint IOUs.

Discussion: This change could be accomplished simply by deleting “NEM” from the tariff language cited in Proposal 1-A:

*~~NEM~~ Generating Facilities with nameplate capacity ~~net export~~ less than or equal to 1 MVA ~~500 kW~~ ~~that may flow across the Point of Common Coupling~~ will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.* (Rule 21, Section G.3.a)

*Reasoning of Proposal Supporters:*

Supporters of this proposal see no reason why a NEM system and a non-NEM system of identical nameplate capacity should be treated differently. The concept behind the proposal is that projects will still be studied in Rule 21’s Independent Study Process (as described more below) and any costs will be properly allocated; thus there is no need for a distinction between NEM projects and non-NEM projects on a cost-allocation basis. Just as with NEM systems, they believe it is unnecessary to perform Screen Q on smaller non-NEM systems if it is highly unlikely that the systems would meaningfully contribute to the need for Reliability Network Upgrades. Project developers would benefit from increased certainty of interconnection costs and reduced study timelines. This treatment would also better focus the rules on the electrical impacts of projects rather than making further distinctions based upon procurement programs that may evolve in the future. This change is also in line with the broader policy goal of keeping Rule 21 focused on reviewing the electrical impacts of projects rather than creating distinctions based on different procurement programs, although the tariff does currently today recognize distinctions for customer programs, such as Net Energy Metering.

*Reasoning of Proposal Opponents:*

The Joint Utilities oppose extending an exemption (of any size) that is applied to generators that quality for the NEM Tariff to generators that do not qualify for the NEM Tariff, for the following reasons.

* *Equity among all DERs*: Extending the exemption to the Transmission Cluster Study Process that applies to NEM Tariff qualifying generators to generators that do not qualify for the NEM Tariff, including projects reviewed under a Wholesale Distribution FERC jurisdictional tariff, and creates potentially unfair cost or reliability based impacts on other proposed transmission or distribution level DER projects in the location of the exempt DER. The impacts are:
	+ Costs above the CAISO’s cap of Reliability Network Upgrades are borne by developers, and costs that an exempt DER would have otherwise been assigned would therefore be transferred and shared amongst the other developers.
	+ Other generators could be adversely impacted from an operations perspective. For example, a Remedial Action Scheme (RAS), which is classified as a Reliability Network Upgrade, could be required for an area that transmission generators and a proposed distribution level generator are connecting to as a way to mitigate circuit overload. This RAS system curtails generators when an overload on the circuit is imminent. If the proposed distribution level generator triggers or represents the “tipping point” for the overload, the exclusion of that DER will mean that that DER will not be interrupted but rather its neighboring generators will be.

The Joint Utilities believe that representation and input from other potentially impacted DER project owners and developers should be part of this discussion and have the ability to voice and document their concerns. DER developers who would typically only be subject to the utility’s wholesale tariffs under Federal Energy Regulatory Commission jurisdiction (including non-NEM DER developers) may not have requested to be included in the Rule 21 proceeding service list, which served as the basis for requesting working group membership participation. Expanding the scope of this Issue to include discussions that impact these other DER developers warrants proper communication of that scope expansion.

* *Maintaining the integrity of an exemption intended for a specific class of generators*: The proposal to extend the exemption to non-NEM generators was raised during the October 18 workshop without prior indication and is considered by some parties to be out-of-scope of this Issue, i.e., the identified issue pertains to an exemption that applies to NEM generators and such an exemption is believed by some parties to have initially been implemented as a means to promote the growth of customer-owned NEM Tariff qualifying generators. The Utilities believe the history and integrity of language in Rule 21 that pertains to NEM Tariff qualifying generators vs. language that pertains to generators that do not qualify for NEM needs to be maintained, and that parties requesting an exemption that applies to NEM be expanded to non-NEM should provide a clear and explanation as to why the distinction between NEM and non-NEM generators should no longer apply.

*Response of Proposal Supporters:*

Supporters believe the proposal is clearly within the defined scope of this issue. They do not believe the fact that the exemption previously applied only to NEM systems to be a valid reason in itself that it should not apply to non-NEM systems.

It is not clear why extending the cap to non-NEM projects creates any different “equity” issues than extending that same cap to NEM projects would. The crux of Proposal 1-A is that there is a *de minimis* likelihood that there will be substantial cost shifting for any project smaller than 1 MVA being exempted from Screen Q.

