



Welcome to the New World of the Interactive Energy Customer

EPRI hosted a remarkable conversation last month at our annual Summer Seminar—one in which we considered the many different trends that are changing almost every aspect of energy customers' actions and opportunities.

Compared with today's choices, the old customer model seems quaint. Deliver the power. Read the meter. Mail the check.

The entire relationship could be summarized through two basic transactions: someone delivers; someone pays.

Today's world is one of interaction. With our Summer Seminar theme of The Interactive Energy Customer, we discussed how, in the next five years, 85% of customers will manage business relationships without direct personal interaction.

Scan service options and status updates on your smartphone. Select those that serve your needs. Arrange payment via an app.

But that's just scratching the surface.



Mike Howard, President and Chief Executive Officer, EPRI

Customers now look beyond the transaction to consider aspects of the provider's energy portfolio, such as sustainability, cost, and reliability. Those who "drive electric" must locate and secure access to electrons. Those who integrate residential energy management with security and other systems will weigh cyber security. As more customers own distributed generation and energy storage, they become integral to utility operations, integrated resource planning, and long-term financial planning.

Customers' thinking will turn to both production and consumption, along with the dynamic markets and price structures that will drive both.

The customer's individual energy solutions now become seamless with grid support. Grid operators and customers become mutually dependent for much more than just delivery (by one party) and payment (by the other party). Their relationship could be linked to something as individual as rooftop solar panels or widened to a community's microgrid. Customers now become integral to providing the most reliable service at the lowest cost.

The humble and familiar water heater can be used to emphasize the contrast. Traditionally utilities deliver the electricity that heats the water and then collect the revenue. The utility can then add up the water heaters served and project growth in that number over time to plan additions to its generation portfolio and secure revenues to build and operate its growing system.

What we face today are customer choices for more efficient water heating (by installing heat pumps), on-site power production and storage, dynamic pricing to shift load/production, and computer interfaces to enable much more precise and sophisticated on-site energy management. The customer, the water heater, and the utility are interacting for a variety of reasons.

There is much more calculating to be done. Customers have a lot more shopping to do, and utilities face much more [complex planning](#) and operations—that must effectively account for complex technological and financial considerations.

All these interactions will feed on and produce unprecedented data streams that will drive actions in real time and for days, months, years, and decades ahead. Everyone will have skin in the game—up to and including information technology systems and equipment manufacturers. It will go far beyond, "Have your computer talk to my computer."

With data streaming from unprecedented numbers and varieties of grid components on both sides of the meter, EPRI foresees a necessary role for artificial intelligence and the extension of smart, secure technologies to every component of the

grid—including those on the customer side of the meter.

It is increasingly clear that all of this can enable unprecedented efficiency, reliability, and value to all parties involved, but the questions about how best to accomplish this will challenge everyone (on both sides of the meter) to protect privacy and keep components and systems secure.

For energy customers, EPRI often emphasizes six C's of value: choice, convenience, control, comfort, clean, and cost-effective. When we consider the accelerating changes in technology, the six C's remind us that we must continue to focus on three more C's: Keeping the customer at the center of the conversation.

Mike Howard



President and Chief Executive Officer, EPRI

[Watch](#) a video about the interactive energy customer.



[Watch](#) a video about EPRI's shared integrated grid concept, which imagines a future when customers' energy assets become shared energy solutions that enhance grid reliability, resiliency, and value for all.

