

# Christchurch Airport is landing energy savings every day

Christchurch Airport (CIAL) has been keeping tabs on its energy use for more than a decade, but with increased services and extensions to terminal buildings, a more holistic review was needed to update efficiency levels and bring home energy and cost savings.

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## OVERVIEW

Christchurch is New Zealand's second largest airport. The passenger terminal buildings have grown to 77,600 m<sup>2</sup> over time and these now host six million passengers a year.

A business of this size has much to gain from using energy conservatively and, with a reputation to uphold in functioning sustainably, the airport's energy management plan needed updating.

Long-term energy efficiency partners, Enercon, have conducted CIAL's monthly energy reviews since 2005 and have seen the terminal buildings undergo significant change, including the addition of the Air New Zealand Regional Lounge in 2011, and the completion of the Integrated Terminal Project (ITP) in 2012, which combined three terminals and replaced the existing domestic terminal.

It was clear to Enercon and CIAL that a more detailed energy audit was due, one that considered the entire area of business, rather than bolting on energy savings to the individual developments and technologies that have been introduced over time.

With the support of EECA BUSINESS, Enercon carried out an energy management package, including a level 2 energy audit and building management system (BMS) review at Christchurch Airport between May and September 2013.

The review found many of the heating, ventilation and air-conditioning (HVAC) and lighting systems were operating 24 hours a day, seven days a week, even when not required.

In addition, the HVAC systems did not have an air temperature dead-band to prevent frequent switching from heating to cooling and vice versa. This resulted in increased demands on the system, and adjacent zones simultaneously heating and cooling.

Many of the HVAC systems were providing too much outside air when the outside air temperature was low (increasing heating requirements) and not enough outside air when the outside air temperature suited free cooling (increasing mechanical cooling requirements).

Enercon Divisional Manager Sam Roose co-ordinated the review which made recommendations that would slash the amount of energy being wasted. "A revised control strategy was developed for the HVAC and lighting system, which further integrated with the airport's flight information display system.

"This ensured that large areas of the airport were switched off when not required, and controlled from a common system. Improved heating and cooling controls reduced the amount of time heating and cooling was in conflict, and as a result reduced the energy required to maintain comfortable temperatures."

Andy Lester, Chief Operating Officer at CIAL, says "One of the most surprising things was just how easy and inexpensive it was to implement many of the initiatives. The payback on some of these was virtually instantaneous.

"The challenge for us now is, having set a new benchmark, to maintain it over time by regular monitoring and maintenance and ensuring energy consumption is not allowed to drift back to where it was. In fact we have set ourselves an internal challenge to find even further savings, by continuing to improving the status quo every day by being smart, being innovative and trying new things."

The original bid put forward by Enercon in 2013 to provide energy management advice came through EECA's newly formed Commercial Programme 1, and was designed to guide the customer through the entire energy management process.

The ultimate goal for the project was to ensure all CIAL's energy management systems were improved, embedded within company procedure and focused on the areas of greatest impact. EECA covered a percentage of consultancy costs based on an agreed savings guarantee from Enercon.

EECA Business offers to fund independent energy management advice from agents such as Enercon, so companies like CIAL can request help to audit their energy use and gain advice on lowering their fuel bills and becoming more sustainable and environmentally robust.

## PROFILES

### The company

As the gateway for Christchurch and the South Island, Christchurch International Airport Ltd (CIAL) is a major hub and the busiest and most strategic air connection to the world's trade and tourism markets. The airport occupies a unique position both physically and economically, and is New Zealand's second largest airport. For more information, see [www.christchurchairport.co.nz](http://www.christchurchairport.co.nz).

### The consultants

Enercon is an energy and utility consultancy established in 2004, with significant experience providing energy management solutions for clients throughout New Zealand. Enercon employs a team of engineers (including three EnergyMasters Accredited Energy Auditors) who have a combined experience in the industry of over 50 years, with proven savings for industrial, institutional and commercial clients. For more information, see [www.enercon.co.nz](http://www.enercon.co.nz).

## BIG NUMBERS

- 2.1 GWh per year of energy savings have been achieved so far.
- A total of \$200,000 per year at existing energy rates has been saved as a result.
- The savings equate to 8.2 % of CIAL's annual energy use and 8.8 % of the annual energy bill.
- All implementation costs were recouped within six months.

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