

# Attitude makes the difference



People power is Telecom's greatest weapon in the battle for energy savings.

PROPERTY CONTRACTS SERVICES AND ENERGY MANAGER **JUSTIN PARKER** (TOP) AND BUILDINGS MANAGER **COLIN FOSTER**, TWO OF THE PEOPLE HELPING TELECOM SAVE **\$1 MILLION A YEAR** ON ENERGY COSTS.

Emprove is a service provided by the Energy Efficiency and Conservation Authority (EECA). To find out how your business can save energy, visit [www.emprove.org.nz](http://www.emprove.org.nz) or ph 0800 358 676.



## PowerSave hero

**1** AUCKLAND STAFF MEMBER AND POWERSAVE HERO **STEVE SMITH** SET UP SECURE BIKE RACKS (AND A COFFEE KIOSK) IN THE FOYER OF TELECOM'S MAIN EXCHANGE BUILDING IN MAYORAL DRIVE.

SMITH ALSO THOUGHT OF ASKING THE **SECURITY GUARD** TO CHECK FOR **LIGHTS, COMPUTERS** AND OTHER MACHINES LEFT SWITCHED ON UNNECESSARILY, AS PART OF HIS **NIGHTLY ROUTINE**.

SAYS PROPERTY CONTRACTS SERVICES AND ENERGY MANAGER JUSTIN PARKER: "HE'S THE **MOTHER HEN** OF THAT BUILDING – HE HAS **HUGE ENTHUSIASM**."



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It's obvious for energy-hungry steel mills and paper manufacturers to keep a close eye on energy use – but even companies that are not so energy-intensive can benefit their shareholders by keeping all costs down. Often it's a staff culture change and internal leadership that make the difference.

Energy accounts for only 2% of Telecom's operating costs, but that translates to a considerable \$22 million a year – so energy efficiency is a priority.

Telecom's property contracts services and energy manager Justin Parker says environmental concerns are taken seriously. "That 2% is important because when we keep costs down those savings can be passed on to our customers."

Telecom's 2003 annual report cites savings from energy initiatives amounting to more than \$1 million that year, with ongoing annual savings of around \$500,000.

Parker manages Telecom's commercial electricity needs and carries out special projects, including the energy efficiency programme. Supporters include buildings manager Colin Foster, network estate manager Phil Royle, general manager network delivery Steve Fuller and chief operating officer Simon Moutter.

Parker's enthusiasm for energy management stems from an early interest in electronics and a background in IT contracts management, including a stint developing an electricity futures trading platform with d-cypha Ltd.

His performance objectives are linked to achieving energy management targets. These include developing a database to track energy efficiency initiatives so Telecom staff and their partners – such as their energy management consultant Opus and building contractor Downer – can add ideas and keep track of progress on various energy efficiency projects.

Parker also has to identify another \$600,000 worth of energy savings initiatives. He has an operating budget for achieving greater energy efficiency, with further funds available for capex projects.

"If I want to spend outside of that it has to repay itself in one year." A recent \$100,000 review of line tariffs met that criterion.

The payback threshold for capital expenditure projects depends on what else is going on at the time. "The priority is the customers, and the stability of the network," says Parker. He generally builds a business case and incorporates projects into the capital expenditure for the following year: "We just do it."

Each month he reports on his progress towards quarterly milestones. "One week I might spend 20% to 30% of my time on energy management, the next week 100%."

Recent successes in energy management were recognised outside the organisation when Parker and Foster jointly won a highly commended award for Energy Manager of the Year in the national 2004 EnergyWise Awards. The Massey University four-day energy management course he completed in 2002 also boosted his enthusiasm

and expertise, and provided some useful contacts. Telecom is a member of the New Zealand Business Council for Sustainable Business and has participated in a number of its projects.

## Keeping it fresh

The key to ongoing energy savings is to make it interesting for the company's 6000 staff. The blitz mentality of the winter hydro shortages of 2002 and 2003 has evolved into an ongoing campaign, refreshed each year.

Says Parker: "We called our Target 10% campaign 'Switch Off and Save', but we aimed for 15% – just like the target set for the Government departments. We thought heck, if they can do it, why not us?"

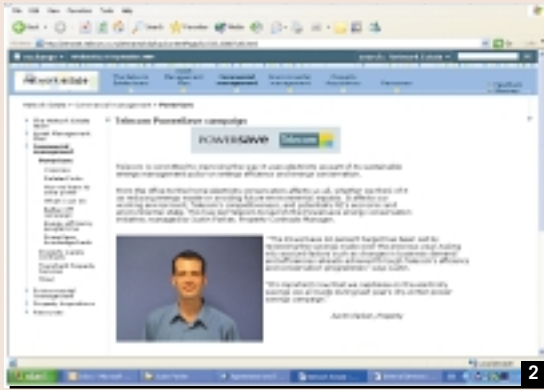
Creativity and a sense of humour got people on board. "Our chief operating officer Simon Moutter does these team-talk videos. He started one off in a darkened room and the other guy had to find him with a torch."

