University Hospital of North Staffordshire delivers on its green ambition thanks to ENER-G’s CHP system

The University Hospital of North Staffordshire NHS Trust has partnered with ENER-G Combined Power to install a combined heat and power unit (CHP) as a cost effective tool for improving environmental performance and reducing costs associated with energy generation.

The University Hospital of North Staffordshire NHS Trust (UHNS) is a large teaching hospital in partnership with Keele University caring for over 700,000 people each year. The hospital's main site – City General Hospital located in Stoke-on-Trent, provides general acute services for approximately 500,000 people in the North Staffordshire area.

UNHS along with almost 70 hospitals across the UK received a share of a 50 million pound fund to cut the NHS energy bill. Almost 1.5 million pounds of funding was secured from the NHS Energy Efficiency Capital Funding Initiative for a new CHP unit to be installed on the Trust’s City General Hospital site.

An ODJE competitive tender was issued by Nifes Consulting Engineers on behalf of the Trust. ENER-G successfully completed the PQQ stage which was swiftly followed by an ITT competitive invite for the installation & maintenance of a CHP unit.

ENER-G successfully tendered to replace the hospital's existing Deutz 1280kW CHP for a new, highly efficient ENER-G 1.2MW unit. The contract was signed on the 27th September 2013.

ENER-G decommissioned and disassembled the existing unit then cleared and re-organised the plant room ready for the new system to be put in place. The new ENER-G 1.2MW CHP was installed and mechanically and electrically constructed. As the project was part of the NHS Energy Efficiency Capital Funding Initiative, the scheme had to be successfully completed before March 2014.

Elaine Andrews, Head of Environmental Sustainability at UHNS, said: “Installing a Combined Heat and Power Engine will further reduce our impact on the environment and significantly reduce carbon emissions. There is also a cost implication - in recent years, the cost of energy has been rising between 10% and 20% each year and this trend is likely to continue.

This project will deliver recurring revenue savings in energy costs. As well as helping to cut carbon emissions and save the environment, all the money saved in energy bills will be redirected to front line patient care.”
The benefits of CHP in the Healthcare industry:
• Offers financial savings over conventional energy supply
• Avoids Climate Change Levy
• Primary energy savings deliver lower energy bills
• Higher efficiency offers reduced greenhouse gas emissions offsetting the impact of the Carbon Reduction Commitment
• Greater security of supply and plentiful hot water
• Flexible procurement options
• Zero CAPEX required
• VAT savings
• Possible grant funding

Charlie Cox, energy manager at UHNS, added: “Being able to generate our own power locally on site means that there will be a lot less energy wasted through transmission and distribution.”

The ENER-G CHP engine will reduce the General Hospital’s carbon footprint by 95 tonnes each year and reduce carbon emissions by 2,792 tonnes per year. This is almost 8% of the Trust’s current carbon output and equivalent to the environmental benefit of removing 991 cars from the road.

As well as the environmental benefits, annual energy costs at the Trust are also expected to be reduced by more than 400,000 pounds within five years. The cost of the scheme was £1,000,000 under a capital purchase agreement.

Alan Barlow, Managing Director of ENER-G Combined Power Ltd, said: “The Trust is demonstrating environmental leadership in switching to low carbon CHP technology, which will make a dramatic impact on the hospital’s carbon footprint and release vital cash savings.

We have completed more than 50 integrated healthcare projects across the NHS estate and look forward to helping UHNS to deliver on its green ambitions.”

Operation and Maintenance
UHNS recognises the need for regular maintenance of their CHP unit and have taken out a fully comprehensive operation and maintenance package with ENER-G. With ENER-G’s Premier Plus service contract, UHNS benefit from a range of services including 24 hour remote monitoring, a dedicated site engineer and all inclusive parts and labour required to rectify faults or repairs for the contract term. Premier Plus is the number one CHP maintenance package in the industry.

As Europe’s biggest employer, the NHS contributes approximately 3% of England’s total carbon dioxide emissions, so there is a powerful need to implement effective carbon abatement strategies like CHP. A political mandate has now been set through proposals for a new Carbon Reduction Strategy that commits the service as a whole to reducing emissions by 60% by 2050. The potential for CHP use in the NHS is huge.

About ENER-G
ENER-G develops, delivers and finances sustainable energy solutions and technologies on a business to business basis worldwide.

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Case Study:
University Hospital of North Staffordshire

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ENER-G 1.2MW CHP unit at University Hospital of North Staffordshire