

Bank has growing interest in energy savings



Energy accounts for only 6% of the ANZ National Bank property group's operating expenses, but savings of potentially millions of dollars a year go straight to the bottom line.

ENERGY MANAGEMENT PARTNERS:

ANZ NATIONAL BANK LTD RISK AND COMPLIANCE MANAGER **ALAN GRIFFIN** (RIGHT) AND **SMART POWER** ENERGY CONSULTANT **PETER MCKEOWN** IN FRONT OF THE **ANZ NATIONAL BANK'S** WELLINGTON OFFICE TOWER.

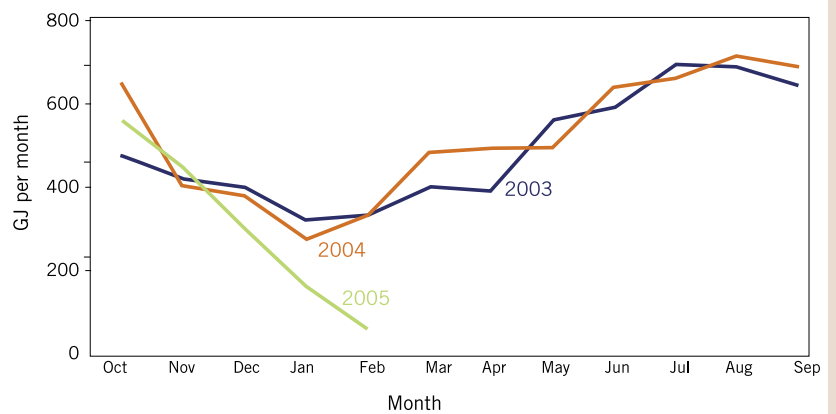
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GRAPHS OF GAS AND ELECTRICITY CONSUMPTION FOR THE ANZ OFFICE TOWER IN WELLINGTON SHOW DRAMATIC ENERGY SAVINGS COMING THROUGH AFTER SETTING ENERGY CONSUMPTION BENCHMARKS AND TARGETS.

ANZ Tower gas consumption



1 REPLACING THE TWO 36 WATT LAMPS PER LIGHT FITTING (RIGHT) WITH TWO ENERGY EFFICIENT 14 WATT LAMPS (LEFT) NOT ONLY SAVED ENERGY – IT'S CUT MAINTENANCE COSTS FROM \$150,000 A YEAR TO \$10,000. THE ELECTRONIC BALLASTS FITTED AT THE SAME TIME HAVE MADE THE LIGHTING FLICKER-FREE.

Ready, aim, fire

For many businesses, the first step would have been to rush out, do energy audits and start making practical changes. But in 2001 ANZ – as it was then – realised there was a more fundamental task of embedding energy management into its operating procedures.

“We felt there was an opportunity to do things smarter and cheaper by defining a policy and taking a more strategic view,” says Griffin.

Starting from the top, the bank and its energy advisors Smart Power developed an energy policy.

From the policy came an implementation framework, which identified practical ways forward in four key areas of opportunity: lighting, air conditioning, office equipment and staff training.

The next step was benchmarking and targeting.

Using individual monthly invoices, McKeown and his Smart Power team compiled 12 months' worth of data for each site.

“There was limited external benchmarking information available but, taking what there was and applying the benefits of Smart Power's experience in the business, we established realistic and practical targets to be achieved in the first two years.

“Eating the elephant” is how energy manager Alan Griffin describes the energy management task at ANZ National Bank. “It's a big beast, so we can only do it one mouthful at a time.”

One mouthful at a time is an apt description for the thorough and methodical approach he and his ‘partner in energy’, energy consultant Smart Power's Peter McKeown, have been taking.

They're following a textbook approach other businesses may well want to emulate – especially in light of the big returns it's generating.

Mind you, they have to. With an initial ANZ portfolio of 154 branches and commercial

buildings – now increased to more than 300 with the addition of the National Bank portfolio – they need to carefully prioritise and target their effort where it will reap most return.

