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**Power
Generation**



Cogeneration Power

Case History

Royal Children's Hospital

Where:

Melbourne, Australia

What:

Fully integrated tri-generation and standby power solution incorporating two 1160 kWe Cummins C1160N 5C (QSK60) lean-burn gas generator sets, and three 2250 kVA C2250 D5 (QSK60) diesel generator sets, controlled by two digital master controllers, one each for the gas and diesel generators.

Purpose:

To provide reliable standby power support for Australia's greenest and most energy-efficient hospital.

Primary choice factors:

Cummins' ability to fully integrate gas and diesel generator technology, and to provide a fully integrated system of tri-generation and standby diesel generators without having to make two separate electrical systems.

Cummins Power Generation powers and stands by Australia's greenest hospital

The new A\$1 billion Royal Children's Hospital in Melbourne will be Australia's greenest hospital that will be supported by a tri-generation power plant featuring Cummins lean-burn gas generator sets. The plant is one of the green features at the hospital that will help reduce greenhouse gas emissions by up to 45%.

The world-class hospital is scheduled to open late in 2011, although the tri-generation plant and standby power system, which also features Cummins diesel generators, have already been commissioned before end of 2010.



Cummins has installed the standby power system at the hospital, incorporating three 2250 kVA Cummins diesel generator sets.



Adam Ferrara, Contracts Manager for the Cummins Power Generation team in Melbourne (left) with Nathan Saffery, Project Manager for PSG Elecraft.



Tri-generation plant at the new hospital features Cummins lean-burn gas generator sets.

The tri-generation system, which simultaneously produces electricity, heating and cooling, features two 1160 kWe Cummins C1160N 5C (QSK60) lean-burn gas generator sets, with each generator operating around 6,000 hours a year during peak demand.

“The tri-generation plant will provide base load power around the clock, reducing the hospital’s dependency on the grid and thus reducing electricity costs. This system alone will reduce the hospital’s CO2 emissions by around 20%,” says David Eccleston, Business Development Manager for Cummins Power Generation.

In addition, Cummins supports the standby power system at the hospital with three 2250 kVA C2250 D5 (QSK60) diesel generator sets that synchronize with the gas generators and load share in the event of a blackout. Cummins assisted with the design of the two digital master controllers, one each for the gas and diesel generators.

Heat recovered from the gas engines’ exhaust is converted via a Broad Absorption chiller to chill water for air conditioning and other uses at the new hospital. Cummins and its contractors also installed the complete noise and engine exhaust attenuation system for the diesel standby generators to achieve 75 db(A) at one meter.

Cummins worked closely with principal electrical services contractor PSG Elecraft and mechanical services contractor RACAH — a joint venture between AG Coombs and AE Smith — on the installation and integration of the gas generators with the diesel units.

“Cummins’ ability to fully integrate gas and diesel generator technology was one of the key differentiators between Cummins and the competition,” says Adam Ferrara, contracts manager for the Cummins power generation team in Melbourne.

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The new hospital, being built by Bovis Lend Lease in Parkville, will treat an extra 35,000 patients a year, with 85% of its 357 beds in single rooms, the highest percentage of any public hospital in Australia.



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