

Energy Audit

Byron Youth Activities Centre Gilmour Crescent, Byron Bay

Contact: Mike Hely
Community Relations Manager
122 Queen St
Grafton NSW 2460

Email: mike.hely@countryenergy.com.au
Phone: 6643 9483
Fax: 6643 9482

Doug Hackett
Community Relations Adviser
17 Prince St
Grafton NSW 2460

Email: doug.hackett@countryenergy.com.au
Phone: 6643 9300

General inquiries: Phone 13 23 56 or visit www.countryenergy.com.au

Introduction

Energy sustainability

Relying on fossil fuels as a primary energy source has often been pinpointed as a central issue within global sustainability due to the limited nature of fossil fuels and the wide array of direct and indirect social and environmental impacts associated with fossil fuel consumption.

Definitions of sustainability vary widely but generally we can understand sustainability to involve working towards simultaneously achieving environmental, social and economic goals. Energy audits can apply sustainability principles in the following ways:

Table 1: How sustainability principals can be applied to energy audits.

Economic	Environmental	Social
Reduce energy bills	Reducing fossil fuel consumption has numerous environmental benefits, including a reduction in greenhouse gas emissions.	Empower people to have greater control. Improve the comfort of those affected.

Energy usage in an organisation such as the Byron Youth Activities Centre is affected by three key factors - the design of the building, the appliances and facilities within, and the behaviour of the occupants. While design and structural issues can usually be easily identified and measured, human behaviour varies widely and, if not properly understood and factored in, can lead to unexpected outcomes.

For instance, telling people how much an appliance costs to run may make them use it less - or it may encourage them to use it more if the dollar level does not appear significant enough. Draft blocking may help a householder use their heater less frequently or they may decide to take the benefit as a comfort increase and use the heater as often as before.

Methodology

Country Energy conducted a walk-through energy audit of the Byron Youth Activity Centre on 27 September 2005. The audit was done as part of the North Coast Eco-Friendly Youth Project.

Byron Youth Services' Director Paul Spooner was present during the walk-through and assisted by answering questions and providing information on the centre's use of electricity and appliances.

The aim of the audit was to analyse where the centre's energy use occurs and to identify ways in which energy could be conserved or used more efficiently through 'energy smart' practises and the use of more energy efficient appliances.

Room by room listing of appliances

Computer room

Air-conditioner as required – used extensively in summer
 No insulation
 3 computers – expecting an additional 10 in the near future

2 small printers
Small upright column heater (1200W)
Westerly aspect, no blinds
4 fluoro tubes for lighting

Meeting room

Kelvinator fridge (250 Impression push button cyclic) – iced up, very little in fridge
Espresso coffee machine
Coffee grinder
Fridge urn water cooler (100W cooling/500W heating)
3 computers
2 printers
Kettle (2200W)
4 fluoro tubes
Westerly aspect with blinds on both windows

Paul's office

Westerly aspect, blind on windows
1 computer
Radio
2 fluoro tubes
1 fluoro lamp

Foyer

Water cooler machine (chilling), faces door, light
9 downlights
4 fluoro tubes
Photocopier/fax, always in use or on standby (Canon 260)
Radio
Easterly aspect, windows with screens (airflow)

Chat room

2 fluoro tubes
Westerly aspect, no blinds on window

Toilets (x2)

Fluoro lights in each

Links office

1 computer
1 printer
2 fluoro tubes
2 windows with blinds
Low ceilings (hot in summer)

Max's office

2 fluoro lights
2 windows with blinds
Southerly aspect
1 computer
1 printer
Small fan
Kettle (2200W)

J-Pet office

2 fluoro tubes
1 computer
1 column heater (not used)
Southerly aspect, 2 windows, no blinds
**Additional downlights in corridor between offices

Kitchen

Rheem 101 series hot water system – instantaneous – no off peak. Is in constant use during term
4 fluoro tubes
Easterly aspect windows under awning
Large Westinghouse frost free fridge (Silhouette 442) – freezer and main part full – seals good
4 element stove and oven (Chef Select) with 10.2kW griller
Toaster
Microwave
Blender

** The back offices are wired into one switch area – outside lights come on (8 spotlights) when inside lights are switched on).
3 large exterior spotlights – are they on timer?

