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**BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13-10-040, D.14-10-045) and related Action Plan of the California Energy Storage Roadmap.

Rulemaking 15-03-011
(Filed March 26, 2015)

**OPENING COMMENTS OF
PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
ON THE JOINT WORKSHOP ISSUE PAPER**

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Pursuant to the April 22, 2016 *Administrative Law Judge's Ruling Noticing Workshop* (ALJ Ruling), Pacific Gas and Electric Company (PG&E) respectfully submits these comments responding to the questions set forth in the ALJ Ruling. PG&E looks forward to continuing to participate in this proceeding as the California Public Utilities Commission (Commission) addresses the topics discussed below.

II. INTRODUCTION

PG&E recognizes the importance of the Commission and the California Independent System Operator (CAISO) coordinating their efforts to address any issues and establish the rules necessary to successfully deploy multiple use applications (MUA) of energy storage resources, and to properly measure these resources' station power usage.

As identified in the issue paper produced by the Commission and the CAISO attached to the ALJ Ruling (Issue Paper), there are three functions that an energy storage system is capable of providing: distribution grid service; retail customer service; and CAISO wholesale market service.

When an energy storage system is operated to provide more than one of these three core functions, which is the definition of a MUA, it is important that the governing rules adopted by the Commission and/or included in the CAISO tariff ensure that certain unintended

consequences be avoided. For example, for a storage resource providing multiple services including distribution grid services, the operational parameters necessary to provide that service need to be clearly defined and enforced. If the operational requirements are not properly enforced then the reliability of the distribution system could be compromised.

As another example, for a storage resource providing multiple services including retail customer services, the necessary metering and billing requirements need to be put in place to ensure the appropriate rates and charges are accurately captured for that storage resource's MUAs.

Turning to station load, PG&E recognizes the challenges of correctly determining and monitoring what energy loads associated with storage resources should be classified as Commission-jurisdictional, retail station load. In broad terms, it is clear that the charging energy load for later discharge into the CAISO wholesale market is not station load, while the energy consumed on site as end use load is at the applicable retail rate. In this regard, the auxiliary loads associated with the operations of a storage system, (e.g., temperature regulation, monitoring and control systems) should be classified as retail station load.

The following discusses these, and other topics, in the context of providing responses to the questions posed in the Issue Paper, and reiterated in the ALJ Ruling.

III. RESPONSES TO QUESTIONS

A. Multiple-Use Application (Section 4)

1. What are the distribution system services and revenue opportunities that currently exist for energy storage?

Currently, there are very limited opportunities for energy storage resources to provide distribution system services. This is the case regardless of whether the resource is located directly on the distribution grid in front of the meter (IFOM), or located behind the meter (BTM).

In its 2014 energy storage request for offers (PG&E 2014 ES RFO), PG&E solicited proposals for storage projects, to be owned and operated by PG&E, to provide distribution reliability service. PG&E is currently seeking approval of two resulting contracts in Application (A.) 15-12-004.

The Commission is addressing the question of distribution system services and revenue opportunities that may exist now and in the future for distributed energy resources generally in the Distribution Resources Plan (DRP) proceeding (Rulemaking (R.) 14-08-013) and the Integrated Distributed Energy Resources (IDER) proceeding (R.14-10-003).

2. *What wholesale, distribution and customer services can storage provide now and in the next 2-3 years?*

In the discussion below, PG&E addresses both IFOM and BTM storage resources, discussing each single use case as well as the MUAs identified in the Issue Paper. PG&E identifies any key issues it sees associated with each use case, and flags those use cases that it sees as less likely to occur in the near future.

a) *In-Front-Of-The-Meter Storage Resources*

(1) *Single Use*

(a) *Distribution Services*

As discussed in response to question 1, currently the opportunities for IFOM distribution energy storage resources generally to provide distribution services are very limited. The Commission is addressing the question of distribution system services and revenue opportunities that may exist for distributed energy resources, including but not limited to storage, in the DRP and IDER proceedings.

(b) *Wholesale Services*

Turning to wholesale services, IFOM storage resources can participate in all CAISO markets for which they are qualified to participate.

Furthermore, depending on their characteristics, such storage resources may be able to provide resource adequacy (RA) capacity and be compensated for that service.

(c) Retail Customer Services

Consistent with Table 5 in the Issue Paper, IFOM storage resources do not provide retail customer services.

(2) Multiple Use Cases

(a) Use Case #1 (Distribution Grid Services and Wholesale Market)

The MUA for an IFOM storage resource is use case #1 of Table 5 of the Issue Paper, distribution grid services and wholesale market.

