



### Energy use – Top expense in caravan parks

Electricity was identified as the largest expense for the majority of caravan park operators participating in the project<sup>1</sup>. Therefore it is important to understand how energy is billed and what effect certain strategies will have in terms of cost saving. There are many simple ways to save energy costs, some without spending a cent.

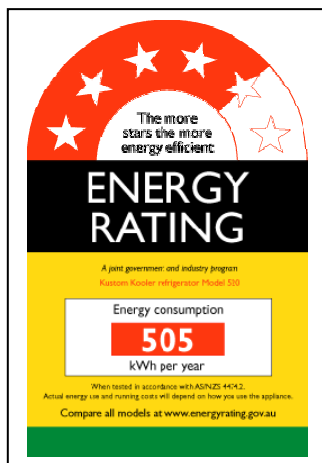
The following information identifies cost efficient practices, which will result in real saving.

### Energy rating label system

The energy rating label uses stars to show the energy efficiency of an appliance. The more stars the more energy efficient and the greater the cost saving. Depending on the type of appliance even a 1 star improvement can reduce running costs by around 10-30%.

### Energy smart appliances

- If you are about to buy new white goods or a water heater compare the energy ratings and ask for a Galaxy Energy Award winning models.
- When considering purchasing new equipment the *Choice* web site is a valuable resource.
- A large refrigerator (540 litres) can release up to 11 tonnes of greenhouse gas over its lifetime and cost \$1100 to run but if the fridge has one of the top star ratings available, it will save you up to \$450 and 4.5 tonnes of greenhouse gas over its lifetime of 10 years. A saving of \$45 for each (large) fridge in a caravan park soon adds up to hundreds of dollars a year.
- Significant savings are easy to achieve through the purchase of efficient appliances, the *Useful Information* section contains additional information.



### Energy efficient lighting

The easiest and cheapest method to reduce lighting costs is to reduce the operating times of lights when they are not required. Park management should ensure that lighting in locked areas (such as laundry/ games rooms and office) is turned off when the facilities close for the evening or are not in use.

Two other effective options for controlling lighting are manual timers and light or movement sensors.

Your park should include the use of natural lighting in buildings wherever possible. Skylights can be installed in amenity blocks reducing the need for lighting.

### Fluorescent tubes

Fluorescent tubes are the most common type of lights found in a caravan park and are the most efficient practical option for most applications apart from some outdoor uses.

- Fluorescent lights are at least 3 times as efficient as low voltage lights and 5 times as efficient as incandescent lights.
- A wide variety of fluorescent tubes are available, triphosphor fluorescent tubes provide more light per watt and better colour than standard tubes.
- **Myth Buster** -It is better to turn fluorescents lights off when you leave the room or work area for more than 10 minutes. Switching them off has minimal effect on the lifetime of the lights and can save a lot of energy and money.



*A typical fluorescent tube contains enough mercury to pollute 30,000 litres of water.*

*Currently the only product available on the market is Philips Alto II, which sets an industry benchmark; winning international awards and being honoured by the USA, Environmental Protection Authority.*

*The range of Alto II lamps use 50% less mercury than industry standards, save money on operating cost, extend the lamp life and provide greater light output, compared to a standard T8 fluorescent lamp and the payback is less than 12 months.*

<sup>1</sup>The information in this document was developed for the Sustainable Caravan Park Project (refer to <http://nevrwaste.vic.gov.au/businesses/sustainable-caravan-parks/?searchterm=caravan> for more information) and is derived from various sources and is understood to be correct at the time of publications November 2007. However, the information may not be error free and may not be appropriate for the particular purpose. The project partners accept no liability whatsoever to any person for any injury, loss or damage that may arise in connection with any use or reliance on the information.



**Ballasts**

Typically up to 20% of the total energy used in fluorescent systems is lost in heat from the ballast. By installing low loss ballasts for fluorescent lighting substantial savings can be made in energy costs.

**Delamping**

Delamping is a strategy, which can be utilised to reduce energy consumption used for lighting. All old or inefficient fluorescent tubes are removed and replaced with a reduced number of high efficiency triphosphor lamps. Fewer tubes can be used because triphosphor lamps have a higher light output, a longer life and do not degrade over time. A Lux (light) meter is used to establish the correct and even levels of illumination. Typically 30% less tubes are required to maintain or even improve light levels. Savings are made from both the lowered energy consumption and reduced maintenance costs.

