



# Calibrate

Energy Engineering

an RSK company

## Calibrate Chronicle *Issue 8*

Welcome to the spring edition of our newsletter, providing news, ideas and opportunities for your business

### This edition:

- Water Research Centre Air Source Heat Pump Solution
- **Focus On** Manufacturing & Production Industries
- Funding for Decarbonisations
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## Water Research Centre Air Source Heat Pump Solution

This has been an ambitious project to replace an old gas boiler system which, at its most efficient, would produce 0.9kW of heat for every kW of gas used, with a renewable air source heat pump system.

Delivering consultancy, technical services, accreditation schemes, research, innovation and training to customers in the water, waste and environment sectors worldwide, the Centre aims to deliver sustainability in all its operations. This included a vision to embark on greater efficiencies for its increasingly inefficient glass-fronted research centre building in Swindon, in order to save costs and carbon emissions.

Calibrate assessed the building and existing technologies, which were struggling as the space was like a greenhouse in the summer and a fridge in the winter due to the glass frontage. Based on

200,000kW output, it was agreed that replacing the gas boiler with a renewable heat pump technology would dramatically optimise the operation. Calibrate's innovative controller, Calibrate Analytics<sup>®</sup>, was plugged into the WRC's assets to assess current emissions and costs and model future savings in both cost and CO<sub>2</sub>. Due to the landscape and geography, an Air Source Heat Pump solution was proposed, as the best fit for the business. Calibrate split the proposal into two phases with phase one consisting of a 300kW system providing both the heat and chill for the first building with a second phase for solar, at a later date.

### Outcome

- ✓ **Carbon Reduction**  
Reduction of 29,798kg of CO<sub>2</sub>, just shy of 30 tonnes, per annum.
- ✓ **High Efficiency**  
This demonstrates an efficiency of 325%, so for every 1kW of power used, 3.25kW of heat or chill is produced.
- ✓ **Fossil Free**  
WRC also purchase renewable energy from the grid, which means that the system does not use any fossil fuel to generate their heat and chill requirements.
- ✓ **Further Future-Proofing**  
The solar array planned for phase two will support the ASHP system and further reduce their running costs overall. The installation of a 280kW solar array and battery option, along side the ASHP, would enable the client to run the system for free, making the site 100% carbon neutral.





# Focus On

## Manufacturing & Production Industries

### Transforming Businesses Energy Profile

The manufacturing and industrial sectors are major consumers of energy due to the extensive use of machinery and equipment involved in production and processes such as heating, cooling, drying, melting, moulding and various chemical reactions, and in many cases also for the packaging the end product.

The list is extensive, but steel production, cement manufacturing, chemical processing, plastic and polymer extrusion and paper production are all firmly in this category. Industrial equipment, such as motors, compressors, pumps, and boilers, contribute to high energy consumption in manufacturing facilities, especially if these facilities run 24/7.

Relying on fossil fuels to power these processes can be both costly and harmful to the environment and new legislation is emerging that will mean businesses need to think more about their energy consumption and carbon emissions. This being the case, it is worth thinking about this sooner rather than later like several of our clients. These range from food production facilities to plastic moulders and are all ahead of the curve and benefitting from a better bottom line performance and a better conscience when it comes to environmental impact.



Upgrading from fossil fuelled technologies to more energy-efficient heat pumps for heating and chilling can lead to significant energy savings for the manufacturing industry. If you add to these smart control systems, occupancy sensors, and programmable thermostats for heating, chilling, ventilation, and air conditioning, energy in industrial settings can be better optimised.

Calibrate can help in this mission by proposing and installing solutions to transform an organisation's energy profile and meet the Government's agenda to reach net zero. We can support in making the transition to installing renewables, as well as upgrade or expand existing systems, making your business more sustainable and positively impact your bottom line and carbon profile.



### Key Benefits of Energy Transformation



✓ **Lower carbon emissions**

To meet net zero targets



✓ **Reduce operational costs**

For a better bottom line performance

\* See page 6 For more information see our Energy Transformation Platform

\* See page 3 for funding available

# Clean Energy Funding

\*\*Government announces billions of investment for British manufacturing industries to boost economic growth\*\*

The HM Treasury has announced £4.5m of investment for British manufacturing industries over the next five years for clean energy to ensure the UK is the best place to start, grow, and invest in manufacturing.