Activity area

32 fluoro tubes
4 fans
Large screen TV (doesn't work?)
5 large spotlights (functional?)
Large flat screen TV – not used often
Very high ceilings and vented skylights – blinds on windows to stop kids looking in during concerts

Toilets (x2)

Solar tube and fan in both toilets
2 fluoro tubes in each
1000W hand drier in women's toilet

Rear foyer area

** Coke machine – 900W (non operational – may not be replaced)
Freezer – 2.5/5 star
Kelvinator upright freezer (not in use)
4 fluoro lights
Southerly aspect, no blind
High roof and sarking, no insulation. Corrugated iron walls.

UNCLE office

Small Westinghouse 140l fridge – needs defrosting – 2/5 star
4 computers
Printer/photocopier – stays on permanently
Large old Rank Arena TV
Samsung phone/fax
Small stereo
8 fluoro tubes
Kettle (2200W)
Southerly aspect, no blinds on windows
High roof and sarking, no insulation. Corrugated iron walls

Ellie's office

2 windows, no blinds

8 fluoro lights – on most of the time during day

2 computers

1 printer

High roof and sarking, no insulation. Corrugated iron walls

Sound studio

Limited use – once or twice a week

2 computers, screens both on

2 fluoro tubes

** Exterior of building – vegetation overgrown – opportunity to tidy up, reduce amount of exterior lighting / install sensor lights.

Current Energy Expenditure

The Youth Activities Centre has three meters and is presently using an average of approximately 90kw/h a day. Overall use is influenced by seasonal factors such as temperature and also the number of people using the centre at any given time.

The centre pays 15.65 cents a kw/h (17.22 cents a kw/h including GST). There is also a Service Availability Charge of 57.39 cents/day (63.13 cents/day including GST).

There may be an opportunity to lower the overall energy bill by changing from a standard franchise customer rate to a contestable, or contract, rate. Country Energy's current contract rate for a customer the size of the Byron YAC is 14.742 cents per kw/h + GST, while the Service Availability Charge is 54.12 cents a day + GST.

It is anticipated that changing to a contract rate may save the centre in the vicinity of \$80-\$100 per quarter.

Additionally, by having a separate hot water meter, the centre would be able to take advantage of one of the off-peak rates, rather than paying the top rate, as currently occurs. This would need to be done in conjunction with the installation of a new, much larger hot water system – if deemed economical - so that the centre's needs could still be met.

Summary**Major negative impacts on the centre's use of energy include:**

- lack of blinds over windows on the western side of the building
- lack of insulation on walls and ceiling in parts of the building

- instantaneous hot water system, which it appears is in frequent use and therefore constantly heating
- quantity of older, less energy efficient office equipment
- number of computers
- extent of lighting throughout the building and its exterior
- condition of meeting room and Uncle office fridges
- old-style air-conditioning – relatively ineffective and costly to operate due to design of building
- ** Coke machine – if operating is a high energy user

Actions

Why save energy?

As our summers become longer and warmer due to global warming, generating capacity will struggle to meet an increasing reliance on air-conditioning.

For example, recent supply/demand projections published by the National Electricity Market Management Company showed that Victoria and South Australia would need extra generating capacity on line to be certain of meeting the demand in the summer of 2006/7. New South Wales has also recently announced the need to build two new gas-fired power stations.

Greater efficiency of energy use is the quickest and cheapest way to help the community meet this problem.

In the long term, the world faces a crisis due to global warming. Most energy experts agree that the speediest, least disruptive and most effective response is to use energy more efficiently.

Even a simple measure, such as ensuring lights are turned off in unoccupied spaces, can ensure significant amounts of energy are saved and reduce the greenhouse gas emissions by tonnes over a year.

