

# M2G Boiler Load Optimisation

- ▣ Sabien supplies M2G, the UK's leading boiler optimisation control
- ▣ M2G is retrofitted to existing commercial and industrial boilers
- ▣ Energy consumption and CO<sub>2</sub> emissions are typically reduced by 10% and 25%
- ▣ Proven paybacks of between 6 months and 2 years
- ▣ M2G has been integrated into many of the UK's leading private and public sector organisations energy and carbon strategies
- ▣ M2G does not change boiler set points or ambient temperatures
- ▣ M2G integrates and complements existing building controls



## Who is using M2G?

Over 5,000 M2G's have been installed in the private and public sectors. Clients include:

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| ▣ RBS                                 | ▣ Environment Agency              |
| ▣ Defra                               | ▣ Communities in Local Government |
| ▣ Hampshire County Council            | ▣ BT                              |
| ▣ Greenwich Borough Council           | ▣ Lloyds Banking Group            |
| ▣ National Archives                   | ▣ MOD                             |
| ▣ Tate Britain                        | ▣ Vodafone                        |
| ▣ Institution of Mechanical Engineers | ▣ Environment Agency              |
| ▣ NHS                                 | ▣ O2                              |

## Verified savings

Client	Average Saving	Payback	Contract Value
RBS	22%	1.4 years	£1.4m
Hampshire County Council	12%	2.8 years	£458k
Lloyds Banking Group	11%	0.6 years	£406k
Lincolnshire County Council	15%	1.3 years	£152k
AVIVA	12%	1.1 years	£103k
Greenwich Borough Council	15%	1.2 years	£266k

## Why is M2G required?

- ▣ M2G removes the inherent problem of boiler dry cycling
- ▣ Integrates and complements existing controls i.e. BMS, weather compensation, sequencing
- ▣ Retrofitted with no impacts to building temperatures or existing controls strategies
- ▣ Boiler load optimisation is widely overlooked – leaving untapped energy savings

All boilers regardless of application, size and age lose heat from their casing and via the flue. This is known as “standing losses” which typically accounts for 1-2% of the heat generated lost via the casing and up to 18% via the flue.

This is further exacerbated by the over-sizing of the boiler at the commissioning stage i.e. the boiler is sized to cope with extreme weather, then an additional factor is added to be on the safe side – resulting in the boiler(s) having heating capacity that far exceeds the demand of the building.

When a building’s heating demand/load has been satisfied a signal is sent to the boiler requesting no further heating demand is required, in most commercial applications this is via a (Building Management System) BMS or the boiler’s thermostat. However, the boiler’s standing losses still continue and the boiler cools down.

If a genuine heating demand from the building is required the M2G will recognise this and allow the boiler to fire. At no point does the M2G override the set points of the boiler or alter the ambient building or hot water temperatures. A final point to note is M2G integrates and complements the existing BMS which is optimising the building finally M2G should not be confused with boiler sequencing controls.

## How does M2G prevent Boiler Dry Cycling?

As a consequence the boiler will fire to recover the heat loss and maintain its designed set point even if there is no heating demand from the building. Therefore the boiler is firing unnecessarily wasting energy and emitting carbon emissions whilst no actual heating demand is required. This inherent problem is known as ‘boiler dry cycling’.

M2G reduces dry cycling by measuring the flow and return temperatures of the boiler every 10 seconds and analyses the thermal profile over time. This enables M2G to determine and prevent the boiler trying to fire as a consequence of its standing losses i.e. dry cycling.