It makes sense to extend the Screen Q exemption to larger projects from an efficiency standpoint if the likelihood of them contributing to the need for Network Upgrades is small. There have been no electrically-related differences identified between NEM and non-NEM projects and thus the common sense reasons that apply to NEM should also be applied to all other projects below 1 MVA.

In addition, all parties were invited to participate in this proceeding and have and will have an opportunity to participate going forward. The fact that some types of project developers have not been in the room is not a valid reason to limit the Screen Q exemption to only NEM projects because the theoretical impacts on these hypothetical developers are the same as the impact would be from NEM projects.

***Proposal 1-C) The Commission should modify Rule 21 to increase the Screen Q exemption threshold to a size larger than 1 MW***

Status: Non-Consensus

Discussion: Some working group members believe that a higher threshold may be acceptable without the risk of exempting projects that are likely to fail Screen Q. The working group did not perform analysis to determine the precise level below which the vast majority of proposed systems would pass Screen Q.

*Reasoning of Proposal Supporters*

Proponents of Proposal 1-C did not provide language supporting their position. [If language supporting this position is provided, this section may be edited to include that language]

*Reasoning of Proposal Opponents*

The Utilities oppose extending an exemption above 1 MVA for the following reasons. TURN also opposes this proposal.

* *Equity among all DERs*: Raising the exemption above 1 MVA creates potentially unfair cost or reliability based impacts to other existing or future DER projects in the location of the exempt DER. As was mentioned by some parties during the October 18 workshop, the likelihood of a 1-2 MVA DER triggering or contributing to system upgrade is small. Projects under 1 MVA are very unlikely to be of sufficient size to reasonably anticipate a contribution to the need for Network Upgrades. However, exempting a project from the Transmission Cluster Study Process based upon size does create a possibility that its contributions to an upgrade are not fully addressed, which could result in additional costs to other projects. The IOUs believe 1 MVA is the appropriate threshold to limit this possibility.
	+ Costs above the CAISO cap of Reliability Network Upgrades are borne by developers and costs that an exempt DER would have been assigned are shared with the other developers.
	+ Other generators could be adversely impacted from an operations perspective. For example, a Remedial Action Scheme (RAS), which is classified as a Reliability Network Upgrade, could be required for an area that transmission generators and a proposed distribution level generator are connecting to as a way to mitigate circuit overload. This RAS system curtails generators when an overload on the circuit is imminent. If the proposed distribution level generator triggers or represents the “tipping point” for the overload, the exclusion of that DER will mean that that DER will not be interrupted but rather its neighboring generators.

The Utilities believe that other potentially impacted DER projects owners and developers should be part of this discussion and have the ability to voice and document their concerns.

* *Maintaining the integrity of the purpose of an exemption*: The practical impact of a removal of a size limitation is that it would nullify the benefit of the existing Transmission Cluster Study Process exemption. It would in effect be eliminating Screen Q which is problematic for proposed DERs that are impacting the transmission system. Section G.3.a of Rule 21 states:

*Distribution Provider, in consultation with the CAISO, will determine, based on knowledge of the interdependencies with earlier-queued interconnection requests under any tariff, whether the Interconnection Request to the Distribution System is of* ***sufficient MW size*** *[no explicit size limitation] and located at a point of interconnection such that it is reasonably anticipated to require or contribute to the need for Network Upgrades.* (Emphasis Added.)

As voiced during recent Working Group One discussions, NEM projects up to 1 MVA are viewed as not of sufficient size to require study under the Transmission Cluster Study Process and can be reviewed in accordance with the Rule 21 Independent Study Process protocols. The 1 MVA exemption provides clarity as to what study process could be expected based on project size.

***Proposal 2: The Commission should modify Screen Q to create a soft link to the CAISO Tariff***

Status: Consensus

Discussion: Section G.3.a. of Rule 21 refers to the CAISO Tariff for procedures regarding performance of the determination of electrical independence under Screen Q:

*Distribution Provider will coordinate with the CAISO if necessary to conduct the Determination of Electrical Independence for the CAISO Controlled Grid as set forth in* ***Section 4.2 of Appendix Y to the CAISO Tariff****. The results of the incremental power flow, aggregate power flow, and short-circuit current contribution tests set out in* ***Section 4.2 of Appendix Y to the CAISO Tariff*** *will determine whether the Interconnection Request is electrically independent from the CAISO Controlled Grid.* (Emphasis added.)

