10 WAYS TO GREEN YOUR CLUB

An initiative of the Cool Clubs Program

The Cool Clubs Program was a joint initiative of ClubsNSW, Big Switch Projects and the Department of Environment and Conservation NSW

ClubsNSW

Big Switch Projects

Department of **Environment and Conservation** NSW

our environment it's a living thing

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FOREWORD

It is with pleasure that I commend to all clubs across New South Wales *TEN WAYS TO GREEN YOUR CLUB* – a practical and informative guide designed to assist clubs to do their bit individually and collectively for environmental sustainability.

These guidelines result from the environmental audits conducted in a select group of clubs throughout 2006 under the Cool Clubs Program. Cool Clubs was an initiative involving ClubsNSW, Big Switch Projects and the Department of Environment and Conservation NSW (DEC) which aimed to help clubs lower their environmental impact by reducing their waste and their energy and water consumption.

Registered clubs are increasingly recognising that they have an important role to play when it comes to reducing the environmental impact they have within their communities. Many clubs in this State are large buildings, with plants and equipment that run for long hours. Club buildings consume a lot of energy and water, and daily operations produce a lot of different types of waste – food, bottles, paper and cans, and so on. Clubs can reinforce the leadership roles they serve in their communities by implementing a responsible environmental management plan and some of the key steps that can be taken are outlined in these guidelines.

I'd like to thank and congratulate those clubs that were part of the Cool Clubs Program and extend my appreciation to the DEC and Big Switch Projects for all of their support.

There is much that ClubsNSW will be working on in the upcoming months to further the progress that clubs are making as they 'green their clubs'. I look forward to explaining some of these initiatives further in the upcoming months as there are not only further savings in water, waste and energy consumption to be made but significant financial savings and business advantages that you as managers and directors can achieve for your clubs.

David Costello
CEO
ClubsNSW

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INTRODUCTION

Sustainability is these days a mainstream issue and registered clubs recognise that they have an important role to play. The first step toward sustainability is making sure you comply with the law. The second step involves reducing your environmental impacts by using less electricity and water, and better managing your waste. This guide will only help you with step 2, but you should review your compliance status first.

If you're involved in managing a club, *10 WAYS TO GREEN YOUR CLUB* is designed to give you some concrete advice on how you can help your club reduce its impact on the environment. Beyond making a positive contribution to the environment, there are other benefits for clubs that take a sustainable approach towards their operations.

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'The recommended actions identified annual savings of $18,000 per annum in energy use as well as avoiding 213 tonnes of CO^2 emissions per annum.'

Greg Kearins
General Manager
Dooleys Lidcombe Catholic Club

Cutting energy and water use and better managing waste are really just business improvement initiatives. Often, these initiatives save money, and in many cases projects pay for themselves over time.

An important first step is to ensure your club meets all its legal requirements with respect to the environment. NSW has a number of laws to protect the environment and provide guidance to business. The *Protection of the Environment Operations Act 1997* (POEO Act) is the main piece of NSW environmental legislation.

In some cases breaking environmental law carries serious penalties, even if you did not intend to cause damage or pollution. To protect your club from prosecution and maintain its reputation, make sure everyone in your business (including staff, contractors, and subcontractors) are aware of their environmental responsibilities. For more information, contact DEC on 131555, visit their website www.environment.nsw.gov.au, or contact your local council.

Clubs are frequently expected to play a leadership role in the communities they serve. By proactively implementing a responsible environmental management plan, your club has a real opportunity to improve its standing in the community. Some clubs have even won environmental awards for the work they have done.

Having strong environmental credentials and a good standing in the community not only helps attract and retain members, it

boosts staff morale and makes your club a more attractive place to work. Developing an environmentally friendly facility also fosters a healthier and happier workplace, making your club more enjoyable for members.

Your club's environmental initiatives can be showcased in your marketing to promote your club as a responsible, environmentally aware organisation.

WHY IS SUSTAINABILITY IMPORTANT?

A growing number of registered clubs are recognising that their operations have a significant environmental impact through their use of electricity and water, and their production of waste.

Electricity

Most of the electricity in NSW comes from power stations burning coal, which produce large quantities of carbon dioxide, the major greenhouse gas that contributes to global warming.

Water

With continuing water restrictions in NSW, and little prospect of predictable rain, everyone in the community needs to reduce water consumption as much as possible, including business.

Waste

Waste is a sign of inefficiency and a burden on the community. Minimising waste and recycling more are two ways to save money and take responsibility.

The areas of water, energy, and waste provide clubs with a great springboard to improve their sustainability. But sustainability is more than just being efficient with resources. Beyond these three issues, clubs can find sustainability projects in a variety of areas that will benefit the club, the community, and the environment. Examples include: sportsground management, community engagement, biodiversity, environmental planning, purchasing and supply chain, staff training, chemicals management, and environmentally-sensitive club design and refurbishment.

ClubsNSW recognises that reducing the club movement's environmental impact could have a positive long-term benefit for the reputation of the industry.

MAKING A DIFFERENCE

The 2006 Cool Clubs program was an initiative of ClubsNSW, Big Switch Projects and the Department of Environment and Conservation NSW. Big Switch Projects is grateful for the technical support provided by AHA Management; Warren Smith & Partners; and Waste Audit and Consultancy Services.

The program's aims were to identify projects where clubs could save money while also reducing their environmental impacts through energy, water and waste reduction opportunities.

The Cool Clubs program included a review of the operations of seven clubs. Significant opportunities were identified in these clubs to improve energy efficiency, reduce water consumption and improve waste management practices.

'Northern Rivers is an environmentally oriented area and we thought we should be the leaders in this field – and obviously take advantage of the energy savings, too.'

Steve Bortolin
General Manager
Lismore Workers Club's Group

On average, Cool Clubs identified cost-effective opportunities to save more than 12% of energy use and 21% of water consumption, as well as numerous opportunities to improve performance in recycling waste.

