



Gas Fuel Optimiser

In partnership with InSynch



Emissis Gas Fuel Optimiser

- Pre-Designed system specific Clamps (Gas Fuel Optimisers) which are guaranteed to reduce energy consumption and improve efficiency by a minimum of 7.8% on even the most inefficient systems by continually re-organising the molecular structure of the fuel in the immediate supply fuel pipework.
- Average results achieved are around 13.1% improvement, this improvement can be over 20% in some installations.
- Non-Invasive Installation, no system break ins or disruption to any supply services. Safe and straightforward installation.
- Standard or Bespoke Product, choice available dependent on survey.
- 10 Year Guarantee on all installations.
- A low cost, resilient solution.
- ROI 1 – 3 years payback. Usually less than 18 months.



Gas Fuel Optimiser Energy Saving Technology

In Partnership with InSynch

All fossil fuels contain Hydrogen in two distinct forms: Ortho and Para-Hydrogen in a 3:1 ratio. Ortho-Hydrogen associates more freely with Oxygen and is therefore more combustible.

Our Gas Fuel Optimiser Clamp system targets the Para-Hydrogen and converts them into Ortho-Hydrogen molecules, thus allowing a more efficient combustion.

This hotter burning of the fuel saves energy and costs and reduce CO emissions into the environment.



Emissis Gas Fuel Optimiser

Benefits:

Fossil fuels, which include natural gas, propane and oil, are used to produce roughly 85 percent of all of the energy we consume. However, they are non-renewable resources that produce 21.3 billion tons of emissions a year. Nearly half of that cannot be absorbed by nature therefore this now becomes one of the leading cause of global warming.

Despite all of the renewed talk of helping the environment and stopping the Earth's temperature from rising further, the Gas Fuel Optimiser improves the combustion of fossil fuels for commercial and residential systems and appliances.



Gas Fuel Optimiser Installations





emissis

Emissis Gas Fuel Optimiser

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Reduces Carbon Use and Cost

The Emissis Gas Fuel Optimiser is a proven way to reduce Industrial, Commercial and Residential Fuel Costs.

Our Gas Fuel Optimisers save money and reduces emissions by increasing the combustion efficiency of the fossil fuels (such as propane and natural gas) that power our home furnaces, water heaters and other household appliances. Boilers, plant, equipment, engines and water heaters.

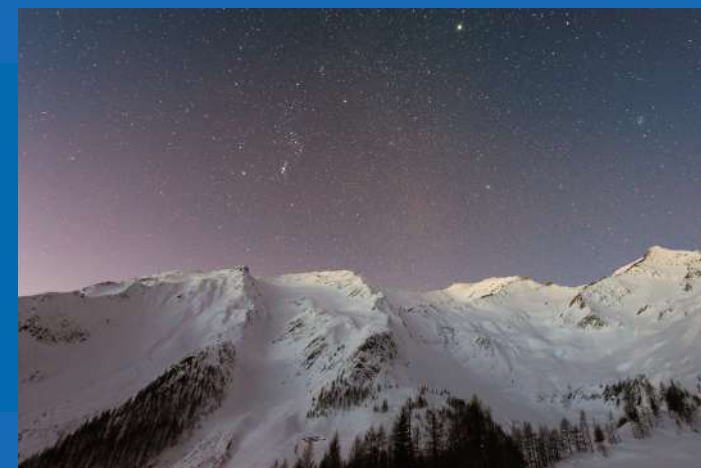
More efficient combustion means the gas burns hotter and cleaner; this means your appliances don't have to work as hard to provide heat, and when they don't work as hard they require less maintenance.



Examples of Flame Before and After Installation of the Emissis Gas Fuel Optimiser.

The top image was taken before we fitted the Gas Fuel Optimisers to the Gas pipe.

The bottom image identifies the effect that applying the Gas Fuel Optimisers has to the efficiency of the plant.





Emissis distributes Gas Fuel Optimiser for all markets including commercial / industrial / public.

commercial / industrial / public.

