Peninsula Advanced Energy Community (PAEC)

PAEC Task 4.4: Final Design of Pilot for Testing Streamlined Interconnection Procedures

Clean Coalition/PG&E/CEC
Wholesale Distributed Generation (WDG)
Interconnection Pilot

Pre-determined Fixed Interconnection Fee
Shared use of Existing Customer Service Lines
Expedited Review
For ICA Qualifying WDG Projects up to 1 MW

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Table of Contents

Tables

Figures

About the Clean Coalition

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.

Visit us online at www.clean-coalition.org.

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I. Introduction

The Clean Coalition and PG&E propose a pilot to streamline interconnection procedures for commercial-scale renewable facilities interconnected in-front-of-the-meter (IFOM), also known as wholesale distributed generation (WDG), as part of the Peninsula Advanced Energy Community (PAEC) initiative.

PAEC is a groundbreaking initiative to streamline policies and showcase projects that facilitate local renewables and other advanced energy solutions, such as energy efficiency, energy storage, and electric vehicle charging infrastructure. PAEC will create pathways to cost-effective clean local energy and community resilience throughout San Mateo County, the City of Palo Alto, and beyond. PAEC is a collaboration between the Clean Coalition, the California Energy Commission (CEC), PG&E, and an array of municipalities, emergency response jurisdictions, schools and universities, and corporate entities.

As originally envisioned under the PAEC grant, the pilot was intended to expedite interconnection processes for projects in San Mateo County. However, limited procurement opportunities currently exist in San Mateo County for IFOM/WDG resources. Therefore, Phase 1 of the pilot will first be tested in San Francisco in conjunction with CleanPowerSF's Feed-in Tariff, which is set to roll out in late 2017 for projects up to 1 MW.

Issue:
Interconnection is recognized by the California Public Utilities Commission (CPUC) as a significant barrier in developing distributed energy resources (DER) and achieving statewide energy and emission goals. Streamlining interconnection practices is a specific goal of Distribution Resource Planning (DRP), as required by Commission Guidance on implementing AB 327. While interconnection of net energy metered (NEM) facilities has realized efficiencies, identically sized and similarly sited WDG projects suffer from interconnection processes in IOU service territories that:

- Cost significantly more
- Take much longer
- Are far less predictable

Several potentially mitigatable factors account for these current differences. First, WDG interconnection costs cannot be definitively determined prior to application from publicly available information. Second, WDG interconnections are not allowed on existing customer service line drops, adding substantial costs and complexity, including unnecessary construction, scheduling, and potential transfer of ownership related to new service facilities. Third, WDG projects face significant delays during interconnection impact and cost responsibility studies.

Goal:
The overarching goal of the pilot is to replicate the streamlined NEM interconnection process, timing, and pricing for qualified wholesale projects, when conforming to publicly available eligibility criteria. This pilot project will:

- Advance the PAEC goal of streamlining interconnection processes for commercial-scale DER—particularly WDG solar
- Comply with the DRP "streamlined interconnection" requirement contained in the February 2016 DRP Guidance
- Reduce staff time and cost for interconnection review
- Supply grid information to support optimized project proposals and reduce modification/withdrawal/applicant friction
- Evaluate combined impacts and mitigation achieved through aggregating projects even when not co-located
- Encourage or incentivize project applications that deliver benefits, including by mitigating local grid needs or constraints

Approach:
The initial pilot in San Francisco will trial:

- A deterministic process of interconnection review
- Pre-established utility standard fee for interconnection
- Use of existing service connections.[1] [2]

The initial pilot will occur San Francisco, where updated Integrated Capacity Assessment (ICA) 2.0 values (and other additional publicly available information as needed) exist, and will utilize hosting capacity values that reliably comply with or replace Fast Track application screens for conforming applications.

As part of the pilot, PG&E will confirm that ICA-compliant interconnections to San Francisco circuits are not additionally constrained by other factors, or analyze and publish any additional constraints that do exist, and designate all eligible circuits or portions thereof as Pilot Streamlining Zones.