Greenhouse gas emissions and 'green' energy solutions

There are many ways in which we emit greenhouse gases into the atmosphere, and electricity consumption by households, businesses and industry contributes a significant proportion. Transport is also a rapidly-growing emissions sector.

When oil, gas or coal burns, carbon in the fuel combines with oxygen from the air to make carbon dioxide. More than 90 per cent of Australia's energy currently comes from coal-fired power stations, with less than 10 per cent coming from clean renewable sources.

The generation of electricity to support the various economic sectors (household, business and industry, transport) in Australia contributes around 175 million tonnes of greenhouse gases to the atmosphere each year.

Country Energy and other electricity distributors offer green energy solutions and understand that it is increasingly important for business to balance performance with excellent environmental performance and sustainable business.

Country Energy has investments in wind farms in Blayney and Crookwell, solar farms at Dubbo and Queanbeyan, plus many other biomass, hydro and other renewable energy sites throughout New South Wales.

It is possible to tailor a green energy solution to suit your business, based on your green energy needs, including the amount and type of green energy you want to purchase.

Countrygreen® energy is also approved through the National Green Power Accreditation Program. This means that it is monitored, audited and approved by an independent authority, and ensures at least 10% is sourced from newly installed facilities, to encourage expansion.

Recommendations

It is unlikely to be feasible or financially possible to redesign the Byron Youth Activities Centre building or to immediately replace a large number of older appliances with new, better-rated ones.

However, there are a number of easy-to-implement actions that will help to make the centre more energy smart and more energy efficient.

These include:

- replacing the existing hot water service with a larger one that has a greater storage capacity to avoid the constant heating that is currently occurring
- having the hot water service separately metered in order to take advantage of Country Energy's off-peak tariffs, which are at least 50 per cent lower than standard rates. The current set-up is adequate but is not the most cost-effective and would not be recommended if the centre proceeds with plans to install a shower
- have an electrician re-wire the interior light switches, separating interior from exterior to ensure outside lights aren't on when they are not needed
- install blinds on all windows that have direct sunlight shining onto them
- defrost fridges
- install fans, open windows for breeze
- remove overgrown vegetation from the exterior of the building and install sensor lights
- Reduce your greenhouse gas impact by purchasing some or all of your businesses energy from an accredited green power retail program such as Country Energy's 'CountryGreen'
- Implement an Energy Management Plan (outlined on P9 and 10).

Additional tips for cutting greenhouse gases and maximising energy efficiency

- A desktop computer, used eight hours a day, generates over 600 kilograms of harmful greenhouse gases each year. Ensure your computer, photocopier, printer and fax machine have the Energy Star® power management feature enabled. By enabling Energy Star®, the computer

goes into a "sleep" mode when not in use, reducing emissions by over 75% and saving around \$36.00 per computer each year. Also, Energy Star® products generally last longer. For details visit the [Energy Star® website](#).

- Portable computers use less energy than desktop models and generally ink jet printers use far less energy per page than laser models.
- Install energy-efficient lighting. Reduce greenhouse gases by 30 - 80% by fitting lower wattage globes, especially in down lights and spotlights.
- Install timer controls or daylight or movement sensors, which switch off lights automatically. Daylight sensors should work simultaneously with a dimming system so that enough light is available.
- Modern dimmer controls reduce greenhouse gas emissions as they reduce light output. They also extend lamp life.
- Use desk lamps or standard lamps where most light is needed, so less lighting is required for the entire room.
- Install ceiling sweep fans, or use portable fans. Fans improve comfort levels, even in air-conditioned rooms, and generate less than a kilogram of greenhouse gas every 10 hours.
- Paint rooms light colours. Dark coloured walls absorb light, increasing the amount of lighting needed.
- Don't over cool: 1°C difference in temperature between indoors and outdoors adds 10% to your bill and increases greenhouse gas emissions by the same amount.
- Fluorescent lights, including compact fluoros (which are available from leading hardware stores and supermarkets) generate only 1/5 as much greenhouse gas as ordinary globes but produce the same amount of light.
- A dishwasher may help to keep the kitchen clean, but it generates hundreds of kilograms of greenhouse gas each year. When buying a dishwasher, look for the energy rating and choose an energy efficient model.
- Steer away from light fittings with coloured glass. They often cut light output by half, creating a need for higher wattage light bulbs.
- Only cool what you need to. The smaller the area cooled, the less greenhouse gas generated and the lower the bills.
- Use less hot water. Every 15 litres of hot water used from an electric water heater generates about a kilogram of greenhouse gas. Turn the hot water system off if not needed for extended periods of time.
- Fix dripping hot taps and save up to 100 kilograms of harmful greenhouse gas emissions each year per tap.
- If the hot water thermostat is adjustable, turn it down to 55°C - this can save up to 250 kilograms of CO₂ each year.

