



## CASE STUDY: *Aquatic Centre saves 114 tonnes of carbon emissions in 12 months*

Whakatāne District Council has prioritised the use of heat pumps over natural gas boilers by optimising water heating trends. Annual carbon emissions have reduced by 114 tonnes as a result.

### THE OPPORTUNITY

The Whakatāne Aquatic and Fitness Centre is operated by the Whakatāne District Council and is an important community facility. It is visited by approximately 130,000 people annually and provides an excellent opportunity for its visitors to increase fitness and overall health.

The Aquatic Centre has two heating systems for its pools; a heat pump system used largely for the indoor pools as well as two gas boilers that heat the outdoor pool and can also be used to heat indoor pools, if needed.

As part of the Whakatāne District Council Climate Change Project, Emsol carried out an energy and carbon audit across Council facilities in 2019. The use of natural gas boilers for water heating at the Aquatic Centre was identified as a large source of carbon emissions.

### THE SOLUTION

Emsol and the team at the Aquatic Centre identified that heating water using heat pumps was more cost-effective and had lower carbon emissions than using natural gas boilers.

The boilers work by combusting natural gas (a fossil fuel) and transferring heat generated to the pool water. Boilers of this type typically lose 10% of heat as it escapes through exhaust fumes and as heat to the surrounding area (i.e. 90% efficient.)



Figure 1: Whakatāne Aquatic Centre Manager Andrew Smith (right) and Administration and Programmes Officer Sue Holani.

Because New Zealand generates approximately 80% of its electricity renewably, the carbon emissions associated with the use of the Aquatic Centre’s heatpump are very low.

The Aquatic Centre team identified that it could minimise boiler use by optimising temperature control parameters to avoid short periods of high demand that cause the boilers to kick in.

**OPPORTUNITY IDENTIFIED DURING AN ENERGY AND CARBON AUDIT**



**519,000 kWh**  
**114,000kg CO2-e**  
SAVED EACH YEAR



FURTHER ENERGY SAVINGS PROJECTS IN PROGRESS!

**\$35,000**  
SAVED IN THE LAST 12 MONTHS



**THE SAVINGS**

Compared to a June 2017 to May 2018 baseline, set during the energy and carbon audit by Emsol, natural gas used at the Aquatic Centre in 2019 was reduced by 55% (refer to Figure 2 below). Electricity was increased by 3.3% due to increased use of the heat pump. The net effect has been a reduction in annual carbon emissions of 114,000kg CO2-e (approx. four households worth) and a cost saving of around \$35,000 in the last 12 months.

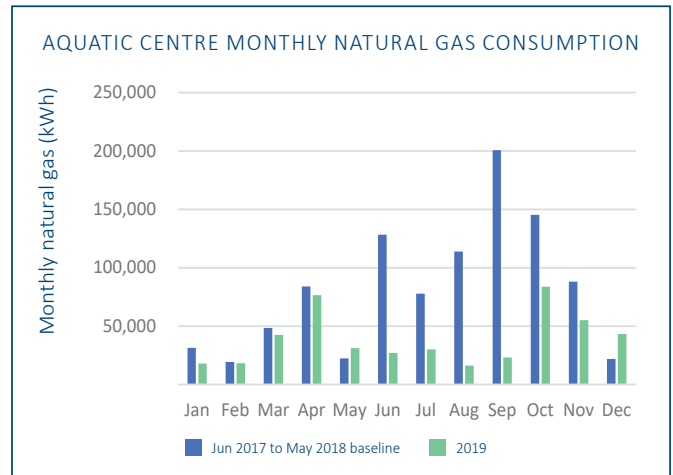


Figure 2: Monthly natural gas used by the Aquatic Centre.

**THE FUTURE**

Building off their great success, the team at the Aquatic Centre is looking at ways to further reduce energy use. Options are currently being evaluated for replacing their gas boilers with greener alternatives.

**OUR CLIMATE CHANGE PRINCIPLES | NGĀ MĀTĀPONO HURINGA ĀHUARANGI**



We will act now  
*Ka mahi mātou ināianei*



We will care for and protect the environment  
*Ka manaaki, ka tiaki mātou i te taiao*



We will acknowledge those most affected  
*Ka mihi mātou ki a rātou kua pā mārika i ngā take Huringa Āhuarangi*



We will think and act long term  
*Ka whakaaro pae tawhiti, ka mahi pae tawhiti mātou*



We will build capacity to recover from difficulties  
*Ka whakakaha mātou i a tātou*



We will be part of the solution  
*Ka āwhina mātou ki te whakatika i ngā raru*



We will learn  
*Ka ako mātou*

For more information on our Climate Change Principles and projects, head to [whakatane.govt.nz/climate-change](http://whakatane.govt.nz/climate-change)

**Further information**

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