Participant Eligibility:
Interconnection applicant projects will be eligible to participate in the pilot if they:

- Are under 1 MWac[3] maximum export
- Are able to interconnect at locations where PG&E's ICA 2.0 and other published information indicates adequate available hosting capacity with no significant required grid upgrades and no transmission or other constraints[4]

[1] Consistent with Multi-Family Affordable Solar Housing (MASH) interconnection standards

[2] Utility will be responsible for upgrades necessary to meet existing service capacity rating; applicant will be responsible for upgrades in excess of the service rating.

[3] All capacity figures in the document are rated in alternating current (ac)

[4] See ICA 2.0 map, by mid 2018

Standard Interconnection Fee:
Based on this deterministic eligibility standard, the pilot will test the application of a standardized interconnection fee structure in conjunction with trialing the use of ICA 2.0 for interconnection of qualifying PV facilities. The standardized pilot wholesale DG interconnection fees will be based upon a survey of the interconnection study and other utility costs incurred by similarly situated projects up to 1 MW, identical to the approach used in establishing the fee for NEM projects up to 1 MW. This standardized wholesale DG interconnection fee will be designed to cover the actual average costs incurred by PG&E, as was done for NEM interconnection fees.

For WDG applicants, the fee will include Pre-Application Reports, Interconnection Application and review, results meetings, and incidental utility upgrade costs. Interconnection Facility costs will not be included and remain the individual responsibility of applicants. However, PG&E will allow the use of existing service connections to be utilized where adequate capacity allows, and will pay for any upgrades needed to meet the existing service capacity rating.

Applicants will benefit from pre-established interconnection pricing for eligible projects. Mirroring the process for NEM systems up to 1 MW, pre-established pricing should shorten the interconnection application and study phase by establishing clear criteria for avoiding triggering upgrades, with their resulting project modification or negotiation of individual project cost responsibility.

In addition, the application process should allow for software and equipment to be configured to impose operational constraints that would prevent otherwise necessary grid upgrades. As is current practice, operational standards and liability stipulations would be included in interconnection agreements for eligible resources in the pilot, now utilizing inverter functions or other means needed to ensure conformity to ICA limits and other agreed-upon operational constraints.

Table 1: Streamlined Interconnection Pilot Schedule 2018-2020

Streamlined Interconnection	**Pilot 1 (2018-19)**	**Pilot 2 (2019-20)**
Pre-determined Interconnection Streamlining Zones & eligibility requirements	San Francisco City & County	San Francisco & San Mateo County
Standard base interconnection fee	✓	✓
WDG use of existing service line	✓	✓
ICA 2.0 local implementation	✓	✓

Rule 21 successor - Track 3: incorporate the ICA and other fundamental restructuring of the process (creating hosting capacity analysis for the transmission system, building a new fast track process, replacing screens F, M, G, O, and N, etc.)

Information on other constraints	✓	✓
Schedule site visits/work in <60 days	✓	✓
Full E-Application process	✓	✓
Pilot automated simple GIA	✓	✓
Pilot automated fast track interconnection review		✓
DER aggregations		✓
Applicant ICA modeling access		✓
Confidentiality of interconnection information		✓
Direct utility upgrade ownership		✓
3rd-party utility upgrades		✓

II. Pilot Components

- **Standardized Interconnection Fee**

A revenue-neutral fee, based on average actual costs incurred by PG&E, should be set at $8,000 including Pre-Application Reports (PAR), Fast Track (FT) Application and Review, FT Supplemental Review (SR), and incidental grid upgrade costs.[5] Interconnection Facility[6] costs are not included and remain the individual responsibility of applicants.

- **WDG Shared Use of Existing Service Lines for Interconnection**

Consistent with interconnection practices for MASH projects, where service drops are already in place and of sufficient capacity, these will be available for interconnection of new generation facilities at the same location, instead of requiring duplicate separate service.

