



# Energy cost and carbon reduction for NHS

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## | The Client

University Hospitals Birmingham NHS Foundation Trust (UHB) is one of the largest organisations operating NHS hospitals in England.

The hospitals and services managed by UHB include Birmingham Heartlands Hospital, Good Hope Hospital in Sutton Coldfield, Solihull Hospital and Community Services and Birmingham Chest Clinic in the centre of the city.

Around 11,000 people are employed by the Trust, who see and treat more than 1.2 million people every year, with some 250,000 attending Trust Hospitals' emergency departments annually.



*“The immediate priorities were those recommendations that would offer the quickest return on capital expenditure.”*

## | The Project

Virtus Consult was commissioned by University Hospitals Birmingham NHS Foundation Trust to deliver energy cost and carbon savings across their portfolio through guaranteed self-funding projects.

Our remit included identifying the quick wins that would demonstrate the value of the strategy, whilst helping everyone in the trust work smarter and use less energy.

The immediate priorities were those recommendations that would offer the quickest return on capital expenditure, balanced against the long-term benefits

and overall energy cost reduction strategy. This focus would help the Trust achieve important long-term savings, reduce any maintenance backlog and improve compliance.

The Trust required an assessment of self-funding or third-party funding options, where possible to mitigate the upfront cost of any designated improvements.

It was also necessary to assess the likely impact on the day-to-day operation of the hospitals, of implementing any of the identified carbon reduction improvements.



*“It’s clear from the outset that Virtus have a deep understanding of energy-saving initiatives and how they can be applied in a live healthcare facility, with only minimal disruption to our work. The guaranteed savings ensure we can approach all recommendations with an open mind and adopt what gives the best results, rather than what’s easy or fashionable.”*

**Estates Manager, UHB**

## | The Assessment

The first step was to work closely with the Trust to complete our detailed list of questions, designed to give us an accurate picture of the client's operation. The picture was rounded out by the important property data matrix.

All this gave us a good idea of the operational structure, existing knowledge and experience, together with legislative and political drivers, whilst also helping us identify any gaps where additional investigation may be required.

Central to our assessment and recommendations was this 'Base Line Information', as we can only move forward when we know our starting point.

We break the wealth of information into easily managed sections to help shape our recommendations:

**Roles & Responsibilities** - we built an understanding of the organisation structure, including roles, responsibilities and accountabilities, together with the governance process.

**Base Line Information** - we gained as much information about the energy consumption, building fabric, systems and operational processes as possible, through consultation with the relevant personnel.

**Targets & Aspirations** – understanding the existing energy and carbon related targets and how they are being monitored/ administered was critical to our work.

**Business Continuity** – the successful implementation of this project, required us to understand how the organisation worked and recognise the critical risk areas, to ensure minimal impact on the hospitals' day-to-day operations, whilst identifying the best opportunities for improvement.

**Finance & Funding** – to deliver an efficient, cost-effective project, we had to understand the client's financial model option(s) and the availability of capital and or revenue funding, requirement for returns, timescales and corporate parameters around investment risk.

**Timescale Targets & Constraints** - the delivery timescales were driven by business engagement, current available information, targets, legislation, business continuity and risk as well as finance and funding model.





## | The Work

This particular project, across the Trust's large hospitals, clinics and smaller community assets required a broad range of initiatives to deliver the outstanding savings predicted by our specialist engineering team.

Our detailed understanding of current legislation including CRC and the Climate Change Act, ensured we identified specific

targets and associated timescales, considering relevant commercial, technical, corporate and political constraints.

The procurement process was quick, relatively pain free and successful in securing the services of an experienced contractor to implement a range of initiatives, as highlighted below.

## | Initiatives

- ✓ Lighting & Controls
- ✓ Refrigeration Controls
- ✓ Heat Recovery
- ✓ Pipework Insulation
- ✓ Energy Display Meters
- ✓ Solar PV
- ✓ Variable Speed Drives
- ✓ Pump Replacement
- ✓ Behaviour

# | The Results

It is gratifying to report that the Trust adopted our recommendations and emphatically achieved the predicted results. We delivered guaranteed savings of around £900k per annum, which equates to about 18% of the Trust's annual energy spend.

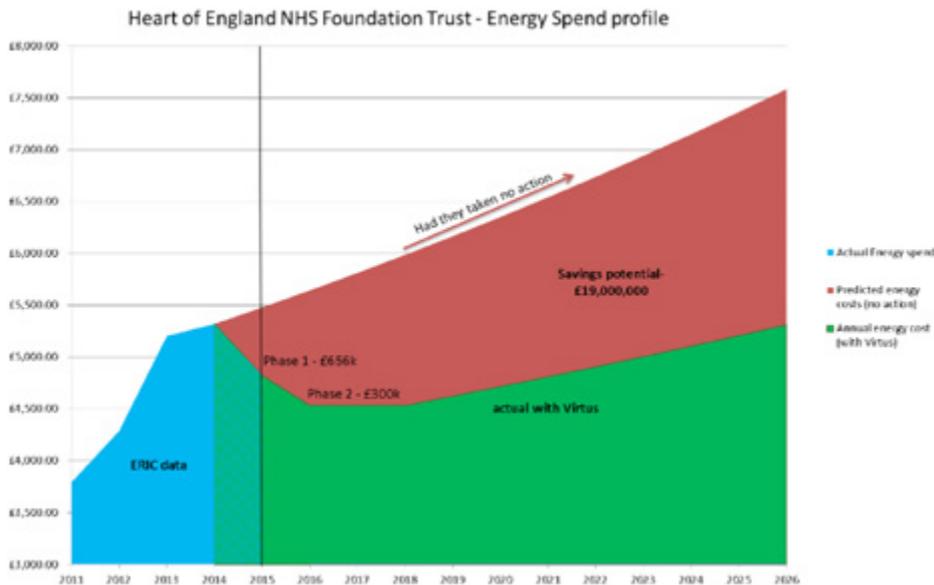
The initial expenditure to deliver these results will achieve payback in 4.3 years, with a total saving of £19m achieved over 10 years from implementation, which only took 6 - 9 months from the start.

Our experience of similar projects helped

UHB obtain Department of Health Grant Funding for £2.8m to help with funding the improvements.

Our unique approach offers continued improvement through the identification of new initiatives during the 4 years in the run-up to payback.

A ready-made suite of procurement documents helped speed up the appointment of contractors to undertake the improvements, leaning heavily on our past experience of running similar exercises.





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