Pacific Gas and Electric Company

Brian K. Cherry
Director
Regulatory Relations

77 Beale Street, Room 1087
San Francisco, CA 94105

Mailing Address
Mail Code B10C
Pacific Gas and Electric Company
P.O. Box 770000
San Francisco, CA 94177

415.973.4977
Internal: 223.4977
Fax: 415.973.7226
Internet: BKC7@pge.com

May 8, 2006

Jerry Royer
California Public Utilities Commission - Energy Division
505 Van Ness Avenue
San Francisco, CA 94102

Re: Comments on Draft Resolution E-3992 Regarding Net Energy Metering Combined Technology (NEMCT) Tariffs

Dear Mr. Royer:

Pacific Gas and Electric Company (PG&E) hereby submits comments on Draft Resolution (DR) E-3992 regarding PG&E's Advice Letter 2793-E.[1] This advice filing covered "combined technology" also referred to as "multiple tariff" net energy metering requirements in compliance with California Public Utilities Commission (CPUC or Commission) Decision (D.) 05-08-013. As further explained in this response, PG&E urges the Commission to withdraw or in the alternative, modify the DR as it currently (1) violates provisions adopted in D.05-08-013 by providing net energy metering (NEM) benefits to non-NEM generators and (2) orders the utilities to employ a metering system that contravenes current NEM processes or those discussed in the California Energy Commission-sponsored Rule 21 Working Group.

"STACKING" PUTS FICTION OVER FACT

In the DR, the Energy Division directs the utilities to adopt a "stacking" tariff approach for customers who combine generators that qualify for net energy metering under Public Utilities Code (PUC) sections 2827, 2827.8, 2827.9 or 2827.10 ("NEM eligible generators" or "renewable or clean generation") with other types of generators ("non-NEM eligible generators" or "fossil fuel generation"). While acknowledging that the "pro-rata" method proposed by the three utilities is "based on the physical reality of power flow,"[2] the DR goes on to disregard the physical facts -- and the express CPUC directive in D. 05-08-013 that "in no event will non-net metering generators receive credits designed for NEM projects"[3] -- and

[1] Also covered in the Draft Resolution were the combined technology Advice 1777-E of San Diego Gas and Electric Company (SDG&E), and Advice 1969-E of Southern California Edison Company (SCE).

[2] DR pg. 9.

[3] Ordering Paragraph 2, Fifth Bullet.

to instead, embrace a flawed stacking approach[4]. By definition, stacking is based on a fictional assumption that any exports to the grid in a combined technology facility first and always originate from a NEM-eligible generator. The DR compounds the problem inherent in the stacking approach by limiting or prohibiting the use of interval metering.[5]

INTERVAL METERING IS NEEDED FOR NON-RELAY COMBINED TECHNOLOGY INSTALLATIONS

Regardless of whether the stacking or pro-rata approach is employed, interval metering, in combined technology facilities where the customer does not elect to install a reverse power relay, is crucial.[6] Without such metering there is no way to ensure that the energy receiving a NEM credit at the Point of Common Coupling (PCC) originated from the NEM generator. This is important because no net metering law or tariff assigns credits based on the total energy produced by the NEM generator. Instead, the intent of the NEM legislation is that customers use the energy produced by the NEM generator to meet their own electrical needs, with credits and charges determined by usage and exports as measured at the PCC. [7]

Without interval metering, it is impossible to ensure that the energy receiving NEM credit at the PCC originated from the NEM generator. Consider the scenario where a customer with both a NEM generator and a fossil fuel generator regularly exports energy to the grid several months of the year when both generators are operating. In each of these months the export to the grid exceeds the output of the NEM eligible generator for the month. The DR would require the utilities to calculate credits based on total exports at the PCC for each month with a net export. This credit would then carry forward on the customer's account until the end of the year at which time the credit amount would be reduced to equal the value of the total NEM generation measured over the year, as measured at the NEM generator and not the

---

[4] The DR in FoF 7 and on Page 15, claims "the stacking method of exported net-energy metering mimics the loading order of the California Energy Action Plan (EAP)." The DR relies heavily on this argument to justify the stacking over the pro-rata methodology. This argument is flawed. It does not follow that a single customer employing stacking will operate their NEM and non-NEM generators in a manner that favors NEM eligible generation; rather they will operate in the manner most economical to them. If it is more economical to export the non-NEM energy to take advantage of the annual gross comparison called for in the DR, then they will. This is not mimicking the effect of the EAP.

