



### PROJECT SUMMARY:



**CLIENT**  
York Teaching Hospital  
NHS Foundation Trust

**PROJECT**  
CHP

**TIMESCALE:**  
February 2015 - March  
2016

**CONTRACT VALUE:**  
£4.4 million

## OVERVIEW

After a successful energy scheme at York Teaching Hospital, the Trust wanted to make similar improvements at their Scarborough and Bridlington hospitals, reducing their energy spend and substantially decreasing their carbon emissions.

Both projects were procured as a joint contract through the Carbon & Energy Framework and, working with our sister company, Vital Efficiency, once again, we were chosen to design, install, commission, operate and maintain and act as the Energy Services Company (ESCO).

## CHALLENGES

All retrofit projects bring inherent challenges due to the fact that they have not been specifically designed for the replacement plant and equipment and the projects at Scarborough and Bridlington would see extremely tight tolerances on the delivery and installation of large pieces of plant and equipment.

All work would be done while the hospitals were "live" meaning

we would work out of hours and weekends to minimise any disruption and liaising closely with all departments to ensure they could continue to provide an uninterrupted service.

The project would be underpinned by an Energy Performance Contract, which would see Vital guarantee carbon reduction and financial saving targets over the course of the 15 year contract.

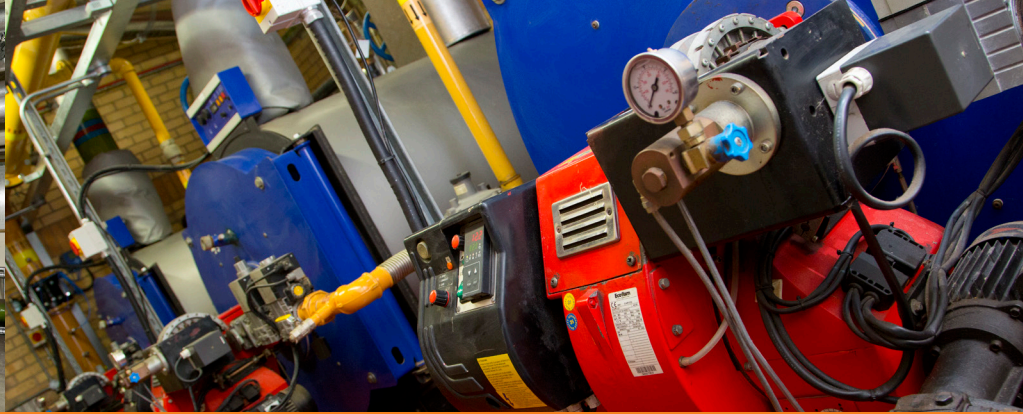
## THE SOLUTION

Vital Energi employ a dual approach to its projects. Initially, our sister company, Vital Efficiency focuses on energy reduction, identifying profit-generating areas where we can reduce energy which in turn reduces costs and carbon emissions.

At both Bridlington and Scarborough, our energy reduction specialists saw the opportunity to upgrade light fittings from outmoded tube lighting to more modern, energy efficient lumens, which would not only save money, but improve the quality of lighting on the hospital premises.

### THE BENEFITS:

- > Accelerated procurement and delivery through the Carbon & Energy Fund
- > Over 40,000 tonnes of CO2 reduction
- > £10m in energy savings
- > 15-year O&M contract
- > Single contractor bringing continuity throughout



*“ Vital won the project as they thought differently to others and came up with solutions others didn’t. Vital understood the Trusts requirements and provided significant contributions to realising our aspirations. Vital were the only company to consider keeping the steam network and retaining its reliability and that was what delivered the project successfully. ”*

BRIAN GOLDING -ENERGY MANAGER  
YORK TEACHING HOSPITAL NHS FOUNDATION TRUST

All lighting upgrades were completed and commissioned ahead of schedule. One all energy reduction measures have been identified, Vital Energi then designs the optimum energy generation solution.

At Scarborough Hospital, Vital Energi, along with their sister company Vital Efficienci, upgraded the Building Management System, modifying and improving panels to facilitate the newly installed equipment and installing heat meters to allow for accurate monitoring and measuring of energy. These improvements allowed the designers to specify a smaller 776kWe CHP engine which could run at full capacity, giving increased efficiency.

This CHP was delivered in a containerised unit specifically designed to acoustically reduce the amount of noise. Due to the size of the equipment, it was delivered on an oversized vehicle and the delivery and placement of the engine had to be carefully planned. It was then craned from the lorry and into place with only 50mm to spare at some points in the procedure.

In addition to the CHP, Vital performed major modification works to the flue headers under instructions from the Trust, completing work in a single 12 hour shift, rather than the original 2 day estimate.

Scarborough Hospital called for a substantial number of client instructed variations completed during the project time frame due to issues uncovered by dilapidation surveys by the Vital Energi project team. By identifying and addressing all issues it ensured the client had a more robust and reliable steam system and boiler houses and reduced

the potential for system failure.

The project called for several phases of work which could have caused potential disruption to the hospital, but through careful management and liaison with hospital departments Vital were able to keep this to a minimum. Vital would need to shut down the steam, domestic and low temperature hot water systems, but were able to schedule work for weekends and out of hours times to minimise disruption. Similarly, when the project called for us to install low temperature hot water pipework across the main access route to the NHS stores and waste disposal areas we were able to schedule these works to have the least impact.

At Bridlington Hospital we installed a 238kWe CHP unit which will contribute towards reducing the hospital’s CO2 emissions by 676 tonnes per year, which is a reduction of approximately 44 per cent. The CHP unit will supply all of the hospital’s night time electricity, over 50% of its day time electricity and make a substantial contribution to the heating and hot water supply.

Our sister company, Vital Efficienci undertook the installation of the Supervisory Control And Data Acquisition (SCADA) system which allows for remote monitoring and control, providing accurate feedback on energy usage and performance which can be used to constantly improve the system, making it more efficient. This system, which was installed at both sites, also includes a state of the art alarm system, alerting on-duty engineers via text messages, email and phone, allowing them to address any issues at the earliest point.

## THE CONCLUSION:

York Teaching Hospitals NHS Foundation Trust had ambitions to replicate the success of its original energy scheme at other campuses and by applying the same demand reduction and optimised generation strategy, Vital were able to design and install a schemes which will deliver a combined

**REDUCTION  
OF OVER  
42,000**

tonnes of CO2 and almost £10million of energy savings during the 15 year contract. The holistic nature of the contract ensured continuity for the project, from design to asset management, with Vital Energi taking complete responsibility and delivering an on-time and on-budget project.