Energy Management Plan

Developing an Energy Management Plan will assist the Byron Youth Activities Centre to monitor energy usage, set reduction targets and monitor whether those targets are being met. A suggested format follows. The plan need not be a large document, but must state your commitment to the key issues.

Developing the strategy

1. Appoint an Energy Manager
2. Prepare a concise Energy Management Plan
3. Review energy use and key performance indicators
4. Include an energy management section in your annual report
5. Adopt a procurement policy and implement projects.

Suggested Energy Manager responsibilities:

- Prepare an Energy Management Plan, including recommended goals
- Arrange collection of energy consumption and costs, ie bill and usage figures
- Monitor progress against goals
- Propose policy for procuring *Energy Star* office equipment and energy efficient white goods
- Propose/coordinate budget (if required) for projects
- Prepare details of outcomes against both quantitative and qualitative goals and actions undertaken annually, for annual report
- Communicate achievements back to your own staff

Suggested plan format

Corporate commitment

Brief statement of policy and executive commitment.

Management structure and responsibilities

Who does what, how, when and where, in relation to energy management?

Current Position

What have we done and where are we now in the context of our broad objectives?

Goals

Where do we want to be in the next 12 months in line with our broad objectives and whole-of-government targets? Where do we want to be by 2001/02 and 2005/06?

Strategies & Budget

What do we need to do and how do we allocated the funds in order to get there?

Monitoring and reporting

How do we check that we are getting there?

Review

How can we continue to improve our performance?

Sample goals

- *Include 6% 'green power' in all electricity purchased.
- * Purchase energy-efficient office equipment in future 100% new equipment
- * Include an energy management/environmental awareness module in employee inductions
- * Improve Building Greenhouse Rating to 3-star plus
- * Reduce building energy consumption in line with targets

Monitor performance

Review energy use

Most small agencies such as the Byron YAC purchase electricity for light, power and heating/cooling, as well as petrol for vehicles. In order to monitor your energy management performance, you will need to collect data in a consistent manner on your agency's energy-related purchases and use over time. The information required will include: type of energy/fuel, amount, cost, and account and other details.

Small agencies are expected to monitor their energy use in a relatively simple manner. Data is normally available from accounts received from utilities and fuel companies. Aggregate energy consumption data will usually be available for each financial year. If it is not possible to establish the exact consumption from 1 July to 30 June of a given year, it is sufficient that the nearest full 12 months of accounts are used. We suggest monitoring two trends as shown below. To record this data you may use your own database or a simple spreadsheet.

Suggested monitoring: basic trends and performance indicators

Trends

Monthly energy consumption over each year

Monthly energy consumption compared to the same months in previous years.

Performance indicators

Net lettable floor area for leased offices

Effective full-time numbers of people using the building

Rebates

Solar electricity

The Photovoltaic Rebate Program funded by the Australian Greenhouse Office is designed to make the installation of a solar electric system more affordable. Unfortunately the Government is in the process of phasing out the rebate by 2007.

