

# Projective delivers significant savings from intelligent CHP design

Our Process Energy model allowed us to identify an opportunity to super heat boiler feed water and generate electricity for one of the world's leading research-based pharmaceutical and healthcare companies. We successfully delivered substantial cost and emission savings.

## The Challenge

The client faced a significant energy challenge; their site annual gas and electricity bill was over £4 million and was expected to double within 5 years. Our brief was to deliver significant energy and cost savings with a payback period less than 4 years.

## Our Approach

We conducted a detailed Process Energy audit, reviewing the end to end energy requirements of the site.

From this we were able to recommend the installation of a small scale 1.6MW combined heat and power plant (CHP) to super heat the boiler feed water and generate electricity.

## Intelligent Solution

CHP solutions are often troubled with high paybacks and incorrectly sized units. The Process Energy audit allowed the full thermal profile of the site to be determined, allowing us to optimise the size of the plant based on the thermal demand of the boiler house.

This minimised capital costs and allowed the CHP to operate at full load, maximising efficiency.

The new CHP super heats the boiler feed water in two stages: firstly with the thermal energy created by the engine's water cooling system and then with the exhaust heat gas exchanger. This raises the boiler feed water up to 150°C, significantly reducing the gas consumption of the boilers.

**The new system reduced the gas consumption of the boilers and generated 25% of the total site electrical demand.**

## The Result

The system now delivers 1.6MW of electrical power, accounting for a quarter of the site's total demand – saving over 3,161 tonnes of CO<sub>2</sub> and £450,000 per annum.

**“The short payback on this project was achieved through one focused and sustainable process change”**

Ray Wellham, Director, Projective

## Benefits

- ▶ Net annual savings of over **£450,000**
- ▶ Carbon dioxide savings of **3,161 tonnes** per annum
- ▶ Capital payback less than **3 ½ years**



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