In order to enable this MUA, the Commission will need to establish the specifics of how a distribution resource, including a storage resource, is authorized to “split” its capabilities between providing distribution reliability and wholesale market participation. What limits will the Commission place on the resource’s other activities, including participation in the wholesale market, in order to ensure that the resource is able to meet its distribution reliability obligations? What mechanisms will be used to ensure that those limits are respected?

The Commission is addressing these issues in its DRP and IDER proceedings.

b) Behind-The-Meter Storage Resources

(1) Single Use

If a BTM storage resource provides a single use, it is likely to be retail customer service, which is discussed below. It is less likely that a single use BTM storage resource would provide only distribution services, or wholesale market participation, without also providing some sort of retail customer service to the associated service. Therefore, the following sections discuss single use distribution services and wholesale market participation only briefly. PG&E focuses its

discussion of the BTM aspects of these services in its discussion of multiples uses for BTM storage resources.

(a) Distribution Services

As discussed in response to question 1, the current opportunities for BTM distribution resources generally to provide distribution services are very limited. PG&E is not aware of any BTM storage proposals for distribution services that have no retail customer services component, and so this single use case of BTM distribution services may not be critical to explore at this time.

(b) Wholesale Services

PG&E is not aware of any BTM storage proposals for wholesale service that have no retail customer services component, and so the single use case of BTM wholesale market participation may not be critical to explore at this time.

(i) Wholesale Market Participation Indirectly Via Wholesale Demand Response

If a BTM storage resource were used, on a single use basis with no associated retail customer service, to participate in the wholesale market, the most likely means would be indirectly, as a component of an aggregated wholesale demand response resource under the CAISO's proxy demand resource (PDR) or reliability demand response resource (RDRR) program.

(ii) Wholesale Market Participation Directly As A Storage Resource

If a BTM storage resource were to propose to provide wholesale service directly, for example as a non-generator resource (NGR) under the CAISO tariff, one factor that it would have to consider is that currently, there is no provision under Commission-jurisdictional tariffs for electricity going through the retail meter to be charged anything other than a retail rate.

Therefore, under the current regulatory regime a BTM storage resource intending to participate directly in the CAISO market would need to charge at retail. Under this regulatory framework, there is likely to be limited application of this use case. This is discussed in more detail below, in the “retail customer services/wholesale market participation” MUA.

(c) Retail Customer Services

BTM storage is currently able to provide retail customer services to the associated retail customer. Retail customer services include, as examples, load shifting to reduce the amount the customer pays under time-of-use (TOU) retail rates, and peak shaving to reduce the amount the customer pays for retail demand charges. Depending on the particular retail rate schedule under which the customer is receiving service, there may be other strategies for reducing the retail charges the customer receives, as well.

Retail customer services provided by BTM storage might also include the provision of back-up power to the customer if the customer’s service is interrupted by an outage.

(2) Multiple Use Cases

(a) Use Case #2 (Retail Customer Services and Distribution Grid Services)

The first multiple use case for BTM storage resources on Table 5 of the Issue Paper is use case #2, retail customer services and distribution grid services.

In order to enable this multiple use, the Commission will need to establish the specifics of how a distribution resource, including a storage resource, is authorized to “split” its capabilities between providing distribution reliability and retail customer services. These specifics include, but are not limited to, the constraints the Commission will place on the resource’s other activities, including provision of retail customer services, in order to ensure that the resource is able to meet its distribution reliability obligations. They also include the mechanisms the Commission will put into place to ensure that those constraints are respected.

The Commission is addressing these issues in its DRP and IDER proceedings.

(b) Use Case #3 (Retail Customer Services and Wholesale Market)

The two functions under consideration in use case #3 are a BTM storage resource providing retail customer services and participating in the wholesale market. With respect to BTM storage, wholesale market participation can be indirect, as a component of a PDR or RDRR wholesale demand response resource. Wholesale market participation can also be direct such as through the NGR platform.

(i) Indirect Wholesale Market Participation: Wholesale Demand Response

A BTM storage resource can support retail customer services and indirect participation in the CAISO markets via wholesale demand response. The entity managing the storage resource will have to balance the benefits to be obtained from retail load shifting and/or retail peak shaving, on the one hand, and ensuring the PDR or RDRR aggregation can operate consistent with any dispatch instructions its receives as a result of its participation in the CAISO markets. Additionally, to the extent that the PDR resource is providing RA, it will have to take its CAISO must-offer obligations into account.

