Decision 07-07-028 July 26, 2007

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues.	Rulemaking 06-03-004 (Filed March 2, 2006)

OPINION MODIFYING DECISION 06-08-028 REGARDING METERING ACCURACY AND MONITORING REQUIREMENTS

Summary

We modify our decision implementing the California Solar Initiative (CSI), Decision (D.) 06-08-028, to allow solar generation systems that receive incentive payments under the Expected Performance Based Buydown (EPBB) to install meters that are accurate within +/- 5%. We also modify D.06-08-028 to require all systems, irrespective of system size, that participate in the Performance Based Incentive (PBI) program to install meters that are accurate to within +/- 2% of actual system output and eliminate the cost cap. The Metering Subcommittee and Program Administrators are directed to conform the CSI Handbook to these changes.

Background of Metering and Monitoring Requirements

In D.06-08-028, the Commission issued general metering guidelines and directed the metering subcommittee to adopt specific metering requirements for solar installations. As reflected in the CSI Program Handbook, very small systems, 10 kilowatt (kW) or less, may use meters with accuracy ratings of ± 5%

(including inverter integrated meters that meet this accuracy standard) but all other systems must install meters with accuracy ratings of ± 2%, the standard of accuracy generally used by utility billing meters.

The Commission also required that solar installations include communication systems that allow for remote monitoring and reporting of system performance (PMRS). Under the decision, the cost of such systems plus meter costs is subject to a cost cap of 1% of the total installed cost for systems up to 30 kW or less, and 0.5% for larger systems.[1]

The following table summarizes the metering and performance monitoring requirements pursuant to D.06-08-028.

Table 1
Current CSI Metering and Monitoring Rules Pursuant to D.06-08-028

System Size	Minimum Meter Accuracy	Performance Communication and Reporting Requirement	Metering & Monitoring Cost Cap
< 10 kW	+/- 5%	Yes	1%
10 kW to 30 kW	+/- 2%	Yes	1%
30 kW and greater	+/- 2%	Yes	.5%

Petition to Modify Metering and Monitoring Requirements

On March 5, 2007, the Joint Solar Parties,[2] filed a petition for modification of D.06-08-028 seeking the following three changes to the decision:

[1] D.06-08-028, p. 77.

[2] Pacific Gas and Electric Company, PV Now, California Solar Industries Association, jointly with Vote Solar Initiative, San Diego Regional Energy Office (now known as the California Center for Sustainable Energy), and SMA America.

1. Reduce meter accuracy requirements for EPBB customers to +/- 5% regardless of size;
2. Require all PBI systems to have meters accurate to within 2% of actual system output, and eliminate the metering and monitoring cost cap for customers participating in the PBI program; and
3. Eliminate the independent monitoring requirement but institute random sampling.

In today's decision, we will address the first two requests, and the third item will be resolved by later decision. Also, we note that on April 2, 2007, PV Powered filed a document styled as a petition for modification which was a reiteration of the Joint Parties' petition. We summarily deny PV Powered's petition as duplicative and focus our attention on the Joint Parties' petition.

The Joint Parties contend that these requirements result in unwarranted costs for owners who have received an incentive payment pursuant to the EPBB. In contrast to incentives received under the PBI, actual system generation is not used in calculating incentive payments under the EPBB. Accordingly, the +/- 2% metering accuracy requirement for systems over 10 kW, and the higher associated costs of these more accurate meters, is an unnecessary expense for all system owners participating in the EPBB program.

The Joint Parties state that actual meters range in cost between $1,800 and $2,700. Additional data and communication services raise prices to above $3,000. This pricing information was obtained from "discussions with metering experts," according to the petition and includes installation costs, taxes, ongoing maintenance, testing and calibration, as well as the cost of the customer-supplied socket. According to the Joint Parties, these costs were not included in the cost

data the Commission relied upon in setting the metering requirements.[3] The Joint Parties state that incremental gain in accuracy from +/- 5% to +/- 2% is too costly, and will not provide substantial benefits or measurable value to consumers. They contend that the requirement places negative cost impacts on purchasers of solar energy systems.

Responses to the petition were filed by Fat Spaniel Technologies, Inc., jointly with Energy Recommerce Inc. (FST),[4] Southern California Edison Company, the Consumer Federation of America, and PVI Solutions, Inc. On the two issues to be addressed in this decision, the responses all opposed granting the requested modifications.