In 2012, the CAISO moved its rules for the Generator Interconnection and Deliverability Allocation Procedures from Appendix Y to Appendix DD of the CAISO Tariff. Due to the rarity of projects failing Screen Q, utilities and stakeholders have only recently identified the outdated reference to Appendix Y in Rule 21. The tariff should be updated to cite the CAISO Tariff in effect without naming the specific appendix in case it changes again.

There are two different types of Network Upgrades identified in Rule 21 and the CAISO Tariff: “Reliability Network Upgrades” and “Deliverability Network Upgrades”.[[7]](#footnote-7) The change from Appendix Y to Appendix DD means the determination of electrical independence will be performed against Reliability Network Upgrades only versus Reliability and Deliverability Network Upgrades. The Joint IOUs believe that this proposal will reduce the likelihood of projects failing Screen Q. As discussed during working group discussions, the nine PG&E projects that failed Screen Q in 2016 were due to electrical interdependence with Deliverability Network Upgrades, and those failures would not have occurred if studied only against Reliability Network Upgrades.

PG&E’s advice letter implementing the Phase 3 recommendations from the Smart Inverter Working Group contains updates to the Rule 21 language for Screen Q to reference the applicable CAISO tariff in effect.[[8]](#footnote-8) The other IOUs are reviewing procedural filings to make similar updates. PG&E’s advice letter is currently suspended pending Commission review [may need to update prior to submitting the report].

The working group supports this change. For PG&E, the change may happen via approval of the smart inverter advice letter. For SCE and SDG&E, the same change could be made as part of this proposal.

See below for an applicable excerpt from PG&E’s advice letter:

*Distribution Provider will coordinate with the CAISO if necessary to conduct the Determination of Electrical Independence for the CAISO Controlled Grid as set forth in the applicable CAISO Tariff in effect at the time the Electrical Independence Test (EIT) begins ~~Section 4.2 of Appendix Y to the CAISO Tariff~~. The results of the incremental power flow, aggregate power flow, and short-circuit current contribution tests set out in the applicable CAISO Tariff in effect at the time the EIT begins ~~Section 4.2 of Appendix Y to the CAISO Tariff~~ will determine whether the Interconnection Request is electrically independent from the CAISO Controlled Grid.*

Applicable language from Appendix DD of the CAISO Tariff is in Appendix B of this proposal.

***Proposal 3: The Joint Utilities should identify engineering review guidelines related to the evaluation of Screen Q***

Status: Consensus

Discussion: To assess a project’s electrical interdependence with the transmission system, the utility performs tests for determining electrical independence[[9]](#footnote-9) collectively called the “Electrical Independence Test” (EIT) as defined in Rule 21.[[10]](#footnote-10) For projects that fail the EIT, the utility has discretion under the current rules to perform additional engineering review (subject to CAISO concurrence) to determine whether the interconnection request’s contribution is indeed expected to require or contribute to the need for Reliability Network Upgrades. If assessed to be electrically independent (project passes the EIT) or reasonably anticipated not to require or significantly contribute to Reliability Network Upgrades, the project passes Screen Q and proceeds under Rule 21.

Several working group members expressed confusion regarding when and how the utilities perform additional review following failure of the EIT. To provide stakeholders with greater transparency, the Joint Utilities list below the following guidelines to be utilized if the EIT test results warrant additional review:

1. List all generation projects in the current queue that are adjacent to proposed project.
2. If current base-case is not complete, use last approved cluster base-case.
3. If a cluster is ongoing, with RNUs not yet finalized, compare pre-project base-case and post project base-case loading when necessary to determine if there is/are any potential network upgrade(s) required.
4. If a cluster is ongoing, with RNUs finalized, compare pre-project base-case and post project base-case with RNUs considered and determine if the subject interconnection request triggers a change in scope for that RNU.
5. Consult with the CAISO as necessary.