Cash rebates of up \$4000 are available for photovoltaic systems installed on community use buildings, such as churches and halls.

The rebate is available for both grid-connected and stand-alone systems. The minimum system size or addition to an existing system is 450W and it must be installed by an accredited installerr. Major equipment items in the installation must be new (not second-hand), and a Certificate of Electrical Safety must be issued.

Further information, including guidelines and an application form, is available by contacting the PVRP information line on 1300 138 122.

TIPS AND CHECKLIST



Office Equipment & Appliances

In a typical office, equipment such as photocopiers, computers, printers, fax machines, refrigerators and water heaters can account for up to 30% of energy consumption. Follow these energy tips to save money and help the environment.

- Turn off your computer screen if you leave your desk for more than 15 minutes. You can save as much as 50% of the energy that would have been consumed by your computer in your absence.
- Switch off equipment at the end of the day. Even if you leave equipment on “standby” overnight, energy will be wasted.
- If you have a hot water urn, consider installing a timer. This will ensure that water is not being boiled at night or weekends, if not required. If there are only a few staff a kettle will be more economical.
- Support renewable energy, buy ‘green power’. Call 13 23 56 for information on the ‘green power’ products available to you.
- Use multi-functional office equipment. For example a fax/photocopier/printer. Having one machine saves energy when compared to two or three.
- Consider installing motion sensors to control lighting in areas which are used less frequently. These will ensure that lights are automatically turned off when the area is unoccupied. Paper reducing strategies, such as double-sided printing, re-using paper and email not only saves energy but conserves staff time.
- Make sure all your office equipment – faxes, computers, printers etc. have the ‘Energy Star’ function and it is enabled.

*Energy saving checklist
for office equipment
and appliances*

**Work through the following checklist to see where you can improve the efficiency of your operations and equipment.
The more “Yes” answers you have, the more energy smart your operations are.**

Are copiers / printers turned off when not required?	Yes	No
Is the ENERGY STAR® function enabled on office equipment?	Yes	No
Is the hibernation function used in preference to screen savers?	Yes	No
Are computer monitors being turned off when not in use for more than 10 minutes?	Yes	No
Is multi-functional equipment being used where appropriate?	Yes	No
Are other office appliances (kettles, urns, TV’s, laminators etc.) being used efficiently and are they turned off at night / weekends?	Yes	No
When buying new equipment is energy efficiency considered?	Yes	No
Is the copier appropriate for the amount of copying required?	Yes	No
Have you considered using laptop computers / flat screen monitors instead of desktop models if this is an option?	Yes	No
Have you considered using ink-jet instead of laser printers?	Yes	No
Is email being used instead of faxing / printing wherever possible?	Yes	No
If there are only a few staff is an electric kettle being used instead of a continuously boiling urn?	Yes	No
Have staff been made aware of the importance of saving energy?	Yes	No

TIPS AND CHECKLIST



Lighting

Lighting can be a significant contributor to energy use and costs for a small business. Share these energy saving tips with your staff to save money and help the environment.

- Turn off lights when not in use. This is the easiest way to conserve energy and save on electricity bills.
- Motivate staff to turn off lights by placing reminder notices in prominent Places such as on switches or near exits.
- Install efficient lighting. If you have incandescent lamps, replace them with energy efficient compact fluorescent light globes (available from leading hardware stores and supermarkets). These can save up to 75% of electricity consumption. The best light fittings to replace with compact fluorescents are 60 to 100 watt bulbs that are used for several hours a day.
- Take full advantage of natural light in your store, turning lights off when there is sufficient sunlight (while ensuring that safe levels of lighting are maintained).
- Don't overlight non-critical areas and don't light unoccupied areas.
- Steer away from light fittings with coloured glass. They often cut light output by half, creating a need for higher wattage lamps.