The Consumer Federation of California responded that the petition's price information, which is not properly documented, does not constitute new information sufficient for the petition process, per Commission rules. Southern California Edison did not support lowering the metering requirements, but favored an analysis of the benefits of +/-2% meters because a range of data and communication benefits may be useful to the program development, and mentioned that costly retrofits might result if the higher accuracy rating is later deemed necessary. FST raised the issue of installations with the less accurate meters being ineligible for Renewable Energy Credits.

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[3] Joint Petition for Modification of Decision No. 06-08-028 Regarding CSI Metering Requirements, p. 2.

[4] The response was also supported by: Bridgeover, Inc., Connected Energy Corp., Draker Solar Design, LLC, DRI Energy Inc., Heliotronics, Inc., Independent Energy Solutions, Inc., Old Country Roofing, Solar Wave Energy, Inc., Solectria Renewables LLC, and Southern California Solar dba Solar Electric Systems.

The Joint Parties replied that meter accuracy requirements must reflect meter accuracy needs, and the smaller EPBB installations cannot meet the accuracy requirements without exceeding the cost cap. The Joint Parties stated that the cost estimates on which the Commission relied in D.06-08-028 have proven to be much less than actual cost data being presented to solar installation owners.

Discussion

The table below summarizes the changes to the metering requirements sought by the petitioners:

Table 2
Modified CSI Metering and Monitoring Rules[5]

Incentive Type	System Size	Minimum Meter Accuracy	Performance Communication and Reporting Requirement	Cost Cap
EPBB	< 10 kW	+/- 5%	Yes	1%
EPBB	10 kW to 30 kW	+/- 5%	Yes	1%
EPBB	30 kW and greater	+/- 5%	Yes	.5%
PBI	< 10 kW	+/- 2%	Yes	No Cost Cap
PBI	10 kW to 30 kW	+/- 2%	Yes	No Cost Cap
PBI	30 kW and greater	+/- 2%	Yes	No Cost Cap

We will grant Petitioners request and modify D.06-08-028, along with the appropriate sections of the CSI Program Handbook, to allow all installations participating in the EPBB incentive program to install meters that are accurate to within +/- 5% of actual system output. We note that the cost cap exemptions

[5] Note that currently systems greater than 100 kW are required to participate in the CSI under the PBI, while systems less than 100 kW can participate under the EPBB. However any system may opt into the PBI.

adopted in D.06-08-028 still apply to these systems,[6] and that the cost of meeting the metering, communications and reporting requirements shall be less than 1% of total system costs of system up to 30 kW and less than .5% of total systems costs for larger systems. However, our expectation is that under the less stringent metering requirement adopted herein for systems receiving EPBB incentives, most systems will be able to meet the metering, communication and reporting requirements without exceeding their respective cost caps. We will also grant Petitioner's request that all systems taking incentives under the PBI be required to install meters that are accurate to within +/- 2% of actual system output. Finally, we will remove the cost cap on metering, reporting and communications for all PBI systems.

In adopting the original accuracy requirement in D.06-08-028, we found that a metering accuracy requirement of +/- 2% for systems greater than 10 KW in size "would not add a significant cost burden to CSI participants" and would increase owner knowledge of system performance and foster adequate system maintenance. Joint Petitioners have provided new information demonstrating that, at current pricing, the costs of meeting the metering, communications and

[6] In their reply comments, at p. 3, the Petitioners state that the CSI Handbook "allows EPBB customers with systems smaller than 20 kW to request exemption from the more expensive metering and PMRS costs" by "demonstrating [they] are unable to satisfy the +/- 2% metering requirements under the cap." This appears to suggest that systems 20 kW and larger are not able to seek an exemption from the metering requirements. It is unclear how this comports with what was adopted in D.06-08-028, which specifically established a cost cap for systems up to 30 kW of 1% and for systems larger than 30 kW a cost cap of .5%.

reporting requirements for EPBB eligible systems of 10 kW[7] or greater will, in most circumstances, equal or exceed the relevant cost cap.

Rather than wholly exempting these systems from metering, communications and reporting requirements, we believe it is reasonable to relax the metering accuracy requirement for all EPBB systems as requested by Petitioners. We anticipate that the lower cost burden associated with the less stringent metering requirement will allow systems to deploy the required metering, communications and reporting capabilities without exceeding their cost caps. In the context of the EPBB incentive program, because incentives are provided up-front as a lump-sum payment, and not on the basis of actual, metered output, we find the additional cost of meeting the +/- 2% metering standard cannot be reasonably justified. Furthermore, although the decision stated that the costs of metering, reporting, and communications should not exceed specified cost caps, we see little value in retaining metering requirements that, for almost all EPBB systems, seem likely to result in the cost caps being met or exceeded.

