

# Crown loans fund upgrades of hospital equipment



Health boards are taking an innovative approach to upgrading energy management equipment – they're having someone else pay for it.

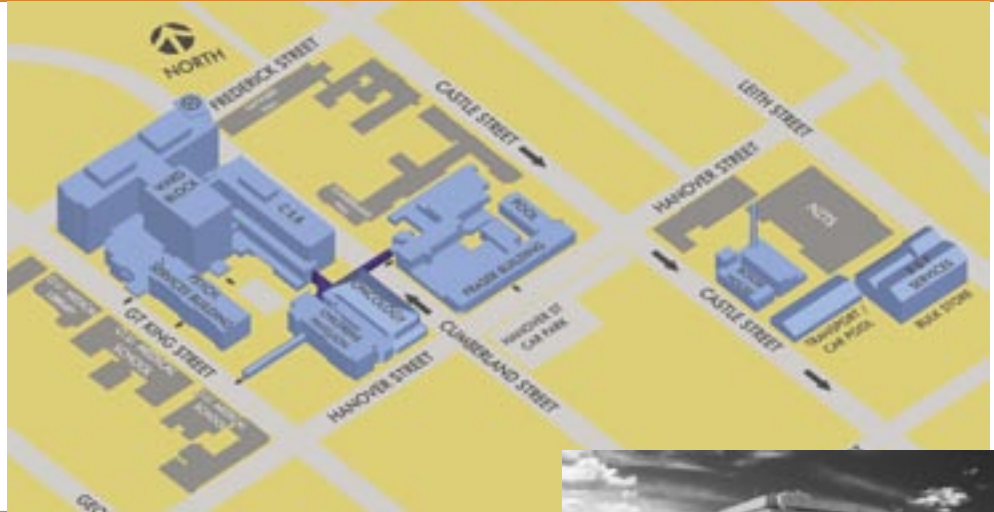
**OTAGO DISTRICT HEALTH BOARD**  
HAS USED A **CROWN ENERGY EFFICIENCY**  
**LOAN** TO FUND ENERGY EQUIPMENT  
UPGRADES AT **DUNEDIN HOSPITAL**.

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.



**DUNEDIN HOSPITAL CAMPUS.**



Otago District Health Board has obtained a Crown Energy Efficiency Loan of \$510,000 from EECA for an interesting arrangement with building services contractor Honeywell.

The arrangement is called an energy performance contract. In return for the capital injection of \$510,000, paid to Honeywell, Honeywell guarantees to achieve energy savings of \$122,198 per annum for five years while upgrading equipment and controls at Dunedin Hospital.

The health board will use the energy savings to repay the \$510,000 loan and a loan fee to EECA, and will continue to benefit from the energy savings after the loan is repaid.

The health board also owns the new equipment, for which it has a maintenance contract with Honeywell.

The loan and performance contract arrangement suits the health board, which was faced with the problem of how to pay for replacing an outdated system.

The health board expects to reduce its energy consumption by 769,000 kWh a year of electricity and 5,360 tonnes of steam. It will also cut its monthly maximum electricity demand by on average 160 kW, which further reduces the power bill.

Performance contracting is a smart way many large organisations operate in North America, but is not widespread in New Zealand. The Department for Courts was one of the first to take it up, at the Auckland District Court building – and Honeywell is the service provider that has pioneered the concept. It operates similar arrangements in Australia, in particular Tasmania where many energy performance contracts have been installed.

The 400-bed Dunedin Hospital spends around \$1.4 million a year on energy. It already had a legacy Honeywell control system to control equipment such as chillers, boilers, steam plant, heating and air conditioning.

Honeywell has upgraded the equipment,

giving highest priority to the areas where the improvements will be the most cost-effective and guarantee the payback.

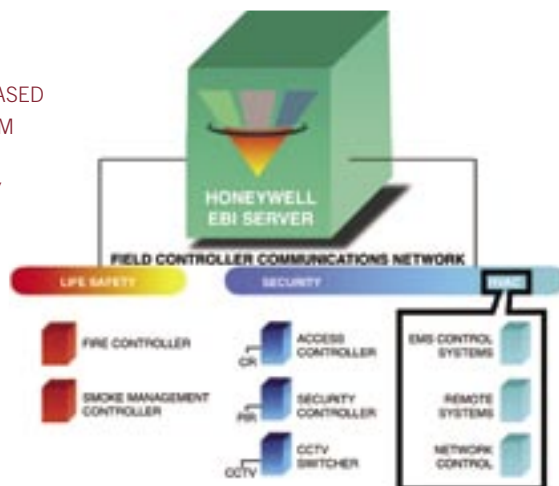
**Nerve centre**

In January 2005 the hospital changed over to the latest Honeywell “Enterprise Buildings Integrator”, a PC-based building management system which provides an intuitive, web-based graphical operator interface into the building services for indication, monitoring, control, alarming and reporting of all building management functions and systems.

