Finning UK & Ireland

Power Profile

Combined Heat & Power <<
Hospital <<

Customer
Rotherham Hospital

Location
Rotherham, UK

Customer requirement
Power generation with heat recovery

Services

Feasibility studies	☐	Project management	☑
Detailed design	☑	Installation	☑
Financing	☐	Commissioning	☑
Mechanical engineering	☑	Ongoing operation	☐
Civil engineering	☑	Maintenance	☑
Equipment supply	☑	Genuine parts supply	☑
Ancillary equipment	☑		

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Power Need

Rotherham Hospital required a generator to provide prime power to the hospital. With sustainable waste and energy solutions being of importance to the trust, a Combined Heat and Power (CHP) solution was specified where heat produced as a by-product can be fed back into the hospital's existing heating system.

Solutions

Following discussions to identify their requirements, Finning specified a containerised Caterpillar® G3516B gas generator set with an electrical output of 1.1 MWe and a thermal output from recovery of heat in the jacket water and exhaust of 1.5 MWth. The installation is based on a Caterpillar EAME-CIS Solution including: generator set, heat recovery modules, external radiator cooling system, local control and operation panels and fire detection and suppression systems. The local control panels were positioned in a separate control room within the container. The control panel is operated automatically with comprehensive fail safe monitoring and protection systems and is suitable to incorporate the necessary synchronisation and governing systems. The CHP solution uses heat exchangers to harvest heat from the engine water jacket, oil cooler, after cooler and exhaust gases to produce hot water. Finning connected this to the existing LTHW.

All equipment installed, including an external radiator cooling system, was acoustically treated to a level of 60 d(B)A @1m due to the installations proximity to key patient areas of the hospital.

The project also required Finning to undertake area preparation and civil works as well as the installation of a freestanding 15m flue stack, step up transformer and ring main unit.

Results

The Caterpillar G3516B generator is designed for operation 24 hours a day, 365 day a year and is the prime source of power for the hospital. The generator is synchronised with the mains grid supply which is used when extra power is needed.

The CHP system, which is connected to the existing heating system, offers a total heat recovery of 1545kW and is the prime source of heating for the hospital with the existing site boilers used to provide extra resource where required.

Following completion of the installation, testing took place that showed an overall energy efficiency for the first 30 days of operation to be 90.2%.

The system is considered to be suitable for a minimum 15 years of service, one of the requirements from the hospital, with Finning providing ongoing maintenance support throughout its life.

About Finning

Finning is the sole authorised dealer of Caterpillar engines and generators in the UK & Ireland, and one of the largest distributors of Caterpillar equipment and power systems in the world.

Through our products, people, systems and technology, Finning can provide power generation solutions including mission critical power, renewable power, Combined Heat & Power (CHP) and Uninterruptible Power Supply (UPS).

Our full service includes feasibility studies, detailed design, project management, installation, commissioning, ongoing operation and maintenance and finance capabilities.

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