



## ANALYSIS

## CALIFORNIA PUBLIC UTILITIES COMMISSION

### **AB 920 (Huffman) As Introduced**

#### **SUMMARY**

AB 920 expands the current net-metering programs for wind and solar to allow the net-metered customers to sell any excess electricity they produce over the course of a year to their electric utility.

#### **CPUC POSITION AND SUPPORTING ARGUMENTS**

**OPPOSE UNLESS AMENDED.** This bill fundamentally changes the intent of the net energy metering (NEM) statute from a program that facilitates onsite electricity generation and consumption to a program that supports onsite customer generators to be paid as wholesale power producers. This bill would provide payment for "Net Surplus Compensation", at a price set by the Commission, for excess generation from onsite customer facilities. The Commission's onsite generation policies and programs have been designed for the past decade to support customers' using onsite generation to offset their load, but not to sell to the utility.

The bill seeks to provide the Commission with flexibility in establishing the valuation for the net surplus generation, but does so in a way that may inadvertently have unintended consequences and limit our flexibility to continue a viable program in the future. The Commission is committed to working with the author on amendments to gain flexibility and avoid future problems.

#### **SUMMARY OF SUGGESTED AMENDMENTS:**

- Delete language requiring electric utilities to provide monetary compensation for the value of net surplus electricity provided to the grid over a twelve-month period.
- Authorize the CPUC to determine timeframe for which credits are allowed to be carried forward and delete language allowing credits to carry forward indefinitely. The issue of net surplus compensation should be revisited after the completion of the Commission's report on the costs and benefits of NEM, required by PU Code 2827 (c)(4), due to the legislature January 1, 2010. In requesting that report, the legislature acknowledges that there is some existing cost-shifting between solar and non-solar customers as a result of NEM. Since this bill would add another benefit to solar customers, it should not be done before a comprehensive cost-benefit review of the NEM program. Until that report is completed, it may be reasonable to allow customers with net excess credits to carry forward those credits as a balance for up to 24 months.

- Delete provision requiring the Commission to establish by January 1, 2011, a valuation for “net surplus generation” in a ratemaking proceeding.

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- AB 920 amends Public Utilities (PU) Code 2827, the statute governing Net Energy Metering (NEM), to require electric utilities to provide compensation for the value of net surplus electricity provided to the grid over a twelve-month period, or a credit in kilowatt-hours (kWh) against future consumption. The bill:
  - Modifies the Net Energy Metering program to be “Net Energy Metering (NEM) combined with Net Surplus Compensation.”
  - Requires that every electric utility notify net energy metering customers by January 31, 2010 that they are eligible to receive “Net Surplus Electricity Compensation” if they are on the NEM program.
  - Customers must elect to participate in the Net Surplus Compensation aspect of NEM, and further requires customer generators to choose either:
    - Compensation for any excess kilowatt hours generated (Direct Payment in dollars).
    - Deferred credit whereby the customer generator receives a bill credit in kWh that can be carried forward indefinitely into the future on their account (Carry Forward Bill Credit in kilowatt hours).
  - Customers that do not elect the Net Surplus Compensation aspect of NEM give their "net kWh" surplus to the utility by default.
- Requires that the Commission establish by January 1, 2011, a valuation for “net surplus generation” in a ratemaking proceeding.
  - In setting the rate for Net Surplus Compensation, the Commission must consider:
    - (a) value of the electricity itself and
    - (b) the value of the renewable attributes of the electricity.
  - Further, the Commission must ensure that the valuation does not result in cost-shifting between solar customers and bundled service customers.
- Requires the utilities to make available to the Commission information on an annual basis about the net surplus electricity purchased by the electric utility.
- Provides that for any net surplus generation purchased by the utility, the renewable energy credits associated with that electricity, will belong to the utility and be eligible to count towards the Renewable Portfolio Standard (RPS).
- Requires the utility to provide information to the customer monthly on their net electricity consumption (as is currently the case) and net surplus electricity generation.
- Establishes definitions for:

- “net surplus customer –generator”: a customer that generates more electricity than is supplied by utility in a 12 month period.
  - “net surplus electricity” – all the kilowatt hours that exceed those that are consumed onsite.
  - “net surplus electricity compensation”- a per kilowatt/hour rate offered as payment to the customer generators for their surplus electricity.
- Redefines “electricity distribution utility or cooperative” term used throughout the code section to be "electric utility".

