

SAVE ENERGY SAVE MONEY



**tourism
INDUSTRY**
ASSOCIATION NEW ZEALAND

ENERGY EFFICIENCY
IN TOURISM



Novotel Auckland Ellerslie



Easy steps to make it work for you,
without taking up all your energy.

Save money

Implementing energy efficiency measures will save you money. Most businesses can shave 20% off their energy costs - sometimes far more - with smarter energy use¹. What's more, many of the measures you can implement come at little or no cost.

"It was good to find there were little things that could be done that would make a difference. For example, replacing inefficient light bulbs with energy efficient ones when they blow will deliver a net cost saving of \$2200 per year."

Branden Lee, Manager, Amber Park Holiday Park, Christchurch.²

Get an edge on competitors

Being a responsible tourism operator and running an energy efficient business can give you an edge over competitors who aren't as environmentally-minded. It will look good in your marketing material and can help you recruit top-calibre staff.

"We promote ourselves as an eco-friendly lodge — our clients are well-educated and extremely sensitised to environmental issues. It is therefore important to put our money where our mouth is."

Sally Carwardine, Manager, Lime Tree Lodge, Wanaka.²

Future proof your business

International visitors increasingly expect providers to walk the green talk and actively reduce their impact on the environment³. Get formal recognition of your energy efficiency achievements through accreditation agencies like Qualmark.

"We have now made all the lighting changes recommended in the TEEP energy audit, and in many cases exceeded the auditor's specs. This has greatly assisted us in securing Enviro-Gold with our Qualmark sustainability evaluation."

Peter Ridsdale, Executive Manager, Ascot Park Hotel, Invercargill.²



Save the planet!

Reducing energy consumption is good for the environment. Protect our beautiful country for future generations of Kiwis and visitors (and support the 100% Pure New Zealand promise in the process). You and your staff can feel good about doing your bit.

"Effective energy management is really a 'get richer, quicker' strategy for business and I find it extraordinary, given the very real value that energy management adds to the bottom line, that more organisations don't act on it."

Energy Management Association of New Zealand.

Where's your money going?

Measure and monitor your energy usage so you can see which areas you need to target, and, once you have implemented energy saving initiatives, what you are saving.

- Gather your energy bills for the past 12 to 24 months
- Input details into a spreadsheet and analyse monthly trends in consumption
- Larger businesses with multiple sites could consider one of the commercially available software tools that monitor energy invoices for you



Are you being ripped off?

Analyse your energy bill! Some of the biggest energy cost savings for tourism operators simply involve changing energy provider, claiming your direct debit discount, or signing up to a more appropriate energy plan.

- ✓ Skotel Alpine Resort could potentially save \$13,000 annually if they change their existing energy pricing plan and resolve incorrect charging from their lines company.²
- ✓ Upgrading to time-of-use metering requires a new \$500 meter and will save the Hastings Top 10 Holiday Park \$4000 per annum.²



TIPS

Use the New Zealand Business Council for Sustainable Development (www.nzbcscd.org.nz/energyefficiency/) energy usage calculator to help identify where energy is being used. This will help identify areas you can target to improve efficiency.

NZBCSD suggests that since energy prices fluctuate, it is best to monitor changes in units of consumption and then apply a rate at the end to work out what you have saved in terms of money.

The Advice and Tools section on NZBCSD's website provides information to help identify the no- and low-cost options for managing target areas and setting goals for energy reduction. You'll also need to work out what budget is available for actions which require some financial investment.

Invest in an energy audit

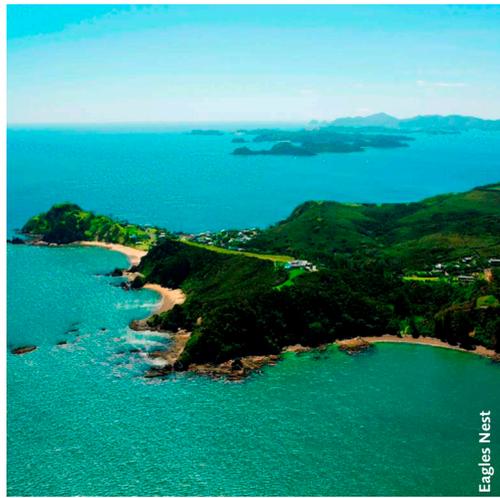
Typically, for every \$1 invested in an energy audit, \$7.50 worth of energy efficiency savings are identified.

Energy is a significant cost for many tourism businesses, ranking alongside overheads such as rates, insurance and rentals. The difference with energy costs is that with good management and knowledgeable advice, they can be controlled and almost always reduced.

Hiring an expert to undertake an energy audit of your operation will identify potential dollar and energy savings. Options for improvements are costed so you can weigh the cost of improvements against future energy savings and prioritise according to those that offer best value for money. Audits of New Zealand tourism businesses have found energy savings of up to 30% of their annual energy bills.²

"The audit recommendations will have nil impact on our service yet save money and lower emissions – that's just good business,"

Callum Farnell, General Manager, Eagles Nest luxury lodge, Bay of Islands.²



Where can I find an energy auditor?

