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Donaldson Company, Inc. – Boiler Management System

The Donaldson Company, Inc., is a leading worldwide provider of filtration systems and replacement parts. The company serves agriculture, industrial, construction, defense, and heavy duty transportation and light truck markets. The 110,000-square-foot Baldwin fabricates metal housings for filtration systems including air filters, air cleaners, hydraulic filters and exhaust systems.

Challenge

The Baldwin plant has two natural-gas-fired boilers for space heating. One of these is a rarely used backup boiler; it didn't run at all during winter 2010. By default, the primary boiler fired at full capacity when heat was needed, regardless of whether the heat demand was large or small.

Strategy

Acting on recommendations from an energy audit, Donaldson's corporate facility in Minneapolis installed two M2G Intelligent Boiler Load Control Systems. The M2G system measures and records the temperature of the boiler water in the flow and return every 10 seconds, as well as the heat transfer rates at both the first and second stage boiler firings. When the boiler receives a demand for heat, the M2G system checks the latest stored data and determines whether it is more economical to retain first stage firing or to introduce a second stage firing. This saves fuel during less demanding situations while ensuring maximum capacity during heavy load periods.



An M2G boiler management unit

Donaldson's Minneapolis facility had purchased three M2G systems, but the device turned out to be incompatible with one of their boiler systems. The Minneapolis facility offered the surplus boiler management system to the Baldwin facility, where it was installed in spring 2009. Installation of the 7" x 8" x 2", 3.6-pound system was done by a staff electrician in less than two hours.

Results

The Baldwin facility's M2G boiler management system cost \$7,700 (MSRP) including installation, and has reduced boiler firing by 9.98% per year. This amounts to \$8,400 per year in fuel savings, for a simple payback time of 11 months. The M2G's operation schedule can be controlled through a computer, and the system requires no ongoing maintenance. By reducing unnecessary boiler firing, the life of the entire boiler system will be extended.

Ray Sislo, Maintenance and Environmental Supervisor for the Baldwin facility, is currently mentoring another company on creating an ISO 14001-certified Environmental Management System. He plans to recommend the M2G boiler management system to them.

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