



Energy Efficiency and
Conservation Authority
Te Tari Tiaki Pūngao

ISSUE 4 • SPRING 2009

NEWS



**INSULATION
PROGRAMME
MAKES A
DIFFERENCE P8**



**QUEENSTOWN'S
BID FOR
BIODIESEL P10**



About EECA News

EECA News is issued three times a year and is also available to download free from the EECA website.

In addition, we'll keep you informed with a shorter EECA E-News update in between issues of EECA News. If you would like to be included on the email list to receive this, please email news@eeca.govt.nz

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This edition of EECA News includes a copy of Advanced Metering Infrastructure – Enabling New Zealand's Smart Grid. This is a special report produced by Freeman Media, publishers of Energy News (www.energynews.co.nz).

Advanced metering infrastructure and the smart meters being rolled out into residential New Zealand are the most exciting technological development occurring in the electricity industry today.

There is huge division of opinion about what is the optimum solution – technology, regulatory framework, rollout, customer proposition, communications protocols and so on. Certainly, the topic has received a lot of attention within the energy sector and beyond, and EECA is keen to see this technology used to its full potential. We hope you enjoy this free copy.



From the Chief Executive

Mike Underhill · Chief Executive · EECA

Making the most of New Zealand's energy resources is EECA's core business. Our focus is on finding the best, most cost effective ways to use energy as efficiently as possible, and using as much of our renewable energy resources as we can, while making sure we have an affordable and secure energy system that supports our growing economy.



It isn't always easy and along with most other countries we are grappling with how to make the most of what we know are substantial opportunities.

This month we were delighted to host New Zealander Dr Nigel Jollands, head of the International Energy Agency's (IEA) Energy Efficiency team based in Paris. Nigel came to update EECA on his work and his message was clear – there is widespread commitment from the IEA member governments to making the most of energy efficiency, and that the potential is huge.

Much of this commitment is driven by a clear desire to address climate change. In Jollands' opinion, the international community has a lot of time-critical decisions to make around actions to tackle climate change. Many of the mitigating actions involve infrastructure that is already locked in place, so we face decades of inertia. We need to get things in motion now, because it is going to take a while to see the benefits.

New technology will, in time, help us deal with carbon emissions. The

human race has an amazing ability to come up with innovative technologies that change the way we do things forever. It is the exciting stuff that captures our imaginations – which is why IEA member countries pour such a large amount of money into technology R and D.

Technology will undoubtedly deliver, but it isn't the only answer, and it isn't the immediate answer. Jollands sees initiatives to realise our existing energy efficiency potential – through technologies we can access today and changes to our behaviour – as the critical things that can buy us time while we develop new, more efficient technologies, systems and processes.

We need to get things in motion now, because it is going to take a while to see the benefits.

New Zealand households spend about \$3.5 billion on energy each year. We estimate that most of us can easily save 10% on our electricity bills by taking a few simple steps today. That works out to savings of over 1,200 GWh – about \$200 per household, or about \$320 million in savings each year across the whole country.

It is the same story for our businesses. They use more than 70% of our energy, spending about \$13 billion a year. Our work with business shows there is typically scope for at least 20% in

energy efficiency savings. Even a 10% reduction would save our business sector \$1.3 billion a year.

We need to make sure we are giving the same financial backing to these existing opportunities as we are to developing technologies.

He identifies transport and buildings as the two biggest – and these are areas EECA is also looking to do more work on.

Jollands thinks there are some standout areas of opportunity for New Zealand, and most of the other member countries. He identifies transport and buildings as the two biggest – and these are areas EECA is also looking to do more work on.

There is a lot to be done if we are going to make the most of the efficiency potentials that are there waiting for us. It is good to hear that countries around the world are focused on this issue and are working to make changes. The more energy efficiency becomes the norm, the more we will all demand it and the greater the rewards for us all. ■



From the Boardroom

Greg Sise · Board Member · EECA

What's the single biggest opportunity for New Zealand in the area of energy efficiency or renewable energy?

My early career was in energy efficiency, specialising in commercial buildings. One of the 'energy principles' I learned the hard way is that people can save some energy for a short time by turning lights off, but it doesn't take long, even with the best of intentions, for old habits to come back and the energy savings to erode.