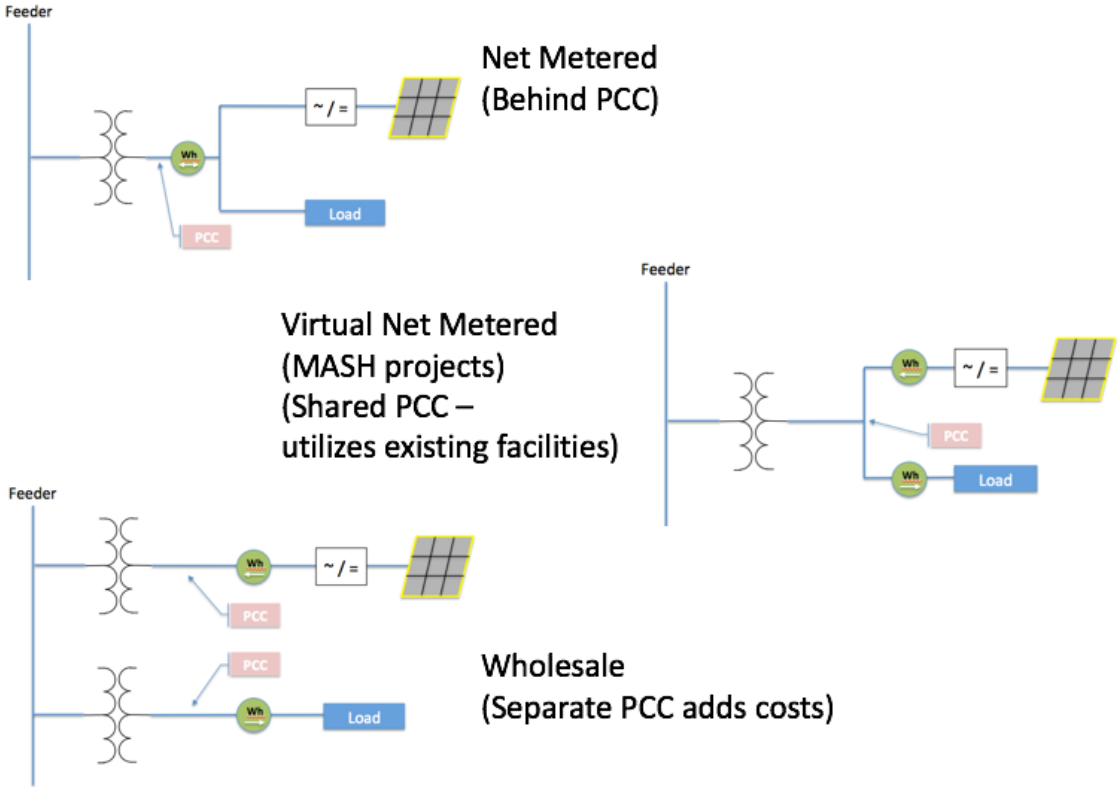
- **ICA 2.0 Local Implementation**

Initial trial of use of ICA for streamlining interconnection in accord with CPUC goals and directives.

[5] PAR, FT/SR application, review, and study fees are already standardized based on average costs ($600 + $800 + $2500 = $3900). With the avg. cost of results review meetings ~$750, this total fee of $8000 allows ~$3000 for the average cost of site visits for inspection and actual interconnection.

[6] Interconnection Facilities are on the Applicant side of the point of common coupling (PCC) and are owned by the applicant.

Figure 1: Shared Use of Existing Service Lines for Interconnection (One of 3 Ways of Interconnecting the Same Project)



In addition to implementing a simple fee structure, trialing ICA 2.0 Local Implementation, and allowing use of existing service lines for qualifying projects, the following components are proposed to explore in Pilot 1 (2018-19) and Pilot 2 (2019-2020).

