

ECO News

November 2005

Published by ECOsystems Limited

Saving Energy and the Environment | Intelligent Environments that Simply Respond

Customer Name

Title

Company

Address 1

Address 2

CITY

ECOsystems welcome three new staff

Demand for our automation and energy saving products and services are growing and we have responded with the addition of 3 new staff members recently to help meet our clients' growing needs. We are pleased to welcome to the ECO team, and to introduce to you:



John Stapleton (Smokey)
Manager, Contracts and Maintenance

John joined ECOsystems to manage all our Auckland based projects and service our Auckland clients.

John is a registered electrician with extensive experience in refrigeration and air conditioning, including a background of working with McDonald's restaurants throughout the country. John's experience with McDonald's will be of great benefit to all our clients.

John is a keen fisherman, with many notable captures to his name and is a licensed charter boat skipper.



Cate Burley
Administration and Sales Support

Cate has a Bachelor of Arts from Victoria University in Wellington as well as a Graduate Diploma in Arts from the National University of Australia, in Canberra.

Cate's experience in senior administration roles, as business support, executive assistant and administrator for a number of organisations will help us give you all a better service by developing and improving our systems as we grow.

Cate's interests include Irish and world archaeology, interior design, genealogy and horse-riding.

Stuart Bartlett
Contracts Management

Building Intelligence Division

Before joining ECOsystems, Stuart had been working as an electrician/electrical engineer, which included design (AutoCAD) of electrical control cabinets (boilers), wiring of control cabinets for steam, water and thermo fluid heaters and supervision of electrical staff.

Stuart is a registered electrician and has undertaken studies towards a Bachelor Degree in Business Information (IT). He is currently studying towards a Diploma of Information Technology (Network Engineering), has CompTIA certificates and is a Cisco Certified Network Associate. Stuart's unique combination of electrical and IT skills helps us to develop and integrate building management and control systems to minimize energy use and maximize comfort and security.



In this issue:

Johnson Controls	2
Peak Oil Snippets	3
NZ Energy Data	3
New Intraco Products.....	3
Hybrid Cars	4

Case Studies:

McDonalds Riccarton.....	2
McDonalds Training Centre	4
Tauhara College	4

ECOsystems Limited

www.eco.co.nz

Ph. 64-4-566 3666

Fax. 64-4-566 0666

Email: info@eco.co.nz



New Innovation

Dynamic Labelling Technology

Clipsal's new Dynamic Labelling Technology™ 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. A fantastic addition to any home or building automation network.



Johnson Controls Update

As our relationship with JCI continues to evolve, we are looking forward to meeting with numerous existing building owners who already have JCI controls running their commercial buildings.

JCI is one of the largest controls companies in the world and has a great commitment to customer service, energy efficiency and sustainable energy which ties in so well with our own philosophies. You can find more information about JCI at: <http://www.johnsoncontrols.com>

JCI was this year named as one of the Top 50 Best Manufacturing Companies by *IndustryWeek*.

Scott and Kevin attended our first training of Johnson Controls FX range in Brisbane and Sydney during September. The next training session will be in Sydney for 3 days in late November.

Recently JCI announced a USD\$3.2bn transaction to acquire York, a global supplier of heating, ventilating, air-conditioning and refrigeration (HVAC&R) equipment and services with estimated sales of nearly USD\$5 billion. This has created the largest global provider to the building services market and will provide customers with a single source of integrated products, systems and services.

York International is the largest independent supplier of HVAC&R systems and solutions. York designs, manufactures, sells, and services HVAC systems for commercial and residential markets; gas-compression equipment for industrial processing; industrial and commercial refrigeration equipment; and compressors for residential and commercial air-conditioning. It was founded in 1874 and has annual sales of USD\$4.5bn. The company has 300 manufacturing plants and 120,000 staff. Like JCI it also has a string of recent awards including:

- #71 on Fortune 500 listing - Fortune Magazine
- "Perfect Score" in Corporate Governance - Governance Metrics International
- Int'l. Gold Medal for Excellence in Sustainable Development - World Environment Centre
- Billion Dollar Roundtable for Minority Purchasing
- 100 Best Companies for Employee Training - Training Magazine
- 50 Best Manufacturing Companies - Industry Week Magazine
- "FTSE4Good" stock index - FTSE Group

We see great potential for the combined organisation and are confident it will bring you, our clients', considerable benefits.

