

STATE OF CALIFORNIA

Public Utilities Commission  
San Francisco

**M e m o r a n d u m**

**Date:** April 28, 2009

**To:** The Commission  
(Meeting of May 7, 2009)

**From:** Pamela Loomis, Director  
Office of Governmental Affairs (OGA) — Sacramento

**Subject:** **AB 920 (Huffman) Huffman. Solar and wind distributed generation.**  
**As introduced February 26, 2009**

**LEGISLATIVE SUBCOMMITTEE RECOMMENDATION:** OPPOSE UNLESS AMENDED

**SUMMARY OF BILL:**

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.

**SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:**

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.

## DIVISION ANALYSIS (Energy Division):

- 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.
- Establishes that the “Net Surplus Compensation” period of 12 months commences when the customer elects to participate in the program. (This period of time will likely vary from the current NEM true-up period.)
- 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.

- 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
- 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 establishes a new "True-Up" period for "Net Surplus Compensation" that is different than the existing "True-Up" period for bill credits.** The bill amends PU Code 2827(h)(1), and it sets up Net Surplus Compensation to coincide with the normal NEM true up period. However, in PU Code 2827(h)(3) it sets net surplus compensation

~~to commence for a 12 month period starting at the time of the customer's election. Having two true-up periods would cause implementation problems and may not be compatible with the IOUs current billing systems.~~

**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.

### **LEGISLATIVE HISTORY:**

Net Energy Metering statute (PU Code section 2827) was established by Senate Bill (SB) 656 (Alquist, 1995, co-author: Assembly Member Takasugi). NEM has been substantially altered several times including major revisions from SB 1 (Murray, 2006).

AB 1920 (Huffman, 2008) proposed similar changes to the Public Resources Code and the Public Utilities Code. AB 1920 would have also provided compensation for excess electricity generation by NEM customer generators and allowed over-sizing of systems, would have required a new ratemaking proceeding, and would have created complications around the NEM cap by only assigning a portion of each facility's rated capacity towards the 2.5%. CPUC opposed AB 1920 for many of the same reasons presented here.

SB 7 (Wiggins, 2009) requires that the CPUC establish a rate for net surplus generation that is "not less than" the existing market price referent. SB 7 also eliminates the "sized to load" requirement of the CSI program.

### **STATUS:**

To be scheduled in Assembly Committee on Appropriations.

### **SUPPORT/OPPOSITION:**

Support: American Federation of State, County and Municipal Employees  
(AFSCME)  
Environment California  
Planning and Conservation League  
Sierra Club California  
The Utility Reform Network (TURN) (if amended)

Opposition: California Association of Small and Multi-jurisdictional  
Utilities (CASMU) (unless amended)  
Pacific Gas & Electric (PG&E)

### **STAFF CONTACTS:**

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**Date:** April 28, 2009

**BILL LANGUAGE:**

BILL NUMBER: AB 920      INTRODUCED  
BILL TEXT

INTRODUCED BY    Assembly Member Huffman  
                  (Coauthors: Assembly Members Lieu and Portantino)  
                  (Coauthors: Senators Hancock and Lowenthal)

FEBRUARY 26, 2009

An act to amend Section 2827 of the Public Utilities Code,  
relating to energy.

LEGISLATIVE COUNSEL'S DIGEST

AB 920, as introduced, Huffman. Solar and wind distributed generation.

The existing Public Utilities Act imposes various duties and responsibilities on the Public Utilities Commission with respect to the purchase of electricity and requires the commission to review and adopt a procurement plan and a renewable energy procurement plan for each electrical corporation pursuant to the California Renewables Portfolio Standard Program. The program requires that a retail seller of electricity, including electrical corporations, community choice aggregators, and electric service providers, but not including local publicly owned electric utilities, purchase a specified minimum percentage of electricity generated by eligible renewable energy resources, as defined, in any given year as a specified percentage of total kilowatthours sold to retail end-use customers each calendar year. Under existing law the governing board of a local publicly owned electric utility is responsible for implementing and enforcing a renewables portfolio standard that recognizes the intent of the Legislature to encourage renewable resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.

