

Pacific Gas and Electric Company Stakeholder Comments

Submitted by	Company	Date Submitted
John Newton jans@pge.com (415) 973-1609	Pacific Gas and Electric Company	June 25, 2015

Please use this template to provide your comments on the Draft Final Proposal posted on June 10, 2015 and as supplemented by the presentation and discussion during the stakeholder web conference held on June 17, 2015.

Submit comments to InitiativeComments@caiso.com

Comments are due June 24, 2015 by 5:00pm

The June 10, 2015 draft final proposal may be found at:

http://www.caiso.com/Documents/DraftFinalProposal_ExpandedMetering_TelemetryOptionsPhase2_DistributedEnergyResourceProvider.pdf

The presentation discussed during the June 17, 2015 stakeholder web conference may be found at: <http://www.caiso.com/Documents/AgendaPresentation-DistributedEnergyResourceProvider-DraftFinalProposal.pdf>

Please select one of the following options to indicate your organization's overall level of support for the ISO's draft final proposal:

1. Fully Support;
2. Support with qualification; or,
3. Oppose.

If you choose (1) please provide reasons for your support. If you choose (2) please describe your qualifications or specific modifications that would allow you to fully support the proposal. If you choose (3) please explain why you oppose the proposal.

PG&E Stakeholder Comments

PG&E appreciates the opportunity to comment on the CAISO’s Expanding Metering and Telemetry Options Phase 2 Distributed Energy Resource (“DER”) Provider (“DERP”) Draft Final Proposal. In general, the CAISO proposal provides a framework to enable a DER¹ provider to aggregate DERs to meet the CAISO’s 0.5 MW minimum participation requirements.

PG&E supports with qualification the CAISO’s draft final proposal. While PG&E is supportive of the CAISO’s efforts to increase access for distributed energy resources to participate in wholesale energy markets and appreciates the CAISO’s work to bring distributed energy resources into the wholesale energy markets swiftly, PG&E is concerned by several aspects of this proposal, including certain applications of the metering proposal and the scope and terms of the DERP agreement. Apart from the concerns raised below, PG&E supports the CAISO’s draft final proposal.

PG&E’s main comments are as follows:

Regarding Metering of Behind-the-Retail-Meter DER Aggregations

- PG&E requests that the draft final proposal be revised to acknowledge that the complicated matters with aggregation of behind-the-retail-meter DERs remain to be resolved, and should be addressed in a third phase of the Expanding Metering and Telemetry Options DERP Framework initiative carried forward in conjunction with Local Regulatory Authorities.

Regarding Terms and Details of the DERP Agreement

- The CAISO should fully define the scope of DER eligibility to aggregate under a DERP in a manner analogous to the Participating Generator Agreement. If behind-the-retail-meter DERs can join a DERP aggregation, PG&E recommends that DERs located behind-the-retail-meter be precluded from participating in both Net Energy Metering and DERP aggregations.
- The CAISO should ensure that the Distribution Provider has access to information crucial to reliability and safety studies of DER aggregations when developing the DERP agreement.
- The DERP agreement must not interfere with interconnection requirements or distribution operations.
- Changes in operational characteristics of DERP sub-resources are material to the interconnection study of distribution system impacts, therefore a resource requesting to change its operating parameters in order to participate in a DERP should be required to notify the Distribution Provider.
- PG&E appreciates the CAISO committing to developing the terms of a draft DERP agreement in a subsequent stakeholder process.

¹ CAISO defined a distributed energy resource as any resource on the customer side or the distribution grid side of the electric system (*i.e.*, rooftop solar, energy storage, plug-in electric vehicles, and demand response).

Metering Requirements and Cross-Jurisdictional Issues

PG&E supports the metering section of the draft final proposal with qualification. PG&E is unable to fully support portions of the metering section of the draft final proposal, as described below, because crucial details that are necessary for the successful implementation of the overall DERP framework are not resolved.

PG&E has reviewed the CAISO’s metering technical requirements contained in Appendix A of the Straw Proposal and recognizes the CAISO’s metering requirements as consistent with current standards ensuring meter data accuracy. PG&E supports the application of the metering requirements included in the straw proposal’s appendix for application to DER aggregations in-front-of-the-retail-meter.

Under the proposal, individual DERs that will be aggregated under a DERP will need to be direct-metered. The metering requirements for these DERs will be those established by a Local Regulatory Authority; in the absence of a Local Regulatory Authority, the CAISO’s metering requirements will act as a default.

