Sustainability Toolkit – Hospitality

Invigorating Business Results

Australian Government

Department of the Environment, Water, Heritage and the Arts

Opening

Climate change will affect every Australian business and is one of the most critical risk factors that will impact the future viability of businesses. As a result, climate change and sustainability have moved beyond buzz words to being significant factors in business planning and operations. Business sustainability preparation is more than environmental preservation, it recognises the impact of businesses on society, employees and the collective wealth of a nation. It also helps businesses improve efficiency and productivity, which makes good business sense – economically, environmentally and socially.

Although larger businesses have generally been the first movers in addressing climate change within their organisations, all businesses will be impacted, regardless of size. The effects of climate change regulation on large businesses and industries will be passed on throughout the supply chain and will be felt by everyone, even though direct compliance will not impact most businesses. Early preparation for climate change and energy regulation is the most efficient and cost effective way to ensure the long-term survival of your business.

NSW Business Chamber recognises that business owners and operators are essential to the livelihood of the Australian economy, but are often neglected in sustainability information sources. To address this issue, we have developed a practical and tailored toolkit to assist and advise micro, small, medium and large businesses that seek to understand and implement their own sustainability programs. The sustainability toolkit is one component of a multitude of business resources to assist in the transition to a carbon-constrained economy.

We are also taking on the challenge to become more sustainable ourselves. The NSW Business Chamber has joined the Sustainability Advantage Program, administered by the NSW Department of Environment and Climate Change, and we have made significant progress in achieving sustainability best practices.

I congratulate businesses that have taken on the challenge of becoming a more sustainable organisation and in doing so, support their community and the environment. We encourage members to document their successes and let their clients, industry and stakeholders know and engage in the process.

It makes good business sense to be sustainable.

Kind regards,

Kevin MacDonald
CEO, NSW Business Chamber

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Sustainability: Making sense into cents...

Reducing energy, water and waste consumption in your organisation makes great business sense. It can:

> Save money
> Minimise climate change risk
> Enhance business image
> Improve customer and staff satisfaction

This toolkit serves as an introductory guide to basic sustainability principles, practices and actions that any business can employ to help manage their costs and climate change impacts.

Hospitality Introduction

The hospitality sector is a diverse industry ranging from hotels, motels, guest houses, restaurants, pubs, clubs and caterers. Although there is diversity within the hospitality fields, there are common efficiency measures that can be utilised to improve the profitability, reputation and environmental performance across all sectors. Key cost savings can be found in relatively simple changes in the management of energy, water, waste and resource use. Properly managing resources can ensure customer comfort and service while providing businesses with the added benefit of cost savings and recognition as a sustainable organisation.

Section I: Understanding Sustainability

What is sustainability?

Sustainability is a form of progress or development that meets current needs without compromising the ability of future generations to meet their needs. It is a term used to describe process impacts on climate change, water, energy, natural resources and waste.

Sustainability involves accounting for three main factors: environmental, economic and social considerations. These three principles are often referred to as the **triple bottom line** (TBL). In practical terms, the TBL goes beyond traditional financial accounting and estimates the impact of a process, such as a specific business operation, on social and environmental performance.

Figure 1.
Sustainability and TBL Diagram
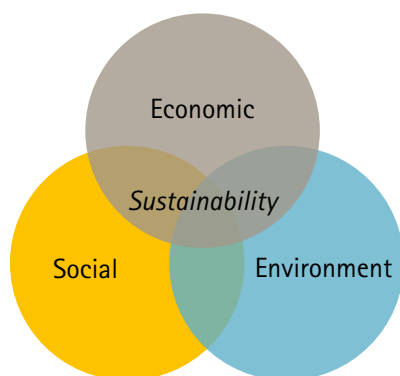
Sustainability in the workplace

Sustainability is not a passing fad or one-off project, it is a critical decision making process that will aid your business in managing its costs and environmental outcomes, as well as provide benefits to customers and employees. The principles of sustainability, outlined in this toolkit, should be factored into core business decisions the same way cost, service and risk are addressed in traditional organisational planning. There are many benefits to accounting for sustainability in your business decisions, including cost reduction, improved process efficiency, reduced environmental impacts and enhanced company image. Thus, integrating sustainability into business planning, policies, practices and training should be considered standard practice, not an optional add-on.

What is climate change?

Climate change, often used interchangeably with global warming, refers to any significant change in climate such as temperature, precipitation, or wind, lasting for an extended period such as decades or longer. Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns[1]. Whether manmade or naturally occurring, climate change is having a noticeable impact on the environment. Within a lifetime, serious environmental changes are being observed which will diminish the capacity we have to maintain our quality of life and provide for future generations.

Climate change and global warming are caused by **greenhouse gases** (GHG) which create a 'greenhouse effect' of warming the earth. Greenhouse gases are a natural part of the atmosphere. They absorb and re-radiate the Sun's warmth and maintain the Earth's surface temperature at a level necessary to support life. The problem we now face is that human actions, particularly burning fossil fuels such as coal, oil and natural gas, and agriculture and land clearing, increase the concentrations of the gases that trap heat. This is the enhanced greenhouse effect, which is contributing to a warming of the Earth's surface and creating dangerous side effects such as increased frequency and intensity of storms, droughts, flooding and raising sea levels[2].

The Greenhouse Effect

The earth is covered by a blanket of gases which allows energy from the sun to reach the Earth's surface, where some of it is converted to heat energy. Most of the heat is re-radiated towards space, but some is re-radiated towards the ground by greeenhouse gases in the atmosphere. This is a natural effect which keeps the Earth's temperature at a level necessary to support life.

Enhanced Greenhouse Effect

Human activities – particularly burning fossil fuels (coal, oil and natural gas), agriculture and land clearing – are generating more greenhouse gases. Greater concerntrations of greenhouse gases will trap more heat and raise the Earth's surface temperature.
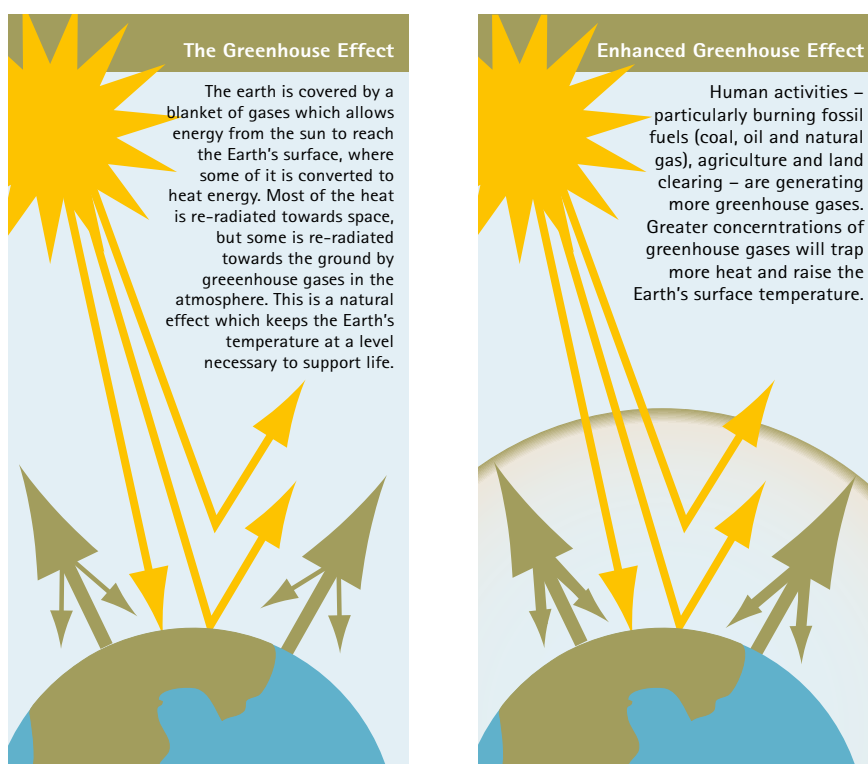
Figure 2. Greenhouse effect[2]

Under the Kyoto Protocol Agreement that Australia ratified in 2007, a mixture of six types of greenhouse gases are monitored and targeted for reduction to address climate change. For ease of understanding, these six gases are then changed and reported in the equivalents of carbon. So climate change is not just carbon emissions, it is a combination of six main greenhouse gases. Each of these gases has a different potential for trapping heat, which is know as the global warming potential (GWP). For example, carbon dioxide (CO_2) has a GWP of 1, while methane (CH_4) has a GWP of 23, meaning CH_4 has more potential to trap heat than CO_2, even though it exists in smaller relative quantities then CO_2.

Note: The terms carbon emissions, emissions and greenhouse gas emissions are used interchangeably in this toolkit.
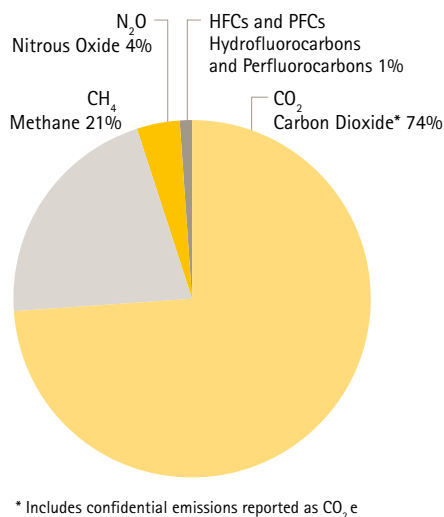
Climate change in Australia

Research by Australian and international scientists shows that although Australia's contribution to climate change is minimal on global levels, its environment and economy will likely be one of the fastest and hardest hit by climate change due to the extreme heat and dryness of the continent. Rising global temperatures are projected to increase the risk of rising sea levels, bushfires, flooding, drought, changes in biodiversity and ecosystems, evaporation rates, water quality and availability and extreme weather/storms. These risks could dangerously impact Australians' personal lifestyles, businesses and Government. Consequently, Australia is being proactive in addressing and understanding climate change mitigation and adaptation.

How Australian businesses and economic systems cope with these impacts depends on the extent and rate of climate change, and on their capacity for adaptation. Australia's CSIRO concluded that reducing

carbon emissions would reduce the rate and magnitude of climate change, thereby allowing businesses more time to adapt. Acting early to cut emissions reduces damage and buys much-needed time[4].

To address climate change issues and meet its commitments under the Kyoto Protocol, the Australian Government plans to implement a carbon trading scheme called the Carbon Pollution Reduction Scheme (CPRS). CPRS is a cap and trade scheme that is targeted to reduce Australia's carbon emissions between 5 per cent and 15 per cent below 2000 levels by the end 2020. The cap achieves the environmental outcome of reducing carbon pollution. The ability to trade ensures carbon pollution is reduced at the lowest possible cost.

Figure 3.
Contribution to total net CO_2–equivalent emissions by gas 2006 in Australia[3]

N_2O
Nitrous Oxide 4%

HFCs and PFCs
Hydrofluorocarbons and Perfluorocarbons 1%

CH_4
Methane 21%

CO_2
Carbon Dioxide* 74%

* Includes confidential emissions reported as CO_2 e

Rainfall changes

Temperature changes

Drier   2030   Wetter

Drier   2070   Wetter

-80 -60 -40 -20 0 20 40 60 80
Rainfall change (%)

-80 -60 -40 -20 0 20 40 60 80
Rainfall change (%)

2030

2070

0 1 2 3 4 5 6 7 8
Temperature change (%)

0 1 2 3 4 5 6 7 8
Temperature change (%)

Figure 4. Projected changes in Australian precipitation (left) and temperature (right) in 2030 and 2070[5]

Risk Management

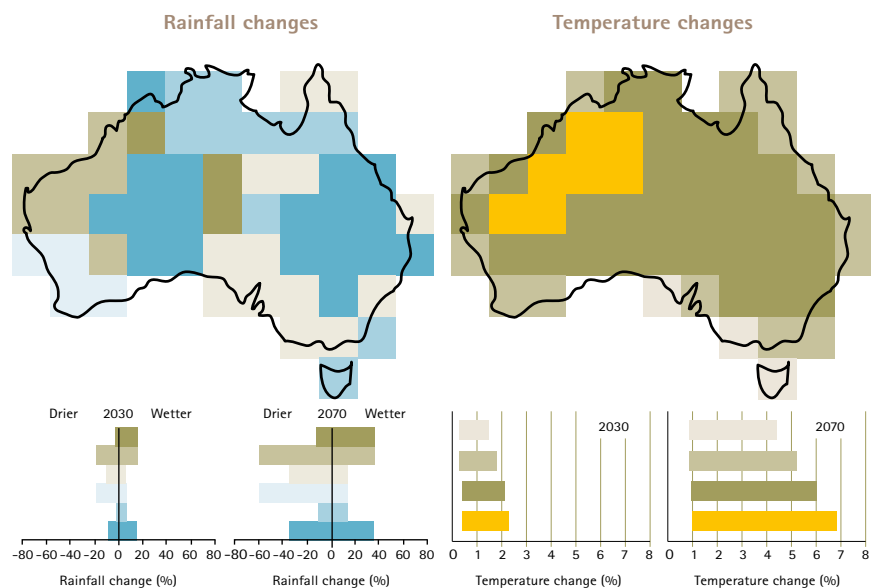Climate change and sustainability can be considered in terms of business risk management. Every business needs to understand the major risks to its operations and profitability, this is no different in the context of sustainability. Aspects of sustainability such as energy and water are critical to every business, especially within the hospitality industry, where a lack of availability or large increases in costs could have significant negative impacts on the business bottom line.

The core climate change risks to hospitality businesses are:

> Higher energy costs
> Increased general business costs including food, supplies, insurance premiums, raw materials, transportation, etc.
> Loss of revenue
> Increased legislative requirements
> Consumer expectations for 'greener' businesses and products

The best management of climate change risks and sustainability is to act early and prepare for doing business in a carbon-constrained economy. This will identify and allow for changes where necessary, as well as position a business ahead of its competitors.

Identifying the areas of your business that are at risk to climate change will help identify and prioritise immediate and longer term actions to address these risks. Each business will need to evaluate climate change risks based on its individual operating requirements and procedures. However, the key areas to consider include:

Supply cost risks

> Increased raw material costs
> Increased food costs
> Increased supply costs
> Increased transportation costs
> Decreased water availability
> Increased water costs
> Increased energy costs
> Interruption or cessation of supply flows

Physical structure risks

> Increased insurance premiums due to climate change issues
> Structural damage from storms and floods
> Transportation delays or interruptions due to storm, heat and/or water damage

Regulatory and litigation risks

> Carbon emission liabilities
> Loss of tenders due to lack of sustainability or environmental policy
> Non-compliance fines
> Business delays from lack of preparedness for regulations
> Liability for non-compliance with regulations or non-disclosure
> Liability for non-compliance with client sustainability requirements

Market and competitive risks

> Loss of new and existing consumer base by not offering green products and operating procedures
> Loss of market share to competitors offering of greener products and services

Reputation risks

> Lack of consumer/client confidence in organisation
> Appearance of being less innovative and not proactive compared to competitors
> Loss of revenue resulting from decreased patronage

After the key climate change risks have been identified, it is helpful to prioritise these risks and form an action plan. One way to organise operating risks around climate change is to create a risk analysis matrix. The following risk analysis matrix demonstrates how to evaluate the urgency of addressing your organisation's risks. By organising the risks based on likelihood and impact, you can assess which areas are the highest and lowest risks to your organisation and plan accordingly.

