ECO NEWS

SAVING ENERGY AND THE ENVIRONMENT

Customer Name
Title
Company
Address
Address
CITY

July 2005

ECANZ award for ECOsystems

ECOsystems was a finalist in the prestigious ECANZ national awards for 2005. The Cory's Electrical award is given to a sole trader or small business for demonstrating excellence in business or a project. We were nominated for our project with McDonald's Head Office.

Our "recognition wall" is pretty full now as this award joins our 4 national Energy Wise Awards from previous years. This recognition can give you confidence that our projects are producing great results.

SEO Conference

This year Frans attended the annual School Executive Officers conference in Queenstown in July. This was our fourth participation and it was most enjoyable to meet with many of our clients' and fellow college suppliers. We would like to thank all of you who had suggestions on how we can improve our systems to make managing energy on your site as simple as surfing the net.

The winner of our draw was Lesley Thwaites from Coromandel Area School. Congratulations Lesley!

See you all in Hamilton next year.

ECOsystems stand at the 2005 SEO Conference in Queenstown

SAVING ENERGY AND THE ENVIRONMENT

- **Reduce Energy Costs**
- **Simple: Control your lighting, heating, cooling, appliances and hot water from a web browser**
- **Reduce harmful greenhouse gases**

www.eco.co.nz

In this issue:

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Ph. 04 566 3666, Fax 04 566 0666, Email: info@eco.co.nz, Web: www.eco.co.nz

More Colleges Sign up for Energy Savings

HIBS

After an ECO energy audit, we are now upgrading the lighting at HIBS and installing our EAS system to control lighting, heating and hot water. Significant savings are expected.

Lincoln High

Lincoln High used the EECA Audit Grant Scheme for our Energy Audit, and have upgraded lighting and installed an EAS.

Our ongoing monitoring of the electricity, gas (and in Lincoln's case coal) usage at 'our' colleges enables us to ensure potential savings are recorded.

Napier Boys High

Our energy efficiency project at Napier Boys, for which Scott Applegate was the electrical contractor, was also a finalist at this year's ECANZ awards. Congratulations to Scott and Gordon O'Neale of the College.

Energy Efficiency at Treetops

Treetops is an exclusive luxury lodge and estate located on 1,012 hectares on the outskirts of Rotorua. Nestled amid magnificent native forest and surrounded by crystal clear streams, Treetops is truly one of the most beautiful places on earth. Our intrepid auditors thought it was "heaven on earth" as they experienced the luxury and beauty of Treetops while undertaking an energy audit there.

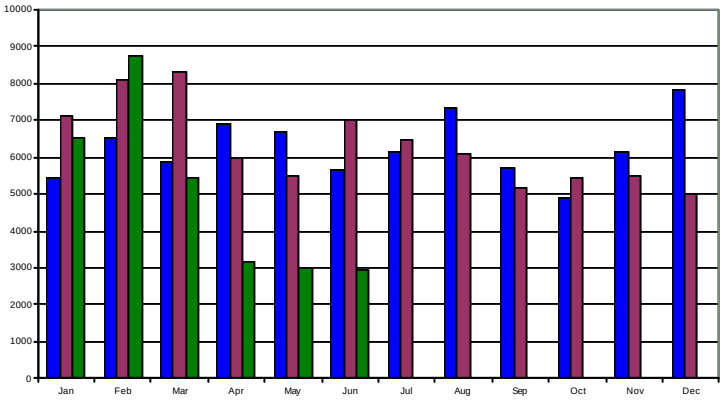
Despite some existing automation at the site, ECOsystems has identified the potential for a reduction in CO_2 emissions by around 33 tonnes, saving the environment and a reduction in energy usage of 80 kWh/m^2 per annum. This is achieved by upgrading and controlling the lighting, controlling the hot water plant and appliances and underfloor heating. An ideal place for some innovative micro hydro too!

Our energy auditors lived in the lap of luxury for a few days at Treetops. We can recommend this lodge as the perfect place for a secluded escape – even the mobile phone won't interrupt you here!

