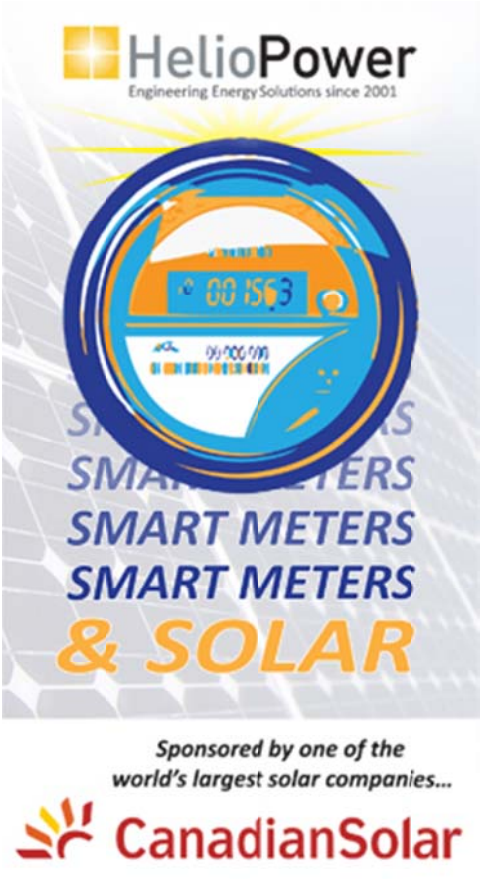
Smart Meters and Solar

10 Things to Know to Lower Your Electric Bill



Millions of smart meters are being installed on homes across California.

Mandated by the California Public Utilities Commission (CPUC), all investor owned utilities including Southern California Edison, Pacific Gas & Electric and San Diego Gas & Electric are installing smart meters at residential and business customer properties. Smart meters are the residential point of information gathering for the energy evolution called the smart grid.

While most homeowners are familiar with the installation of a smart meter on their residence, many need more information about its impact on their electric bills and the ability to lower their electricity costs with solar in this new "smart grid" world.

1. **Definition of a smart meter**
   Smart meters are digital devices that record the amount of energy you use in your home and send this information to the utility company. Smart meters are the digital replacements of their predecessors, the old analog meter. They have a digital display and are about the same size as the old analog electricity meter.

   The new electric meters provide two-way communication between your home and the utility. The meters using secure wireless network technology. The utility uses the information from the smart meter to calculate your energy use and your electricity bill.

2. **Why the utilities are installing smart meters**
   Utility companies around the world are installing smart electric meters for many reasons. Those include efficiencies related to remote meter reading, fixing service disruptions remotely and as a first step in the adoption of smart grid technologies. One of the most critical reasons to adopt smart meter technology is to match consumption with time of use.

   Traditional analog meters track total consumption. New smart meters allow the utilities to track when the energy is used in the household and thus match time of use with amount of electricity consumed.

3. **Who will receive smart meters in California**
   By 2012, every electricity consumer of the big three IOUs will have smart meters. Source CPUC April 2009.

4. **How the CPUC envisions smart meters will reduce energy use**
   Smart meters track electric use by the hour. The goal is to help consumers understand their electrical and gas usage so they can make decisions to reduce and control energy costs**.**

   From the CPUC website: The California Public Utilities Commission (CPUC) has authorized the state's investor owned utilities to replace conventional customer meters with Smart Meters in order to give consumers greater control over their energy use. Smart Meters enable a utility to provide customers with detailed information about their energy usage at different times of the day, which in turn enables customers to manage their energy use more proactively.

   The benefits of Smart Meters to customers, the state, and utilities, include:

   - Allows for faster outage detection and restoration of service by a utility when an outage occurs and therefore, less disruption to a customer's home or business.
   - Provides customers with greater control over their electricity use when coupled with time-based rates, increasing the range of different pricing plans available to customers and giving them more choice in managing their electricity consumption and bills.
     - Smart Meters enable a utility to measure a customer's electricity usage in hourly increments.
     - If a customer elects to participate in time-based rates offered by the utility, they have the opportunity to lower their electricity demand during "peak" periods (the peak period for most utilities are summer afternoons) and potentially save money on their monthly electric bill.
   - Allows customers to make informed decisions by providing highly detailed information about electricity usage and costs.
   - Helps the environment by reducing the need to build power plants, or avoiding the use of older, less efficient power plants as customers lower their electric demand.
   - Increases privacy because electricity usage information can be relayed automatically to the utility for billing purposes without on-site visits by a utility to check the meter.
   - Smart Meters are the first step toward creating a Smart Grid in California.