Additional assistance in risk assessment is available to businesses through programs such as Sustainability Advantage (NSW Department of Environment and Climate Change) as well as through professional consultants for a fee.

Table 1. Sample Risk Matrix

What is the chance it will happen? — Likelihood				
	Very Likely	Acceptable Risk (Medium)	Unacceptable Risk (High)	Unacceptable Risk (Extreme)
	Likely	Acceptable Risk (Low)	Unacceptable Risk (Medium)	Unacceptable Risk (High)
	Unlikely	Acceptable Risk (Low)	Unacceptable Risk (Low)	Unacceptable Risk (Medium)
		Minor	Moderate	Major

Impact ⟶
How Serious Is The Risk?

Table 2. Sample Risk Analysis

Risk	Likelihood	Impact	Risk Score	Sample Actions
Supply risks				
Increased food and supply costs	Very likely	Major	Unacceptable risk	> Source local ingredients > Investigate material reduction and reuse options > Minimise food and supply waste
Increased energy costs	Very likely	Major	Unacceptable risk	> Implement 'low hanging fruit' energy reduction options (use energy efficient light bulbs, adjust thermostat) immediately > Use more efficient cooking practices > Develop plan for future energy consumption reduction options
Increased water costs and restrictions	Very likely	Moderate	Unacceptable risk	> Implement 'low hanging fruit' water saving measures (install water saving taps and sprayers, fix leaks) > Investigate longer term water savings investments (rainwater tanks, grey water recycling, dual-flush toilets) > Reduce laundry through guest education signage
Market and competitive risks				
Customer demand for 'greener' products and facilities	Likely	Moderate	Unacceptable risk	> Review operations, supplies and products for 'greening' opportunities, such as environmentally friendly soaps in guest rooms > Join government sustainability assistance program such as Sustainability Advantage, which provide a sustainability rating that can be advertised

Benefits of Early Response

Businesses that take early steps to mitigate and adapt to climate change will be better prepared for any changes in regulations, save money through efficiency and be ahead of competitors that are slow to address climate change issues. Business owners and operators in hospitality may also find they are able to capitalise on climate change as a revenue-generating opportunity by developing and marketing services and products that help customers reduce their emissions, improve their resilience to the effects of climate change and become greener consumers. Government and large industry initiatives aimed at reducing emissions will create new markets for such products and services, as will customer preferences for more environmentally friendly options.

Benefits of early action include:

> Cost savings
> Increased efficiency
> Competitive advantage
> New customers
> Increased customer loyalty
> Preparedness for new legislation

On the contrary, inaction could ultimately mean reduced revenue and possibly business failure due to increased operating costs and loss of competitive advantage. Savvy businesses recognise the threats and pursue the opportunities instead.

Section II: Getting Started

Making the decision to pursue or at least become aware of sustainability in business is commendable. When the decision has been made the following are important steps to take.

Step 1: Obtain management commitment

Step 2: Understand historical and current resource usage

Step 3: Establish baselines, benchmarks and targets

Step 4: Audit

Step 5: Prioritise an action plan

Step 6: Monitor and measure

Step 7: Staff engagement

Step 1: Obtain management commitment

The most important step in taking an active approach to sustainability is to obtain senior management commitment. It is not sufficient to just have CEO/General Manager initiation; it is necessary to get the senior managers engaged in the project as well.

Management's support is necessary as they tend to have an overall view and active participation in daily business operations and strategy development. Management is likely to be responsible for implementing change. In smaller businesses, it is the business operator or owner who will need to demonstrate this commitment.

It is important to publicly record commitment to sustainable practices for annual recognition and measurement as well as for stakeholders to be aware of your actions. For example, NSW Business Chamber has displayed their 'Commitment' online as a way of demonstrating that actions are being taken to become more sustainable.

As sustainability becomes part of the organisation's culture, it will be important to continually review and update the sustainability commitments. Furthermore, measurable goals will need to be included in the commitment to ensure that performance can be measured.

As a business operator, it is important that you lead by example. So if change is necessary to a process, it is incumbent on you to demonstrate that being sustainable works.

Step 2: Understand historical and current resource usage

In order for a business to progress and realise savings, it is necessary to know the resource usage history and analyse the findings.

> Obtain the following historical information:

> Energy usage (gas and electrical)

> Water usage

> Waste / garbage services

> Transportation (only if easy to obtain)

Many general suppliers will have your business on record, it might require an administration fee, but they should be able to provide you a summary of your usage.

Organise this information into a meaningful format, such as Figure 5 below.

As seen in Figure 5, water usage at this business goes through troughs and peaks throughout the year. In this case, after investigation it was found that the air-conditioning systems utilised more water during summer than winter. It was also found that water usage on average declined each year. Through investigation, the most probable cause was that leaks and maintenance had been more pronounced, resulting in lower consistent water usage.

When you receive a bill relating to sustainability (energy, water and waste), it is necessary to record the financial and consumption usage. Too often the bills are paid without checking for errors or major changes. After all, you can only manage what you can measure. An example of how to record usage is provided below in Table 3. Alternatively, there are software programs available that assist in tracking resource consumption, including carbon emissions. Track all major resource inputs and outputs, such as energy, water, waste/recycling and materials.
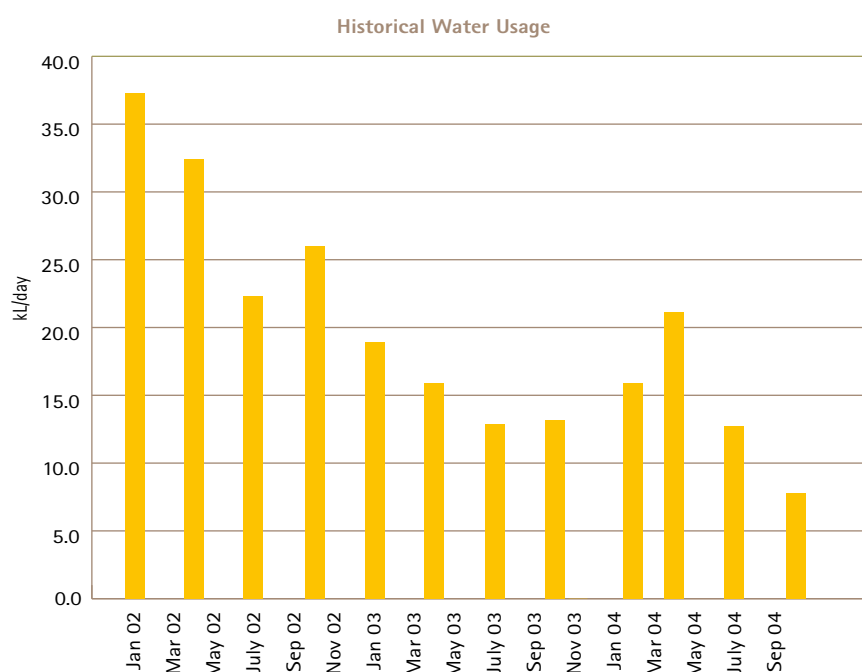
Historical Water Usage

Figure 5. Historical water usage for a business

Table 3.
Site water consumption record

Date Reading Taken	Usage (kL/day)	Costs ($)
22/01/02	37.3	2349.90
12/04/02	32.4	2041.20
07/07/02	22.3	1404.90
09/10/02	26.0	1638.00
20/01/03	18.9	1190.70
24/04/03	15.9	1001.70
23/07/03	12.5	787.50
24/10/03	13.2	831.60
02/02/04	15.9	1001.70
27/04/04	21.1	1329.30
21/07/04	12.7	800.10
26/10/04	7.6	478.80
Average	19.7	1237.95
2004 Average	14.3	902.48
2003 Average	15.1	952.88
2002 Average	29.5	1858.50

Since Figure 5 and Table 3 are linked to the same business, it can be seen that usage has gradually decreased, resulting in financial savings of 50%.

Step 3: Establish baselines, benchmarks and targets

Baseline

Once historical and current usage data have been obtained, it is important to establish a baseline. A baseline is the amount of a resource (water, energy, supplies and waste) that your business typically uses. The baseline is used as the comparison rate for monitoring future progress and benchmarking against industry best practice standards. Using the average consumption rate from a recent year (12-24 months) is an appropriate baseline. For example, if the business in Table 3 used 2002 as their water baseline, they would use $1,858.50 and 29.5 kL/day to evaluate their progress in terms of usage and cost savings.

Regular monitoring of usage and cost against the baseline will identify the efficacy of your sustainability efforts and also alert you to any discrepancies that need to be resolved, such as leaks or equipment that needs to be repaired.

See Appendix A for more information on calculating a baseline.

Benchmarks

Benchmarking your resource consumption against industry average guidelines will help determine potential savings opportunities. Use the benchmarks below as a guide to indicate the possible savings in your building. If your baseline resource consumption is higher than industry standard benchmarks, there is a good chance there are leaks or inefficiencies in your building's systems. Note, you may need to convert your baseline to the same units noted in the benchmarks, see key performance indicators below.

Key Performance Indicators (KPIs) and targets

It is important to identify resource key performance indicators (KPIs) for your facilities and set reduction targets. KPI's are quantifiable measurements that reflect your progress towards meeting your sustainability goals. You can determine resource KPI units by using the benchmarks on the Tables below and Table 12. For example, the most common water related KPI for a hotel is L/guest/night, which is the average number of litres of water used in the hotel per guest per night[6].

Resource reduction targets can also be determined by the industry standard benchmarks. For example, the target best practice water benchmark (Table 5) for hotels without cooling towers or laundry is 333 L/guest/night, this will be the water usage target you aim to achieve. Therefore, the actual amount of water you are targeting to conserve per guest per night is determined by subtracting 333 L/guest/night from your baseline score. Note: You may need to convert your baseline into KPI units.

See Appendix A for additional baseline and benchmarking information.

Whether your business receives a low or high rating, remember there are always improvements and efficiencies that can be made to become more sustainable.

NABERS

Ratings for hotels

NABERS Energy and Water ratings allow you to accurately compare the performance of your hotel to other similar facilities, and can assist you to manage the impact of your hotel on the environment.

NABERS is the industry standard for measuring and benchmarking the environmental performance of existing Australian buildings, incorporating the trusted Australian Building Greenhouse Rating for offices. NABERS is a national initiative of federal, state and territory governments, and is managed by the NSW Department of Environment and Climate Change.

NABERS ratings are based on actual data related to the performance of your premises over the last 12 months. For a certified rating that you can promote, you will need to engage a NABERS Accredited Assessor to calculate your rating. This will enable you to use the NABERS trademark. You can self-assess the environmental performance of your office premises at no cost using the NABERS Rating calculator – www.nabers.com.au/office.aspx - but cannot promote this rating.

To accommodate the wide range of potential layouts and amenities of individual hotels, NABERS takes into account the size, facilities, AAA rating and climate zone to calculate a custom benchmark for each hotel.

Figures 6 and 7 provide typical energy and water use per room for a 2.5 star NABERS rated hotel based on a 500 bed hotel with (optionally) 500 fully-laundry serviced rooms, 500 conference seats and a 100m² heated pool. These numbers can be used for any hotel size, as long as the ratio of laundry serviced rooms and conference seats to rooms remains the same.

Sydney

Figure 6. Average emissions for example hotels in Sydney.
These figures correspond to the mid-point of the 2.5 star band.

Source: NABERS Hotels Validation Protocol 2008[7]

Sydney

Figure 7. Average water use for example hotels in Sydney.
These figures correspond to the mid-point of the 2.5 star band.

Source: NABERS Hotels Validation Protocol 2008[7]

Water benchmarks

Table 4. Club water benchmarks[8]

Type of club	Average L/ patron/day	Target L/ patron/day
No pool, no cooling tower	27	20
Cooling tower, but no swimming pool	35	22
Cooling tower and swimming pool	39	28

Table 5. Hotel water benchmarks[8]

Type of hotel	Target L/guest/ night
No cooling tower, no laundry	333
Cooling tower, but no laundry	384
Cooling tower and laundry	444

Table 6. Restaurant water benchmarks[8]

The benchmarks developed for water use for non-Asian style kitchens are below.

(litres of water per food cover)*	
Good	< 35
Fair	35 – 45
Poor	> 45

*Use based on total kitchen use divided by the number of covers or restaurant customers

Step 4: Audit

It is essential to know the types and amounts of energy, water, waste and materials that are being consumed and generated in your business. An audit of key resources should be conducted to determine the overall resource efficiency of your business and opportunities for savings. The audit type that will be most useful and cost effective to your business depends on the size and complexity of your business and the level of detail you require. Two common audit types are walkthrough audits and engineering audits.

The majority of businesses will only require a simple walk-through audit. If the site/s is complex, then it may be necessary to obtain the help of a professional auditor.

There are Government programs that will help cover the costs of professional audits. These include the Sustainability Advantage Program and Energy Efficiency for Small Businesses Program operated by the NSW Department of Environment and Climate Change. See Additional Auditing Assistance below for more details or alternatively, contact your energy provider and request a technician do a simple audit of your facilities and equipment.

Before conducting any audit, consider and take any necessary actions to ensure the following are addressed:

> Privacy/confidentiality
> Security
> Occupational Health & Safety
> Resources/volunteers
> Approval from building and contractors

Walk-through audit

A walk-through audit analyses the utility bills and briefly surveys the building. This type of audit will identify potential savings and aid in implementing low cost and no cost improvements as well as planning for longer term capital improvements which merit further investigation (see Step 5).

Goals of walk-through audit:

> Gather basic data on building structure, systems and resource use
> Identify operational or maintenance areas that are wasting resources
> Identify capital projects that can improve efficiency and minimise waste

To conduct a walk-through audit and get a better understanding of your business consumption patterns and opportunities for improvements, follow the basic steps and checklists located in Appendix B.