The Enterprise Buildings Integrator is also the front-end that communicates with the

HONEYWELL'S **ENTERPRISE BUILDINGS INTEGRATOR** IS A PC-BASED BUILDING MANAGEMENT SYSTEM THAT HAS BEEN INSTALLED AT **DUNEDIN HOSPITAL**, IN AN **ENERGY PERFORMANCE CONTRACT** ARRANGEMENT.

IT COMMUNICATES WITH **FIELD CONTROLLERS** THAT **OPERATE INDEPENDENTLY**, GIVING SECURITY FOR **ESSENTIAL SERVICES** SUCH AS **BACK-UP POWER SUPPLIES** AND **MEDICAL GASES**.



## MidCentral funds energy-saving upgrades through loans

The MidCentral District Health Board, based in Palmerston North, has used a series of six Crown Energy Efficiency loans from EECA totalling \$550,000 to upgrade its energy-using equipment.

Its latest loan, of \$42,000, is for upgrading the workshop heating, community village heating and hot water system heating controls at the Palmerston North Hospital.

The annual savings in gas and electricity are estimated at \$12,200, which means the loan

will be paid back in just under three and a half years.

The first stage is to refit the steam heating system for the workshops with room temperature controls and valves operated by the building management system to optimise the heating system's operation time.

The outside temperature compensator system will also be refurbished.

The other aspect is to refit the steam heating

system for the community village heating and hot water system. This will also have room temperature controls and valves controlled by a timer in the building management system.

The domestic hot water system will be fitted with automatic controls to shut down and isolate the system outside normal operating hours.

Some of the peripheral buildings will have electric space heating and hot water to allow them to operate outside normal hours without switching on major plant.

new XL500 field controllers. If, for some reason, the Enterprise Building Integrator failed, the field controllers would maintain control because they operate independently.

The new system gives better security for essential services such as back-up power supplies and medical gases. It enables the operators to program sophisticated schedules and temperature conditions and provide advanced alarm management.

It will help the hospital keep track of its energy use through detailed trend information, displayed in graphical format for ease of interpretation.

For example, at the click of a computer mouse comparisons can be made between current and historical energy usage data, including adjustment for weather differences.

Time scheduling and public holiday programming for non 24-hour areas of the hospital can be programmed up to 12 months in advance.

### Smart air conditioning

The air conditioning controllers have been upgraded with energy management strategies programmed into them. Increased use is being made of the free cooling energy of fresh air in the air conditioning system.

Where heating is required, some is recovered from air that is being expelled from the buildings, and then used to pre-heat incoming air.

Upgrades have been completed to the radiator and humidity control systems to ensure that each responds according to the ambient conditions to minimise energy consumption. The hot water system temperature sensors have been upgraded, leading to more accurate heating and less waste.

### Crown Energy Efficiency Loan Scheme

Investments in energy efficient technologies or energy efficient projects can be easy for public bodies such as district health boards, through loans available through EECA. Crown Energy Efficiency Loans are available to government departments, district health boards, Crown owned companies, territorial authorities, regional councils, universities, polytechnics, schools and Crown entities.

The loan scheme is intended for the full or partial funding of projects to achieve energy cost savings. If equipment is being replaced for other reasons, funding is available to cover the extra cost of installing an energy efficient option.

The equipment or services purchased with the funds must be used for cost savings. It may not be used for other benefits such as raising revenue or providing services to the public.

At least 50% of the savings must be in direct energy costs, with the remainder in related areas such as maintenance.

The payback for the project may not be more than five years. Government departments and Crown-owned entities may borrow 100% of the total cost of a project. This can include the cost of equipment, installation, design and project management fees, and any energy audit fees.

To raise a loan, simply contact EECA with details of the project to be considered. EECA will make an independent assessment of the cost savings.

This may be based on your own design work or your consultant's recommendations, if these are detailed enough to confirm the savings.

If further information is needed, or if there is a need for EECA staff to do a separate appraisal, this will be discussed with you.

**Contact Dan Coffey on 04 470 2230, [dan.coffey@eeeca.govt.nz](mailto:dan.coffey@eeeca.govt.nz), visit [www.eeca.govt.nz](http://www.eeca.govt.nz) and follow the links *Being EnergyWise, In Government*.**

Variable-speed drives have been installed on water pumps for the air conditioning system, so that instead of being simply either fully on or off, the pumps provide only the amount of water required in the buildings, minimising pumping losses.

### Load-shedding

Throughout the entire site, a maximum demand control system has been automated so at times of peak demand for power, where the hospital might incur extra charges, it sheds non-essential loads.

For example, it limits the operation of chillers and reducing the pump speed on water pumps.

This all happens without any adverse impacts on comfort conditions within the hospital.

The hospital's building and property services staff are being trained on the new system, bringing their skills right up to date.

The energy performance contract spells out exactly what is and what isn't Honeywell's area of responsibility.