## Key areas for investment are:

- ★ £960 million for a Green Industries Growth Accelerator to support clean energy manufacturing, and £520 million for life sciences manufacturing to build resilience for future health emergencies and capitalise on the UK's world-leading research and development.
- ★ Over £2 billion earmarked for the automotive industry and £975 million for aerospace, supporting the manufacturing, supply chain and development of emissions reduction.
- ★ Funding to be delivered to eight sectors key to economic growth, energy security, and levelling-up. The roll out of this significant investment will start in 2025, but it is crucial that these sectors start planning now for roll out. If you would like to get ahead of the curve, get in touch for support on how to implement your energy transformation strategy...

## IETF Funding

In addition to this, the latest round (phase 3) of Industrial Energy Transformation Fund (IETF) has been announced. The fund was set up to support the development and deployment of technologies that enable businesses with high energy use to transition to a low carbon future. The Spring 2024 competition opens to applications on Monday 29 January, closing on 19 April 2024\*. There will be a second competition window later in 2024.

**This phase will allocate grant funding with a budget of £185 million overall for the following project types:**

- ✓ Studies - feasibility and engineering studies to enable companies to investigate identified energy efficiency and decarbonisation projects prior to making an investment decision energy efficiency - deployment of technologies to reduce industrial energy consumption
- ✓ Decarbonisation - deployment of technologies to achieve industrial emissions savings
- ✓ Eligibility - The funding is open to eligible SIC codes including various industrial processes.

If you would like advice on how we can help decarbonise your business, get in touch at

[info@calibrateltd.co.uk](mailto:info@calibrateltd.co.uk)

\* If the site is based in Scotland, you can apply for the Scottish Industrial Energy Transformation Fund (SIETF).



## Awards

### Re-imagined Heat Pump Project Wins Industry Award

We have scooped another prestigious award for the third time in the ACR & Heat Pump Awards in the category of Non-Domestic Heat Pump Project. This means we held onto this category award from the previous year and rewarded with a fourth year of winning an accolade in this industry-renowned awards.

Calibrate design, install and maintain commercial renewable technologies, but on this occasion, we worked with the client to re-engineer an old and underperforming system installed by a third party and re-imagined it back to peak performance, saving hundreds of thousands of pounds on energy bills. As a business, we were increasingly seeing cases of older heat pumps and owners who were struggling to get the benefits due to antiquated and often unmaintained systems.

The innovation of this re-works project lay in Calibrate's own intelligent bespoke controller (Calibrate Analytics<sup>®</sup>), which also found a place in the ACR finals. Like a domestic Hive controller but on a larger scale, this tool allows remote access and energy monitoring ensuring the highest energy efficiencies are obtained reducing costs and carbon emissions and can also simulate savings and benefits of future renewable projects such as solar, wind and hydrogen.

Following this success, we were also thrilled to be nominated in the Best of Northumberland awards. Yet again we were a winner, this time for Green Initiative of the Year, sponsored by Port of Blyth. One of our key values as a business is to help commercial businesses to decarbonise their operations, so to be recognised for our endeavours, was a pivotal moment.



Commenting on the win, Susie McDonald co-founder of Calibrate said:

*"We are thrilled to have been recognised yet again at these awards, especially as they are very specific to our industry and recognise the highest level of knowledge and expertise. As a pioneering business in the industry, visibility like this helps us to get closer to our vision of making net zero a reality for businesses through innovative technologies."*



## Team Welcome

We have welcomed various new faces and roles to the business over the last few months:



**Nick Mather**  
Business  
Development Lead



**Martin Andrews**  
Mechanical Design  
Engineer



**Dan Benson**  
Electrical  
Engineer



**Charlotte Bruce**  
Sales & Marketing  
Co-ordinator

# Events

Reflecting on the second half of last year, it was a busy season for events with the team up and down the country. In June went from our open event in Telford where we showcased our client's progressive agri-system then, all the way up to Edinburgh for the Royal Highland Show, where we met with clients old and new! Later in the year we had a stand at EMCON (Engineering & Manufacturing Network's Conference), The Brewers Fair in London and the Solar and Storage Event.