Detailed technical audit

If you prefer not to administer a self walk-through audit or found significant discrepancies between your utility bills and audit estimates that require advanced assessment, you can hire a professional to conduct a detailed technical audit. This type of audit requires an engineer or auditing professional who will provide a detailed assessment of your business resource use and advise on:

> Opportunities to improve operating and maintenance procedures
> Opportunities to utilise alternative sources, resource re-use options within the site and recycling where practical

Additional auditing assistance

Sustainability Advantage

Additional efficiency assistance is available through the NSW Department of Environment and Climate Change's (DECC) Sustainability Advantage Program, including audit guidance. This program helps businesses manage their resource use as well as plan and implement sustainability planning in the workplace. Visit the DECC website for additional information on this program: http://www.environment.nsw.gov.au/sustainbus/sustainabilityadvantage.htm

Energy Sustainability Advantage Energy Saver

The NSW DECC's Sustainability Advantage program also includes an Energy Saver option, which is designed to help mitigate risks relating to the potential increase in energy costs under a national emissions trading scheme, CPRS. Visit the DECC website for more information: http://www.environment.nsw.gov.au/sustainbus/energysaver.htm

Energy Efficiency for Small Business Program

The Energy Efficiency for Small Business Program provides assistance to businesses in reducing their energy consumption and costs. The program offers and energy audit and efficiency advice, as well as rebates to businesses wanting to minimise their energy consumption. http://www.environment.nsw.gov.au/sustainbus/smallbusenergy.htm

Greenhouse Challenge Plus: Energy Audit Tools

The Department of Environment, Water, Heritage and Arts (DEWHA) has developed a series of energy auditing tools for small to medium sized businesses as part of their Greenhouse Challenge Plus Program. Visit their website to download auditing forms.

http://www.environment.gov.au/settlements/challenge/members/energyaudittools.html

Water
Every Drop Counts

Sydney Water's Every Drop Counts Business Program provides additional water assessment, auditing and efficiency assistance to Sydney Water customers to aid businesses in managing and reducing their water consumption. Visit the following website for additional information on this program:

http://www.sydneywater.com.au/savingwater/InYourBusiness/EDCBusinessProgram.cfm

ECOCLUBS

The NSW DECC has a sustainability program specifically for clubs, called ECOCLUBS. This program provides assistance to clubs in key sustainability areas such as risk management, eco-efficient, staff and community engagement, sportsground management, planning and benchmarking, climate change response, grants and funding, sustainable procurement and supply chain, awards and recognition. For additional information email cleanind@environment.nsw.gov.au or call the clubs NSW Member Enquiries centre on 1300 730 001.

Step 5: Prioritise an action plan

Resource Efficiency and Savings Plan

Once an audit has been undertaken, it is important to outline the savings and efficiency potential or goals. This outline will be the practical guide to achieving your resource conservation targets. Whilst not all options are financially viable, outlining them provides an opportunity for assessment over several years.

When planning and documenting resource improvement opportunities identified in the auditing phase, it is important to assign responsibility and a timeframe. Use the following as a guide. The saving action plan is also a good place to record your resource baselines, KPIs and targets – this will help organise and track your current progress and develop future initiatives within one document.

Step 6: Monitor and measure

You can only manage what you can measure. Scheduling regular monitoring and measuring of progress against the designated targets will help assess the effectiveness of your sustainability programs and identify areas that need improvement. It will also highlight any unusual activity or discrepancies in resource use that may require maintenance.

Table 7. Sample Efficiency Savings Action Plan*

Current water usage					
Baseline	KPI	Benchmark/Goal	Target reduction	Actual (kL/day)	Timeframe
30 (2007)	kL/day	22.5 kL/day	25%	28.0 (Jan 09)	12–18 mo
				27.5 (Feb 09)	
				25 (March 2009)	
Water Efficiency Savings Action Plan					
Description		Cost	Savings	Responsibility	Timeframe
Install flow restrictors on taps		$1,500	2kL/day	John Smith	March 2009
Educational signage		$200	N/A	Senior Manager	Feb 2009
Total		**$1,700**	**2kL/day**		
Current energy use					
Baseline	KPI	Benchmark/Goal	Target reduction	Actual (kWh/m^2)	Timeframe
185 (2007)	kWh/m^2	129.5 kWh/m^2	30%	180 (Jan 09)	12–18 mo
				175 (Feb 09)	
				125 (Mar 09)	
Energy Efficiency Savings Action Plan					
Description		Cost	Savings	Responsibility	Timeframe
Efficient lighting in common area		$3,000	50 kWh/m^2	Julia Smith	March 2009
Educational signage		$200	N/A	Senior Manager	Feb 2009
Total		**$3,200**	**50 kWh/m^2**		

*Note: Sample table, not based on actual benchmarks or savings

Step 7: Staff engagement

Staff engagement is critical to the success of any sustainability program and will be a powerful driver to change within the organisation. Implementing the necessary process changes required for sustainability and efficiency improvements in the workplace is dependant on the cooperation and involvement of everyone in the organisation. People are generally willing to contribute to being more sustainable and efficient when they are given the appropriate information on how their actions can make a difference in improving the environment and help the business run more effectively. High commitment levels by senior management help employee commitment and participation in sustainability and efficiency measures.

Suggestions to engage staff and enhance the outcomes of your sustainability efforts:

> Use common areas as forums to inform employees about energy, waste and water savings techniques and company commitment to efficiency
> Look for 'sustainability advocates' in different areas of the organisation to help monitor and implement efficiency measures
> Reward employees for new resource saving ideas
> Inform staff of sustainability 'wins'
> Let your staff and customers know what steps the organisation is making to become more sustainable
> Join Government efficiency programs such as NSW Government Sustainability Advantage Program
> Participate and celebrate national/ international environmental events such as Earth Hour and National Ride to Work Day

Education

Staff education initiatives and easy access to the Where, When and How of your organisation's sustainability program goals will improve the success rate and retention of process changes. A few simple ways to increase education and awareness around the office include:

Signage and communication

> Post best practice signage in key areas such as toilets, kitchens, near copy machines and printers
> Post signs noting the building or sustainability contact that should be notified of leaks or equipment failures
> Create a designated area for sustainability updates and information, such as on the company's internal website or information board in break rooms/kitchens
> Regularly communicate sustainability outcomes and wins to the entire company
> Include sustainability updates with all company performance and financial reviews. This will reaffirm the organisation's commitment to sustainability as part of business operations rather than it being seen as a separate program or department
> Create a sustainability newsletter for staff and customers
> Develop a mechanism for staff feedback and ideas for sustainability projects

Internal sustainability team

> Create a sustainability team with members from each major department such as kitchens, maintenance, housekeeping, marketing, finance and operations
> Meet regularly with the sustainability team and give updates on project progress as well as brainstorm new initiatives

> Give one or two relevant and manageable sustainability action items to each team member. This will assist in promoting ongoing improvement measures throughout the organisation
> Find other advocates within the organisation who are interested in sustainability to help promote process changes to staff

There may be a few growing pains when implementing processes that require staff to change unsustainable behaviours that they have had for years, but do not let this discourage or derail the company's sustainability efforts. Continuous demonstration of management commitment and gradual adjustments will help to show staff that sustainability measures are important and require a new mindset rather than more effort.

Rewards

Demonstrating of company and management commitment to sustainability measures will go a long way in engaging staff to act sustainably. Providing incentive programs and rewards to employees who actively participate in efficiency and sustainability will help retain process changes and bring more staff members onboard. Examples of reward and incentives:

> Provide a company mug to all employees with 'green' branding
> Provide a reusable carrying bag with the company logo to all employees
> Offer public transportation incentives to employees, i.e., discounts or make travel passes available pre-tax
> Impromptu small rewards, such as movie tickets, to staff who turn off their computer and monitor everyday

Section III: Actioning Sustainability
Energy Efficiency

Energy costs and consumption within the hospitality sector can vary depending on the equipment, location and organisational practices, however, energy and cost savings can be found in every area of the industry. Reducing your business's energy consumption can directly increase revenue without the need to increase sales – which will be more important than ever with rising energy prices. Implementing simple energy saving procedures and planning for future investments can benefit both the business bottom line and the environment.

Fast fact:
If energy makes up a quarter of your business costs, then a 20% energy savings reflects a 5% increase in overall profit

Efficiency, efficiency, efficiency…
you don't have to pay for what you don't use!
If you do nothing else… following these simple best practice tips

1. Switch off – all energy consuming equipment should be turned off when not in use. Install timers where necessary
2. Fix leaks – repairing dripping taps, showers and toilets will save you money on both water and energy bills
3. Schedule regular maintenance and cleaning of equipment, including, HVAC, kitchens and vehicles
4. Install energy efficient light bulbs
5. Adjust thermostat a few degrees higher in the summer and lower in the winter
6. Print double sided and use electronic documents rather than paper
7. Implement a recycling program (paper, plastic and glass)
8. Install water saving showerheads and taps
9. Engage staff in your sustainability efforts
10. Record and monitor your resource (energy, water and water) use, you can only manage what you can measure

Breakdown of overall energy use within the average hotel
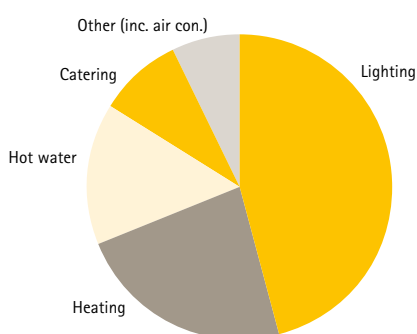
Breakdown of overall energy use within the average pub
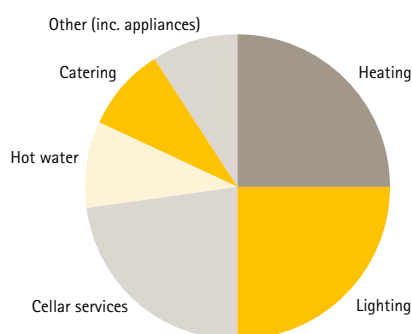
Figure 8. Hotel and pub energy use[9]

Given the energy intensity of most commercial hospitality based businesses, there are ample opportunities for savings. The following are a wide range of energy efficient best practice examples and ideas for future planning.

Kitchens

General

> Reduce idle time for all equipment. Shut down equipment during off peak and after hours. Cutting back on just an hour a day of idle time can lead to significant energy savings annually[10]
> Consider upgrading to the most energy efficient kitchen equipment, including refrigerators, ovens, freezers, etc. Look for the Energy Star rating
> Purchase appropriately sized equipment, too large or too small are both inefficient and waste energy and money
> Clean and service all equipment regularly
> Cook efficiently. Use the most efficient appliances for your cooking needs. Example, ovens are typically more efficient than rotisseries and griddles more efficient than broilers, minimise the use of less efficient equipment
> Cook in large batches

Energy Efficiency

Food preparation

> Use appropriate sized sauce pans and lids to minimise wasted heat

> For small orders or one customer, use frying pan rather than griddle

> Cook in large batches outside of peak hour electricity times

> Source food from local providers

> Thaw food the night before in the refrigerator rather than using water

Dishwashers

> Only run dishwashers when full

> Rather than using lengthy drying cycles, shorten drying times and use heat generated by dishwasher to dry contents

> Install strip curtains to minimise heat loss during drying cycle

Ovens

> Minimise opening of oven doors

> Reduce heat or switch off when not in use

> Only use maximum heat required for your cooking needs, do not over heat

> It's more efficient to cook with a full oven, cook in large batches whenever possible

> Utilise microwave rather than the oven when appropriate

> Verify thermostat accuracy and recalibrate if necessary

See Appendix B Energy walk-through audit guide for additional equipment energy saving and best practice information.

Refrigeration

> Minimise opening refrigerator and chiller doors

> Install automatic door closers on all refrigerators

> Install strip curtains in walk-in refrigerators to minimise air loss

> Check door seals every 6 months, replace if damaged, leaking or cracked

> Schedule regular maintenance and cleaning for all refrigerators, including cleaning coils and ensuring refrigerant levels are correct

> Set refrigerators to the appropriate temperature, over cooling wastes energy and costs you money. Use manufacturers recommended guide

> Follow manufacturers recommended defrost procedures and set up a defrosting schedule, which can save energy and prolongs the life of equipment

> Only refrigerate necessary items, example, excess stocks of canned beverages don't need constant refrigeration

> Switch off unneeded refrigerators

> Install timer plug on all appropriate refrigerators to switch off after hours. Example, soda and bottled water cases that don't contain perishables

> Locate refrigerators away from direct sunlight or other heat producing sources

> Allow a gap between the back of the refrigerator and the wall for proper air circulation

Heat recovery system upgrade: Consider a heat recovery system when upgrading kitchen equipment. This system uses waste heat from walkin refrigerators to preheat water for kitchen use. These systems typically have reasonable payback times in kitchens with moderate to high hot-water usage[11].

Steamer upgrade: New Energy Star connectionless steamers are available that will save you money on both energy and water. Connectionless steamers operate without a boiler or drain, as a result consume less water and energy. They produce the same results as traditional steamers, just for less money to operate[11].

Fast fact:
Increasing a refrigerator's temperature by only 1°C can reduce its energy consumption by 2–4%[9]

Top energy and money saving tips in the kitchen

1. Reduce equipment standby and pre-heating time

2. Install energy efficient light bulbs

3. Fix leaks and make repairs

4. Use appropriate temperature, don't use max temperature unless required

5. Cook in large batches

6. Switch off equipment at the end of the day

7. Thaw food in the refrigerator overnight rather than using running water or microwaves

8. Purchase appropriately sized equipment for your needs

9. Install timers on key equipment, such as boilers and appropriate refrigerators

10. Insulate water heaters

Energy Efficiency

Guest rooms

There is a variety of energy saving occupancy controls available that are activated when a guest enters or leaves the hotel room. Occupancy controls can offer significant energy and cost savings and usually have payback times of 1-3 years[9]. Some control options include:

> Digital thermostats, which automatically adjusts room temperature based on occupancy

> Front desk controls, which power on rooms when guests arrive

> Key cards for individual rooms, which require a guest key to activate room controls and switch off when the key is removed as guests leave the room

Other energy saving actions includes:

> Replace incandescent lights with energy efficiency CFL bulbs

> Post signage reminding guests to conserve energy and switch off all lights and air conditioning when exiting their room

> Install water efficient taps and showerheads with aerators which will reduce water consumption while maintaining comfort

Pools and recreation facilities

Pools, spas and recreation facilities can be popular with guests, however these areas can also significantly increase energy consumption and costs. Implementing energy efficiency best practices guidelines in recreation areas can minimise your operating costs while maintaining guest amenities[9,12].

> Keep pools and spas to the minimum temperature level required for comfort

> For indoor pools, keep air temperature 1°C above water temperature to minimise evaporation

> Clean and maintain pool filters regularly

> Consider installing solar heating unit for pools

> Install timers in saunas and steam rooms to switch off the heat when not in use

> Display signage requesting guests switch off equipment after use

> Purchase fitness machines that are powered by user activity rather than electricity

> Set back the thermostat in pool, fitness and recreation areas after hours

Lighting

Artificial lighting makes up a significant portion of electricity consumption in all sectors of the hospitality industry. There are many cost-effective ways to reduce energy consumption, improve efficiency and reduce GHG emissions from lighting in every area of your facilities.

Efficiency replacements

> Replace incandescent light bulbs with energy efficient compact fluorescent light (CFL) bulbs, which use 70% less energy than their incandescent counterparts.