Onsite customer generators already receive significant support from ratepayers to facilitate their use of onsite generation and do not need another opportunity to receive payment from the utility. Support already provided to these customers includes (1) upfront rebates from the California Solar Initiative (CSI) or Self Generation Incentive Program (SGIP), (2) exemption from interconnection study fees and system upgrade charges, as well as (3) an ongoing benefit from the NEM program that allows customers to receive bill credits at *the full retail rate* (includes generation, as well as transmission and distribution charges) even though the customer is only feeding *generation* back into the grid. After receiving significant support to become onsite generators, it is inappropriate to provide customer generators an additional benefit such as payment for "Net Surplus Compensation".

This issue should be revisited after the completion of the Commission's report on the costs and benefits of NEM, required by PU Code 2827 (c)(4), due to the legislature January 1, 2010. In requesting that report, the legislature acknowledges that there is some existing cost-shifting between solar and non-solar customers as a result of NEM. Since this bill would add another benefit to solar customers, it should not be done before a comprehensive cost-benefit review of the NEM program.

**Table 1: PG&E NEM customers with Net Surplus Generation vs. Net Bill Credits**

	2001	2002	2003	2004	2005	2006	2007	2008	TOTAL
<b>Net Surplus Electricity Generators</b>	9.6%	8.2%	7.3%	7.2%	7.1%	6.3%	8.5%	8.7%	7.9%
<b>Net Bill Credits</b>	31.1%	23.3%	20.2%	21.3%	23.0%	20.9%	23.1%	25.2%	23.3%

Source: Data Request to PG&E, March 2009.

- Of the total NEM customers listed above, 1,338 residential customer generators (9%) and 109 commercial customer generators (12%) have produced net kWh surplus (i.e. the customer generator produced more than the customer consumed over twelve months).
- The average net surplus generation was not inconsequential: 1,332 kWh for residential customers and 7,378 kWh for commercial customers.
- Some customers with "bill credits" had no "net surplus electricity", which was the most common situation.
- However, some customers with "net surplus electricity" had no "bill credit". Therefore, even net surplus generators may be able to completely "use up" their bill credits, for which they were compensated at full retail rates monthly, during non generating periods of the year.

As noted in Table 1 above, there are 9 percent of PG&E customers with net surplus electricity, and 25 percent with bill credits. All customers with bill credits would like to be "paid" by PG&E for their electricity, but only the smaller group – those with net excess production -- would be helped by this bill. Furthermore, the 9 percent would likely not be paid the amount they currently see as their bill credit because the bill requires the Commission to establish a different rate for "net surplus generation" than for the monthly surplus generation (which currently receives the full retail rate).

- o Customers with a net \$ credit, but without a net kWh credit, would not benefit from this bill.
- o Customers that have already designed their systems to be economically optimal will not be helped by this bill.
- o This bill may encourage installers to oversell and oversize solar systems, whereas today installers may try to minimize the value "forfeited" to the utility.

**AB 920 requires the Commission to establish a rate for payment of any net surplus compensation which will create a system where the same generation is valued at two different rates.** The Commission needs to consider: (a) value of the electricity itself and (b) the value of the renewable attributes of the electricity. The bill errs in assuming that customers who are net surplus generators are not already compensated for their generation, which they currently are on a monthly basis.

- **Double-counting:** Existing NEM policy creates a clear distinction between the kWh generated and the time-dependent value of that generation. Credits are carried forward as the net retail value of the kWh, including time-of-use values, not as kWh themselves. Therefore, at the end of the year, looking at the surplus kWh would double-count the fact that one already looked at the kWh monthly and translated it into a bill credit.
- **Credit at different rates:** Existing NEM policy credits customers at the full retail level. With this bill, customers would receive full retail rates for generation on a monthly basis, and then at the end of the 12 month true-up, the net surplus generation would be recalculated at a different rate, maybe the generation-only rate or the avoided cost rate. Alternatively, a customer may choose to carry forward indefinitely a kilowatt hour credit to use against future electricity consumption.
  - o the customer will receive a dollar credit *at the full retail rate* for surplus generation which they can use the following month if there is net surplus generation on a monthly basis (as is currently the case), and then
  - o the customer will also receive another dollar credit *at a rate to be set by the Commission* if there is net surplus generation on an annual basis.
    - And the customer can choose to receive a kilowatt hour credit instead of a dollar credit if there is net surplus generation on an annual basis.

**AB 920 limits the Commission to establish the valuation for the net surplus generation in a way that ensures that the valuation does not result in cost-shifting between solar customers and bundled service customers.** While this principle sounds appropriate, it will

be difficult to ensure because NEM already results in cost-shifting between solar and bundled service customers.