Energy saving checklist for lighting

**Work through the following checklist to see where you can improve the efficiency of your operations and equipment.
The more "Yes" answers you have, the more energy smart your operations are.**

Are light fittings cleaned regularly?	Yes	No
Are workstations positioned close to windows to maximise natural lighting?	Yes	No
Is the amount of outside light maximised by pruning trees / shrubs and effectively using curtains / blinds?	Yes	No
Are energy efficient compact fluorescent lights used wherever appropriate?	Yes	No
Are lights switched off in areas where they are not needed often?	Yes	No
Is there a system in place by which all lights are switched off at the end of the day?	Yes	No
Is task lighting being used to directly illuminate work areas?	Yes	No
Are burnt out lights being replaced with energy efficient globes?	Yes	No
Is security lighting being checked for function and efficiency?	Yes	No
Are dimmer switches or sensor lights used throughout the building?	Yes	No
Is there a light switch system in place which gives control over where and how lights are utilised?	Yes	No
Do you have light switch reminder stickers in place to remind staff to switch off unused lighting?	Yes	No
Does lighting match work requirements? (Eg: An architect's office needs strong lighting whereas a café may not).	Yes	No
Do the fluorescent lights have electronic ballasts installed?	Yes	No
Have staff been made aware of the importance of saving energy?	Yes	No

TIPS AND CHECKLIST



Heating & Cooling

It is essential for businesses to provide a comfortable environment for

their customers, keeping premises at a steady temperature all year round. With cool winters and hot summers, the bill for keeping your customers comfortable can become expensive. Try these tips to take the heat out of your energy bill.

- Don't let heating and cooling systems run 24 hours a day. This is the most basic way that you can save on your energy bill. Turn systems off (or don't turn them on!) when they do not need to be used.
- For maximum comfort, the temperature of rooms should be 18-20°C in winter and 25-27°C in summer. Each degree you raise (for heating) or lower (for cooling) the thermostat outside these ranges can increase running costs by up to 10%.
- When heating or cooling, try to shut off areas that are not being used to avoid heating or cooling more space than is necessary.
- Reduce heat loss/gain by insulating roof spaces, walls and pipes. This is a very effective way of cutting down on energy costs and can result in savings of up to 40% on heating and cooling costs.
- Use shades, blinds or double-glazing/tinting on windows to reduce the amount of solar heat that enters during summer.
- Use fans to cool instead of energy-greedy air conditioners where appropriate.
- Air conditioning systems may sometimes be used when it might be just as effective to open windows and doors.

***Energy saving
checklist for
heating and cooling***

**Work through the following checklist to see where you can improve the efficiency of your operations and equipment.
The more "Yes" answers you have, the more energy smart your operations are.**

Are heating / cooling systems turned off when staff and customers are not present? (e.g. nights / weekends).	Yes	No
Is the temperature set correctly? i.e 18–20°C in winter and 25–27°C in summer.	Yes	No
Are drafts minimised to maintain heat / cool?	Yes	No
Are shades, awnings or blinds used to help insulate windows and minimise solar gain during summer?	Yes	No
Are the walls and ceiling insulated?	Yes	No
Are fans being used to substitute for air conditioners where appropriate?	Yes	No
Does the type of heating / cooling system suit the size and usage of the business?	Yes	No
Is the use of personal heating devices by staff minimised?	Yes	No
Are lobbies, passageways and storage areas being heated / cooled only where / when necessary?	Yes	No
When purchasing new systems / appliances, is energy efficiency taken into consideration?	Yes	No
Have staff been made aware of the importance of saving energy?	Yes	No

TIPS AND CHECKLIST



Hot Water

A lot of energy is required to heat the hot water which is used in many businesses, especially those that deal with food production or delivery. Installing an efficient hot water unit will enable

you to maximise energy savings and reduce costs, however there are also ways to reduce your energy use without replacing your existing system.