> Not to mention incandescent lights will be banned in Australia effective as of 2010, so you'll be ahead of the regulation by making an immediate change

> Replace EXIT signs with light emitting diode (LED) fixtures

> Replace older T-12/T-8 fluorescent lighting fixtures with new slimmer, more energy efficient T-5 models. Easy retrofit conversion kits are also available

Table 8. Efficient lighting guide[6]

Inefficient lighting	Replacement lighting	Advantages and Disadvantages
Standard fluorescent tubes	T5 fluorescent lights, electronic ballasts and lux reflectors	**Advantages** • lower energy use • slim line • less flicker and buzz • low levels of mercury • white light • long life • low loss of light over lifespan • high output lights available, if needed **Disadvantages** • will require new fittings and ballasts
Incandescent globes	Compact fluorescent globes	**Advantages** • lower energy use • wide range of colours and sizes • long life • will fit existing light sockets • and fittings • dimmable versions now available
Low voltage halogen lights	Compact fluorescent globes designed for recessed and track lighting	**Advantages** • lower energy use • cheaper globes **Disadvantages** • requires new fittings • light output not as strong, may need additional bulbs
Low voltage halogen lights	35 w infrared coated (IRC) lamps	**Advantages** • lower energy use
Low voltage halogen lights	Light emitting diode (LED) lamps	**Advantages** • lower energy use • longer life globes **Disadvantages** • relatively new products, availability limited • more expensive globes

Energy Efficiency

Usage

> Turn off lights in areas that are not utilised
> Utilise natural lighting, keep lights to a minimum during the day in areas that are well lit by sunlight
> Clean lighting fixtures regularly
> Are you over lighting? Can one fluorescent tube be removed from double light fittings in areas such as car parks, back of house and plant rooms?

Sensors and switches

> Install daylight sensors or 'photocells' which control artificial lighting to be reduced when there is sufficient natural lighting available. Especially effective for car parks and signage
> Install occupancy sensors to automatically turn lighting off when no one is present
> Install timers on outside lighting, update timer seasonally
> Label light switches to denote location of lights, aiding in switching off unnecessary lighting
> Avoid having several lights activated by one switch, use separate switches for each light

Heating ventilation and air conditioning (HVAC)

Heating and cooling also accounts for a large percentage energy bills for most businesses within the hospitality industry. Significant energy savings can be made by improving the efficiency of an HVAC system through upgrades, regular maintenance and participating in energy savings programs.

Temperature

> Match temperature controls to occupancy – only use during hours of operation, set back when not needed by staff or customers
> Program thermostat settings to automatically adjust to changing temperature needs throughout the day. Such as, significantly reduce heating and cooling temperatures in common areas

Heating is on until temperature reaches 19°C

Cooling is on when temperature exceeds 24°C

Heating and cooling both off between 19°C and 24°C – a 'dead band' of 5 degrees
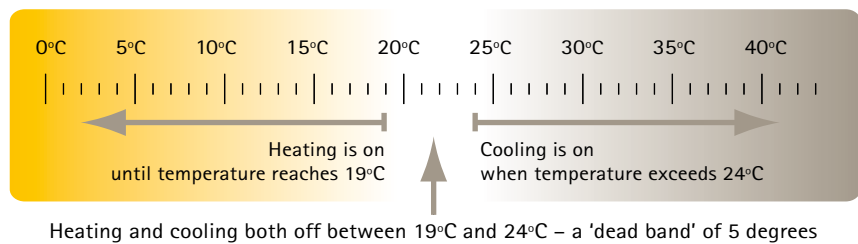
Figure 9. 'Dead band' temperature controls[9]

(lounges, corridors and stairwells) during low traffic hours, such as midnight to 5 am
> Take advantage of sunlight and use shades/curtains to minimise over or under conditioning
> In the summer adjust temperature to 23°-25°C
> In the winter adjust temperature to 18°-20°C
> Ensure thermostat sensors are placed away from heat producing equipment, draughts and direct sunlight
> Place covers on thermostats to discourage staff and guests from adjusting temperature
> Don't heat and cool at the same time – set thermostat on a wide 'dead pan' range, such as 21°-24°C, to reduce running costs and over conditioning

Airflow

> Check doors and windows have tight seals
> Keep exterior doors and window closed during cold and hot days to prevent the loss of heat in the winter and air conditioning in the summer
> Install automatic exterior doors in high traffic areas to minimise air loss
> If ducted HVAC system has zoning capability, program to only condition areas that are in use
> If HVAC system does not have zoning capabilities, shut vents in areas that are not in use, note 80% of the vents should remain open while system is operational
> If using a ducted HVAC system ensure furniture, drapes and other items are clear of the vents or outlets to ensure free

airflow
> Utilise fans where possible. Fans help circulate air, reducing the need for air conditioning ,while remaining a comfortable temperature
> Take advantage of free natural air when temperature permits by opening windows and doors or programming HVAC system to use outside air when possible

Maintenance

> Schedule regular maintenance checks for HVAC equipment
> Perform a pre-season check prior to the winter heating and summer cooling, well maintained systems cost less to run and provides better performance
> For businesses with significant HVAC equipment, it may be worthwhile to have the systems professionally audited for energy usage and efficiency
> Check system is functioning and programmed properly, test temperature settings and airflow

Did you know:

> Every 1°C increase on the thermostat will increase energy use by about 15% in winter
> Every 1°C decrease on the thermostat will increase energy use by about 10% in summer
> You can save as much as 10% a year on your heating and cooling costs by simply turning the thermostat back by 1°C![13]

Energy Efficiency

New systems

> Consider upgrading older and inefficient systems, which can typically pay for themselves through energy and cost savings

> When purchasing a new HVAC system, make sure it is the most energy efficient model

> Consult www.energyrating.gov.au for energy efficiency ratings

> When purchasing a new system, be sure it is the appropriate size for your space and use requirements. Systems that are too large or too small will not only waste energy but also increase your energy costs

Offices

In Australia, office equipment consumes at least 5% of all electricity and directly and indirectly generates 9-11 million tonnes of CO_2 each year. For a typical piece of office equipment, about 85% of the total energy is used during operation mode and active standby mode[14].

> Switch off equipment everyday when not in use

> Switch off equipment at the wall – most office equipment still uses a small amount of energy even when it's turned off

> Disable screensavers and use the 'power save' mode on computers

Building envelope

Did you know about two thirds of heat can be lost through the average hospitality industry building?[9] Making building upgrades such as adding insulation and window glazings can improve energy efficiency and reduce your overall operating costs.

Building envelope energy efficiency improvements are important considerations when your facility is being upgraded. Over the life of a building the upfront costs of energy efficiency improvements will frequently pay for themselves through energy savings. In the case of new construction, it is less costly and more efficient to "do it right the first time" rather

than make improvements later in the life of the building.

Insulation

> Install insulation in exterior walls, wall cavities and ceilings

> New technology has made the installation of insulation into existing buildings much easier and less expensive

> Install interior blinds/shades to provide additional shade and minimise heating effect of sunlight

Roofing

> Install roof insulation

> Consider radiant barriers and cool roofing that reflects the Sun's radiant energy, and saves money on air conditioning

> Consider installing solar panels

Windows and doors

> Seal gaps around window and doorframes with caulk

> Check window and door weather stripping, replace if missing, cracked or hard

> Close gap under exterior doors if you can see daylight underneath

> Install double or triple pane windows

> Install window glazing, films or tinting

> Insulate window frames

Design

> For a new facility, employ passive solar design and orientation, that is positioning a building to take advantage of the sun's natural heating and light energy as well as shade

> Optimise green interior design techniques to minimise light, heat and cooling needs

> All new building work must comply with the Building Code of Australia energy efficiency provisions

Transportation

> Encourage and incentivise staff to utilise public transportation

> Consider purchasing hybrid and diesel vehicles

> Regularly service vehicles

> Keep tyres inflated to correct pressure

> Utilise GPS systems to determine the most efficient route and drive time

> Use telecommunications rather than travelling to meetings

> Encourage and organise carpooling for staff

> Provide guests with public transport maps and timetables

Australian Business Limited Apprentice Centre (ABLAC) – Green Fleet Case Study

ABLAC has significantly reduced its transportation carbon emissions and fuel consumption by purchasing more efficient vehicles and offsetting the carbon emissions. By upgrading 80 vehicles to more fuel efficient models, ABLAC has reduced its carbon emissions by almost 100 tonnes/year and reduced fuel consumption costs by 20%. The remaining carbon emissions have been offset by planting trees through the Green Fleet program.

Water Efficiency

There are plenty of water saving opportunities within the hospitality sector. Implementing water saving and efficiency measures will save you money and help Australia conserve its valuable water resources. Reducing water waste will also save you on energy bills as hot water requires significant amounts of energy... don't just wash your money down the drain.

Kitchens

General

> Look for water devices labelled under the Water Efficiency Labelling and Standards Scheme (WELS), with 6 stars being the highest ranking
> Place signage in kitchen reminding staff to conserve water and report leaks
> Check larger water boiler units for leaks, look out for the overflow valve – it is often hidden
> Switch off hot water heaters at night, install timer if necessary
> Sweep or mop floors instead of using a hose
> Install a waterless wok, see additional water saving assistance information
> Install water efficient sprayer, see additional water saving assistance information
> See Water Audit for other water saving equipment information, Appendix B

Top water saving tips for the hospitality sector

> Install flow restrictors and aerators on taps and showers – look for most water efficient equipment
> Install dual flush toilets
> Schedule regular maintenance for major equipment such as HVAC, cooling towers and laundries and keep them free from leaks
> Use high efficiency pre-rinse spray valves and trigger nozzles on hoses
> Install pool covers to reduce evaporation when the pool is not in use
> Install sub meters on swimming pools to detect leaks
> Upgrade laundry facilities to use continuous batch washers, which reuse rinse water and are very efficient
> Mulch garden areas and use alternative water supplies, such as rainwater or treated greywater to irrigate gardens
> Replace traditional wok stoves with waterless wok stoves
> Inform staff and customers of your water saving efforts and how they can participate
> Record and monitor water use

Sinks

Water use in older model sinks and hand basins can typically be cut in half through a few simple cost effective measures.

> Add flow control regulator or tap aerators to existing taps
> Install 6 star rated WELS taps and sprayers
> Minimise the use of garbage disposals- which can waste over 30L of water a day, use a sink strainer instead

Dishwashers

> Only run dishwashers when full
> Scrape excess food off before loading dishes
> Install flow control to the rinse line, if possible
> Train staff to operate the dishwasher in the most efficient manner
> Set to the economy or efficiency setting

Table 9. Typical water and cost savings achieved by installation of low flow pre rinse spray valve[6]

Site	Water consumption savings (L/day)	Water savings (% or original consumption)	Water and Energy Cost Saving (a year)
Cafe	449	46.5	$453
Restaurant	232.9	42.3	$304
Club	100	28.7	$143
Hotel	695	50	$925

Fast fact:
Running hot water in the sink for 5 minutes uses the same amount of energy as a 60-watt light bulb burning for 14 hours[15]

Water Efficiency

Bathrooms and guest rooms

In most hotels and motels, the majority of water usage occurs in guest rooms[16]. Therefore, significant water cost and conservation savings can be achieved by implementing few guest room equipment upgrades and conservation awareness initiatives without compromising comfort.

Toilet 25%
Basin 9%
Showers 56%
Cleaning 10%

Note: Shower usage includes bath usage
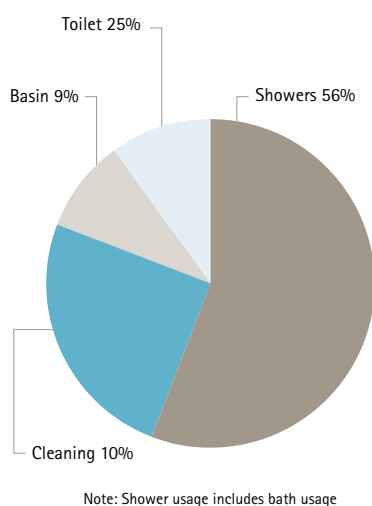
Figure 10. Typical water usage in hotel guest room[16]

Toilets

> Install dual flush toilets, 4.5-6L cisterns with a half flush (3L) option
> Check the back of the toilet bowl; if there are signs of small leaks, get them fixed as a small leak eventuates into a bigger one
> If toilets are connected directly to a flush valve (that is, no cistern) then ensure flush is 5 seconds or less
> Consider reducing the water level of high volume toilets. Note: if cistern is 9L or 13L, do not reduce the water level in the cistern by more than 2L as the bowl is designed to require more water

Hand basins

> Install WELS efficient mixer taps (combined hot and cold) with a flow rate of 6L/min and an aerated flow
> Check tap flow rates – more than 10L/min are high flow, wasting unnecessary water
> Whilst sensor taps appear good, they need to switch off within 6 seconds, but generally they waste more water than manual taps
> Check hot water temperature has not been set too high

Showers

Install water efficient 9L/min aerated showerhead, look for high WELS rating

If showerhead flow rate is greater than 13L/min it should be replaced

To get a sense of greater pressure, install aerator to allow air to be pulled in for the pressure sensation

Urinals

> Cistern size should be 7L or less
> Manual urinals generally use less water, although depending on the size of the facility this option may not always appropriate
> Check sensors are placed directly above the urinal so that people using basins or toilets do not accidentally trigger the sensor
> Some sensors when they fail, fail in the open position, meaning they are constantly flushing
> Waterless urinals are available either with a cartridge or cube. If considering this, note that it works best with wall mounted urinals and they still require maintenance, new cleaning regimes and used only in well-ventilated areas

Table 10. Water efficiency checklist[12]

Water efficiency Checklist

Use this checklist to determine whether the fixtures within your facility are water efficient.

Item	Specification
Hand basins	Flow rate = 6 L/min or less
Hoses	With trigger-operated spray gun
Showers	Flow rate = 9L/min or less
Toilets	Dual flush 4.5 - 6/3 L cistern
Urinals	Manual or sensor operated flush
Irrigation	Drip irrigation system

Cleaning

> Review cleaning practices with staff to ensure toilet flushing and length of time running showers and taps are kept to a minimum

Guest involvement

> Let guests know about your environmental and water conservation efforts so they can be involved
> Post signage in guest rooms requesting guests to reuse towels and linens to reduce energy and water consumption required for laundry services

Water Efficiency

Laundries

Laundry facilities consume large amounts of energy, water and chemicals- not to mention labour, which can significantly increase operating costs. To maximise efficiency and minimise unnecessary costs and environmental damage, implement best practice procedures and consider equipment upgrades or retrofits[17].

> Post signage and educate staff and customers on conserving water and energy by minimising items sent to the laundry. Such as requesting towels be reused rather than used only once
> Operate machines only when fully loaded
> Adhere to the manufacturer's recommended settings and regularly check that the water level is correct during operation
> Schedule regular maintenance to ensure water valves and dump drains are free from leaks
> Isolate and turn off the steam supply to equipment when not in use
> Commercial water-extractors can typically be retrofitted with a tank that saves the final rinse water, which is then reused for the pre-rinse cycle for the next load[17]
> When upgrading a laundry facility, consider installing continuous batch washers, which use up to 70% less water and steam compared to a conventional washer extractors of similar capacity. Labour costs are also reduced due to the automation
> Have a smaller facility? When upgrading equipment be sure to purchase the highest rated WELS washing machine
> Frontloading washers use 63% less water than top loaders

Cooling towers

In larger complexes, air-conditioning is through cooling towers as opposed to individual electric units. Never conduct personal maintenance of cooling towers as it requires qualified specialists. When approaching cooling towers, always follow safety instructions and the use of a facemask. There are however signs to assess if there are problems between services. These include:

> Check that there is splatter proof guards so that water is contained in the equipment
> Ensure that the overflow pipe outside the cooling tower does not always have water running through it. Whilst it is normal to have some overflow due to high salinity in the water, there should be periods of times when it does not run
> Most towers utilise a float ball valve to signal for more water, check that the internal overflow pipe is not always covered wasting water unnecessarily
> If there is a cooling tower, get a submeter placed on it. Regularly checking how much water is used in the cooling tower is important and may also result in lower fees if you can prove a higher discharge through cooling towers.

