

# PROPOSED REGULATIONS FOR THE HOMEBUYER SOLAR OPTION AND SOLAR OFFSET PROGRAM

## California Code of Regulations, Title 20, Division 2, Chapter 9 Adopt Article 1 and Sections 2700-2704

### Text of Modified Regulations

#### **Article 1 – Solar Offset Program**

##### **2700. Scope**

These regulations establish the Homebuyer Solar Option and the Solar Offset Program pursuant to Public Resources Code Section 25405.5. These regulations apply to the developer/seller of production homes and include procedures which a developer/seller shall utilize when determining their selected compliance path.

A seller of production homes shall offer a solar energy system option to all prospective home buyers that enter into negotiations to purchase a new production home constructed on land for which an application for a tentative subdivision map has been deemed complete on or after January 1, 2011.

A developer/seller of production homes who does not participate in the Homebuyer Solar Option program shall install an offset solar energy system, generating specified amounts of electricity, on another project.

Authority cited: Public Resources Code Sections 25213, 25218(e), 25218.5, 25405.5(b) and 25405.5(c)

Reference: Public Resources Code Sections 25405.5(b) and 25405.5(c)

##### **2701. Definitions**

For the purpose of these regulations, the following definitions shall apply:

- (a) AC means alternating current.
- (b) Banking means the accumulation of expected annual time dependent valuation (TDV) energy from offset solar energy system(s) for future use in the solar offset program.
- (c) Building Energy Efficiency Standards for Residential and Nonresidential Buildings means the California Building Energy Efficiency Standards as set forth in the California Code of Regulations, Title 24, Part 6.
- (d) Climate Zone means the 16 geographic areas of California for which the Energy Commission has established typical weather data, prescriptive packages and energy budgets. The Energy Commission climate zone map is located at: [www.energy.ca.gov/maps/renewable/building\\_climate\\_zones.html](http://www.energy.ca.gov/maps/renewable/building_climate_zones.html)

- (e) Development – this article uses the definition of “Development” provided in California Government Code Section 66418.1.
- (f) Energy Commission means the State of California Energy Resources Conservation and Development Commission, commonly known as the California Energy Commission.
- (g) IOU means investor-owned utility.
- (h) kW means kilowatt or 1,000 watts, as measured from the alternating current side of the solar energy system inverter consistent with Section 223 of Title 15 of the United States Code.
- (i) MW means megawatt or 1,000,000 watts.
- (j) Minimal Shading means that no existing shading obstructions or planned or potential shading obstructions (i.e. such items that are shown on builder’s building or landscaping plans but not yet installed or planted) are closer than a distance of twice the height that the obstruction extends above the nearest point on the PV array. Any obstruction that projects above the point on the PV array that is closest to the obstruction shall meet this criterion for the PV array to be considered minimally shaded.
- (k) New Solar Homes Partnership (NSHP) means the part of the comprehensive statewide solar program, known as the California Solar Initiative, that is applicable to new residential construction in the utility territories of Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Golden State Water Company (doing business as Bear Valley Electric Service). The NSHP provides financial incentives and other support to home builders to encourage the construction of new, energy-efficient solar homes.
- (l) Offset Solar Energy System means a solar energy system that is used to meet the requirements of the Solar Offset Program.
- (m) Phased Final Map means a Final Map that was filed pursuant to California Government Code Section 66456.1 that covers only a portion or phase of the total area encompassed by a Tentative Subdivision Map for which an application has been deemed complete on or after January 1, 2011.
- (n) POU means publicly-owned utility.
- (o) Production Home means a single-family residence constructed as part of a development of at least 50 homes per project that is intended or offered for sale. To determine whether there is a “development of at least 50 homes per project”:
  - (1) The number of planned homes identified on a Tentative Subdivision Map for which an application has been deemed complete on or after January 1, 2011, will be aggregated with the number of additional homes identified on any Phased Final Maps that are subsequently filed which cover only a

portion or phase of the total area encompassed by the Tentative Subdivision Map.

