

Smart Meters, Demand Response, & Low-Income Customers

Questions & Answers

WHAT IS DEMAND RESPONSE?

Demand response refers to the policy and business area whereby electricity customers reduce or shift their electricity use during peak demand periods in response to price signals or other types of incentives. At present, the vast majority of electricity customers are on flat, average rates that do not vary by time of day or season, no matter how much the cost to generate or deliver electricity fluctuates as demands on the system rise and fall. That, combined with the growth in the use of air conditioning—one of the highest demands during peak periods—has led to peak power demand growing faster than overall growth in electricity consumption. Rising peak demand is straining the electricity system and threatening the reliability of the power grid. It is also adding costs that all customers pay one way or the other, while leading to increased emissions.

WHAT IS A SMART METER?

A smart meter records the time of day that a customer uses electricity, as contrasted with a traditional meter which records only the total use over the course of the month. A smart metering system has two key features: time-based measurement and two-way communication. A smart metering system allows frequent data exchange between the meter and the utility, while also allowing customers to have timely and easily accessible information about their usage. In addition to enabling time-based pricing and other types of demand response, smart metering introduces other benefits to utilities and customers in the areas of customer service, system operations and outage management.

WHAT BENEFITS ARE THERE FOR CUSTOMERS FROM DEMAND RESPONSE?

Customers benefit from demand response in two ways. First, all customers benefit because demand response reduces the overall cost of operating the electric system. Second, those customers that reduce their electricity use during peak periods benefit through further reductions in their electricity costs by taking advantage of low off-peak prices. Technologies like smart meters enable demand response to take place. Smart meters and smart metering systems provide customers with new information that can help them better manage their electricity use. Such meters also allow them to take advantage of new rate options that can reduce their bills. They also allow utilities to restore power more quickly after outages and to offer better customer service overall.

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CAN LOW-INCOME CUSTOMERS BENEFIT FROM DEMAND RESPONSE?

Yes. Some have said that low-income customers would not benefit because they have less discretionary electricity use that can be shifted to off-peak periods. But others have said that low-income customers would benefit because they are more price sensitive than higher-income customers and therefore more likely to shift use to lower-cost periods. Still others have pointed out that under the present flat rates, low-income customers are actually subsidizing other users who have large A/C systems and other peak-intensive usage. To inform the debate on this question, a Statewide Time-Based Pricing Pilot in California studied the behavior of actual customers. The pilot found that, when provided with price signals, low-income customers reduced use during peak periods by 11%, as compared to the average for all customers of 13%.

SHOULD TIME-BASED PRICING BE MANDATORY FOR RESIDENTIAL CUSTOMERS?

No. The issue is more one of offering residential customers a time-based pricing option so that they have a new way to reduce their bills by taking advantage of lower off-peak prices. Customers at present have no choice other than flat, average rates, and on such rates customers are paying a premium to cover the extra costs that a utility must incur (i.e., building additional power plants) to be able to meet demand during peak periods. Customers deserve a choice that allows them to avoid that premium. Regulators and utilities also can take specific steps to protect low-income customers from undue cost impacts due to the cost of the utility investment. Such steps are normal for regulators to take when allocating utility costs to customer classes.

SHOULD SMART METERS BE PROVIDED TO ALL CUSTOMERS OR JUST SOME CUSTOMERS?

It makes the most sense to provide smart meters to all customers. The cost per meter is up to ten-times lower when smart meters are provided to all customers in a utility territory than when smart meters are provided on an ad hoc basis. This is due in part to economies of scale that come with a coordinated mass deployment but also because of the need for communications technology to allow smart metering. It is also important from the utility standpoint that all customers have smart meters because it allows a utility to reduce the costs and improve the reliability of their operations as well as to provide new services to all of their customers. Also, from the customer's standpoint, they should have the option to choose time-based pricing and get timely information about their usage. Such information has been shown to help in energy efficiency efforts even if the customer is not on time-based pricing.

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