Pilot 1 Components (2018-2019)

1. Automated Fast Track Interconnection Review and e-Application Review

This proposal explores automating the Review process for projects that conform to the operational profiles indicated through the ICA map for availability of hosting capacity. In the pilot, a utility engineer would also review each Initial Review application to ensure quality control and confirm results of the automated process. The Supplemental Review process would not be automated during the pilot, but automation could be investigated if the Deemed Complete and Initial Review procedures are successfully automated:

- 100% Web-based Application to Fast Track

    - Review for any items not currently submitted electronically, pilot implementation by June 2018
- Automated Receipt & Review by IOU
    - Review for any items not currently auto reviewed, pilot implementation by June 2018
- Automated Deemed Complete, Pass Screens, or Supplemental Review Notice
    - Review for any items not currently auto screened, pilot implementation by December 2018
- Pass SR and Generate Interconnection Agreement (GIA) with Standard Fee
    - Propose pilot standard fee (~$8,000), auto GIA production September 2018, approve by December 2018

2. Timely Service Planning

Streamlined interconnection relies upon timely scheduling and completion of site visits to complete the physical inspection, interconnection, and any necessary adjustments on the utility grid. This pilot aims for scheduling reflected in the Generator Interconnection Agreement (GIA) to avoid delay and, if practical, to perform any site visits or work within <60 days unless requested otherwise by the applicant.

Pilot 2 Components (2019-2020)

3. Confidentiality of Interconnection Information

PG&E currently considers project-specific interconnection information to be confidential, but developers generally do not request confidential treatment of this information. Providing details on interconnection study results, as seen in PacificCorp's service territory, with identifying information redacted upon request, can reduce timelines and costs for all parties and potentially foster collaboration. The Clean Coalition proposes to work with the CEC, PG&E, and developers to determine the universe of interconnection information that should by default be deemed not confidential unless the applicant opts out. Information would include constraints discovered through the study process, as well as the types of upgrades and costs associated with them.

4. Enhanced ICA Data & Modeling Access

The purpose of this proposal is not only to show how much capacity is available without grid upgrades, but also to allow applicants to determine what upgrades are cost-effective prior to application submittal. Enhanced ICA data on each component of capacity limits will allow applicants to determine how to limit their project's operational profile or alternatively how much additional hosting capacity may result from upgrading one or more limiting factors should it be cost-effective to do so. On-demand/on-line modeling practices could allow applicants to input project design through a web interface to analyze what violations occur, along with information on why and by what degree, in order to allow applicants to optimize system size and design relative to impact mitigation costs.

5. Combined Interconnection Applications for DER Aggregations

This proposal would allow aggregations of DER to apply for interconnection together and for PG&E to determine how the resources may respond both individually and in aggregate. The application process would take into consideration the ability of software to impose operational constraints that would prevent otherwise necessary grid upgrades. Operational standards and liability stipulations would be included in interconnection agreements for eligible resources in the pilot.

This aspect of Pilot 2 supports other efforts currently underway. For example, the IDER Pilot DER solicitation framework will result in developers proposing portfolios of DER to meet identified grid needs. PG&E will need more visibility into how the resources will behave when called upon in aggregate. The Group Study interconnection process addresses how to share fees in electrically related areas but does not consider coordinated operation of DER.

6. **Direct Utility Upgrade Ownership Without Transfer**

Currently, upgrades are paid by developers and deed-transferred to the utility, which results in a complex process and unneeded tax liabilities. In Pilot 2, where upgrades are required, PG&E would own and install the assets and assess an interconnection upgrade fee based on work performed, avoiding an ownership transfer process and the associated Income Tax Component of Contributions (ITCC) liabilities.

7. **Permission for Qualified Third-Party Utility Upgrades**

Rule 21 currently allows interconnection applicants to hire qualified third-party providers to perform required upgrades, subject to utility discretion. Under this proposal, PG&E would identify contractors that are currently qualified to perform work for the utility, creating a pathway to allow developers to contract with these third parties directly. This effort would address scheduling delays in service planning while likely reducing costs and increasing transparency. PG&E would maintain authority over upgrade requirements, equipment specifications, final inspection, and approval of all work performed (as an alternative to direct utility upgrade ownership).