Outdoor areas and amenities

Most hotels, clubs and restaurants have some sort of garden area, water feature or recreation facility. Appropriate management is necessary to make the best of the aesthetics and recreation benefits while not unnecessarily wasting water.

Swimming pools

> Ensure excessive or lengthy backwashing is not occurring, always be sure that backwashing is in accordance with health codes
> Install sub-meters in recreation and pool areas to identify how water is distributed through the site and determine excessive use
> Monitor and record pool's water meter to identify any leaks or abnormally high water use
> Use a pool cover for hours the pool is not in use, don't forget the covers for the jacuzzi's too

Gardens and grounds

> Select native plants that require minimal amounts of water
> Group plants that have similar watering requirements together
> Select lawn grass that is drought resistant
> Don't mow lawn too short, leave 2cm or higher, leave the clippings in dry conditions to minimise evaporation
> Less frequent and heavy watering of plants and lawns makes plants more drought resistant by encouraging roots to grow deeper
> Water base of plants, not leaves
> Use drip hoses rather than sprinklers
> Water early in the morning or late evening, not at midday
> Set sprinklers on a timer, update seasonally
> Mulch plants to minimise evaporation and improve soil quality

Water features require regular care and maintenance, check the following:

> Overflow valve is above normal water level
> Water is recycled
> Steps are taken to reduce evaporation

Water harvesting

Installing a rainwater or stormwater harvesting system requires a specialist for approval and installation. Local councils generally have individual rules for the use of harvested water in business premises and it could be that water use is restricted to garden and outdoor areas. Internal plumbing requires a qualified technician and appropriate sizing. Generally speaking, harvesting systems require significant roof area for appropriate use and despite this, have long payback periods.

Recycling

Technologies in recycling are vastly improving; however their cost is still a hindrance. There are several types of recycling mechanisms:

> Greywater – which is recycling water from sinks (not in the kitchen) and showers

> Black water – which is recycling of water which contains organics

Recycling systems are best implemented in new buildings, as converting existing office spaces to allow for it is very expensive.

Additional water saving assistance

Sydney Water – Smart Rinse

Smart Rinse, Low Flow Pre Rinse Spray Valve Program, operated by Sydney Water through 2010 supplies and installs valves for commercial kitchens and restaurants free of charge. New low flow pre rinse valves have a flow rate of 6-7 litres a minute compared to a flow rate of 10-15 litres a minute in older models. The new models supplied have the same or better cleaning efficiency as older models and a 6 star WELS rating. Visit the Sydney Water website or call 1800 622 695 for more information.

Table 11. Cost and water savings from low flow rinse spray valves[18]

Installing one Smart Rinse valve		
	% daily water savings	Annual water and energy cost savings[3] (a year)
Cafe	47%	$453
Restaurant	42%	$304
Club	29%	$142
Hotel	50%	$925
Average	**42%**	**$456**

Waterless Wok Subsidy

Installing a waterless wok can save a busy Asian style restaurant about five kilolitres of water a day. The Ethnic Communities Council (ECC) of New South Wales is offering subsidies and educational assistance to businesses in Sydney and the Central Coast if they install waterless woks. Contact the ECC at wok@eccnsw.org.au.

Every Drop Counts

Sydney Water's Every Drop Counts Business Program provides water and costs saving assistance to Sydney region businesses. The program offers free one on one partnerships to businesses who use more than 80,000 litres of water a day, and helps smaller business through targeted water conservation programs. Additional information and useful fact sheets are also available on the Sydney Water website.

To join Sydney Water's Every Drop Counts program or access additional savings and efficiency information, visit: http://www.sydneywater.com.au/SavingWater/InYourBusiness/AboutEDC.cfm

CASE STUDY

Ramm Botanicals water conservation

Ramm Botanicals participated in a water conservation program led by Wyong Council which targeted a 24% reduction in water use. Through a combination of installing rainwater tanks and changing their plant product offerings to a range of water-wise Australian native plants, Ramm Botanicals was able to exceed the Council goal and achieve a 54% reduction in their town water use. They capture 3/4 of their water needs through the rainwater tanks and minimise water intensity by specialising in plants that are adapted to Australia's dry climate. These measures create valuable long-term water savings for their business and also for customers who landscape with native plant species. www.ramm.com.au

Resource Efficiency and Waste Reduction

Reducing resource consumption and waste generated from your company are essential components of improving your organisation's sustainability. Improving resource efficiency will conserve energy and reduce carbon emissions, as well as save your business money. The savings from waste reduction can be used to develop and enhance your business rather than being thrown out with the garbage.

Waste and resource reduction measures will:

> Save money
> Improve efficiency
> Reduce natural resource consumption
> Reduce carbon emissions

Assess, separate and save

Assessment of what materials and products your business uses and disposes of is critical to understanding your opportunities to avoid and reduce waste. After completing a waste audit, review the best options for recycling and create separate waste streams for recycling, food waste and general waste. This could be accomplished by introducing a separate waste bin system in critical areas such as kitchens, bars and offices. The goal is to minimise waste sent to the landfill as much as possible.

The best opportunities to save money – Avoid and reduce waste from the start

The most sustainable product is the one you don't buy, it's also the best value! The waste reduction best practice hierarchy is outlined in Figure 11 – avoid, reduce, reuse and recycle in that order.
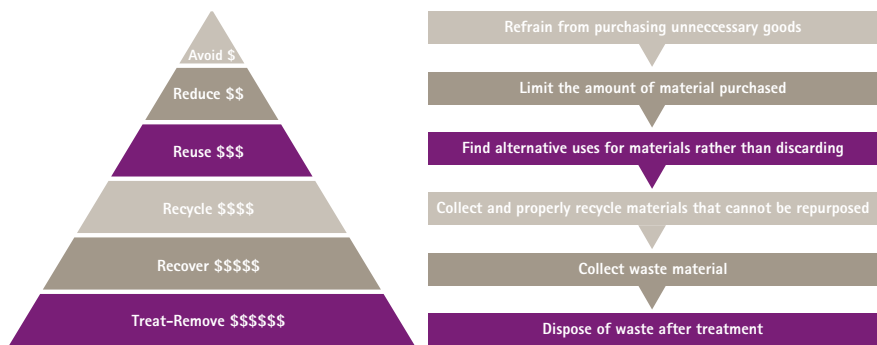
Figure 11. Waste hierarchy

Top hospitality waste reducing tips

> Implement recycling in all areas of the company, kitchens, offices, guest facilities and rooms
> Provide ample recycling bins and fewer waste bins, encouraging guests and staff to recycle rather than trash waste
> Purchase products with minimal or reusable packaging
> Source food and supplies from local producers
> Replace disposable items with reusable ones, such as refillable soap and shampoo containers
> Require vendors to take back pallets and crates for reuse
> Compost organic wastes, including food and garden cuttings

> Look for opportunities to work with other businesses and organisations to combine waste reduction efforts, such as coordinating with neighbouring restaurants to compost food waste
> Use environmentally friendly cleaning and gardening supplies
> Use waste reducing best practices in office areas, such as printing double sided and buy recycled paper
> Buy in bulk with low packaging, this will reduce packaging, transport and disposal costs
> Inform staff and guests of waste reduction goals
> Monitor and measure waste and recycling levels
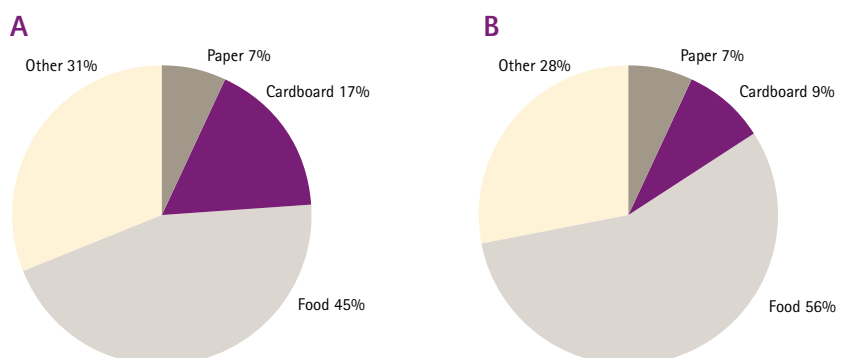
Figure 12. Restaurant Waste Generation (A) Total waste stream (B) Total waste to landfill[19]

The two graphs above indicate the average restaurant sends large proportions of food, paper and cardboard to the landfill rather than being recycled or composted.

Waste Avoidance and Reduction

General

> Have separate and distinctive bins for food wastes, general wastes and recyclables in easily accessible locations to minimise sending items to the landfill that can be recycled, composted or reused

> Review purchasing decisions and prioritise recycled, recyclable and compostable products

> Buy in bulk and in concentrated form, such as beer and soft drinks on tap rather than cans and bottles

> Switch from disposable utensils to reusable ones

> Purchase refillable condiments rather than individual packets

> Use cloth rags rather than paper towels

Kitchens

Food waste

> Monitor your food waste and adjust inventory to minimise waste due to spoilage

> Develop daily production plans to minimise over-prepping food that will then be wasted

> Review food deliveries upon arrival for spoiled or sub-standard food and don't accept these items from the supplier

> Compost food waste rather than sending it to the trash bin

> Consider using a worm farm

> Request produce be delivered without excess foliage

> Offer customers environmentally friendly take-away containers for left over food

> Have cooking oils and fats collected for re-processing and reuse

> Adjust portion sizes to avoid excessive food wastes

Takeaway containers

> Offer a discount or rewards to customers who bring their own reusable coffee cups

> Ask customers if they *need* a bag or takeaway utensils rather than automatically dispensing these items with food orders

> Purchase recycled content and recyclable takeaway containers, cups, utensils and serviettes

> Purchase disposable utensils that minimise excess packaging, such as avoid individually wrapped items – use health department approved dispensers instead

> Utilise reusable trays rather than bags for in house dining

Guest rooms and cleaning

> Use environmentally friendly cleaning products, phosphate free, non-toxic and biodegradable

> Use concentrated cleaning products, these use less packaging and take less store room

> Use refillable containers for soaps and shampoos rather than individual items

> Inform guests about your waste reduction program and only provide toiletry items upon request rather than leaving a selection of disposable items in each room

> Involve cleaners in all company sustainability discussions and forums, their cooperation is critical

> Provide a comingled recycling bin in each guest room

IGA Barraba – Going Green Plastic Bag-Free Campaign Case Study

IGA Barraba supermarket is leading the way for supermarkets across Australia to reduce plastic bag use. As part of their "Going Green" campaign, IGA Barraba has implemented a permanent ban on the use of plastic shopping bags at checkout. As the largest retailer in the town, IGA Barraba accounts for 85% of plastic bag usage amongst the 2,000 residents. The ban on plastic bags came after a month-long "Going Green" promotion run by the store where they encouraged Barraba shoppers to use boxes or re-usable bags. Bingara IGA is also implementing a similar bagless checkout campaign.

As a result of the plastic bag ban, approximately 3,000 bags have been saved each week or about 156,000 plastic bags per year. Additionally, IGA Barraba has also reduced their cardboard recycling by 25% as customers use more cardboard boxes as well as reusable bags.

Common recyclables
> Paper
> Cardboard
> Metals – aluminium and tin/steel cans
> Glass
> Plastics and polystyrene
> Oils – cooking and motor

Resource Efficiency and Waste Reduction

Recycling

> If recycling is currently not available at your facilities, contact your waste contractor about recycling options

> Use waste audit outcomes to determine which materials are the highest priority to recycle and reuse

> Replace trash bins with recycling bins and utilise a few central waste bins. This will help remind staff and customers to recycle more and waste less

> Consider combining your recyclables with other nearby businesses, this will reduce your recycling costs

> Buy products that are recyclable or can be taken back at end of use

> To locate a recycling facility, visit www.recyclingnearyou.com.au

Fast fact:
Each tonne of paper that is recycled saves:

> Almost 13 trees
> 2.5 barrels of oil
> 4100 kWh of electricity
> 4 cubic metres of landfill
> 31,780 litres of water[13]

Office supplies

General

> Establish a purchasing policy that favours environmentally-friendly products, those that minimise energy, water and waste in the production process

> Buy recycled office paper and stationary

> Recycle and/or refill toner and ink cartridges

> Purchasing energy efficient office equipment, see www.energyrating.gov.au for energy efficiency ratings

> Consider upgrading to an all-in-one copier/printer, eliminating the need for multiple smaller printers

Paper

> Think before you print. Do you really need a printout of that document?

> Set all computers in your office to automatically print double-sided

> Calculate how many reams per person are used and let staff know about ways to reduce this number

> Send electronic communications rather than paper

Customers

> When promoting your business carefully select useful giveaways to avoid throw away trinkets

> Minimise the use and distribution of plastic bags

> Let customers know your efforts to minimise waste

Fast fact:
Paper (including toner) is the biggest cost of a photocopier and has the most environmental impact. Be sure to print double-sided, purchase recycled paper and recycle toner cartridges[20]

Building design and renovations

> When building or renovating your facility, utilise low waste contractors who specialise in reuse of materials and reconstruction instead of demolition

> Create a waste management plan with the contractor prior to construction to ensure waste reduction measures are convenient and adhered to

> Donate old furniture and equipment rather than sending to the landfill

> Use recycled materials for construction

> Use environmentally friendly materials such as paint, furniture, finishings and flooring

> Utilise local materials and businesses when designing, decorating and furnishing building

> All new building work must comply with the Building Code of Australia energy efficiency provisions

Case Study: Australian Business Limited Apprentice Centre (ABLAC) – paper and resource efficiency

In an effort to minimise paper consumption and increase resource efficiency, ABLAC implemented a scanning system for tracking documents. The electronic system replaced a manual paper system and has significantly improved processing time and labour efficiency. The savings benefits include waste and paper reduction as well as cost savings. The new electronic system reduced paper consumption by 30,000 sheets and the equivalent of $100K in salary by being able to process more with the same number of staff.

Section IV: Next Steps

Supply chain

All businesses rely on their supply base and customers to survive. Integrating sustainability principles into purchasing decisions and managing your supply chain from a sustainability perspective are key steps to achieving overall sustainability for your business. Supply chain management considers the interactions between a business and its customers and suppliers. Incorporating sustainability into your supply chain involves reviewing your purchasing and production decisions from both social and environmental perspectives in addition to the economic considerations. Supply chain management extends as far as possible 'upstream' towards raw materials and supply purchases to 'downstream' towards the consumer and then back again for product disposal and recycling.