On the other hand, technology never relents. The best way, by far, to improve energy efficiency is to build it into our home, work and travel environments. Better insulated homes need less heating; heat pumps use less electricity than convectors; hybrid cars travel further on a litre than 'old bombs'; five star fridges use less electricity than four star fridges. As the technology improves, so does the opportunity for greater efficiency.

We all make choices about the technology we use. Whether we're at work or at home, the more smart choices we make, the more we improve energy efficiency. We could all be smarter when it comes to using energy.

What's the biggest threat to the widespread uptake of energy efficiency?

The second energy principle is that improving energy efficiency does not have to be an end in itself, as it usually

comes with other benefits, especially where technology is involved. In the home, for example, insulation and draft sealing reduce energy consumption but also reduce annoying drafts, reduce condensation and help to reduce incidence of respiratory disease.

An example in the workplace is upgrading process controls which simultaneously improve product quality and energy efficiency. So being smarter about energy actually means a better service on a number of levels.

How are you personally reducing your carbon footprint?

I'm not an 'eco warrior' or a 'greenie' so I only do things that make economic and practical sense in the energy and carbon area, and when they improve my lifestyle. Our home is heated by electric convector heaters, controlled by timers and thermostats. We used to think this was efficient and low carbon, but given today's technology and understanding of climate change it's not, and we find it increasingly expensive to get the temperatures we like! So we're about to install a modern wood burner in our home, which will keep us warmer than we are now, and reduce our net carbon emissions.

We also recently had to change cars so we bought a pre-loved Honda Jazz. We're tall in our family, but this little dazler easily fits us all, and runs on the smell of an oily rag. ■

In each edition we ask an EECA Board Member their views on some of the big issues of the day.

Funds prove popular

Two EECA funding rounds have proved popular with businesses and organisations keen to explore renewable energy projects.

EECA's latest wood energy funding round has attracted bids from more than 30 projects totalling more than \$9 million. Applications include an innovative co-generation plant, a meat processor and several hospitals bidding to replace LPG boilers.

"We're delighted with the response. There is a wide range of exciting

projects, often with a very short payback period," says EECA wood energy adviser Kirk Archibald.

"Wood is a highly efficient, cost-effective energy source. It's also renewable and virtually carbon neutral. It's great to see that demand for wood in New Zealand is robust, and growing."

Meanwhile, EECA's Distributed Generation Fund has received 32 proposals from local government, businesses, community groups, Māori Trusts and small independent

generators, ranging in size from 25 kW up to 8.5 MW in installed electrical capacity.

EECA's senior adviser on distributed generation, Joseph Mayhew, says the successful projects are likely to include small wind, small hydro, biogas, waste heat and off-grid generation projects.

"The Distributed Generation Fund can help these project developers assess whether or not their proposed project is viable by contributing to the costs of a detailed feasibility study," Mayhew says. ■



NZ businesses doing little on energy

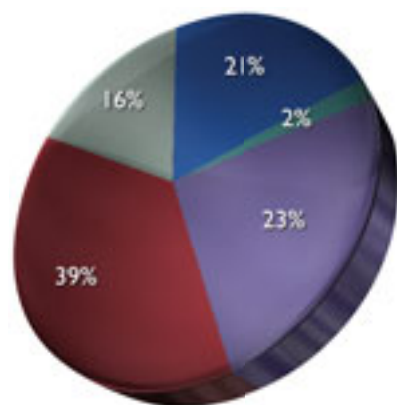
What's an essential cost that two out of three New Zealand businesses aren't managing – despite the fact that it would help them be more competitive, profitable and build their reputation? **The answer is energy.** Miranda James reports.

A survey of more than 580 businesses carried out for EECA by Synovate shows that 60% of companies are either ambivalent to energy management, or say it's not a priority. Less than a quarter – 23% – are committed to managing energy, with 16% saying they're 'open' to doing more.

EECA chief executive Mike Underhill said cutting energy waste and reducing energy costs had a direct benefit to companies' bottom line and helped boost performance in many other areas.

"Reducing energy spend helps to increase productivity and profitability, and a good record on energy efficiency helps build brand and reputation. There are numerous examples of companies that are demonstrating positive results, to their balance sheets and their customer relationships. Our job is to share these lessons and convince businesses that taking energy seriously will boost their performance in a myriad of ways."