- The Commission will need to pay customers either the generation rate or possibly the "avoided cost" for the net surplus generation. Customers may be confused, because they will receive a payment at something other (lesser) than their current bill credit.
- It also has the potential to create a perverse incentive, which signals the customer that electricity is worth more if you use it up than if you deliver the excess to the grid.

**AB 920's definitions of "net surplus customer-generator" and "net surplus electricity" confound bill credits (in terms of dollars) and excess generation (in terms of kWh).**

- The existing NEM regulations allow for the value of any net surplus generation to be credited (in dollars) forward month to month for each twelve month period. This bill would require the calculation of net surplus generation on an annual basis, and either calculate it as a dollar value (that gets paid as a direct payment to the consumer) or gets carried forward indefinitely as a kilowatt hour credit. Under today's NEM, any surplus is always converted to a dollar value on a monthly basis. Under this bill, a customer would be able to "carry forward" forever any excess kilowatt hours. The Commission would have to figure out how to allow kilowatt hours to count against "future consumption" without converting through a dollar value. This provision will create a burden to the utilities to track credits forward, and potentially create a large pot of future liabilities. This provision does not specify how kWh credit would be applied for tiered or TOU customers.

**AB 920 appears to be a legislative fix to a problem for customers that installed systems at sizes greater than economically optimal, or who have changed their load profile due to conservation or other changes in load.** AB 920 would invite future installations to be sized in excess of what is economically in the best interest of customers or the electricity distribution grid. The CSI solar program and net energy metering are both designed to have customers size their solar systems no larger than their total electrical load. Although AB 920 would provide some compensation for excess energy, it is unlikely that a net surplus compensation rate, as proposed, would provide sufficient incentive for solar customers to achieve a reasonable payback for that portion of solar systems that greatly exceed on-site load.

Furthermore, the availability of full retail NEM for solar and wind customer generators is currently limited by the installed capacity of customer generation on this tariff in a given utility territory. Once the installed capacity of customer generation on full retail NEM reaches 2.5% of peak load demand in a utility territory, a utility is no longer required to offer the rate. **If some customer generators oversize their systems, other customer generators would not have room under the NEM cap to install what would have been economically sized solar or wind systems.**

**AB 920 does not acknowledge that the CPUC has a separate, existing CPUC program to procure from customer generators with capacity in excess of their load.** The CPUC has a feed-in tariff for wholesale generators that pays customer generators for excess production. The feed-in tariff program does not provide an upfront, capital subsidy for wholesale generators (e.g. generators may not participate in the CSI or SGIP programs), but it does provide a payment for any excess kilowatthours. If customers have a facility that is well suited to "over-sizing" of a solar array, they should consider a straight-up wholesale, or

feed-in tariff approach. Customers participating in the feed-in tariff can use some of the generation to offset their own load, which essentially allows customer's to avoid electricity purchases at the full retail rate.

**AB 920 is consistent with existing Commission policy regarding renewable energy credits (RECs). It states that RECs associated with electricity procured by the utility are eligible to count towards the Renewable Portfolio Standard (RPS).** Onsite generation supported under CSI and SGIP does not count towards the utility procurement targets because it is technically never "procured" by the utility. However, if this bill was enacted, and the utility purchased the net surplus generation, then it would make sense for the utility to be eligible to count it towards the Renewable Portfolio Standard requirements.

## **PROGRAM BACKGROUND:**

### **Current Renewable Energy Rebate and Procurement Programs**

There are two different policy and program paths that support renewable energy under the direction of the Commission: onsite customer-side of the meter generation and wholesale, utility-side of the meter generation. The two paths are supported by different policies and programs, where AB 920 seeks to blend policies from the two different areas.

**(1) Onsite Customer-Side of the Meter Generation:** The California Solar Initiative and the Self Generation Program are both programs aimed at facilitating onsite customer-side-of-the-meter generation. Both programs are designed to support onsite generation that meets onsite load (demand). These two programs contain provisions that the generator cannot be sized larger than onsite load. The programs provide an upfront payment (in the form of a rebate or incentive), but then they set up the customer to be eligible for two other related benefits: simplified interconnection and NEM. A customer that goes through CSI or SGIP is eligible for a simplified and free interconnection process, which means that they are exempt from costly system impact studies and fees associated with paying for any distribution system upgrades. A customer that goes through CSI and SGIP is also eligible for NEM, which provides an ongoing significant financial benefit, especially full retail NEM for solar. CSI and SGIP – and the related interconnection and NEM policies -- are not designed to support or subsidize wholesale power producers.

