



ANALYSIS

CALIFORNIA PUBLIC UTILITIES COMMISSION

AB 560 (Skinner) As Amended April 16, 2009

SUMMARY

AB 560 proposes a 10% cap on Net Energy Metering (NEM). Currently, NEM penetration is capped at 2.5 percent of aggregate peak customer demand in each utility service territory.

CPUC POSITION AND SUPPORTING ARGUMENTS

SUPPORT. This bill would raise the cap for NEM. Raising the cap now will allow the CSI Program to move forward without delay and meet its goal of 1,940 MW installed.

ANALYSIS

By raising the NEM cap, the bill would enable the CPUC to meet its CSI program goals without disruption.

Participants in the California Solar Initiative (CSI) benefit greatly from the NEM program, which allows them to directly offset their on-site energy usage with their solar photovoltaic (PV) system's energy production. Loss of this benefit would be a substantial barrier to continued solar growth.

- In order to reach the ambitious CSI goal by 2017, it is estimated that NEM penetration in investor owned utility territories will need to increase to approximately 5 percent.
- Under solar NEM, the NEM customer receives a generation credit at the "full retail rate", which includes the presumed avoided cost of generation as well as transmission and distribution (T&D) of that avoided generation. However it may not always be the case that self generation avoids T&D investment on behalf of a solar customer. If so, the solar customer still could cause some T&D investment to occur, but that customer may not pay for it. This would amount to a cross-subsidization from one set of ratepayers to another set of ratepayers, but the exact amount of the subsidy can only be calculated on a per customer basis depending on the project, tariff, and onsite load characteristics of each project.

Net Energy Metering is an important benefit to participants in the California Solar Initiative. California ratepayers that choose to "Go Solar" through the CSI Program receive two important financial incentives.

- The first is the CSI incentive, paid either as an upfront lump-sum payment or over five years based on actual solar system performance. The value of the CSI incentive is easily quantifiable.

- The second financial incentive is drawn from ongoing participation in the NEM program, which allows a participant's meter to spin forwards or backwards depending on how much energy their solar system is producing and how much energy they are using on-site. For example, NEM customers can use "credits" generated by their solar system during the day—in excess of their usage at that time—to offset their energy usage in the evening, at full retail rate. NEM customers can offset all of their yearly electricity usage—essentially zeroing out the usage portion of their energy bill—over the course of a year. At the end of the year, the program resets after a "true up", excess NEM credits are zeroed, and a new cycle begins. For participants in the CSI Program, NEM provides the monthly payments that make financial analysis of solar projects (including Net Present Value, Internal Rate of Return and Payback Period) attractive for prospective solar customers. The value of the financial incentive provided by NEM participation is easy to quantify on an individual (per system) basis, but not on an aggregate basis.

PROGRAM BACKGROUND:

The NEM cap established in statute states that the utilities must offer NEM up until the cap, however the utilities may choose to interconnect NEM customers after the cap is reached. In 2005, the 0.5 percent NEM cap was reached in SDG&E service territory, and SDG&E chose to continue interconnecting NEM customers beyond the statutory cap until additional NEM penetration was allowed in SDG&E territory via statutory change. Although the same opportunity exists today, the "must offer NEM up until the cap is reached" provision of the current NEM statute is important because it compels the utilities to interconnect NEM customers up to a particular limit, which they may not choose to do on their own.

The Investor-Owned Utilities report different NEM penetration rates, and there is risk of a stall in the solar market in northern California if the cap is not adjusted. As shown in the table below, there is approximately 426 MW of solar installed in IOU territories, but we expect and there to be an additional ~1,800 MW installed under the CSI program. (The total goal of the CSI is 1,940 MW, and some installed MW pre-date CSI.) Given that the IOUs have experienced varying levels of solar uptake and NEM penetration to date, there is a risk that one territory may reach the NEM penetration cap well before the others, resulting in a stalled solar market in that region if that utility does not choose to voluntarily continue interconnecting NEM customers beyond the statutory cap.

The current weighted average NEM penetration is just about 1%, but will be 4.5% if the CSI program achieves its goal. The current NEM cap of 2.5% needs to be changed in order for the California Solar Initiative to meet its goals of 1,940 MW. PG&E is closest to its cap, at 1.3%, and in order to prevent a stall in the solar market particularly in PG&E's territory, the NEM penetration cap in statute must be changed this year.

- The Investor-Owned Utilities reported their respective NEM penetration rates to the Commission as of December 31, 2008, based on the number of NEM interconnections they had done through the end of the year. Based on these reports, Table 1 compares the number of MWs currently on NEM, the number of MWs that could be on NEM within the existing cap, and how many MWs are expected to be interconnected on NEM if the CSI program continues as planned.
- As of December 31st, there was approximately 426 MW of solar installed in IOU territories, and we estimated that another ~859 MW would fit in under the NEM

cap. However, the CSI program expects about another 1,808 MW to be installed through the life of the program. PG&E's territory has received the highest rate of NEM penetration, and PG&E will likely reach its cap first, as early as late 2009, since it only has ~260 MW left under its NEM cap.

Table 1: Current and Future NEM penetration

Utility	PG&E	SCE	SDG&E	Total
Current MW NEM-Solar customers	264 MW	114 MW	48 MW	426 MW
Estimated remaining MW available under 2.5% NEM Cap	~260 MW	~444 MW	~155 MW	~859 MW
MW remaining in CSI Program (not yet installed)	779 MW	840 MW	190 MW	1,808 MW
Current NEM Customer capacity % (NEM as a percentage of aggregate peak customer demand)	1.3 %	0.5 %	0.6 %	1 % avg.
Estimated NEM penetration required to achieve CSI goals (Not including non-Solar NEM)	5.0 %	4.3 %	2.9 %	4.5 % avg.