- (2) Under no circumstances will Tentative Subdivision Maps deemed complete prior to January 1, 2011, or Phased Final Maps that were filed prior to January 1, 2011, be considered in this determination.
- (p) PV means flat-plate non-concentrating photovoltaic modules.
- (q) Reference Solar Energy System means a fictitious solar energy system that is used for calculating expected annual TDV energy equivalency for the Solar Offset Program.
- (r) Single-Family Residence - means "Detached Single-Family Dwelling," as defined in the California Building Code, Title 24, Part 2, Section 202.
- (s) Solar Energy System means a solar energy device that has the primary purpose of providing for the collection and distribution of solar energy for the generation of electricity that produces at least 1 kW, and not more than 5 MW, alternating current rated peak electricity, and that meets or exceeds the following:
  - (1) All components in the solar energy system are new and unused, and have not previously been placed in service in any other location or for any other application;
  - (2) The solar energy system is connected to the electrical corporation's electrical distribution system within the state;
  - (3) The solar energy system has meters or other devices in place to monitor and measure the system's performance and the quantity of electricity generated by the system; and
  - (4) The solar energy system is installed in conformance with the manufacturer's specifications and in compliance with all applicable electrical and building code standards.
- (t) Solar Offset Program Calculator means a calculator based on the California Energy Commission Photovoltaic (CECPV) model. This calculator incorporates detailed inverter performance modeling and uses weather data from the 16 climate zones in California. The calculator allows a user to select photovoltaic modules and inverters from a library of eligible equipment and generate the estimated monthly kWh production and annual TDV (kWh) production for a specified solar energy system. The Solar Offset Program Calculator, Version 1.0, which is hereby incorporated by reference, is located at: [www.energy.ca.gov/2010-SOPR-1/documents/index.html](http://www.energy.ca.gov/2010-SOPR-1/documents/index.html).
- (u) Subdivision - this article uses the definition of "Subdivision" provided in California Government Code Section 66424.
- (v) Tentative Subdivision Map means a Tentative Subdivision Map for which an application has been deemed complete on or after January 1, 2011.
- (w) Time-Dependent Valuation (TDV) Energy means the time varying energy caused to be used by the building to provide space conditioning and water heating and for

specified buildings lighting. TDV energy accounts for the energy used at the building site and consumed in producing and delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.

Authority cited: Public Resources Code Sections 25213, 25218(e), 25218.5, 25405.5(a) and 25405.5(b)

Reference: Public Resources Code Sections 25405.5(a) and 25405.5(b)

## **2702. Homebuyer Solar Option**

(a) **Disclosure to Prospective Home Buyer.** A seller of production homes offering solar as an option shall provide the following information to the prospective home buyer:

- (1) Total installed cost of the solar energy system option;
- (2) Estimated cost savings associated with the solar energy system option as shown in Table 1:
  - (A) The figures in Table 1 represent a range of expected annual kWh generation and estimated annual dollar savings from a 1 kW solar energy system as calculated by the California Energy Commission. A seller of production homes offering solar as an option shall provide the relevant information from Table 1 to the prospective home buyer.
- (3) Information about California solar energy system incentives; and
- (4) Information about the Go Solar California website.