Due to the numerous possible interconnection requests, the timing of the interconnection requests, transmission area constraints, and the different base-cases that have to be developed at different points in time and for different needs, it is difficult to have specific language to define the guideline more granularly than the five steps above. At any given time, there are projects within the Independent Study Process, Cluster Study, or reliability processes as well as projects within construction phases that may change system size, configurations, and status – all of which impact the base-cases that were developed and utilized for active interconnection studies.

In response to Working Group comments, the Joint Utilities propose to perform the additional engineering review when a project fails the EIT and further review is warranted, and to make these guidelines available on their interconnection websites to provide greater transparency for developers. The working group also proposes the following minor modifications to Section G.3.a of Rule 21 to provide clarity on the role of the additional engineering review following EIT results:

*Distribution Provider, in consultation with the CAISO, will determine, based on knowledge of the interdependencies with earlier-queued interconnection requests under any tariff, whether the Interconnection Request to the Distribution System is of sufficient MW size and located at a point of interconnection such that it is reasonably anticipated to require or contribute to the need for Reliability Network Upgrades. In making this determination, the Distribution Provider will make a Determination of Electrical Independence for the CAISO Controlled Grid as set forth in the applicable CAISO Tariff in effect at the time the Electrical Independence Test begins.*

*If Distribution Provider determines that no interdependencies exist ~~as described above~~ or that interdependencies do exist but the proposed Generating Facility is not reasonably anticipated to require or contribute to the need for Reliability Network Upgrades, then the Interconnection Request will be deemed to have passed Distribution Provider’s Determination of Electrical Independence for the CAISO Controlled Grid.*

*If Distribution Provider determines that interdependencies exist ~~as described above~~ and that they are reasonably anticipated to require or contribute to the need for Reliability Network Upgrades, then Applicant may be studied under the Transmission Cluster Study Process as set forth in Section F.3.d.*

*~~Distribution Provider will coordinate with the CAISO if necessary to conduct the Determination of Electrical Independence for the CAISO Controlled Grid as set forth in Section 4.2 of Appendix Y to the CAISO Tariff. The results of the incremental power flow, aggregate power flow, and short-circuit current contribution tests set out in Section 4.2 of Appendix Y to the CAISO Tariff will determine whether the Interconnection Request is electrically independent from the CAISO Controlled Grid.~~*

***Proposal 4: The Commission should create a “Cost Cap” for qualifying DERs that fail Screen Q to proceed despite transmission interdependence***

Status: Non-Consensus. Supported by Green Power Institute. Opposed by the Joint Utilities.

Discussion: Green Power Institute believes this proposal is additional rather than alternative. It is complementary to other proposals herein and is not in conflict with them.

Green Power Institute proposes the following. A project would proceed with the interconnection approval process under Rule 21 without participating in a transmission cluster study if willing to pay a “Cost Cap” fee that is the calculated share of the applicant’s costs for RNU from the applicable cluster. The Cost Cap shall establish the maximum Cluster Study upgrade charge liability applicable to the project. Final charges will be reconciled upon completion of the Cluster Study. If initial review by the IOU indicates that applicant’s project could operate safely without completion of the RNU upgrades, it will be allowed to interconnect to the grid and commence operations.

Green Power Institute proposes that DER projects less than or equal to 5 MVA (NEM and non-NEM) that fail Screen Q be given this additional option. Green Power Institute recommends 5 MVA because that is the limit for cheaper interconnection studies under the Rule 21 Independent Study Process.

This is not a change in Screen Q, only in how costs may be assigned if a project seeks to proceed under the Cost Cap Fee Option and avoid the Transmission Cluster Study Process. It only applies if the DER fails Screen Q. Per existing tariff, the Distribution Provider may assess if the Generating Facility being tested is one (1) percent or less than the transmission facility’s capacity as a basis for allowing the Generating Facility to pass Screen Q.

Historically, DER RNU costs and impacts have been *de minimis,*which allows the IOUs and Energy Division to have some confidence that many and perhaps most DER projects will continue to have *de minimis* transmission grid impacts even when they are found to be electrically interdependent.

The Cost Cap fee for each applicant shall be calculated based on either:

1. A proportionate share of the IOU’s applicable transmission-level RNU upgrades, based on historical average costs; or, at the discretion of the IOU:
2. Costs the IOU reasonably believes will be incurred by the applicant, based on project specific cost estimates, comparable to the Rule 21 Cost Envelope review process.