Telecom achieved savings of 8%–16% in its accommodation office energy usage from March to May 2003, with such staff incentives as a \$1600 Kyocera mobile phone as a prize for a power savings quiz.

"Since then we've relaunched Switch Off and Save and gone to 'PowerSave 2004'. Next year we will relaunch it as PowerSave 2005 to keep it up-to-date. We've rebranded the posters and now have a comprehensive 'PowerSave' intranet site with tips, ideas and a knowledge database."

Parker has set up a PowerSave intranet and a PowerSave Hero high-achiever trophy awarded

**2** THE POWERSAVE PAGE ON TELECOM'S INTRANET: THE FIRST THING STAFF SEE WHEN THEY SWITCH ON THEIR COMPUTERS.



## Telecom tip

Parker recommends a review of office lighting.

"We examined all our triple-tube light fittings and found the old inefficient lamps had simply been replaced with more efficient triphosphors."

This meant the levels of light provided were probably greater than necessary.

Where consultant Stephenson & Turner's lux meters found light levels were excessive, fittings now have two lamps instead of three.

once each quarter to an individual who has achieved outstanding results or come up with a good idea for saving energy.

Telecom has 43 PowerSave Rangers who've nominated themselves as the watchdogs for energy efficiency on their sites or floors.

Parker says there has been no evidence of burnout or "savings fatigue" because the PowerSave Rangers have volunteered for the role and are infectiously enthusiastic. "It does keep the staff interest up. If you were just imploring them by email they'd get sick of it."

A snappy in-house communications team is an essential support. Says Parker: "I've really been helped by our excellent internal communications structures. We have regular news articles in our

daily in-house electronic newsletter *Pulse*. We can put in a feature on energy savings say once a month, or on a PowerSave Ranger hero – it's absolutely brilliant. The feature article becomes part of the intranet site, giving recognition to the energy savings programme and any PowerSave hero recognised that month."

When employees switch on their computers, the intranet automatically opens as the first screen they see.

A recent PowerSave hero is Steve Smith at Telecom's main exchange building in Mayoral Drive, Auckland, who had the idea that the security guard could check for lights, computers and other machines left on unnecessarily, as part of his nightly routine.

Smith also set up secure bike racks (and a coffee kiosk). Says Parker: "He's the mother hen of that building – he has huge enthusiasm."

Many of the ideas staff put forward during the Switch Off and Save campaign and since have been effective. Says Parker: "Just turning off equipment – in one cafeteria that was no longer being used someone noticed there were five fridges switched on, so we dealt to that.

"External security lights were switched on 24/7 – now they have timers."

The PowerSave Rangers are soon to be rolled into another environmental initiative. Says Parker: "Telecom's very big on recycling paper. Our environmental manager Christine Turner has a Waste Watcher on most floors, around 100

altogether, with the programme gradually being rolled out to other city centres. We're going to combine the role of Waste Watcher with PowerSave Ranger and call them EcoWarriors. Then you get double the impact." He says waste has a highly visible impact but energy doesn't, so linking the two will raise awareness of energy.

## Solid base

The "people stuff" is the top layer on a solid base of steady increments in energy efficiency from the company's maintenance programme and initiatives such as energy audits.

With more than 700 exchange buildings, 800 mobile sites, 2200 phone booths and 2500 cabinets and radio repeater sites, Telecom has a lot of real estate to manage.

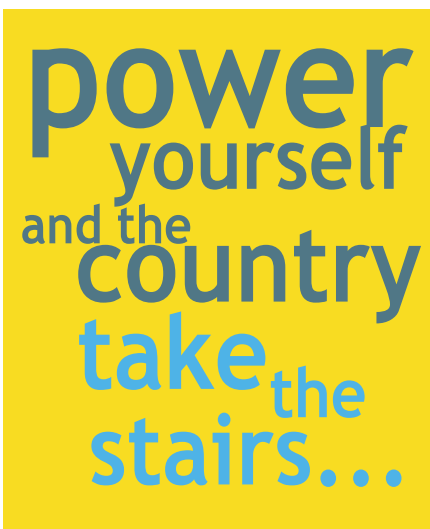
Telecom has made good progress in the Energy Achiever diagnostic sessions run under EECA's Emprove programme. Its latest session, which included representatives from Opus and Downer, revealed an impressive 30% improvement in energy management practice since the initial session in July 2003.