**Compact fluorescent globes**



Incandescent globes are cheap to buy, however they are expensive to run (five times higher than a compact fluorescent globe (CFG) – they are the least efficient form of lighting with around 5% of energy used converted to light the rest is emitted as heat. Globes have a short life and energy costs are many times the cost of the globe. The short life also adds to maintenance time and replacement costs. Reducing heat generated by lighting can also lower air conditioning costs. Energy efficient lighting generally costs a little more to purchase but the paybacks are fast and the savings during the light bulbs lifetime are very significant.

**Replacing 10 x 60 watt globes with compact fluorescent globes will result in a saving over \$1,000 over their life cycle. Work out how much you can save. See the additional information section.**

**New laws make energy efficient bulbs mandatory.**

The Federal Government will introduce laws to phase out incandescent light globes by 2010. Why wait till then when you can start saving money today!

Light output equivalency	
Incandescent light globes (watts)	Compact fluorescent light globes (watts)
40	9-13
60	13-15
75	18-25
100	23-30
150	30-52

**Saving money with hot water**

Determining hot water requirements and the most cost effective system for your park is not easy. Like other appliances, the operating cost of a hot water system will be substantially more than the purchase cost over the life of the system. You should therefore be considering these costs when purchasing equipment and do your home work, as well as speaking to other caravan park operators. When selecting a hot water system ensure that its size matches your hot water needs and it is the most cost effective option for your park.

Most systems are either electric or gas storage, with instantaneous gas systems becoming more popular as they are more efficient – new units are rated up to 6 stars. Solar/ gas boosted units and heat pumps are more efficient than older systems and particularly cost effective.

**“Installing instantaneous hot water systems has reduced our gas bill by half.” – Loraine**

**Efficient hot water systems**

The most efficient system is one that can adapt to the park’s ever changing requirements. Such a system would not be heating unnecessarily large volumes of water or heating water to unnecessarily high temperatures.

The second step to ensuring efficient operation of your hot water system is to minimise the overall demand for hot water. This can be achieved by installing flow control devices into fixtures (including taps), checking for leaks and having washing machines connected to cold water only.



### How hot is your hot water?

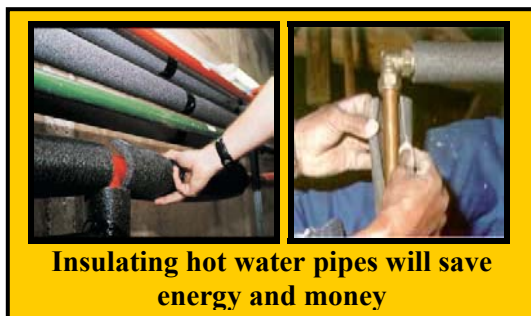
- Gas and electric hot water storage systems are legally required to heat water to 60°C. If the water is heated above 60°C a 1°C adjustment can result in a significant cost saving (get a plumber or electrician to do this).
- Seventy five percent of caravan parks participating in the project had hot water systems heating water above 60°C.
- Excessive hot water can also result in a liability for your business.
- Reducing your water temperature also slows mineral build-up and corrosion in your water heater and pipes. This helps your water heater last longer and operate at its maximum efficiency.

### Insulation

A major step in reducing energy is to insulate all hot water pipes.

- Ensure exposed hot water pipes are well insulated especially the first two metres, with closed cell rubber insulation at least 10 millimetres thick – ordinary lagging is insufficient and keep the insulation dry.
- It is particularly important in cooler areas or parks with long pipe runs to insulate hot water pipes.
- You can reduce heat losses from an electric and gas storage water heater by wrapping the tank with extra insulation. An outdoor water heater will need to be protected from the weather.

Significant saving can be achieved by insulating your hot water pipes. One metre of uninsulated pipe of an electric hot water system can cost you in excess of \$100 a year. How much money are your uninsulated pipes costing you? (See the “Hot water pipe calculator” in the *Useful information* section of the document).



**Insulating hot water pipes will save energy and money**

### Standing losses

Park management should also consider that hot water systems and fridges continue to use electricity when park units are vacant. Even a small electric hot water system uses 1.5-2kWh of electricity a day when a cabin unit is vacant (\$0.13 - \$0.26 a day) (standing losses). A cabin with a small hot water unit and fridge would cost the park approx \$0.50 per day when vacant.

A 50-litre hot water unit can take as little as 20 minutes to reheat after being turned on. Units that are expected to be vacant for longer than a couple of days should have their hot water systems and fridge turned off to reduce costs.

### Energy saving tips for the office

Small changes in our behaviour at work can lead to significant energy and cost savings.

