# Electric Utility Billing with Solar in PG&E Territory

As shown in Figure 1, electricity rates in California have gone up an average of 5.4 percent per year between 1970 and 2010. There is no indication that this increase will not continue; in fact, many industry observers feel that given the continual rise in electricity demand, the aging electric grid, California greenhouse gas emission policies and unrest in the Middle East, electricity rates will likely continue to rise in the future faster than the background rate of inflation (consumer price index).
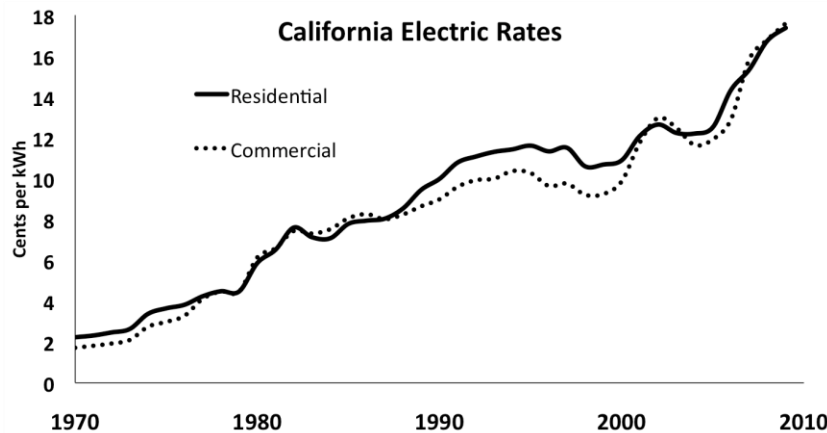
Sources: Energy Information Administration, PG&E

Figure 1. California Electricity Rates, 1970-2010

A solar photovoltaic (PV) system will generally make good economic sense if a homeowner's monthly electric bill is $100 or more. California was the first state to enact a net-metering law in 1995. Currently, 47 states plus Washington, D.C. have net-metering laws on the books. Canada, EU countries, Japan and Australia also have net-metering laws.

Net Energy Metering (NEM 1.0 vs. 2.0)

Through PG&E's Net Energy Metering (NEM), customers get retail credit for energy that is generated by their PV system. Customers can also build up credit against future consumption at retail rates for electricity.

Most non-solar homeowners are on a utility-rate schedule or billing plan, called E-1. This plan charges customers for usage without regard to time of day or day of the week. California law (AB 58) requires utilities to allow homeowners to sign up for net metering, if they install a renewable energy system. Under net metering, the power generated locally is used to power residential loads; any excess load that the PV system cannot supply is powered from the grid; and any excess power that the PV system generates is sent back to the grid to be used in other locations.

Each month PG&E provides PV owners a statement documenting the running totals for kilowatt hour (kWh) and dollars. Once a year, on the PV system installation anniversary, the meter is read by the utility and the homeowner is presented with a "true-up" bill.

As of Dec. 15, 2016, NEM 1.0 is closed and solar customers interconnected after Dec. 15, 2016, will be put on the NEM 2.0 billing program. The change is due to the fact that 5 percent of peak electricity capacity is supplied by solar in PG&E territory. For more information on the NEM billing program and NEM 1.0 vs. NEM 2.0, visit pge.com/nemcap.

The key changes for NEM 2.0 that do not apply to NEM 1.0 are:
- Electricity used by the customer that is supplied by the grid (i.e. when the meter goes forward) will be subject to the state-mandated, non-bypassable charge, which currently is 2.3 cents per kWh. These charges typically range between $10 and $20 a month, and are used to support efforts such as public goods programs, energy-efficiency research and rebates and nuclear decommissioning.
- There is a one-time $145 electric meter fee.
- It is required that solar customer select a time-of-use electric rate, such as ETOU-A, ETOU-B or EV-A (the latter is only available to those with an electric vehicle). In most cases, an EV-A rate schedule generates the most dollar credits.

As of January 2020, listed below are the PG&E residential electric rate schedules and an overview of how these relate to solar NEM billing. For details on each rate schedule, see PG&E rate schedule documentation or consult with a Cobalt Power System Designer.

PG&E residential electric rate schedules:

- **E1:** Non time-of-use. E1 is no longer an option for NEM 2.0 solar customers.
- **E6:** On-peak times are 1 PM - 7 PM. The E6 schedule is closed to new customers as of May 31, 2016. Existing customers on E6 can keep it through 2022, and then the currently approved California Public Utilities Commission (CPUC) plan requires customers to transition to another rate schedule.
- **EV-A:** On-peak times are 2 PM- 9 PM. The EV-A rate schedule is closed to new customers as of July 1, 2019.
- **ETOU-A:** On-peak times are 3 PM - 8 PM. ETOU-A rate schedule is closed to new customers as of January 1, 2020.
- **ETOU-B:** On-peak times are 4 PM - 9 PM.
- **ETOU-C:** On-peak times are 4 PM - 9 PM.
- **EV-2A**: On-peak times are 4 PM - 9 PM.

Southwest- and west-facing PV arrays typically generate high dollar credits due to peak afternoon solar generation. South-facing PV systems typically generate the most kWh and also perform well.

Generally the E6 rate schedule will generate the most dollar credits with solar and the EV-A rate is second best. The ETOU (options A or B) and E1 rate schedules generate similar financial value with solar. Typically ETOU-A is slightly better than E1 or ETOU-B depending on the PV system size, orientation and how much electricity is generated and used at various time periods. To compare rate plans, visit pge.com or Google "compare PG&E residential electric rate plan options." Another method is to download the PG&E Tool Kit app on a smartphone or tablet to analyze the relative financial benefits of choosing one rate schedule over another.

Customers with smart meters can switch rate schedules twice in the first 12 months for free by going online to your PG&E account at pge.com or calling 1-800-743-5000. For more information on NEM billing, visit pge.com/en/myhome/saveenergymoney/solar/nembill.page. Solar customers with NEM billing questions can also call PG&E's NEM Billing Department at 1-877-743-4112.

For solar customers who generate more kWh per year than is used (also known as Net Surplus Compensation), PG&E pays about 3 to 4 cents per kWh for the excess.

With NEM billing there is a minimum monthly energy charge of about $10 that must be paid, even when the dollar credits generated by solar exceed electric use.

With the combination of a well-designed PV system, time-of-use metering and some conservation efforts such as changing incandescent lights to LEDs, a homeowner or business can significantly reduce their monthly electric bill and help the environment at the same time. Installing an energy storage system can also help to reduce electric bills and power the home in case of an outage.