



E.ON, Europe's leading energy provider installed and analyzed the performance of M2G. The results were impressive, with energy savings ranging from 20% to 26%

Today E.ON is Europe's leading integrated energy and gas services provider, from generation to customer supply. With sales just under €68 billion and 81,000 employees worldwide, E.ON is fast becoming the world's leading power and Gas Company.

Sabien Technology Limited (Sabien) helps companies reduce their carbon emissions, energy consumption and therefore save money. Based upon its established technology, M2G, Sabien's approach is proven to reduce carbon emissions and energy consumption by up to 35%.

Sabien and M2G delivered:

E.ON installed M2G in Maasvlakte, Germany, to reduce energy consumption and CO₂ emissions. Actual reduction in energy consumption was between 20.29% and 26.07%.

What is M2G?

The M2G is an intelligent boiler load optimisation controller that improves the efficiency of each individual boiler. A unit which can be retro-fitted to each boiler monitors the temperature of the water in the flow and return every 10 seconds and the information is recorded with heat transfer rates at the first and second stage firings.

When a loading demand is made the system, automatically checks the latest data it has stored and decides whether it is more economical to retain first stage firing or to introduce a second stage firing. The result is a substantial fuel reduction during less demanding situations while ensuring maximum capacity during heavy load periods.

Building Management Systems (BMS)

The M2G integrates seamlessly with Building Management System. The majority of M2G installations are in buildings which have Building Management Systems already in place.

Pilot Methodology:

The test conditions were agreed with E.ON with alternate days of control i.e. one 24 hour period of normal boiler activity followed by the next 24-hour period controlled using M2G. This process was carried out over a period of a month to ensure that it was possible to have a good comparison of "before and after data" information related to similar external temperatures and conditions.

To ensure that the tests accurately considered weather conditions and room temperatures, E.ON provided data loggers for recording temperatures every fourth minute. The data loggers were calibrated to ensure accurate readings and a certificate accompanied the data loggers to confirm the calibration accuracy.

Therefore, the effectiveness of M2G could be clearly demonstrated by comparing as near identical weather conditions and room temperatures. This would prove that any reduction in energy consumption and CO2 levels was not at the expense of comfort.

The comparisons for the test sites had an average external temperature for the bypass days (not controlled by M2G) of 10.25OC compared with an average external temperature for the M2G control days at 9.96 OC. Therefore it was slightly colder during M2G control days.

The comfort conditions as defined by room temperature showed an average room temperature of 20.54OC for bypass days and 21.07 OC for M2G control days. Therefore the comfort levels were very slightly warmer during the M2G control days, resulting in no impact on the room temperature. Across the three test boilers M2G delivered a reduction in energy consumption of 20.29%, 23.44% and 26.07%.