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Creating an energy management plan for an industrial business takes time, thought and a lot of work. It also yields big payoffs. Just ask Advanced Circuits. By working through this energy-specific planning process, the company identified several key ways to control energy costs, increase operational efficiency and improve productivity at its Chippewa Falls facility. The plan will also help this Wisconsin plant adjust more quickly to unexpected changes in plant operations.

The Advanced Circuits plant in Chippewa Falls manufactures sophisticated printed circuit boards for use in the telecommunications/computer industry. It employs roughly 700 workers and operates 24 hours a day, 5 days a week.

IMMEDIATE NEED: UPGRADE THE COMPRESSED AIR SYSTEM

In late 2001, the company wanted to improve the efficiency of one of the plant's many compressed air systems and called Focus on Energy for help. The facilities management team at Advanced Circuits worked with Focus on Energy to evaluate a vendor proposal to improve the operating efficiency of one of the plant's compressed air systems.

This plant uses compressed air to support the operation of the specialized production equipment. A Focus on Energy Program Ally, John Henry Foster Minnesota, helped define the project scope and provided a bid for a closed loop fluid cooler. "This project represents an alternative way of cooling compressors. It will yield big energy savings and reduce long-term maintenance costs," said Mike Biebl, Systems Engineering Consultant at John Henry Foster Minnesota.

Estimates show that Advanced Circuits' compressed air system upgrade is likely to produce energy savings of over 630,000 kWh and reduce demand by 100 kW. The project also received a Focus on Energy

Implementation Grant. This project made good sense to Advanced Circuits' facilities management team. It offered a fast payback and was essentially a "no cost" project, thanks to the Focus on Energy Implementation Grant.

More importantly, this project freed available capacity on a critical process chiller. The old system was like a "house of cards" according to the plant's staff. If the process chiller went down, it caused interrelated critical systems in the plant to shut down. Once this project was implemented, critical systems are not as dependent on each other as in the past.

LONG TERM BENEFIT: IMPLEMENT AN ENERGY MANAGEMENT PLAN

While the fluid cooler project was in the works, a member of the Advanced Circuits' facility management team attended a Focus on Energy seminar, "Weathering the Energy Storm." Speakers at the seminar addressed several key topics, including the short and long term futures of U.S. energy markets and the benefits of creating and using a facility-wide energy management plan.

The plant's facility managers have examined energy conservation and efficiency projects for the last fifteen years. They were interested in the seminar topic and the speakers' perspectives. But, from Advanced Circuits' perspective, projects must be financially justified to be implemented. It all boils down to project payback.

In this case, implementing an energy management plan was fairly straightforward, because equipment and processes were well documented. So, the facilities management team took this information and began evaluating and prioritizing energy-related projects. This process became the starting point for a preliminary energy management plan for the Advanced Circuits facility.

FINAL LESSONS

The Advanced Circuits facility management team knows that energy management requires an ongoing, long-term commitment. Each action or proposed measure requires careful evaluation for its cost-effectiveness and impact on operational productivity. But, the benefits of increased energy efficiency and lower costs are worth the effort.

PROJECT TECHNICAL SUMMARY *Advanced Circuits*

SAVINGS PROJECTIONS	ANNUAL ELECTRICITY SAVINGS (kWh)	ANNUAL DEMAND SAVINGS (kWh)	ANNUAL ENERGY COST SAVINGS
Focus on Energy Action Item			
Upgrade compressed air system: fluid cooler project	637,911	100	> \$30,000