It appears (based on data obtained to date) that there may be no instances of DER failing Screen Q based on RNU only. IOUs cannot predict whether projects will fail in the future, however, and the aggregate impact of future DER may have a significant impact (>1%).

*Reasoning of Proposal Opponents:*

The Utilities oppose inclusion of this aspect of the proposal as they believe it is both outside the scope of this Issue, and it is not practical, even if adopted, for the Utilities to comply due to the lack of data.

* *Out of scope*: As is clear from its name, Issue 1 is specific to considering/implementing ways that enable DER projects to be excluded from the Transmission Study Cluster Study Process. A proposal to consider ways to estimate costs and/or implement a type of cost-containment process for projects that do end up as part of a Transmission Cluster Study are clearly beyond the scope of this issue. In addition, while the DER developers who requested this issue be scoped within the rulemaking identified costs as a concern, during the workshops they also stated that it was the time delay (up to three years) associated with being part of a Transmission Cluster Study that was their main concern and not the costs.
* *Lack of data to comply*: As was discussed during the workshop, the impetus of this issue being scoped with the Rulemaking was the failure of nine (9) projects to Screen Q in PG&E’s service territory. One (1) additional project has similarly failed Screen Q in SCE’s service territory and none (0) have failed in SDG&E’s service territory. As was also discussed at the workshop during which this proposal was suggested, because there have been so few (and in some cases zero) examples from which a Utility would be able to extract data, the Utilities have no rational basis from which, as is required per this proposal, to reasonably estimate costs that would be incurred as a result of the Transmission Cluster Study.
* *Insufficient time to fully vet:* The previous Rule 21 rulemaking included a multi-year discussion on cost related proposals, the results of which are adopted in Commission Decision 16-06-052. The Joint Utilities believe any discussions on cost cap type issues in Rule 21 should be allocated sufficient time to be fully vetted, and the schedule allotted for the issues scoping within Working Group One does not allow such a discussion.

**Appendix A: Relevant Sections of Rule 21**

***Rule 21, Section G.3.a (Screen Q):***

G. ENGINEERING REVIEW DETAILS

3. DETAILED STUDY SCREENS

a. Screen Q: Is the Interconnection Request electrically Independent of the Transmission System?

Distribution Provider, in consultation with the CAISO, will determine, based on knowledge of the interdependencies with earlier-queued interconnection requests under any tariff, whether the Interconnection Request to the Distribution System is of sufficient MW size and located at a point of interconnection such that it is reasonably anticipated to require or contribute to the need for Network Upgrades. If Distribution Provider determines that no interdependencies exist then the Interconnection Request will be deemed to have passed Distribution Provider’s Determination of Electrical Independence for the CAISO Controlled Grid. If Distribution Provider determines that interdependencies exist as described above, then Applicant may be studied under the Transmission Cluster Study Process as set forth in Section F.3.d.

Distribution Provider will coordinate with the CAISO if necessary to conduct the Determination of Electrical Independence for the CAISO Controlled Grid as set forth in Section 4.2 of Appendix Y to the CAISO Tariff. The results of the incremental power flow, aggregate power flow, and short-circuit current contribution tests set out in Section 4.2 of Appendix Y to the CAISO Tariff will determine whether the Interconnection Request is electrically independent from the CAISO Controlled Grid.

* If Yes (pass), continue to Screen R.
* If No (fail), proceed to Section F.3.d.

Note 1: NEM Generating Facilities with next export less than or equal to 500 kW that may flow across the Point of Common Coupling will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.

Significance: Generating Facilities that are electrically interdependent with the Transmission System must be studied with other interconnection requests that have Transmission System interdependencies. It is possible to pass this Screen Q (i.e., be found to have no electrical interdependencies with earlier-queued Distribution System and/or Transmission System interconnection requests as set out above), be studied under the Independent Study Process, and still trigger a Reliability Network Upgrade.