Fuel Efficiency	Cleaner Environment	Energy Cost Savings
Easy to Install	Non-Invasive Product	Lower Carbon + Emissions

We have a unique approach to reducing emissions from carbon based fuels by focussing on the fuels before consumed. This not only significantly reduces emissions from the consumed fuels but also increases the efficiency and economy of these resources.



Our empirical data collected from many installations has delivered these results:

- 80-90% reduction in hydrocarbon emissions
- 60-80% reduction in carbon monoxide emissions
- 20% reduction in nitrogen oxide
- 10-27% reduction in fuel usage

Industry	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Consumption
Smelting	Reduced by 68%	Reduced by 52%	Reduced by 11%	Reduced by 14%
Manufacturing	Reduced by 72%	Reduced by 58%	Reduced by 16%	Reduced by 18%
Hotel	Reduced by 78%	Reduced by 63%	Reduced by 14%	Reduced by 21%
Apartment Block	Reduced by 74%	Reduced by 67%	Reduced by 18%	Reduced by 19%
Warehouse	Reduced by 76%	Reduced by 65%	Reduced by 17%	Reduced by 20%

Installation Process

- Client provides copy of previous years bills
- Visit to carry out a survey
- Make proposal, if accepted, return to install equipment

Fuel Applicability

Natural Gas - Propane - Gasoline - Diesel

The equipment will reduce hydrocarbon emissions, carbon monoxide emissions and nitrogen oxide emissions and can reduce fuel usage to up to 27%.

Product Offer

The equipment is offered on a capex model where the client pays for the equipment and in some cases it can be free issue on the basis of an energy share with the client.





reducing carbon emissions locally and globally

Gas Fuel Optimiser

Case Studies

WAITROSE
& PARTNERS



genzyme



Savings:

Reading
14.66%

Newport
15.66%

The parent company of Waitrose, John Lewis Partnership, has unveiled its new commitment to reach net zero by 2050 as part of the UNFCCC Race to Zero campaign.

According to the partnership, it will be setting science-based goals to reduce scope one, two and three carbon emissions across its operations and supply chain in line with limiting the global temperature rise to 1.5 degrees Celsius.

Carbon Reduction Results for Waitrose Stores:

Taking just two stores from the Waitrose Branches:-

Reading

Newport.

There was a calculated reduction in fuel consumption of 122,532 kW at Reading and 90,489kW at Newport.

This equates to:-

23,281 kg less carbon dioxide for Reading

17,192 kg less carbon dioxide for Newport

over an 8 month period.

In perspective - to balance 20,000kg of Carbon Dioxide **1,000 trees are required.**





Savings:
 15.98%
 reduction in fuel
 consumption

Aldi UK and Ireland have been Carbon Neutral since January 2019. This achievement has been made by continually working to reduce their carbon footprint through buying 100% renewable electricity, using greener refrigerant gases and purchasing carbon offsets for the emissions that can't be reduced completely just yet.

Carbon Reduction Results for Aldi Distribution Centre, Scotland:

Heating Degree Days (HDD) based on Units installed for a seven month period

Aldi Consumption Nov - May			Consumption Nov - May		
		Degree Days			
Nov	41887	195	33820	300	
Dec	61241	335	57138	372	
Jan	93017	348	47347	354	
Feb	74,591	290	98399	346	
Mar	36981	239	71294	408	
April	28921	272	25056	268	
May	23794	207	25890	173	
	360432/	1886	358944/	2221	161.61

A 15.43% reduction in fuel consumption was achieved compared to the same 7 months the previous year.



Bupa has committed to reach net zero by 2040. They were one of the first big healthcare companies to sign up to the Science Based Targets initiative, joining others worldwide in following the science to reduce carbon.

Carbon Reduction Results for Warrens Hall Carehome, Tividale

The two water heater boilers at Warrens Hall had units installed over a 4 month period. When comparing the total fuel consumption on the whole site compared to the same period the previous year there is a reduction of 11% in consumption using Heating Degree Days for the period from the 4 month period.

The consumption in the prior 4 months was 42,642.332 kWh

The consumption for post 4 month was 41,694.87 kWh, nearly 1000 kWh less.

