Automotive Component Supplier Saves Energy, Enhances Reliability with Cogeneration System

A 47-liter, in-line 6-cylinder liquid-cooled Waukesha engine drives CRM's on-site power system. Fueled by clean burning natural gas, it can generate up to 450 kW of uninterruptable power.

Background

CRM, Inc. is a tier-two supplier of components to the competitive automotive industry. Located in Traverse City, Michigan, CRM specializes in applying corrosion-inhibiting coatings to automotive parts. By utilizing both electricity and heat in its proprietary coating processes, CRM was a candidate for a cogeneration system that could power its production facility and utilize the waste heat from the engine to generate steam for cleaning and conditioning parts before coatings are applied.

The Challenge

Facing price reductions triggered by original equipment manufacturers, CRM needed a way to decrease its production costs without reducing its own profit margins. After looking at all the obvious options, CRM found the answer from an outside source. Cogeneration Consultants offered its expertise to examine over-all energy usage as a way to reduce operating costs.

The Solution

Cogeneration Consultants and CRM conducted a thorough energy analysis to determine the electric and thermal load profile of CRM's manufacturing operations. This profile was used to size and configure a cogeneration installation capable of delivering most of CRM's energy requirements, including electricity and steam for process heating. **MichCon** provided some funding assistance.

The Benefits

The advantages of generating power on-site can be substantial.

Typically, the power delivered by the local utility loses 67% of the fuel input to unusable heat and another 10% to losses along transmission lines. The electricity produced by an on-site power plant captures the thermal energy lost from combustion for process heat, in this case steam. Previously, this heat was generated by separate gas fired boilers. The cogen package essentially burns energy once, but uses it twice to maximize energy efficiency.

Reliability

While CRM is now realizing savings in total energy costs with the new cogeneration system, an important driver for the project was their desire to ensure delivery of quality coated parts in a just-in-time environment without fear of a power outage. Regularly scheduled maintenance and a provision for back-up power from Cherryland Electric maximizes CRM's power options and flexibility. By purchasing its own natural gas, CRM can hedge its bets in the commodity markets and totally control its own operation costs.

The Payoff

CRM realized a significant reduction in the cost of its electricity and its overall energy costs. Before installation of the system, CRM was paying $0.08 per kWh for power purchased from Cherryland Electric. After installation of the cogen system, CRM's generation cost went down to $0.035 per kWh. At present rates for gas, CRM's total annual energy savings is about $60,000. Combining the initial cost of the system ($450,000) and the annual savings yielded a 13% return on its investment.

The Bonus

When evaluating bids from competitive suppliers, automotive purchasing departments often give extra weight to manufacturers with more reliable power supplies because it reduces the likelihood of a production shut down. CRM now holds an important competitive advantage.