For example, most clubs used high-energy demand lighting, and energy consumption could be significantly cut by retrofitting a range of low energy lamps and introducing a managed lighting system. Other opportunities to cut electricity use related to turning off gaming machines and air conditioning outside business hours.

Reducing the consumption of electricity and water, while maintaining a similar level of service, is a real and positive contribution to helping reduce the onset of climate change.

Some clubs only recycle around 10% of their waste; what they are doing is throwing out a valuable resource that could instead be earning them money.

TAKING THE FIRST STEP

So how do you go about taking action? The first step is to understand the available options, and to work out what's feasible for your club.

We suggest reading through this brochure to identify opportunities for your club to investigate further.

Not all of the opportunities listed will be feasible for your club, so it's important to conduct an investigation into the appropriateness, cost, financial return and the associated environmental benefits of each opportunity before proceeding. Some are initiatives that you can carry out yourself, but for bigger projects you may need to contract a specialist service provider to determine the viability of the project and give recommendations on how to proceed. The service provider should be able to identify and detail opportunities, from both a financial and environmental perspective. Most service providers adhere to the Australian Standard for energy efficiency reviews, AS3598:2000. Contact ClubsNSW for a list of service providers so you can be confident you are using someone appropriate for your club.

As a start, we have listed eight priority action that are relatively straightforward to undertake and can make a difference in the short term (overleaf).

Beyond the priority actions, opportunities can be found by following the easy-to-remember principles in 10 WAYS TO GREEN YOUR CLUB. These principles are explained in more detail with typical actions that demonstrate their application. The actions are based on work with real clubs.

Finally, a checklist has been included, to allow you to monitor progress on your journey to becoming a Cool Club.

PRIORITY ACTIONS YOU CAN TAKE RIGHT NOW

Here are a number of straightforward initiatives that can make a big difference to your club's environmental footprint. We've also identified whether they relate to electricity or water use, or waste management.

1 SEPARATE, CAPTURE AND RECYCLE VALUABLE RESOURCES

Some clubs in the Cool Clubs trial recycled only about 10 % of their waste, compared with industry best practice of more than 40%. Many materials in your general waste stream can be recycled. These materials include such items as HDPE milk bottles, aluminium cans, steel oil drums, newspapers, liquid paper board (milk and juice cartons), mixed plastics and, of course, glass and cardboard.

The introduction of recycling systems has the potential to reduce the volume of waste going to landfill. This might work by introducing a separate bin system in key areas such as the bar and kitchen areas. This system could be developed in consultation with a recycling contractor and would capture some or all of the recyclable materials that are currently disposed of through the general waste stream. The bonus is that it can save you money – it is generally cheaper to have recyclables picked up than to dispose of them in the general waste.

Disposal of waste should be a last resort, and will become an increasingly significant cost to your club as waste contractors pass on scheduled rises in landfill disposal fees.

2 SEPARATE FOOD WASTE FROM THE GENERAL WASTE STREAM

By separating food waste from the general waste stream in kitchens, bistros and cafes, food waste can be processed onsite to produce compost or fertiliser, or sent offsite to organic waste facilities – some of which can turn waste to electricity (see page 27, 'Update your plant'). This would reduce the amount of waste in the general waste stream, which could also save significant amounts of money if your general waste fee is charged by weight.

3 REVIEW AND UPDATE AIR CONDITIONER SETTINGS

Having the air conditioner temperature set-point too high or too low is unnecessarily wasteful, as is running air conditioning outside business hours. At one club in the Cool Clubs trial, for example, the temperature in the gym was set to 17°C. The club was able to save a meaningful amount of electricity simply by resetting the set-point temperature to a comfortable 21°C to 22°C. Greenhouse gas savings: 1.5 tonnes a year.

4 FIX LEAKING TAPS

A typical leaking tap dripping 10 litres of water an hour wastes more than 89 kilolitres of water per year. If you notice a leaking tap, get it fixed.

5 SWITCH OFF POKER MACHINES AFTER HOURS

Simply switching off all your club's poker machines during non-operating hours can significantly reduce electricity consumption. By allowing one hour for machine warm-up and one hour for complete shut-off, the daily switch-off period for a typical club would be about six hours, which could save your club thousands of dollars a year in electricity costs, with little or no capital cost. Check with your service company or supplier on how best to manage shutting off and warming up your poker machine installation.

6 REPLACE NON-DIMMING INCANDESCENT LIGHT BULBS WITH COMPACT FLUORESCENT LAMPS

Standard incandescent lamps are the oldest variety of lighting technology and also one of the most inefficient types of lighting available. They typically convert only 15% to 20% of the input electricity into visible light. The remaining portion is given off as heat energy, which adds load to the air conditioning system and increases operating costs. The lifespan of an incandescent lamp is only about 1,000 hours, which means that they need regular replacement and are therefore expensive to maintain.

Compact fluorescent lamps (CFL) are a much better option, and fit into the standard bayonet or screw-in light fitting. CFLs consume much less electricity than incandescent lamps while providing the same amount of light – an 11W CFL is equivalent to a 60W incandescent lamp. Because CFLs give off less heat than

incandescent lamps, they place less load on the air conditioning system, which results in further electricity savings. CFLs have a lifespan in excess of 6,000 hours, so while they are more expensive than incandescent lights to buy, they are actually cheaper when you factor in their much longer life, reduced maintenance costs and lower electricity consumption.

For example, one club in the Cool Clubs program was able to save about 46,873kWh/year by replacing the incandescent lamps in its lobby area. A further saving of 1,736kWh/year was possible due to the reduced load on the air conditioner. Greenhouse gas savings: 49.4 tonnes a year, plus an additional 1.8 tonnes saved as a result of reduced load on the air conditioner.

7 INSTALL WATERLESS WOKS

Conventional wok stoves used in most restaurant kitchens use water for two main purposes, cleaning and cooling. Cleaning can account for 2 to 3 kilolitres of water a day, while cooling typically accounts for 2.5 to 3.4 kilolitres a day. Trials have found that as much as 90% of this water use can be eliminated by installing water-efficient woks. With a water-efficient wok, a user can potentially save 5 to 6 kilolitres of water a day per wok, giving a yearly saving of 1,800 kilolitres or about $4,500.

