

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider  
Streamlining Interconnection of Distributed  
Energy Resources and Improvements to Rule 21.

R.17-07-007

GREEN POWER INSTITUTE & CLEAN COALITION COMMENTS ON RULE 21  
PROGRAM EVALUATION

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## GREEN POWER INSTITUTE & CLEAN COALITION COMMENTS ON RULE 21 PROGRAM EVALUATION

The Green Power Institute and Clean Coalition (GPI/CC) respectfully submit these informal comments on the Navigant and Energy Division proposed program evaluation.

The Green Power Institute (GPI) is the renewable energy program of the Pacific Institute, a non-profit environmental and social advocacy group. Under the direction of Dr. Gregory Morris, the Green Power Institute performs research and provides advocacy on behalf of renewable energy systems and the contribution they make to reducing the environmental impacts of fossil-based energy systems. The Green Power Institute is located in Berkeley, California.

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER) — such as local renewables, advanced inverters, demand response, and energy storage — and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

GPI/CC strongly support the Commission's efforts to collect and make available information necessary to effectively monitor, evaluate, and further improve the efficiency and predictability of the interconnection process in California. Reporting transparency has greatly improved over the years. Achieving further improvements has, however, often proved elusive and has frustrated the broader effort to bring the benefits of clean local generation to communities throughout the state. We provide comments below in keeping with the desire to meet these goals in a timely manner.

More data on factors that impact the outcome of interconnection requests is important in order to assess the relative significance of those factors and their potential value as screening criteria or in pre-application data access for project siting and location-specific project design. These improvements would optimize use of existing infrastructure, speed up interconnection

processing, reduce study and upgrade costs, and improve queue management and deployment outcomes.

While the reasons for missed or delayed deadlines may not currently be found in a database, when deadlines are missed on a recurring basis, by one or more IOUs, it is important for all parties to understand why deadlines are missed so that appropriate changes can be made. We appreciate the IOUs' acknowledging the value of this information and their willingness to consider improvements in tracking these issues.

Summary of recommendations:

- GPI/CC are pleased to see this review taking place because both organizations have pushed for enhanced interconnection data collection for years now. We have long advocated for a data-based policy improvement process in which obtaining comprehensive historical interconnection data is generally the first step in major policy reform
- For these reasons, we strongly urge the Commission to include a subset of FERC-jurisdictional wholesale distribution access tariff (WDAT/WDT) project data in the planned program review. Generation and storage facilities can often interconnect through either of the largely harmonized Rule 21 and WDAT tariffs, at the same locations, utilizing the same utility staff, processes, and business practices, and in a single combined study queue. Projects can and do regularly transfer between the two tariffs during the interconnection review and study periods prior to concluding an Interconnection Agreement. The choice of tariff is also frequently driven by fluctuating market factors (primarily procurement opportunities) unrelated to the utility interconnection process. As a result, issues identified in projects applying under either tariff will likely apply to both. However, in any given period projects experiencing issues may be largely or exclusively concentrated in one study process, sometimes due to small differences between the tariffs.
- While the Commission does not have jurisdiction over WDAT reform, it does have jurisdiction over the IOUs in terms of data collection and reporting, so there is no jurisdictional limitation in terms of requiring inclusion of a subset of WDAT in the

planned review. It is important to include WDAT data because larger DG projects have often interconnected through WDAT historically, depending on what procurement programs have been available, and to leave out WDAT data will effectively be ignoring the area(s) with the most significant interconnection problems currently.

- We recommend that the Commission include all WDAT projects 100 kW and larger from the last five years within the current program review. This market segment overlaps with Rule 21 in terms of project developers being able to choose to interconnect under Rule 21 or WDAT, depending on the procurement program they are targeting for the sale of power. WDAT and Rule 21 projects are currently already listed together in a combined queue and much data is already available for these projects. Accordingly, it will not be a significant additional burden to require inclusion of the WDAT 100 kW and larger projects.
- GPI and CC agree with comments from IREC that substantial additional deadlines data needs to be included and we list our recommended additions.
- The Research Plan should include interviews both with owners and developers of generating facilities who successfully interconnected to utility distribution systems and applicants who dropped out of utility interconnection queues, as defined in the Commission's Scope of Work. This input is critical in further developing the Research Questions.
- Interconnection cost data reporting is important for a number of goals in this proceeding, including assessing the accuracy of interconnection study results.
- The planned ICA impact review is worthwhile but requires refinements to reflect the ICA's incremental rollout and applicability to applicant and utility processes.