Commitment to energy management



- Energy management is not a priority – 21%
- Ambivalent about energy management – 39%
- Can't be classified – 2%
- Committed to energy management – 23%
- Open to doing more energy management – 16%

Underhill said EECA's analysis showed that most companies could save 20% of their energy through no-cost and low-cost measures such as behaviour change and tuning equipment so the scale of the waste is quite staggering – as is the potential gains for those who take this seriously.

The top five priorities for businesses are customer and supplier relationships (97%), brand and reputation (94%), productivity (88%), competitiveness (87%) and commitment to community (87%). Energy management was seen as a priority by 79% of companies – showing that although companies know it's important, it's being shelved as they deal with more urgent issues.

The survey showed wide discrepancies between different sectors. Industries least likely to be managing energy were construction (11%), health and community services (12%) and finance and business services (14%).

The sectors most likely to be committed to managing energy or open to doing more are transport and storage (77%), government and education (76%) and tourism and hospitality (62%). Businesses in the agriculture, forestry and mining sectors were mostly supportive with 68% either already committed or open to managing energy better – although the low sample size in the primary sector makes that figure less meaningful.

The biggest reported barriers across all sectors to doing more on energy management are time (26%), finance (18%) and knowledge (17%). Information and case studies on how businesses can cut energy use and costs can be found at www.ecabusiness.govt.nz ■



Energy in a minute

The Energy Spot dishes up good, practical energy information to New Zealanders. Tamara Lee reports.

What have many New Zealand homes and a sieve got in common? What uses enough power to run over 55,000 homes, but we get pretty much no benefit from it? How can you cut your car's fuel bills without actually cutting the number of kilometres you drive?

Since you're an EECA News reader, you can probably take an educated guess at the answers to these questions or you'll know where to go to find them (answers at the end of this article).

But for the average Kiwi, not knowing enough about energy efficiency – or not knowing where to go for good information – often stands in the way of making the most of energy at home, on the road and in business. Research consistently shows that lack of information is a major barrier to energy efficiency.

The Energy Spot campaign's role is to fill that information gap and help change the way people think about and use energy. By delivering energy efficiency information in an interesting

and motivating way, it ultimately aims to increase behaviours that result in energy, emission and dollar savings.

The prime-time campaign screens three nights a week (Sunday, Monday and Tuesday) at 6.50pm across four television channels, as well as 13 other times during the week. It covers a range of topics of interest to households and businesses, from insulating houses to efficient driving choices, renewable energy options, building design and more.

The campaign has prompted comparisons in the media with the well-known 'Food in a Minute' campaign, and EECA marketing and communications manager Pat Murray thinks that's not a bad thing.

"We spend roughly \$19 billion a year in New Zealand on energy to run our homes and businesses, and EECA estimates that at least 10% of that could easily be avoided.





Introducing Jared Turner

The presenter of the new Energy Spot is no energy expert – but like many New Zealanders he is concerned about keeping his house warm, and his power bills low.

Jared Turner is an actor who says his qualification for the job is having a young family: “I’m always looking for ways to make my home warmer, healthier and cheaper to run.”

Jared says he’ll be learning on the job.

“It’s really neat being able to go on this journey along with the viewers – because through this job I’m learning all these things about energy use as I go and trying them out in my own life.”

Jared’s easygoing manner, open style and enthusiasm made him a great choice for the Energy Spot job.

Jared’s previous screen experience includes the television series ‘Go Girls’. Jared has also performed in film and theatre, and he will be performing in the theatre production of ‘The Arrival’ for the International Festival of the Arts in Hong Kong, Sydney and Wellington.



“And, of course, with those savings come all the flow-on effects like warmer, healthier homes, more productive businesses, fewer greenhouse gas emissions and improved security of supply.”

“If the Energy Spot can achieve the same level of cut-through to New Zealanders as campaigns like ‘Food in a Minute’ have, then the potential for savings really is huge.”

As a television-led campaign, the Energy Spot reaches a wide audience. An estimated 55% of adults across the country see it at least once a week, and throughout the year it should reach nearly all adults in New Zealand.

Focus group research and informal feedback during the early stages of the campaign indicate that Kiwis are responding positively to the Energy Spot messages, but how do you actually measure what success looks like with a campaign like this?

“As well as the things like website visits, media coverage and viewer numbers, we do a significant amount of ongoing research around people’s awareness, attitudes and values around energy efficiency which will give us a good indication of the campaign’s impacts,” says Murray.

“Getting good information out there is just part of the equation, and it complements all the other streams of work EECA and our partners are doing to create a shift in New Zealand’s energy use.