Existing law relative to private energy producers requires every electric distribution utility or cooperative, as defined, upon request, to make available to an eligible customer-generator, as defined, a standard contract or tariff for net energy metering on a first-come-first-served basis until the time that the total rated generating capacity used by eligible customer-generators exceeds a specified amount. Existing law provides that where the electricity generated by the eligible customer-generator exceeds the electricity supplied by the electric distribution utility or cooperative during a 12-month period, the eligible customer-generator is a net electricity producer and the electric distribution utility or cooperative retains any excess kilowatthours generated and the customer-generator is not owed compensation for those excess kilowatthours unless the electric distribution utility or cooperative enters into a purchase agreement with the eligible customer-generator for those excess kilowatthours.

This bill would replace the definition of "electric distribution utility or cooperative" in existing law relative to private energy producers with a definition of "electric utility." The bill would require the ratemaking authority, as defined, for the electric

utility to adopt, by January 1, 2011, a net surplus electricity compensation valuation to compensate a net surplus customer-generator, as defined, for the value of net surplus electricity, as defined, generated by an eligible customer-generator and delivered to the grid that is in excess of the amount of electricity that is delivered from the grid to the eligible customer-generator. The bill would require the electric utility to offer a standard contract or tariff to eligible customer-generators that includes compensation for the value of net surplus electricity. The bill would require the electric utility, upon an affirmative election by the eligible customer-generator to receive service pursuant to this contract or tariff, to either: (1) provide net surplus electricity compensation for any net surplus electricity generated in the 12-month period, or (2) allow the eligible customer-generator to apply the net surplus electricity as a credit for kilowatthours subsequently supplied by the electric utility to the surplus customer-generator. The bill would, for an electric utility that is an electrical corporation or electrical cooperative, authorize the commission to adopt requirements for providing notice and the manner by which eligible customer-generators may elect to receive net surplus electricity compensation. The bill would provide that upon adoption of the net surplus electricity compensation rate and the eligible customer-generator electing to receive net surplus electricity compensation, any renewable energy credit, as defined, for net surplus electricity belongs to the electric utility purchasing the electricity and that net surplus electricity counts toward the electric utility's renewables portfolio standard purchasing requirements.

Under existing law, a violation of any order, decision, rule, direction, demand, or requirement of the commission is a crime.

Because this bill would require action by the commission to implement certain of its requirements that expand the existing obligations of electrical corporations, a violation of these provisions would impose a state-mandated local program by expanding the definition of a crime.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes.  
State-mandated local program: yes.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 2827 of the Public Utilities Code is amended to read:

2827. (a) The Legislature finds and declares that a program to provide net energy metering *combined with net surplus compensation* , co-energy metering, and wind energy co-metering for eligible customer-generators is one way to encourage substantial private investment in renewable energy resources, stimulate in-state economic growth, reduce demand for electricity during peak consumption periods, help stabilize California's energy supply infrastructure, enhance the continued diversification of California's energy resource mix, ~~and~~ reduce interconnection and administrative costs for electricity suppliers , *and encourage conservation and efficiency* .

(b) As used in this section, the following terms have the following meanings:

(1) "Co-energy metering" means a program that is the same in all other respects as a net energy metering program, except that the local publicly owned electric utility has elected to apply a generation-to-generation energy and time-of-use credit formula as provided in subdivision (i).

(2) "Electrical cooperative" means an electrical cooperative as defined in Section 2776.

(3) "Electric ~~distribution utility or cooperative~~ utility" means an electrical corporation, a local publicly owned electric utility, or an electrical cooperative, or any other entity, except an electric service provider, that offers electrical service. This section shall not apply to a local publicly owned electric utility that serves more than 750,000 customers and that also conveys water to its customers.

(4) "Eligible customer-generator" means a residential, small commercial customer as defined in subdivision (h) of Section 331, commercial, industrial, or agricultural customer of an ~~electricity distribution utility or cooperative~~ electric utility, who uses a solar or a wind turbine electrical generating facility, or a hybrid system of both, with a capacity of not more than one megawatt that is located on the customer's owned, leased, or rented premises, and is interconnected and operates in parallel with the electric grid, and is intended primarily to offset part or all of the customer's own electrical requirements.

(5) "Net energy metering" means measuring the difference between the electricity supplied through the electric grid and the electricity generated by an eligible customer-generator and fed back to the electric grid over a 12-month period as described in ~~subdivision~~ subdivisions (c) and (h).