## Measuring energy use

Telecom previously used New Zealand-developed software EnergyPro for billing verification.

But changes in the way Telecom procured electricity, coupled with the sheer complexity of the 6,000 meter points, meant something else was needed. Energy consultants SmartPower have taken over responsibility for the energy invoice verification.

SmartPower has developed its own dedicated



POWERSAVE

Telecom

## Energy efficiency initiatives

Telecom has also investigated various energy efficiency possibilities.

- Options for free air cooling using outside air to cool the exchange equipment, instead of using chillers.
- As equipment, such as rectifiers that convert AC current to DC, is replaced, the replacements are more energy efficient than the previous models. The priority for rectifier replacement is reliability, but energy efficiency is a close second. The rectifier programme is expected to save \$40,000 a year.
- Telecom found that people working in unmanned exchanges would sometimes forget to switch off the lights. "There's a fire danger because old light fittings can overheat and start burning," says Parker. "We looked at various [automatic switching] technologies but the obvious ones didn't work. Photoelectric cells couldn't see round the big equipment racks. Infrared ones couldn't 'see' the person because the heat of the equipment meant there wasn't enough of a contrast. So we went for a 'beam-counter' system."

► spreadsheet with query analysis, and works closely with Trustpower, Telecom's electricity retailer. "They've actually got really good billing," says Parker.

While the Excel spreadsheet works fine, and basic consumption information can be obtained from Trustpower's website, it quickly became apparent that for detailed trend analysis and active load-shedding, a heavy-duty monitoring system would be required. Telecom put out an international request for proposals for a suitable package, and found the best one came from the UK, sold by an Australian reseller.

At the time of writing, the contract was still being negotiated so Parker was reluctant to name the package. It has been installed at only one other New Zealand site. "We looked at e-Bench and it was good for benchmarking but didn't have the interfaces for actively switching off load. Energy Wizard does load-shedding but not benchmarking. Only one could do both and has a full range of interfaces with meters and BMS systems," he says.

It will be installed in three stages: first, trend analysis, incorporating degree-day data from NIWA (since 20% of energy consumption relates to cooling communications equipment); second, benchmarking against similar exchanges and other similar companies; and third, active load-shedding in response to spot market prices. "That could be some years down the track," says Parker.

### Specific projects

Telecom has already done years of work on making its facilities more energy efficient, and energy efficiency upgrades are built into the planned maintenance programme.

Maintenance and energy management initiatives are to be tracked on a database system for information-sharing by Telecom and its external partners such as Downer and Opus. With the basic database already developed, the next project is to shift the tracking system to a software platform more specific to the task.

This counts the number of regular light pulses to detect whether the signals have been interrupted by something going past.

- Telecom explored using special phase-change thermal-storage material to capture excess heat from telephone exchanges and deliver it elsewhere for use, but the volume of material involved was too great to be feasible.
- Chillers in Mayoral Drive are to be upgraded with floating head pressure controls. This technology is so new in New Zealand that an Opus engineer travelled to the UK to complete research on them. A floating head pressure control allows the compressor to work less hard to cool the refrigerant in the condenser when outside temperatures are cool, saving 3% to 10% of the energy.
- Telecom promotes video-conferencing and remote working as ways to save transport fuel and protect the environment. Its 2003 annual report says its own staff held 266 video-conferences that avoided 659 aeroplane seats and 606 taxi trips, worth \$1.3 million.
- Telecom won the national trophy for the greatest distance cycled to and from work, in the Bikewise Business Battle.

Telecom has commissioned Opus to carry out energy audits. Two major audits, of the Mayoral Drive and Airedale St exchanges in Auckland, were carried out in late 2002. They yielded estimated savings of \$180,000 and \$40,000 respectively, from implementing new technology such as floating head pressure control for HVAC systems.

"We've used the findings from those against other ones," says Parker. Ten smaller audits have been completed.

### Tariffs

A review of line tariffs brought annual savings of \$200,000 to \$250,000, of which around half is due to line charge discounts from network company Orion in Christchurch. Downer developed a mass-texting system that sends a text message to 2500 Telecom staff members' mobiles to give five or 10 minutes' notice to back up their work in case of voltage disruption when the diesel generators switch on in response to high spot market prices.

### Looking ahead

Parker is eager to see even more improved performance for Telecom in next year's Energy Achiever diagnostic session with EECA. He believes there's always scope for recognition programmes for staff who come up with good ideas.

He's also looking forward to rolling out the monitoring and targeting system, and the database to track maintenance and power-saving initiatives:

"Information is power!" ■

### CREDITS

**Telecom New Zealand Ltd property contracts services and energy manager**

Justin Parker

**Buildings manager** Colin Foster

**EECA Improve account manager** Mike Bourke