“And if all these initiatives add up to even a 1% cent shift in energy efficiency across homes and businesses, we’d be about \$1.7 billion better off – that’d be pretty good news for everyone.” ■

Still puzzled? Here are the answers to the questions posed in the introduction: Like a sieve, many New Zealand homes are full of holes through which heat can escape.

Appliance standby energy uses about \$100 million a year in New Zealand – enough energy to power around 55,000 homes.

With some simple driving techniques and by keeping your car well maintained, you could save up to 20% on your fuel bills.

Insulation programme making a real difference to New Zealanders

Adele Fitzpatrick reports.



Enthusiastic feedback from happy customers is one of the most rewarding parts of the job, according to Steve Hanna from Energy Options.

"As a service provider we feel privileged in helping people to create a warmer, drier, healthier, more energy efficient home," says the marketing manager whose community-owned not-for-profit organisation carries out insulation and heating retrofits in the Bay of Plenty, Taupo, Gisborne, Hawke's Bay and Marlborough as part of the Government-funded Warm Up New Zealand: Heat Smart.

"The feedback we receive from customers and the stories of how their lives have been changed is such a motivator, it has inspired us to look deeper into the community ensuring we as an organisation can play a part to help others who may need it. We think the Government and EECA have a scheme which is really making a difference in our communities."

Hanna's company is one of 59 service providers now taking part in the Warm Up New Zealand: Heat Smart scheme, run by EECA.

The scheme's real appeal is reflected in the figures – in the three months since the programme began, over 14,000 homes have been retrofitted with insulation and/or heating.

It's already more homes than were completed in a whole year under previous funding programmes.

Of the 14,039 homes that had insulation and/or clean heaters installed, 7,253 were low-income homeowners and 1,291 were rental properties occupied by low-income tenants.

Mike Underhill, chief executive of EECA, says it's great to see that 60% of those taking up the scheme are lower-income owners or occupiers of homes.

"This shows that families most in need are benefiting from the programme."



Energy Options' installer Hema Tukiri at work.

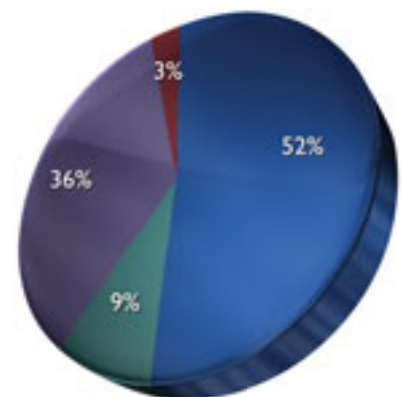
One factor that has assisted low-income households is the large amount of additional funding from other businesses, health brands and charitable organisations. This means that those households most in need – for example, due to ill health – only need to pay a small fraction of the insulation and total cost of the energy efficiency improvements.

“We’re delighted with the generosity being shown by these other funders.” Underhill said.

“They understand it’s a good use of money. By making homes cosier, less damp and more energy efficient, we can make a real difference to the health and wellbeing of those families living in them.” ■

Types of homes retrofitted, July – September 2009

Proportion of homes retrofitted for Community Services Card holders, general income householders and rental properties



- Low income – Owner occupied 52%
- General income – Rental 3%
- Low income – Rental 9%
- General income – Owner occupied 36%



Otago Polytechnic Centre for Sustainable Practice manager Steve Henry is promoting the formation of a biodiesel buyers' consortium in Queenstown. Photo courtesy of the Southland Times.

Queenstown's bid for biodiesel

Queenstown tourism and transport operators are taking steps towards cutting carbon emissions from their diesel vehicles, by forming a biodiesel buyers' consortium – a plan that could provide a blueprint for other regions to follow, as Jane O'Loughlin explains.

More than 30 people from at least 25 different businesses got together at a workshop in Queenstown recently to hear about the benefits of switching to biodiesel blends for their trucks, vans and buses.

With financial help and assistance from EECA, the Queenstown Sustainable Business Programme hosted the workshop on 15 October. The programme, run by Otago Polytechnic, aims to 'walk the talk' of New Zealand's clean green image.

EECA's biofuels spokesperson, Liz Yeaman, said biofuel-blends were a way a business could easily lower its carbon footprint and demonstrate its commitment to the environment.