The CAISO is continuing to enhance its PDR and RDRR framework in its Energy Storage and Distributed Energy Resource (ESDER) phase 2 stakeholder process. PG&E is an active participant in that stakeholder process, and supports its continuation.

(ii) Direct Wholesale Market Participation

Turning to direct participation of BTM storage resources in the CAISO markets, the rules for BTM *generation* resources to participate in the CAISO market are relatively clear. Such resources generate power to meet on-site end use demand, with the generation not used on-site

being sold into the CAISO markets.¹ The CAISO tariff contains provisions addressing how the output of “Net Scheduled Generating Units” is reflected in the CAISO markets.

However, direct participation of BTM *storage* resources gives rise to additional issues. The issue of what energy going through the retail meter, if any, could qualify for wholesale charging, and what energy going through the retail meter is for retail use, must be addressed.

As noted above, currently, there is no provision under Commission-jurisdictional tariffs for electricity going through the retail meter to be charged anything other than a retail rate. Therefore, under the current regulatory regime a BTM storage resource intending to participate directly in the CAISO market can only charge at retail. Under this regulatory framework, there is likely to be limited application of this multiple use.

One approach for BTM storage wholesale market participation would be continuation of the current regime, under which all energy going through the retail meter is provided pursuant to Commission-jurisdictional retail rates. If the Commission modifies the above approach, so that the electricity going through the meter is split between wholesale charging and retail end-use, it is imperative that the adopted approach ensure that the split between wholesale and retail does not allow an end use customer to meet its end use load using wholesale power, thereby bypassing retail rates for that end use load.

This issue would need to be addressed even in the single use case, where the BTM storage resource is used to participate directly in the CAISO markets but not used to provide any retail customer services such as retail load shifting. The issue is even more challenging in the multiple use case, where the BTM storage resource is being used not only to participate directly in wholesale market, but also to provide retail customer services to the customer. Now it must

¹ Not all BTM generation resources can participate in the CAISO markets. For example, BTM resources associated with retail Net Energy Metering (NEM) are not allowed to participate in the CAISO markets.

be determined which energy going through the retail meter is for retail load shaping activities such as retail load shifting and retail peak shaving, and which energy going through the retail meter would qualify for wholesale charging. In this MUA, there is likely to be electricity that goes into the storage device for a period of time, but that is ultimately used to serve retail load, in the case of retail load shifting, for example. There will also be some electricity that goes into the storage device for a period of time, to be sold back into the wholesale markets.

If the Commission modifies the current regulatory regime, the metering and billing requirements to enable the retail and wholesale portions will need to be established. PG&E recommends establishment of a Commission/CAISO working group to develop these metering and billing requirements.

(c) Use Case #4 (Distribution Grid Services and Wholesale Market)

PG&E is not aware of any proposals for BTM storage that have no retail customer services component, and so this multiple use case may not be critical to explore at this time.

This use case is similar to use case #1, with the additional overlay that the storage resource providing the multiple uses is behind the meter. As with other use cases involving distribution reliability, the Commission will need to establish the specifics of how a distribution resource, including a storage resource, is authorized to “split” its capabilities between providing distribution reliability and wholesale market participation. The Commission is addressing these issues in its DRP and IDER proceedings.

Additionally, if the wholesale market participation is direct, then the Commission will have to address the issue of what energy going through the retail meter is wholesale charging, and what energy going through the retail meter is for retail use.

**(d) Use Case #5 (Retail Customer Services,
Distribution Grid Services, and Wholesale
Market)**

All of the issues identified above come to bear in this multiple use case. The Commission will need to establish the specifics of how a distribution resource, including a storage resource, is authorized to “split” its capabilities between providing distribution reliability and the other two uses, retail customer services and wholesale market participation. If the wholesale market participation is direct, then the Commission will have to address the issue of what energy going through the retail meter is wholesale charging, and what energy going through the retail meter is for retail use.

PowerTree Services, Inc. (PowerTree) gave a presentation on what appeared to be a use case #5 example at the May 3, 2016 workshop hosted by the Commission and the CAISO. While PG&E appreciates PowerTree’s proposal, PG&E notes that there is an active complaint case open at the Commission regarding PowerTree’s proposed projects.²

3. To what extent are multiple-use storage applications permitted under current rules? Identify regulatory and market barriers and rules, their limitations and possible modifications that would enable a use case to deliver and be compensated for multiple services.