Source: Columns 2 and 5 from CPUC data request; data as of 12/31/08. Columns 3, 5, and 6 from CPUC staff analysis.

As of December 31, 2008, PG&E was at 1.3% NEM penetration, and 2.5% is the statutory limit to PG&E's requirement to interconnect additional NEM customers. At current application levels, PG&E will be approaching its NEM cap level by the end of this calendar year.

- As shown in both Table 1 above and Table 2 below, at the end of last year, PG&E had approximately 260 MW left under its cap.
- In the first 3 months of 2009, PG&E installed an additional 41 MW. PG&E has 104 MW of pending CSI applications, not yet installed.
- Therefore, PG&E only has room for an additional 115 MW of new CSI projects, before it reaches its NEM cap. It is difficult to estimate how long it might take to reach 115 new applicants since demand varies by month; PG&E had 30 MW of new applications in February and 6 MW of new applications in March.
- If February's rate was sustained – PG&E would reach its cap in 4 months.
- If March's rate was sustained – PG&E would reach its cap in 19 months.

Unless PG&E voluntarily agrees to continue interconnecting NEM customers beyond the 2.5 percent penetration cap¹, we expect PG&E's CSI program to stall sometime in

¹ Utilities are required to offer NEM "until the time" that they reach the cap, but the utilities "may" be able to continue to offer it voluntarily, if they choose to do so. Public Utilities Code 2827 (c)(1) states: Every electricity distribution utility or cooperative shall develop a standard contract or tariff providing for net energy metering, and shall make this standard contract or tariff available to eligible customer-generators, upon request, on a first-come-first-served basis until the time that the total rated generating capacity used by eligible customer-

2009 (depending on the application rate) since customers will be uncertain of whether their new project will "fit in" under the NEM cap.

Table 2. Net Energy Metering (NEM) participation to date, by utility service territory

	PG&E	SCE	CCSE/SDG&E
Total NEM Customer-Generators	27,225 customers	9,088 customers	5,933 customers
Total NEM SOLAR Customer-Generators	27,156 customers	8,894 customers	5,907 customers
Total rated generating capacity of all NEM customer-generators (MW)	265 MW	123 MW	49 MW
Total rated generating capacity of all NEM SOLAR customer-generators (MW)	264 MW	114 MW	48 MW
Percentage of "aggregate customer peak demand" accounted for by all NEM customers	1.27%	0.51%	0.59%

Source: CPUC Data Request to the Program Administrators, dated December 16, 2008. Data current as of December 31, 2008.

The NEM cap was intended to be both a statutory check-in on the impact of NEM on other customers and a legal requirement for utilities to interconnect NEM customers at least until a certain penetration level is reached. However, it should not be used as an artificial *barrier* to solar deployment when a report is in progress to assess the cost and benefits of NEM, and we have not actually experienced any significant grid impacts due to current NEM penetration levels.

- In 2002, the NEM penetration rate was originally statutorily capped at 0.5 percent, and was then raised to 2.5 percent in 2006, and a statutory request for a cost-benefit study was requested by the legislature, due January 1, 2010. The legislature wanted an opportunity to understand how costs caused by NEM customers were paid for by non-participating customers.
- Although the study will not be available in this legislative session, it would be beneficial to the solar market for the legislature to remove or raise the cap now (broadly or initially for PG&E alone), and then to potentially take further action once it receives the CPUC report on the costs and benefits of NEM.
- The statute uses a cap to "force" the issue of revisiting NEM, but the legislature expected to be able to revisit the issue with information produced in a forthcoming report, and can still revisit the issue once the report is issued. There is no need to maintain an artificial statutory barrier to solar deployment in order to monitor the situation at this time.

Under the Commission's broad ratemaking authority, the Commission can address any concerns about the cross-subsidies that may be occurring between NEM and non-NEM customers.

- The CPUC is able to collect information about the cross-subsidies that occur between NEM and non-NEM customers.
- At some point in the future, the CPUC could develop a mechanism to address any concerns, such as the Commission requiring NEM customers to pay non-bypassable

generators exceeds 2.5 percent of the electricity distribution utility or cooperative's aggregate customer peak demand.

demand charges when changing from traditional metering arrangements to NEM. This would act to contain costs to non-NEM ratepayers associated with high NEM penetration rates.

- The legislature can change PU Code 2827 at any time in light of new information that might arise from the upcoming report or from a future report, and it does not need a NEM "cap" in place to do so.

The CPUC has engaged a contractor to conduct a Cost Benefit analysis of Net Energy Metering, in compliance with PU Code 2827 (c)(4), and it is due to the legislature on January 1, 2010. The Energy Division has retained a consultant to perform the required study, but the study is not expected to be completed until late 2009.

Net Energy Metering is available to other technologies, including wind and fuel cells. However this analysis focuses on the solar NEM interconnections because they (a) represent the largest number of interconnections and (b) most likely to cause the NEM cap to be reached.

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LEGISLATIVE HISTORY:

There have been numerous changes to the NEM statute over the years.

- AB 58 (2002, Keeley): Established NEM cap of 0.5 percent.
- SB 816 (2005, Kehoe): Raised NEM capacity available to customers in SDG&E territory to 50 MW.
- SB 1 (2006, Murray): Increased NEM cap from 0.5 percent to its current level of 2.5 percent; requires a report to the legislature on the costs and benefits of NEM by January 1, 2010.

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