~~An eligible customer generator who already owns an existing solar or wind turbine electrical generating facility, or a hybrid system of both, is eligible to receive net energy metering service in accordance with this section.~~

(6) "Net surplus customer-generator" means an eligible customer-generator that generates more electricity during a 12-month period than is supplied by the electric utility to the eligible customer-generator during the same 12-month period.

(7) "Net surplus electricity" means all electricity generated by an eligible customer-generator measured in kilowatthours over a 12-month period that exceeds the amount of electricity consumed by that eligible customer-generator.

(8) "Net surplus electricity compensation" means a per kilowatthour rate offered by the electric utility to the net surplus customer-generator for net surplus electricity that is set by the ratemaking authority pursuant to subdivision (h).

~~(6)~~

(9) "Ratemaking authority" means, for an electrical corporation ~~—~~ or electrical cooperative, ~~— or electric service provider, —~~ the commission, and for a local publicly owned electric utility, the local elected body responsible for setting the rates of the local publicly owned utility.

~~(7)~~

(10) "Wind energy co-metering" means any wind energy project greater than 50 kilowatts, but not exceeding one megawatt, where the difference between the electricity supplied through the electric grid and the electricity generated by an eligible

customer-generator and fed back to the electric grid over a 12-month period is as described in subdivision (h). Wind energy co-metering shall be accomplished pursuant to Section 2827.8.

(c) (1) Every ~~electricity distribution utility or cooperative~~ *electric utility* 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-generators exceeds 2.5 percent of the ~~electricity distribution utility or cooperative's~~ *electric utility's* aggregate customer peak demand. Net energy metering shall be accomplished using a single meter capable of registering the flow of electricity in two directions. An additional meter or meters to monitor the flow of electricity in each direction may be installed with the consent of the *eligible customer-generator*, at the expense of the ~~electricity distribution utility or cooperative~~ *electric utility*, and the additional metering shall be used only to provide the information necessary to accurately bill or credit the *eligible customer-generator* pursuant to subdivision (h), or to collect solar or wind electric generating system performance information for research purposes. If the existing electrical meter of an eligible customer-generator is not capable of measuring the flow of electricity in two directions, the *eligible customer-generator* shall be responsible for all expenses involved in purchasing and installing a meter that is able to measure electricity flow in two directions. If an additional meter or meters are installed, the net energy metering calculation shall yield a result identical to that of a single meter. *An eligible customer-generator that is receiving service other than through the standard contract or tariff may elect to receive service through the standard contract or tariff until the electric utility reaches the generation limit set forth in this paragraph. Once the generation limit is reached, only eligible customer-generators that had previously elected to receive service pursuant to the standard contract or tariff have a right to continue to receive service pursuant to the standard contract or tariff. Eligibility for net energy metering does not limit an eligible customer-generator's eligibility for any other rebate, incentive, or credit provided by the electric utility, or pursuant to any governmental program, including rebates and incentives provided pursuant to the California Solar Initiative.*

(2) (A) On an annual basis, beginning in 2003, every ~~electricity distribution utility or cooperative~~ *electric utility* shall make available to the ratemaking authority information on the total rated generating capacity used by eligible customer-generators that are customers of that provider in the provider's service area *and the net surplus electricity purchased by the electric utility pursuant to this section* .

(B) An electric service provider operating pursuant to Section 394 shall make available to the ratemaking authority the information required by this paragraph for each eligible customer-generator that is their customer for each service area of an electric corporation, local publicly owned electric utility, or electrical cooperative, in which the ~~customer~~ *eligible customer-generator* has net energy metering.

(C) The ratemaking authority shall develop a process for making the information required by this paragraph available to ~~electricity distribution utilities and cooperatives~~

*electric utilities* , and for using that information to determine when, pursuant to paragraphs (1) and (3), an ~~electricity distribution utility or cooperative~~ *electric utility* is not obligated to provide net energy metering to additional *eligible* customer-generators in its service area.

(3) An ~~electricity distribution utility or cooperative~~ *electric utility* is not obligated to provide net energy metering to additional *eligible* customer-generators in its service area when the combined total peak demand of all *electricity used by eligible* customer-generators served by all the ~~electricity distribution utilities or cooperatives~~ *electric utilities* in that service area furnishing net energy metering to eligible customer-generators exceeds 2.5 percent of the aggregate customer peak demand of those ~~electricity distribution utilities or cooperatives~~ *electric utilities* .