The Energy Management Association New Zealand website (www.emanz.org.nz) has a list of accredited energy auditors, including contact details, area covered and specialist skills. Get a quote from one or more qualified energy auditors.

"We've made the audit report available to staff and they can see where we are making the savings. As a result they are taking more ownership."

Dave Roche, Owner/Operator Bowentown Beach Holiday Park, Waihi Beach.²



Energy audit — reduce carbon, kilowatts, costs

Energy audits of 25 tourism operations were completed in 2008 and 2009 as part of the Tourism Energy Efficiency Programme. The audits found that operators could on average cut 15% off their annual energy bill and reduce annual energy consumption by 15%. Of the energy efficiency measures recommended, 60% would have payback in less than 12 months and many would cost little or nothing to implement.

Potential total annual savings for the 25 operators:

- CO2 reductions – 1613 tonnes
- kWh savings – 6.8 million
- \$ savings - \$797,521

You may be eligible for a grant towards the cost of the energy audit. For more information email the Energy Efficiency and Conservation Authority (EECA) at business@eeca.govt.nz.

Motivate and empower your staff

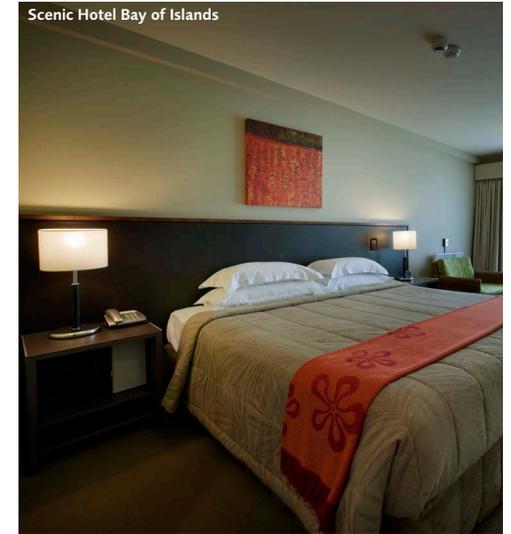
Tourism businesses that successfully reduce energy consumption and costs almost always have a dedicated staff member responsible for driving through those changes. They also successfully empower and motivate staff (and visitors) to all do their bit.

"The energy audit gave us concrete data to prove to our staff that doing the small things does make a difference. One staff meeting per week is dedicated to energy efficiency initiatives."

Gerry Hill, Owner, The Great Ponsonby Arthotel, Auckland.²



Scenic Hotel Bay of Islands



Grand Mercure Nelson Monaco



Tips

- Staff need to know the why and the how. Talking about energy efficiency is a good place to start as people often don't have any idea of how much energy they consume or how they could use less.
- Appoint a team or one staff member to take responsibility for your energy efficiency plan, motivate staff, implement energy savings initiatives, evaluate and communicate results.
- Before you launch an energy efficiency plan, find out what will encourage your staff to save energy, what problems they might encounter and how you will address those.
- Senior management have a crucial role to play. Without leadership and commitment from the very top, any plan will be seen as 'soft' and won't get buy-in.
- Ask your staff for ideas and reward participation.
- Regularly communicate results and energy efficiency initiatives and activities via your intranet or other communication tools.



Operator tip:

We monitor and record all solar energy/gas/water usage via a computerised system. We are looking to turn this into a graphic and easy-to-understand picture.⁴

Lighting

1 Switch off when you can use natural light

Tourism Holdings Ltd, Mangere site ²	Annual savings	total cost	payback
Switch off the mechanical bay lighting during the daytime	\$400	\$0	Immediate

2 Remove excess lighting from common areas and optimise spot lighting so that lighting is only used where needed

3 Switch off lights in low traffic areas, e.g. storerooms, laundry

4 Minimise external and internal lighting levels after 1am

5 Replace incandescent lamps with low wattage compact fluorescents

Amber Park Holiday Park ²	Annual savings	total cost	payback
Replace inefficient light bulbs with energy efficient lamps	\$2200	\$585	Less than 6 months

Fullers Group Ltd ²	Annual savings	total cost	payback
Replace vessel lighting with more efficient lighting types	\$6107	\$3780	8 months

Grand Mercure Nelson Monaco ²	Annual savings	total cost	payback
Replace incandescent lamps with energy efficient ones	\$6700	\$6588	1 year



Fullers Group



Base Backpackers Piha Hostel



6 Replace incandescent wall lights and exit sign lighting with compact fluorescents or LED lighting

The George ²	Annual savings	total cost	payback
Replace incandescent bulbs	\$7000	\$3000	4 months

7 Install time switches for low traffic areas

8 Replace outdoor security or feature lights with new CFL equivalents

Base Backpackers Paihia	Annual savings	total cost	payback
Replace five 120 watt PAR38 outdoor lamps with new PAR38 CFLs operating at 23 watts	\$190	\$85	5 months