The discussion above highlights the limitations on multiple use storage applications under the current rules. One significant limitation relates to storage resources providing other uses in addition to distribution reliability. The full extent of such resources’ ability to participate in the wholesale markets and/or provide retail customer services will depend on the limitations the Commission places on these resources to ensure that they meet their distribution reliability obligation.

² Complaint 16-02-005. See, Answer of Pacific Gas and Electric Company to Complaint of Powertree Energy Services.

Another issue that must be addressed, for BTM storage resources to be able to participate directly in the wholesale market in addition to providing distribution grid services and/or retail customer services, is what energy going through the retail meter is wholesale charging, and what energy going through the retail meter is for retail use. There is an adopted approach currently in place, all charging at retail. The Commission must address whether it intends to continue, or modify, that approach.

PG&E broadly views the following discrete areas needing modification and/or development to enable a broader range of multiple use applications.

- Rates & Compensation
 - *Issue:* Currently, there is no rate schedule that allows a storage device to ‘split’ the charge or limit overlapping compensation schemes, when appropriate, according to the service being provided. For many policy options, there is a risk of double compensation or of failure to recover cost of service.
 - *Core Principle:* Under no circumstances should a BTM storage resource be able to charge at wholesale in order to serve retail load. Retail rates should apply for energy used for retail purposes, regardless of whether the BTM storage resource is also being used to participate directly in the wholesale markets.
 - *Core Principle:* A storage resource should not be paid twice for the same services. For example, a storage resource should not be paid twice for energy or twice for capacity.
- Metering/Telemetry and Billing
 - *Issue:* Metering/telemetry standards need to be revised or developed to support multiple uses for storage resources, along with the development of appropriate billing mechanisms.³
- Operations
 - *Issue:* Specifically with respect to storage resources that are a component of an aggregations of distributed energy resources (DER) that are operated

³ This is not addressed by the meter generator output (MGO) framework that the CAISO has adopted in Phase 1 of its ESDER stakeholder initiative.

in concert, protocols are needed to ensure transmission and distribution operators coordinate aggregated DER dispatch with the CAISO, the operational visibility and control for distribution operations, and methods to ensure reliable performance by DERs.⁴

- Market Monitoring Rules

- *Issue:* Monitoring and verification must ensure properly functioning markets and prevent exploitation of market inefficiencies.

4. *Are there any concerns of overlap between wholesale, distribution and retail services that must be addressed? Which of these services are currently compensated? Does each service provide incremental value? Are there double payment concerns that must be addressed? How should costs and benefits of the same resource serving across the grid be tracked and allocated?*

PG&E has concerns with overlap from both an operational and a compensation perspective. As identified above, the operational concern primarily stems from competing priorities where a resource may have committed to provide distribution reliability services, and also to offer other services. The Commission must develop clearly defined rules and limitations that ensure adequate distribution grid services performance and precedence for distribution grid reliability services in case a conflict occurs.

With respect to compensation, PG&E has concerns around double compensation. This concern manifests in two ways. First, DERs, including storage resources, should not receive additional compensation for actions they would have taken regardless of the additional compensation. Second, a DER may provide multiple services (i.e., “stacked benefits”), but should not be paid twice for the same service.

Finally, in response to how costs and benefits should be tracked and allocated, PG&E provides a principle-based approach that calls for i) retail rates to be applied for retail usage, and

⁴ The CAISO’s Enhanced Metering and Telemetry Options – Distributed Energy Resources Provider (EMTO – DERP) stakeholder initiative is aimed at aggregating distributed energy resources for system use.

ii) the usage of storage resources to be charged to customers who are impacted by that usage.

The retail rate principle supports the notion that a BTM storage facility should not be able to charge at a wholesale rate, and then be able to use that power to serve retail load. Otherwise, this will cause a cost-shift to the detriment of other retail customers. The impacted customers principle ensures that the appropriate customers, (i.e. bundled or unbundled), are appropriately paying for the services they are receiving from a MUA device.

5. *Are there any interconnection concerns that must be addressed?*

MUA storage resources have viable interconnection options under the Federal Energy Regulatory Commission (FERC) and Commission jurisdictions today, and this proceeding should seek to establish a common understanding of the jurisdiction applicable to the high priority use cases.

At present, a storage device can be successfully interconnected under existing tariffs. The different tariffs provide different options for the device's operations and corresponding markets or programs. The primary bifurcation in the device's operations that corresponds with the applicable jurisdiction is whether energy is exported to the utility across the point of common coupling (PCC).