(4) By January 1, 2010, the commission, in consultation with the Energy Commission, shall submit a report to the Governor and the Legislature on the costs and benefits of net energy metering, wind energy co-metering, and co-energy metering to participating customers and nonparticipating customers and with options to replace the economic costs and benefits of net energy metering, wind energy co-metering, and co-energy metering with a mechanism that more equitably balances the interests of participating and nonparticipating customers, and that incorporates the findings of the report on economic and environmental costs and benefits of net metering required by subdivision (n).

(d) Every ~~electricity distribution utility or cooperative~~ *electric utility* shall make all necessary forms and contracts for net energy metering *and net surplus electricity compensation* service available for download from the Internet.

(e) (1) Every ~~electricity distribution utility or cooperative~~ *electric utility* shall ensure that requests for establishment of net energy metering *and net surplus electricity compensation* are processed in a time period not exceeding that for similarly situated customers requesting new electric service, but not to exceed 30 working days from the date it receives a completed application form for net energy metering service *or net surplus electricity compensation* , including a signed interconnection agreement from an eligible customer-generator and the electric inspection clearance from the governmental authority having jurisdiction.

(2) Every ~~electricity distribution utility or cooperative~~ *electric utility* shall ensure that requests for an interconnection agreement from an eligible customer-generator are processed in a time period not to exceed 30 working days from the date it receives a completed application form from the eligible customer-generator for an interconnection agreement.

(3) If an ~~electricity distribution utility or cooperative~~ *electric utility* is unable to process a request within the allowable timeframe pursuant to paragraph (1) or (2), it shall notify the eligible customer-generator and the ratemaking authority of the reason for its inability to process the request and the expected completion date.

(f) (1) If a customer participates in direct transactions pursuant to paragraph (1) of subdivision (b) of Section 365 with an electric service provider that does not provide distribution service for the direct transactions, the ~~electricity distribution utility or~~

~~cooperative~~ *electric utility* that provides distribution service for ~~an~~ the eligible customer-generator is not obligated to provide net energy metering or net surplus electricity compensation to the customer.

(2) If a customer participates in direct transactions pursuant to paragraph (1) of subdivision (b) of Section 365 with an electric service provider, and the customer is an eligible customer-generator, the ~~electricity distribution utility or cooperative~~ *electric utility* that provides distribution service for the direct transactions may recover from the customer's electric service provider the incremental costs of metering and billing service related to net energy metering and net surplus electricity compensation in an amount set by the ratemaking authority.

(g) Except for the time-variant kilowatthour pricing portion of any tariff adopted by the commission pursuant to paragraph (4) of subdivision (a) of Section 2851, each net energy metering contract or tariff shall be identical, with respect to rate structure, all retail rate components, and any monthly charges, to the contract or tariff to which the same customer would be assigned if the customer did not use an eligible solar or wind electrical generating facility, except that eligible customer-generators shall not be assessed standby charges on the electrical generating capacity or the kilowatthour production of an eligible solar or wind electrical generating facility. The charges for all retail rate components for eligible customer-generators shall be based exclusively on the customer-generator's net kilowatthour consumption over a 12-month period, without regard to the *eligible* customer-generator's choice as to *from* whom it purchases electricity that is not self-generated. Any new or additional demand charge, standby charge, customer charge, minimum monthly charge, interconnection charge, or any other charge that would increase an eligible customer-generator's costs beyond those of other customers who are not eligible customer-generators in the rate class to which the eligible customer-generator would otherwise be assigned if the customer did not own, lease, rent, or otherwise operate an eligible solar or wind electrical generating facility are contrary to the intent of this section, and shall not form a part of net energy metering contracts or tariffs.

(h) For eligible ~~residential and small commercial~~ customer-generators, the net energy metering calculation shall be made by measuring the difference between the electricity supplied to the eligible customer-generator and the electricity generated by the eligible customer-generator and fed back to the electric grid over a 12-month period. The following rules shall apply to the annualized net metering calculation:

(1) The eligible residential or small commercial customer-generator shall, at the end of each 12-month period following the date of final interconnection of the eligible customer-generator's system with an ~~electricity distribution utility or cooperative~~ *electric utility*, and at each anniversary date thereafter, be billed for electricity used during that 12-month period. The ~~electricity distribution utility or cooperative~~ *electric utility* shall determine if the eligible residential or small commercial customer-generator was a net consumer or a net ~~producer of electricity~~ *surplus customer-generator* during that period.