**Table 1: Estimated Annual kWh Generation and Dollar Savings of a 1 kW Solar Energy System**

Climate Zone	Estimated Annual kWh/kWstc Generation	Estimated Annual Dollar Savings at Various Utility Electric Energy Rates				
		\$0.10/kWh	\$0.15/kWh	\$0.20/kWh	\$0.25/kWh	\$0.30/kWh
CZ01	1220 - 1475	\$122 - \$148	\$183 - \$221	\$244 - \$295	\$305 - \$369	\$366 - \$443
CZ02	1420 - 1660	\$142 - \$166	\$213 - \$249	\$284 - \$332	\$355 - \$415	\$426 - \$498
CZ03	1515 - 1885	\$152 - \$189	\$227 - \$283	\$303 - \$377	\$379 - \$471	\$455 - \$566
CZ04	1560 - 1920	\$156 - \$192	\$234 - \$288	\$312 - \$384	\$390 - \$480	\$468 - \$576
CZ05	1570 - 1965	\$157 - \$197	\$236 - \$295	\$314 - \$393	\$393 - \$491	\$471 - \$590
CZ06	1590 - 1980	\$159 - \$198	\$239 - \$297	\$318 - \$396	\$398 - \$495	\$477 - \$594
CZ07	1545 - 1940	\$155 - \$194	\$232 - \$291	\$309 - \$388	\$386 - \$485	\$464 - \$582
CZ08	1565 - 1965	\$157 - \$197	\$235 - \$295	\$313 - \$393	\$391 - \$491	\$470 - 4590
CZ09	1570 - 1870	\$157 - \$187	\$236 - \$281	\$314 - \$374	\$393 - \$468	\$471 - \$561
CZ10	1560 - 1880	\$156 - \$188	\$234 - \$282	\$312 - \$376	\$390 - \$470	\$468 - \$564
CZ11	1595 - 1905	\$160 - \$191	\$239 - \$286	\$319 - \$381	\$399 - \$476	\$479 - \$572
CZ12	1670 - 1975	\$167 - \$198	\$251 - \$296	\$334 - \$395	\$418 - \$494	\$501 - \$593
CZ13	1705 - 2000	\$171 - \$200	\$256 - \$300	\$341 - \$400	\$426 - \$500	\$512 - \$600
CZ14	1790 - 2140	\$179 - \$214	\$269 - \$321	\$358 - \$428	\$448 - \$535	\$537 - \$642
CZ15	1755 - 2085	\$176 - \$209	\$263 - \$313	\$351 - \$417	\$439 - \$521	\$527 - \$626
CZ16	1560 - 1860	\$156 - \$186	\$234 - \$279	\$312 - \$372	\$390 - \$465	\$468 - \$558

Note: The estimated annual kWh/kWstc generation values are from calculations using the Solar Offset Program Calculator, which is based on the California Energy Commission Photovoltaic (CECPV) model. The actual performance of a solar energy system will be based on numerous factors, including but not limited to, the available solar insolation at the specific geographic location, the azimuth and tilt of the solar energy system, shading conditions at the specific location, and system loss factors. The estimated annual dollar savings are based on a flat utility electric energy rate rather than a tiered rate. The actual dollar savings will be based on the utility electric energy rate structure, the overall electricity consumption of the home, and the amount of energy produced by the solar energy system. The values in the table should not be interpreted as a guarantee of solar energy system performance nor should the values be used as the sole basis for purchasing a solar energy system. Prospective home buyers interested in purchasing a solar energy system are encouraged to obtain a site specific estimate of annual energy generation and dollar savings. Prospective home buyers are encouraged to visit the Go Solar California website: [www.gosolarcalifornia.org/tools/calculators.php](http://www.gosolarcalifornia.org/tools/calculators.php), to view a number of online calculators that have been developed to help make a decision on going solar.

The Energy Commission climate zone map is located at: [www.energy.ca.gov/maps/building\\_climate\\_zones.html](http://www.energy.ca.gov/maps/building_climate_zones.html)

(b) **Reporting Requirements.** A seller of production homes who elects to offer solar as an option to prospective home buyers shall report the following information to the Energy Commission on an annual basis:

- (1) Legal description of the proposed subdivision identified on the Tentative Subdivision Map and, where applicable, the legal description of the portion or phase of the total area encompassed by the Tentative Subdivision Map that is covered by any Phased Final Map(s);
- (2) Total number of planned homes identified on the Tentative Subdivision Map and, where applicable, the total number of planned homes identified on the portion or phase of the total area encompassed by the Tentative Subdivision Map that is covered by any Phased Final Map(s);
- (3) Utility territory of development;
- (4) Number of homes sold in the development in the reported year;
- (5) Number of homes where the solar option was installed in the reported year;
- (6) Average capacity (in AC kW) and average total installed cost of solar energy system option installed in the reported year; and
- (7) If any solar energy systems installed in the reported year received an incentive, provide information about the incentive program(s), number of solar energy systems that received an incentive, and average dollar amount of incentive.

