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Energy

## Smart Meters: Not So Sharp For Consumers

Andy Stone, 10.21.09, 7:40 PM ET

"Business? That's easily defined," wrote Alexandre Dumas. "It's other people's money." Utility companies appear to have taken Dumas' words to heart when it comes to the smart grid.

Power companies across the U.S. have installed millions of home smart meters, devices that promise to intelligently cut power use, trim electric bills and ultimately cut greenhouse gas emissions.

However, at the outset, the only sizable economic benefits are likely to be for the utilities themselves, not consumers, who are paying for the gizmos through higher utility rates. Mother nature is likely to get a fraction of the promised benefit.

Utilities get a good deal on smart meter investment. The meters send power usage information directly to power companies via the Internet or wireless networks, replacing human meter readers. Utilities can also use the meters to remotely turn off power when a customer moves out or fails to pay bills, or automatically reroute electric power when a storm knocks out power lines.

Such operational savings cover about 70% of smart meter investment, according to the California Public Utilities Commission. California's three major utilities have installed a million smart meters since 2006 and plan to have all homes wired by 2012.

But "the power companies are spending on rate payers' account," says Nancy Brockaway, a utilities attorney and former counsel with the New Hampshire Public Utilities Commission. Rate payers foot the bill for the meters through higher utility bills. "Utilities don't have much skin in the game," she says.

What do consumers get for their smart grid investment? Apparently, not much.

"In terms of energy efficiency and conservation, just installing a smart meter isn't going to have much effect," says Greg Guthridge, a smart-grid consultant with Accenture.

Utility customers only save money when smart meters help them to cut their energy use. A good way to do that is by raising the price of electricity when demand is high, such as during the middle of a summer day, when high rates of air-conditioning use push the electric grid to capacity.

Under such a scenario, known as dynamic or real-time pricing, it's expected that customers will turn up the temperature of their air conditioners a few degrees to save money. Consumers might choose to run their washing machine late at night when demand is lower and save even more. Smart meters feed pricing information to power customers through online power monitoring programs such as diverse offerings from Tendril and General Electric.

But utilities have signed up few customers for real-time pricing. Just 1% of smart meter-equipped homes in California have such programs, according to the California PUC. In Illinois, ComEd, part of Exelon, plans to put 8,000 customers on real-time pricing among the 131,000 homes it plans to equip with smart meters by next year.

"You'd be led to believe that you put in real-time pricing and a nice Web site and immediately get a 15% reduction in energy use," says Accenture's Guthridge. "But reality is quite different," and big hurdles remain in getting customers, most of whom are accustomed to pay little attention to their power bills, to micromanage their energy use and accept energy market price risk.

About half of U.S. homes are on equalized billing programs that even out power bills month to month and are the antithesis of real-time pricing programs. "These customers have zero ability to connect their usage to real-time pricing," says Guthridge.

Smart appliances could automate some efficiencies. For example, advanced thermostats could turn down ventilation systems based on price signals from utilities, while dishwashers would know to operate only in the wee hours of the morning. But in a Catch-22 scenario, shelling out for such appliances would only raise consumers' price for harvesting cost savings.

And demand response will likely be a tough sell in very deregulated electricity markets such as Texas, where customers can

choose from dozens of power retailers that compete by offering the lowest, most predictable energy prices.

One possible solution to get more homes on dynamic pricing: Make it the default energy billing system, as it is for commercial and industrial customers in most parts of the country.

Not all customers need to sign up for advanced pricing schemes for overall savings from operations and lower energy use to exceed the cost of smart meter programs, says Val Jensen, VP of marketing and environmental programs at ComEd. But it isn't yet clear how many customers will have to sign up for the smart grid to get to that point.

ComEd is working hard to make sure that smart meters benefit everyone involved. The 131,000-home smart grid test it is running in Illinois will offer customers a variety of dynamic pricing options, with the goal of understanding which options customers feel most comfortable with. Once ComEd identifies dynamic plans that seem to stick, it will petition the Illinois Commerce Commission with recommendations for system-wide rollout.

Until smart pricing evolves to match smart meters, consumers are unlikely to cut their energy use much, and greenhouse gas reductions--an additional advantage that has been promised to result from the smart grid--will likely be minimal.

An October report from the consulting company Brattle Group estimates that in Europe, it would cost 51 billion euros to wire the continent with smart meters. The overall benefits of such a program could reach 67 billion euros in operational efficiencies and energy savings if dynamic pricing becomes the default. That's an unlikely scenario in Europe, where energy markets are deregulated and there is little political will to force people off of comfortable utility programs. Without dynamic pricing, the payback for smart meter investments could be as low as 14 billion euros, the Brattle report concludes.

In the meantime, utility customers will see little reduction in their energy bills. "Meter benefits will depend on who steps up with pricing plans," says Exelon's Jensen.