(2) At the end of each 12-month period, where the electricity



supplied during the period by the ~~electricity distribution utility or cooperative~~ *electric utility* exceeds the electricity generated by the eligible residential or small commercial customer-generator during that same period, the eligible residential or small commercial customer-generator is a net electricity consumer and the ~~electricity distribution utility or cooperative~~ *electric utility* shall be owed compensation for the eligible customer-generator's net kilowatthour consumption over that 12-month period. The compensation owed for the eligible residential or small commercial customer-generator's consumption shall be calculated as follows:

(A) For all eligible customer-generators taking service under contracts or tariffs employing "baseline" and "over baseline" rates ~~or charges~~, any net monthly consumption of electricity shall be calculated according to the terms of the contract or tariff to which the same customer would be assigned to, or be eligible for, if the customer was not an eligible customer-generator. If those same customer-generators are net generators over a billing period, the net kilowatthours generated shall be valued at the same price per kilowatthour as the ~~electricity distribution utility or cooperative~~ *electric utility* would charge for the baseline quantity of electricity during that billing period, and if the number of kilowatthours generated exceeds the baseline quantity, the excess shall be valued at the same price per kilowatthour as the ~~electricity distribution utility or cooperative~~ *electric utility* would charge for electricity over the baseline quantity during that billing period.

(B) For all eligible customer-generators taking service under contracts or tariffs employing ~~"time of use"~~ *time-of-use* rates ~~or charges~~, any net monthly consumption of electricity shall be calculated according to the terms of the contract or tariff to which the same customer would be assigned ~~to~~, or be eligible for, if the customer was not an eligible customer-generator. When those same customer-generators are net generators during any discrete time-of-use period, the net kilowatthours produced shall be valued at the same price per kilowatthour as the ~~electricity distribution utility or cooperative~~ *electric utility* would charge for retail kilowatthour sales during that same ~~"time of use"~~ *time-of-use* period. If the eligible customer-generator's ~~"time of use"~~ *time-of-use* electrical meter is unable to measure the flow of electricity in two directions, ~~subparagraph (A) of~~ paragraph (1) of subdivision (c) shall apply.

(C) For all eligible residential and small commercial customer-generators and for each billing period, the net balance of moneys owed to the ~~electricity distribution utility or cooperative~~ *electric utility* for net consumption of electricity or credits owed to the eligible customer-generator for net generation of electricity shall be carried forward as a monetary value until the end of each 12-month period. For all eligible commercial, industrial, and agricultural customer-generators, the net balance of moneys owed shall be paid in accordance with the ~~electricity distribution utility or cooperative's~~ *electric utility's* normal billing cycle, except that if the eligible commercial, industrial, or agricultural customer-generator is a net electricity producer over a normal billing cycle, any excess kilowatthours generated during the billing cycle shall be carried over to the following billing period

as a monetary value, calculated according to the procedures set forth in this section, and appear as a credit on the eligible *commercial, industrial, or agricultural* customer-generator's account, until the end of the annual period when paragraph (3) shall apply.

(3) At the end of each 12-month period, where the electricity generated by the eligible customer-generator during the 12-month period exceeds the electricity supplied by the ~~electricity distribution utility or cooperative~~ electric utility during that same period, the eligible customer-generator is a net ~~electricity producer and the electricity distribution utility or cooperative~~ surplus customer-generator and the electric utility shall, upon an affirmative election by the eligible customer-generator, either (A) provide net surplus electricity compensation for any net surplus electricity generated during the prior 12-month period, or (B) allow the eligible customer-generator to apply the net surplus electricity as a credit for kilowatthours subsequently supplied by the electric utility to the surplus customer-generator. For an eligible customer-generator that does not affirmatively elect to receive service pursuant to net surplus electricity compensation, the electric utility shall retain any excess kilowatthours generated during the prior 12-month period. The eligible customer-generator not affirmatively electing to receive service pursuant to net surplus electricity compensation shall not be owed any compensation for ~~those excess kilowatthours~~ the net surplus electricity unless the ~~electricity distribution utility or cooperative~~ electric utility enters into a purchase agreement with the eligible customer-generator for those excess kilowatthours. Every electric utility shall, by January 31, 2010, provide notice to eligible customer-generators that they are eligible to receive net surplus electricity compensation for net surplus electricity, that they must elect to receive net surplus electricity compensation, and that the 12-month period commences when the electric utility receives the eligible customer-generator's election. The commission may, for an electric utility that is an electrical corporation or electrical cooperative, adopt requirements for providing notice and the manner by which eligible customer-generators may elect to receive net surplus electricity compensation.