"Visitors these days look for businesses that have green credentials, and for most tourism operators, transport emissions form the biggest chunk of their carbon footprint. Biofuels – in most cases biodiesel for these operators – are one way to reduce that footprint.

A key outcome of the workshop was the decision to set up a biodiesel buyers' consortium.

"Biodiesel sold in New Zealand is sustainable. It is made from New Zealand feedstocks that don't compete with food crops and that have significant overall greenhouse gas reductions. Biodiesel made in New Zealand is a great way to reduce the amount of fossil fuel we import from overseas."

At the workshop, Liz Yeaman explained how the Government's Biodiesel Grants Scheme was helping to make biodiesel-blends an environmentally-friendly alternative at an affordable price, while Andrew Campbell from Fuel Technology provided the workshop with the technical input on how biodiesel-blends could be used to safely replace diesel in cars, trucks and buses.



“Already 16 businesses have expressed interest in joining the pilot scheme to trial biodiesel blends within their vehicle fleet.”



EECA biofuels team manager Liz Yeaman speaks at the biodiesel workshop held in Queenstown.



Left to right: Steve Henry, Otago Polytechnic Centre for Sustainable Practice; Andrew Campbell, Fuel Technology Ltd; Wendy Johnston, Appellation Central Wine Tours; Amanda Gatward-Ferguson, Nomad Safaris; Liz Yeaman, EECA; Tim Barke, Kiwi Discovery & Queenstown Rafting; John Thompson, Ag Spray Otago.

A key outcome of the workshop was the decision to set up a biodiesel buyers’ consortium.

Liz Yeaman said the consortium could use the collective buying power of businesses in the region to get access to a supply of biodiesel-blended fuel.

“By forming a consortium, these companies can make it worthwhile for a fuel supplier to provide a biodiesel-blend to the region.

“Already 16 businesses have expressed interest in joining the pilot scheme to trial biodiesel blends within their vehicle fleet.”

The next step is for the consortium to go out to tender to secure a supply of various blends of biodiesel for the pilot project while also investigating a future long-term supply based on estimated volumes for the district, says Steve Henry, manager of the Otago Polytechnic Centre for Sustainable Practice.

“Feedback from the workshop was very favourable, with local businesses open to the idea of using biodiesel, and keen to work together on this project,” Henry said.

Liz Yeaman said if the trial proved to be a success, the consortium idea would provide a model for other regions to copy.

“With the support of fuel suppliers, we could see several regions follow suit, and more businesses start to use renewable transport fuels made in New Zealand.” ■

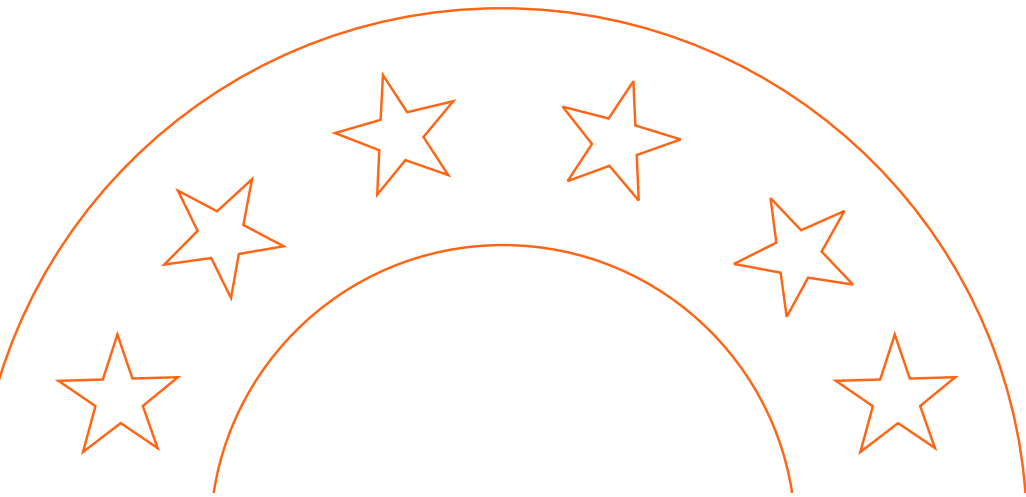
Kiwis go for dream car over green car

Kiwi car owners are amongst the least likely in the world to want an environmentally friendly car, new research shows.

The Synovate survey *Dream Car, Green Car?* replicated a worldwide study that asked people whether they would choose a ‘dream’ car or a ‘green’ car if money was no object.