8 ADOPT A WATERLESS URINAL SYSTEM

Waterless urinal systems eliminate the need to flush urinals. Before you turn your nose up in disgust, you should know that waterless urinal systems are hygienic and are designed to keep unpleasant smells at bay. Waterless urinal systems are designed to work with your existing urinals, so there are no capital costs, just maintenance costs.

One system, for example, uses blue cubes that contain naturally occurring microbes which degrade the organic matter that odour-producing bacteria normally grow on, eliminating malodours at the source. The cubes are placed in the trough or bowl urinal. The cubes dissolve over several weeks, releasing the microbes into the system.

A club with 4m of trough-type urinal can save up to 200 kilolitres of water each year by using this system.

WHY COOL CLUBS?

Scientists report that the Earth's temperature is rising unusually quickly. Climate change has the potential to threaten millions of lives, and to affect the capacity of the world to feed itself, the availability of fresh water, the control and spread of disease, the survival of species, the direction in which our oceans flow and the severity of our weather.

Evidence that global warming is happening in Australia today includes rising average temperatures leading to increased frequency of hot days; increasing severity of drought and bushfire; increases in the frequency of intense cyclones; and rising sea levels.

Australia has the highest per capita emissions of greenhouse gases in the world today, with a significant proportion of these due to our reliance on coal as the fuel of choice to produce electricity. Through the use of electricity for lighting, air conditioning, gaming machines and other systems, clubs consume a lot of electricity. A medium-sized regional club with a membership of about 14,000 that was reviewed as part of the Cool Clubs program was responsible for producing 3,015 tonnes of greenhouse gas emissions annually, the equivalent of greenhouse gas emissions from the exhaust pipes of 665 cars. A larger club reviewed with a membership of about 80,000 produced 9,666 tonnes of greenhouse gas emissions, equivalent to the greenhouse gas emissions from 2,133 cars.

Another aspect of climate change is alterations in global and regional water patterns. Evidence of this can be seen in the continued drought in NSW. Clubs are big users of water, and the medium-sized regional club reviewed in the Cool Clubs program used about 12 megalitres of water annually, roughly equivalent to 12 Olympic-sized swimming pools, while the larger club consumed about 68 megalitres, or 68 Olympic-sized swimming pools.

In a world of finite resources, waste management is also a very important issue. Waster or rubbish is generally a sign of inefficiency or poor design. Not only does it waste resources, but landfill gases also contribute significantly to global warming.

Recycling, for example, is not only beneficial from a sustainability perspective, it can also reduce the cost of waste disposal

because it's generally cheaper to have recyclables removed than it is to have general waste removed. A medium-sized club can typically produce 169 tonnes of waste per year and a large club 452 tonnes.

ABOUT THE COOL CLUBS PROGRAM

Following a state-wide call by ClubsNSW for members to subscribe to a project studying environmental performance, seven clubs nominated: Mt Pritchard Community Club, Dooleys Lidcombe Catholic Club, Wagga RSL, Asquith Bowling and Recreation Club, Lismore Workers Club, Illawarra Master Builders and Illawarra Catholic Club (Club Menai).

The project, known as the Cool Clubs program, was created with the aim of helping to establish some industry guidelines for energy and water saving options while also reviewing how clubs manage waste.

During the project over 50 cost-effective actions, were identified across the seven clubs. When implemented these actions will save 25 million litres of water and 3,000 tonnes of Greenhouse Gas each year.

The investigation of energy use focused on the two largest consumers of power: existing lighting systems and air conditioning systems. In examining water usage, attention was given to factors such as leaks and the efficiency of various water-dispensing devices, as well as water storage facilities.

In typical clubs, air conditioning accounts for approximately 50% of total use, with lighting taking up 30%, refrigeration 10%, gaming machines 7%, and the remaining consumption by other systems such as kitchen and catering equipment.

In terms of waste management, existing systems were reviewed to find opportunities for improving separation and recycling.

In all cases, there were opportunities for making substantial improvements in energy efficiency, water efficiency and waste management.

HOW AUDITS WERE CONDUCTED

To understand the opportunities available to each club, it was necessary to conduct an investigation or 'audit'.

These audits involved reviewing and analysing historic energy and water data to identify trends that indicated operational issues requiring remedy. Current waste contracts and invoices were reviewed to determine the quantities of waste generated and their associated disposal.

A site inspection of each club was carried out, studying the existing lighting, hot water, air conditioning and building control systems, and waste management practices. Opportunities for electricity and water savings were identified, as were opportunities to improve waste management and building control systems. These opportunities and recommendations were reviewed in each case with club management.

HOW TO BECOME A COOL CLUB

The guidelines in this document are based on the opportunities identified during the Cool Clubs program, and for this reason are very much based on real world scenarios. Please read the guidelines with an open mind – and remember, it's not all or nothing. You can start with a single initiative if you choose, and work from there.

As a starting point to better understand where your club needs to do work, it may be a good idea to review your club's energy, water and waste bills to get a handle on where resources are going and waste is coming from.

To assist you here, we've identified whether each guideline relates to electricity or water use, or waste management. These are designed to help you see at a glance whether a particular tip relates to the person responsible for power usage, water usage or waste management.

The greenhouse gas savings from the cost-effective energy efficiency projects listed in this guide are based on actual engineering calculations from studies done on the inaugural seven Cool Clubs. They are indicative only. Exact savings from the projects implemented will vary from club to club.

FIX YOUR LEAKS!

Often the most effective actions you can take to improve your environmental footprint are also the most obvious. When was the last time you checked that your building services, such as your air conditioning and lighting, were running when really needed and not when they were needed last year?