To the extent that the CAISO proceeds with the DERP framework for aggregations behind-the-retail-meter, the CAISO should clarify that for behind-the-retail-meter DERs participating in the CAISO market, the issue of cost responsibility for metering remains unresolved, and falls within the CPUC’s jurisdictional authority. For example, in D.14-05-033,² the CPUC decided that Net Energy Metering (NEM) generators paired with energy storage devices require a Net Generation Output Meter (NGOM) only if the energy storage device is more than 10 kW in size. The CPUC also capped metering fees to the customer in these configurations to \$600. In no case does the CPUC require metering dedicated to the storage device itself, as would the CAISO if that storage device were bid into the market through a DERP aggregation. PG&E proposes that the CAISO work with the CPUC to clarify cost responsibility for metering, and advocates that the customer pay for additional metering needed for bidding DERs into the CAISO market.

Additionally, it should be noted that the CAISO has stated that DERs sited at retail load will need a wholesale generation interconnection agreement to participate in many, if not all, CAISO wholesale market programs, including NGR. Since a customer can only have an interconnection agreement under one jurisdiction, either the FERC (through WDT) or the CPUC (through Rule 21), customers with existing generation connected under Rule 21, say a NEM-eligible solar generator, will need to replace their existing Rule 21 interconnection agreement with a wholesale distribution interconnection agreement, giving up NEM eligibility in the process.

² Energy Storage OIR, R.15-03-011, Scoping Memo p. 11.

PG&E is Concerned that the Draft Final Proposal Appears to Convert Retail Load into Wholesale Load through Direct Wholesale Metering of DER Aggregations Already Metered as Retail Load

PG&E supports the draft final proposal with regard to DERP aggregations on the wholesale transmission and distribution grid. However, PG&E is troubled by the lack of specificity in the proposal regarding the challenging and complex multi-jurisdictional implications of DERP aggregations electrically located on the retail distribution grid participating in wholesale energy markets. PG&E is unsatisfied, for example, that the proposal in its current form provides enough detail to alleviate concerns about converting end-use retail customer loads to wholesale loads.

During the stakeholder call, the CAISO clarified that it contemplates DERP aggregation configurations of resources whether in front of or behind retail meters. For DERP aggregations behind the retail meter, PG&E is concerned that the proposal seems to have the effect of converting retail loads into wholesale loads by (1) requiring that Load Serving Entities subtract sub-meter usage data from the revenue meter prior to submitting data to the CAISO; and (2) requiring that the Utility Distribution Company and Load Serving Entity subtract the sub-meter usage from the revenue meter prior to issuing a bill to the customer. Yet the technical appendix to the straw proposal does not provide any guidance as to how power that goes through the retail meter is split between wholesale and retail. Nor is it clear that the CAISO has the jurisdictional authority to tell the LSE how to bill customers for retail purposes. PG&E and the other IOUs currently do not have the ability to subtractively bill sub-metered accounts at this point. Merely subtracting the meter data does not determine the split between retail and wholesale loads. Significant costs would be incurred to develop and implement this type of functionality in PG&E's billing and customer information systems. Beyond accurately billing the different accounts, other technical obstacles need to be overcome such as properly synchronizing these two meters and developing a standard communication protocol. Splitting retail meter data into wholesale and retail loads is a critical matter that stands in the way of the DERP framework's implementation, at least for aggregations on the retail distribution grid. The CAISO proposal also needs to be reconciled with applicable laws such as California Public Utilities Code section 780.5 and CPUC Electric Rule 18 which prohibit sub-metering.

Consider the example of a DERP that aggregates energy storage resources located at residential sites. To determine the retail (i.e., Local Regulatory Authority-jurisdictional) and wholesale (FERC-jurisdictional) energy consumption and generation of the resources at a retail meter, it is not enough just to separately meter the storage device. Energy that goes through the retail meter must be assigned to wholesale or retail. For an aggregated energy storage resource located on the distribution grid, energy necessarily flows through a retail meter into that storage resource that would participate as a sub-resource in a DERP aggregation in the CAISO energy market. In such a case, how will the energy usage be categorized, as retail or wholesale?

When energy comes out of the storage resource, is it serving on-site retail demand, or is it providing energy into the wholesale markets, or a combination of both? Knowing the relevant meter reading does not answer the question. The question is complex and demands a thorough and correct answer. If categorizing energy as retail or wholesale has implications for rates, then PG&E suggests that the CAISO work with the CPUC to ensure that there is no ‘gaming’ by customers, or the ability for the customer to pay wholesale rates for energy that ultimately will serve a retail end-use, either on-site end-use or other retail end use. PG&E notes that any energy taken from the grid by a behind-the-retail-meter storage device in a demand response market or an energy consumption market should be taken at a full retail rate. The rate issue is more complex for market opportunities that involve exporting energy back into CAISO markets. The CPUC should address this issue in the Energy Storage Order Instituting Rulemaking (OIR), in the Track 2 issue Multiple Use Applications.³ Attempted resolution of this issue before or outside of that process would be premature.