Consumption 4 months prior

42642.332/352

Equals 121.14 HDD

As a Percentage $121.14 - 106.9 = 14.24$

Consumption 4 months post

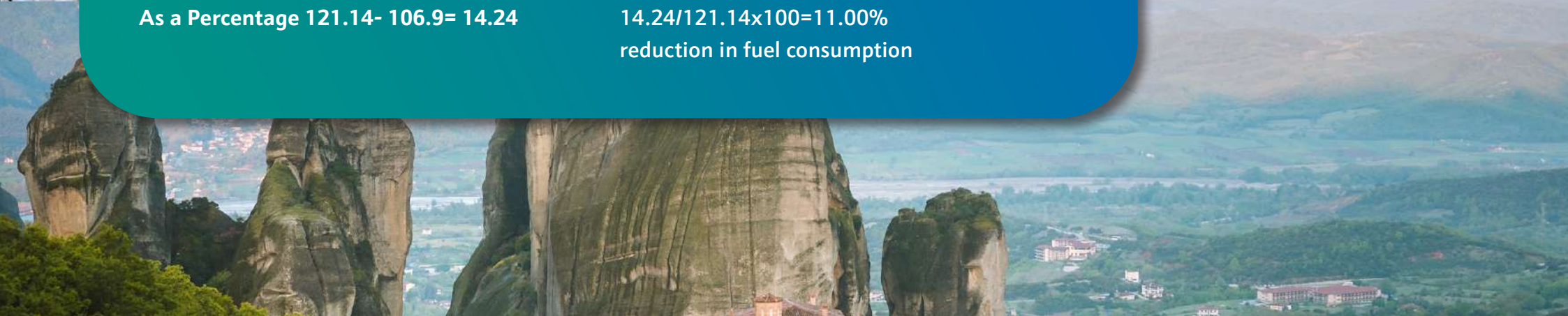
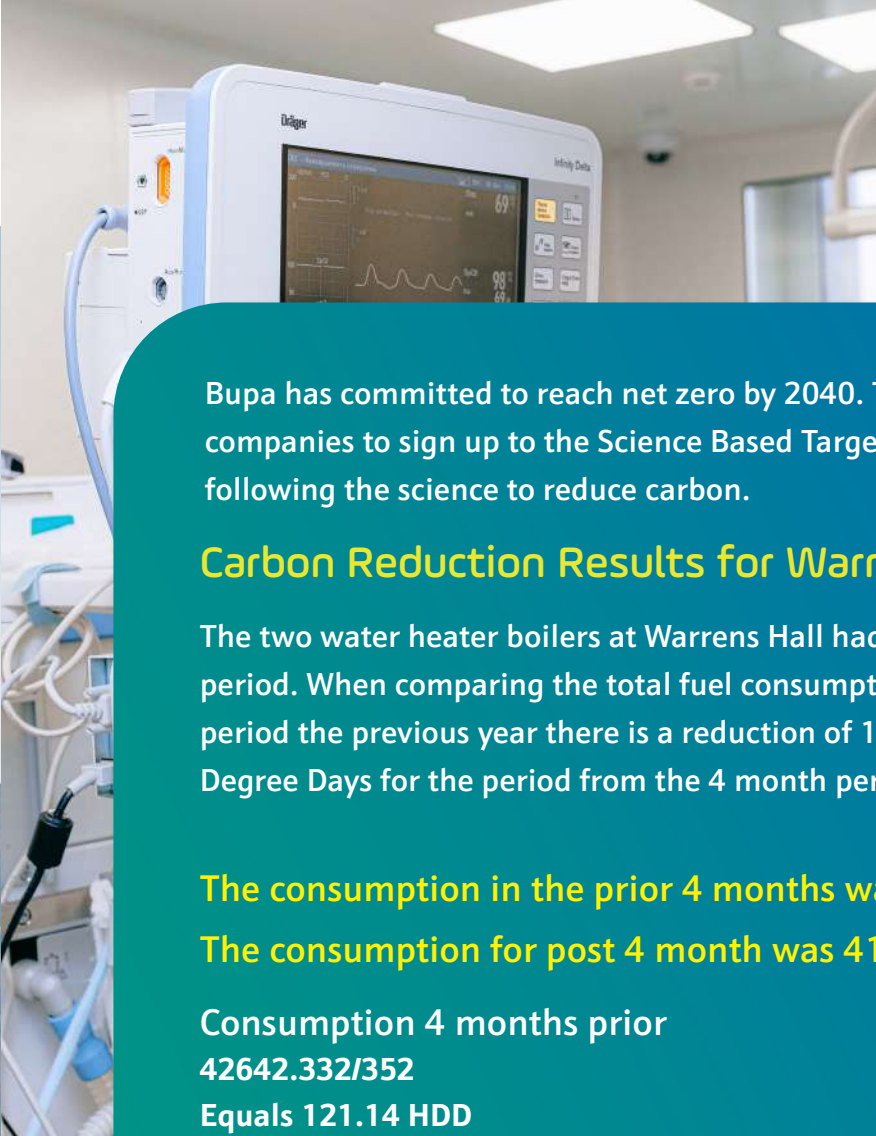
41694.87/390