[5] The DR makes an error in equating TOU metering with interval metering. The DR states, "The monetary credit is for the net energy exported by the NEM eligible generators, calculated in proportion of their share of energy generated to the total energy calculated generated in each TOU period. (DR, p. 9.) This misinterprets what PG&E proposed in its tariff filing. What PG&E proposes is that energy proportion be calculated for 15 minute intervals to increase accuracy and prevent gaming. SCE and SDG&E refer to TOU meters but by TOU they mean meters that read every 15 minutes; PG&E calls such meters interval meters.

[6] The DR is incorrect in Finding of Fact 15 where it states that PG&E's proposed tariff does not include a non-export breaker (relay) option. This option is set out explicitly in Special Condition 2 of PG&E's proposed NEMCT tariff. The non-export breaker option would work the same under a stacking approach as it does under pro rata. The Draft Resolution is incorrect in assuming that the installation of a non-export relay for a combined technology installation is covered in PG&E's Electric Rule 21. While Rule 21 covers interconnections requirements needed for safe and reliable interconnection including the installation of non-export relays, Rule 21 does not address the combined technology scenario specifically as detailed in PG&E's NEMCT tariff. To assist customers looking at this option in the specific context of a combined technology facility, PG&E urges the Commission to approve Special Condition 2 of PG&E's proposed tariff.

[7] CA PUC sections 2827 (b) (2) and (3).

PCC.[8] The DR incorrectly assumes that the annual true-up will somehow prevent the possibility of a customer receiving NEM credits for exports originating from the customer's fossil fuel generator. The following examples illustrate the flaws in this assumption.

First, consider the case of the customer that, over the course of the year, uses its NEM-eligible photovoltaic (PV) generator (supplemented, as necessary, by utility energy) while its fossil fuel generator is shutdown for repair or maintenance. During the periods where only the PV generator operates, there would be no exports to the grid, as the generation from the PV unit would be used entirely on site. Assume further that the load normally served by the fossil fuel generator is now served by the PV generator; thus, leaving no generation from the PV generator for export to the grid. Even though there would be no exports to the grid during this period, the meter measuring the output of the PV unit would register this generation and, under the DR's stacking proposal at year-end, this generation would count toward increasing its export credits. This is because the only check under the DR's limited metering proposal is whether total output at year-end from the PV system is equal to or more than exports measured at the PCC.

Second, at other points in the year, it is reasonable to assume that this same customer would use its fossil fuel generator alone when the PV system is out of service. During these time periods, any exports to the grid would be from the fossil fuel generator alone. Again, it would be inappropriate and unreasonable to provide NEM credits for these exports; however, under the stacking method – and without interval metering at both the PV unit and the PCC -- such credits could be granted. If the DR is modified so the stacking method employs interval metering on the PV unit and at the PCC, the problems identified above would be corrected. The interval metering arrangement identifies the source of generation during specific periods when only the fossil fuel generator is operating and exporting, or when the PV unit is operating and serving load – thus, not exporting. The metering scheme proposed in the DR, with a meter measuring only the year-end total output of the PV system prior to serving any load,[9] would fail to catch these situations. Under the DR scheme, customers would be able to "bank" credits for exports that could only have originated from the fossil fuel generator.[10]

The DR's rejection of interval metering is in direct conflict with D.05-08-013 and the DR's own Finding that "[t]he Decision prohibits eligibility for credit for energy export from non-NEM

[8] The DR offers no process for how such credits should be adjusted except for a reference to "load metering," which has thus far not been incorporated in any existing NEM tariff and could pose significant difficulties for customers.