***Rule 21, Section F.3.d (Transmission Cluster Study Process):***

F. REVIEW PROCESS FOR INTERCONNECTION REQUESTS

3. DETAILED STUDY INTERCONNECTION REVIEW PROCESS

d. Transmission Cluster Study Process

If Applicant’s Interconnection Request fails Screen Q or elects to be studied under the Transmission Cluster Study Process, Applicant shall have the option of applying for Interconnection under the Transmission Cluster Study Process of the Wholesale Distribution Tariff in accordance with its provisions. If Applicant fails Screen Q, Applicant’s Interconnection Request shall be deemed withdrawn under this Rule regardless of whether Applicant applies for Interconnection under the WDT.

An Applicant that chooses to apply under the Transmission Cluster Study Process of the WDT must file a valid Interconnection Request and post the applicable study deposit as set out in Distribution Provider’s WDT. If Applicant chooses to apply under the WDT, then Applicant’s Interconnection Request will be subject to the terms of Distribution Provider’s WDT applicable to the Transmission Cluster Study Process, including those provisions establishing cost responsibility. Upon completion of the Transmission Cluster Study Process under the WDT, Applicants that are eligible for a State-jurisdictional Interconnection can, in accordance with the WDT, either execute the applicable Commission-approved Rule 21 Generator Interconnection Agreement for Exporting Generating Facilities or the WDT Generator Interconnection Agreement. Such Commission-approved Generator Interconnection Agreement for Exporting Generating Facilities will include the cost responsibility established in the Transmission Cluster Study.

If and when an Applicant submits a new interconnection request under the WDT, Applicant is under the jurisdiction of FERC. On the date the applicable Commission-approved Rule 21 Generator Interconnection Agreement for Exporting Generating Facilities is executed by Applicant, or Producer where those are different entities, and Distribution Provider, jurisdiction over the Interconnection reverts back to the Commission.

**Appendix B: CAISO Tariff, Appendix DD, Section 4.2**

Link: [Appendix DD of the CAISO Tariff](http://www.caiso.com/Documents/AppendixDD_GeneratorInterconnectionAndDeliverabiltyAllocationProcess_asof_Mar8_2016.pdf)

**4.2 Determination of Electrical Independence**

An Interconnection Request will qualify for the Independent Study Process without having to demonstrate electrical independence pursuant to this Section 4.2 if, at the time the Interconnection Request is submitted, there are no other active Interconnection Requests in the same study area in the current Queue Cluster or in the Independent Study Process.

Otherwise, an ach Interconnection Request submitted under the Independent Study Process must pass all of the tests for determining electrical independence set forth in this Section 4.2 in order to qualify for the Independent Study Process. These tests will utilize study results for active Interconnection Requests in the same study area, including Phase I Interconnection study results for Generating Facilities in the current Queue Cluster and any system impact study (or combined system impact and facilities study) results for earlier queued Generating Facilities being studied in the Independent Study Process.

**4.2.1 Flow Impact Test/Behind-the-Meter Capacity Expansion Criteria**

An Interconnection Request shall have satisfied the requirements of this Section if it satisfies, alternatively, either the set of requirements set forth in Section 4.2.1.1 or the set of requirements set forth in Section 4.2.1.2.

 **4.2.1.1 Requirement Set Number One: General Independent Study Requests**

The CAISO, in coordination with the applicable Participating TO(s), will perform the flow impact test for an Interconnection Request requesting to be processed under the Independent Study Process as follows:

(i) Identify the transmission facility closest, in terms of electrical distance, to the proposed Point of Interconnection of the Generating Facility being tested that will be electrically impacted, either as a result of Reliability Network Upgrades identified or reasonably expected to be needed in order to alleviate power flow concerns caused by Generating Facilities currently being studied in a Queue Cluster, or as a result of Reliability Network Upgrades identified or reasonably expected to be needed to alleviate power flow concerns caused by earlier queued Generating Facilities currently being studied through the Independent Study Process. If the current Queue Cluster studies or earlier queued Independent Study Process studies have not yet determined which transmission facilities electrically impacted by the Generating Facility being tested require Reliability Network Upgrades to alleviate power flow concerns, and the CAISO cannot reasonably anticipate whether such transmission facilities will require such Reliability Network Upgrades from other data, then the CAISO will wait to conduct the independence analysis under this section until sufficient information exists in order to make this determination. If the flow impact on a Reliability Network Upgrade identified pursuant to these criteria cannot be tested due to the nature of the Upgrade, then the flow impact test will be performed on the limiting element(s) causing the need for the Reliability Network Upgrade.

