Ford reduce emissions by 5.1% on gas fired boiler plant using Maxsys Fuel Systems

As part of an ongoing objective to reduce emissions and conserve energy at the Ford Motor Company's Dunton Technical Centre, Maxsys Fuel Systems have been fitted to the boiler plant, helping the company achieve over a 5 % reduction in gas usage with a commensurate reduction in emissions.

The Challenge

The Energy Committee at Dunton decided to investigate ways of reducing gas usage by improving efficiency. As part of this review, the committee focused on potential for energy savings at the Dunton Technical Centre, which contains a substantial boiler house. Rated at 25MW, the boiler house is used to supply high pressure hot water to the many laboratory and engineering facilities at the site along with general space heating.

The Ford Dunton Energy Committee formulated a 6 Sigma project for the integration and evaluation of the Maxsys Fuel Systems. Working closely with Ford's own engineering team, Maxsys contracted ABB Engineering Services to provide a Test Protocol and to carry out an independent evaluation of pre and post installation performance. ABB assessed the current metering and monitoring available on the plant and following an analysis of a sample of data, produced a Test Protocol outlining the requirements for the successful assessment of boiler performance. This was based on the monitoring and recording of a range of variables.

Data points were to be gathered 10 times per day and supplemented by a daily flue gas and efficiency check. To provide a robust evaluation of the project, ABB stated that a minimum of 30 days data would be required (300 data points) before and after installation of the Fuel Systems. The Test Protocol was agreed and signed off by Ford, ABB and Maxsys.

The Solution

Following a review of available technologies, the Committee decided to work with Maxsys Fuel Systems Ltd to integrate their innovative Fuel Systems on to the boiler plant.

The Dunton boiler plant contains 3 boilers - boilers 1 & 2 are Ruston Hornsby twin shell boilers rated at 10.26 MW each whilst 3 is a BIB Minster boiler rated at 5.28MW. All boilers are fired with Hamworthy dual fuel burner systems. With the seasonal variation in load, B3 is used as lead boiler from May to September before a changeover to the larger boilers B1 or B2 for the winter period. The Fuel Systems were fitted to all the boilers.

The evaluation was based on the established CUSUM statistical model with regenerative analysis. The sensitivity to small changes can be clearly identified with the CUSUM technique. Working alongside the 6 Sigma team, ABB "benchmarked" boiler performance prior to installation and then compared predicted and actual data after installation.

The Outcome

Analysis of the Post Data gathered for August and September 2006 has proven that average gas consumption was 5.1% lower, with a commensurate reduction in emissions, following the installation of Maxsys Fuel Systems.

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