Equals 106.9 HDD

**$14.24 / 121.14 \times 100 = 11.00\%$
reduction in fuel consumption**

Savings:

**11.00% reduction in
fuel consumption**





Site Details

Site 1 Pfizer Pharmaceutical Factory in Morpeth, the boiler chosen was isolated from other systems and only used to provide central heating and hot water for the QA labs. The site is a multi product site now owned by Nicholas Piramal of India – NPIL. The 2 boilers were Cochran Wee Chieftain Boilers both were Natural Fuel fired at 750,000 BTU.

Monitoring Equipment

A sophisticated automatic electronic monitoring system, part of the BM System collected all data.

Energy Calculations

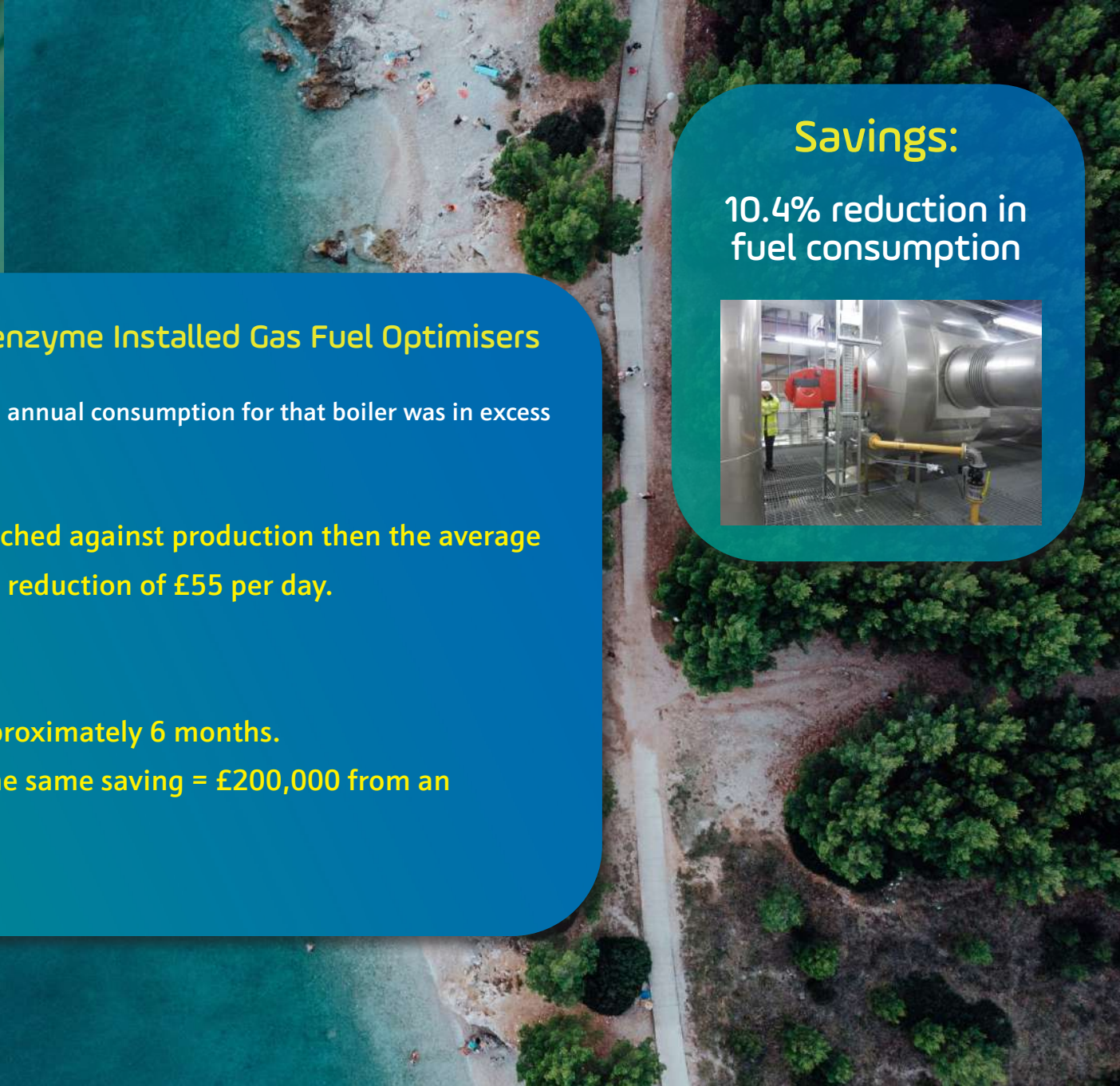
The boilers were monitored for 56 days prior to the installation of the fuel conditioning units. Throughout this period the average daily fuel consumption was 379.6 m³. The degree day data gathered from the Met Office was applied to the consumption resulting in the degree day data applied fuel consumption being 57.9 m³/day. The magnetic fuel conditioning units were installed to the fuel inlet pipe and the boiler was monitored again. The boilers were monitored for a period of 65 days once the fuel conditioning units had been installed, throughout this period the average daily fuel consumption was 516.7 m³. The degree day data gathered from the Met Office was applied to the consumption resulting in the degree day data applied daily fuel consumption being 52 m³/day.

This resulted in a fuel consumption saving of $(57.9 - 52) / 57.9 = 10.2\%$ saving

Savings:

10.2% reduction in fuel consumption





Savings:

10.4% reduction in fuel consumption



Global Pharmaceutical Company Genzyme Installed Gas Fuel Optimisers

The Average daily consumption was £524. An annual consumption for that boiler was in excess of £155,000.