Our 2024 calendar is filling up fast. So far, we are planning to exhibit or visit the following industry events, if you are attending any, please get in touch and we can grab a brew!

## 2024 Events Calendar

### MARCH

- ▶ 5<sup>th</sup> - 7<sup>th</sup>  
Futurebuild Excel **London**
- ▶ 13<sup>th</sup> - 14<sup>th</sup>  
Distributed Energy Show **Telford**

### MAY

- ▶ 15<sup>th</sup> - 16<sup>th</sup>  
All Energy **SEC Glasgow**
- ▶ 21<sup>st</sup> - 23<sup>rd</sup>  
UK REiif Real Estate Investment & Infrastructure  
**Royal Armouries, Leeds**

### JUNE

- ▶ 12<sup>th</sup> - 13<sup>th</sup> Foresight Net Zero **Hull**
- ▶ 20<sup>th</sup> - 23<sup>rd</sup>  
Royal Highland Show **Royal Highland Centre, Edinburgh**
- ▶ 25<sup>th</sup> - 27<sup>th</sup> Installershow **NEC Birmingham**

### SEPTEMBER

- ▶ 12<sup>th</sup>  
EMCON **Rainton Arena Houghton-le-Spring**



# Energy Transformation Platform

Analytics, diagnostics, mechanics & technics to future proof your organisation. Ask us how we can help you to maximise your long term energy use...

## Step 1



### Analyse



## Calibrate Analytics®

Take control of costs and carbon emissions through our innovative energy assessment to identify energy behaviours and how they can be improved.

## Step 2



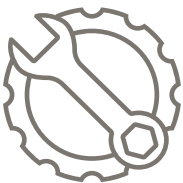
### Maximise



## Calibrate Energy Engineering

Install renewable technologies or engineer improvements to maximise performance of your existing energy assets to ensure cost and carbon reduction.

## Step 3



### Optimise



## Calibrate Maintenance

Service plan to ensure your asset is always at optimum performance for peace of mind.

## Making Net Zero A Reality...

### Contact:

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# Transformation Showcase

## AGRI-BUSINESS DIVERSIFICATION

### Situation

The client's agri-business was historically an arable, pig and sheep farm. Taking over the enterprise, the owner wanted a growth strategy with better eco-credentials. Researching the broiler industry, it was identified that this showed a YOY growth of 10% and would be a lower environmental operation. The owner installed a ground source heat pump to reduce carbon emissions from heating and chilling using fossil fuels, however, this never worked as it should, nor provided the savings it promised. This is where Calibrate's expertise came to the fore.

### Solution

Connecting Calibrate Analytics® to the under-performing heat pump allowed the team to diagnose problems to be fixed and also to resolve through engineering so that the efficiency could improve to the levels expected from the business's decarbonisation plans. Calibrate set about removing the existing Trend Control System, implementing a bespoke control strategy within the software to control the heat pump and make it more effective by taking the remote signals from the fans. Adding 8 additional temperature sensors meant that the system could be monitored to improve the running of the heat pump system and increasing the coefficient of performance (COP) to Ofgem standards in order to claim the RHI tariff.

### Outcome

The newly engineered system can now be monitored by the client at the touch of a button, or interrogated remotely by the Calibrate team. Keeping the Calibrate Analytics® System as a control system as well as an assessment tool, means that the monitoring for efficiencies is a constant as it allows simulation for improvements to the system for a continuously optimised system profile. This gives the client real time information on the next step to improve his system such as increased heat use, solar control or heat recovery. The business has gone from diversified start up to sector leader due to a pioneering approach that has reduced costs and carbon footprint.



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\*All formulas and calculations are derived from industry suppliers and MCS guidelines, it is advisable to have the calculations and formulas checked by a certified mechanical engineer, and as such, Calibrate Inc. Ltd (Company # 08277206) will not be held liable for any incorrect formulas or calculations or any accidental misrepresentation.