

## NHS HOSPITAL SOUTH WEST, ENGLAND

- Energy efficiency upgrade project.
- New client acquired via referral.
- Autoflame Mk8 EGA Evo and Mini Mk8 MM POD mounted controls on a Limpsfield dual-fuel burner with FGR pipework to facilitate low NO<sub>x</sub> emissions monitoring and 3-parameter trim.

"Good quality of engineering knowledge and communication"

## PROBLEM

- The existing 20-year old burner had a **low turndown ratio** and **higher than average O<sub>2</sub> values**.
- The low turndown meant the boiler would cycle on/off frequently leading to **excessive purging**. This **reduced energy output** and increased wear & tear of the burner and boiler, leading to **increased maintenance costs**.

## GOALS

- Increase efficiency of the boiler plant
- Reduce fuel consumption and cost
- Reduce O<sub>2</sub> levels
- Reduce NO<sub>x</sub> levels to meet MCPD requirements
- To monitor and log emissions

## EQUIPMENT



Nu-Way burner



Danks 8000lb/hr steam boiler

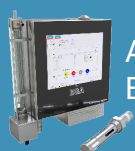
Pre-Existing



Limpsfield LCNO30 burner with FGR



Autoflame Mini Mk8 MM



Autoflame Mk8 EGA Evo

Newly Installed

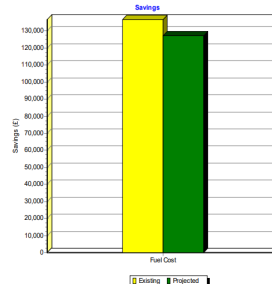


Variable Speed Drive

## STRATEGY

- A Limpsfield burner was fitted to ensure that **3% O<sub>2</sub> values** were maintained throughout the firing range.
- In addition, **50ppm or less of NO<sub>x</sub>** could be achieved by **flue gas recirculation (FGR)**; the process of mixing a percentage of flue gas with the forced draft air and then introducing this back into the burner to reduce NO<sub>x</sub> levels.
- Autoflame controllers were fitted to ensure **high turndown** and **precise fuel/air ratio control** throughout the firing range.

## RESULTS

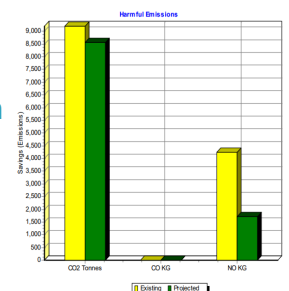


### Fuel Costs

With a projected efficiency improvement (gross) of 0.84%, this yields a **7.03% saving in fuel costs** (or £9605.65 annually).

### Emissions Reduction

There was a **15.14% reduction in emissions**, with a **59.26% reduction in Nitrous Oxide emissions** to succeed MCPD requirements.



Reduced Downtime



Reduced Maintenance



Intelligent Boiler Sequencing