ECO CASE STUDY

McDonald's Riccarton

In December 2004, McDonald's Riccarton commissioned ECOsystems to install an energy efficiency upgrade in order to reduce energy consumption at the site.

The project began with an energy audit which identified where the energy was being used and recommended what measures could be implemented to reduce costs. It identified the total capital costs and the likely payback.

The investment included the installation of a Building Management System, integrated with a C-Bus lighting control system which we collectively term our Energy Automation System or EAS.

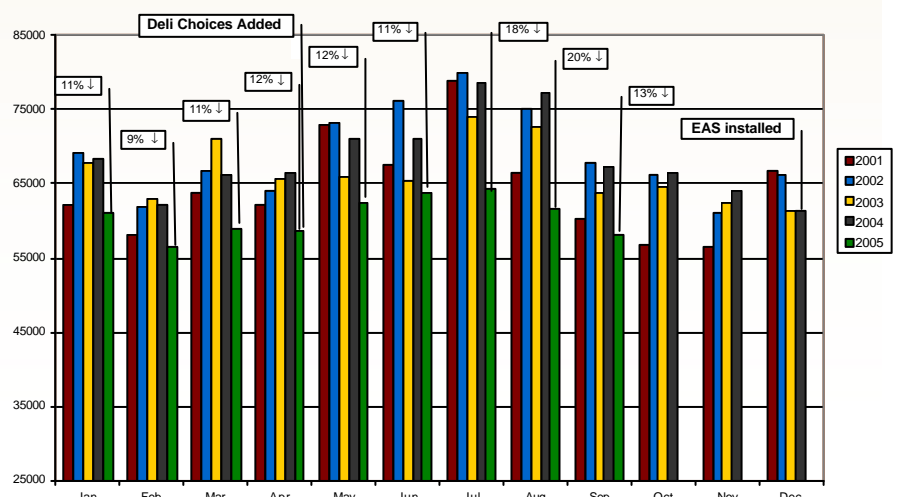
Even when McDonald's new *Deli Choices* was added, after three months running under EAS control, savings have continued to surpass expectations.

The EAS at Riccarton includes:

- Indoor Lighting Control
- Outside Lighting Control
- Freezer and Coolroom Control
- Air Conditioning Control
- Appliance Control
- Load Shedding
- Alarms
- Maintenance

The graph below shows how this restaurant reduced electricity consumption by more than 20%, taking *Deli Choices* into consideration.

McDonald's Riccarton
Monthly kWh used - Electricity



McDonald's Riccarton enjoy the many benefits their EAS offers, including:

- Reduced energy costs
- Free cooling
- Increased merchandising
- Improved food safety
- Simplification for crew
- Increased staff safety
- Lower Maintenance costs

Peak Oil Snippets

Some of you may wonder why ECOsystems writes about Peak Oil as we are not focussed on transport. This brief outlines how we think energy for transport and energy for commercial applications may merge in the next 10 years.

BP reports that global energy consumption is at a 20 year high due to raging demand from fast growing economies like India and China.

India and China are now buying oil companies in the West to ensure they continue to have supplies to allow their countries growth to continue.

Oil production grew at its fastest rate since 1978 (3.4%) by 2.5m barrels a day but there were big falls in production in the US and UK. US production has fallen steadily since 1970. The US consumes 25% of the worlds crude oil. The UK is also looking at a shortfall in natural gas this winter as North Sea production has declined and demand for gas grown.

There has been a significant lack of investment in infrastructure over the last 20 years and this is showing up in technical problems reducing production, not to mention tropical storms. Additionally there are many environmental issues to consider when siting and planning new facilities which affects the economics. Even such issues as the cost of final removal of the plant.