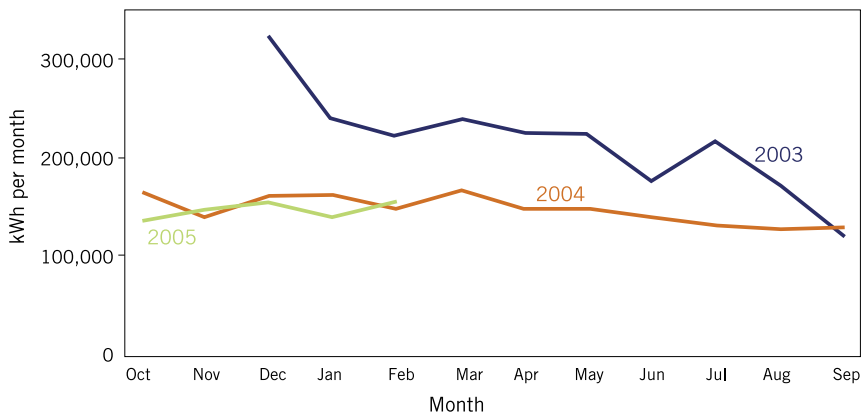
ANZ National spends about \$6 million annually on energy. Although that represents only around 6% of its property group's operating expense budget, it's a lot of money for any business.

It was felt energy was a cost area where savings could be realised relatively easily, a suspicion that is being borne out in practice.

Focusing more on energy conservation and management was also part of the bank's Sustainability Business Strategy.

The energy management policy's objectives specifically target the conservation of non-renewable energy resources and the reduction of carbon dioxide emissions.

ANZ Tower electricity consumption



ENERGY MONITORING AND TARGETING REPORTS PUBLISHED **QUARTERLY** MEASURE THE **EFFECTIVENESS** OF VARIOUS PROJECTS AND **SET THE AGENDA** FOR FUTURE PROJECTS.

THE REPORTS ARE KEPT **SIMPLE**. THEY PROVIDE INFORMATION ON **TRENDS** AND THEIR IMPLICATIONS FOR THE **CURRENT FINANCIAL YEAR AND BEYOND**, WITHOUT DROWNING READERS IN DETAIL.

“These benchmarks let us identify sites that were performing poorly in terms of energy. We then focused on the high volume sites among the poor performers, on the basis of the 80-20 rule – that 80% of our gains would come from 20% of the ‘big energy use’ sites. “We definitely wanted some quick wins,” says Griffin. “It gives the programme momentum and credibility. Being able to show how the bank is benefiting makes it easier to promote and initiate further projects.

“Identifying opportunities for savings is not rocket science,” he says. “We’re fortunately dealing with professional, analytical people attuned to the dollar savings we could detail in our business cases.”

Quarterly reports

Energy monitoring and targeting are being carried out. Quarterly reports not only measure the effectiveness of various projects but also set the agenda for future projects.

Because the quarterly report is a key working document, Griffin and McKeown have put a lot of time into developing and refining a format that will be useful.

“Our first report had all the information in the world,” says McKeown, “but now it’s much more structured. Facts and figures have been consolidated and graphs kept simple. Now it provides information on trends and what the implications are for the current financial year and into the future, without drowning people in detail.”

News you can use

The monitoring and targeting reports are in a tiered structure that allows various levels of management (from senior management to portfolio and facilities managers) to extract data that is relevant to them.



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2 Better lighting

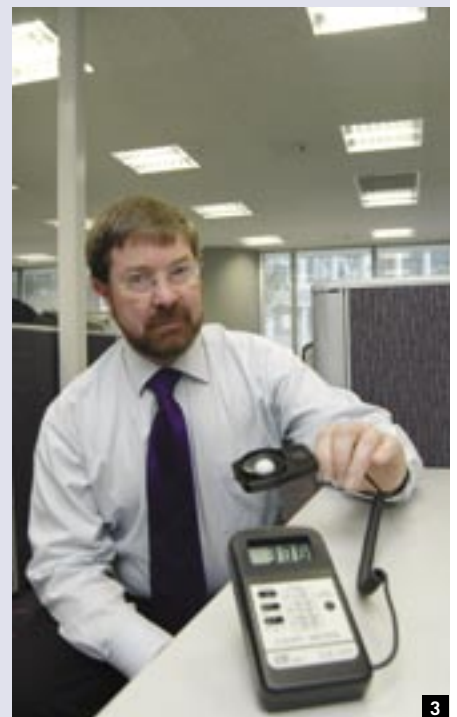
“We didn’t just accept what we were being offered: we asked the dumb questions and got the good answers!” says Alan Griffin.

When upgrading the lighting they kept asking questions, and managed to reduce the number of tubes in the proposed fittings from three or four to two, without loss of lighting quality. They also installed better lamp-starting ballasts than the first ones proposed.

The energy efficient lamps and ballasts put less heat into the offices, so the air conditioning system doesn’t have to work so hard to remove it. This has saved \$6,000 in annual air conditioning running costs.

The lamps last longer, so an electrician up a ladder is rarely seen. The bank’s total saving for the rest of its lease is an estimated \$1.6 million.

