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**The problem of “rational inattentiveness”**

To see why we’re not getting all we could out of smart meters, let’s first consider a major oddity — namely, that few of us have a clue how much electricity we’re using in our homes or what it costs (that is, until the bill arrives).

You know the drill: You use lots of appliances and devices in your home, from your flatscreen TV to your thermostat. You don’t really know how much electricity that consumes, or what your resulting bill is going to look like. But you probably know that a meter somewhere is tallying it all up in some alien unit called a [kilowatt-hour](http://www.duke-energy.com/pdfs/MyHER%20What%20is%20a%20Killowatt-Hour%20Energy%20Chart.pdf) or kWh.

The situation couldn’t be more different from another energy transaction we’re all familiar with — going to the gas station. Here, as you pump, you see gallons bought and cost incurred in real time. This transparency is precisely why everybody has been so focused on plunging gas prices lately. We expect them to prompt a big consumer response, as the [evidence suggests](http://www.nacsonline.com/YourBusiness/FuelsReports/GasPrices_2013/Pages/Consumers-React-to-Gas-Prices.aspx) Americans are [quite price sensitive](http://ns.umich.edu/new/releases/22650-u-m-survey-reveals-how-personal-concerns-income-shape-consumer-attitudes-about-energy) when it comes to gasoline.

Information about electricity costs might have a similar effect, if we received it in a convenient way. If consumers saw their meter running up and what it was costing in real time, they might be inclined to unplug a few appliances, adjust the thermostat, and so on (actions that, if widely adopted, could [substantially reduce U.S. greenhouse gas emissions](http://www.washingtonpost.com/news/energy-environment/wp/2015/01/22/the-next-energy-revolution-wont-be-in-wind-or-solar-it-will-be-in-our-brains/)).

“There’s no doubt in my mind that having knowledge and information about how much you’re paying is a big factor in deciding how much to use,” says [Ahmad Faruqui](http://www.brattle.com/experts/ahmad-faruqui), a smart grid analyst and principal with the Brattle Group in San Francisco. “If you get a bill a month later, it doesn’t help.”

For now, though, consumers largely remain “rationally inattentive” to how much electricity they’re using at home, explains David Rapson, an economist at the University of California at Davis. The information is just too obscure and difficult to obtain — and there are a lot of other ways to spend your day, as well as seemingly easier ways to save money.

**Show me the money**

Smart meters — 50 million of them now, more to come — have the potential to help fix this problem, by generating actionable information about people’s electricity use. So what’s missing? In short: Behaviorally savvy ways of connecting people with their smart meter data and making them more attentive to the cost of electricity.

And…

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**The missing pieces**

The key upshot is that significant energy savings, empowered by smart meters, might come from combining real-time information with dynamic pricing. But right now, it appears that most Americans don’t have either of these things — even if they do have a smart meter.

Deployment of in-home displays under the federal Smart Grid initiative is vastly lower than deployment of smart meters. Only [9,800](https://www.smartgrid.gov/recovery_act/deployment_status/ami_and_customer_systems) have been deployed thus far — versus 15.4 million government-installed smart meters.

“The widespread deployment of smart meters is an important step in giving consumers access to an unprecedented amount of information and increased control over their energy consumption,” said Energy Department spokesman Lindsey Geisler. “With increased interest and demand from consumers for more access to their own energy information, we anticipate industry and developers will respond with increased availability on more platforms — like smartphones and tablets.”

The private sector doesn’t seem much better: The 2013 survey by the Smart Grid Consumer Collaborative found that only 1 percent of Americans had “a device in your home that lets you monitor your home’s electricity usage using data from your smart meter.” One problem is cost — it’s not clear who should pay for these devices, the utilities or the consumer.

Something similar goes for dynamic or “smart” pricing — one of the great promises of the smart grid, and an idea that makes vast economic sense.

Smart pricing is based on the observation that consumers generally pay a fixed amount per hour for electricity, even as wholesale prices swing all over the place as demand waxes and wanes. If electricity prices reflected the actual cost of power, overall bills would go down because utilities could reduce their generating costs — but people would also pay more in situations of extreme demand, much like with surge pricing on the Uber app.

“We economists have been saying for decades and decades, a flat tariff for electricity and water doesn’t make sense,” says [Sebastien Houde](https://www.arec.umd.edu/people/faculty/s%C3%A9bastien-houde), an energy economist at the University of Maryland. “What we really need is something that reflects the cost of producing electricity at the moment you consume it.”

But if prices are going to become variable, the consumer has to have a way of knowing that. At present, only around [8 million Americans](http://www.edisonfoundation.net/iei/Documents/IEI_SmartMeterUpdate_0914.pdf) are able to participate in a “smart pricing” program that lets them save money by reducing their energy usage at certain peak times, according to the Edison Foundation’s Institute for Electric Innovation.

And still more radical savings may be possible, even beyond smart pricing. According to one group of behavioral researchers, the “holy grail” of getting people to think about (and subsequently use less) energy is so-called [disaggregation](http://web.stanford.edu/group/peec/cgi-bin/docs/behavior/research/disaggregation-armel.pdf) — not only providing information about how much total power they’re using in real time, but actually having that information broken down for every *home appliance*.

And…

Still, the American consumer may not be faring as well in this transition as those in some other countries. For instance, energy suppliers are rolling out 53 million smart gas and electricity meters [across Britain](https://www.gov.uk/government/policies/helping-households-to-cut-their-energy-bills/supporting-pages/smart-meters) from 2015 through 2020, with 1 million already installed. And according to the British Department of Energy and Climate Change, every single customer will be offered an in-home display.