



CHP case study

University Hospital of North Tees

The Site:

University Hospital in the North East of England.

Typical of a hospital, the site has a consistently high power and heating demand throughout the year, making it a key candidate for CHP.

NHS reduces costs with a new energy centre and gas-fired CHP

Location:

University Hospital of North Tees

Date Operational:

June 2019

Annual Cost Saving from 1.7 MWe CHP:

£1 million

Project Objective:

To replace the existing 1960s energy centre with new, to provide low carbon, low cost electricity and heat to help meet site demand.

The Need:

- To replace the old 1960s boiler house with a modern-day solution that could provide a greater generating capacity, reducing the requirements of back-up diesel generators.
 - To reduce energy costs and prepare for expected expansion of the hospital.
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Implemented Solution:

- 1.7MWe CHP with an auxiliary fired heat recovery boiler and two standby fired boilers. All boilers are dual fuel such that they can use both natural gas and oil (in the event of a disruption to the gas supply, oil can be used as a backup). All plant was housed in a newly built energy centre.
 - The CHP was sized to meet the baseload space heating and hot water requirement of the site, which is fairly consistent year-round.
 - A new Building Management System (BMS) has been installed to optimise the use of plant for maximum energy efficiency.
 - Other works included as part of the energy centre upgrade included the replacement of emergency generators and LV/HV distribution networks.
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The Benefits:

- Total cost savings from the CHP alone, which avoids the purchase of grid electricity and gains tax relief from CHPQA accreditation, has amounted to savings of over £1 million a year. The total investment cost of the new energy centre including the new CHP, boilers and controls system came to £7 million.
 - Reliable heating and power solution with the engine cooling water of the CHP alone already providing 90% of the hot water and 25% of the space heating requirement of the entire site.
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‘The new energy centre has and will continue to allow us to provide the very best care to our patients now and for many years to come.’

Barbara Bright

Director of Corporate Affairs
and Chief of Staff