[9] DR, Ordering Paragraph 2

[10] Even if you went from an annual calculation to a monthly calculation, there would be problems with the DR's proposal. A simple example is a customer with a fossil-fuel generator that runs day and night and exports to the grid at night, while load is light, and a PV NEM generator that operates during the day, when the load is higher, and there are no exports to the grid. Of course, based only on monthly meter reads none of this would be discernable, and it would be assumed that exports up to the output of the NEM generator would receive NEM credits even though there were no exports to the grid when the NEM generator was running.

eligible generators, but not export" (FoF 4). Without interval metering, it is impossible to prevent the assigning of NEM credits for fossil fuel generation.[11]

GAMING CONCERNS ARE NOT ADEQUATELY ADDRESSED

The DR suggests that there are strong economic disincentives that would prevent gaming in combined technology generating facilities, citing the high cost of PV generators. While PG&E agrees that there is little incentive to oversize NEM-eligible generation systems; there is every incentive to operate non-NEM eligible fossil fuel generators in a manner that maximizes the ability to mask exports from the dirty generator as clean exports eligible for NEM credits. Although the customer would benefit from a greater credit, granting NEM credits for dirty generation is inconsistent with the strong Commission and Legislative policy of promoting clean generation.[12]

ADDITIONAL ERRORS AND OMMISSIONS IN THE DRAFT RESOLUTION

The DR erroneously deletes PG&E's proposed order of priority for applying credits as unnecessary. PG&E disagrees with this conclusion. Without PG&E's proposed provisions, or something similar, it is unclear how to administer the tariff for a customer with multiple types of NEM eligible generators. Apart from suggesting a tariff revision that would allow a customer to give up some benefits in exchange for less metering (FoF 23), the DR leaves a number of issues unaddressed:

- How should credits for exports to the grid be calculated in a combined generation facility where there are two or more generators eligible for different NEM tariffs (e.g. an account with a both a fuel cell and a PV system)? The DR makes the assumption the exported kWh will be turned into credits based on the tariffs and then pooled as dollars. The flaw in this assumption is that, under the stacking method and with no interval metering at the generators and PCC, there is no way to discern the origin of the generation which is needed to calculate the dollar credit for that generation.
- It is unclear whether or not the DR intends for the exported energy to be "stacked" by first assuming that it was generated by the PV unit (which would be credited at

[11] Even under a stacking approach, by providing interval metering to measure 1) the output of the NEM eligible generator and 2) any export to the grid during the same period there is enough data to reduce the amount of fossil fuel gen that may receive a credit. With these two data points for each interval, utilities can calculate a NEM credit for the lesser of either what was actually produced by the NEM generator during that particular interval or what was exported to the grid at the PCC. Meanwhile, the amount of overall export from all generating systems is not restricted.

[12] The Energy Division throughout its draft resolution incorrectly depicts that "the pro-rating method may prevent credit for some of the energy produced by the NEM-eligible generators when non-NEM generators operate at the same time without non-export breakers". DR, p. 8-9. This misconception is apparent in the examples provided on p. 12 of the DR and indicates that the Energy Division does not understand the purpose of interval metering in the pro-rata methodology. The purpose of interval metering located on the NEM-eligible generator is to support the protections adopted by the Commission that in no event will non-NEM generators receive credits designed for NEM projects. If energy, as measured at the PCC, is exporting to the utility grid the utility must confirm the NEM-eligible generator was operating during that interval. If the utility can not confirm the NEM-eligible generator is in operation and there is no reverse power flow relay on the non-NEM generator then there is no way to ensure the export is from the NEM eligible generator.

bundled rates) and then assuming that the balance of the exported generation came from the fuel cell (which would be credited with only the generation component of the energy charge).

- In a PV/fuel cell facility, there is no direction in the DR regarding when the customer must pay for any net usage. In the case of a small commercial customer,[13] must the customer pay monthly for all charges except generation as required by PUC section 2827.10 which governs fuel cell net metering, or is this requirement trumped by the provision included in PUC section 2827 that allows small commercial customers with PV generation to decide if they want to pay for their energy monthly or annually.
- Also unclear is how credits should be applied to charges. PG&E had proposed an order of priority for applying credits from each of the types of net metering against charges for usage. The DR erroneously declares this type of provision to be unnecessary. As explained above, PG&E respectfully disagrees. Without language in the combined technology tariff directing how to combine different types of NEM eligible generation, there is no way to determine how credits are to be applied.