Great Savings at McDonald's

McDonald's **Riccarton** installed a full EAS as well as our highly effective HEU-hot water–air-conditioning control system developed in conjunction with Climatech and Energy Products in January 2005. Savings have averaged 13% per annum. These savings are in spite of all the new equipment recently installed for the new range of deli-choices!

Our EAS system now controls all lighting in the **Training Centre** facility beside the main Head Office building. This encompasses a lecture theatre, dining room and board room. Savings to date have averaged more than 50%.



Energy savings of 9,420 kWh at McDonald's Training Centre
A reduction of 50.9%

New Staff

ECOsystems is pleased to welcome to the ECO team …

Ian Rose

Ian is a registered electrician and has held positions as an electrician (domestic and commercial), electrical fitter, fire alarms technician and photocopier technician. Ian worked for 9 years at Ubix working on high volume and colour photocopiers, interfacing photocopiers onto networks and maintaining photocopier access and account management systems.

Ian has Advanced Trades (A, C and D) and finished a Bachelor of Computer Systems degree at the Eastern Institute of Technology in 2002.

Ian joins our smart energy team and is managing energy audits and energy efficiency contracts.

Carey Reynard

Carey originally hailed from Nelson and first began work in an accounts role before completing her nursing qualification. After a few years of nursing she returned to accounting and administration including roles in auditing and financial reporting.

Before coming to ECOsystems, Carey was Office Manager at a local air-conditioning company.

Carey combines office administration skills with sales and technical knowledge. At ECOsystems Carey manages finance and office administration as well as looking after maintenance and suppliers.

SMART ENERGY - New Procedures for Service and Support Calls

As ECOsystems continues to grow and develop it has become necessary to make some changes to enable us to give a more consistent service to our valued clients.

We are implementing some changes within the Smart Energy Division to make the handling of maintenance and support calls more effective. As from 1 August 2005, we ask that all support calls are directed to our main phone number: **04 566 3666** and select extension **815**. This will transfer you to the person responsible for support calls during that week. Please note that this is the only way you can be assured of having your call answered and we ask you not to use mobile numbers unless directed to when you press extension **815.** If you prefer email please use **support@eco.co.nz** or fax us on (04) 566 0666.

We are confident these changes will enable us to offer our valuable clients an even better service. Please update your records now so that from 1 August 2005 you call the following number for all maintenance and service calls: **04 566 3666 ext. 815 or email support@eco.co.nz.**

New Improved Quantums

The new model compact solar Quantum 270/340 ACH-134 is here and is performing even better than the previous models.

You can now save up to 75% of hot water heating costs!

The Quantum works in all weather – extracting solar energy from the air, and supplies continuous solar hot water day and night.

It produces up to 1,600 litres of hot water per day! No electric booster element is required and there are no ugly roof panels.

Now with digital controls to make adjustments even easier.

Coal & CO2 emissions

One of the ironic facts about energy sources is that, while both oil and gas supply will peak in the near future internationally, the world still has many years of coal. However use of coal works against the reduction in CO2, which it is hoped, will help reduce global warming.

Coal is a major source of fuel to create electricity in Australia and the US. In the US for example, coal supplies more than half the fuel needed to create electricity.

When coal is burned, it produces sulphur dioxide and nitrogen oxide (which produces acid rain and smog) as well as mercury and small particulates. At the same time, the combustion of coal in the likes of boilers produces substantial quantities of carbon dioxide (CO2).

Modern innovations are being developed to help clean coal before it is burned.

Coal gasification removes the sulphur dioxide, mercury and CO2 from the 'syngas' before it is combusted. And because the 'syngas' is cleaner than standard coal, lower quantities of nitrogen oxide and particulates are produced during the combustion or burning process. The CO2 is also more concentrated and therefore easier to capture and 'store', a process known as sequestration.

Our coal plants currently have an efficiency of around 30-35%. With new innovations such as gassifiction, this could increase to 40-50% and potentially up to 60%.

Nuclear Energy

While New Zealand has its own political considerations relating to nuclear power, as gas and electricity become ever more expensive, nuclear is being held out as a CO2 clean prospect. Recently SEF News, a newsletter from the Sustainable Energy Forum, to which ECOsystems belongs, had an article on nuclear theology.