Relatedly, PG&E asks that the CAISO clarify the jurisdictional boundaries of how a resource that is behind-a-retail-meter can be tied into the wholesale grid. Can the CAISO (or a DERP at the direction of the CAISO) operate a behind-the-retail-meter storage resource, for example, in a manner which is inconsistent with the affected Local Regulatory Authority’s retail policies? If DERs that have already been interconnected via the Rule 21 tariff⁴ under one use case, and then the DER operator decides to participate in a CAISO market and the DER use case changes, the customer may have to reapply for interconnection under the Rule 21 tariff for that Distribution Provider. For example, a DER that is non-exporting must reapply under Rule 21 if it becomes exporting. Interconnection procedures are another area where it would be prudent for the CAISO to work closely with the CPUC.

The clear implication in the Draft Final Proposal is that it fully addresses how behind-the-retail-meter distributed storage resources can be aggregated for purposes of participating in the CAISO wholesale markets. However, because the draft final proposal does not address the jurisdictional issues nor answer the question of how energy will be categorized as retail or wholesale, the proposal does not provide crucial answers as to how any behind-the-retail-meter storage device can participate in the wholesale markets.

The draft final proposal requires sub-metering that is subject to Local Regulatory Authority requirements, which have not been specified in the draft final proposal. PG&E is concerned that the ultimate responsibility for those requirements will be assigned to the Utility Distribution Company.

The CAISO clarified that for the behind-the-retail-meter resource, the CAISO is just addressing the separately metered wholesale component (i.e., the individual sub-resources under the DERP agreement), and not addressing the impact this would have on the retail meter (which

³ Energy Storage OIR, R.15-03-011, Scoping Memo p.11.

⁴ Electricity Generation Tariff Rule 21: http://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_21.pdf.

now has both retail and wholesale energy reflected in its data). This potentially puts the onus on the CPUC and Load Serving Entities to determine how to net out the wholesale data from the retail meter.

PG&E believes many important issues necessarily precede implementation of the proposed framework for DER aggregations located behind-the-retail-meter.

In summary, PG&E is concerned that the metering requirements are not fully developed in the draft final proposal, and that significant jurisdictional overlap issues associated with behind-the-retail-meter DERs have not been addressed, particularly with regard to Net Energy Metering and energy storage. The metering requirements and necessary coordination with the relevant Local Regulatory Authorities are of critical importance. The CAISO should explicitly clarify that the final proposal leaves many of the key issues unaddressed for behind-the-retail-meter resources. PG&E requests that the draft final proposal be revised to acknowledge that the complicated matters described above with aggregation of behind-the-retail-meter DERs remain to be resolved, perhaps in a third phase of the Expanding Metering and Telemetry Options DERP framework initiative carried forward in conjunction with Local Regulatory Authorities. The DERP framework for behind-the-retail-meter aggregations is incomplete and should not be included in the final proposal. The CAISO should not seek to approve an incomplete framework nor implement the DERP framework for behind-the-retail-meter DERs until these issues have been resolved, regardless of whether the draft final proposal is approved in its current form.

Scope, Anticipated Terms, and Draft DERP Agreement

The CAISO Should Fully Define the Scope of DER Eligibility to Aggregate under a DERP

Regarding eligibility for participation in a DERP aggregation, PG&E appreciates the CAISO defining the use of the term Distributed Energy Resource to clarify what resources are eligible to participate in a DERP aggregation. However, PG&E finds it critical that the CAISO fully define the scope of the DERP Agreement and the eligibility of resources. PG&E recommends that the CAISO approach defining the DERP agreement in a manner analogous to Sections 2.2 and 2.2.1 of the Participating Generator Agreement (PGA). Defining the scope is a critical and manageable first step towards drafting the DERP Agreement and will provide clarity to all parties.

The CAISO Clarified that PDR and RDRR Are Not Eligible for DERP Aggregation. If Behind-the-Retail-Meter DERs Can Join a DERP Aggregation, PG&E Recommends that DERs Located Behind-the-Retail-Meter Choose to Participate in Either Net Energy Metering or a DERP Aggregation.

PG&E appreciates the CAISO's clarification during the stakeholder call, and in the proposal, that Proxy Demand Resource (PDR) and Reliability Demand Response Resource (RDRR) resources are *not* part of the DERP proposal as these resources are not currently direct metered.