Sustainable procurement policy

Development of a procurement policy can be an effective step in managing the sustainability of your supply chain. It can also provide economic benefits as many large corporations and government departments require documentation of sustainability or environmental management initiatives for tendering. Additional benefits to sustainable supply chain management and procurement include:

> Reduced costs and increased productivity
> Reduced financial, regulatory and reputation risks
> Incentive to producers to develop new sustainable products
> Competitive advantage in new and expanding markets for sustainable products
> Meeting the expectations of the shareholders, community and customers

Businesses with complex supply chains may want to take further action up and down their supply chain by developing a 'Code of Conduct.' This document outlines the social and environmental principles and standards that the company, contractors and suppliers are expected to observe. Implementation of a Code of Conduct will also require monitoring and evaluation of the sustainability practices of companies within your supply chain.

Visit the NSW Government Green Goods website for more information on developing a sustainable procurement policy. http://www.greengoods.nsw.gov.au/policy/keyactions.htm

Taking it to the Next Level

Efficiency first

Improving efficiency is the simplest and most cost effective way to reduce carbon emissions and save money on utility bills. Taking advantage of opportunities to minimise consumption in all areas of your business, whether it be energy, water, supplies or paper can significantly reduce negative environmental impacts, costs and help your business prepare for the transition into a low-carbon economy.

Once you have addressed the immediate efficiency savings opportunities, the next big step is to assess larger projects outlined in your energy savings plan. For most businesses, significant energy efficiency savings can be obtained through investments in newer, more efficient equipment and building upgrades. To determine which investments to make first, look at the most energy intensive and oldest equipment in your facility. The key areas to consider are:

> Heating, air conditioning and ventilation systems
> Lighting
> Insulation
> Office equipment
> Refrigeration

See the 'Funding' section for grants and assistance programs that may be able to provide financial support for efficiency upgrades for your business.

Renewable energy

Once you have addressed the energy efficiency opportunities available in your business, you may want to consider converting to a 'green power' or renewable energy. Renewable energy is electricity supplied by wind, solar, geothermal, hydro and biomass, these sources are considered continuously renewable. These types of electricity emit very low levels of GHG emissions compared to traditional fossil fuel electricity such as coal.

Renewable energy can be provided by installing equipment such as solar panels on your building or alternatively can be purchased from your energy provider rather than fossil fuel electricity. Purchasing renewable energy can be more expensive than traditional fossil fuel based electricity, so it is important to address energy efficiency measures to minimise your utility bills. For more information on renewable energy, visit the Government's accredited green power website at www.greenpower.gov.au

Ecotourism and certification

Ecotourism is considered travel to natural areas that conserves the environment and improves the well-being of local people[21]. Ecotourism is a rapidly expanding arena as many tourists have become more conscious of sustainability issues associated with the travel industry and are looking for ways to minimise their impacts on the places they visit. The general key principles of ecotourism include:

> Minimise impact on the environment
> Conserve local ecosystems and cultural diversity
> Provide jobs to local populations

The hospitality industry collectively makes up a significant portion of the tourism industry through travellers reliance on hotels, restaurants and recreation activities during their travels. The close relationship between the hospitality and tourism sectors creates additional opportunities to address sustainability issues and meet customers demand for greener options.

One way for hospitality businesses (typically hotels and resorts) to further address sustainability issues is through ecotourism certification programs that accredit businesses which meet designated sustainability criteria. Examples of such programs include, Green Globe and Ecotourism Australia, which provide certification to guests and travellers that the organisation meets sustainability standards. Visit www.greenglobeint.com and www.ecotourism.org.au for more information.

Community and social development

The hospitality industry can have significant environmental, social and economic impacts on local communities. Due to the labour and resource intensity of the hospitality sector, there are ample opportunities for hotels, restaurants and tourism operators to add value and sustainability to the local community. For example, prioritising generating jobs, training and education programs for local and indigenous community members can enhance the viability of the local area which hotels and resorts depend upon. As well as offer guests and customers a unique opportunity to experience Australian culture and biodiversity.

Carbon offsetting

A **carbon offset** is a purchased 'credit' that represents a reduction in greenhouse gas emissions. Carbon offsets are generated through emissions-reducing or energy efficiency projects such as tree planting or renewable energy. The amount of carbon emissions 'saved' through these projects is calculated and then sold as offset credits to businesses or individuals to mitigate carbon emissions from various activities such as transportation and electricity use. There are two types of carbon offsets, those purchased by large industries in order to comply with emissions reduction regulation and voluntary offsets purchased by businesses, individuals and governments to meet their emission reduction goals.

Carbon offset products are largely an unregulated market, so it is important to look for accredited providers to ensure that offsets are actually reducing carbon emissions. In Australia, there are a few government mechanisms currently available to assure customers of the quality of offsets they are purchasing. For more information on carbon offsets, visit the Department of Climate Change Greenhouse Friendly program website at: http://www. climatechange.gov.au/greenhousefriendly/

Whilst purchasing carbon offsets is an effective tool in managing the carbon emissions of your business, it is only one aspect of reducing your company's carbon emissions. Implementing efficiency programs and initiatives to avoid and reduce carbon emissions in the first place is a critical step prior to investing in carbon offsets. Higher efficiency will also reduce the amount of offsets required, saving you money overall.

Carbon neutral

A growing number of businesses are becoming 'carbon neutral' as a way of demonstrating their commitment to sustainability at the highest level. Becoming carbon neutral means achieving net zero carbon emissions by balancing the emissions produced by a business with the equivalent amount of carbon offsets, carbon sequestering projects or renewable energy. The benefits to becoming carbon neutral include:

> Risk reduction in the transition to a low-carbon economy
> Considered market leader in sustainability
> Increased marketability, meeting consumer demand for carbon neutral products and businesses

In order to become carbon neutral, the carbon footprint of your business must be determined. **Carbon footprint** is a measure of the total amount of carbon equivalent emissions generated by your business activities, both directly (onsite and internally produced emissions) and indirectly (offsite and externally produced emissions such as those resulting up and down the supply chain). This process requires a **life cycle analysis** (LCA) of your business operations and products to ensure all critical components are accounted for in the carbon footprint. An LCA assesses the environmental impacts associated with products, processes and services throughout its life cycle, from the extraction of the raw materials through to processing, transport, use, reuse, recycling or disposal. LCA's require specific and well researched information and may be quite resource intensive depending on the nature of your business and could require an external consultant.

Once your organisation's carbon emissions have been determined via an LCA and carbon footprint calculation, the next steps to becoming carbon neutral typically include:

> Limiting energy usage and improving energy efficiency in all areas of your business
> Using renewable energy, either purchasing green power or generating it directly such as wind or solar power
> Purchasing carbon offsets for emissions that cannot be avoided through efficiency measures or a carbon reduction project
> Optional but recommended, become accredited by a carbon neutral certification provider

Continuous Improvement

Sustainability is a journey that does not end with the installation of lighting motion detectors or recycling, it is a continuous process throughout the life of your business. No matter how efficient or innovative your organisation becomes, there will always be developments and new technologies that will be able to further the sustainability of your business. Sustainability should be viewed as a continuous process rather than a destination. This mindset will help position your business to always seek process and efficiency improvements, positively influence and educate staff and customers, save time and money while also preserving the environment and reducing carbon emissions.

Section V: Additional Informaiton Legislation

Australian environmental, emission and energy regulations are some of the fastest growing areas of the legal system in both scope and complexity. The majority of these regulations do not directly impact all businesses as they focus on large corporations and industries. However, it is important to be informed about new and changing regulations as there will likely be indirect impacts for all Australian businesses and individuals.

For more information on the growth of environmental law and its impacts on business owners and operators, visit the NSW Business Chamber's website and review 'The Challenge of Green Tape' publication.

Carbon Pollution Reduction Scheme (CPRS)

The Carbon Pollution Reduction Scheme (CPRS), otherwise known as 'emissions trading' or the 'green paper' is the Federal Governments' response to climate change.

The CPRS aims to reduce carbon emissions through a Government regulated system that encourages energy efficiency by establishing a cost disadvantage for heavy pollution.

The scheme is essentially a cap and trade scheme that is targeted to reduce Australia's carbon emissions between 5 per cent and 15 per cent below 2000 levels by the end 2020. The cap achieves the environmental outcome of reducing carbon pollution. The ability to trade ensures carbon pollution is reduced at the lowest possible cost. When that cap is set, parties are able to trade within that cap.

Whilst the CPRS is mainly targeted at the largest 1000 businesses in Australia, the effects will be felt by all businesses. The most likely impacts include:

> Increases in energy prices between 15 and 50%

> Government regulation – potentially covering energy efficiency and type of energy sources

> Corporate regulation – a requirement to be 'green' for tendering

> Supply chain dynamics – purchasing of supplies, particularly raw materials may become more expensive

> Consumer demands – purchasing only environmentally sensitive products

Thus, it is important to start early and make small but gradual changes to processes. Prepare early to maximise the opportunities in the transition to a carbon-constrained economy whilst simultaneously saving on the bottom line.

National Greenhouse and Energy Reporting System (NGERS)

The National Greenhouse and Energy Reporting System (NGERS) is a mandatory reporting system that requires corporations that either produce or consume large amounts of energy to report their energy and greenhouse gas emissions to the Government. Reporting requirements include corporate groups that either consume or produce 500TJ of energy and/or produce 125 kt of CO_2-e and facilities that either consume or produce 100TJ of energy and/or produce 25 kt of CO_2-e. This reporting system will be used to inform the 'cap' levels for the Carbon Pollution Reduction Scheme (CPRS).

Greenhouse Gas Reduction Scheme (GGAS)

The NSW Government has indicated that Greenhouse Gas Reduction Scheme (GGAS) will cease on the commencement of the national emissions trading scheme, CPRS. The energy efficiency component of GGAS will continue with new targets being set mid year 2009. The new scheme will require electricity retailers to pursue additional energy efficiency improvements in households and businesses.

NSW Energy Efficiency Trading Scheme (NEET)

NSW Energy Efficiency Trading Scheme (NEET) is an energy efficiency package aimed at reducing power use and cutting the state's greenhouse gas emissions. It is a market-based incentive for energy efficiency. Compliance obligations under NEET will rest with electricity retailers. This Scheme will revitalise the existing energy efficiency component of the GGAS. The scheme is due to start on 1 July 2009.

Minimum Energy Performance Standards (MEPS) – Lighting

In February 2007, Government's phase-out of inefficient incandescent lamps was announced. The phase-out of incandescent lighting aims to significantly reduce Australia's greenhouse gas emissions and places Australia at the forefront of international efforts to tackle climate change.

This initiative will be implemented by introducing MEPS for incandescent lamps, in order to remove the poorest performing products from the Australian marketplace between 2008 and 2015. Additionally, MEPS for compact fluorescent lamps (CFLs) will also be introduced to ensure that only high quality CFLs are sold in Australia. For more information and specific timing to the phase-out visit, www.environment.gov.au and www.energyrating.gov.au/reg.html

Funding Opportunities

There are some excellent funding opportunities to manage climate change, whether it is to clean up production processes or install efficient lights. The Government is providing plenty of opportunities to help your business become more sustainable.

Green Business Program

The NSW Green Business Program is a competitive fund supporting businesses that reduce water and energy usage. It has been available for a number of years to NSW businesses and supports any project that will ultimately save either/both water and energy.

Energy Efficiency for Small Businesses Program

The NSW Department of Environment and Climate Change's new Energy Efficiency for Small Business Program is available to businesses that use up to $20,000 in electricity a year. To sign up for the Energy Efficiency for Small Business Program or for more information contact Business Partnerships at 1300 361 967 or email sustainbus@environment.nsw.gov.au

Climate Ready Program

The Climate Ready program is a competitive grants program providing grants from $50,000 up to $5m on a matching funding basis to support research and development, proof-of-concept and early-stage commercialisation activities to develop solutions to climate change challenges. This program is also being administered through AusIndustry.

Green Building Fund

The Green Building Fund initiative is designed to help Australian businesses implement cost saving energy efficiency measures through retrofitting and retro-commissioning of existing commercial office buildings. The program will also provide financial support to relevant industry associations and other non-government organisations for building related efficiency and skill training.

Renewable Energy Development Fund

The Renewable Energy Development Program under the NSW Climate Change Fund provides $40 million over five years to support projects which are expected to lead to large scale greenhouse gas emission savings in NSW by: either demonstrating renewable energy technologies in NSW or supporting the early commercialisation of renewable energy technologies in NSW.

Renewable Energy Equity Fund

The REEF program is a specialist renewable energy equity fund based on the Innovation Investment Fund (IIF) model. It provides venture capital (equity) to assist small companies to commercialise R&D in renewable energy technologies.

Low Emissions Technology and Abatement

The Low Emissions Technology and Abatement (LETA) initiative is a $26.9 million measure to reduce greenhouse gas emissions over the longer term by supporting the identification and implementation of cost effective abatement opportunities and the uptake of small scale low emission technologies in business, industry and local communities.

Re-tooling for climate change

This is the Federal Government's $75 million Re-tooling for Climate Change grants program with grants for small and medium sized manufacturers ranging from $10,000 to $500,000 to help manufactures reduce the environmental impact of their production processes. It is being administered through the AusIndustry.

Public Facilities Program

The Public Facilities Program under the NSW Climate Change Fund provides $30 million for water and energy saving projects in facilities which are open to, and frequently accessed by, the public including schools, community buildings, sporting facilities, museums and art galleries.

Enterprise Connect

Enterprise Connect provides comprehensive support to Australian small and medium sized enterprises (SMEs), to help them become more innovative, efficient and competitive. www.enterpriseconnect.gov.au

Export Market Development Grants

The Export Market Development Grants (EMDG) scheme offers financial assistance for aspiring and current exporters. Administered by Austrade, the scheme supports a wide range of industry sectors and products, including inbound tourism and the export of intellectual property and know-how outside Australia. To access the scheme for the first time, businesses need to have spent $15,000 over two years on eligible export marketing expenses. The Export Market Development Grants program:

> Encourages small and medium sized Australian businesses to develop export markets

> Reimburses up to 50 per cent of expenses incurred on eligible export promotion activities, above a $15,000 threshold

> Provides up to seven grants to each eligible applicant

Government Programs

There is a wealth of information available through Government should you wish to pursue further information.