9 Install occupancy sensors to control the lights for toilets, storerooms and other rooms with intermittent and infrequent use

Novotel Ibis Ellerslie ²	Annual savings	total cost	payback
Install infrared sensors on the light circuits in the health club, the guest laundry and in conference toilet areas	\$1200	\$2500	2 years

Eagles Nest ²	Annual savings	total cost	payback
Install a 360° occupancy sensor to ensure that lighting in the wine cellar is only on when required, and automatically turns on whenever someone enters the cellar	\$461	\$266	7 months

10 Install sensors to automatically turn the lights off when there is enough natural light entering the space

The George ²	Annual savings	total cost	payback
Install lux sensor in the conference lobby, which has a large skylight over the stairwell. A circuit of 9 x 50W halogen lamps operate throughout the daytime, despite ample natural light entering the space, even on dim days	\$100	\$400	4 years

11 Key card switches for guest rooms to provide power to the room only when occupied

Christchurch Top Ten Holiday Park ²	Annual savings	total cost	payback
Install key switches in more motel rooms	\$11,400	\$25,000	Just over 2 years



Grand Mercure Nelson Monaco



Energy Auditor Tip:

In many spaces around the hotel the occupancy sensors will need to only switch the lights off. This means that in the guest rooms, if people get up in the night the lights will not come on when unwanted, and in the conference rooms presentations can be undertaken and the lights turned off manually.²

Appliances

- 1 Switch off all appliances with standby power settings at the wall outlet in common areas and guests rooms when not in use
- 2 Turn PCs to standby mode when not in use

171 on High Motel ²	Annual savings	total cost	payback
The motel's office PC is in use for up to five hours per day. When not in use, place it in standby mode. This uses the same amount of power as if it were off, but means it can be resumed for use almost immediately	\$45	\$0	Immediate

- 3 Switch off PCs at the end of the working day, including monitors – this typically saves about \$120 per year per computer

Christchurch Top Ten Holiday Park ²	Annual savings	total cost	payback
Switch off computers at night	\$700	\$0	Immediate

Tourism Holdings Ltd, Mangere site ²	Annual savings	total cost	payback
Turn off the call centre monitors when they are not in use	\$760	\$0	Immediate

- 4 Ensure that AV equipment is unplugged and not left on standby when not in use, as this has a moderate amount of electrical losses in the form of heat

Eagles Nest ²	Annual savings	total cost	payback
Unplug AV equipment when not in use	\$122.35	\$0	Immediate

- 5 Unplug battery chargers when the batteries are fully charged or the chargers are not in use
- 6 Consider buying a laptop for your next computer upgrade – they are typically 50% – 80% more efficient than a conventional PC and monitor and can easily be converted to desktop use with a docking station
- 7 Replace older cathode ray monitors with flat screen (LCD) monitors – these use a third less energy
- 8 Screensavers don't save energy at all – turn the screen off when away from the desk – this won't affect any applications running at the time



Operator tip:

All our appliances — fridges, driers, washing machines etc — are energy efficient, using AAA rating.⁴ ENERGY STAR appliances can be up to 30% more energy efficient than standard appliances.

Operator tip:

The Great Ponsonby, a small hotel in central Auckland, puts 'hibernation' signs on rooms which are not being used so that everyone knows that they need to keep all the electrical equipment in those rooms turned off.²

- 9 Turn off water features at night

Hastings City Art Gallery	Annual savings	total cost	payback
Install a simple timer to switch off the fountain at night.	\$1177	\$50	1 month

- 10 Operate washing and drying machines with full loads only, and use a reduced cycle where possible

- 11 Control staff personal use of laundry equipment

- 12 Use cold water in washing machines when possible

171 On High Motel ²	Annual savings	total cost	payback
Change from a warm wash to a cold wash (approximately 11 loads of washing are carried out every day - towels only).	\$436	\$0	Immediate

Christchurch Top Ten Holiday Park ²	Annual savings	total cost	payback
Use half cold water washing machines at powered sites facilities block	\$800	\$200	3 months

- 13 Consider replacing top-loading washing machines with high efficiency front loaders

- 14 Avoid over-drying by utilising the dry-sensor control switch

- 15 Insulate dryers

Tourism Holdings Ltd, Mangere site 2	Annual savings	total cost	payback
Insulate the front, top and sides of one dryer	\$925	\$1340	Less than 18 months

- 16 Reuse heat from dryers

Base Backpackers Paihia Hostel ²	Annual savings	total cost	payback
Install an air-to-air heat exchanger on the main hotel dryer exhaust so that heat released from the dryer can be reused, rather than released into the atmosphere	\$2077	\$13,000	Just over 6 years

Waihi Beach Top Ten Holiday Park ²	Annual savings	total cost	payback
Install a heat recovery unit on the LPG dryer	\$4300	\$14,000	Just over 3 years