- Make sure your pipes and hot water storage tanks are properly insulated. Your local plumber can insulate any pipes and the cost will pay for itself through reduced heating costs.
- Replace your old hot water unit with a more efficient system such as:
 - A standard gas or electric hot water system with a high energy efficiency star rating.
 - A solar hot water system. These are a more expensive option but can reduce energy consumption by around three quarters. It pays to shop around suppliers for the best deal.
- Investigate whether your current off peak hot water plan is the best available.
- Install a simple plug-in seven day timer on your boiling water system to turn off the system on weekends or public holidays if not in use.
- Install flow restrictors or tap aerators in your taps that will reduce your water bill as well as your energy bill. Visit your local plumbing supplier to see what products they have available.
- If you have showers in your workplace, install water-saving AAA-rated shower heads, which will reduce your water consumption and electricity costs.

***Energy saving checklist
for hot water systems***

Work through the following checklist to see where you can improve the efficiency of your operations and equipment.

The more “Yes” answers you have, the more energy smart your operations are.

Is the size of your hot water system appropriate for your requirements?	Yes	No
If you have an electric hot water system, is it using off-peak electricity?	Yes	No
Is the hot water system well insulated?	Yes	No
Are the pipes well insulated?	Yes	No
Is the temperature setting correct for requirements? (It should be around 60°C for most business purposes)	Yes	No
Does the hot water system have a high energy rating?	Yes	No
Are water efficient showerheads in use to reduce water consumption and thus energy usage?	Yes	No
Are water efficient tap restrictors or aerators in use?	Yes	No
Is hot water not being used for cold water applications?	Yes	No
Have staff been made aware of the importance of saving energy?	Yes	No

TIPS AND CHECKLIST



Refrigeration

For many small businesses, refrigeration can be a significant cost, as unlike other electrical appliances, refrigerators operate 24 hours a day, 365 days

a year. Try these tips to minimise energy use and save on the cost of refrigeration in your business.

- Make sure your refrigeration equipment is regularly serviced by a refrigeration service mechanic. Six monthly services will ensure that your equipment operates as efficiently as possible, and will also extend the life of the equipment.
- Switch off refrigeration equipment when not in use.
- Maintain deep freezers and fridges at the recommended temperature for the product, eg. meats need to be stored at 1-2°C, dairy products at 2-4°C. Temperatures 1°C lower than necessary can increase costs by 3%.
- Regularly defrost freezers and refrigerators, never allowing more than 5mm of ice to accumulate.
- Keep the coils on the back of your fridge/freezer clean and make sure there is sufficient airflow around the coils – ie. The fridge is not pushed right up against a wall.
- Try to cool your product naturally before putting it in the fridge or freezer.
- Locate fridges/freezers away from other heat sources such as ovens, warmers or your hot water source.
- If you are using multiple freezers that are not fully utilised, combine products into one or two fully loaded freezers and switch off unused freezers. Minimise the time that doors are kept open, for example don't leave doors to cool rooms ajar. Self-closing doors are a good way to achieve this.

Energy saving checklist for refrigeration

**Work through the following checklist to see where you can improve the efficiency of your operations and equipment.
The more “Yes” answers you have, the more energy smart your operations are.**

Is refrigeration equipment regularly serviced?	Yes	No
Is refrigeration equipment switched off when not in use?	Yes	No
Are the temperatures maintained in fridges and freezers complying with manufacturers / government requirements?	Yes	No
Are freezers regularly defrosted?	Yes	No
Are the seals on doors / lids working correctly?	Yes	No
Are fridges / freezers located away from ovens, hot water, direct sunlight etc.?	Yes	No
Do the number of fridges / freezers used exceed requirements?	Yes	No
Are stock controls in place to minimise food stored on premises?	Yes	No
Are self closing doors in use on walk in and stand up equipment?	Yes	No
Are coils on the back of fridges kept clean and well ventilated?	Yes	No
Does the refrigeration equipment have a high energy efficiency rating?	Yes	No
Is the fridge/freezer appropriately sized for the purpose? Could two partly used units be combined into one?	Yes	No
Have staff been made aware of the importance of saving energy?	Yes	No