What’s our choice? 46% of Kiwis would go for a dream car, 23% would choose a green car and 15% took the middle ground, saying their dream car was a green car. The results place us second only to South Africa in our love of the ‘dream car’ concept – less green in our preference than the USA, Australia and Canada. The survey may highlight a perception of environmentally friendly cars as ‘unproven’ – as Kiwis are more likely than most nationalities to say they can’t live without a car. But either way it shows more work is needed on the part of the sustainable transport lobby – and ‘green’ car manufacturers – to sell the concept locally.





Rising stars

Fridge technology is on the move – and so are the stars on energy rating labels, as Tamara Lee explains.

The world of fridges has changed a lot since the dawn of the new millennium.

Just a decade ago, the fridge you'd have bought would guzzle around twice the energy of the average fridge on the market today.

Fortunately, today's buyer has a much more efficient range of fridges to choose from, and energy rating labels appear on all models so they can factor energy use into their purchasing decisions.

New energy rating labels

The only problem is that as technology has continued to improve, fridges are increasingly clumped at the high end of the energy label's star rating scale. It is great news for the consumers, but it also indicates that the rating scale needs to be tweaked to reflect the changing technology and to continue to encourage efficiency improvements from the industry.

EECA has been working closely with industry on the development of the changes, and from December 2009 new energy rating labels will start being phased in.

The new energy rating label with revised star rating levels will encourage greater efficiency at the top end of the scale. It will effectively move the current ratings about two stars back – so an old six-star model would sit around the four-star mark with the new calculation.

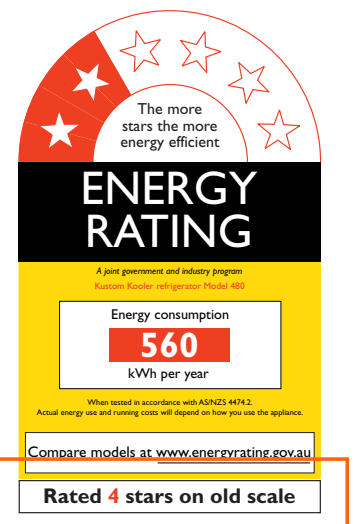


As a transition measure, the old rating may also appear on the new label for a period of time to help explain the difference.

A new optional label for super-efficient fridges is also being introduced. Models that exceed six stars can show additional stars on this label, up to a maximum of 10 stars, so consumers will be able to easily identify fridges with exceptionally low energy use.

The new labelling requirements will be phased in from December 2009, and by April 2010 the new labels will appear on all new fridges for sale.

The improved star ratings will encourage fridge manufacturers to continue getting low-energy fridges onto the market, and help fridge buyers carry on navigating by the stars. ■





New regional energy strategy for Waikato

Energy is a big deal in the Waikato – it's one of New Zealand's leading generation areas. So it's no surprise that the Waikato has released its own comprehensive regional energy strategy, launched at Parliament by Energy and Resources Minister Gerry Brownlee in August. Miranda James reports.

Facilitated by Environment Waikato, the strategy is the work of the Waikato Regional Energy Forum, made up of members from the energy industry, local and central government, major energy users, education and community groups.

"We realised we needed buy-in from the whole community, because no one level of government or sector of society could address the full scope of issues. It's thanks to that collaborative approach that the project has been such a success," said Environment Waikato chairman Peter Buckley.

The strategy is designed to help Waikato people and businesses use energy more efficiently, generate more electricity from renewable sources and develop innovative energy technologies.

"Energy issues have become top of mind for people in recent years, with rising petrol prices and electricity costs hitting households hard," Buckley said. "At the same time, there's an increasing need to cut carbon emissions to address climate change."

EECA senior adviser for local government, Ben Dunbar-Smith, said the Waikato's work would help inspire and guide other regions.



Minister of Energy and Resources, Gerry Brownlee, with Environment Waikato chairman Peter Buckley, and the co-ordinator of the Waikato Regional Energy Forum, Dutch Glass, at the launch of the Waikato Energy Strategy.

"Energy and how we manage it is a strategic issue for all New Zealand. Councils and communities have a crucial role to play in encouraging energy efficiency and sound energy management."

Three other regional energy strategies – facilitated by Environment Canterbury, Environment Bay of Plenty, and Greater Wellington – are in draft and due for release in the next year. ■

"It's thanks to that collaborative approach that the project has been such a success."