5. **Smart meter online utility resources**
   The utilities have a wealth of information and in many cases, easy to watch videos, online:
   - San Diego Gas & Electric, "Smart Meter": http://www.sdge.com/smartmeter/
   - Southern California Edison, "SmartConnect": http://www.sce.com/CustomerService/smartconnect/default.htm

- Pacific Gas & Electric, "SmartMeter Technology": http://www.pge.com/myhome/customerservice/smartmeter/

6. **How a smart meter works**
   A smart meter tracks hourly use of electricity and for some utilities gas as well, in the home. It then sends the data via wireless technology to the utility.

7. **How you can measure your power consumption with a smart meter**
   Your new electric meter records your kilowatt hour usage to date.

   Utility customers with smart meters can access their energy usage through their account information on line and by reading their meter on site. On average the smart meters automatically scroll through different displays. Each display remains on screen for three to five seconds. The screens and the amount of time vary slightly depending on whether you are in SCE, SDGE or PGE territory.

   Generally the screens read out your kilowatt hour usage to date. A kilowatt-hour (kWh) is 1,000 watts of electricity used for one hour.

   San Diego Gas & Electric: Smart meter scrolls through several different displays that will show your kilowatt-hour (kWh) usage, date, time, and other system and diagnostic information.

   Southern California Edison: The smart meter cycles through three different screens. The first screen displays electricity usage. The other two screens are for the use of the utility.

   Pacific Gas & Electric: There are two different types of meters in use in the PG&E territory. Information for how to identify which type of meter you have and the information displayed can be found online here.

8. **How a smart meter affects your energy bill**
   The impact of the new smart meter on your electric bill will vary. Homes with older analog meters will see the highest potential increase in electric rates. The mechanical analog version can slow down over time. Its recording of your electric use can get more inaccurate as its mechanism becomes older. When the new, digital version replaces the old analog meter then your electrical use is more accurately captured and billed.

The electric smart meter records and communicates hourly use of electricity. This is called time of use or TOU. Commercial companies are billed with time of use fees. This fee structure matches the use of electricity with the time it is used. Electricity used during the highest demand periods of the day are billed at the highest rates.

Who pays for the smart meter installations?

Information from SCE: Edison SmartConnect is a $1.6 billion program authorized by the California Public Utilities Commission. Edison SmartConnect is expected to contribute an approximate 1.6 percent increase in customer rates during the installation timeframe. This slight increase, expected to take effect this year, will not be applied as a line item to customer bills. Rather it will be incorporated in the overall electricity rate. Customers can more than offset this cost by actively participating in new smart meter programs and services designed to help save energy and money.

Information from SDG&E: Just like the current meters, the cost is part of the overall bill. The cost for smart meters, as with all meters or equipment purchased by SDG&E, is part of regular business expenses and is recovered in rates.

At its peak, the cost is approximately $2.50 per month. However, there is not a separate line item for smart meters on the SDG&E bill, and this cost will diminish over time.

9. **Smart meters and solar**

   In most utility regions, smart meters do now record the energy production of your solar power system. For example, according to its website, smart meter installations for San Diego Gas & Electric customers with solar/net energy metering systems began in November 2010.

10. **Solar becomes "an even more valuable" strategy to offset energy consumption in a smart meter world**

    Helen Priest, Director of Emerging Markets, PG&E, at Greentech Media Summit, 2011…
    "TOU pricing (via smart meters) for residential will be implemented completely by 2014. You will see a 'significant shift in consumer pricing' where solar becomes even more valuable as part of the mix and need from consumers in TOU environment. "