In *The Economist* on May 19 2001, this statement about nuclear power was made: 'Nuclear power, once claimed to be too cheap to meter, is now too costly to matter'. The Rocky Mountain Institute (RMI) in the US (a leading energy think tank) advised that nuclear power plants produce electricity at far higher cost than end-use efficiency, cogeneration and many renewables. Evidently a study by MIT in 2003 compared nuclear with new coal and gas plants and even though these emit more CO2, they were still much more efficient than nuclear. There is also the great problem with waste, not just the storage of it but also potential terrorist attacks.

In an interesting perspective, the RMI states that nuclear power does not help with the climate problem because every dollar spent on costly nuclear power, instead of cheaper options, buys less coal displacement. 'For example, if a new nuclear plant delivered a kWh for only three times the cost of saving a kWh (the actual difference is typically much larger), then for the cost of one nuclear kWh, you could have saved three kWh, tripling carbon reduction.

Obviously energy efficiency is the better way to go!

Transport Innovation

New Zealand's big energy use is for transport. We have a very long narrow country and not many people!

The Toyota Prius Gas/Electric hybrid offers amazing fuel economy

Alternative fuels are gaining a place in New Zealand and Toyota and Honda are pushing their hybrid petrol/electric vehicles, which have exceptionally good fuel economy. The electric engine operates around town with almost no noise and the petrol engine kicks in when acceleration is required. We recently read an interesting article, which gives an indication of what innovations are possible as fuel becomes more expensive.

Cryogenics is all about low temperature engineering. A Cryogenics expert in the US runs a business where he cryogenically tempers all kinds of metals. He submerges them in a frozen tank of nitrogen vapour that is 300 degrees below zero. At this temperature the molecules slow down and reorganise themselves and that is when the actual chemical change happens. The result is a metal which typically lasts three to five times longer. He has now begun to experiment on his hybrid Honda by freezing the engine components. While the Honda typically does 50mpg, the 'Cry'd' Honda gets close to 120 miles per gallon.

SPOT PRICES FOR JUNE *(courtesy of Mighty River Power)*

Spot prices were on average 8.29% up on May. They are expected to remain firm as hydro inflows remain below the historical mean causing demand to be made by more expensive thermal generation.

The average daily national electricity demand was 115.8 kW/day and 6% higher than June 2004. The national average temperature in June was 8.3^{O}C - 0.2^{O}C below normal and the coldest June for a decade.

New Clipsal C-Bus Automation Products

Colour Touch Screen

The C-Touch colour touch screen is a wall mounted, 6.4 inch, touch sensitive high resolution LCD screen for controlling and monitoring a C-Bus automation system from one location. It's fully compatible with all C-Bus units, such as switches and dimmers and can be used in existing or new automation systems.

The unit can be programmed to display pages of graphical items such as buttons, sliders and images. These graphical items perform C-Bus functions when pressed. Available in Neo and Ulti Saturn Glass style surrounds, the colour touch screen is an aesthetically appealing and extremely functional addition to a Clipsal automation system.

A great breakthrough! No more confusion about which switch does what.

Dynamic Labelling Technology

Clipsal's new Dynamic Labelling Technology™ has been incorporated into the Ulti and Neo range of C-Bus wall switches. This enables ECOsystems to electronically label switches according to the requirements of the user. The units have 8 programmable buttons over two pages, with a scroll button to toggle between the pages. The 64x128 pixel LCD screen is backlit. Text, sliders and bitmaps can be downloaded to the unit via the C-Bus network. The LCD screen can even display function indicators such as bar graphs. The dynamic switches are fully compatible with all C-Bus units.

Logic Controller

The logic controller is a DIN rail mounted C-Bus device that provides sophisticated, yet affordable, control of a C-Bus automation system. The logic controller performs operations in response to monitored events by executing custom written embedded programmes. These programmes are written by ECOsystems to suit individual application needs.

One of the greatest benefits of the logic controller is that it utilises conditional logic, meaning programmes can be developed based on whether combinations of lights and appliances are currently on or off, and various actions are performed based on different conditions. Conditional logic can also take into account time values. For example if the motion detector in the hallway is triggered after 11.00pm, lights may be ramped to 20%. But if the motion is detected before 11.00pm lights are ramped to 100%.