(c) **Verification of Compliance.** Sellers shall report this information to the Energy Commission by May 1 of each year for the previous calendar year. Information reported to the Energy Commission may be made available to the public.

- (1) The reported information shall be endorsed by a principal or corporate officer of the seller's company under penalty of perjury; and
- (2) The "solar as an option" disclosure shall be made available to prospective home buyers at the sales office and on the seller's website. The Energy Commission reserves the right to review the solar as an option materials disclosed to the prospective home buyer.

Authority cited: Public Resources Code Sections 25213, 25218(e), 25218.5, 25405.5(b) and 25783(b)

Reference: Public Resources Code Sections 25405.5(b) and 25783(b)

### **2703. Requirements for Solar Offset Program**

- (a) **Solar Offset Program Participation.** A seller of production homes who does not participate in the Homebuyer Solar Option Program shall participate in the Solar Offset Program by installing an offset solar energy system. The amount of electricity required to be generated by an offset solar energy system shall be equal to the amount of electricity generated by solar energy systems installed on a similarly sized project within the climate zone of the proposed subdivision to be offset, assuming 20 percent of prospective home buyers would have installed solar energy systems. To determine the number of homes to use for offset purposes:
- (1) The seller shall assume that “20 percent of prospective homebuyers” of planned homes identified on the Tentative Subdivision Map “would have installed solar energy systems”;
  - (2) If the Tentative Subdivision Map identifies less than 50 planned homes and the seller intends to file multiple Phased Final Maps, the number of homes identified on the Tentative Subdivision Map will be aggregated with the number of additional homes identified on any Phased Final Map(s);
  - (3) If the aggregate number of planned homes identified in the Tentative Subdivision Map and Phased Final Map(s) exceeds 50, then the number of additional homes identified on any subsequently filed Phased Final Map(s) will not be aggregated with the number of homes identified in the Tentative Subdivision Map or any previously filed Phased Final Map(s).
- (b) **Required TDV Energy Equivalency.** The electricity equivalency shall be calculated using TDV energy. The required TDV Energy Equivalency for the proposed subdivision being offset shall be based on the assumption that a reference solar energy system would have been installed by prospective home buyers had the proposed subdivision participated in the homebuyer solar option program. The requirements for the reference solar energy system are described in Section 2703 (d) of this article.
- (c) **Offset Solar Energy System.** Offset solar energy systems shall meet the following requirements:
- (1) **Solar Energy System.** Only solar energy systems composed of PV modules are eligible for the Solar Offset Program.
  - (2) **Interconnection Date.** Only solar energy systems interconnected to the utility grid on or after July 1, 2010, are eligible for the Solar Offset Program.
  - (3) **Location.** The offset solar energy system must be located within the same utility territory as the proposed subdivision being offset.
  - (4) **Maximum Capacity.** The maximum capacity (in kW AC) of an offset solar energy system shall not exceed 5 MW.

