Magnatech™

CASE STUDY

# ERL WOOD SITE SERVICES

Lilly Erl Wood use around 12,000 MWh of Natural Gas primarily for building heating and hot water. This costs £258K per annum. The site energy team wanted to investigate options for reducing this consumption. The site has **2 identical main boilers** that are cycled each week so that only one boiler is operational at any time.

**Step 1** was to establish if the boilers were operating at their maximum efficiency. Modulating burners had previously been installed as an energy saving action. The 2 main boilers were checked to ensure setup and performance was identical.

**Step 2** Magnatech units were installed on Boiler 1 and Boiler 2 was used as the control/reference unit.

**Step 3** on the 2nd setup, it was necessary to increase the air volume supplied to boiler 1 to reduce CO content.

**How they work:** The theory is that the magnets condition the fuel to burn more quickly and more efficiently, this ensures the maximum amount of fuel is burned within the length of the flame. This process is known as Ionisation by Magnetic Induction (IMI). In a similar way that water conditioned by heat (hot water) carries more energy and mixes with other substances more readily than cold water, fuel conditioned by a strong magnetic force carries more energy and mixes more readily with air resulting in a more complete combustion. i.e. more energy and less waste from the same amount of fuel. Evidence of this can be seen in the colour of the flame – a yellow flame indicates incomplete combustion, a white flame indicates a hotter, more complete burn.

**Boiler 1**

**Boiler 2**

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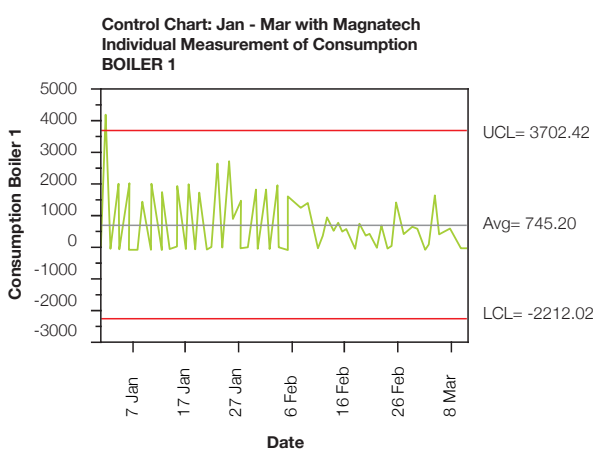
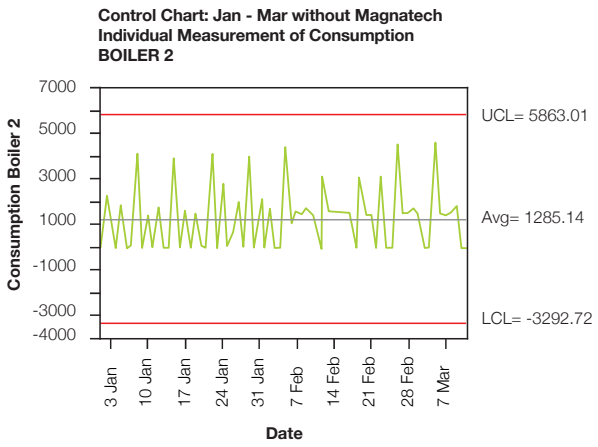
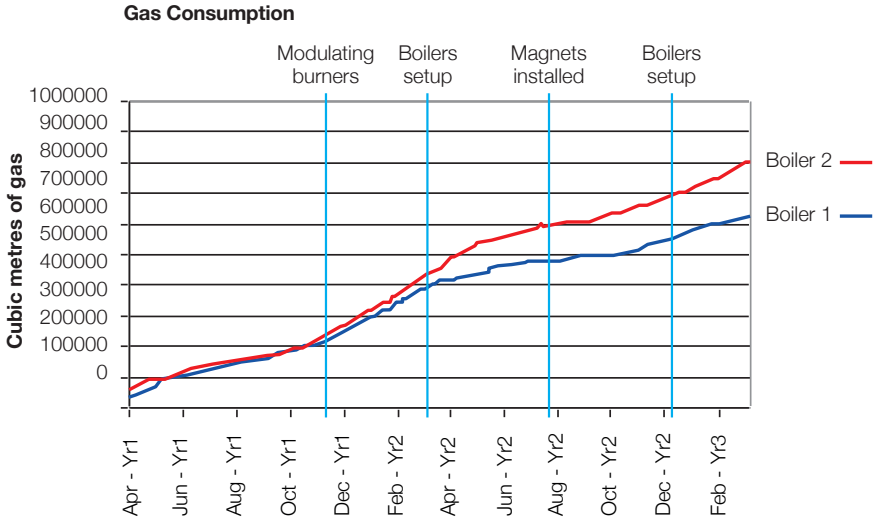
## Results

The magnets were easy to install and required no interruption to gas line – they simply attach to the outside of the pipe.

**Boiler 1** gas consumption shows less variation and on average 20% less gas consumed than **boiler 2**. Not all of this gas saving is attributable to the magnets as around 11% is due to fluctuations in load and boiler usage cycling i.e. we have used Boiler 1 less often.




**In summary** we can demonstrate that we are getting at least a 9% saving from installing the Magnatech System. Cost of installation of them is £3K for one boiler. Cost saving over 4 month is £1600, **giving a payback of around 8 months**.

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