## **I. Comments**

There are three objectives for the proposed program review (Navigant presentation, slide 6):

1. Assessing Rule 21 compliance
2. Benchmarking
3. Policy recommendations

GPI/CC agree with these objectives and we make a number of recommendations to further these objectives below.

**a. Inclusion of WDAT front-of-meter projects is crucial**

As is already recognized, data collection is key for the success of the program review. As currently scoped, however, the program review will not uncover or address many key interconnection problem areas that still exist. Most parties will agree that the behind-the-meter (BTM) below 30 kW market segment (which receives expedited review) has very few problems any more – and we applaud the utilities for major improvements in this market segment. However, we still see significant problems in the following areas:

- Larger BTM, whether net-metered or not, at 100 kW and above
- Front-of-meter projects, which are typically also 100 kW and above, selling power wholesale to the incumbent utility under Rule 21 or to a different Load Serving Entity such as the rapidly growing Community Choice Aggregation (CCA) market, necessitating application through WDAT/WDT.
- Energy storage projects seeking less than maximum possible export

In considering interconnection reform, it is important to consider the MW capacity of projects likely to be affected, rather than only the number of projects at issue. For example, a single 3 MW ReMAT solar project (which can interconnect under either Rule 21 or WDAT) is equivalent to 1,000 typical residential rooftop solar projects. And in terms of meeting state energy and climate change goals, it is MW that matter, not the number of projects.

Generation and storage facilities interconnect through the largely harmonized Rule 21 and WDAT tariffs often interchangeably, at the same locations, utilizing the same utility staff, processes, and business practices, and in a single combined study queue. Projects can and do regularly transfer between the two tariffs during the interconnection review and study periods prior to concluding an Interconnection Agreement. The choice of tariff is also frequently driven by fluctuating market factors (mainly procurement programs) unrelated to the utility interconnection process. As a result, issues identified in projects applying under either tariff will likely apply to both. However, in any given period projects experiencing issues may be largely or

exclusively concentrated in one tariff, sometimes because of small differences between the tariffs.

Likewise, because projects in either tariff share the same queue process and utility resources for review and construction, the number of applications under either tariff will directly impact the review process of Rule 21 applicants in the interconnection queue, both in terms of electrical interdependencies in the study process itself and staff resources to complete the studies and construction of grid facilities. It will not be possible to understand delays in queued Rule 21 projects without a clear assessment of the context of the full queue of projects. Similarly, if market factors have temporarily shifted projects from Rule 21 to WDAT, and these projects are experiencing interconnection issues, this will be strongly indicative of the same issues arising in both tariffs. Identification of issues and development of improvements will typically affect projects regardless of which tariff they choose, and it is strongly within the interest of the Commission to support an efficient process for all projects.

GPI/CC's focus in work on interconnection policy is to achieve the largest benefit for the most MW of projects, but generally confined to projects 20 MW and less (what we call "community-scale"), which are capable of interconnecting to the distribution system. GPI is focused on this community-scale market segment for the reasons set forth in GPI's 2019 report, *A Cinderella Story: Assessing the State of California's "Community-Scale" Renewable Energy Market*,<sup>1</sup> including primarily: 1) there is a growing trend toward counties in California disallowing new large-scale solar and wind projects, due to growing public backlash about the size and impacts of large-scale solar and wind; 2) the cost benefits of large-scale renewables are generally enjoyed as well by community-scale projects; 3) there are in many cases ratepayer cost savings from community-scale projects due to reduced transmission costs, which aren't always included in cost comparisons between the largest projects and community-scale projects; 4) local capacity and resilience benefits; and 5) the lower environmental impacts of community-scale renewables which are commonly sited on dual-use or otherwise previously-disturbed lands which have more manageable impacts than large-scale solar projects that can take up five or more square miles of open space with a single project.