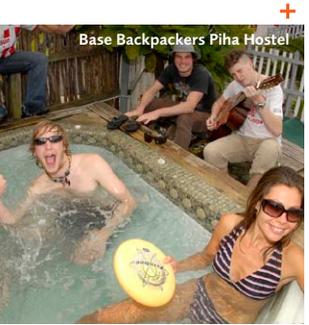


Operator tip:

We are now contracting out most laundry to commercial laundry, because it's more efficient.⁴



+ Sealink Travel Group



+ Base Backpackers Piha Hostel

Hot water heating

Save \$23,000 annually²

Christchurch Top 10 Holiday Park owner/operator Dean Anderson was not surprised that hot water comprised the bulk of his energy bill, but he was surprised at the sheer volume of water being used. Reducing all shower flow rates to less than 10 litres per minute would save 150,000kWh per year and \$23,300 annually for a total cost of \$2000!

- 1 Provide high efficiency shower heads on all showers to reduce hot water use

Novotel Ibis Ellerslie ²	Annual savings	total cost	payback
Install 9 litre per minute flow restriction devices into the showers (flow rate of between 13.2l/min and 16.4l/m). These flow restriction devices can be installed with relative ease in the existing showers between occupancies to avoid additional costs due to the loss of room use	\$8623 energy costs +\$29,812 water costs (user pays Auckland)	\$7237	2 months

- 2 Put timers on water heaters at night
- 3 Implement a sheet and towel reuse option for guests staying more than one night
- 4 Turn off hot water cylinders in units when they aren't occupied
- 5 Fix leaking taps and water fixtures to reduce loss of hot water and reduce pumping energy use
- 6 Cover spa pools and heated swimming pools when not in use



+ Splash Planet



HOT WATER

Operator tip:
We provide guest information regarding towel reuse or change and put a note in rooms asking guests to conserve power by switching off. We also provide visitors with other energy efficiency tips.⁴

Operator tip:
We insulated the covers used on the 25m pool and spa pools to reduce heat loss.⁴

- 17 Provide air drying lines for guests in convenient locations
- 18 Ensure refrigerator/chiller doors shut properly and repair seals as needed — having a gap between the chiller door and seal will lead to more energy being consumed as the chiller will gain additional heat load and attempt to dehumidify the outside air

Base Backpackers Paihia Hostel ²	Annual savings	total cost	payback
Replace the seal on the chiller door, which is in poor condition	\$134	\$250	Less than 2 years

- 19 Ensure adequate air circulation and exchange is possible around refrigerators to remove rejected heat
- 20 Situate appliances in separate, ventilated rooms away from work areas to reduce the load on air conditioning
- 21 Defrost freezers regularly to ensure efficient removal of heat from contents
- 22 Where cooking facilities are present, make sure a microwave oven is also provided
- 23 Replace RT TVs with LCD TVs with low standby power ratings
- 24 Turn off air conditioning when not required

Sealink ²	Annual savings	total cost	payback
Ensure that Seacat's air conditioning is turned off every night	\$855	\$0	Immediate



Operator tip:
We are drying the towels on the line and then giving them a 'light dry' in the dryers.⁴



Auditor's tip:

The biggest single contributor to Eagles Nest's energy consumption is heating spa and lap pools. Since guests at this luxury retreat often arrive at short notice, turning off the heating for the spa pools when not in use is impractical because of the time it takes to reheat the water. Eagles Nest could switch off one of the villa's pools and short notice guests booking this villa could be transferred to an alternative vacant villa where the spa pool was still turned on. This change will result in an estimated annual saving of \$2700 at no cost to the business.⁴

Operator tip:

Collecting rain water to use in the bathrooms, washing machine and dishwasher could enable Auckland boutique B&B Braemar on Parliament Street to save on Auckland's water meter charges.⁴

7 Install solar heating panels for water and pools

8 Insulate all hot water pipes

Grand Mercure Nelson Monaco ²	Annual savings	total cost	payback
Insulate 300m of hot water pipes	\$14,600	\$7800	Just over 6 months

9 Use a cylinder wrap for storage electric water heaters

Christchurch Top Ten Holiday Park ²	Annual savings	total cost	payback
Fit cylinder wraps in "cozy kiwis" motel units	\$1100	\$1100	1 year

Skotel Alpine Resort ²	Annual savings	total cost	payback
Repair deteriorating hot water tank insulation	\$277	\$784	Just under 3 years

10 If your hot water or heating system makes use of a centralised boiler, have the flue gas oxygen and carbon monoxide levels measured to ensure good combustion is being achieved and adjust air fuel ratio if necessary

11 Install a domestic hot water heat pump

The George ²	Annual savings	total cost	payback
Install a domestic hot water heat pump	\$33,000	\$100,000	Just over 3 years

12 Install a solar water heating system or air source heat pump water heater system for all or some hot water systems. (For potential savings and cost, see the solar section later in this guide)