3 PETER MCKEOWN CHECKS LIGHTING LEVELS WITH A LIGHT METER.



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4 AFTER TACKLING THE MAJOR ENERGY USES, **LIGHTING AND AIR CONDITIONING**, ATTENTION TURNS TO OTHER AREAS.

A PROJECT UNDER CONSIDERATION INVOLVES **TURNING THE BOILERS OFF** TOTALLY FOR SIX MONTHS OF THE YEAR AND FINDING **ALTERNATIVE WAYS TO SUPPLY DOMESTIC HOT WATER.**



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Separate figures are provided for energy consumption and energy cost. As Griffin says: “We can control consumption, but we can only manage the cost. If we drive consumption down when the price of energy is rising, we’re actually saving more.

“The report tells managers energy usage and cost on a 12 months rolling basis and identifies trends over the preceding quarters. Forward extrapolation of these figures can assist in identifying future budget requirements.”

Action plan

Included in each report is an update of the action plan, reviewing all the items from the last report and adding new projects as they come on line. This sets the agenda for the next quarter.

Says Griffin: “It usually boils down to 10 or 20 sites where we need to be taking positive action. With so many sites to deal with, we have to target our resources, so we try and focus on the ones using the most.

“We’re still only working on the top 10%. It’s a fluid, iterative process – things are always changing. Energy management and making real improvements in energy consumption takes time. It doesn’t happen overnight – it’s a matter of chipping away and eating the elephant one bite at a time.”

Potential liabilities

The quarterly monitoring and targeting reports also identify potential liabilities.

“We look at sites using relatively small amounts of energy. That can be a sign there’s something wrong – it could indicate things like the meter may not be on the right multiplier, or there is vacant space where we still have meters connected. We need

to know about these issues early so we can be aware of and mitigate the risk and any ongoing costs.”

Fighting fund

While the process now all seems straightforward, getting projects off the ground in the early days was far from simple.

“Traditionally, business units did not have any budget for funding energy management initiatives. To overcome this hurdle, a fighting fund was approved by senior management to fund initiatives.”

Picking the right time to make suggestions was also important.

“For instance, during the energy supply shortages of 2003, electricity conservation was a high profile topic, in the media daily, and it was easier to obtain the necessary buy-in from all parties to initiate projects.”

Proof of concept

Early on, the bank had identified two ANZ sites it wanted to audit as test cases – its office tower in Wellington and the main building in Cathedral Square, Christchurch.

They were chosen because the bank had control over them as the sole or lead tenant and suspected there might be opportunities for savings.

The bank commissioned Smart Power to undertake full energy audits, taking advantage of EECA’s Audit Grants scheme which allows businesses that implement key audit findings to recoup up to half the audit costs.

The savings potential highlighted by the audit results definitely raised eyebrows. The improvements they led to provided the momentum for establishing a comprehensive energy management programme for the bank.

For example, the Wellington building turned in a whopping energy use index (average annual energy use per square metre of floor area) of 512 kWh/yr.

The National Energy Efficiency and Conservation Strategy’s target for new buildings is 100 kWh/yr and for existing buildings it’s 150 kWh/yr.

Says Griffin: “Implementing the audit recommendations has, to date, reduced the energy use index to 300 kWh/yr. Further initiatives will bring the index more in line with the benchmark.”

Holistic approach

Implementing the audit recommendations for the Wellington building had an impact on the HVAC systems, typically the largest energy consumer in a commercial building.

Looking at the systems and controls as a whole identified a number of issues.

Humidity settings applied to the whole of the building were actually required only for the small computer communications room.

Making the standby air conditioning system for this room the primary plant meant humidity settings for the rest of the building could be reset. This dramatically reduced the dehumidification requirements and cut gas consumption. The building chiller plant is now turned off outside normal business hours.

There will also be long periods during winter when the chillers will not be required to run.

“And there’s been no appreciable change in working conditions,” points out Griffin.

The controls for heating the perimeter of the building in response to cool outside temperatures have been integrated with

5 Energy management partners

Energy consultant Smart Power is an integral part of the ANZ National Bank's energy management programme.

Smart Power has negotiated energy supply contracts on the bank's behalf and provides a bill verification and payment service for all its energy invoices.

With their range of skills, from technical to consulting, and the 'corporate knowledge' they had developed, Smart Power staff were the obvious source of the external skills the bank needed and were called on right at the beginning of the process.

They work closely together – it's a strong team, that's easy to tell – with weekly half-day sessions at the bank. McKeown and his staff regularly talk directly to individual property and facility managers about their issues and ways to improve energy management on their sites.



the controls for the building's main air conditioning plant. This enables them to work in harmony and has led to big savings.