Some experts are suggesting 2005 as the year we reach Peak Oil and from now on the rate of extraction will begin a long slow decline.

It does seem credible that new fields will produce less refined oil than current ones, meaning increased costs of extraction and therefore increased prices.

If oil supplies really do decline, the most promising short term options for fuel after using electricity, include converting coal, natural gas and other fossil fuels into combustible liquids for transport.

While some companies are investigating importing LNG most likely to Taranaki (the other option was Marsden Point but an oil refinery next to a CNG station may be too explosive!), we have doubts that it will even be possible to get the purpose built tankers to visit New Zealand given our geographic location and the huge demand for these specialised ships.

While there has been a lot of talk about running vehicles on fuel cells and there is no question the technology is possible, the costs so far are prohibitive. We believe it is much more likely that the immediate future would be hybrid and even fully electric vehicles. This could even mean people hooking their vehicles up to the grid overnight for a recharge which in turn has implications for New Zealand's electricity supply, including reducing the day / night price differential which has already started with the large swing to residential heat pumps which are mostly left on overnight.

So it could well be that not only will energy become an international commodity where we will compete with other countries for scarce resources, but the transport and electricity industry could merge, at least in the medium term until new energy sources become competitive.

It is little wonder that the major oil companies are all spending millions to develop PV's that convert sunshine into electricity and tap into that amazing energy source that has been supplying energy to the earth for millions of years!

Energy Tsunami On The Way?

We recently received an interesting article, dated October 2005, from a respected US real estate commentator on the affect of increasing energy costs on real estate. He concluded:

1. The value of homes and residential properties close to major cities will do better than those located in the suburbs as the cost to commuting increases.
2. Office buildings will experience a major increase in heating and airconditioning costs, especially where there are severe winters and/or hot summers. Where the landlord pays these costs they will lose profits and if it is the tenants responsibility (more common) business costs will increase substantially.
3. Commercial and Industrial space close to major cities will command a premium.
4. Central Business District's will be revitalized.
5. Industrial businesses will move away from transporting by truck to utilising rail. Being close to the railway line will become a benefit again.
6. Manufacturing businesses where energy is a major cost will be hit very hard.

He concluded with the words of a great ice hockey player who, when asked what made him so successful replied, 'most players skate to where the puck is, but I skate to where the puck is going to be'.

New Zealand Energy Data

The latest energy data for New Zealand was released in September and shows increases in both supply and consumption of energy in the year to March 2005.

Total energy supply was up 2.1% (764 petajoules). Commercial consumption increased 6.6%, residential 3.7%, industrial 1.4% and domestic transport up 1%.

Total petrol consumption increased by 1.8% and diesel by 3.7%.

Coal production increased by 6.3% and consumption increased by 8.7%.

Total electricity generation increased by 2.0% for the year while gas production dropped by 8.7%.

NEWS FLASH – NEW INTRACO PRODUCTS

ECOsystems is proud to introduce the INTRACO range of lighting energy controllers to our range of energy saving products. These advanced, economical units can save up to 25-35% of lighting energy consumption, as well as extend the lighting elements lifetime, improve power factor and reduce line conduction losses. We recently installed a unit at a BP service station on the canopy lighting and measured electricity savings of 25% without any observable change in light output. See our web site www.eco.co.nz for more information on these unique units. Go to Products | Intraco.



ECO CASE STUDY

McDonald's Training Centre

After a successful project at McDonald's Head Office, which resulted in energy savings of more than 20% in a modern commercial building, our clients asked us to complete a second project at their Training Centre.

The installation at the Training Centre was completed in June 2005. In the last five months, energy savings of 16,414 kWh and \$2,075.17 have been achieved.

This equates to a 52.9% reduction of kWh!