Bowentown Beach Holiday Park ²	Annual savings	total cost	payback
Install a hot water heat pump for the main shower block	\$1551	\$10,245	6 - 7 years

13 Replace baths with showers to make more efficient use of hot water



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Space heating

- 1 In winter, turn on heating to guest rooms shortly before guests arrive (20 minutes)
- 2 Make best use of natural ventilation during summer
- 3 Check air conditioning equipment servicing common spaces is not "fighting" with one unit set to cool while other tries to heat. Change thermostat arrangements if this is happening
- 4 Weather-strip external doors and windows
- 5 Install self-closers on main doors around heated spaces
- 6 Use a master timer control switch for heating appliances such as hot water pumps, towel heaters and water radiators (timed to run only between 5.30am to 10am and 3.30pm to 11pm)
- 7 Insulate floors and ceilings to avoid heat loss

Christchurch Top Ten Holiday Park ²	Annual savings	total cost	payback
Insulate ceilings on standard units	\$1200	\$4080	About 3.5 years

- 8 Check roof and under floor insulation for gaps and fill as necessary
- 9 Install pelmets over the tops of curtains to block room air circulation through the cold space between the curtains and the window
- 10 Replace Venetian-style blinds with full length thermal curtains to minimise room air contact with cold window surfaces
- 11 Install extraction systems for the shower and from over the stove to remove moist air at source from the heated occupied spaces
- 12 Install heat pumps for space heating – seek expert advice on where best to position them
- 13 Install double glazing on all external windows and doors
- 14 Install thermal storage tiles on floor areas where there is good exposure to sunlight
- 15 Fuel switch the boiler from coal to wood pellets

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Operator tip:

We provide an unlimited supply of blankets/hot water bottles to clients.⁴

Make your energy plan work for you

Tourism Holdings Ltd's Mangere site would achieve potential annual savings of \$998 by paying their electricity invoices by direct debit.²

- 1 Analyse your power bill and check you are on the most cost effective energy plan
- 2 Pay energy bills on time by direct debit to ensure you receive discounts
- 3 Install smart meters to take advantage of night rate and controlled electricity supply

Downgrading the main electricity supply capacity at the Hawke's Bay Opera House to 300kVA involves a new \$300 fuse and will save \$3555 per annum in network charges.²

- 4 Install automatic load shedding systems to manage loads during electricity peak demand times
- 5 If off-peak electricity rates are utilised, do laundry during off-peak times

Bowentown Beach Holiday Park at Waihi Beach would save \$1366 annually if they changed electricity providers and signed up for a two year contract.²



Transport

- 1 Plan journeys carefully to reduce mileage
- 2 Factor fuel consumption into transport decisions, e.g. regarding meetings via car or plane
- 3 Use video conferencing or cluster meetings where possible
- 4 Combine trips to maximise efficiency
- 5 Offer tour options with less driving
- 6 Keep vehicles well turned



Operator tip:

We now use the courier instead of driving to town for supplies.⁴

Operator tip:

We moved our business base from Wanaka to Queenstown to be closer to our client base.⁴

Operator tip:

Ensuring tyre pressure is maintained at the top end of manufacturer's recommendations has improved fuel efficiency by 10%.⁴

Operator tip:

We are a transport tour operator who has achieved fuel savings of up to 30% (and less fume emissions and oil usage) by using thinner oil, cleaning air filters regularly, and making oil and filter changes every 7000 kms.⁴



Operator tip:
I've purchased a scooter for our city marketing.⁴

Operator tip:
We are a glacier tour operator who replaced our old vehicles with new ones. Our average fuel consumption improved from 6km per litre to 10km and up to 12.75 km/l.⁴

Operator tip:
We bought a new energy efficient bus and as a result have saved around \$67,720 on fuel, servicing and associated costs.⁴

- 7 Consider purchasing a small car for day-to-day use
- 8 If finances permit, ensure all vehicles are less than six years of age
- 9 Renew vehicles to take advantage of new energy efficiency technology
- 10 Investigate changing vehicles from petrol to diesel
- 11 Driver behavior

- Introduce an economical driving policy
- Don't leave the courtesy van running while waiting for pickups etc
- Incorporate energy efficient driving techniques into staff training
- Allow more time to get to meetings to reduce driving speeds to more sustainable levels

12 Encourage alternative transport modes

- Use public transport
- Cycle to work
- Encourage walking where possible rather than driving
- Use shuttles or car pool where possible to get guides to tour locations
- Encourage staff to car pool to work

Cut down on fuel use

Fuelsaver is a website administered by the NZ Transport Agency. Fuelsaver can help you work out how much you currently spend on fuel and gives tips on how to cut down the amount of fuel you use. It has information on the fuel efficiency of vehicles sold in New Zealand since 2005 so you can compare the running costs of different makes and models. See www.fuelsaver.govt.nz

When you purchase your next vehicle, check the vehicle fuel economy label on the car window. Vehicle fuel economy labels help consumers know how much fuel a car uses and how much it costs to run. In New Zealand, the label must be displayed on new and late model used cars available for sale by registered motor vehicle traders and on internet listings.