REVIEW AND UPDATE AIR CONDITIONER SETTINGS

Having the air conditioner temperature set-point too high or too low is unnecessarily wasteful, as is running air conditioning outside business hours. At one club in the Cool Clubs trial, for example, the temperature in the gym was set to 17°C. The club was able to make a meaningful saving by simply resetting the set-point temperature to a comfortable 21°C to 22°C. Greenhouse gas savings: 1.5 tonnes a year.

REPLACE COOL ROOM AND REFRIGERATOR DOOR GASKETS

If your cool room or refrigerator is not properly insulated, cool air escapes, meaning more energy is required to keep things cool. During the Cool Clubs audits, it was noted that a number of refrigerator and cool room door gaskets were torn or damaged, or completely missing. At one club, it was estimated that meaningful savings could be achieved simply by installing gaskets on the sliding doors of one cool room. Greenhouse gas savings: 3 tonnes a year.

FIX AIR-CONDITIONING COOLING TOWER LEAKS

Air conditioners, like any plant, need to be properly maintained to run efficiently, and water tower leaks should be attended to as quickly as possible. Air conditioning leaks can also be a health hazard. A pool of standing water can become a breeding ground for bacteria, and if it's in the vicinity of the air intake grills, the bacteria can enter the club's air supply.

ADJUST THE TIMING OF HOT WATER SYSTEMS

Your club's hot water systems should heat water only when it is needed. Don't leave water heaters on if hot water is not going to be needed for some time. If parts of the club are closed during weekends, for example, ensure that your building management system will turn off water heaters and hot water circulation systems in those areas, or install a seven-day-week time clock.

FIX LEAKING TAPS

A typical leaking tap dripping 10 litres of water an hour wastes more than 89 kilolitres of water per year. If you notice a leaking tap, get it fixed.

KEEP LIDS ON CONTAINERS

Even minor knocks can topple a container and waste large quantities of product or liquids, which is why it's important to keep lids on containers. In the case of many chemicals, such as solvents, much of the product can be lost through evaporation if lids are left off. Chemicals can also pose a danger to staff, to members, and to the environment if spilt.

ADJUST PORTION SIZING

Excessive food wastage can be addressed by reviewing the amount of food left on plates after customers have finished eating, and then checking whether staff are serving the correct portion sizes. It may be necessary to reconsider portion sizes and/or train staff in the correct procedure.

SWITCH OFF!

If it's not in use, turn it off. You'll be surprised by the savings that can be achieved by following this very simple principle.

INSTALL TIME SWITCHES ON BAIN-MARIES

Many clubs use bain-maries to keep food warm, but some clubs in the Cool Clubs trial left their bain-maries on at all times. Significant energy savings were identified at one club if it installed a timer switch so that its bain-maries were only turned on when required. Greenhouse gas savings: 22.4 tonnes a year.

SWITCH OFF POKER MACHINES AFTER HOURS

Simply switching off all your club's poker machines during non-operating hours can significantly reduce electricity consumption. By allowing one hour for machine warm-up and one hour for complete shut-off, the daily switch-off period for a typical club would be about six hours, which could save your club thousands of dollars a year in electricity costs, with little or no capital cost. Check with your service company or supplier on how best to manage shutting off and warming up your poker machine installation.

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CASE STUDY: DOOLEYS TO SHUTDOWN POKIES

Dooleys Lidcombe Catholic Club is planning to switch off its poker machines out of hours.

'Due to the current electrical design of our gaming area, Dooleys has to leave its 200 or so poker machines switched on during non operating hours to reduce maintenance,' said building and services manager Colin Eisenhuth. 'By changing the electrical design of the newly refurbished gaming area to allow banks of up to 14 poker machines to be controlled by individual switches, we will be able to turn the machines off and back on in an optimal fashion.'

This initiative is expected to reduce greenhouse gas emissions by 115 tonnes and save more than $7,000 in electricity consumption.

DON'T LEAVE TAPS RUNNING UNNECESSARILY

Taps should not be left on when unattended (for example, running water over frozen food to defrost it). This type of waste can be controlled by installing sensors to turn off taps at basins and sinks, or by fitting trigger nozzles on hoses so they must be physically held to release water.

BUY AND INSTALL EFFICIENT CONSUMABLES

Stop wasting money on buying yesterday's technology. New technology is often a little more expensive to buy up front, but with the recommendations listed below you will save over the lifetime of the product – often within a year of introducing it.

REPLACE NON-DIMMING INCANDESCENT LIGHT BULBS WITH COMPACT FLUORESCENT LAMPS

Standard incandescent lamps are the oldest variety of lighting technology and also one of the most inefficient types of lighting available. They typically convert only 15% to 20% of the input electricity into visible light. The remaining portion is given off as heat energy, which adds load to the air conditioning system and increases operating costs. The lifespan of an incandescent lamp is only about 1,000 hours, which means that they need regular replacement and are therefore expensive to maintain.

Compact fluorescent lamps (CFL) are a much better option, and fit into the standard bayonet or screw-in light fitting. CFLs consume much less electricity than incandescent lamps while providing the same amount of light – an 11W CFL is equivalent to a 60W incandescent lamp. Because CFLs give off less heat than incandescent lamps, they place less load on the air conditioning system, which results in further electricity savings. CFLs have a lifespan in excess of 6,000 hours, so that while they are more expensive than incandescent lights to buy, they are actually cheaper when you factor in their much longer life, reduced maintenance costs and lower electricity consumption.

For example, one club in the Cool Clubs program could save a significant amount of energy by replacing the incandescent lamps in its lobby area and gain further savings due to the reduced load on the air conditioner. Greenhouse gas savings: 49.4 tonnes a year, plus an additional 1.8 tonnes saved as a result of reduced load on the air conditioner.

REPLACE 50W DOWNLIGHTS WITH 35W INFRARED COATED DOWNLIGHTS

Many people wrongly think that low voltage downlights (sometimes known as dichroic or halogen spotlights) are environmentally friendly. They're not. The light generated by a downlight is quite focused, so a lot of them are required to light up larger rooms.