Innovation Pays

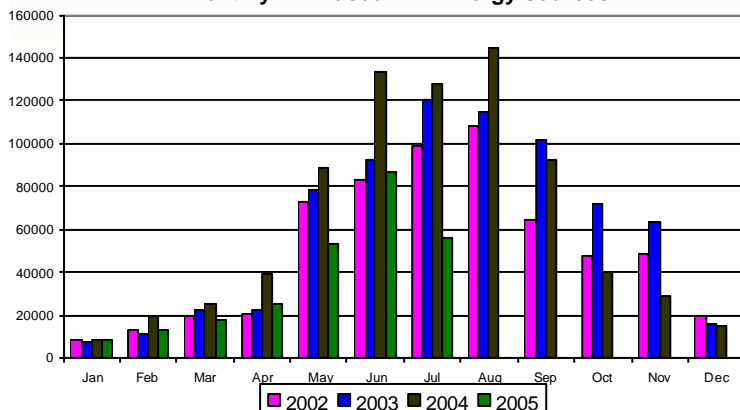
Tauhara College

In our January issue of ECO News we reported on the innovative project ECOsystems completed at Tauhara College, using the natural geothermal energy in the Taupo region. Using on-site bores, the thermal energy was added into the boiler system.

A few months down the track our monitoring shows that this innovation is paying off for Tauhara, with impressive savings in both electricity and gas.

Tauhara College

Monthly kWh used - All Energy sources



More on Hybrid Cars

Associated Press recently carried an article about a Toyota Prius hybrid with a difference. In the boot it had 18 brick sized batteries. The standard Prius increases fuel efficiency by harnessing a small amount of electricity generated during braking and coasting. The extra batteries in this modified vehicle allow extra power to be stored by plugging the car into a wall power point. These 'plug-in' hybrids are not yet cost efficient but some of the experimental models have reached a claimed 250mpg.

DaimlerChrysler is the only known manufacturer that has committed to building 'plug-in' type hybrids, but it is understood that Toyota is also interested in what backyard engineers are achieving. They have spent millions of dollars telling motorists that hybrids do not need to be plugged in and don't want to confuse the message.

Plug-in hybrids can dramatically reduce fuel usage for the first few km (say 20-30

km) of every day and on average many people only travel 50-60 km on a 'normal' day so the plug-in can make a dramatic difference.

Ideally the electricity to recharge the batteries should be generated cleanly from the sun or wind!

A new company called EDrive systems is being set up in the US that will convert hybrids to plug-ins for about USD\$12,000 from 2006. A good business opportunity for someone in New Zealand, where our electricity is relatively cheap.

President Bush in his remarks to the 16th Annual Energy Efficiency Forum on June 17, stated that the first step to making the US less dependent on foreign oils is to improve conservation and efficiency. He proposed that his administration would give every American who purchases a hybrid vehicle a tax credit of USD\$4,000.00 (about \$5,800 New Zealand dollars).

New Zealand Sustainable Energy Future

The NZ Business Council for Sustainable Development released a press statement in September suggesting leading energy companies, businesses and researchers want the new Government to decide now on a long term approach to energy sustainability and back that up with:

- Efforts to double our rate of energy efficiency improvement.
- Fund research to increase our energy options and understand barriers to taking up new energy opportunities of both fossil and renewable sources.
- Recycle carbon tax revenue into the research and adoption of new technologies and fuels.

The release included a comprehensive study and reminded the incoming Government that if New Zealanders want to maintain their relative living standards and quality of life, the country needs to face up to the emerging energy problem now.

Other interesting points include:

- Market research shows seven out of ten New Zealanders believe there will be an electricity shortage in the next five years and nine out of ten believe the country does not have a long term energy plan to "keep the lights on".
- Energy planning does not easily sit within the three or even six year planning process that pre occupies Government. The council looked out to 2050.
- Even doubling energy efficiency will not fund our energy shortfall required to meet the needs of 5 million people by 2050.

- All scenarios forecast in the report, involve using the equivalent energy from a Maui gas reserve every 2.5 to 5 years.
- New Zealand is one of the lowest CO2 emitters in the world because we already produce a lot of our electricity from renewables such as hydro.
- Nuclear energy is not considered a viable option.

The ECOsystems project has resulted in substantial energy savings at Tauhara College.