

CASTLE HILL RSL CLUB C2K AQUATIC CENTRE

Stage 1: Cogeneration Project



Project Name: C2K Aquatic Centre Cogeneration

Site Owner: Castle Hill RSL Club

System Supplier: Simons Green Energy

Commissioning Date: September 2011

Systems details:

- SEVA 142 kilowatt (kWe) gas engine Cogeneration unit
- Titanium Heat Exchangers
- 3,500 Litre Domestic Hot Water Storage Tank

Cogeneration Size:

- 142kWe (electrical), 2,130 kWh generated per day
- 207kWt (thermal), 3,105 kWh generated per day

Fuel Source: Natural Gas

Building Type: Aquatic Centre with four indoor pools, fitness centre and gymnasium.

Key Outcomes

Estimated payback period: 4.5 years

ROI: 30%

Average annual savings: Approx. \$80,000

CO2 reduction: 540 tonnes per annum

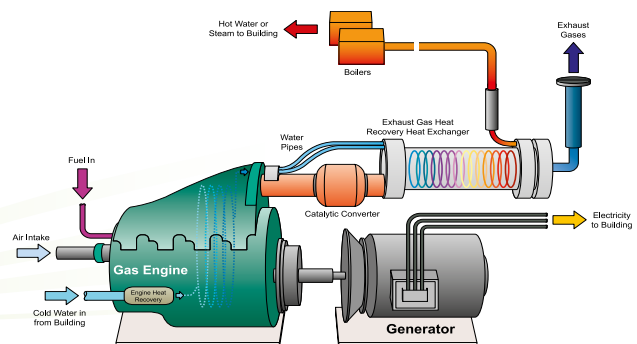
Background

Castle Hill RSL Club’s C2K Aquatic Centre is one of Sydney’s largest multi-purpose leisure and activity centres. The centre is open year round and offers facilities for everyone, ranging from toddlers to fifty plus groups, participating in activities covering swimming to fitness classes to Gymnasium activities and Fitness training.

The Club identified the need to improve the energy efficiency of their aquatic centre in order to reduce current and projected energy costs and reduce their carbon footprint. Simons Green Energy was engaged to design cogeneration system to provide the C2K Aquatic Centre with enough power to cover base load electricity demands while utilising waste heat to provide hot water for all of the Centre’s swimming pools, and domestic hot water storage tanks.

The Aquatic Centre has four indoor pools including a 25 metre pool, an aerobics pool, a program pool and spa pool. All of these pools were previously heated by costly electric heat pumps, while domestic hot water was supplied by gas fired hot water units.

The engineering team from Simons Green Energy worked closely with the Club to ensure a smooth installation without interruption to the operation of Centre. The team also liaised with Endeavour Energy to satisfy their strict design and installation regulations for connecting on-site power generation to the main power grid.



Specialists in energy systems for over 80 years

Details of C2K Cogeneration System



What is Cogeneration?

Cogeneration, also known as Combined Heat and Power (CHP), is the simultaneous production of two forms of energy — electricity and heat from a single fuel source, at the point of usage. Cogeneration uses a natural gas-powered engine to generate the on-site electricity and the waste heat from the engine is captured to provide heating for uses such as portable hot water, space heating and process heat for swimming pools and similar applications.

System Details

Designed and installed by Simons Green Energy, the Cogeneration Plant is made up of a SEVA 142 kilowatt (kWe) reciprocating gas engine, a series of heat exchangers and a 3,500 litre domestic hot water storage tank. The six cylinder MAN engine produces 775,320kW of electricity per year which has reduced energy costs dramatically.

Delivering Results

Castle Hill RSL Club has dramatically reduced their energy costs and carbon emissions with Cogeneration. After two years of successful operation, the Club proceed with the stage 2 of this project to install a 378 kW Trigeration System at their main building

When asked about the significance of this project to Castle Hill RSL Club, Facility Manager, Alan Depaoli said, "With several months of reliable and low cost operation, I am convinced that this has been an outstanding investment for the Club".

Benefits

- Reduces energy costs by approximately \$80,000 a year.
- Estimated internal rate of return %30 per annum over the lifetime of the system.
- Results in a payback period of approximately 4.5 years
- Reduces carbon emissions by 540 tonnes per annum, which is equivalent to removing 120 cars a year off the road.
- Produces 775,320 kW of electricity per year

"Together, Simons Green Energy and Castle Hill RSL have successfully implemented a sustainable and cost-efficient energy system, setting a benchmark for the Club industry and demonstrating its application for other similar sites throughout NSW and Australia". Said **Derek Simons, CEO of Simons Green Energy**

About Simons Green Energy

Simons Green Energy can offer a complete range of sustainable energy equipment, from Cogeneration, renewable electricity generation from biogas, energy from waste heat. They will design, size, develop, deliver, maintain and finance sustainable energy solutions and technologies Australia wide.

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