Low voltage downlights also have comparatively short lifetimes, with the common 50W lamp burning out within 3,000 hours, meaning increased purchase and maintenance costs.
A new, more efficient 35W Infrared coated (IRC) lamp, which provides the same light as a 50W downlight, has a lifespan of around 5,000 hours. Although 35W IRC lamps are 25% more expensive than the regular 50W downlights, they have a 67% longer lifetime, which means replacement costs are actually lower.

Given that downlights are often installed in banks of several dozen, it's best to replace them during a scheduled bulk replacement, so that the initial capital cost is kept to a minimum. Due to reduced heat load from the more efficient lights, there is also a reduction in the air conditioning load, and therefore added energy savings.

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CASE STUDY: EASY DOWNLIGHT REPLACEMENT

Mt Pritchard Community Club replaced 500 conventional downlights with energy-efficient 35w IRC models. The club also installed voltage reduction units. These initiatives are expected to reduce greenhouse gas emissions by 257 tonnes per year.

According to facilities manager Michael Pugsley, the downlights were replaced with a minimum of effort and with no disruption to the club's patrons. 'We waited until the lamps were due to be replaced and managed the changeover in a few days,' said Pugsley. 'We negotiated a good price from our supplier and expect a fair return on our investment.'

Pugsley's advice to other clubs is that the 35w IRC downlights are a straight forward energy efficiency measure. 'Patrons will not notice any change,' he said.

USE CONCENTRATED CLEANING CHEMICALS

The less packaging you use, the less there is to throw away. Concentrated cleaning chemicals use less packaging than bulk, dilute equivalents. This means you can use less of the chemical, and create less waste. Concentrated cleaning chemicals also take up less space in the storeroom. However, staff must be trained to use smaller quantities; otherwise, they may simply consume the same amount.

Remember, chemicals should be stored in a bunded area to prevent spills reaching the stormwater system or soaking into the ground. Outdoor bunded areas must be roofed. Both the bunding and roofing must meet DEC and WorkCover requirements. Penalties apply for failing to meet your responsibilities in this area. Contact DEC or visit their website to obtain the *Bunding and Spill Management Guidelines*.

MAINTAIN, MONITOR AND MANAGE

There's little point in having a plan unless it's maintained, monitored and managed to ensure it is achieving its goals.

UPGRADE YOUR CLUB'S MAINTENANCE SCHEDULE

Maintenance contracts are often not properly specified or supervised, and even though the maintenance might be carried out according to industry standards, there are often significant opportunities to save energy by getting an independent specialist to supervise current practices and rewrite the maintenance schedule manuals to deliver a more energy savings-oriented maintenance program.

A typical club could save about 5% of its annual electricity consumption by implementing an upgraded maintenance program.

INSTALL SUB-METERS AND MONITOR ENERGY AND WATER CONSUMPTION

If you can't measure it, you can't manage it. Building owners around Australia are increasingly installing electricity, gas and water meters connected to a management system - such as their Building Management System within their buildings - so they can tell precisely where energy and water is being used. These 'sub-meters' allow building owners to know when usage by specific systems and areas is greater than historic or predicted performance, and are an essential element of your energy and water reduction strategy.

CONDUCT REGULAR BIN AUDITS TO ENSURE YOUR RECYCLING PLAN IS WORKING

So you have a waste recycling strategy! But is the strategy actually being implemented by your staff? Perform regular bin inspections and find out. Report the status back to staff and reward or reinforce good practice, or retrain them if procedures are not being followed.

MINIMISE WASTE

The general approach to managing waste should be avoid (or reduce), reuse and recycle – in that order. Avoiding or reducing waste in the first place is more effective than dealing with it at the end.

SEPARATE, CAPTURE AND RECYCLE VALUABLE RESOURCES

Some clubs in the Cool Clubs trial recycled only about 10 % of their waste, compared with industry best practice of more than 40%. Many materials in your general waste stream can be recycled. These materials include such items as HDPE milk bottles, aluminium cans, steel oil drums, newspapers, liquid paper board (milk and juice cartons), mixed plastics and, of course, glass and cardboard.

The introduction of recycling systems has the potential to reduce the volume of waste going to landfill. This might work by introducing a separate bin system in key areas such as the bar and kitchen areas. This system could be developed in consultation with a recycling contractor and would capture some or all of the recyclable materials that are currently disposed of through the general waste stream. The bonus is that it can save you money – it is generally cheaper to have recyclables picked up than to dispose of them in the general waste.

Disposal of waste should be a last resort, and will become an increasingly significant cost to your club as waste contractors pass on scheduled rises in landfill disposal fees.

CASE STUDY: LESS LANDFILL THROUGH COMMINGLED RECYCLING

Dooleys Lidcombe Catholic Club is implementing a commingled recycling program, which should reduce the amount of waste sent to landfill by 21 tonnes each year. The initiative will allow the club to increase its current recycling streams to include aluminium, tin cans, liquid paper board (LPB) cups, bingo paper, coasters, PET/HDP bottles, newspaper, cardboard and glass.

'By introducing this recycling system it is estimated that 70% of the Club's total waste will be diverted from landfill,' said building and services manager Colin Eisenhuth. 'The remaining 30% of identified non-recyclable products will be substituted with recyclable options, such as LPB cups.' In addition to introducing a commingled recycling program, Dooleys was able to save $22,000 per year by re-negotiating its waste disposal contracts.

INTRODUCE PAPER RECYCLING

If you don't have one already, you should introduce a paper recycling system, paying particular attention to administrative and operations areas. Paper recycling boxes could be placed at each workstation and next to the printers, shredder and photocopier. Improved waste awareness and the introduction of appropriate signage would increase use of the system.

SEPARATE FOOD WASTE FROM THE GENERAL WASTE STREAM

Food waste in landfills can create odour and is a significant source of greenhouse gases. By separating food waste from the general waste stream in kitchens, bistros and cafes, food waste can be processed onsite to produce compost or fertiliser, or sent offsite to organic waste facilities – some of which can turn waste to electricity (see page 27, 'Update your plant'). This would reduce the amount of waste in the general waste stream, which could also save significant amounts of money if your general waste fee is charged by weight.

