

intelligent utility. These applications do provide data and information to customers, but utilities need a way to gather and aggregate the data and combine it with other data from sensing devices. Using analytics to determine how customers respond to time-of-use and peak-period pricing will help utilities better understand how much peak demand they still need to offset to reduce brownout situations. In addition, utilities can use this information to further market demand response programs to other customers with similar demographics or to customers who are already starting to respond to those pricing signals. In all, decreasing

overall demand will help ensure energy availability, while deferring additional generation and reducing overloaded transmission needs.

Customer involvement through technology will ultimately give utilities the last pieces needed to complete the intelligent utility. Smart grids and intelligent utilities will not cure commuter traffic jams or the common cold, but can certainly make it easier to achieve and manage energy reliability and availability for all customers. That means everyone wins.

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Come in and take a load off

+ HOME ENERGY DISPLAYS CAN BEGIN A REAL-TIME CONVERSATION

By Craig Boice

➔ UTILITIES PROVIDE THEIR CUSTOMERS WITH METERS, BILLS AND CUSTOMER service. But the meters don't talk to the customers. The bills don't help much in figuring out how to use energy more wisely. Many utility customer service representatives lack the tools to tell customers much about household and appliance energy uses. Is there an easy way for utilities to begin a real-time conversation with their customers? The welcome many customers are giving to home energy displays suggests that customers are ready to welcome the grid into their homes.

Home energy displays are small, wall-mounted, countertop or plug-in devices indicating a household's energy use as well as a household's energy costs over a specified period. More than 20 models of home energy displays have been introduced in Europe and North America. Some do more than others, some are cheaper than others, and some are much easier to install than others. Early versions of home energy displays (e.g., Kill-A-Watt) have long been available at retail stores. Recently, several Canadian and American utilities have been testing and distributing home energy displays to their customers for free or at a discount (see sidebar: *Examples of utilities investigating home energy displays*).

Deployed home energy displays include the PowerCost Monitor (Blue Line Innovations), The Energy Detective (Energy, Inc.), the Whole House

● ● ● EXAMPLES OF UTILITIES ● ● ● INVESTIGATING HOME ● ● ● ENERGY DISPLAYS

- BC Hydro
- Energy Trust of Oregon
- Hydro One
- Louisville Gas and Electric Company
- NV Energy
- NStar
- Newfoundland Power
- Pacific Gas & Electric
- Progress Energy
- Sacramento Municipal Utility District
- San Diego Gas & Electric
- Southern California Edison
- Tennessee Valley Authority
- TXU

Energy Monitor (Energy Monitoring Technologies), the In-Home Display (AzTech), the Cent-A-Meter (Centameter) and the Energy Joule (Consumer Powerline). New devices are entering the market rapidly.

While home energy displays differ in their capabilities and ease of use, early reviews of these devices are encouraging. Customers like them and find them satisfying to use. Many types of home energy displays have been associated with 5 to 15 percent household energy savings in utility trials. For example, the much-cited 500-household Hydro One test indicated that home energy displays typically decreased energy use 6.5 percent, but households with electric space and hot water heating posted a 16.7 percent decrease.

Critics have been quick to point out that home energy displays have limitations. These devices do not offer billing-quality information. They are

in that wild territory on the “other side of the meter,” so they depend on customer operations and input. Most importantly, they make customers aware of energy usage, but they may not make them thoughtful.

THE VALUE OF AWARENESS

One alternative to home energy displays is the Internet. Some utilities sponsor Web sites that make energy use information and analytics available to customers who complete online energy audits. Advocates of these online experiences note that they are much more detailed and interactive than a home energy display. We would add that the computer-based experiences can also be more work than glancing at a display.

Let’s not underestimate the value of mere awareness. The home energy display functions at a glance, providing

a little bit of real-time, relevant information. Ideally, it doesn’t make you stop and think. It doesn’t make you work. Rather, it provides a little feedback in a casual conversation.

Customers in home energy display trials reported to us that, most often, they have glanced at the display, and then immediately turned off lights, unplugged an appliance or reset the thermostat. Customers also reported that once intrigued, they have identified the energy used by hair curlers, sound systems and refrigerators.

DON’T JUST STAND THERE

A great deal of household energy usage is mere waste. We leave lights on, ignore little “vampire” lights, open the window when the heat or air conditioning is on or leave appliances running when no one is in the room. The home energy display trials have taught us that consistent energy awareness delivered by

a dedicated little device is helpful, especially if the device is easy to get along with and can show us what thousands of little decisions cost. Months after their home energy displays first arrived, most trial customers reported that they still pay attention to their displays every day or every few days. Most of them would recommend similar devices to their friends.

WORTH A LOOK

Home energy displays may seem like a modest first step on the utilities’ road to the eventual home area network, but they are smart, useful, considerate—and engaging. Home energy displays can repay a little customer attention with a lot of savings and satisfaction.

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VISION

STRATEGY

REALITY

More than bits and bytes

+ PSE KEEPS FOCUSING ON STRONG “REAL-WORLD” CUSTOMER RELATIONSHIPS

By Bert Valdman

→ THE ENERGY BUSINESS HAS NEVER BEEN MORE CHALLENGING. UTILITIES must upgrade transmission and distribution infrastructure, produce green energy, drive energy efficiency and remain in compliance with evolving federal and state standards—all while controlling costs and maintaining reliability. That’s a tall order under any circumstance and even more daunting in a turbulent economy.

The smart grid offers many potential utility solutions to this formidable to-do list. New technologies promise better management of how energy is produced and used, gaining efficiencies that have never been possible before. Utilities, though, face two obstacles in making the most of new technologies—and neither of those obstacles has anything to do with the hardware or software that will be used.

First, data and information come from the same family, but the two aren’t the same. Turning data into actionable information comes with a steep learning curve that will likely mean we have to rethink some of our traditional ways of doing busi-

ness. Second, and even more critical, we risk losing touch with our customers if we turn them into bits and bytes and forget there are families, homes and communities that depend on the work we do.

As we move to the digital world, we need to stay part of the real world. Puget Sound Energy (PSE) and our own experience in moving to new technologies has taught us a lot about these issues. Over the last decade, we deployed more than 1.8 million wireless natural gas and electric meters, giving us greater and faster access to data on how our customers use energy. Instead of manually reading these meters every month, we now use a pole-top network to gather the data from the homes and businesses we serve across western Washington.

With a rapidly growing service area, the ability to read the meter remotely is increasingly valuable. Going to wireless data collection allows us to keep closer,