Finally, for the benefit of its customers, PG&E urges the CPUC to modify OP 1 of the DR. As currently written, OP 1 rejects the proposal to establish a separate NEMCT tariff, and orders PG&E to revise its existing NEM, NEMFC and NEMBIO tariffs to incorporate the combined technology provisions. These complex changes for NEMCT should not be added to existing tariffs as they will add unnecessary complexity to the existing tariffs, and will likely confuse and frustrate the vast majority of NEM customers who do not employ combined technologies. The DR requirement to also move specific combined technology language to Rule 21 is inconsistent with the purpose of Rule 21, as NEMCT is a rate schedule intended for highly specialized types of on-site generation, whereas Rule 21 addresses the general terms and conditions of all generation interconnections. While it may be appropriate to put language into Rule 21 related to interconnection cost responsibility in these instances, these provisions have not yet been vetted before the Rule 21 Working Group nor addressed in D.05-08-013; thus, they should not be adopted through this resolution.

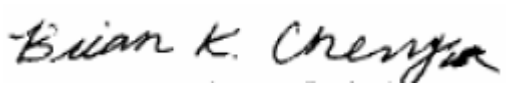
For the reasons above, the Commission should revise the DR to adopt the pro-rata approach proposed in PG&E's tariff, as this would provide an equitable method for applying net metered credits for customers who have either: (1) NEM and non-NEM eligible generation, or (2) two or more NEM-eligible generators. Taking this step will also correct the errors in the DR regarding the statutory requirements governing the net energy metering program and the application of D.05-08-013.

CONCLUSION

In conclusion, PG&E urges the Commission to withdraw the current DR as it violates the directives of D.05-08-013 by providing NEM benefits to non-NEM generators and employs a metering scheme that is technically inconsistent with PUC 2827, et seq. and current NEM tariff provisions. The Commission should approve PG&E's advice letter, as filed, or in the alternative, modify the DR as described in these comments.

Sincerely,

[13] A small commercial customer is defined for purposes of PUC section 2827 as a customer with a demand of 20 kW or less.



Director, Regulatory Relations

cc: President Michael R. Peevey
Commissioner John A. Bohn
Commissioner Geoffrey F. Brown
Commissioner Rachelle B. Chong
Commissioner Dian M. Grueneich
Sean Gallagher, Energy Division Director
Administrative Law Judge Dorothy Duda
Administrative Law Judge Kim Malcolm
Valerie Beck, Energy Division
Brian Schumacher, Energy Division
Werner Blumer, Energy Division
Service List - Draft Resolution E-3992
Service List - R.04-03-017

Pacific Gas and Electric Company
Comments to Draft Resolution E-3992
May 8, 2006
Subject Index

Point One

PG&E urges the Commission to withdraw or in the alternative, modify the DR as it currently (1) violates provisions adopted in D.05-08-013 by providing net energy metering (NEM) benefits to non-NEM generators and (2) orders the utilities to employ a metering system that contravenes current NEM processes or those discussed in the California Energy Commission-sponsored Rule 21 Working Group.

Point Two

Without 15-minute interval metering, there is no way to ensure that the energy receiving a NEM credit at the Point of Common Coupling (PCC) originated from the NEM generator.

Point Three

While PG&E agrees that there is little incentive to oversize NEM-eligible generation systems; there is every incentive to operate non-NEM eligible fossil fuel generators in a manner that maximizes the ability to mask exports from the dirty generator as clean exports eligible for NEM credits.

Point Four

Without PG&E's proposed provisions regarding priority for applying credits, it is unclear how to administer the tariff for a customer with multiple types of NEM eligible generators.

Point Five

The Commission should revise the DR to adopt the pro-rata approach proposed in PG&E's tariff, as this would provide an equitable method for applying net metered credits for customers who have either: (1) NEM and non-NEM eligible generation, or (2) two or more NEM-eligible generators.

Pacific Gas and Electric Comments
Comments to Draft Resolution E-3992
May 8, 2006

Table of Authorities

Decision 05-08-013

PUC Sections 2827, 2827.8, 2827.9, 2827.10

Rule 21

CERTIFICATE OF SERVICE

I certify that I have by mail, e-mail, or hand delivery this day served a true copy of Pacific Gas and Electric Company's comments on Draft Resolution E-3992, concerning PG&E's Net Energy Metering Combined Techonology (NEMCT) Advice Letter, on 1) the entire service list for Draft Resolution E-3992, 2) all Commissioners, and 3) Sean Gallagher – Director of the Energy Division.

Dated May 8, 2006, at San Francisco, California.

Shilpa Ramaiya