DEVELOP AN ENVIRONMENTAL PURCHASING POLICY

Develop an environmental purchasing policy that supports the purchase of recyclable and recycled products, and products with minimal packaging. Investigate purchasing pre-prepared vegetables and salads to reduce pre-consumer waste in kitchens and food preparation areas

NEGOTIATE WITH SUPPLIERS TO TAKE BACK PACKAGING

Negotiate with your suppliers to take back transport containers and packaging materials such as crates and polystyrene boxes. Ingredients are often supplied in bulk containers and, in some cases, the supplier may be able to take these back for reuse.

INTRODUCE A WASTE AWARENESS PROGRAM

Sometimes waste occurs because staff members are not aware that there's a less wasteful alternative. One way of overcoming this problem is to introduce a waste awareness program to encourage participation by staff and management in developing improved waste management systems. You can do this through

staff bulletins and newsletters or, better still, by inviting staff to participate in workshops to explore how to improve the waste management system.

UPGRADE YOUR LIGHTING

Taking a step beyond energy-efficient light bulbs, new technology provides opportunities to improve the energy efficiency of your club's lighting system.

INSTALL OCCUPANCY DETECTORS

There is little benefit in lighting unoccupied areas, and an occupancy detection system allows you to light areas only when there's somebody in them.

Occupancy detection systems require minimal changes to existing wiring and involve the installation of a motion detector in the ceiling which is connected to the lights allocated to its 'zone'. Whenever someone enters the zone, the detector automatically switches on the lights within that zone. When no movement is detected for a set period, say 10 minutes, the detector switches off the lights.

Due to the lower heat load through reducing lamps' operating hours in these areas, there is also less load on the air conditioning system.

INSTALL VOLTAGE REDUCTION UNITS FOR FLUORESCENT LAMPS

Voltage reduction units (VRU) allow the full voltage to develop across a fluorescent lamp for starting, but then gradually reduce the voltage, resulting in up to 25% reduction in power consumption.

There is a minor drop in the light level, but this is not significant, usually ranging from 10% to 15%. In one club reviewed by the Cool Clubs program, fitting a VRU to the kitchen area would have saved significant amounts of electricity. Greenhouse gas savings: 1 tonne a year.

REPLACE NEON STRIP WITH LIGHT EMITTING DIODE STRIP LIGHTING

Many clubs use neon strip lighting to help generate attention. Neon strips typically consume more than 9W/m and have a lifespan of 44,000 hours. By comparison, Light Emitting Diode (LED) lighting strips consume 6W/m and have a lifespan of 60,000 hours.

A club with 100m of strip lighting can save 1,720KWh/year by changing to LED strip lighting. Greenhouse gas savings: 1.8 tonnes a year.

REPLACE DIMMING INCANDESCENT LIGHT BULBS WITH COMPACT FLUORESCENT LAMPS

Replacing non-dimming incandescent light bulbs with compact fluorescent lamps was covered earlier under **3 Buy and install efficient consumables** (see page 15) – it's a very easy initiative to undertake. Dimming incandescent lights can also be replaced with compact fluorescent lamps, although new controls also need to be installed at the same time. This means you need to call in a qualified electrician to upgrade the lighting.

GO WATERLESS!

With water restrictions in place across NSW, it's time to take a good look at where you can reduce or even eliminate water use. Some clubs have reduced water consumption by 80% by introducing a few simple measures.

ADOPT A WATERLESS URINAL SYSTEM

Waterless urinal systems eliminate the need to flush urinals. Before you turn your nose up in disgust, you should know that waterless urinal systems are hygienic and are designed to keep unpleasant smells at bay. Waterless urinal systems are designed to work with your existing urinals, so there are no capital costs, just maintenance costs.

One system, for example, uses cubes that contain naturally occurring microbes which degrade the organic matter that odour-producing bacteria normally grow on, eliminating malodours at the source. The cubes are placed in the trough or bowl urinal. The cubes dissolve over several weeks, releasing the microbes into the system.

A club with 4m of trough-type urinal can save up to 200 kilolitres of water each year by using this system.

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CASE STUDY: NO ODOURS FROM WATERLESS URINALS

Wagga RSL introduced waterless urinals and is now on track to save 4160 kilolitres of water per year.

Before the upgrade some people were concerned about odours and that the toilet areas would become unpleasant. According to business manager Terry Williams, this has not been the case.

'It does work, there are no unpleasant odours and there hasn't been one complaint from our patrons,' he said.'We are saving heaps of water and our plumbing maintenance has been reduced. While it's too early to say just how much money we might save, everyone feels good about doing something positive for the environment.'

INSTALL WATERLESS WOKS

Conventional wok stoves used in most restaurant kitchens use water for two main purposes, cleaning and cooling. Cleaning

can account for 2 to 3 kilolitres of water a day, while cooling typically accounts for 2.5 to 3.4 kilolitres a day. Studies and trials conducted by Sydney Water have shown that as much as 90% of this water use can be eliminated by installing water-efficient woks. With a water-efficient wok, a user can potentially save 5 to 6 kilolitres of water a day per wok, giving a yearly saving of 1,800 kilolitres or about $4,500.

CASE STUDY: CHEFS PREFER WATERLESS WOKS

Mt Pritchard Community Club has installed two waterless woks, and expects to save 2796 kilolitres of water per annum.

'Our chefs prefer the waterless woks as they are a lot easier to operate,' said facilities manager Michael Pugsley.

Sydney Water is monitoring water consumption, and initial findings suggest that the new woks use 93% less water compared to the old-style woks.

'We will be installing more waterless woks in the near future,' said Pugsley. 'Our members have been very impressed and proud of the savings we have achieved.'

INSTALL FLOW RESTRICTORS FOR BASIN TAPS

If fully turned on, an ordinary tap will use up to 20 litres of water a minute. A flow restrictor is designed to regulate water flow, and models are available that will reduce the flow rate by up to 84%. By reducing water consumption, flow restrictors also reduce the energy required for hot water heating.

