



Assessment Date: July 24, 2003

#### Benefits:

- Saves nearly \$7,000 in energy costs annually
- Has payback periods ranging from 3 to 8 months
- Provides a good example for scheduled assessment at another plant

#### Applications:

To reduce energy usage, waste, and operating costs and enhance productivity, the assessment team focused primarily on manufacturing processes as well as on lighting, heating, compressed air, and waste management.

## VPI Corporation: Industrial Energy Assessment Helps Manufacturer Start Saving \$7,000 in Less Than a Year

### Summary

The University of Wisconsin–Milwaukee’s Industrial Assessment Center (IAC) performed an energy audit at VPI Corporation’s sheet products facility in Sheboygan Falls, Wisconsin, that is saving the company almost \$7,000 per year in energy costs. 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 identified several opportunities for saving electricity, including installing liquid pressure amplification systems for chillers, using more energy-efficient lighting and motor belts, and achieving better control of the compressed air system. The team also found that scheduling forklift-charging tasks during off-peak hours would reduce overall energy demand.

### Company Background

VPI’s facility in Sheboygan Falls manufactures medical, commercial, and lenticular signage. It is a division of VPI Corporation, which manufactures rubber, vinyl, and plastic products for a variety of industries, including flooring and related products. The Sheboygan Falls plant generates approximately \$40 million in sales annually and processes about 48 million pounds of polyester, polystyrene, and polyethylene plastics. The assessed facility measures 73,000 square feet; the production area covers 66,000 square feet. At the time of the assessment, production consumed more than 13 million kWh of electricity and about 2,300 MMBtu of natural gas annually, for a total energy cost of almost \$667,000.

### Assessment Approach

An assessment team consisting of students and a director from the University of Wisconsin–Milwaukee IAC assessed this facility on July 24, 2003. Team members met with plant personnel on the site, toured the facility, and collected data. After they reviewed potential energy-saving opportunities, they presented their findings to plant managers. The assessment was led by IAC Director Dr. Umesh Saxena.

### Results

VPI implemented two of the six recommendations made by the assessment team. The facility’s staff also modified two other recommendations, using similar energy-



saving practices and equipment to save energy and costs. For example, staff at VPI decided not to install a flow controller on the compressed air system, as the assessment team had recommended, to better regulate and reduce pressure. Instead, they reduced the compressor's discharge pressure to match the recommended pressure listed in the report, thus making it work more efficiently. They also decided not to implement a recommendation to install synchronous belts on the 15 vacuum pump motors used to convey raw material to the extruder lines. Instead, they eliminated the 15 pump motors altogether and replaced them with a more efficient, centralized system.

The table below shows the annual cost savings at the VPI Sheboygan Falls facility that result from implementing some of the assessment team's recommendations. Energy conservation projects that were implemented will reduce electrical usage by more than 146,000 kWh annually, in turn reducing electrical demand by about 410 kW-months per year (kW-mo/yr)<sup>1</sup>.

<b>Implemented Recommendations for VPI's Plant in Sheboygan Falls, WI</b>				
<b>Project Category/ Recommendation</b>	<b>Annual Resource Savings</b>	<b>Annual Cost Savings</b>	<b>Implementation Cost</b>	<b>Payback Period</b>
<b>Process Supply</b> Use outside air for compressor	146,507 kWh 158.8 kW-mo/yr	\$5,138	\$1,240	3 months
<b>Motor</b> Charge forklift trucks during off-peak hours	252 kW-mo/yr	\$1,657	\$1,000	8 months
<b>Total</b>	<b>146,507 kWh/yr 410.8 kW-mo/yr</b>	<b>\$6,795</b>	<b>\$2,240</b>	

<sup>1</sup> kW-months per year represents total kW savings per year, based on kW savings per month.

## **A Strong Energy Portfolio for a Strong America**

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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:**

VPI, LLC  
Sheet Products Division  
Sheboygan Falls, WI  
The Society of the Plastics Industry, Inc.  
Washington, DC

### **For Additional Information:**

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