The units were installed and when matched against production then the average daily consumption was down to £469 a reduction of £55 per day.

- A saving of over 10.4%
- Giving a Return on Investment of approximately 6 months.
- In ten years if fuel prices remained the same saving = £200,000 from an investment of just £10,000



Despite growing their estate and research activity in recent years, the universities absolute and relative emissions have continued to fall. Between 2005 and 2019, the University cut its Scope 1 and 2 carbon emissions by 47%, exceeding our targeted 43% reduction over the same period, even while their estate grew by 23 percent. While this has been partly due to wider grid decarbonisation, improvements have also been achieved by investing heavily in energy saving technologies including LED lighting, new boilers, heating and cooling controls and energy efficient equipment.

Energy and Carbon evidence and statement:

"As part of their MSc research dissertations, students from the Department of Chemical and Biological Engineering at the University of Sheffield carried out in total six trials over a two month period using the Fuel Conditioning System on their laboratory boiler. The initial results showed an increase of 11.1% in thermal efficiency of the boiler and a reduction in wet NO_x gasses of 10%. A small rise in flame temperature was observed and water temperature increased more quickly as a result. The research was carried out as part of their master studies from October 2012 to August 2013. The initial studies showed improvement in the boiler performance"

Savings:

11% in thermal
efficiency of
the boiler





emissis

Reducing carbon emissions
locally and globally

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