INSTALL AAA SHOWER HEADS

If you offer shower facilities at your club, you may be surprised to know that an inefficient showerhead can use 20 litres of water every minute, compared to an AAA-rated showerhead that uses just 9 litres of water a minute, yet still provides comfortable showers.

INSTALL DUAL FLUSH SYSTEMS

If your club has older-style single-flush toilets, each flush may be using up to 13 litres of water. By comparison, modern dual flush toilets require just 6 litres for a full flush, and 3 litres for a half flush. A dual flush system can be retrofitted to older-style cisterns, so that while the full flush still uses the same amount of water, the half flush will use only 3 litres. A club with 30 toilets

can save about 382 kilolitres of water a year, which is a saving of about 40% on the water used to flush toilets.

INSTALL OR INCREASE RAINWATER-HARVESTING CAPABILITY

Don't let rainwater go to waste, particularly if your club has a large roof area that can be used to collect water, and space for storage tanks. Capturing rainwater is often simply a case of diverting an existing downpipe to a water tank.

The collected rainwater can be used for irrigating gardens or for washing bins. In some cases, rainwater can also be used to flush toilets and urinals, though this depends on whether the existing pipe work can be separated into potable and non-potable water. At one club in the Cool Clubs trial, the installation of two 24,000 litre above-ground polymer tanks could have replaced nearly 577 kilolitres of potable water each year.

UPDATE YOUR PLANT (OR RETROFIT)

Is your air conditioning or building control system state of the art? By upgrading or retrofitting new technology, you may be able to achieve much more efficient performance, while using the same or less energy.

INSTALL ENERGY-EFFICIENT DRIVES

By installing energy-efficient variable speed drives on air conditioning pumps and fans, you can often better control your air conditioning system. You don't need to run the system flat out all day, but many air conditioning systems are designed with only two speeds: off or 100% on. Variable speed drives save a lot of energy for only a modest capital investment. They usually offer a great return on investment.

Similarly, electronic expansion valves cut energy use in reciprocating chillers during part-load conditions, which is most of the time. They, too, deliver good savings for a modest investment.

ENSURE YOU HAVE APPROPRIATE AIR CONDITIONING DUCT WORK

Leaking duct work means that the air conditioning system has to work extra hard to compensate for the heat loss or gain. Ensure that duct work is not leaking, as this greatly reduces the effectiveness of your air conditioning system.

In many clubs, the ceiling space is used as the return air plenum. This is inefficient, since the return air picks up heat from the roof space, which is often inadequately insulated, and therefore affects the efficiency of the whole air conditioning system.

SCREEN OFF ROOMS NOT REQUIRING AIR CONDITIONING

Most club bistros or restaurants operate only during lunch and dinner times, so there's no need to air condition them for the same duration as other parts of the club that are constantly occupied. For example, at one club reviewed as part of the Cool

Clubs trial, the bistro was open from noon to 2pm and from 6pm to 8pm. Air conditioning operated from 5am to 10pm during Monday to Thursday, and even longer on weekends. By installing fire-retardant curtains that could also be used as room dividers and changing the air conditioning schedules to 11.30am to 2pm and 5.30pm to 8pm, the club could have saved nearly 8,800kWh/year. By also adjusting the lighting schedule to match the air conditioning schedule, the club could save a further 25,760kWh/year. Greenhouse gas savings: 9.2 tonnes a year, plus further savings of 27.2 tonnes due to changes in the lighting schedule.

TAKE ADVANTAGE OF ECONOMY AIR CYCLES

An economy air cycle mode enables an air conditioning system to utilise 'free' cooling from the atmosphere when climate conditions allow. In this mode, the air conditioning system simply pumps fresh air directly into the club, with no cooling.

If your air conditioner doesn't have an economy air cycle, it may make sense to upgrade the existing system so that it does. If your current air conditioner has an economy air cycle, review the settings to ensure it is operating correctly.

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CASE STUDY: POWER USE CUT THROUGH AIR CONDITIONER UPGRADE

By installing economy air-cycles for ten of its packaged air conditioning (PAC) units, and installing two air change units for the PAC units serving the gaming area, Dooleys Lidcombe Catholic Club is on track to reduce its greenhouse gas emissions by 278 tonnes per year.

'The economy mode cycles use cooling from the atmosphere whenever conditions are suitable,' said building and services manager Colin Eisenhuth. 'The two air change units reclaim the energy in conditioned air back through the unit and so use less power'.

UPGRADE BUILDING MANAGEMENT SYSTEM CONTROLS

A club can typically save about 5% of its annual electricity consumption by upgrading its building management system (BMS) and following a number of BMS control strategies designed to ensure high efficiency. For example, some of these strategies include optimised start and stop, optimisation of timing schedules for the lighting and air conditioning systems, setting appropriate setpoints for the air conditioning system, and switching off lights after hours.

INSTALL CARBON MONOXIDE DETECTORS ON CAR PARK EXHAUST AIR FAN

Instead of manually turning on and off your car park exhaust fan, install a carbon monoxide detector to manage its operation. The carbon monoxide detector starts the fan when a certain level of carbon monoxide is reached. One club in the Cool Clubs program, which had been running its car park exhaust fan for 13.5 hours per day, was able to save 91,900kWh/year by installing a carbon monoxide detector. Greenhouse gas savings: 96 tonnes a year.

INSTALL POWER FACTOR CORRECTION EQUIPMENT

Electricity consumed by a commercial user has two main billing components: consumption measured on an hourly basis in kilowatt hours (kWh), and consumption measured at any given instant over the billing period, in kilovolt amps (kVA) – normally referred to as the demand. The ratio of these two components is called power factor (PF).

A low power factor reduces the transmission and distribution capacity of the network, and electricity companies levy a hefty charge on the peak demand of a user to encourage them to improve their power factor. Typically, the peak load charges on any energy bill may equate to half of the value of the total charge. In this way, a 10% reduction of this charge would equate to a 5% reduction of overall energy bill costs. Power factor correction (PFC) equipment, consisting primarily of capacitor banks, is usually the most cost-effective way of improving a facility's power factor.