- The first step in saving energy is to turn equipment off when it is not needed. Leaving computers, printers, urns and photocopiers on out of hours can increase your bill by \$120 per year- Use plug in timers on power outlets to avoid equipment being left on unnecessarily
- Enable energy saving setting on your computer and turn it off when not in use
- Turn off lights if you are leaving the room
- Don't leave appliances on standby
- Only heat or cool the areas you are using by simply closing the doors
- Keep your heating and cooling setting between 18-21°C in winter and 23-26°C in summer
- Install energy efficient light globes
- Install window covering
- Use laptop computers where possible - A laptop computer draws about one tenth the power of a conventional desktop computer. If you don't like a small laptop screen you can connect the laptop unit to a standard monitor while in the office and still save almost half the energy of a standard computer. Potential savings: \$55 per year for each computer
- Use photo reduction and double sided copying as much as possible. These reduce the amount of copies you need to make. Also saves paper!
- Office equipment has ongoing operating costs. Look for energy efficient models when purchasing or leasing equipment. In particular, look for models that carry the *Energy Star* logo. *Energy Star* rated printers can cut a printer's electricity use by over 65%.



### Energy saving tips for refrigeration

The energy consumption numbers on energy labels of domestic refrigeration units are more useful than star ratings, as they give actual energy consumption. An annual saving of 200kWh gives a lifetime (10 year) saving of around \$300 and prevents emission of two tonnes of greenhouse gas.

Ask potential suppliers of commercial equipment for data on running costs (in writing) so comparisons can be made. If they cannot provide such information, request them to measure energy consumption before you will consider buying, or advise the supplier in writing that you will return the appliance if its running cost is too high.

- Defrost and clean inside of your refrigerator and freezer at least every six months. Frost build-up should not exceed 6mm and clean the coils at least once a year

- Keep the temperature in your fridge between 3 and 5°C and in your freezer between -15 and -18°C

- A family-size fridge with a high star rating is likely to save \$500 in running costs and 6 tonnes of greenhouse gas over the life of the fridge, compared with a lower-rated product of the same size

- Fix the door seals – if you can place a piece of paper on the door seal and remove it with the door closed then the seal needs replacing. Often seals can be used twice – see if yours can be turned around

- Refrigerators with non-perishable drinks in them can be turned off overnight, achieving savings of up to 30%. Timers can be used to do this automatically

- In quiet periods refrigerated goods can be consolidated into smaller number of refrigerators, so some can be turned off

- Continuously operating internal lights in glass fronted refrigerators and cool room adds to the cooling load, making the compressor work harder. Unless the lights are really needed, they should be disconnected or switched off

- Lighting up display signage on a drink vending machine can cost up to \$120 a year to run and generate a tonne of greenhouse gas. Unless the lights are really needed they should be shut off

- Running refrigeration equipment too cold by 1°C can increase running costs by 5%

- Good ventilation around coils on the backs of refrigerators is essential. Installing a bar-fridge in a timber cabinet without ventilation (common practice in cabins and motels) can increase running costs by 50% and overwork the unit, so it cannot produce ice and reduce its life. Inlet and outlet ventilation slots, each at least 50 square centimetres should be cut into the cabinet to allow substantial airflow.

- If you are careless about your refrigerator maintenance such as restricting ventilation, not cleaning coil and poorly fitting door seals can cost up to \$30 Per Year per fridge.

- Refrigeration units and ice chests should not be placed in direct sun the running costs of a glass door refrigerator can be doubled and the fridge's contents warmed if the fridge is in direct sun.

### Useful information.

#### Product Information

[www.choice.com.au](http://www.choice.com.au)

[www.energystar.gov.au](http://www.energystar.gov.au)

[www.energyrating.gov.au](http://www.energyrating.gov.au)

#### Lighting energy and money saving calculator

[http://www.energystar.gov/ia/business/bulk\\_purchasing/bpsavings\\_calc/Calc\\_CFLs\\_Consumer.xls](http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_CFLs_Consumer.xls)

#### Hot water pipe insulation calculators

[http://www.energystar.gov/ia/business/bulk\\_purchasing/bpsavings\\_calc/Calc\\_CFLs\\_Consumer.xls](http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_CFLs_Consumer.xls) OR

<http://www.ccc.govt.nz/TargetSustainability/downloads/TargetEnergyLightingCalculator.xls>

#### Energy Savings calculator

[http://www.energy.qld.gov.au/energywise\\_calculator.cfm](http://www.energy.qld.gov.au/energywise_calculator.cfm)

#### Australian Gas Association

[www.gas.asn.au/directory/index.html](http://www.gas.asn.au/directory/index.html)

#### Additional information

[www.environment.gov.au/](http://www.environment.gov.au/)

[www.greenhouse.gov.au](http://www.greenhouse.gov.au)

[www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au)

