



## Becoming more energy productive within the industrial sector

can spur job creation and cost savings. Midwestern companies are not just leaders in utilizing cutting-edge solutions and technology, but they are also the manufacturers of the new, efficient equipment that firms around the world are demanding in their efforts to be more energy productive.

This series will highlight those initiatives and companies that are leading the nation in energy productivity.

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REVITALIZING THE MIDWEST THROUGH  
INDUSTRIAL ENERGY PRODUCTIVITY

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**At Otter Tail Power Company, a utility in the upper Midwest,** energy conservation is a two-way street: both the company and its customers have a role to play. Otter Tail offers customers both energy efficiency and demand-side management programs. Through its demand-side management program, Otter Tail partners with its customers to minimize electricity loads during peak hours, saving money for the customers and maximizing efficiency by delaying the need for new resources to be built.

Otter Tail began generating power in 1909 with a dam on the Otter Tail River near Fergus Falls, Minnesota. Company president, Chuck MacFarlane noted in a 2010 report, "In those days, electricity did little more than light the home and provide power for washing clothes a few hours on Mondays." Today, Otter Tail's 800 employees provide electricity for nearly 250,000 people—both residential and commercial customers—in a large service area that stretches from Garrison, North Dakota, east to Bemidji, Minnesota, and south to Milbanks, South Dakota. About two-thirds Otter Tail's generating capacity comes from coal power, with a double-digit share coming from wind farms and a smaller share from hydroelectric plants.

"We believe that an electric utility should share its employees' expertise with its customers and communities," Otter Tail says. "We strive to offer customers proven energy efficient technology options, rate information to help them calculate their operating costs, and energy conservation options that best suit their personal goals and needs."

**Efficient Partnerships.** Demand-side management has become one of Otter Tail's signature energy efficiency programs in all three of the states where it operates. One of the largest components of the program is load management, under which Otter Tail partners with customers to "interrupt" consumer load at times of peak energy consumption. When electric demand is high—for example, during an extreme weather event or heatwave—a radio signal activates a switch in the customer's energy system, turning off certain equipment and restoring it when demand has normalized. Customers who participate in this sort of program enjoy electricity rates at about half the standard rate.

Otter Tail also promotes technologies that shift peak load demand to off-peak periods. Applications of this sort of load management include space heating, water heating storage, cool storage systems and devices that limit electricity loads in energy management systems. Today, 30 percent of Otter Tail's customers participate in some kind of demand-side management program.

Load management is just one part of Otter Tail's demand-side management portfolio. It also has energy efficiency plans in Minnesota and South Dakota, collaborating with its customers to achieve savings through replacement of less efficient equipment—lighting, high-efficiency HVAC systems, building design modifications, and heat recovery systems. "In terms of participation, our commercial and industrial programs have higher participation," says Kim Pederson, manager of market planning at Otter Tail. "We always encourage customers to look at their lighting systems first. Efficient lighting has a faster payback than most other technologies."

Otter Tail became aggressive about energy efficiency programs in Minnesota in the 1990s. In that state, it has about 20 programs to improve efficiency in customers' energy-using systems, from lighting to refrigeration to motors.

Although the efficiency improvements pay for themselves over time, Otter Tail chips in to help its customers with the initial capital expense, Pederson adds. "Customers incur costs to install the technology," she says. "Typically our incentives are designed to cover approximately 25 percent of the incremental cost of a customer's project."

Otter Tail's energy efficiency program in South Dakota is newer, Pederson notes. It started in 2008, and through 2010 customers they have conserved nearly 6.5 million kWh and two megawatts of demand, at a cost of less than one cent per kWh. Pederson reports that Otter Tail and its South Dakota customers achieved 117 percent of their projected energy savings goal at only 93 percent of the estimated cost. "We came in under budget and over our kilowatt-hour goal," she explains.

Otter Tail reported in 2010 that "Since 1992, we've helped our customers conserve 427 MW of cumulative demand and approximately 2 million cumulative megawatt-hours (MWh) of electricity. That is roughly equivalent to the amount of electricity that 180,000 average homes would use in a year."

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