Vessel Operators

Potential savings of \$250,000

An energy audit revealed fast ferry operator Fullers Group could potentially save \$268,054 or 7.2% of its annual energy bill by introducing a variety of energy efficiency measures, primarily associated with operating vessels at a slower speed when appropriate, improving or applying foul release coatings on vessels and propellers and improving the efficiency of vessel lighting. The total cost of implementing the audit recommendations was about \$99,000, giving payback in half a year.²

- 1 Improve anti-fouling coatings on vessels
- 2 Use optimal propeller pitch
- 3 Reduce diesel wasted during engine idling
- 4 Reduce revs
- 5 Operate at a slower speed when haste is not required
- 6 Improve lighting efficiency
- 7 Modify pilot/driver practices
- 8 Increase use of shore power when in port
- 9 Reduce base loads when vessels are not in use
- 10 Consider new technologies for improving fuel efficiency
- 11 Quantify water consumption so that the only the minimum amount necessary is carried
- 12 Consider flushing toilets with salt water
- 13 Empty sullage tanks daily



Operator tip:
We improved fuel efficiency of our boat by modifying the engine and undertaking extra weed inhibition.⁴

Operator tip:
Reducing the revs for our boats achieved a 15% cost saving in fuel, and changing antifouls, a further 5%.⁴

SeaLink savings

SeaLink Travel Group could achieve savings of around \$159,308 a year on its annual energy bill (6.2%), mainly by making changes associated with improving the anti-fouling coatings on ferry vessels, using optimal propeller pitch and reducing the diesel wasted during engine idling. When the hull has been freshly anti-fouled and the props serviced the ship is about 2 knots faster than before the service. The savings identified in a TEEP energy audit include about 1.4 million kWh of energy and 133,000 litres of diesel. That's the equivalent in CO2 reduction of taking more than 100 cars off the road in New Zealand.²

Renewable energy¹

A renewable energy source is an energy source that is continually replenished and that doesn't involve the emissions of harmful greenhouse gases.

Wind

New Zealand has one of the best wind resources in the world. Wind energy is one of the fastest forms of electricity generation to build and bring online. It also has one of the lowest overall environmental impacts.

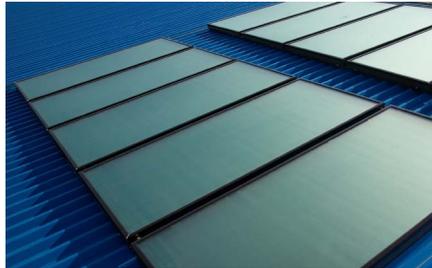
As the cost of wind turbine technology drops, the cost of wind-powered generation has dropped from a decade ago and is expected to keep dropping.

Case study

By reducing their electricity needs and installing two small wind turbines, the owners of a rural lodge in Canterbury have eliminated their power bill – and they're getting paid for the excess electricity they generate.

The total 'turnkey' cost of the two turbines was about \$31,000. The first turbine cost \$18,000 and included the cabling cost (usually a major cost component) and the new metering set up. The second turbine cost \$13,000.

In one month over summer the lodge exported over 2100 kWh of energy, which gave them a credit on their power bill of over \$450. During the same month they had to import just 230 kWh – so the net amount they received for that month was a credit of \$380. For more information see www.energywise.govt.nz.



Solar

"We anticipate the solar hot water system will reduce water heating costs by up to 75%," says Michael and Jeanette Thorne, owners of Waiteti Trout Stream Holiday Park in Ngongotaha, Rotorua. "Even over the winter we found that the solar collectors are contributing 55% of the energy to the water heating system, which is a great result."

Solar electric panels (also known as photovoltaic or PV panels) use the sun's energy to generate electricity directly. Solar water heating is particularly suited to tourist accommodation facilities as hot water is always available when the guests arrive, yet costs nothing to keep hot when guests are not in residence. Additional heat sources are required, i.e. gas or electric, both for periods of high demand and low solar radiation.

If reasonable occupancy peaks coincide with the solar radiation peaks between October and March, then hot water energy bills can be cut by up to 75% through the use of solar water heating, though actual savings will depend on the set-up of each operation.

Case study

A holiday park installed a large scale solar water heating system on their main kitchen and ablution block that delivers plenty of hot water when it's needed.

The modern computer controlled solar water heating system with gas back-up replaced an old oil-fired furnace that was unreliable and in need of replacement, creating an ideal opportunity to install a modern, energy efficient system.

The manager says the system far exceeds expectations.

The Holiday Park was previously spending \$3500 per month on diesel for its old boiler in the peak summer months (average \$2600 per month over the whole year). With the new system it only spent \$700 per month in summer on gas, calculating an 81% energy saving over those summer months.

Over the year the park estimates it is saving around \$24,000 annually, a payback on the \$75,000 project outlay in less than four years.