(4) (A) The ratemaking authority shall, by January 1, 2011, establish a net surplus electricity compensation valuation to compensate the net surplus customer-generator for the value of net surplus electricity generated by the net surplus customer-generator. The commission shall establish the valuation in a ratemaking proceeding. The ratemaking authority for a local publicly owned electric utility shall establish the valuation in a public proceeding. The net surplus electricity compensation valuation shall be established so as to provide the net surplus customer-generator just and reasonable compensation for the value of net surplus electricity, while leaving other ratepayers unaffected. The ratemaking authority shall determine whether the compensation will include, where appropriate justification exists, either or both of the following components:

- (i) The value of the electricity itself.
- (ii) The value of the renewable attributes of the electricity.

(B) In establishing the rate pursuant to subparagraph (A), the ratemaking authority shall ensure that the rate does not result in a shifting of costs between solar customer-generators and other bundled

service customers.

(5) (A) Upon adoption of the net surplus electricity compensation rate by the ratemaking authority, any renewable energy credit, as defined in Section 399.12, for net surplus electricity purchased by the electric utility shall belong to the electric utility. Any renewable energy credit associated with electricity generated by the eligible customer-generator that is utilized by the eligible customer-generator shall remain the property of the eligible customer-generator.

(B) Upon adoption of the net surplus electricity compensation rate by the ratemaking authority, the net surplus electricity purchased by the electric utility shall count toward the electric utility's renewables portfolio standard annual procurement targets for the purposes of paragraph (1) of subdivision (b) of Section 399.15, or for a local publicly owned electric utility, the renewables portfolio standard annual procurement targets established pursuant to Section 387.

—(4)

(6) The ~~electricity distribution utility or cooperative~~ electric utility shall provide every eligible residential or small commercial customer-generator with net electricity consumption and net surplus electricity generation information with each regular bill. That information shall include the current monetary balance owed the ~~electricity distribution utility or cooperative~~ electric utility for net electricity consumed, or the ~~current amount of excess electricity produced~~ net surplus electricity generated, since the last 12-month period ended. Notwithstanding this subdivision, an ~~electricity distribution utility or cooperative~~ electric utility shall permit that customer to pay monthly for net energy consumed.

—(5)

(7) If an eligible residential or small commercial customer-generator terminates the customer relationship with the ~~electricity distribution utility or cooperative~~ electric utility, the ~~electricity distribution utility or cooperative~~ electric utility shall reconcile the eligible customer-generator's consumption and production of electricity during any part of a 12-month period following the last reconciliation, according to the requirements set forth in this subdivision, except that those requirements shall apply only to the months since the most recent 12-month bill.

—(6)

(8) If an electric service provider or ~~electricity distribution utility or cooperative~~ electric utility providing net energy metering to a residential or small commercial customer-generator ceases providing that electric service to that customer during any 12-month period, and the customer-generator enters into a new net energy metering contract or tariff with a new electric service provider or ~~electricity distribution utility or cooperative~~ electric utility, the 12-month period, with respect to that new electric service provider or ~~electricity distribution utility or cooperative~~ electric utility, shall commence on the date on which the new electric service provider or ~~electricity distribution utility or cooperative~~ electric utility first supplies electric service to the customer-generator.

(i) Notwithstanding any other provisions of this section, the

following provisions shall apply to an eligible customer-generator with a capacity of more than 10 kilowatts, but not exceeding one megawatt, that receives electric service from a local publicly owned electric utility that has elected to utilize a co-energy metering program unless the local publicly owned electric utility chooses to provide service for eligible customer-generators with a capacity of more than 10 kilowatts in accordance with subdivisions (g) and (h):

(1) The eligible customer-generator shall be required to utilize a meter, or multiple meters, capable of separately measuring electricity flow in both directions. All meters shall provide ~~"time of use"~~ *time-of-use* measurements of electricity flow, and the customer shall take service

on a time-of-use rate schedule. If the existing meter of the eligible customer-generator is not a time-of-use meter or is not capable of measuring total flow of energy in both directions, the eligible customer-generator shall be responsible for all expenses involved in purchasing and installing a meter that is both time-of-use and able to measure total electricity flow in both directions. This subdivision shall not restrict the ability of an eligible customer-generator to utilize any economic incentives provided by a government agency or an ~~electricity distribution utility or cooperative~~ *electric utility* to reduce its costs for purchasing and installing a time-of-use meter.