Storage serving retail loads from behind a retail meter is under Commission jurisdiction and interconnected using Rule 21. This allows non-export functionality, combination with NEM, self-generation incentive program (SGIP) or other retail customer programs, and participation in wholesale demand response markets, each with their own program requirements. Some combinations of programs may not be possible due to mutually exclusive program requirements.

Storage which exports energy across its PCC for participation in a wholesale market is under FERC jurisdiction and interconnected using the wholesale distribution tariff (WDT).⁵ This type of interconnection is required for a facility intended to export to wholesale markets and qualify for any corresponding wholesale energy rate treatment. A WDT interconnection agreement does not limit the facility's ability to have other retail loads connected behind the same point of interconnection (POI). As discussed earlier, adequate metering and rate schedules do, however, need to be in place to distinguish between wholesale and retail energy flows and should be implemented during the interconnection process.

PG&E's approach is that a given POI must be subject to a single jurisdiction for the scope of its interconnection agreement. Thus, a de facto one-to-one relationship is in practice for a generating facility (by definition at a single POI) and its interconnection agreement. While some programs are mutually exclusive, e.g. NEM and wholesale energy sales, the interconnection type can be chosen to give the maximum desired flexibility.

Both tariffs, WDT and Rule 21, adequately address the physical impacts on the distribution system of power import and export from a single point of interconnection. However, the simultaneous wholesale market participation of aggregated resources is not addressed by the existing interconnection study processes. The utilities will need to address with the FERC the safety and reliability impacts arising from this FERC-jurisdictional wholesale market behavior. Groups of devices reacting in unison to wholesale market signals create new system conditions

⁵ Rule 21 export interconnection agreements exist under Commission jurisdiction. These allow export for compensation exclusively from the distribution provider, but are not currently available to energy storage devices as this type of agreement further requires the generating facility to attain qualifying facility status with an executed Public Utilities Policy Act power purchase agreement. *See*, PG&E's Electric Form 79-1144, Rule 21 Generator Interconnection Agreement For Exporting Generating Facilities Interconnecting Under The Fast Track Process, p. 5.

which may break the assumptions of prior studies for individual devices, potentially leading to new system impacts that may need mitigation.

For purposes of this proceeding, parties should seek to establish a common understanding of the jurisdiction applicable to the high priority use cases.

Additionally, PG&E recognizes the need for clear metering requirements for MUAs during the interconnection process and defined standardized configurations.

The decisions to be made regarding the number, arrangement, and rate schedules of the meters installed for multiple use applications is not driven by the safety and reliability directives of the interconnection process. The interconnection process is, however, where these requirements are verified and implemented. As such, the compensation, rates, and metering issues raised elsewhere in these comments need to land in clear, operational guidance so that when an interconnection request is received, it can expeditiously proceed through its chosen interconnection process.

PG&E urges the Commission to target a narrow set of consistent configurations for metering and POI. Standardized arrangements can be built into an optimized interconnection procedure, where reduced variation can be met with swift and consistent processing. Such efforts are underway as a result of the Rule 21 proceeding, applicable to much of the retail energy storage portfolio.

PG&E looks forward to continuing its track record of streamlining interconnection by helping to define standard metering and POI configurations for MUAs. If metering requirements are ambiguous, the symptoms will arise during the interconnection process where the utility distribution companies (UDC) verify and install requested meters in accordance with standing requirements. Metering requirements clarified in this proceeding for Commission-jurisdictional interconnections may need to be addressed in Rule 21 or other reference documentation.

6. ***Have metering and sub-metering issues, pertinent to both behind-the-meter and in-front-of-the-meter storage, been addressed in the CAISO's Expanding Metering and Telemetry Options and ESDER initiatives? Are there any metering concerns that must be addressed?***

PG&E observes there are a number of unanswered and ambiguous issues pertaining to both EMTO-DERP and ESDER stakeholder initiatives. At a conceptual level, EMTO-DERP is establishing the framework for aggregating DERs. However, this framework does not address MUAs as clarified by the CAISO, which concedes that ongoing efforts in the ESDER initiative “may lead to refinements to the tariff revisions proposed in this proceeding [EMTO-DERP].”⁶

As another observation, the current NGR and PDR/RDRR models for enabling DERs are not very accommodative of MUAs. NGR resources are “in the CAISO” markets all of the time. This must be taken into account in any mixed wholesale-retail MUA. Enhancements to PDR and RDRR through ESDER Phase 2⁷ may further enable retail/wholesale MUA with an expanded set of use cases and value streams that customers may capture, and PG&E supports the CAISO and Commission examining these enhancements in the context of wholesale-retail MUA.