(ii) The incremental power flow on the transmission facility identified in Section 4.2.1.1(i) that is caused by the Generating Facility being tested will be divided by the lesser of the Generating Facility’s size or the transmission facility capacity. If the result is five percent (5%) or less, the Generating Facility shall pass the flow impact test. If the Generating Facility being tested is tested against the nearest transmission facility and that transmission facility has been impacted by a cluster that required an upgrade as a result of a contingency, then that contingency will be used when applying the flow impact test.

(iii) If the Generating Facility being tested under the flow impact test is reasonably expected to impact transmission facilities that were identified, per Section 4.2.1.1(i), when testing one or more earlier queued Generating Facilities currently being studied through the Independent Study Process, then an additional aggregate power flow test shall be performed on these earlier identified transmission facilities. The aggregate power flow test shall require that the aggregated power flow of the Generating Facility being tested, plus the flow of all earlier queued Generating Facilities currently being studied under the Independent Study Process that were tested against the transmission facilities described in the previous sentence, must be five (5) percent or less of those transmission facilities’ capacity.

However, even if the aggregate power flow on any transmission facility tested pursuant to this section (iii) is greater than five (5) percent of the transmission facility’s capacity but the incremental power flow as a result of the Generating Facility being tested is one (1) percent or less than of the transmission facility’s capacity, the Generating Facility shall pass the test.

If the Generating Facility being tested is tested against the nearest transmission facility and that transmission facility has been impacted by a cluster that required an upgrade as a result of a contingency, then that contingency will be used when applying the flow impact test.

The Generating Facility being tested must pass both this aggregate test as well as the individual flow test described in Section 4.2.1.1(ii), in no particular order.

 **4.2.1.2 Requirement Set Number Two: for Requests for Independent Study of Behind-the- Meter Capacity Expansion of Generating Facilities**

This Section 4.2.1.2 applies to an Interconnection Request relating to a behind-the-meter capacity expansion of a Generating Facility. Such an Interconnection Request submitted under the Independent Study Process will satisfy the requirements of Section 4.2.1 if it satisfies all of the following technical and business criteria:

(i) Technical criteria.

1) The total nameplate capacity of the existing Generating Facility plus the incremental increase in capacity does not exceed in the aggregate one hundred twenty-five (125) percent of its previously studied capacity and the incremental increase in capacity does not exceed, in the aggregate, including any prior behind-the-meter capacity expansions implemented pursuant to this Section 4.2.1.2, one hundred (100) MW.

2) The behind-the-meter capacity expansion shall not take place until after the original Generating Facility has achieved Commercial Operation and all Reliability Network Upgrades for the original Generating Facility have been placed in service. An Interconnection Request for behind-the-meter capacity expansion may be submitted prior to the Commercial Operation Date of the original Generating Facility.

3) The Interconnection Customer must install an automatic generator tripping scheme sufficient to ensure that the total output of the Generating Facility, including the behind-the-meter capacity expansion, does not at any time exceed the capacity studied in the Generating Facility’s original Interconnection Request. The CAISO will have the authority to trip the generating equipment subject to the automatic generator tripping scheme or take any other actions necessary to limit the output of the Generating Facility so that the total output of the Generating Facility does not exceed the originally studied capacity.

(ii) Business criteria.

1) The Deliverability Status (Full Capacity, Partial Capacity or Energy-Only) of the original Generating Facility will remain the same after the behind-the-meter capacity expansion. The capacity expansion will have Energy-Only Deliverability Status, and the original Generating Facility and the behind-the-meter capacity expansion will be metered separately from one another and be assigned separate Resource IDs, except as set forth in (2) below.

2) If the original Generating Facility has Full Capacity Deliverability Status and the behind-the-meter capacity expansion will use the same technology as the original Generating Facility, the Interconnection Customer may elect to have the original Generating Facility and the behind-the-meter capacity expansion metered together, in which case both the original Generating Facility and the behind-the-meter capacity expansion will have Partial Capacity Deliverability Status and a separate Resource ID will not be established for the behind-the-meter capacity expansion.

3)A request for behind-the-meter expansion shall not operate as a basis under the CAISO Tariff to increase the Net Qualifying Capacity of the Generating Facility beyond the rating which pre-existed the Interconnection Request.

