



Assessment Date: July 11, 2003

Benefits:

- Saved more than \$34,000 per year by implementing one recommendation
- Achieved an immediate payback
- Identified 13 other energy-related recommendations with cost savings potential of \$82,000 per year

Applications:

The University of Dayton's IAC assessment team discovered opportunities to help National Plastics Corporation improve productivity and reduce energy use and waste. These measures will, in turn, improve product quality and enhance competitiveness.

National Plastics Corporation: Energy Assessment Helps Automotive Plastic Parts Maker Save \$34,000 Per Year

Summary

The University of Dayton's Industrial Assessment Center (IAC) performed an energy conservation assessment of National Plastics Corporation's plant in Fort Wayne, Indiana; now the company can expect to save about \$34,000 per year by implementing just one assessment recommendation. The IAC, sponsored by the U.S. Department of Energy (DOE) Industrial Technologies Program (ITP), is one of 26 across the nation in which faculty and students provide eligible small- and medium-sized manufacturers with no-cost energy assessments. This assessment project was sponsored by ITP and The Society of the Plastics Industry, Inc. (SPI), a DOE Allied Partner.

The assessment team found 17 opportunities; however, the company initially focused on one promising recommendation, which was to reduce the time required for press change-overs. This project had no implementation costs yet helped the company achieve immediate savings. National Plastics also plans to implement other recommended changes as funds become available, because most of the projects require capital investment or cash expenditure. The additional recommendations to reduce energy costs could be implemented in 2005. In addition, the assessment team recommended that the company apply for a sewer exemption and that it purchase an oil recycler to filter oil and reduce waste.

Company Background

National Plastics Corporation, an SPI member company, specializes in injection-molded automotive plastic parts. The company's state-of-the-art injection molding capabilities reduce variation by using closed-loop controls. The facility, which totals 40,000 square feet, uses a small amount of energy in its process. The total energy budget for the plant is approximately \$400,000 per year, 96% of which is spent on electricity.

Assessment Approach

A team of four students and one staff member from the University of Dayton's IAC performed the assessment of the Fort Wayne plant on July 11, 2003. Rebecca P. Blust, the IAC's Assistant Director, led the team in this assessment.

Recommendations

Energy Conservation Awareness. The assessment team recommended practices to help National Plastics employees conserve energy, make the manufacturing process



leaner, and reduce waste. By taking these cost-effective measures, the company can significantly reduce energy consumption. Employees are encouraged to turn off or shut down idle processing equipment, lights, fans, air compressors, and other types of energy-consuming components when not in use.

Productivity Improvements. At the time of the assessment, the average change-over for the 500- and 1,000-ton presses was about 36 hours and occurred about 1.5 times per week. Even though company management agreed they could not sell any extra product generated by the increase in productivity, this line ran approximately two Saturdays per month, and the company was considering purchase of two new presses to increase capacity.

According to management, most mold changes had been scheduled on the first shift and extended past the end of the shift. Only the first-shift operators are trained to perform mold changes; thus, if not completed during first shift, the presses sat idle until the next day when the operators returned to work and complete the mold change.

In addition, an excessive amount of time was wasted in search of the proper equipment to install the mold. Company management suggested that if the molds were outfitted with the correct hoses, knockouts, bars, etc., the changes were staged at the press ahead of time, and the change-overs were scheduled early on first shift, times could be dramatically reduced to within one shift.

The assessment team recommended that National Plastics adopt new procedures to reduce press change-over time and make the process more efficient. Improvements in procedures would have the following results:

- A change-over period of 5 hours instead of 36 hours
- Increased productivity during the week, which reduces or eliminates weekend overtime
- Energy savings from shutting down the equipment on weekends.

Results

Although the IAC assessment team made a total of 17 recommendations to National Plastics Corporation, the company decided to start by improving change-over time procedures, which provided immediate payback and required no capital investment. As a result, the company has achieved annual cost of savings of \$34,560 per year and has improved productivity. The table below summarizes project results so far.

Implemented Recommendations for National Plastics' Plant in Ft. Wayne, IN

Project Category/ Recommendation	Annual Resource Savings	Annual Cost Savings	Implementation Cost	Payback Period
Productivity Reduce change-over time on the 500- and 1,000-ton presses	1,152 hours	\$34,560	\$0	Immediate

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America.

Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

Project Partners:

National Plastics Corporation
Fort Wayne, IN

The Society of the Plastics Industry, Inc.
Washington, DC

For Additional Information:

Industrial Technologies Program
Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, DC

EERE Information Center
1-877-EERE-INF (1-877-337-3463)
www.eere.energy.gov

Center for Advanced Energy Systems
640 Bartholomew Road
Piscataway, NJ 08854
732-445-5540
www.caes.rutgers.edu