- (5) **Expected TDV Energy Calculation.** The expected annual TDV energy of an offset solar energy system shall be calculated by the Solar Offset Program Calculator version 1.0, and shall be equal to or greater than the required TDV energy equivalency of the proposed subdivision being offset.
- (6) **Major Solar Energy System Components.** All major solar energy system components shall be included on the Energy Commission's Eligible Equipment Lists. This includes PV modules, inverters, and meters.
- (7) **Field Verification.** The offset solar energy system shall successfully complete third-party field verification using the protocol described in Appendix 2 of the *Guidelines for California's Solar Electric Incentive Programs (Senate Bill 1) Third Edition*, June 2010, Energy Commission Publication number CEC-300-2010-004-CMF, which is hereby incorporated by reference.
- (8) **Initial Reporting.** Within 60 days of the adoption of these regulations, or interconnection of the offset solar energy system to the utility grid, whichever is later, the developer/seller shall provide the following information to the Energy Commission:
- (A) Written proof from utility of interconnection of the offset solar energy system to the utility's grid;
  - (B) Date of interconnection;
  - (C) Expected TDV energy calculation, for the offset solar energy system, as calculated by the Solar Offset Program Calculator version 1.0; and
  - (D) An executed written agreement by the developer/seller and the system owner identifying a specific PV system to be used for the Solar Offset Program. This written agreement shall include:
    - 1. Address location of the offset solar energy system;
    - 2. Total dollar amount the developer/seller contributed towards the installation of the offset solar energy system;
    - 3. Total installed cost of the offset solar energy system.
  - (E) The information reported to the Energy Commission may be made available to the public.
- (9) **Partial Funding of Offset Solar Energy System.** If the developer/seller pays for less than the total cost of a PV system to be used as an offset solar energy system, the developer/seller shall only be eligible to claim a fraction of the total annual expected TDV energy of the PV system as an offset credit. In this circumstance, the fraction of the total annual expected TDV energy eligible to be claimed as an offset

solar energy system shall be equal to the fraction of the total cost of the PV system paid by the developer/seller.

(10) **Use of Offset Solar Energy System to Offset a Future Subdivision(s).** An offset solar energy system may be used to offset multiple subdivisions, including, but not limited to, subdivisions at different locations, in accordance with Section 2703(e) of this article.

(d) **Reference Solar Energy System.** The reference solar energy system shall be based on the NSHP California Flexible Installation criteria which consists of the following:

(1) **Capacity.** Capacity shall be 2 kW AC.

(2) **Installation Characteristics.** The installation characteristics shall be based on the NSHP California Flexible Installation criteria which consist of the following:

(A) True azimuth of 170 degrees, assuming true north is zero degrees;

(B) Tilt of 22.6 degrees, equivalent to a 5:12 roof pitch;

(C) Mounting height from ground of 12 feet, equivalent to NSHP "One-Story";

(D) Fixed PV array; and

(E) Minimal shading.

(3) **PV Modules.** The reference solar energy system shall be composed of the most commonly used PV module in NSHP as of June 28, 2010.

(4) **Inverter.** The reference solar energy system shall be composed of the most commonly used inverter in NSHP as of June 28, 2010.

(5) **Expected Annual TDV Energy Calculation.** For each climate zone, the expected annual TDV energy of the reference solar energy system, as calculated by the Solar Offset System Program Calculator version 1.0, is shown in Table 2.

(A) **Per-home TDV Energy Equivalency.** The expected annual TDV energy in Table 2 represents the required TDV energy equivalency per home by climate zone in accordance with the Energy Commission climate zone map located at: [www.energy.ca.gov/maps/building\\_climate\\_zones.html](http://www.energy.ca.gov/maps/building_climate_zones.html); and

(B) Developers shall multiply the number of homes they are intending to offset by the appropriate TDV energy value, depending on the climate zone in which the proposed subdivision is located. The resulting value is the required TDV energy equivalency for the proposed subdivision being offset as specified in Section 2703 (b) of this article.

