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SE Energy (A Special Report)
HD **Consumers --- In Search of Lower Sales: For an increasing number of utilities, the goal is to help companies buy less electricity, not more**

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LP At a food-equipment lab in San Ramon, Calif., technicians are putting some bread ovens through their paces. New models with digital controls and robust insulation are being tested against older, plainer ovens, and the technicians are recording the differences in energy consumption and functionality.

It's part of a broad effort by the Subway sandwich chain to use energy more efficiently at 30,000 Subway-branded restaurants. What's surprising, however, is these tests are happening at a facility of Pacific **Gas & Electric** Co., which puts the **utility** in the unusual position of helping a customer buy less of its product: energy.

TD The Food Service Technology Center is actually one of dozens of examples of ways that utilities are helping big and little customers reduce their energy consumption. The reason: Many **utility** companies are being pushed by state policymakers to reduce their carbon footprints, and the best way to do that is to encourage consumers to use less energy. In many states, funding of energy-efficiency programs also is growing because it's less expensive to reduce energy use than it is to pay for new power plants and fuel them. In California, utilities can earn a return for skillfully managing these programs that's roughly equivalent to what they are paid to build new generating capacity.

As a result, utilities are burrowing into companies like never before to make them more efficient users of energy. They are helping companies hone processes and redesign equipment. Some states give utilities financial incentives to carry out such programs, and most states require utilities to collect money from all customers -- in the form of bill surcharges -- that are funneled into programs to increase energy efficiency.

In Iowa, Interstate Power & Light is trying to help swine farmers cut their energy usage. David Warrington, senior technology and sales-support consultant for Cedar Rapids-based IPL, advises pig farmers regularly on energy issues. He says he's been stunned by the use of so many incandescent lights in the prefabricated livestock buildings that many of the farmers buy: as many as 1,200 bulbs per building. Mr. Warrington says he urges the builders and the purchasers of these confinement buildings to switch to compact fluorescent lights. An investment of about \$6,000, of which \$2,400 is returned in **utility** rebates, can save a farmer nearly \$10,000 a year in energy costs.

"It woke a lot of people up," says Mr. Warrington.

Ventilation systems are another important part of pig-farm operations. So, IPL conducted tests and found that many of the fans being used were, well, energy hogs. The **utility** began recommending what it saw as the most efficient models and offered incentives of \$45 to \$150 per fan or controller. The company also started working with the manufacturers to improve specifications.

"Every place we can put pressure, we put it," says Mr. Warrington. IPL's parent company, Alliant Energy, based in Madison, Wis., says it is trying to cut peak-energy use so that its expensive assets can meet consumer demand for a longer period of time.

Over in North Carolina, Duke Energy Corp. helped a big Budweiser beer distributorship with a makeover after the plant manager asked the **utility** about getting backup generators. After Duke

studied the facility's energy use, however, the distributor didn't need the generators anymore. It cut its energy bill significantly by creating a new energy-management system. This system includes efficiency lighting that only operates when workers are in that part of a warehouse, and it takes a new approach to keeping its beer cold -- using the chilled beer as a thermal mass, which eliminates the need to run chillers around the clock.

Here's how it works: Chillers are shut down on winter days from 6 a.m. to 1 p.m. and in the summer from 1 p.m. to 9 p.m. The beer warms so slowly that it remains at an acceptable temperature until chillers come back on again, reaping easy energy savings. If cartons are any colder than 60 degrees when loaded onto trucks in the summer, excessive condensation weakens the packaging, so a somewhat higher temperature actually is more desirable.

"The energy savings paid for the energy-management system for the plant," says Dean Molino, director of large-business strategy for Duke. The **utility** also did the engineering for the project, writing software for the computerized controls, and served as project manager for the installation.

"We're somewhat unique in that we act as the contractor," Mr. Molino says. "We think this is the future," he adds. Charlotte-based Duke is seeking special incentive pay from state regulators for playing a larger role.

In Vermont, most of the responsibility of helping companies cut energy use has been shifted to an organization called Efficiency Vermont, a nonprofit that operates under contract to the Vermont Public Service Board. Efficiency Vermont acts as a consultant to businesses and homeowners to help them find ways to cut their energy bills, and is funded by surcharges on the bills of customers of the state's nearly two dozen utilities. The group, formed in 2000, also provides rebates on purchases of energy-saving equipment or renovations that reduce energy use. Formerly, Vermont utilities themselves provided similar services. But to provide more uniform service for all of the state's 600,000 residents, Vermont Efficiency was created.

Vermont's utilities do retain some duties. Green Mountain Power, of Colchester, Vt., agreed to spend \$8 million extra on energy efficiency as a condition of regulatory approval for its acquisition by Montreal-based Gaz Metro in 2007. Now it's doing things with that money that will put Vermont ahead of some other states. It's selling heavily discounted energy-use monitors to customers for about \$40, a fraction of their actual cost, so they can track their energy use minute by minute and make adjustments in their use. That's a capability that won't be generally available in big states like Texas and California for a few more years.

On the other side of the country, where wine is king, PG&E was alarmed by rising energy use by wineries. That wasn't a total surprise since there are now about 2,600 wineries in California, up from about 500 in 1980. But the wine makers were consuming more than a third of the energy used by the state's food processors.

PG&E, like all California investor-owned utilities, is expected by state policy to meet new resource needs first through energy efficiency, then renewable energy and only then through building new power plants. These utilities have rate structures that reward them for cutting energy use, not for pushing energy sales. This contrasts with most states, where increasing power production and sales are a priority and few incentives exist for conservation.

Working with consultants and industry groups, such as the San Francisco-based California Sustainable Wine Growers Alliance, PG&E has conducted 15 workshops for more than 1,250 people involved in grape growing or wine making. Topics covered ranged from general energy efficiency and renewable energy to uses of biodiesel, a fuel that the **utility** doesn't even sell. Wineries and grape growers have launched hundreds of retrofit projects as a result, including insulating wine tanks and using electro dialysis instead of a process called cold stabilization to reduce tartaric acid in wine. Electro dialysis cuts energy use by more than 99%.

The wine industry is a perfect partner, says PG&E's wine program manager Patsy Dugger, "because in addition to being big energy users they're environmentally minded."

The same could be said of Deer Valley Unified School District in Phoenix, Ariz., which started working closely with Arizona Public Service three years ago to cut energy use at 37 schools and three support facilities, partly because certain state subsidies that helped with energy expenses were disappearing.

Arizona Public Service, a **utility** unit of Phoenix-based Pinnacle West Capital Corp., assigned a person to help the district figure out how to cut its heating and air-conditioning bill. APS account manager Usama Shami helped the district qualify for \$171,000 in rebates in 2006, \$233,000 in 2007, and \$300,000 this year, when the district hit a rebate ceiling that it's now trying to get lifted.

The district was reluctant at first to cooperate with Mr. Shami because of the initial increase in spending required to purchase new heating and cooling systems. But Mr. Shami says the attitude of district officials has changed dramatically now that they have seen the reduction in their energy costs. "Conservation is not a taboo subject anymore," Mr. Shami says.

Jim Migliorino, executive director of fiscal services for the school district in northwest Phoenix, says the school system has invested about \$8 million, some of which was spent on equipment that had to be replaced anyway. It's reaping \$250,000 to \$300,000 a year in energy savings now and is considering adding solar panels to the rooftops of five high schools.

Mr. Migliorino says Arizona Public Service helped the district figure out what to buy and how to put together a whole energy-management system. It also inspected the work as it was done, he says, "to make sure we got what we paid for, so they provided another check and balance with contractors."

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