Oasis Regional Aquatic Centre Wagga Wagga

Cogeneration Project

Case Study

Project Name:
Oasis Regional Aquatic Centre - Cogeneration Project

Site Owner: Wagga Wagga City Council

System Supplier: Simons Green Energy

Systems Components:
- 229 kW Cogeneration unit + accessories

System Details:
ENER-G 230 Natural Gas Cogeneration Unit
- Total Electrical Output: 229 kW
- Total Thermal Output: 358 kW

Estimated payback period: Less than 2 years

Carbon emissions reductions: 1332 Tonnes per annum

First year cost savings: Approximately $276,000

Commissioning date: August 2013

System Applications:
- Base load electricity supply for the Aquatic Centre
- Heated water for swimming pool heating and space heating

Australian Government
Department of Resources, Energy and Tourism

This activity received funding from the Department of Climate Change and Energy Efficiency as part of the Community Energy Efficiency Program

Wagga Wagga City Council

Background

Oasis Regional Aquatic Centre was founded by Wagga Wagga City Council in 2003. The centre operates 7 days a week and offers a wide range of aquatic programs for kids and adults. Oasis Aquatic facilities comprise a 25 metres indoor pool, a 50 metres outdoors pool, a beach and water leisure areas, a turbo pool, a sports stadium and a children's playground.

Wagga Wagga's Aquatic Centre identified the need to upgrade their conventional heating system to reduce the current and projected energy costs as well as cutting carbon emissions. Considering the centre's constant electricity and heating demand, Cogeneration resulted to be the most cost effective solution to cater with their energy needs, providing the facilities with up to 85% of the electricity demand, and hot water for swimming pool heating as well as pool ventilation heating.

The installation of a 229 kW natural gas fired Cogeneration System was made possible through co-funding by the Department of Climate Change and Energy Efficiency, under their Community Energy Efficiency Program (CEEP). With a CEEP grant of $412,582 the estimated payback period is less than two years and future energy costs savings are expected to be an average of $320,000 per year taking into account assumed electricity prices and gas price increases.

Ben Creighton, Manager of Oasis Aquatic Centre said "The installation of a 229kW cogeneration system at the Oasis Aquatic Centre has been a very successful project for Wagga Wagga City Council in partnership with CEEP and the Clean Energy Finance Corporation. The commissioned plant is now in operation and is producing a significant reduction in energy costs while also providing environmental benefits through the reduction in carbon emissions."

Simons Green Energy was engaged to design, supply, install and maintain the new Cogeneration System and worked closely with local electrical and mechanical contractors to ensure a smooth and timely installation.

SIMONS GREEN ENERGY

Specialists in energy systems for over 80 years

Oasis Regional Aquatic Centre - Wagga Wagga

Case Study

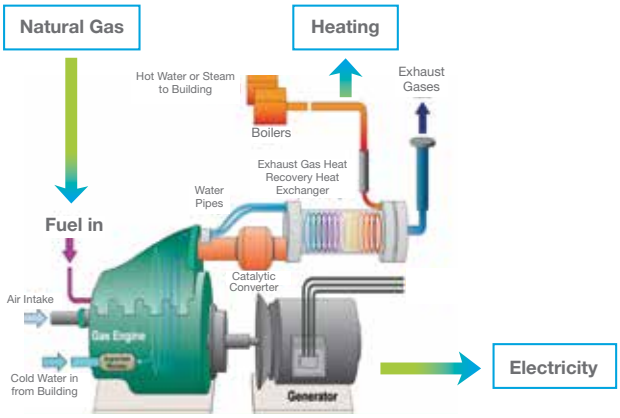

Diagram: Cogeneration System

Scope of works: Cogeneration

Upon winning the Council's competitive tender process, Simons Green Energy was appointed as the supplier and main contractor for the project in January 2013. Installation works commenced in June 2013, including the removal of an existing hot water boiler and pouring new plinth slabs to support the new plant. The Cogeneration unit was built to Simons' specification by ENER-G in the UK, and shipped to Sydney. Upon delivery to Wagga, the installation was completed within 6 weeks. The system was then successfully commissioned on time by Simons Green Energy in early August 2013.

System Details

The Cogeneration System comprises an ENER-G 230 Cogeneration unit, dry air cooler, circulating pumps, expansion tanks, along with ventilation, exhaust and control systems. The Cogeneration unit itself was supplied as a complete factory tested packaged unit with engine, generator sets, controls and heat recovery system. The system operates 24 hours a day 7 days a week, providing cleaner electricity than the grid supplied power with the surplus of "free" heating for the swimming pools and for space heating.

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. Cogeneration uses a natural gas-powered engine to generate electricity on site and converts the waste heat from the engine into usable heat for space heating, process heat for manufacturing, domestic hot water, heating for swimming pools and similar applications. On site Cogeneration Systems have a total efficiency of up to 85%, as compared to the 25-35% efficiency of coal-fired grid- supplied electricity.

On site electricity generated by Cogeneration is cheaper and cleaner than coal-fired grid-supplied electricity. Cogeneration thereby provides substantial cost savings, significantly improved energy efficiency and up to 50% lower carbon emissions.

Benefits

- Reduces energy costs by approximately $276,000 in the first year and an estimated average of $320,000 annually over the first five years.
- Estimated return on investment of 50% per annum.
- Results in a payback period of less than 2 years.
- Reduces carbon emissions by 1332 tonnes per annum which is equivalent to removing 296 cars a year off the road.
- Provides 229 kW of electricity.
- Produces 358 kW (t) of thermal output in the form of hot water as a "free" by-product from the engine's waste heat stream.

Derek Simons, CEO of Simons Green Energy said: "The Cogeneration System at Wagga Wagga's Oasis Regional Aquatic Centre will deliver compelling environmental and financial benefits, and demonstrates the Centre's commitment to sustainability within the region. We are very proud of being part of this sustainable energy project that will benefit Wagga Wagga's community and the generations to come.

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