Department of Environment and Climate Change
www.environment.nsw.gov.au

Department of Environment and Climate Change Sustainable Advantage Program
www.environment.nsw.gov.au/sustainbus/sustainabilityadvantage.htm

Australian Government Department of Environment, Water, Heritage and Arts
www.environment.gov.au

Australian Government Department of Climate Change
www.climatechange.gov.au

AusIndustry and Climate Ready
www.ausindustry.gov.au

Energy Star Australia
www.energystar.gov.au

Sustainability Victoria
www.sustainability.vic.gov.au

Other Australian resources:

Sydney Water
www.sydneywater.com.au

Green Building Council Australia
www.gbca.org.au

National Australia Built Environment Rating System (NABERS)
www.nabers.com.au

International websites:

Intergovernmental Panel on Climate Change
www.ipcc.ch

Carbon Trust (UK) (see publications and resources)
www.carbontrust.co.uk

Energy Star (US)
www.energystar.gov

Complementary Information

Available on the NSWBC website includes:

1. Top 10 tips for being efficient
2. CPRS fact sheets
3. CPRS survey results
4. What is means to be green
5. Podcasts

Glossary

Adaptation – initiatives and measures to reduce the vulnerability of natural and human systems against climate change effects.

Base building – central services and common areas of a building.

Baseline – assessment conducted in order to determine the current resource use of an organisation, specifically for energy, water and waste. The baseline assessment is used to determine how effective various aspects of an action plan have been in terms of improving resource efficiencies.

Carbon dioxide equivalent (CO_2 – e) – the universal unit of measurement used to indicate the global warming potential (GWP) of each of the 6 greenhouse gases. It is used to evaluate the impacts of different greenhouse gases.

Carbon neutral – a term used when an organisation has reduced the net amount of carbon dioxide equivalent it emits to zero.

Carbon offset – a financial instrument that represents a reduction in greenhouse gas emissions, typically converted to the carbon equivalent. Carbon offsets are generated through emissions-reducing or energy efficiency projects such as tree planting or renewable energy.

Ecotourism – travel to natural areas that conserves the environment and improves the well-being of local people.

Global warming – progressive gradual rise of the Earth's surface temperature thought to be caused by the greenhouse effect and responsible for changes in global climate patterns.

Global Warming Potential (GWP) – index that compares the relative potential of the 6 greenhouse gases to contribute to global warming, i.e., the additional heat/energy which is retained in the Earth's ecosystem through the release of this gas into the atmosphere. Carbon dioxide (CO_2) has been designated a GWP of 1 and Methane (CH_4) has a GWP of 23.

Green power – generic name given to electricity generated from clean and renewable energy sources. Green power sources can include solar (photovoltaic and thermal), wind power, new hydro on existing dams, biomass, wave energy, landfill gas, etc.

Greenhouse effect – the absorption of solar energy due to accumulation of greenhouse gases in the atmosphere.

Greenhouse gases (GHGs) – gases regulated under the Kyoto Protocol, determined to be the main contributors to the enhanced greenhouse effect. The principle gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

Key performance indicators (KPIs) – an information tool used to measure trends and progress. Indicators provide a snapshot of a current situation and the means to observe changes over time. Example, energy usage for a unit of production (kWh/product).

Kyoto Protocol – specifies the level of emissions reductions, deadlines and methodologies that signatory countries are to achieve. Kyoto Protocol was ratified by Australia in 2007.

Life cycle assessment – determines the total quantities of resources that go into products from the production of their inputs to the waste they produce when disposed or recycled.

Mitigation – actions to reduce greenhouse gas emissions and to enhance carbon sinks aimed at reducing the extent of global warming.

Renewable energy – electricity generated from low or no-emission sources that are indefinitely renewable, such as wind, hydro and solar.

Sustainability – form of progress, process or development that meets the needs of the present without compromising the ability of future generations to meet their needs.

Sustainable development – development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Report 1987)

Tenancy – Office space within a building covering tenant light and power only. This may include tenancy air-conditioning if this has been installed to service particular tenant loads, but does not include central services normally provided by the landlord.

Triple bottom line (TBL) – takes into account the effects a business's activities on the environment and society as well as on the conventional economic bottom line. An underpinning concept of sustainability and sustainable development

Whole building – includes all energy entering the building used for providing services to the occupants of the space.

Appendix A

Table 12. Example template for calculating baseline use

Business Activity Indicator
The business activity indicator is a unit of measurement that represents the business operation. Preferably it is the same indicator that your organisation uses to assess business efficiency. For example:
> For commercial buildings and shopping centres "leasable area" in m[2]
> For hotels and hospitals "number of bed nights or meals"
> For manufacturing and laundries "quantity of production" in tonnes or other units
> For education "number of full time student equivalents"
> For irrigators "area" (i.e., golf courses, show grounds reserves) in m[2]
> For swimming pools, clubs and pubs "number of patrons"

Table adapted from NSW Government Guidelines for Water Savings Action Plans 2005[22]

Table 13. Baseline Water Use (Sample Assessment)

Organisation Name		
To be completed for all sites that are included in the organisations sustainability Action Plans		
Site Description	Normal operation	Variation from normal operation
Address	123 Sydney Street	321 Newcastle Street
Sydney Water Account number	12 23456 789	987 65432 21
Baseline start date	1–Jan–2006	1–Jan–2006
Baseline end date	1–Jan–2007	1–Jan–2007
A = baseline water use per annum (kL)	50,000	50,000
Business Activity Indicator	Tonnes	Tonnes
B = Quantity of site business activity indictor per annum (corrected for variations)	1,800	2,000
Is baseline representative of normal water use (Yes/No)	Yes	No
If no, description of variation (i.e., restrictions, shutdowns, refurbishments, etc)		Plant shutdown for (July – August 06)
C = Impact of variation on water use (i.e. variation from normal) kL per annum	0	–8,000
D = A - C baseline water use corrected for variation (kL)	50,000	42,000
E = D/B baseline water use key performance indictors (KPI)	27.8	21.0
Baseline KPI units	kL/tonne	kL/tonne

Table adapted from NSW Government Guidelines for Water Savings Action Plans 2005[22]

Table 14. Baseline Energy Use (Sample Assessment)

Organisation Name			
To be completed for all sites that are included in the organisations sustainability Action Plans. Energy consumption should be reported in most appropriate units – i.e., kWh, GJ, etc			
Site number/name	1	2	3
Address	123 Sydney Street	321 Newcastle Street	456 Ballina Street
Energy provider Account number	123 4567 89	987 6543 21	654 4568 45
Baseline start date	1–Jan–2006	1–Jan–2006	1–Jan–2006
Baseline end date	1–Jan–2007	1–Jan–2007	1–Jan–2007
A = baseline energy use per annum (kWh)	50,000	66,000	65,000
Greenhouse Emissions	Tonnes	Tonnes	
(see NABERS)	45 Tonnes	59 Tonnes	59 Tonnes
Business Activity Indicators	m^2	m^2	tonnes
B = Quantity of site business activity indicator per annum, corrected for variation	1,800	2,000	25,000
Is baseline representative of normal energy use (Yes/No)	Yes	No	No
If no, description of variation (i.e., restrictions, shutdowns, refurbishments, etc)		Increased energy consumption due to office refurbishment for 2 months	Decreased energy consumption due to March 2006 unscheduled shutdown
C = Impact of variation on energy use (i.e. variation from normal) kWh per annum	0	8,000	–3,000
D = A - C baseline energy use corrected for variations (kWh)	50,000	58,000	42,000
E = D/B baseline energy use key performance indictors (KPI)	27.78	29.0	2.48
Baseline KPI units	kWh/m^2	kWh/m^2	kWh/tonne

Table adapted from NSW Government Guidelines for Energy Savings Action Plans 2005[23]

Table 15. Baseline Waste and Recycling Generation (Sample Assessment)

Waste and recycling baseline	
Complete separately for waste and recycling	
Quantity Collected	Number of containers collected multiplied by volume or weight of the container
	Example:
	Your organisation has 10 wheelie bins of paper collected for recycling (or waste) each month.
	10 X 240L Bins = 2,400L of paper collected/month
	2,400 X 12 = 28,400L per annum
	28,000 ÷ 1,000 (to convert litres to cubic metres) X 0.24 (to convert cubic metres to tonnes) = 6.9 tonnes per annum
Cost	Number of containers multiplied by cost of pickup per container.
	Example:
	Waste contractor charges $5.50 to pick up each paper recycling bin
	10 X $5.50/bin = $55.00 to recycle paper

Adapted from A WRAPP Guide to Conducting an Office Waste Assessment[24]

A simple alternative waste baseline determination method is to weigh waste materials over ten normal, consecutive working days. Then extrapolate weight measurements over the month or year to determine average waste generation. Certain times of the year, such as end of financial year and school holidays, should be avoided when utilising this method. This method can also be used separately for recycled materials.

16. Water Efficiency Rating Scheme (WELS) ratings[6]

	Taps	Showerheads	Toilets	Urinals[6]
Rating	Specification (L/min)	Specification (L/min)	Specification (L/average flush)	Specification (L/single stall or L/600 mm of continuous length)
0 Star	> 16	> 16	N/A	> 2.5 serving a single stall or 4.0 for two stalls
1 Star	> 12 and < 16	> 12 and < 16	> 4.5 and < 5.5	< 4.0 serving two stalls or equivalent continuous length[a]
2 Star	> 9.0 and < 12	> 9.0 and < 12	> 4.0 and < 4.5	< 2.5 serving two stalls or equivalent continuous length[a]
3 Star	> 7.5 and < 9	> 7.5 and < 9	> 3.5 and < 4.0	< 2.0 serving two stalls or equivalent continuous length[a]
4 Star	> 6.0 and < 7.5	> 6.0 and < 7.5	> 3.0 and < 3.5	< 1.5 serving two stalls or equivalent continuous length[a]
5 Star	> 4.5 and < 6.0	> 4.5 and < 6.0	> 2.5 and < 3.0	< 1.0 serving two stalls or equivalent continuous length[a]
6 Star	< 4.5	> 4.5 and < 6.0	< 2.5	< 1.0 serving two stalls or equivalent continuous length[b]

[a] must be fitted with demand driven or smart demand operation

[b] must be fitted with demand-driven or smart-demand operation with a urine sensing device

Appendix B

Walk-through audits

To conduct a walk-through audit and get a better understanding of your business's consumption patterns and opportunities for improvements, follow the basic steps below.

Step 1: Establish baseline and KPI

Prior to the physical audit of the site, determine your business's resource use via historical/current utility bills and establish a baseline for water, energy and waste. Convert baseline into KPI units.

Step 2: Information gathering

Prior to the physical audit of the site, obtain or draw the building floor plan and mark the location of sources of energy, water and waste disposal. This will help you map out where resources are most necessary and identify areas of inefficiency, such as constant lighting in rooms that are infrequently used.

Step 3: Building management assistance

Prior to the physical audit of the site, meet with the building operations and maintenance personnel to discuss the audit and learn about the building's operating systems and maintenance projects. One of the objectives of an audit is to provide information that will help the building operations personnel run the facilities more efficiently. Therefore, it is recommended you invite the building operations personnel to participate in the walk-through audit. The operations staff will also be able to fill you in on maintenance practices and any issues with the building. Developing a good working relationship with the building operations personnel is important to getting the most out of the audit and identifying additional savings opportunities.

Step 4: Conducting an audit

The next step is to conduct a walk-through survey with building operations personnel. Use direct observation and measurements to complete the enclosed audit checklists as you survey the facilities. Identify and record all pieces of equipment that use water and/or energy.

As you walk through the premises, be sure to take notes of any outstanding questions or areas that need follow-up information or expertise. Discuss the feasibility and opportunities for efficiency improvements with the building personnel as you go through the building, this will help you develop a savings opportunity plan after the audit is complete. **Do not** tamper with or adjust any control settings or equipment, leave this to the professionals.

Please note, the enclosed checklists do not include every single detail which can be included in an audit; rather they aim to identify the largest energy, water and waste areas as well as provide alternative solutions to improve efficiency.

Hospitality: Energy walk–through audit checklist

Facility floor size: _____ m²

Operating hours: _____

Average number of guests (or other KPI unit):_____

Baseline energy use per annum: _____kWh

Baseline energy use KPI: _____ kWh/guest/day

List energy using equipment and number: (Examples: computers, printers, copiers, refrigerators, etc)

Other instructions:

1. Mark the location of equipment, fixtures and amenities that need repair or maintenance on site plan

2. Note areas or equipment that require follow-up investigation, such as energy efficiency upgrades of lighting or HVAC system.

Administration and communication					
Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Communication and policy initiatives	Has the critical need to be more energy efficient been broadly communicated within your business?			> Develop and post commitment policy statement > Implement employee and guest education and engagement programs	
	Has a management team been organised to provide strategy and leadership around energy efficiency?			> Create sustainability team involving senior management > Include sustainability measures in business strategy development	
	Has an energy management plan or savings plan been developed?			> After audit, develop an immediate and long-term energy savings plan. See Table 7	
	Have internal policies and procedures been developed around energy efficiency and management?			> Use the audit findings to develop policies and procedures addressing the most critical and immediate energy efficiency measures	
Employee and guest engagement	Are energy conservation/efficiency posters displayed throughout the facilities?			> Display signage reminding staff to switch off equipment and lights	
	Are reward/acknowledgement programs provided for employees who conserve energy?			> Develop engagement and rewards programs for staff	
	Are employees and guests provided education around energy efficiency?			> Include energy efficiency training at staff meetings and provide information in public areas such as bulletin boards and internal website > Post signage with energy saving tips and goals to engage guests in energy saving efforts	
	Are employees provided regular updates on energy usage and progress towards energy savings?			> Provide energy savings progress reports to staff > Create "competitions" between departments to incentives areas that reduce energy consumption by the largest percentage	
Energy tracking	Is energy usage regularly metered, monitored and recorded?			> Record energy usage and spending when a bill is received > Determine baseline energy use	
	Is energy use benchmarked against industry best practice?			> After baseline is determined, benchmark against industry standard > Alternatively, calculate energy rating via NABERS website	

		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
	Have energy savings targets been set?			> After baseline and benchmarks are determined, set target savings	
	Are energy costs and program performance included in financial and business reviews?			> Add energy performance to financial reviews and updates	
Energy billing	Do you know your electricity costs associated with both use (kWh) and demand (kW)?			> Review and record energy data for every bill received	
	On an annual basis, are energy rates and supplier reviewed to ensure the most favourable rate structure?			> Include energy review at the end of reach financial year	
	Are monthly energy bills reviewed for accuracy?			> Double check energy usage vs cost when recording energy activity for each bill	