INSTALL AN ORGANIC WASTE RECOVERY SYSTEM

Organic waste in landfills can create odour and is a significant source of greenhouse gases. Be it food waste from the club's kitchen or garden clippings from the grounds, disposal of organic waste can also be expensive. Why not turn that around and get something useful out of it instead?

You have several options for an 'organic waste recycler'. Some clubs have a compost heap for their green waste; others use a worm farm to dispose of kitchen waste. Both systems produce something you can re-use to fertilise or maintain your gardens. Two Sydney clubs are even evaluating technology that converts kitchen food waste into a pulp that can then be harnessed to produce electricity at a green power plant.

UPGRADE YOUR PLANT

Next time you're replacing or refurbishing your club's plant, you may want to consider some energy-efficient options.

REPLACE PACKAGED AIR CONDITIONING UNITS WITH CENTRAL PLANT SYSTEMS

When it comes time to replace some or all of your club's air conditioning system, consider upgrading from conventional packaged air conditioning units to a high-efficiency central plant air conditioning system. Central plant systems might cost a little more, but the additional cost is easily recouped over the life of the plant. Maintenance costs may well be lower, too, and indoor air quality will be superior.

RETROFIT AIR-TO-AIR HEAT EXCHANGERS ON AIR CONDITIONING UNITS

Heat exchangers save the energy consumed by air conditioning units. This well-proven technology works by reclaiming energy from the air being exhausted from the conditioned space. A number of Australian-made products are available for such use.

INSTALL A SMALLER HOT WATER BOILER FOR SUMMER

The demand for hot water varies greatly between summer and winter, so what's needed for winter may well be too much for summer, leading to wasted energy. Consider installing a smaller boiler for warmer months.

INSTALL A DESUPERHEATER TO SUPPLY HOT WATER

Your club's air conditioning and refrigeration systems extract heat from the club and dump it outside the building. How much smarter would it be if you captured that waste heat? A desuperheater does just that. It takes waste heat and preheats water for your hot water system. These systems are often highly cost-effective.

TELL EVERYONE!

If you want to energise your environmental management program, you'll need the support of all the key stakeholders – staff, management, members and the wider community. A good communications strategy can help you generate and keep this support.

TELL YOUR STAFF

To ensure your program's success, you'll need to train your staff in water and energy conservation, and waste reduction and recycling. Report the progress and successes back to them, and reward them if appropriate.

A waste education program should also be accompanied by the introduction of standard signage for each of the waste streams generated by the club and, where appropriate, colour coding of waste and recycling bins.

Your club's waste and recycling contractors should also be invited to participate in the development of appropriate education, signage and waste and recycling systems.

TELL YOUR MEMBERS

You'll need to tell your members so that they know how they can participate in the environmental management program.

TELL OTHER STAKEHOLDERS

Through its environmental management program, your club can build a green image in the community, which can have a real value for your club's brand. Make sure you highlight your club's key achievements in the local media and in your advertising.

> > > > > > > > CHECKLIST >

1 FIX YOUR LEAKS

Review and update air conditioner settings	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Replace cool room and refrigerator door gaskets	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Fix water tower leaks	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Adjust timing of the hot water systems	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Keep lids on containers	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Adjust portion sizing	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

2 SWITCH OFF!

Install time switches on bain-maries	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Switch off poker machines after hours	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Don't leave taps running unnecessarily	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

3 BUY AND INSTALL EFFICIENT CONSUMABLES

Replace non-dimming incandescent light bulbs with compact fluorescent lamps	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Replace 50W down lights with 35W Infrared coated (IRC) down lights	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Use concentrated cleaning chemicals	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

4 MAINTAIN, MONITOR AND MANAGE

Upgrade your club's maintenance schedule

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install sub-meters and monitor energy and water consumption

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Conduct regular bin audits to ensure your recycling plan is working

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

5 MINIMISE WASTE

Separate, capture and recycle valuable resources

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Introduce paper recycling

☐ Yes
☐ No
☐ NA

Assigned to

Completion date

Action taken

Separate food waste from the general waste stream

☐ Yes
☐ No
☐ NA

Assigned to

Completion date

Action taken

Develop an environmental purchasing policy

☐ Yes
☐ No
☐ NA

Assigned to

Completion date

Action taken

Negotiate with suppliers to take back packaging

☐ Yes
☐ No
☐ NA

Assigned to

Completion date

Action taken

Introduce a waste awareness program	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

6 UPGRADE YOUR LIGHTING

Install occupancy detectors	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Install voltage reduction units for fluorescent lamps	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Replace neon strip with Light Emitting Diode (LED) strip lighting	☐ Yes ☐ No ☐ NA	Assigned to Completion date

Action taken

Replace dimming incandescent light bulbs with compact fluorescent lamps	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

7 GO WATERLESS!

Adopt a waterless urinal system	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Install waterless woks	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Install flow restrictors for basin taps	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Install AAA shower heads

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install dual flush systems

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install or increase rainwater-harvesting capability

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

8 UPDATE YOUR PLANT (OR RETROFIT)

Install energy-efficient drives

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Ensure you have appropriate air conditioning duct work

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Screen off rooms not requiring air conditioning

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Take advantage of economy air cycles

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Upgrade building management system controls

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install CO detectors on car park exhaust air fan

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install power factor correction equipment

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

9 UPDATE YOUR PLANT

Replace packaged air conditioning units with central plant systems

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Retrofit air-to-air heat exchangers on air conditioning units

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install a smaller hot water boiler for summer

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

Install a desuperheater to supply hot water

- ☐ Yes
- ☐ No
- ☐ NA

Assigned to

Completion date

Action taken

10 TELL EVERYONE!

Tell your staff	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Tell your members	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		

Tell other stakeholders	☐ Yes ☐ No ☐ NA	Assigned to Completion date
Action taken		