This logic software provides a programming solution, which supports commands such as if, then, and, or, not etc, as well as flow control – for, repeat, while etc. It allows for more sophisticated home and commercial automation solutions within a tight budget.

ECOsystems has developed and installed some innovative uses for the likes of boardrooms where smaller rooms can be opened out into larger areas. Talk to us about innovative ways to control the lighting in boardrooms.

ECO partnerships

SKM Limited

ECOsystems always strives to develop true partnerships with our clients and consultants, in our energy efficiency projects.

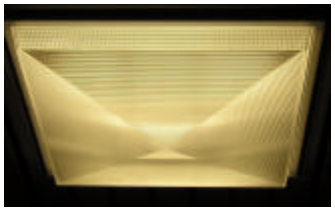
We would like to acknowledge the work of SKM Limited, in particular David Riddle, who has been pro-active in specifying energy efficiency into commercial projects.

SKM have been the consulting engineers on the ECO projects at Whiteria Polytechnic and also Waitangi Park. We love working with you!

Light Fittings

ECO 2F2E 300 & 600 Range

The surface mounted, recessed or semi recessed, 2F2E fitting offers a high tech appearance and excellent light output. This energy efficient under veranda fitting uses fluorescent PL-L lamp technology.



ECO Power LED

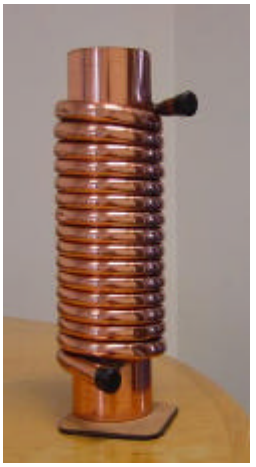
The ECO Power LED has been developed to provide an energy efficient alternative to the dichroic halogens often used to provide sparkle effect or light up displays and artwork. The fitting comes complete with special optics.

The ECO Power LED is **ene rgy efficient** - uses only 3W compared to a traditional halogen using 50W. It has an increased lamp life of up to 100,000 hours compared to 3,000 hours for a traditional halogen. It's simple to install, not sensitive to vibration and has low heat emission.

The ECO GFX

GFXtechnology.com

- Saves 50-60% of shower costs
- No moving parts - double walled safety
- Self cleaning
- Use on gas or electricity boilers or cylinders
- Contributes positively to the environment by recovering waste heat and reducing the temperature of waste entering the ecosystem
- Get more hot water from a smaller cylinder or boiler



The ECO GFX is installed in a shower waste (or similar) and transfers the waste heat into the incoming cold water to halve the cost of showers.

Quantum Energy Technologies Pty Ltd

New Model Even Better Performance!

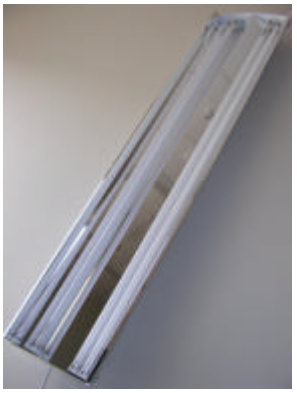
The Quantum Hot Water System

The most efficient way of heating hot water. Technically, the Quantum is a heat pump. The Quantum is ideal for residential homes, hotels / motels, boarding homes and schools, multi-tenanted properties, rest homes, hair salons and many industrial applications.

- The most energy efficient hot water heater.
- Save up to 75 % of the energy used to make hot water.
- A standard 340 litre unit will make up to 1600 litres of hot water a day and 100 litres per hour. A heat pump based system that works in any weather.
- Heats up to 60 degrees C. in all weather.

454-4E Suspended / Surface Mount Light Fitting

The suspended or surface mounted 45E-4E offers excellent light output and a wide distribution for large spaces. The use of 54W T5 fluorescent lamps produces a sleek, efficient luminare with a long lamp life. Suitable for gyms and warehouses with high ceilings.



4E and 5E Range – Energy Savings in Education

This energy efficient range offers a sleek high tech appearance and excellent light output. The fitting is suited for both suspension and surface mount in offices, classrooms and corridors. Save approximately 50% in annual running costs compared with traditional fittings.