We, therefore, grant Petitioners request and require all systems taking incentives under the EPBB to have meters that are accurate to within +/- 5% of actual system output.[8] We direct the metering subcommittee reporting to the

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[7] The current size threshold for requiring a meter accurate to within +/- 2% of actual system output, as provided in D.06-08-028.

[8] The accuracy standard adopted in this decision is a minimum, not a maximum. System owners may elect to install more accurate meters at their discretion. For example, the +/- 5% metering standard may not be sufficient for purposes of certifying renewable energy certificates under the operating rules of the Western Renewable Energy Generation Information System (WREGIS). Prospective system owners may wish to install meters that satisfy the accuracy requirements of WREGIS to the extent

Footnote continued on next page

Program Administrators, within six months of the date of this decision, to develop a plan to ensure the accuracy level of +/- 5% meters used to report output from systems receiving CSI incentives under the EPBB program. Independent certification of meter accuracy will advance our interests in obtaining reliable generation data with the lower-cost meters. We note that nothing in this decision changes the existing cost caps or communications and reporting requirements applicable to these systems.[9]

However, for systems participating in the CSI under the PBI, where incentive payments are made on the basis of actual kWhs generated, more accurate meters are needed both to ensure that ratepayer's provide incentives only for actual generated energy, and system owners receive an incentive that closely reflects their system's actual performance. We will, therefore, also grant Petitioner's request that all systems receiving PBI incentives have meters accurate to within +/-2% of actual system output, with no cost cap.

Much of the substance of the arguments made in the Petition to Modify and in Reply Comments revolved around incremental cost differences between different types of meters, levels of metering accuracy, and the cost of monitoring and reporting services. We believe that while the Joint Parties have demonstrated that certain metering requirements are cost prohibitive, there is still a great deal about this market that remains unclear. We therefore direct the

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they want the renewable energy produced by their systems to be recognized/certified by WREGIS.

[9] For systems that exceed the cost cap, the Program Administrators shall use the CSI handbook process to develop alternative metering, communication, and reporting standards that will fulfill the basic objectives of the requirement while staying within the cost cap.

CSI Program Administrators (PAs) to retain an independent third party to conduct a metering, monitoring and reporting market assessment. In coordination with the metering subcommittee and with direction from the Energy Division, the PA's will develop a research plan which will be conducted by this independent third party, and funded through CSI Program Administration funds. The results of this study will serve to inform future decision making with regards to metering accuracy, monitoring and reporting requirements, and system eligibility.

The changes proposed herein will apply to all open applications on the effective date of this decision. That is, any CSI application that has not received an incentive payment as of the effective date of this decision will be subject to the changes adopted in this decision.

In addition to their concerns regarding metering accuracy, Petioners also raised issues pertaining to the independence requirement for the provision of performance monitoring and reporting services (PMRS). This issue will be addressed by a separate decision.

Comments on Proposed Decision

The proposed decision of Commissioner Peevey in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and Rule 14.2(a) of the Commission's Rules of Practice and Procedure.

The following parties filed comments (by July 16, 2007) or reply comments (by July 23, 2007): California Center for Sustainable Energy (formerly known as San Diego Regional Energy Office), Fat Spaniel Technologies, Inc., San Diego Gas & Electric, and Joint Parties. Based on the comments, we make the following modifications to the proposed decision. We also make minor modifications to improve the discussion or correct typographical errors.

- We modify the proposed decision to direct the metering subcommittee reporting to the program administrators to investigate and develop a plan for certification of +/-5% meters, but not +/- 2% meters. This is in response to Fat Spaniel Technologies, Inc.'s comments, which note that independent certification standards already exist for +/- 2% meters. According to these comments, the ANSI testing standards within Section 11.1.4 of the CSI Handbook apply to all +/- 2% meters, but not +/- 5% meters.
- Because Southern California Gas Company (SoCalGas) is not an administrator of the CSI program nor does it collect gas monies from its ratepayers, we delete SoCalGas from Ordering Paragraph 5.
- In response to comments by the Joint Parties, the proposed decision will apply to all open applications on the effective date of this decision. That is, any CSI application that has not received an incentive payment as of the effective date of this decision will be subject to the changes adopted in this decision.

Assignment of Proceeding

President Michael R. Peevey is the assigned Commissioner and Dorothy J. Duda is the assigned Administrative Law Judge for this portion of this proceeding.

Findings of Fact

1. The petition to modify calls into question the cost data on which the Commission based its decision to require all customers with systems of greater than 10 kW to install meters with +/- 2% accuracy for participants.