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<sup>1</sup> Online at:  
<https://www.dropbox.com/s/7x3plfygzp0ya48/A%20modern%20Cinderella%20story%20v1.2%20PUBLIC.pdf?dl=0>

In terms of data inclusion in the Navigant program review, Table 1 shows each market segment, problem areas, and GPI/CC’s recommendations for inclusion.

Table 1. *Recommended data inclusion in program review, by market segment.*

<b>Market segment</b>	<b>Already included?</b>	<b>Interconnection issues?</b>	<b>Should be included in program review?</b>
Rule 21 below 30 kW*	Yes	No, eligible for expedited NEM review	No
Rule 21 above 30 kW	Yes	Yes, particularly for projects 100 kW and up, where most issues occur	Yes
WDAT below 100 kW**	No	No, and few projects in this category, though more may be coming	No
WDAT above 100 kW	No	Yes, comparable but currently far more numerous than Rule 21: this is the segment where policy attention will make the most difference	Yes

\* Corresponds to Rule 21 screen limit for expedited NEM review.

\*\* Corresponds to new CAISO market participation limit.

It is GPI/CC’s view that including the 100 kW and larger WDAT data in the current data collection effort is crucial for gaining a good grasp of needed reforms. Considering the appropriate market sectors for inclusion in data collection is already scoped for Step 2, as described in slide 13 of Navigant’s workshop presentation, which states: “Identify key market sectors and actors (IOU)s to target for data collection.” Accordingly, our recommendations should be fully considered before the program review questionnaires are finalized.

Moreover, adding the WDAT 100 kW and larger market segment to the current data collection effort should not be overly burdensome. The Rule 21 and WDAT queues (with useful but limited

information for each project) are already combined for each utility. PG&E’s combined queue is [here](#) (Rule 21 projects are assigned an “RD” queue number in column 3 and WDT projects a “WD” number), SCE [here](#), and SDG&E [here](#).

While it is essential to seek a dataset sufficient to identify and evaluate issues, Navigant should consider both the sample size statistically required to support conclusions and the availability of data, in order to avoid unnecessary data collection and processing burdens. For example, an initial review of the SCE queue for export projects over the past five years list roughly 600 applications. Of these, over 400 have been withdrawn, few after 2017 have completed interconnection agreements, and most of the remainder as far back as 2015 are not yet in service (only four of those applying in the last three years). Of those still active in the queue, the data set is under 100 even when including WDAT, as follows:

- 15 Rule 21 ISP projects
- 28 WDAT ISP projects
- 26 Rule 21 FT projects
- 12 WDAT FT projects
- 6-12 Rule 21 Detailed Study projects
- plus around 70 projects subject to CAISO Cluster Study results

#### **b. Phasing the review process**

We recommend that Objectives 1 and 2 be met before Navigant/ED draft the portion of the report addressing Objective 3 (policy recommendations). Slide 14 of the Navigant presentations states that the first iteration of the draft report will include “preliminary recommendations.” Objective 3 is arguably the most important because it is the “action plan” component of the report, and it will be important to have significant stakeholder feedback, based on release of the data collected by Navigant, before Navigant includes these preliminary recommendations in the draft report.

Some stakeholders, including GPI, Clean Coalition and IREC, have been working on interconnection policy in California for up to a decade, or longer, and it will be beneficial to have

robust discussion of what the data review shows before recommendations on policy are included in the Navigant report. Parties will have a chance to submit written comments on the report, but it will be better to convene a workshop before the recommendations portion of the report is completed in first draft.

**c. More timelines need to be included in the data**

Navigant's slide 13 also describes Navigant's intent to: "Calibrate the compliance of each California IOU with Rule 21 tariffs and timelines." GPI agrees with the intent to calibrate compliance with Rule 21 timelines, but we agree with IREC's comments at the workshop that substantial additional timelines and deadlines from the tariff need to be included in the data. The times for significant milestones reported in the queue data for WDAT projects warrant inclusion and comparison with similar Rule 21 projects, although additional detailed compliance with the separate tariff timelines may not be necessary.