(2) The consumption of electricity from the local publicly owned electric utility shall result in a cost to the eligible customer-generator to be priced in accordance with the standard rate charged to the eligible customer-generator in accordance with the rate structure to which the customer would be assigned if the customer did not use an eligible solar or wind electrical generating facility. The generation of electricity provided to the local publicly owned electric utility shall result in a credit to the eligible customer-generator and shall be priced in accordance with the generation component, established under the applicable structure to which the customer would be assigned if the customer did not use an eligible solar or wind electrical generating facility.

(3) All costs and credits shall be shown on the eligible customer-generator's bill for each billing period. In any months in which the eligible customer-generator has been a net consumer of electricity calculated on the basis of value determined pursuant to paragraph (2), the customer-generator shall owe to the local publicly owned electric utility the balance of electricity costs and credits during that billing period. In any billing period in which the eligible customer-generator has been a net producer of electricity calculated on the basis of value determined pursuant to paragraph (2), the local publicly owned electric utility shall owe to the eligible customer-generator the balance of electricity costs and credits during that billing period. Any net credit to the eligible customer-generator of electricity costs may be carried forward to subsequent billing periods, provided that a local publicly owned electric utility may choose to carry the credit over as a kilowatthour credit consistent with the provisions of any applicable contract or tariff, including any differences attributable to the time of generation of the electricity. At the end of each 12-month period, the local publicly owned electric utility may reduce any net credit due to the eligible customer-generator to zero.

(j) A solar or wind turbine electrical generating system, or a hybrid system of both, used by an eligible customer-generator shall meet all applicable safety and performance standards established by the National Electrical Code, the Institute of Electrical and

Electronics Engineers, and accredited testing laboratories, including Underwriters Laboratories and, where applicable, rules of the commission regarding safety and reliability. A customer-generator whose solar or wind turbine electrical generating system, or a hybrid system of both, meets those standards and rules shall not be required to install additional controls, perform or pay for additional tests, or purchase additional liability insurance.

(k) If the commission determines that there are cost or revenue obligations for an electric corporation, as defined in Section 218, that may not be recovered from customer-generators acting pursuant to this section, those obligations shall remain within the customer class from which any shortfall occurred and may not be shifted to any other customer class. Net energy metering and co-energy metering customers shall not be exempt from the public goods charges imposed pursuant to Article 7 (commencing with Section 381), Article 8 (commencing with Section 385), or Article 15 (commencing with Section 399) of Chapter 2.3 of Part 1. In its report to the Legislature, the commission shall examine different methods to ensure that the public goods charges remain nonbypassable.

( ) A net energy metering, co-energy metering, or wind energy co-metering customer shall reimburse the Department of Water Resources for all charges that would otherwise be imposed on the customer by the commission to recover bond-related costs pursuant to an agreement between the commission and the Department of Water Resources pursuant to Section 80110 of the Water Code, as well as the costs of the department equal to the share of the department's estimated net unavoidable power purchase contract costs attributable to the customer. The commission shall incorporate the determination into an existing proceeding before the commission, and shall ensure that the charges are nonbypassable. Until the commission has made a determination regarding the nonbypassable charges, net energy metering, co-energy metering, and wind energy co-metering shall continue under the same rules, procedures, terms, and conditions as were applicable on December 31, 2002.

(m) In implementing the requirements of subdivisions (k) and ( ), ~~a~~ *an eligible* customer-generator shall not be required to replace its existing meter except as set forth in ~~subparagraph (A) of~~ paragraph (1) of subdivision (c), nor shall the ~~electricity distribution utility or cooperative~~ *electric utility* require additional measurement of usage beyond that which is necessary for customers in the same rate class as the eligible customer-generator.

(n) It is the intent of the Legislature that the Treasurer incorporate net energy metering, *including net surplus electricity compensation* , co-energy metering, and wind energy co-metering projects undertaken pursuant to this section as sustainable building methods or distributive energy technologies for purposes of evaluating low-income housing projects.

SEC. 2. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