To the extent that behind-the-retail-meter DERs are able to participate in DERP aggregations, PG&E believes that DERs located behind-the-retail-meter that are eligible for and participating in Net Energy Metering (NEM) (and receive a retail rate) should be precluded from also executing a DERP agreement (and thereby receive a wholesale rate). Through a NEM retail credit, a NEM-eligible generator is compensated for all avoided costs of additional generation, including ancillary services, CAISO charges, costs and revenues related to congestion revenue rights and convergence billing, and other grid usage costs. The CAISO lists "rooftop solar" as an example of a DER. If a customer participates in both NEM and CAISO DERP aggregation programs for the same DER, that customer would be compensated twice for the same commodity/service. Therefore, customer participation in both the NEM program and a DERP aggregation for the same DER should be strictly prohibited. However, in the long-run, as the CPUC moves to reform its compensation policy for customer-generated energy to better reflect the value to the grid, consideration should be given to leveraging the CAISO wholesale market as a mechanism to value the commodity/services provided by DERs. Customers generating their own energy under the existing NEM tariff are currently credited for their energy at the bundled retail rate, which over-compensates customers relative to the value provided. PG&E recognizes that compensating customers for their exported energy at the CAISO wholesale market rate would more accurately reflect the true value of customer generation.

The CAISO Should Consider Who Are the Appropriate Parties to a DERP Agreement to Ensure that the Distribution Provider Has Access to Information Crucial to Reliability and Safety Studies of DER Aggregations

The Utility Distribution Company (UDC) or Participating Transmission Owner (PTO) needs to be able to evaluate whether DERP aggregations create any reliability and safety issues on the distribution and transmission systems. This concern arises in two ways.

First, the UDC needs to be able to evaluate impacts to distribution reliability. Although the various DERs are required to go through each utility's respective interconnection process to confirm the DERs' interconnection requirements and to obtain an interconnection agreement, the distribution impacts of these DERs operated in an aggregated fashion responding to various market triggers may create additional distribution reliability issues that may not have been captured in the individual DER interconnection process (studied one at a time). The UDC would

need to confirm that the aggregation of resources do not cause any additional safety or reliability issues.

Second, the PTO needs to conduct a transmission operational grid impacts assessment: In addition to distribution impacts, the operational impacts on the transmission system would need to be studied and assessed to ensure that aggregated DERs will not create any additional transmission issues. The PTO would need to be part of those analyses.

These reasons show the need to ensure that the UDC/PTO has access to DERP aggregation technical information to evaluate impacts of DER aggregations on the distribution and transmission systems. In developing the DERP agreement, the CAISO and stakeholders should evaluate methods of ensuring this access to needed information, including making the applicable UDC or PTO a party to a three-party DERP agreement.

The DERP Agreement Must Not Interfere with Interconnection Requirements or Distribution Operations

The CAISO should clarify that the DERP agreement does not alter or replace the interconnection requirements as spelled out in any interconnection agreements with the Distribution Provider or in the Distribution Interconnection Handbook. Any operational requirements for each sub-resource must be adhered to for the safety and reliability of the distribution system, regardless of participation in a DERP. The CAISO should reinforce that a DERP’s ability to participate in a given market is subject to the constraints of the parameters detailed in the interconnection process with the Distribution Provider. The CAISO should consider developing its own process to verify that capabilities committed in a DERP agreement are feasible and allowable under the interconnection parameters for the aggregated resources.

The CAISO should also clarify how to ensure that the proposed DERP framework will not negatively impact distribution operations.

Changes in Operational Characteristics of DERP Sub-Resources are Material to Interconnection Study of Distribution System Impacts

It should be made clear that a resource requesting to change its operating parameters in order to participate in a DERP must notify the Distribution Provider. Interconnection study assumptions may change if operational modes under a DERP vary from those proposed in a prior interconnection request. Distribution Providers must be informed of changes in order to assess whether they impact the distribution system and require mitigation. For example, inverter-based generators are often assumed to operate at unity power factor with no active volt-VAR control. Changing those operational parameters could create significant local voltage support issues. A change in operating mode of a generating facility must be addressed as a

potential material modification to that facility, especially for energy storage facilities which have a broad range of capability for timing, magnitude, and direction of power flows.

Furthermore, while interconnection study processes address the individual impacts of generating facilities, these studies do not take into account a certain set of aggregated resources acting in concert in a DERP arrangement. The unanticipated simultaneous operation of aggregated distributed resources could create conditions not explicit in pre-existing interconnection requests, and thus cause negative impacts on the distribution system. Careful monitoring of distribution impacts caused by DERP aggregations is needed. A preemptory notification to the Distribution Provider of the combined operational characteristics of an aggregation may be advisable as well to ensure the safety of the public and reliable operation of the distribution system.

The CAISO Commits to Developing the Terms of a Draft DERP Agreement in a Subsequent Stakeholder Process

PG&E appreciates the CAISO's verbal commitment during the stakeholder call to hold a stakeholder process that will evaluate the need for tariff changes in the further development of the full terms of a DERP agreement. PG&E looks forward to working with the CAISO and other stakeholders in advancing this initiative to a successful implementation.