

Mingara Recreation Club Cogeneration Project



Background

Mingara Recreation Club is located in Tumby Umbi and is part of the Mingara Leisure Group. First founded in 1972, the group is the social and sporting hub for its 29,500 members on the Central Coast and operates Clubs in Port Macquarie, Canterbury and Chatswood.

It is Mingara's vision to make a significant contribution to the quality of community life, and it is helping achieve this by minimising its environmental footprint. Over the years, the Club has worked on a range of sustainability projects aligned to meeting this objective including water harvesting and recycling, LED lighting replacement, as well as general, cardboard and co-mingled waste management.

Objective

Mingara Recreation Club's facilities offer a unique swimming centre, a fitness centre, a relaxation area, restaurants and more. The aquatic centre has a 50m indoor Olympic pool, hydrotherapy and spa pools and a kid's aqua-play area. In order to provide members with low emissions facilities to make a real contribution to the environment whilst minimising energy costs, the Club installed an innovative Cogeneration Energy System in August 2014.

Applications

The new Cogeneration System comprises two 229 kW Cogeneration units that operate 15 hours a day, 7 days a week and generate over 50% of the electricity required to power the club, reducing its reliance on grid supplied power. The waste heat from the Cogeneration units is used to heat all the pools of the aquatic centre as well as to provide hot water for showers at the aquatic and fitness centres.

With the installation of the two Cogeneration units, Mingara Recreation Club will dramatically reduce its environmental footprint while maximising energy savings over 20 years.

This initiative was made possible thanks to the grant funding received from the Australian Government in 2014. Simons Green Energy was engaged to deliver a complete Cogeneration solution and worked closely with Mingara Recreation Club to ensure a smooth installation.

Key Facts

Project Name: Mingara Recreation Club - Cogeneration Project

System supplier: Simons Green Energy

Commissioning date: August 2014

Cogeneration system components:

2 x ENER-G 229 kW Cogeneration units:

- Total electrical output 458 kW(e)
- Total thermal output 716 kW(t)

Application:

- Base load electricity for main building
- Water heating for swimming pools
- Hot water for showers

Carbon emissions reduction: 1,500 tonnes per annum

Average cost savings: \$350,000 per year during the first 5 years

Payback period: 2.5 years

ROI: 45%



Australian Government
Department of Industry

This activity received funding from the Australian Government.



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Mingara Recreation Club – Cogeneration Project



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, 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 30% efficiency of coal-fired grid-supplied electricity.

Installation

The installation of 2 x 229 kW Cogeneration units required the construction of a new internal plant room located in the basement of the main club building to house the system. The plant room is located adjacent to the Club's administration offices and the equipment and its installation was designed to ensure that no acoustic or vibration impacts would be experienced.

"We are very excited by the opportunities to reduce the environmental footprint that this co-generation plant provides us with. The process has been executed very smoothly by Simons Green Energy and coordination between the Simons team and our own personnel has been very successful. If anyone is searching for an alternative power solution, we would wholeheartedly recommend Simons Green Energy", said Paul Barnett, Chief Executive Officer, Mingara Leisure Group.

The two Cogeneration units were delivered to site in April 2014. Simons Green Energy's team successfully commissioned the units in August 2014.

Benefits

The Cogeneration project received \$818,872 in grant funding from the Australian Government with the Club providing the remainder of the project funds. The estimated payback period for the Club is only two and a half years. With a ROI of 45%, Mingara Recreation Club is set to save approximately \$350,000 a year on energy costs over the next 20 years whilst reducing its carbon footprint by 26%.

- Reduces future energy costs by an average of \$350,000 a year.
- Delivers an estimated return on investment of 45%.
- Generates a payback on investment of just over two and a half years.
- Cuts carbon emissions by more than 26%, which is equivalent to planting 15,000 new trees a year.
- Generates 458 kW(e) of electricity at peak capacity and up to 710 kW(t) of heat, enough to power 416 homes.
- Comprises 2 x 229 kW ENER-G Cogeneration units, a waste heat radiator and mechanical integration with the Club's existing pool and domestic water heaters.

"I'm fortunate to be able to work on key projects such as the Cogeneration at Mingara Recreation Club and share my passion of inspiring other to take steps to reduce their environmental footprint. In my role as facilities manager, I am continually looking for ways to reduce our environmental footprint, use products more effectively and minimise our operating costs", concluded Andy Lord – Facilities Manager, Mingara Leisure Group

For further details contact us:

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