- o **California Solar Initiative (CSI):** This bill would add to the benefits available to participants in the CSI. The CSI has a goal of installing 1,940 MW of distributed solar by 2017 in investor-owned utility territories. The CSI provides both upfront and performance-based incentives for solar systems that are sized to offset customer load, and eligible for NEM. Based on the total number of MW of solar currently installed under full retail NEM (~500 MW of solar), the utilities will exhaust the 2.5% cap before the CSI goal is reached. Full retail NEM provides important enough economic benefits that there is another bill (AB 560, Skinner) to extend the NEM cap beyond 2.5%. Under CSI, the customer retains any renewable energy credits (RECs) associated with their generation. Since the generation is not "procured by the utility", it does not count towards the utility's renewable procurement targets in the Renewable Portfolio Standard. Onsite solar generation does support the state's renewable targets because it reduces total demand, which essentially lowers the denominator (20% of X must be renewable – it lowers the "X" in the RPS equation).
- o **The Self Generation Incentive Program (SGIP):** This bill would add to the benefits available to participants in the SGIP. The SGIP is an incentive program for wind and fuel

cells. It was established in 2001 and is one of the largest DG incentive programs in the United States, with approximately 1,200 projects totaling 300 MW on-line at the end of 2007. Similar to CSI above, the customer retains any RECs, the generation does not count towards RPS, but the generation does reduce demand and reduces the amount of renewables that need to be procured to attain the RPS.

**(2) Utility-side of the Meter Generation** – A second path to support distributed renewables generation under the Commission's oversight are the Commission's policies and programs for wholesale generation, including the feed-in tariff program under the Renewable Portfolio Standard program. The feed-in tariff is a procurement program, and it is designed to facilitate procurement of renewable energy, often from small distributed generation facilities. These generation facilities may be located at a customer site, but they have generation capabilities that exceed onsite demand. The feed-in tariff program is a form of utility procurement for wholesale generation. The price or payment for the procurement is determined by the terms of the contract, but projects are ineligible for subsidies or incentives offered under the CSI and SGIP program.

- o **Feed-in Tariff Program (FIT):** The Feed-in Tariff program established by AB 1969 (Yee, 2006) and currently under review in R.08-08-009, allows for eligible generators to receive service under a standard contract and tariff that pays a defined rate for excess generation onto the grid. Customer generators may offset onsite load as appropriate, but the balance is not carried forward in a manner comparable to the NEM program. Currently, NEM participants may not utilize the FIT program, and vice versa. Currently, the price under the feed-in tariff is set at the market price referent, adjusted for time of delivery. The feed-in tariff is limited to generators up to 1.5 MW in size, but there is currently a staff proposal under consideration in R.08-08-009 that would allow the Feed-in Tariffs to be available for larger projects. The customer sells the renewable energy credits (RECs) since generation is "procured by the utility" and thus does count towards the utility renewable procurement targets in the Renewable Portfolio Standard.

## **Current Net Energy Metering (NEM) Program**

Under existing NEM program rules, a utility measures the difference between the electricity supplied to a customer and the electricity generated by a customer generator and supplied to the grid. The "net difference" is billed to the customer, and so NEM is often described as letting a customer's meter 'run backwards and forward'.

- o **Eligible NEM technologies and NEM compensation rates.** Solar customer generators up to 1 MW and wind customer generators up to 50 kW are eligible for "full retail NEM" which means that they receive a bill credit at the fully bundled retail rate of kWh supplied to the grid. Larger wind projects (greater than 50 kW), fuel cells and agricultural biogas generators, are eligible for "generation-rate NEM" which means they receive a bill credit at the generation rate of kWh supplied to the grid.
- o **NEM True-Up Period.** Each NEM customer has a 12-month true-up period based on the date they interconnect their system to the grid and start on the NEM tariff. On a monthly basis, the utility considers the total amount of consumption and generation at each customer site. If the customer consumes more than they generate, then the customer pays the utility for any "net" charges. If the customer generates more than they consume, then the customer receives a dollar based bill credit based on the rates in effect at the time. Net dollar credits may be banked for 12 months. At the end of 12

months, the utility conducts a true-up for each NEM customer account. The balance or value of any net credits is granted to the utility, and customer account balances are reduced to zero. The 12 month true-up period facilitates on-site generators that vary their production over different times of year. For example, solar generators that generate more during high value summer time periods can receive bill credits that they use during the winter, or off-peak, periods. The 12-month period is designed to allow a customer to size their system so that it offsets their total annual load on average without having to size their system to meet their maximum demand. Some customers will *net to zero*, meaning the value of the electricity sold to the electric utility (particularly if produced on-peak) equals or exceeds the value of the electricity purchased from the utility.

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