Life cycle costing

Gaining acceptance of the idea of "whole of life" costing has been a big step in the ANZ's evolution to smarter energy management. A project to replace lighting in the Wellington office tower was a classic example.

An earlier proposal foundered because the business case only considered the energy savings. This time, Griffin and McKeown costed in all the factors.

The tower had 2,000 standard off-the-shelf fittings with two 36 watt U-tubes each. Their lifetime of only around one year meant there was always an electrician up a ladder in the building replacing burnt out tubes. The bank was buying spare tubes by the pallet-load in an effort to reduce the costs.

Worse, the light quality was poor, and staff were regularly complaining of headaches created by a barely perceptible but intensely annoying flicker.

The bank concluded it could either upgrade the existing fittings or install new ones.

"There wasn't a lot of difference in the cost," says Griffin. "But all the options for new fittings came with three or four tubes, because that's what was available in the market.

"We questioned whether we needed so many lamps in each fitting, knowing that reducing the number of tubes would reduce maintenance and running costs. We also considered that just two tubes [per fitting] would still meet the NZ Standards requirements for lighting.

"We sent the designers away to look at this

and one came back saying, yes you're right you don't need four. As it turned out, the price for producing fittings to our design with just two tubes was actually cheaper.

"We didn't just accept what we were being offered: we asked the dumb questions and got the good answers! Much the same applied to the electronic ballast selected – we managed to find a better one that would further extend the life of the tubes."

The benefits from this persistence have been substantial.

Replacing two 36 watt tubes with two, more efficient 14 watt tubes has created a direct energy saving worth around \$50,000 a year.

A further \$6,000 has been saved in air-conditioning running costs because the lower-powered units create less heat.

The most dramatic saving has been in electrical maintenance for the building, where costs have dropped from \$150,000 a year to around \$10,000.

Previously, business units did not have a budget for energy management projects. A fighting fund has been approved by senior management to fund initiatives.

"With the new fittings and controls, lamp life is now expected to be around 24,000 hours or seven years," says Alan. We've had them in about 18 months and so far we've had to replace 25 – a little over 1%. Around 20 of those were actually replaced under warranty!"

Bulk re-lamping of the building will now be programmed to take place every five years at an estimated cost of \$40,000.

Taking into account the remaining term of the lease, the total assessed saving to accrue to the bank for this period (based on current energy costs) was \$1.6 million.

As if all that weren't impressive enough, the new lighting is far superior, produces less glare and is more stable, creating better conditions for staff.

Early morning fresh air

McKeown's and Griffin's 'elephant' could take years of chewing, but the big job is done: embedding the policies and systems into the organisation's culture.

Now, it's just a matter of getting on with the implementation.

Recent projects have included a proposal for a 'fresh air purge' in the Wellington tower in the early hours of the morning.

"In summer, we take in free, cool air during the night and push it through the building, lowering the temperature. Having the building at roughly the same temperature as the outside means we can start the air conditioning later, and when we do, the chillers have a gentler and more economical start," says Griffin.

"The energy required to run fans at three in the morning is also a lot cheaper than running building plant at 7am, when the air conditioning would normally be starting."

A company-wide culture shift is a big new project for the energy management team. By working with the IT staff to clear away obstacles to switching off the bank's 10,000 PCs at night, the bank stands to cut its total annual electricity consumption by 20% and gain \$1.2 million in annual savings.



6 A 'FRESH AIR PURGE' IN THE WELLINGTON TOWER DURING SUMMER NIGHTS WILL PUSH **FREE, COOL AIR** THROUGH THE BUILDING, LOWERING THE TEMPERATURE SO THE AIR CONDITIONING CAN BE STARTED **LATER IN THE DAY**. RUNNING THE FANS IS **CHEAPER** ON THE **NIGHT TARIFF** THAN THE DAY TARIFF.

Mother of all elephants

The most important challenge ahead is one the pair describe as "the mother of all elephants" – changing existing bank policy and procedures so that EnergyStar power saving features are activated on PCs, and all computers and equipment are switched off at night.

"We estimate we have about 10,000 PCs. Turning them off at night could create an annual saving of 8.5 gigawatts – 20% of our total consumption."

Staff from the bank's IT department will be working with Griffin and McKeown to see if the proposal is feasible and to ensure that data integrity and information security are preserved.

If the proposal proceeds, the last big step will be to change staff habits and get the machines turned off each night.

Says McKeown: "It'll take time, but with potentially \$1.2 million a year to save, it'll be worth it."

CREDITS

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