Hydro

There are already a number of small hydro schemes on rivers and streams around New Zealand and there are more opportunities to use this energy resource to provide electricity to remote farms, homes and holiday retreats.

The types and size of a small hydro scheme depend on the amount and type of water supply. The flow rate of water and the drop in height between the inlet pipe and the turbine (the head) will affect both the amount of energy available and the type of hydro scheme that can be installed. Competing interests and values associated with the use of water need to be considered when assessing opportunities.

Case Study

Connecting to the electricity network was not a financially viable option for a luxury lodge located in outback New Zealand — running a cable to connect to the electricity network was going to cost in excess of \$900,000.

Generating their own electricity with a hydro turbine matched the company's environmental vision and would provide largely free, clean, renewable electricity for the life of the system. Being 'independent' and having a small environmental footprint are important to the lodge.

The hydro system provides cost-effective power for the lodge and is running smoothly. However, being remote can present challenges, with any teething problems more difficult to fix.

The entire installation cost around \$300,000. About \$40,000 was for laying the pipes, the balance for the electrics, turbine and resource consents. That compares to the \$900,000 cost of connecting to the electricity grid, plus the ongoing metered electricity costs.

Alternative fuels¹

A backpacker hostel installed a multi-oil clean burn boiler to supply the hostel's hot water, slashing its hot water electricity bill by 92%. It burns used cooking oil from local fish and chip shops. The fuel for the boiler is waste cooking oil obtained cheaply from local restaurants and fast food outlets. It currently costs \$10 plus delivery per 200-litre drum and there's plenty of it available. In the unlikely event that supplies run out, the boiler can run on anything flammable – used engine oil, diesel, or even tallow.

www.eecabusiness.govt.nz
for more information on renewable energy
and the case studies quoted.

Who can help?

Where to go for more information, advice, and grants.

Tourism case studies and guides

- TIA [<http://www.tianz.org.nz/main/tourism-energy-efficiency-programme>]

The TIA website includes case studies on many of the businesses featured in this guide, as well as other energy saving tips and advice.

- EECA Business – [www.eecabusiness.govt.nz]

Online tools and case studies (including tourism operators); funding/grants; how to save money by managing energy use; how to use renewable energy, how to motivate your staff to participate and champion energy efficiency in your business.

- Ministry of Tourism – [www.tourism.govt.nz]

Includes sustainability best practice guides targeted at tourism operators. The guides feature practical ideas and actions to help operators make their businesses more sustainable. Guides are available for accommodation, food and beverage, fresh water, land activities, marine activities, transport operators, visitor attractions.

Grants

- EECA Business [<http://www.eecabusiness.govt.nz/services-and-funding>]

Grants available to help businesses improve energy efficiency and increase the use of renewable energy.

On-line Tools

- Energy Leader [www.eecabusiness.govt.nz/energy-leader]

A simple, fast, online tool from EECA Business designed to help you reduce your energy use. It gives you a tailored action plan, outlining how your company can start to reduce energy use and save money. You'll see the typical savings from each action, the type of investment needed – of either capital, repairs and maintenance or operational – and the payback period for your investment. The action plan can be an important document to help focus your efforts, measure progress and motivate others to get on board.

- Envirostep - [<http://eco-verification.med.govt.nz/envirostep/>]

A free, entry-level environmental management tool for small to medium enterprises (SMEs) in New Zealand. It includes an environmental performance score and profile; recommendations to reduce operating costs, environmental impacts and risk; an action plan to implement selected

recommendations; over 300 links to other environmental tools, service providers & further information.

- Sustainable Business Network [www.sustainable.org.nz]

A forum for businesses that are interested in sustainable development practice.

Website includes carbon calculator, tools and advice and information on the Sustainable Business Challenge, a tool to help organisations identify, measure, and continuously improve sustainability performance.

Appliances/Lighting

ENERGY STAR [<http://www.eecabusiness.govt.nz/standards-and-ratings/energy-star-in-your-business>]

- The global mark of energy efficiency, awarded to the top 25% most energy efficient appliances, home electronics and office equipment. It is an independent endorsement that helps you choose and easily identify the most energy efficient products for your business. When it comes to business equipment, products such as copiers, printers, scanners and fax machines that have earned the ENERGY STAR mark can save you around 30% on electricity running costs.

- RightLight [www.rightlight.govt.nz]

A website to help you make more informed decisions on the best lighting for your home or workplace, includes a lighting assessment tool, quick tips, special offers, and information about getting the right lighting for your workplace.

Fuel

- AA New Zealand [www.aa.co.nz]

Fuel savings tips, and tips for greener driving.

- Fuelsaver.govt.nz [<http://www.fuelsaver.govt.nz/>]

Find out how much you spend on fuel and how much you can save. Includes information on vehicle fuel economy labelling.

- EECA Business [<http://www.eecabusiness.govt.nz/node/13818>]

Information for businesses to understand the biofuels opportunity for their business, from blends available to the environmental benefits, and providing business case studies and action sheets.

