

New Chiller Technology Saves Phillips Plastics Time and Money

CASE STUDY

Focus on Energy, a statewide service, works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. We provide technical expertise, training and financial incentives to help implement innovative energy management projects. We place emphasis on helping implement projects that otherwise would not get completed, or to complete projects sooner than scheduled. Our efforts help Wisconsin residents and businesses manage rising energy costs, protect our environment and control the state's growing demand for electricity and natural gas.

To learn more about Focus on Energy, call 800.762.7077 or visit focusonenergy.com

Phillips Plastics' Multi-shot facility in Eau Claire requires a steady supply of chilled water to ensure optimum product quality and cycle times. Long known as a forward thinker when it comes to energy efficiency, the facility recently installed an innovative frictionless chiller that delivers nearly three times the water supply of its previous unit, while cutting energy usage by nearly 75 percent.

The new chiller, from McQuay Air Conditioning, uses frictionless technology and is among the first installations of this new technology in the state. The unit has a capacity of 160 tons—vs. the 60-ton capacity of the old chiller—which means that the facility can easily meet both current and expanding production needs.

Pre- and post-installation tests run by Focus on Energy, Wisconsin's energy efficiency and renewable energy program, showed that the new chiller saves 70.8 kW of demand and 611,712 kilowatt hours (kWh) of electricity annually.

THE OPPORTUNITY

Phillips Plastics was using a 60-ton chiller with an energy rating of 1.13 kW per ton. Running on a 24/7 schedule, the plant was routinely operating at or above that capacity level, and constant demands on the chiller meant it typically provided water at 55° F—a less-than-optimum temperature that was slowing the production cycle.

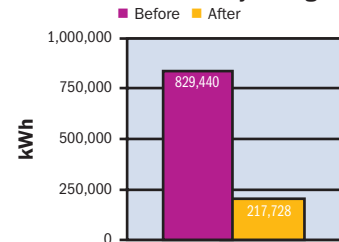
Frank Rushmann, Facility Manager, and management thought it had two options: increase capacity with the addition of a second chiller (a 25-ton chiller was in storage at another facility) or replace the existing unit with a new, larger-capacity chiller. The used chiller was



Frank Rushmann, Phillips Plastics Facility Manager, with new McQuay turbo core chiller with digital operator interface over right shoulder displaying current energy consumption.

PROJECT SUMMARY	
Project Cost	\$145,000
Energy Savings	\$31,809
Focus Incentive	\$15,066
Energy Payback	4 years

Demand and Electricity Savings



the least expensive option in the short-run, but had only the same 1.13 kW per ton rating as the existing chiller and didn't add much additional capacity. A new, standard-issue chiller would have an energy rating in the neighborhood of .65 kW per ton—a definite energy savings, but not necessarily enough to cost-justify the capital expenditure.

THE SOLUTION

Business ally Erv Smith recommended a frictionless chiller that ensured sufficient quantities of chilled water to meet current and future production needs, and saved Phillips Plastics \$31,809 in annual energy costs.

"With this new technology there are no bearing surfaces. This means that the compressor can run without oil and that the heat transfer surfaces are much more efficient" said Noel Smith, president of ally Erv Smith Services. "The combination of frictionless technology and the oversized chiller does a number of things: it provides capacity that meets current needs and future ones, and even partially loaded it runs at a phenomenal .31 kW per ton—about 27 percent of the energy of their old chiller."

Phillips Plastics has been a leader in injection molding services since 1964 and has six plastic injection molding facilities located throughout northern Wisconsin. Its Multi-shot facility in Eau Claire, Wisconsin delivers world-class capabilities in engineering, design, tooling and molding, and specializes in creating thermoplastic components comprised of two or more resins. The Multi-shot facility has partnered with Focus on Energy on numerous occasions since 2002. Other projects include the installation of a VFD air compressor and a cooling tower with variable speed drive, as well as ongoing HVAC-maintenance. To date these projects have saved Phillips 671,775 kWh, or \$33,588.

PROJECT BENEFITS

The new chiller reduces Phillips Plastics' annual electricity usage by 611,712 kWh and cuts demand by 70.8 kW.

These energy savings translate to enough energy to do the following annually:

- Power 40 average homes in Wisconsin
- Save the equivalent of 791 barrels of oil
- Remove the equivalent of 65 cars from the road

Other benefits include a decreased risk of downtime created by insufficient cooling capacity, the security of having a new piece of equipment—which also decreases the risk of downtime—and increased product quality, courtesy of a reliable chilled water supply. The new chiller can provide water at 44° F, a temperature which helps to decrease cycle time.

“This situation is an excellent example of the value of having good partners and being a progressive company,” said Dean Laube, an Energy Advisor for Focus on Energy. “If your allies know that you’re receptive to new ideas, they’re more likely to bring them to you instead of just presenting status quo solutions that might not be as effective.”

The total cost for the system was \$145,000. With an estimated savings of \$31,809 in annual energy costs, and a Focus on Energy incentive of \$15,066, payback on the installation is just over four years.



The Multi-shot facility is one of over ten manufacturing locations Phillips Plastics has in Wisconsin.

PROJECT TEAM

Phillips Plastics

Project management

Erv Smith

Distribution and installation

McQuay Air Conditioning

Equipment supplier

Focus on Energy

Pre- and post-installation metering, verification of vendor's energy calculations, project grant



Energy efficient McQuay turbo core chiller providing process chilled water for the plastics industry.

How can focus on energy help you?

“We rely on Focus on Energy to be our sounding board for new ideas. They've been an excellent resource when we're trying to determine the best ways to save energy and money. Plus, Focus incentives have often helped us to cost-justify a new, energy-efficient purchase”

Frank Rushmann

Phillips Plastics Multi-shot Facility
Facility Manager

Companies that are looking for ways to improve the efficiency of their manufacturing processes should contact Focus on Energy. Our Energy Advisors can offer in-depth, industry-specific knowledge and deliver a neutral, third-party perspective that can help you to determine the most effective way to solve your energy challenges.

For more information, call 800-762-7077 or visit www.focusonenergy.com.