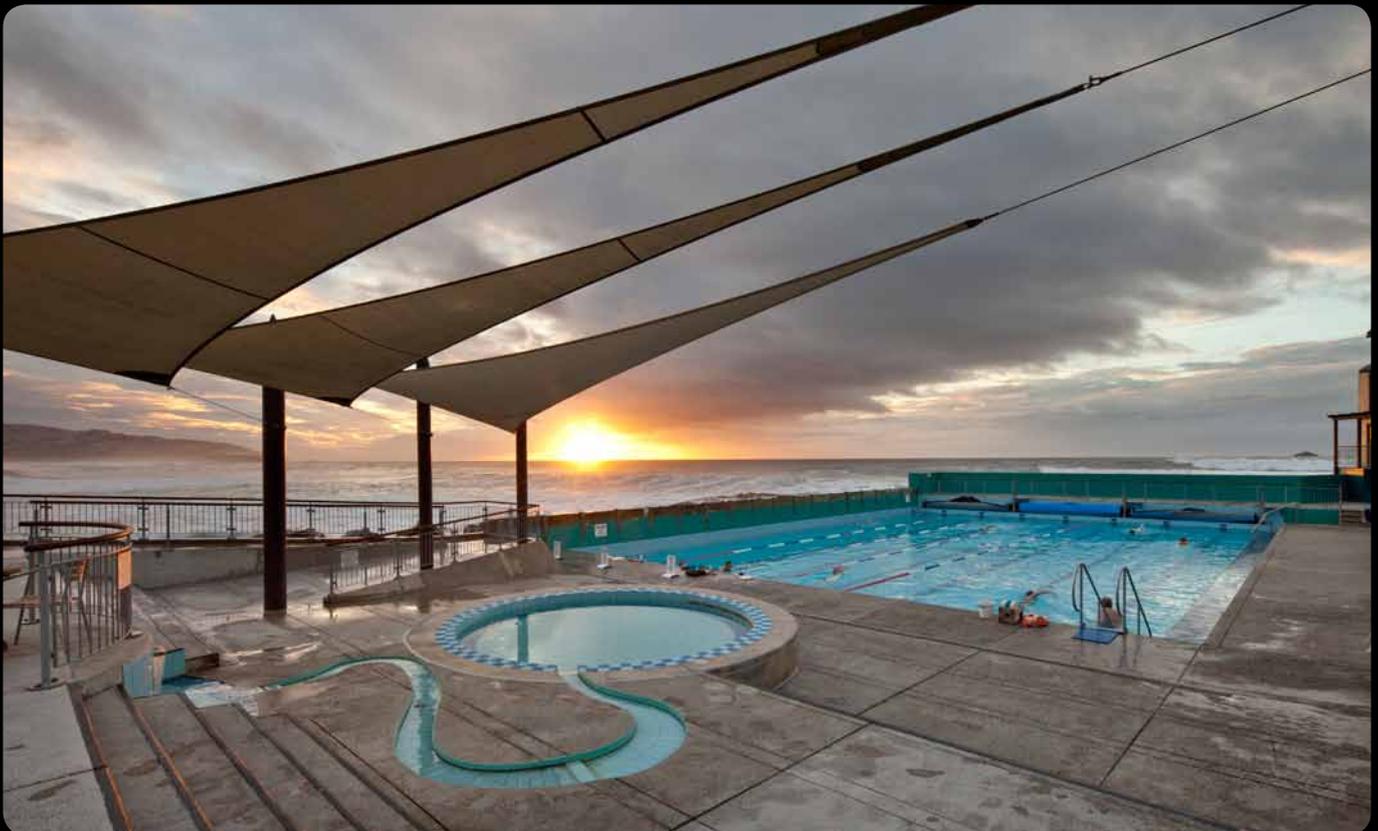




How Dunedin heated their

swimming pool without taking a bath



Client: Dunedin City Council

EnergyMaster: Lloyd McGinty, Ahika Consulting

Challenge: Increase Dunedin City Council's energy efficiency across a number of the Council's public amenities.