- GreenFleet [www.greenfleet.org.nz]

A set of tools to help businesses reduce emissions; improve transport efficiency; reduce transport costs; offset emissions through tree planting. Also part of the Sustainable Business Network.

- Right Car Vehicle Ratings [www.rightcar.govt.nz]

A rating system that helps you choose a car that uses less fuel; has better safety features; creates less pollution.

- 201 tips to save gas [www.GasSavers.org]

American website with tips to save petrol.

Advice

- EcoSmart Electricians [www.ecosmartelectricians.org.nz]

Electricians who provide practical advice and assistance on the best and simplest ways to reduce electricity consumption. Assessments can offer alternatives in areas such as energy management, lighting, pumps, fans and motors, HVAC and new technology in solar and wind power.

- Energy Management Association of New Zealand – www.emanz.org.nz

Lists contact details for accredited energy auditors

- New Zealand Trade and Enterprise [www.nzte.govt.nz]

Lists Enterprise Training providers who offer free sustainability training for small and medium sized businesses.

- Sustainable Tourism Advisers in Regions (STAR) [www.tourism.govt.nz]

These advisers provide operators with tools for improving their environmental performance in nine regions in New Zealand.

Renewable Energy

- Electricity Commission [www.electricitycommission.govt.nz]

Information about distributed generation, including expectations for purchasing small surpluses.

- EECA Business [<http://www.eecabusiness.govt.nz/renewable-energy>]

Information about how renewable energy could play a role in your business, with case studies, guidelines and fact sheets providing examples and ideas.

New Zealand Wind Energy Association [www.windenergy.org.nz]

- Includes information about wind energy and companies involved in this sector, including wind farm developers, consulting firms, turbine manufacturers and researchers.

Solar Industries Association [www.solarindustries.org.nz]

- Information on accredited designers and suppliers, the range of systems available, and the quality standards that accredited designers/suppliers are expected to achieve.
- Sustainable Electricity Association of New Zealand [www.seanz.org.nz]

The Renewable Energy Business Directory allows you to search for businesses that specialise in renewable energy technologies, including solar, wind and hydro. It also has information on Standards, the installer accreditation scheme and draft contracts to use when you engage a supplier and installer.

General Info & Tips

- CarboNZero [www.carbonzero.co.nz]

Encourages and supports individuals and organisations to minimise their impacts on climate change by providing them with tools to measure, manage and mitigate their carbon dioxide emissions. Off-setting is done by purchasing carbon credits through verified schemes.

- Consumer [www.consumer.org.nz]

Energy saving tips

- EECA Business [www.eecabusiness.govt.nz]

Includes information on insulation, heating, solar water, appliances, energy rating labels, renewable energy and distributed generation.

- EECA ENERGYWISE™ [www.energywise.govt.nz]

Practical tips and advice on making your home more energy efficient, warm and comfortable.

- Local Government Online [www.localgovt.co.nz]

Local government agencies have a variety of information and tools available on their websites to help businesses improve environmental performance. They sometimes offer financial or other support. Check out your local council websites on the Local Government Online.

- New Zealand Business Council for Sustainable Development [www.nzbcسد.org.nz]

Includes an energy efficiency guide and tools, including case studies.

- Qualmark – Responsible Tourism [www.responsibletourism.co.nz]

Responsible Tourism Guide and resources, designed to assist New Zealand tourism operators to introduce sustainability practices and good environmental management within their organisations.

International Certification

- Green Globe [www.greenglobeint.com]

An international benchmarking and certification programme. It provides a framework for environmental and social performance improvement through independent third party verification.

- Green Tick [www.greentick.com]

GreenTick® is the sign that a product or service has been independently certified as environmentally sustainable

Sources

¹ Energy Efficiency and Conservation Authority (EECA) – (EECA; EECA Energywise; EECA Business)

² Tourism Energy Efficiency Programme (TEEP) Energy Audit and Case Studies, 2008 and 2009

³ Tourism New Zealand's Visitor Experience Monitor 2008/09

⁴ Managing Energy Use in Tourism Businesses – Survey Results. Susanne Becken and Andrea Carboni, Report No. 4, LEaP, Lincoln University, New Zealand, 2008, Series

URL: <http://hdl.handle.net/10182/580>;

⁵ TEEP Aviation Stocktake 2009

This guide was produced by the Tourism Industry Association with the support of EECA for TIA members. Much of the real life tourism operator examples of energy efficiency initiatives and savings are taken from TEEP audits and case studies. TEEP (Tourism Energy Efficiency Programme) was developed as a regional pilot in 2008. After a successful first year TEEP was extended into a national programme for 2009. In total 25 tourism businesses were audited; there were also 7 aviation stocktakes. Total annual energy spend for the 25 audited business was \$8.171 million. Identified annual savings were \$775,280. 58% of those savings had a payback time of less than 12 months. Energy initiative costs and savings are estimates at the time of the case study. A TEEP 3 pilot programme was launched in 2010 ,