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## 'Smart' Electric Utility Meters, Intended to Create Savings, Instead Prompt Revolt

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WASHINGTON — Millions of households across America are taking a first step into the world of the ["smart grid,"](#) as their power companies install meters that can tell them how much electricity they are using hour by hour — and sometimes, appliance by appliance. But not everyone is happy about it.

Customers in California are in open revolt, and officials in Connecticut and Texas are questioning whether the rush to install meters benefits the public.

Some consumers argue that the meters are logging far more kilowatt hours than they believe they are using. And many find it unfair that they will begin to pay immediately for the new meters through higher rates, when the promised savings could be years away.

Power companies say the meters will allow utilities to vary the price charged to their customers by the hour to correspond to what those utilities are paying for energy in the wholesale market. This can help consumers save money, they say.

They also say the meters will be crucial to remaking the electric system to handle intermittent power sources like [wind turbines](#) and solar cells while continuously meeting customers' needs.

[Pacific Gas & Electric](#), which distributes power to Northern and Central California, has so far [installed](#) four million meters in households and businesses and plans to install six million more within the next three years. The meters cost the utility roughly \$220 apiece, including installation.

Elizabeth Keogh, a retired social worker in Bakersfield, Calif., who describes herself as "a bit chintzy," has created a spreadsheet with 26 years of electric bills for her modest house. She decided that her new meter was running too fast.

Ms. Keogh reported to the utility that the meter recorded 646 kilowatt-hours in July, for which she paid \$66.50; last year it was 474 kilowatt-hours, or \$43.37.

At a [hearing](#) in October organized by her state senator, Ms. Keogh took out two rolls of toilet paper — one new, one half used up — and rolled them down the aisle, showing how one turned faster than the other. "Something is wrong here," she said.

Scores of electric customers with similar complaints have turned out at similar hearings. At one in Fresno, Calif., Leo Margosian, a retired investigator, [testified](#) that the new meter logged the consumption of his two-bedroom townhouse at 791 kilowatt-hours in July, up from 236 a year earlier. And he had recently insulated his attic and installed new windows, Mr. Margosian said.

At the urging of the state senator, [Dean Florez](#), Democrat of Fresno and the chamber's majority leader, and others, the California Public Utilities Commission is moving to bring in an outside auditor to determine whether the meters count usage properly.

In response to a wave of complaints from the Bakersfield area in the Central Valley, Pacific Gas & Electric has been placing full-page advertisements in newspapers in the area promising benefits from the new meters. It says customers will save money not only by paying rates based on hourly fluctuations in the wholesale market, but also eventually by displaying real-time rates.

To reduce their bills, customers could cut back at pricey peak times and shift some activities, like running a clothes dryer or a vacuum cleaner, to off-peak periods. Utilities will then have lower costs, the argument goes, because the grid will need fewer power plants as demand levels out.

Customers will become "structural winners," said Andy Tang, senior director of the company's Smart Energy Web program.

Someday utilities hope to use the meter to control consumption by major appliances like air conditioners. But experts are still debating what technical standards the meters and appliances should use to communicate.

While the costs of installing the meters is substantial — \$2.2 billion in the case of PG&E — the utility reaps some immediate benefits that eventually will be passed along to the consumer.

The most obvious one is that utilities can eliminate their meter readers, along with an expenditure of 50 cents to a dollar to read each meter every month. And with smart meters, utilities are alerted immediately if a customer's power is out.

If a utility decides to shut off a customer for nonpayment, it can do so by remote control; if the customer pays enough money to allow resumption of service, the utility can also do that from a central office without sending out a representative.

PG&E attributes the higher bills that some consumers complain about to recent rate increases and to quirks in California's pricing system. Electricity in the state is priced in so-called tiers: consumers get the first few hundred kilowatt-hours at a low rate, but the next few units of consumption are billed at a high rate. A small increase in use can therefore result in a big increase in the bill, the utility says. It adds that an unusually high number of very hot days were recorded last summer.

But people in other parts of the country are also wary of the meter switch. Attorney General [Richard Blumenthal](#) of Connecticut frets that consumers could be shouldering the costs of the transition long before they realized the savings.

"The major benefits come in the second and third stages," Mr. Blumenthal said, referring to instantaneous rate information, the ability to adjust use and the prospect of developing appliances that can be set to switch on or off when the meter announces that prices have reached a certain level.

So Mr. Blumenthal has helped persuade regulators in his state and [Connecticut Light & Power](#) to scale back a plan for widespread installation of smart meters, and to run [a pilot program](#) first.

In Texas, where state law encourages installation of smart meters, the [public utility counsel](#), a consumer

advocate, got the utilities to agree to pay tens of millions of dollars for public education and to subsidize the cost of an in-home display to give an instantaneous price in low-income households.

(While meters in Texas will bill customers based on time of day, the utilities do not routinely provide the indoor hardware that furnishes such information.)

Complicating the transition, the widespread introduction of smart meters comes amid a [recession](#) and a decline in electricity demand.

Two years ago, experts agree, it was cheaper to persuade 100,000 customers to each use two kilowatts less energy at any given moment than for a utility to build and run a 200-megawatt power plant.

But today, reining in energy consumption is less of a corporate priority: generating capacity is in surplus in almost all parts of the United States because the recession has shuttered so many factories. And in swaths of the eastern United States, the wholesale price difference between peak and off-peak demand is far smaller lately.

The long-term impact of the smart meters is uncertain. Some studies show that people use less electricity when they can see the numbers ticking higher on the meter.

Among residential customers who volunteered for a test program in California last summer, 70 percent saved money and 97 percent said they were satisfied with the program and wanted to stay in it, Mr. Tang of PG&E said.

Yet of about a million customers with smart meters at the time, only 24,000, or 2.4 percent, chose to take part in the test program.

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