We recommend that the following timelines and data be included in the questionnaire (the following is an expansion of IREC's May 2, 2018, data requests in this proceeding):

1. For the identified market segments and over the past five years, the number of applications and the median, mean, shortest, and longest periods of time from when IOU received an Interconnection Request not electing the Cost Envelope Option, until when IOU provided notification to the Interconnection Customer stating whether the Interconnection Request was deemed complete and valid. "Received" means in this context the date that the email was sent to IOU.
2. Since the cost envelope became available, the number of projects and the median, mean, shortest, and longest periods of time from when IOU received an Interconnection Request electing the Cost Envelope Option, until when IOU provided notification to the Interconnection Customer stating whether the Interconnection Request was deemed complete and valid.

3. Since the cost envelope became available, the number of projects that have opted to participate in the cost envelope and break the number of projects down by size (i.e. under 100 kW, between 100 kW and 1 MW, between 1 MW and 5 MW, and above 5 MW).
4. For the market segments identified and over the past five years, the number of projects and the median, mean, shortest, and longest periods of time from when an Interconnection Request was deemed complete and valid, until when Initial Review results were provided to the Applicant.
5. For the market segments identified and over the past five years, the number of projects and the median, mean, shortest, and longest periods of time from when passing Initial Review results were provided to the Applicant, until when IOU provided the Applicant with either a Generator Interconnection Agreement or a non-binding cost estimate for Interconnection Facilities or Distribution Upgrades and the median, mean, shortest, and longest periods of time from when GIA was offered to when IOU executed GIA.
6. For the market segments identified and over the past five years, the median, mean, shortest, and longest periods of time from when Supplemental Review without a fault current study is requested by an Applicant and the Supplemental Review fee submitted, until when the Supplemental Review results are provided to the Applicant.
7. For the market segments identified and over the past five years, the number of projects and the median, mean, shortest, and longest periods of time from when Supplemental Review with a fault current study is requested by an Applicant and the Supplemental Review fee submitted, until when the Supplemental Review results are provided to the Applicant.
8. For the market segments identified and over the past five years, the number of projects and the median, mean, shortest, and longest periods of time from when passing Supplemental Review results were provided to the Applicant until when IOU provided the Applicant with either a Generator Interconnection Agreement or a non-binding cost estimate for Interconnection Facilities or Distribution Upgrades and the median, mean, shortest, and longest periods of time from when GIA was offered to when IOU executed GIA.
9. For the market segments identified and over the past five years, the median, mean, shortest, and longest periods of time from the events triggering tender of a Generator Interconnection Agreement pursuant to Rule 21, section F.3.e.i(1)-(4), until when IOU provides the Generator Interconnection Agreement to the Applicant and the median, mean, shortest, and longest periods of time from when GIA was offered to when IOU executed GIA.
10. For the market segments identified and over the past five years, for projects undergoing only Fast Track review (Initial Review and Supplemental Review), the number of projects and the median, mean, shortest, and longest periods of time from when IOU provided notification to the Interconnection Customer stating whether the

Interconnection Request was considered complete and valid, until when the Generator Interconnection Agreement is executed by both parties.

11. For the market segments identified and over the past five years, for energy storage projects undergoing only Fast Track review (Initial Review and Supplemental Review), the number of projects and the median, mean, shortest, and longest periods of time from when IOU provided notification to the Interconnection Customer stating whether the Interconnection Request was considered complete and valid, until when the Generator Interconnection Agreement is executed by both parties.

12. For the market segments identified and over the past five years, for energy storage projects undergoing ISP or group study, the number of projects and the median, mean, shortest, and longest periods of time from when IOU provided notification to the Interconnection Customer stating whether the Interconnection Request was considered complete and valid, until when the Generator Interconnection Agreement is executed by both parties.