2. The petition to modify demonstrates that the cost of meeting the metering communication and reporting requirements for most systems participating in the CSI under the EPBB will likely exceed the cost caps adopted in D.06-08-028.

Conclusions of Law

1. It is reasonable to reduce metering requirements for EPBB incentives, which are paid on an upfront, lump sum basis, while maintaining and enhancing metering accuracy requirements for participants in the PBI Program, where incentive payments are based on metered system output.

2. D.06-08-028 should be modified to allow EPBB program participants to use meters that are accurate to within +/- 5% of actual system output.

3. D.06-08-028 should be modified to remove the cost cap for metering, communications, and reporting services for all systems receiving incentives under the PBI.

4. Conforming changes should be made to the California Solar Handbook.

5. The duplicative petition filed by PV Powered Inc., should be summarily denied.

O R D E R

IT IS ORDERED that:

1. Decision (D.) 06-08-028 is modified as follows: (new text is shown in underline and deleted text in ~~strikethrough~~).

a. Revised Table 9 - Modified CSI Metering and Monitoring Rules

Incentive Type	System Size	Minimum Meter Accuracy	Performance Communication and Reporting Requirement	Cost Cap
EPBB	< 10 kW	+/- 5%	Yes	1%
EPBB	10 kW to 30 kW	+/- 5%	Yes	1%
EPBB	30 kW and greater	+/- 5%	Yes	.5%
PBI	< 10 kW	+/- 2%	Yes	No Cost Cap
PBI	10 kW to 30 kW	+/- 2%	Yes	No Cost Cap
PBI	30 kW and greater	+/- 2%	Yes	No Cost Cap

b. Conclusion of Law 41 - Meters with accuracy within +/- 5% of actual system output ~~2% for systems, 10 kW and larger~~ will not add a significant cost burden to systems receiving CSI incentives

under the Expected Performance Based Buydown (EPBB). ~~CSI participants.~~

c. Conclusion of Law 42 – All systems paid incentives ~~through~~ under the CSI should install a solar production meter ~~with either 2% or 5% accuracy depending on system size~~ accurate to within 5% of actual system output for systems paid incentives under the EPBB, and accurate to within 2% for systems paid under the Performance Based Incentive (PBI), at the customer's expense, and that includes some form of communications and reporting capability.

d. Ordering Paragraph 16 All solar projects that receive an incentive through the CSI program shall install at a minimum a ~~separate~~ solar production meter accurate to within +/- 5% for systems ~~under 10 kW~~ receiving CSI incentives under the Expected Performance Based Buydown (EPBB) and accurate to within +/-2% for systems ~~10 kW and larger~~ receiving incentives under the PBI, as set forth in Table 9 of this order. Inverter-integrated ~~Internal~~ meters certified as accurate to within +/- 5% are acceptable for all EPBB projects ~~under 10 kW~~. All solar production meters shall be equipped with communication reporting capability, as set forth in Section V. For systems receiving incentives under the EPBB ~~Systems 100 kW and larger must have reporting capabilities before receiving PBI payments, and systems below 100 kW shall have reporting capabilities as soon as protocols are established through the CSI Handbook process.~~ the total cost of a customer's metering, communication, and reporting system for the first five years of solar production shall be less than 1% of total installed costs for systems up to 30 kW, and less than 0.5% for larger systems.

2. Conforming changes consistent with this decision shall also be incorporated into the California Solar Initiative (CSI) Handbook.

3. Within six months of the date of this decision, the metering subcommittee reporting to the program administrators shall investigate and develop a plan to ensure the accuracy level of +/- 5% meters used to report output from systems receiving CSI incentives under the EPBB program.

4. In coordination with the metering subcommittee and with direction from the Energy Division, the Program Administrators shall develop a research plan to assess the metering, monitoring and reporting market and will retain an independent third-party to conduct this study.

5. The Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company and its program administrator, the California Center for Sustainable Energy, formerly known as the San Diego Regional Energy Office, shall cooperate in implementing these changes.

6. All changes adopted herein will apply to all open applications on the effective date of this decision. That is, any CSI application that has not received an incentive payment as of the effective date of this decision will be subject to the changes adopted in this decision.

7. The petition to modify filed by PV Powered Inc. is summarily denied.

This order is effective today.

Dated July 26, 2007, at San Francisco, California.

MICHAEL R. PEEVEY
President
DIAN M. GRUENEICH
JOHN A. BOHN
RACHELLE B. CHONG
TIMOTHY ALAN SIMON
Commissioners