**Table 2: Expected Annual TDV Energy of Reference Solar Energy System**

<u>Climate Zone</u>	<u>Expected Annual kWh</u>	<u>Expected Annual TDV Energy</u>
<u>CZ01</u>	<u>2927</u>	<u>43596</u>
<u>CZ02</u>	<u>3303</u>	<u>48686</u>
<u>CZ03</u>	<u>3735</u>	<u>52314</u>
<u>CZ04</u>	<u>3809</u>	<u>54135</u>
<u>CZ05</u>	<u>3887</u>	<u>54289</u>
<u>CZ06</u>	<u>3921</u>	<u>55388</u>
<u>CZ07</u>	<u>3837</u>	<u>61446</u>
<u>CZ08</u>	<u>3883</u>	<u>54577</u>
<u>CZ09</u>	<u>3723</u>	<u>52270</u>
<u>CZ10</u>	<u>3737</u>	<u>52572</u>
<u>CZ11</u>	<u>3802</u>	<u>56055</u>
<u>CZ12</u>	<u>3942</u>	<u>56627</u>
<u>CZ13</u>	<u>3987</u>	<u>53539</u>
<u>CZ14</u>	<u>4262</u>	<u>57345</u>
<u>CZ15</u>	<u>4164</u>	<u>55408</u>
<u>CZ16</u>	<u>3712</u>	<u>55960</u>
<p><u>Notes:</u></p> <ol style="list-style-type: none"> <li><u>1. AC rating as calculated: 2.071760 kW, figures in table are scaled to 2 kW AC.</u></li> <li><u>2. Calculations performed with Solar Offset Program Calculator version 1.0.</u></li> <li><u>3. Calculated solar energy system composed of the most commonly used PV module and inverter in NSHP as of June 28, 2010.</u></li> <li><u>4. TDV multipliers from the 2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings.</u></li> </ol>		

(e) **Solar Offset Bank.** The Energy Commission shall manage the Solar Offset Bank which allows participants in the solar offset program to aggregate their offset solar energy systems and apply those systems to multiple subdivisions, including, but not limited to, subdivisions at different locations.

(1) **Eligibility.** Any offset solar energy system that satisfies the requirements of Section 2703(b) of this article shall be eligible to be used in the Solar Offset Bank.

(2) **Deposits Into the Solar Offset Bank.** A developer/seller shall notify the Energy Commission in writing if they wish to enter an offset solar energy system into the Solar Offset Bank by reporting the following information:

- (A) Name of Developer/Seller;
- (B) Capacity of Offset Solar Energy System (in kW AC);
- (C) Expected Annual TDV Energy from Offset Solar Energy System;
- (D) City/Location of Offset Solar Energy System;
- (E) Utility Territory of Offset Solar Energy System; and
- (F) Interconnection Date of Offset Solar Energy System.

(3) **Withdrawals From the Solar Offset Bank.** A developer/seller shall report the following information to the Energy Commission when they wish to apply an offset to a proposed subdivision and make a withdrawal from the Solar Offset Bank:

- (A) Legal description of the proposed subdivision(s) being offset, and, where applicable, legal description(s) of the portion(s) or phase(s) of the total area encompassed by a Tentative Subdivision Map(s) that is covered by any Phased Final Map(s);
- (B) Date Offset System was Applied to Proposed Subdivision(s);
- (C) Total number of homes in proposed subdivision(s), that are being offset; and, where applicable, the total number of planned homes identified on the portion(s) or phase(s) of the total area encompassed by a Tentative Subdivision Map(s) that is covered by any Phased Final Map(s);
- (D) Number of Homes Being Offset (20% of Homes in the Proposed Subdivision); and,
- (E) Climate Zone of Subdivision Being Offset.

(4) **Calculating Balance.** After each request from a developer/seller, the Energy Commission shall report the following information in writing to the developer/seller:

- (A) Required TDV Energy Equivalency per Home for the Proposed Subdivision Being Offset;
- (B) Required TDV Energy Equivalency for the Proposed Subdivision Being Offset; and
- (C) Balance (Expected Annual TDV Energy).

- (f) **Annual Reporting.** If there is a positive expected annual TDV energy balance for an offset solar energy system, the developer/seller shall report to the Energy Commission by May 1 of each year the kilowatt-hour generation of the offset solar energy system for the prior calendar year. Information reported to the Energy Commission may be made available to the public.

Authority cited: Public Resources Code Sections 25213, 25218(e), 25218.5 and 25405.5

Reference: Public Resources Code Sections 25405.5

#### **2704. Future Ordinances Requiring Solar**

- (a) In the event that any California city, county, or other governing political subdivision, requires the installation of solar energy systems on production homes at a future date, such a requirement shall supersede the provisions of this article.

Authority cited: Public Resources Code Sections 25213, 25218(e), 25218.5 and 25405.5

Reference: Public Resources Code Sections 25405.5