13. Since July 1, 2017, the median, mean, shortest, and longest periods of time between submittal of a complete Interconnection Request and receipt of a draft Generator Interconnection Agreement for energy storage projects eligible for expedited review pursuant to section N of Rule 21 and the median, mean, shortest, and longest periods of time from when GIA was offered to when IOU executed GIA.

14. The median, mean, lowest and highest interconnection costs (separate from study costs), per MW, for each project examined, broken down by study process and year.

#### **d. Scope of Work**

The scope of work issued by the Commission for this project stated that the Consultant will:

1. Collect data or information needed to answer the Suggested Research Questions in this Scope of Work;
2. Interview utility employees processing interconnection applications, assessing need for system upgrades, estimating costs, and coordinating/managing construction of upgrades;
3. Interview owners and developers of generating facilities who successfully interconnected to utility distribution systems under Rule 21;
4. Interview applicants who dropped out of utility interconnection queues;

Items 3 and 4 were not clearly delineated in the proposed Research Plan by Navigant. Interviews and surveys with interconnection applicants are critical in further developing the Research

Questions, and defining what data should be collected, both retrospectively and in future data reporting to the Commission and Parties is important.

Likewise, selective follow up with a limited number of applicants may be warranted to confirm mutual IOU and applicant agreement either where delays are attributed to the applicant or where the IOU asserts justified compliance with extensions of timelines.

#### **e. Deadline Issues**

While the reasons for missed or extended deadlines may not currently be found in a database, when deadlines are missed on a recurring basis, by one or more IOUs, it is important for all parties to understand why deadlines are missed or extended so that appropriate changes can be made. We appreciate the IOUs' acknowledging the value of this information and their willingness to consider improvements in tracking these issues.

A time-consuming approach for tracking deadlines is not warranted and we are not calling for such an approach. However, when a deadline is missed by the IOU the reason(s) should be recorded in a project-tracking database or similar record keeping (as opposed to in the public queue), and a list of standard categories or common issues may be used to improve efficiency and consistency in reporting.

We learned in the workshop that such tracking is already done by each IOU in some manner, so it should be simply a matter of improving what is already being done. Problems like these won't be addressed without identifying where they occur and information on why they occur, and retroactively seeking such information is typically time-consuming and impractical. We are only suggesting data collection when a problem occurs, and only enough to identify the type of problem; further investigation would only occur where this minimal reporting indicates value in doing so, i.e. where a specific type of problem is occurring with unreasonable frequency and resulting in significant delays.

#### **f. Cost Data**

Interconnection cost data reporting is important for a number of goals in this proceeding, including assessing the accuracy of interconnection study results.

The addition of project applications to the queue only to later see these projects withdrawn (with no reason stated for withdrawal in the queue record) remains a major issue in the application process, representing wasted effort and substantial burden on both applicants and utility staff. We know from discussions with developers that the magnitude of the estimated interconnection costs are often a driving factor in many withdrawals. Reporting on estimated interconnection costs for individual projects in the queue can show how closely study cost estimates correlate with withdrawals. This information can also provide data to establish pre-application predictive correlations and options for reducing project withdrawals. Comparing estimated and final actual costs has clear value in evaluating opportunities to improve the accuracy of estimates. Providing this information in relation to the broad categories of Interconnection Facilities, Distribution Upgrades, and Network Upgrades provides useful insight into the relative role of these factors and consequent opportunities to address them.

**g. Objective 1.5 Integration Capacity Analysis (“ICA”)**

With respect to the ICA and Navigant’s program review, the two very different phases of ICA development should be recognized. Initial pilot ICA estimated hosting capacity maps were first published in 2015 and have been in use by applicants since that time. The fully developed ICA was scheduled for release in July of 2018, but was not published until January 2019, and the current version is both still under refinement (particularly in PG&E territory), and is not anticipated for formal adoption in the application review process before next year.

Responses from both applicants and utility personnel will be valuable in terms of how each phase of ICA application has already, or could in the future, streamline the interconnection process, shorten timelines or reduce costs, both prior to application submittal and after.