Reserve Bank shows the way to continuous gains

The Reserve Bank is used to keeping track of everyone else's dollars and cents, and now it is keeping a close eye on where its own energy dollars are going, with excellent results, as Rosemary Scoular explains.

Building services manager Chris Ward and his team at Wellington's Reserve Bank are now reaping the rewards of adopting a new strategy to improve the building's energy efficiency.

When Ward commissioned an energy audit in 2008, he didn't expect the recommendation to be to establish a team of people to optimise the heat and ventilation (HVAC) system – otherwise known as 'continuous commissioning™'.

However, the proof of the pudding is in the eating, and as results clearly show, the strategy works.

The outcome is particularly impressive as the building was already outperforming the

industry's energy efficiency benchmark by around 30%, and yet this project yielded a further 22% in savings.

So what is continuous commissioning and how does it work?

"The 22% reduction in energy use delivered by the optimisation project will save \$60,000 annually."

Continuous commissioning starts from the assumption that the heating and cooling systems of any building, new or old, are invariably inefficient and that gains of 20% are always achievable.



“The closer we looked, the more opportunities we found.”

Continuous commissioning invests in people time to monitor, manage, investigate, diagnose and generally question every aspect of the way energy is used and controlled. It’s essentially an ongoing process of ‘adjust – measure – adjust – measure’. The process is sometimes known by other names including HVAC Optimisation or BTOE (BMS Tuning, Optimisation and Efficiency).

“Essentially, the project team had a brief to ‘play around a bit’ with the building’s heating and cooling systems,” says Ward. “The closer we looked, the more opportunities we found.”

The team, made up of Ward and his team, building services contractors and an energy auditor, gathered data, brainstormed and eventually identified and implemented 28 different system optimisation opportunities. Four more have been targeted for the following year.

Their work has certainly paid off. The 22% reduction in energy use delivered by the optimisation project will save \$60,000 annually. At this level of savings, the project has a payback of 12 months on external costs. If internal staff costs are added, the payback is 14 months.

HVAC savings can’t be measured in isolation – it would be very easy to

make significant savings simply by turning thermostats down. So the HVAC Optimisation Project was also evaluated against the level of staff satisfaction with their working conditions and comfort, measured in terms of complaints. These had been monitored monthly since 2003.

The results after the project were equal to the best-ever recorded.

Perhaps the most telling lesson from this project has been the relative ease with which significant new savings have been found in a building that was already a top performer for energy efficiency.

Two percent of New Zealand’s total energy consumption comes from 564 buildings of more than 9,000 square metres. Few of these would exceed the energy efficiency benchmark for commercial buildings by a margin as wide as The Reserve Bank’s 30%. However, as this case demonstrates, continuous commissioning is a process with a huge potential for energy savings.

“The key to the project was the collective knowledge of the project team. For those who are prepared to commit to this type of project, the savings are definitely achievable,” Ward says. ■

Milking shed makeovers

Dairy farmers know all too well that milking cows is an energy-intensive business. Rosemary Scoular explains.



When Landcorp Farming first started dairying 10 years ago, the price of electricity was significantly lower than today. Even then, it was obvious that power accounted for a major proportion of costs, and energy consultant Joe Schyns was brought on board to help.

Schyns ensured the basics were in place across Landcorp's 27 dairy farms – including managing energy load, using tariffs strategically and matching electricity invoices to physical farm installations.

But there were further gains to be made. A decade on, Landcorp undertook a serious review of its energy use – and has found ways to cut energy use by 9%, saving more than \$50,000 a year.

“After watching the price per kilo (of milk solids) and cost per kilo lines converging, we took steps to minimise operating costs. We broke down dairy expenditure and looked at what our big spends were per farm – not surprisingly, electricity was one of the largest items,” says procurement specialist and project manager Vaughan Griffiths.

Landcorp invested in energy audits at all its farms, finding numerous energy-saving opportunities. As a result new technology was installed at most farms, including refrigerator heat recovery and variable drive systems on pumps to manage their energy use. Hot water pipes and cylinders were insulated at the same time, to prevent unnecessary heat loss.

The installation took five months, with an average payback per farm of just over three years.

Tomo Reed, account manager for the primary production sector at EECA, says farmers are increasingly aware that their electricity bills are not a fixed cost – there are options to reduce them.