Solution: Comprehensive energy audits and upgrades of the city's swimming pools and five major pump stations were completed. Energy Efficiency and Conservation Authority (EECA) funding for projects was accessed. A programme to change the heating of the city's swimming pools from electric heaters to heat pumps resulted, with a further opportunity to convert the largest pool to wood fuels identified. A programme is also underway to upgrade one of the Council's major pump stations to make them more energy efficient by replacing over-specified pumps with smaller, more efficient models.

In brief: Ahika worked with Dunedin City Council to obtain significant funding, including 40 per cent of the costs of the first pump station upgrade, and is seeking EECA support for further initiatives with the Council. Projects already implemented, or ones that are in the planning stages, will deliver the following:

- Estimated savings for Port Chalmers, Mosgiel and St Clair pools (combined) of at least \$62,000 per annum.
- Estimated savings for Moana pool of \$1.2-\$2.3m over five years.
- Estimated savings from the first boiler upgrade of \$30,000-\$40,000 per annum.
- Estimated payback period of three years for the Council to recover the capital costs of the projects.

The project

Neville Auton, Energy Manager for Dunedin City Council, wanted to reduce energy costs across a number of the Council's swimming pools, and access potential funding from EECA to help implement the improvement projects. He also saw some opportunities in auditing the performance of the City's pump stations.

The solution

Neville worked with Ahika Consulting director Lloyd McGinty to gain EECA funding for a range of projects. They developed a plan to carry out a work programme across the City's pools and water pump stations.

Ahika carried out energy audits of the community swimming pools, identifying more energy efficient ways to heat the water. This included replacing the electric water heaters at most of the pools with more efficient heat pumps. This change has already been implemented at Port Chalmers and Mosgiel community pools, as well as the historic St Clair heated outdoor salt water pool, with significant energy savings of more than 60 per cent. Heating the St Clair pool was a particular challenge because of the high heat load due to higher levels of evaporation being outside. And for these three summer-only pools, there is a significant energy load in November when the pools initially get heated from cold.

Ahika also recommended replacing the fossil fuel powered boiler at the larger Moana pool with a woodchip combustion system to provide significant fuel cost savings.

Ahika is an industrial project partner with EECA in the pump and fans sector and was able to obtain funding to investigate and assess the Council's five main pump stations.

"In three of these we identified good opportunities to improve energy efficiency," Lloyd said. "These are old pump stations and we found that there were some straightforward solutions to get them operating more efficiently."

"One pump station used 200kW pumps to deliver water to a reservoir. The pump audit found that the pressure in the system had changed over the years, changing the way water was delivered into the system, and that a 90kW pump was able to deliver the same flow and duty. We are currently project managing that upgrade and seeking funding for a second pump station upgrade."

Ahika has also worked with the Council on a number of other projects, including a feasibility study into developing a future sustainable wood energy cluster with Dunedin City Council subsidiary City Forests for use in commercial boilers.

The company

Ahika Consulting is an environmental management and energy efficiency consulting company. The multidisciplinary team has skills in a range of areas including energy conservation, and works with a diverse range of clients ranging from land and business owners to public institutions and commercial partners. Ahika provides a holistic approach to energy solutions to conserve the natural environment while improving clients' business profitability. Services include energy auditing and management, tariff analysis and pricing, renewable energy solutions, wood energy boilers and fuel solutions and building design from an energy perspective. Ahika also provides project implementation and management services.

"The opportunity to have experienced external energy auditors working with our staff to bring about energy efficiencies could only have positive outcomes. Ahika's access to EECA funding has allowed Dunedin City Council to undertake projects that would normally only have maintenance funding in the future, with little opportunity to improve energy efficiency. The initial work undertaken by Lloyd has seen investment in capital projects to improve the efficiency of operation within the aquatics and potable water areas of the Council's energy use portfolio. Ahika provided comprehensive reports to council staff, and the quality and depth of inputs provided confidence in driving forward capital investment projects".

Neville Auton, Energy Manager, Dunedin City Council.



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