

CHP AND UTILITIES MANAGEMENT

Electricity, hot water, heating, standby generation

ROYAL VICTORIA INFIRMARY

Royal Victoria Infirmary saves £0.5million per year using new dedicated energy centre

"I'm very impressed with what has been achieved in this partnership which is an excellent example of how PFI benefits everybody. It will bring big benefits to the local environment and the local health economy - this ultimately benefits patients."

Melanie Johnson MP,
Parliamentary under Secretary of State for Public Health

Customer profile

The Royal Victoria Infirmary (RVI) is one of the leading UK teaching hospitals, has around 850 beds including the University medical school and dental hospital and provides general medicine and surgery, transplantation, rehabilitation and specialist intensive care. The RVI is part of the Newcastle-upon-Tyne Hospitals NHS Trust which has around two thousand beds divided across three sites in Newcastle Upon Tyne.

Site need

Before the new energy centre was built all the heat for the RVI was provided from six boilers which, in some cases, were over 40 years old. Electricity was supplied from the mains with emergency supplies available from diesel generators. With all of this plant nearing the end of its useful life, the advent of the Climate Change Levy and the potential extensive redevelopment of the RVI site, the Trust was keen to provide for their future requirements by investing in new energy plant. The Trust's own engineers had analysed the longer term needs of the facilities and concluded that a combined heat and power (CHP) plant was required.

Dalkia's solution

By investing £7million through the Private Finance Initiative (PFI) Dalkia have provided design, construction, operation and maintenance of a modern energy efficient centre at the hospital.

The energy centre will ensure future energy provision through a 25 year energy management contract and includes combined heat and power (CHP) systems and boiler plant that supplies all the electricity and heat for the hospital. Included in the system is emergency electrical generation plant that can supply the hospital during breaks in mains and CHP supplies. The hospital will enjoy stable supplies of heating, hot water and electricity for the next 25 years and the use of CHP will yield energy cost savings,



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reduced emissions and provide Climate Change Levy exemption. Use of the new energy centre gives the Hospital annual cost savings of £485,000 which can be directed to patient care.

By using an innovative emergency generation plant configuration the Royal Victoria Infirmary can test the standby generators under full load conditions at any time, and export the generated electricity, when optimum electricity prices can be achieved. This maintains confidence in the ability of the standby generators to provide uninterrupted electricity for the complete hospital site as well as returning revenue to the Hospital.

Melanie Johnson MP, Parliamentary Under Secretary of State for Public Health, officially opened the new Energy Centre in 2003.

Dalkia is responsible for:

- 2 x 15 tonne/hour Gas-Gas Oil Steam Boilers
- 2 x 15 tonne/hour Waste Heat Gas-Gas Oil
- 2 x 1.9MW gas CHP Units
- 3 x 1.5MW Standby Diesel Generators
- 1 x SCADA Plant Monitoring System
- Ancillary equipment to support plant and essential circuitry
- LTHW Mains to Hospital plant room
- Refurbishment of Building fabric
- Computerised monitoring and control supported by the Dalkia developed MARS and Doorway software systems.
- Energy management scheme to supply all heat and power to the hospital
- Export of the surplus electricity to the local regional electricity company

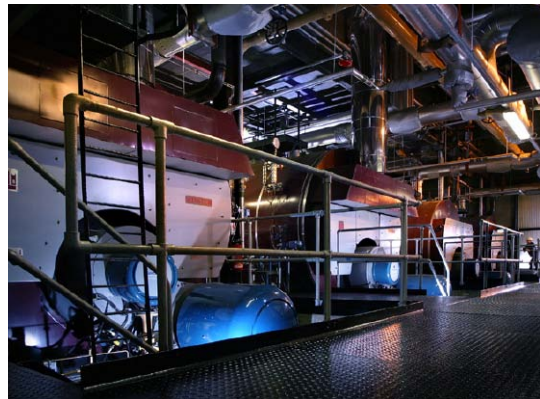
Dalkia are contractually responsible for the following service level agreements

- £7million finance of construction works paid back via finance charges over 20 years
- Operation and maintenance of all plant
- Repair / Replacement of Plant and risk cover for 25 years
- 24 hour remote monitoring and call-out via Dalkia's Site Monitoring Centre
- CCL management Submission / Monitoring & Targeting
- Energy Management Reviews and Safety Auditing
- Steam Pressure and Steam Quality

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BENEFITS

- Independent and stable energy supplies from dedicated energy centre
- Full 24 hour technical support for 25 years
- Annual savings of £485,000 after capital repayment
- Reduction in annual CO₂ emissions of 10,880 tonnes
- 100% electricity standby capacity
- Export of surplus electricity to other sites
- Capacity for "Newcastle Strategic Review" developments
- 25 year contract with replacement guarantee
- No capital expenditure



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