Specifically for metering concerns, ESDER's Phase 1 established an MGO methodology that provides for sub-metering of DER devices. Additional work is required to develop the detailed metering/telemetry parameters along with the appropriate billing engine for the multiple use applications.

7. ***Are there any dispatch priority concerns that must be addressed? How should conflicting real-time needs be managed?***

Yes, there are dispatch priority concerns. Wholesale market obligations should not compromise distribution system reliability needs.

⁶ FERC Docket ER16-1085: CAISO's Answer to Party Comments, April 11, 2016, p. 17.

⁷ Enabling PDR and RDRR to curtail and increase load, as well as provide regulation service, ESDER Phase 2 Issue Paper, Section 3.2

8. *For each regulatory and/or market barrier and/or issue, what is the logical CPUC or CAISO regulatory proceeding to address and resolve the issue?*

PG&E provides the following recommendations for the appropriate venues to address regulatory and market barriers and issues pertaining to deployment of energy storage resources:

- **Distribution Grid Services:** Defining and enforcing the operational parameters necessary for an energy storage resource to provide distribution grid services, either as a single use or a multiple use application, is currently being undertaken in the DRP and IDER proceedings. PG&E supports the continued examination of these issues in that forum.
- **Wholesale Services:** The PDR/RDRR and the NGR platforms, which are the existing tools for energy storage to participate in the CAISO wholesale markets, are currently being considered for enhancements in the ESDER Phase 2 stakeholder initiative at the CAISO. PG&E supports the continuation of these efforts.
- **Retail Customer Services:** The appropriate rate and compensation structure for BTM storage resources is a threshold issue for successful deployment of energy storage and other distributed resources. As noted above, it is critical to have the appropriate retail rate apply to any retail usage provided by an energy storage resource. Regardless of whether the storage application is single use or multiple use, the appropriate billing and metering requirements must be put into place to ensure there is no improper cost shifting amongst customers and that cost-of-service is adequately captured. PG&E supports the consideration of these issues in this proceeding.

B. *Questions for station power - New equipment and loads introduced by storage (Section 2.2)*

1. *What loads related to energy storage must be considered that are not clearly addressed in existing station power provisions? Considering these, what principles should apply to determine whether they should be categorized as station power versus wholesale consumption for resale?*

Existing station power provisions do not clearly address the energy consumed to charge a storage resource to enable it to later sell electricity into the wholesale markets.

Under PG&E's tariffs retail standby is applicable to station power.⁸ For storage applications for participation in the CAISO markets, the load employed in the charging process,

⁸ Station power is reasonably defined in Appendix A of the CAISO tariff as "energy for operating

including that portion of the load that cannot be returned to the system, should not be considered station load and is appropriately treated as a component of the wholesale market transaction.

PG&E agrees that the current netting process, under which station load is netted against resource output on a 15 minute basis, should be applied for storage resources. This treats generation and storage resources consistently.

2. ***Should battery temperature regulation be considered part of charging (similar to efficiency loss) and subject to a wholesale rate, or should it be considered consumption/station power subject to a retail rate (where consumption exceeds output in an interval)? If the latter, how should temperature regulation be accounted for or metered?***

Temperature regulation of the storage device should be considered retail station load, as should other loads supporting the operation of the battery (e.g., monitoring and control systems).

PG&E proposes that the temperature regulation load that is able to be metered be done through a separate meter from the charging load of a storage project, and be included as part of station load. To the extent this particular load is unable to be separately metered, the appropriate amount of the load, metered along with charging load, that should be included in the station power rate should be determined by the energy storage provider and the contracted load serving entity through an allocation methodology or any other agreed upon method.

3. ***Do station power rules apply to BTM storage and do they differ from IFOM storage?***

Any usage that is treated as retail station power for IFOM storage should be treated as retail usage for BTM storage, as well. Station power rules should apply to BTM storage no less

electric equipment, or portions thereof, located on the Generating Unit site owned by the same entity that owns the Generating Unit, which electrical equipment is used exclusively for the production of Energy and any useful thermal energy associated with the production of Energy by the Generating Unit; and for the incidental heating, lighting, air conditioning and office equipment needs of buildings, or portions thereof, that are owned by the same entity that owns the Generating Unit; located on the Generating Unit site; and used exclusively in connection with the production of Energy and any useful thermal energy associated with the production of Energy by the Generating Unit.”