Landcorp's energy audit focused on the milking shed as the most energy-intensive part of the dairying business.



“The experiences of farmers like Landcorp can help raise awareness. Even before you invest in new technology there’s a lot that farmers can do to reduce their energy spend. When there are fluctuations in farms’ profitability, every little bit that can be shaved off your overheads helps,” he says.

EECA is developing resources to help encourage the industry-wide uptake of energy efficiency and energy-saving technology. Lessons from large operations such as Landcorp will be used to help develop these, he said.

Griffiths’ advice to other farmers wanting to review their energy spend is to ask around – including people with a similar operation, and knowledgeable local contractors – to find what works.

“Farmers should seek out advice from professionals who can give good options about improving efficiency. Do your homework and then follow those recommendations.”

For more detail on Landcorp Farming’s energy audit project, read the case study at www.eecabusiness.govt.nz ■

From effluent to energy

In Eyrewell, Canterbury, Landcorp Farming is running a prototype biogas system to generate electricity for use on the farm.

Manure from the farm’s 900 cows is collected on a concrete pad outside the milking sheds and pumped into a tank ‘digester’. The gas produced is used to power a generator that provides around a third of the dairy sheds’ energy needs. An arrangement with local retailer Genesis Energy

means that any excess electricity that is exported, gets subtracted from the farm’s overall consumption.

In addition to the energy use, the biogas system helps combat the environmental issues with dairy effluent – as the digestate produced is very low in pathogens and ready for use on paddocks as a bio-fertiliser.

For more information on biogas on farms, see the case study at www.eecabusiness.govt.nz



Nelson – NZ's solar centre



A region that enjoys a sunny reputation is taking it one step further with the help of a council initiative to cash in on solar power. Jane O'Loughlin reports.

Nelson is aiming to be the solar centre of New Zealand, with an ambitious new programme that will see solar water heating installed on as many as 1,700 houses in the area – with help from \$9 million in council financing and EECA's \$1,000 solar water heating grant.

The Nelson City Council's newly launched Solar Saver Scheme works by allowing homeowners to pay the cost of the solar investment back through their rates, with up to 10 years to pay it off.

Already the move is attracting interest from around the country, and EECA's water heating team manager, Nathan Ross, says Nelson City's idea is likely to inspire other councils to investigate similar opportunities.

"Some councils are looking at finance schemes to help pay for clean heating and insulation, but this is the first council to look at solar water heating.



Nelson's Mayor Kerry Marshall, says the Solar Saver Scheme will benefit the environment and local economy.

"We are very excited about the Solar Saver Scheme and the level of interest from householders shows this is reflected by the community."

"The capital outlay is a significant barrier to investing in solar water heating, but it's something that adds value to the house for many years to come.

"Once this scheme is up and running we will certainly be working with councils to try and have it adopted around the country," Ross says.

The Nelson City Council believes the innovative project has a number of pluses for residents as well as for the region. Not only is it an excellent way to use a free natural resource, thereby benefiting the environment, it also brings money into the local economy by providing work and reducing the amount people have to pay for power. In addition, it makes the Nelson community less vulnerable to electricity price increases into the future.

Nelson Mayor Kerry Marshall says: "We are very excited about the Solar Saver Scheme and the level of interest from householders shows this is reflected by the community. It allows people to switch to solar now and repay the cost while they also reap the benefits of saving on the cost of electric water heating over the coming years."

The council is also making it easier for people to choose solar power by waiving building consent fees and streamlining the consent process. It is also planning to use solar power wherever feasible on council facilities.

Interest in the scheme has been so high the council has had to run a ballot to determine who will be the first 200 households that take up a solar water heating installation before July 2010.

Nathan Ross says EECA is looking forward to seeing the Nelson scheme progress. "It's great to see councils showing leadership like this, and we are happy to work with communities like Nelson to achieve good energy outcomes both for the community and for the country as a whole." ■



Cash in your chips

The demand for wood energy is growing – for industrial, commercial and home heating. Forest residue can be turned into an income stream that can grow your bottom line.

The Energy Efficiency and Conservation Authority (EECA) supports the wood energy market with information and expertise. Go to www.eecabusiness.govt.nz/wood for case studies and information on how businesses are tapping into wood energy to boost profitability.

Do you need help to evaluate how to turn forest residue into a saleable product? Phone 0800 BIOENERGY (0800 246 363) to get a FREE consultation to get started.