4) The GIA will be amended to reflect the revised operational features of the Generating Facility’s behind-the-meter capacity expansion.

5) An active Interconnection Customer may at any time request that the CAISO convert the Interconnection Request for behind-the-meter capacity expansion to an Independent Study Process Interconnection Request to evaluate an incremental increase in electrical output (MW generating capacity) for the existing Generating Facility. The Interconnection Customer must accompany such a conversion request with an appropriate Interconnection Study Deposit and agree to comply with other sections of Section 4 applicable to an Independent Study Process Interconnection Request.

**4.2.2 Short Circuit Test**

The Generating Facility shall pass the short circuit test if (i) the combined short circuit contribution from all the active Interconnection Requests in the Independent Study Process in the same study area is less than five (5) percent of the available capacity of the circuit breaker upgrade identified in Section 4.2.1.1 and; (ii) total fault duty on each circuit breaker upgrade identified for the current Queue Cluster and active Independent Study Process Interconnection Requests in the same study area is less than eighty (80) percent of the nameplate capacity of the respective circuit breaker upgrade.

**4.2.3 Transient Stability Test**

The Generating Facility shall pass the transient stability test if the Generating Facility has requested interconnection in a study area where transient stability issues are not identified for active Interconnection Requests in the current Queue Cluster or Independent Study Process.

**4.2.4 Reactive Support Test**

The Generating Facility shall pass the reactive support test if the Generating Facility has requested interconnection in a study area where reactive support needs are not identified as requiring Reliability Network Upgrades for active Interconnection Requests in the current Queue Cluster or Independent Study Process.

1. Screen Q is described in Section G.3.a of Rule 21. See Appendix A for the full text of Section G.3.a. [↑](#footnote-ref-1)
2. Note that it is possible to pass Screen Q (i.e., be found to have no electrical interdependencies with earlier-queued projects), be studied under the Independent Study Process of Rule 21, and still trigger a transmission system upgrade. [↑](#footnote-ref-2)
3. The Transmission Cluster Study Process is described in Section F.3.d of Rule 21. See Appendix A for the full text of Section F.3.d. [↑](#footnote-ref-3)
4. As part of this proposal, the Utilities believe the cost responsibility framework for NEM-1 and NEM-2 less than or equal to 1 MW must be the same regardless of what study process a project is studied under (e.g., Transmission Cluster Study Process or the Independent Study Process). The Utilities note that they have identified conflicting language between Rule 21, Section E.4 and Table E-2 regarding the cost responsibility framework for Network Upgrades for NEM 1 and NEM 2 systems ≤1 MW, which should be reviewed and made consistent in the next Rule 21 update. [↑](#footnote-ref-4)
5. All specific tariff language changes in this proposal are included for illustrative purposes only. Final tariff revisions will be proposed via advice letter upon the Commission’s approval of the proposal in 2018. [↑](#footnote-ref-5)
6. Specific language is from PG&E’s Rule 21. Edits to Rule 21 for other IOUs may differ. [↑](#footnote-ref-6)
7. Rule 21 defines Reliability Network Upgrades as “The transmission facilities at or beyond the point where Distribution Provider’s Distribution System interconnects to the CAISO Controlled Grid, necessary to interconnect one or more Generating Facility(ies) safely and reliably to the CAISO Controlled Grid, as defined in the CAISO Tariff.” Rule 21 defines Delivery Network Upgrades as “The transmission facilities at or beyond the point where Distribution Provider’s Distribution System interconnects to the CAISO Controlled Grid, other than Reliability Network Upgrades, as defined in the CAISO Tariff.” Projects applying under Rule 21 are assumed to be seeking “energy only” status and thus are not subject to responsibility for Deliverability Network Upgrades.

Projects that are seeking “deliverability” must apply for a deliverability assessment under the Wholesale Distribution Access Tariffs. [↑](#footnote-ref-7)
8. PG&E Advice 5129-E. [↑](#footnote-ref-8)
9. These tests are defined in Section 4.2 of Appendix DD of the CAISO Tariff. [↑](#footnote-ref-9)
10. Rule 21, Section C, defines Electrical Independence Test as “The tests set forth in Section G.3 used to determine eligibility for the Independent Study Process.” [↑](#footnote-ref-10)