Lighting

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Lighting use	Are lights turned off when rooms or areas are not occupied?			> Post signage reminding staff and guests to switch off lights > Install occupancy sensors	
	Are light switches labelled to denote location of lighting?			> Label light switches with corresponding lighting area	
	Have energy conservation stickers been placed on light switches?			> Place energy saving reminders on light switches	
	Are lighting systems wired so that lights throughout a large area do not have to be on when only a small section of the area is being used?			> Consider rewiring to separate switches > When remodelling, wire lights to separate switches	
	Is task lighting used to reduce background or overhead lighting?			> Provide energy efficient desk lamps and reduce overhead lighting	
	Have occupancy sensors been installed in areas that are frequently unoccupied (lobbies, bathrooms, conference, rooms, storage rooms, hallways, etc)?			> If no, install occupancy sensors in key areas	
	Have timers been installed on outside lighting?			> Install timers to outside lighting or use solar lighting > Update timers seasonally	
	Has housekeeping and security staff been advised to keep lights turned off in unoccupied spaces?			> Remind security and housekeeping staff of energy saving measures and that lights should remain off after hours	
Lighting types	Have older lighting fixtures been upgraded or converted to T-5 lamps and electronic ballasts?			> Install or convert old lighting fixtures to more energy efficient models	
	Have incandescent light bulbs been replaced with compact fluorescent light bulbs (CFLs)?			> Replace all lights with CFL or more energy efficient models. See Table 8	
	Do EXIT signs use light emitting diode (LED) fixtures?			> Install LED fixtures to all EXIT signs	
	Has unnecessary lighting been removed or disconnected, both indoor and outdoor?			> Review lighting needs and eliminate unnecessary lights in all areas of building	
	Has unnecessary lighting been removed from vending machines?			> Disconnect lights in vending machines > Install timer plug in for all vending machines to switch off out of business hours	
Cleanliness and maintenance	Are lamps regularly cleaned?			> Remind housekeeping staff to regularly clean all light fixtures	

		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
	Are broken lamps repaired?			> Notify maintenance staff of any lamps that need to be repaired > Post signage reminding staff to report damaged lamps	
	Have non-working lights been replaced?			> Notify maintenance staff of any lamps that need to be changed out > Post signage reminding staff to report non-working lamps	

Heating, Ventilation, Air Conditioning (HVAC)

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Maintenance	Is there a service contract agreement to provide regular safety and efficiency maintenance to the systems?			> Contract regular maintenance to HVAC systems	
	Are systems regularly cleaned and filters replaced?			> Schedule regular HVAC maintenance	
	Have leaks in system components such as pipes, steam traps and couplings been repaired?			> Schedule repairs with maintenance staff	
	Are thermostats regularly calibrated?			> Regularly calibrate HVAC system and investigate/repair any abnormalities	
	Are exhaust fans turned off with the HVAC systems when space is unoccupied?			> Program all available components of HVAC to be turned off out of business hours	
Settings	Are heating and air conditioning thermostats set to the most efficient and comfortable level?			> Set thermostat to: > Summer: 23°–25°C > Winter: 18°–20°C	
	Does system have thermostat sensors?			> If no, install sensors in main work areas and away from heat or draughts > If yes, check to ensure sensors are placed away from heat sources and draughts	
	Are thermostats tamper proof?			> Place covers over thermostats to prevent staff from unnecessarily adjusting temperature	
	Does HVAC system have a timer or programmable?			> Install or set timer to shut off system out of operating hours > Install or set timer for portable systems	
	Is HVAC system setback when building is unoccupied?			> Program HVAC to switch off out of business hours	
	Is air conditioning and heating setback when weather permits?			> Program HVAC to switch off when outside temperature permits	
Airflow	Has supply air been adjusted to match space requirements?			> Calibrate airflow > Decrease flow in areas that are over conditioned	
	Are air deflectors installed on floor ducts?			> Install air deflectors to force air into the centre of the room	
	Are doors fitted with automatic door closers?			> Install door closers to prevent heat/cool air escape and draughts	
	Has direct conditioning of unoccupied areas (corridors, stairwells, storage rooms, etc) been minimised?			> Program HVAC to be switched off or close vents in unoccupied areas	
	Are outside air dampers controlled to close when conditioned space in unoccupied?			> Program all components of HVAC to most energy efficient and savings settings	

		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
	If economisers are available on HVAC system, are they set to utilise free cooling when outside temperate permits?			> Program all components of HVAC to most energy efficient and savings settings	
Location	Is heat producing equipment such as printers, copiers and refrigerators located away from HVAC thermostat sensors?			> Move any heat producing equipment away from HVAC sensors	
Kitchen ventilation					
	Do exhaust hoods have side panels?			> Install hood side panels to better trap cooking grease, smoke and heat	
	Are appliances positioned as far back under exhaust hoods as possible?			> Push each appliance as far under exhaust hoods as possible to maximise hood overhang	
	Does exhaust hood have a variable setting?			> Consider installing variable-speed exhaust fans if current models only have "on" and "off" switch. A more moderate setting can be used in slower times based on demand needs	

Water use and heating

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Settings	Is hot water heater set to the minimum level necessary for sanitation requirements?			> Reduce hot water heater to minimum temperature permitted for your business needs > Consider installing a solar hot water heater	
	Are aerator taps and efficient shower heads installed?			> Install WELS aerated taps and showerheads	
	Are timers installed to switch off water heater when facilities are unoccupied?			> Install timer to switch off hot water heaters out of hours and switch back on before opening	
Insulation	Are the hot heaters and first 1-2 meters of piping insulated?			> Insulate hot water heaters and piping	
Maintenance	Have leaks been identified and repaired?			> Schedule regular maintenance inspections for leaks and repairs	
Communication	Is water conservation signage located throughout facility?			> Post water savings and leak reporting reminder signage with maintenance contact info in kitchens, toilets and break rooms > Sydney Water has examples	

Amenities

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Pools	Is pool temperature set to minimum required?			> Lower pool, spa and jacuzzi temperatures to minimum required for comfort	
Saunas	Are timers installed on sauna heaters?			> Install timers on sauna heaters	
Gym equipment	Is all equipment turned off after business hours?			> Ensure all equipment is turned off at night > Post signage requesting guests switch off equipment after use	

Kitchen equipment

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
General					
Settings	Is equipment left on standby during slow times or afterhours?			> Switch off all equipment when not in use > Install timers as needed	

Maintenance	Is kitchen equipment cleaned regularly?			> Regular cleaning and flushing out of equipment will keep it running properly and most efficiently	
	Is regular maintenance scheduled?			> Develop a maintenance schedule to ensure leaks and breaks don't go unnoticed and compromise efficiency	
Steamers					
Operations	Is the boiler door left open?			> Keep the door closed to avoid evaporation and wasted energy	
	Do compartments frequently go unused but remain left on?			> If you only use 2 or 3 steamer compartments, shut down the remaining compartments during slow times	
Settings	Is the timer set on the steamer?			> Set timer to ensure steamer only runs on full heat when needed, set to reduce heat or switch off when not needed.	
Equipment	Are steamers connectionless?			> Consider upgrading to a connectionless steamer which operates without a boiler or drain- saving you money on energy and water.	
Broilers					
Settings	Can broiler cooking area be reduced?			> Turn off sections of the broiler when unneeded, such as slow times	
Equipment	Is broiler aligned with exhaust hood?			> Be sure broiler is fully under the hood as close to the back wall as possible	
Pasta cookers					
Settings	Is temperature automatically set to max to boil water?			> Find the minimum setting required for boiling rather than automatically setting to max	
Ovens					
Equipment	Is oven a combination oven/steamer?			> If yes, operate in combination mode sparingly, which wastes large amounts of energy and water. Operate separately as need per manufacturers guidelines.	
Settings	Is oven operated only when full?			> Try to schedule baking when oven is full, minimising idle time	
Maintenance	Are seals and hinges operating correctly?			> Replace seals and gaskets if torn and make sure door hinges are tight and aligned properly	
Ranges					
Maintenance	Are burners maintained and clean?			> If flames are uneven or yellow, cleaning and adjustment of air shutter is probably needed	
Equipment	Does range use induction technology?			> Consider upgrading to an induction range, which operate much more efficiently than traditional gas or electric ranges	
Griddles					
Settings	Is griddle left on all day?			> Minimise idle time and switch off during slow times	
Equipment	Does griddle have grooved and flat surfaces?			> As a griddle is more efficient than a broiler, when purchasing a new griddle, consider one with both flat and grooved cooking surfaces- which will leave boiler-like char marks on food and save energy by minimising broiler use	
Holding cabinets					
	Is hot food holding cabinet left on overnight?			> Switch off at night or install timer	

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
	Is holding cabinet well insulated?			> Consider upgrading to a more efficient, insulated model	
Dishwashers					
Operations	Are dishwashers only run when full?			> Only run dishwashers when full and consider cutting the wash cycles if possible	
	Does dishwasher have an internal hot water tank heater?			> Switch off after hours or install timer	
Settings	Is the water temperature and rinse pressure set to manufacturers recommended settings?			> Follow manufacturers specifications for both temperature and pressure settings	
Equipment	Is dishwasher Energy Star rated?			> When upgrading, purchase most energy and water efficient model	
	Are conveyor-style dishwashers always operated in auto mode?			> Make sure conveyor-style dishwashers are always operated in auto mode, this saves energy by only running the motor when needed	
	Does the dishwasher have wash curtains?			> Add and maintain wash curtains, which operate more efficiently by trapping heat	
Ice machines					
	Is ice primarily produced during peak daytime hours?			> Switch ice production schedule to run at night during off-peak electricity hours when demand and prices are typically lower	
	Is ice machine most water and energy efficient?			> When upgrading, look for most energy and water efficient models	
	Does your ice machine fit your use requirements?			> Bigger ice machines can be more efficient than smaller ones that are constantly producing	

Refrigeration					
Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Maintenance	Are refrigerator doors and seals in proper condition to close tightly without leaks?			> To test, if you can easily remove a note from between the seal and frame, the seal needs to be replaced > If the seal is cracked or separated it should be replaced	
	Are refrigerator coils clean and dust free?			> Regularly clean and maintain refrigerator equipment	
	Do door gaskets need to be replaced?			> Replace refrigerator door gaskets that are torn or loose	
	Are refrigerant levels at appropriate levels?			> Make sure refrigerant levels are full, operating with too little refrigerant reduces the efficiency of a refrigerator	
Location	Are fans and equipment unobstructed?			> Make sure there is a 15 cm gap between the wall and the back of the refrigerator	
Settings	Are refrigerators set to most efficient temperature?			> Increase temperature to avoid over cooling and freezing	
	Is the freezer frost free?			> Defrost any ice build up > Only defrost as long as you need to, avoid excess heating	
	Are door heaters left on constantly?			> Switch off door heaters on refrigerators and freezers and turn back on when frost begins to build up or if water is dripping. Be sure to never compromise safety or performance of equipment.	

		Y/N	Units (no., type)	Suggested follow-up action	
	Are timers installed to switch off appropriate refrigerators when facilities are unoccupied?			> Install timer plug ins on all appropriate refrigerators (ex, only bottled beverages that are non-perishable) to turn off after hours and back on prior to opening	
Equipment	Are refrigerators most energy efficient models?			> If refrigerators are older inefficient models, consider upgrading to Energy Star rated	
	Do walk in refrigerators have strip curtains?			> Install plastic strip curtains that trap air and minimise air loss when door is opened	
	Do refrigerated display cases have night curtains?			> Install night curtains on open display cases to cut down on wasted energy after hours	
	Are refrigerators appropriately sized for facility needs? Example, 2 larger refrigerators rather than 4 mini-refrigerators.			> Remove multiple mini refrigerators and buy a larger more efficient model	
	Are unnecessary refrigerators removed or switched off?			> Remove or unplug unused refrigerators	

Office equipment

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Settings	Are computers, monitors, printers, copiers and other office equipment turned off when not in use?			> Place signage near exits reminding staff to switch off > Use reward programs to incentivise staff to switch off > Install timer plug ins on office equipment to switch off after hours	
	Are computers, monitors, printers, copiers and other office equipment set for "sleep" or energy saving mode?			> Program or set all equipment to energy saving or sleep mode > Remove 'screen savers' these only waste energy	
Equipment	Is office equipment the most energy efficient models (generally Energy Star)?			> Consider upgrading older equipment to energy efficient Energy Star rated	
	Is equipment recycled or properly disposed of at end of use?			> Contract waste contractor about appropriate disposal rather than sending old equipment to the landfill > Recycle old equipment > Donate old equipment to non-profit organisations	

Building

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Maintenance	Are seals, weather stripping and caulking around openings in good condition?			> Replace seals that are cracked, dry or missing	

		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
	Does building insulation need to be repaired or replaced?			> Replace insulation that is no long effective	
Settings	Are blinds and shades adjusted to take advantage of daylight and utilise or avoid the impact of solar heat?			> Adjust the blinds throughout the day to minimise heat loss or over heating	
	Are operable windows used for ventilation whenever possible?			> Open windows and take advantage of free fresh air whenever possible	
Facilities	Have thermal windows and glazing been installed to minimise heating and cooling loss?			> Consider replacing single paned windows the double or triple panes > Consider glazing/tinting to minimise solar heating	
	Are ceilings, roof and walls insulated?			> Consider insulating all possible walls, ceilings and roofing to maximise efficiency	

Vehicles and transportation

Check list		Y/N	Units (no., type)	Suggested follow-up action	Responsibility
Maintenance	Do company vehicles receive regular maintenance?			> Schedule all vehicles for regular service inspections	
Equipment	Are company vehicles most fuel efficient models available for your business's requirements?			> Consider retiring older or inefficient vehicles and purchase more efficient and/or hybrid and diesel fleets	
	When purchasing a new vehicle is fuel efficiency prioritised?			> Prioritise fuel efficiency when purchasing new vehicles	
	Are vehicle GHG emissions offset?			> Consider purchasing carbon offsets for vehicle related GHG emissions	
Communication	Are employees encouraged or incentivised for taking public transport or carpooling?			> Promote public transport to staff > Organise carpooling schedules > Offer travel passes pre-tax	

Hospitality: Water walk-through audit

Facility size: _____ m²

Operating hours: _____

Average number of guests (or other KPI unit):_____

Baseline water use per annum: _____kL

Baseline water use KPI: _____ kL/guest/day

Other instructions:

1. Identify water flow rates for all toilets, urinals, showers, taps and sprayers. (Consult manufacturer's user guide for toilets and urinals and see flow rate test instructions below for showers, taps and sprayers)

2. Compare water flow rates to WELS ratings on Tables 16 and 17

3. If accessible, read water meters regularly and compare actual water use to the facility's water reduction goal. Large water users should read meters daily.

Simple toilet leak test

To detect silent leaks – remove the toilet cistern lid, flush the toilet to empty the cistern and add a few drops of food colouring to the cistern as it refills. If the tank is leaking, colour will appear in the bowl within 15 to 30 minutes. If your toilets are not of the standard cistern and pan variety, (cavity mounted cisterns for example) then please do not attempt to investigate any leaks.

Note: Be sure to flush toilet after test is complete to ensure the food colouring does not stain toilet.

Shower and tap flow test

1. Fully turn on the cold-water tap of your shower or tap

2. Hold a bucket under the shower for 20 seconds

3. Remove the bucket and turn the water off

4. Measure the amount of water in the bucket by emptying a litre at a time into the measuring container

5. Calculate the flow rate (in litres per minute) by multiplying the number of litres by three. For example, if you collected 8 litres over the 20 seconds, the flow rate is 8 x 3 = 24 litres per minute

Administration and communication					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Communication and policy initiatives	Has the critical need to conserve water been broadly communicated within your business?			> Develop and post commitment policy statement > Implement employee and guest education and engagement programs	
	Has a management team been organised to provide strategy and leadership around water conservation?			> Create sustainability team involving senior management > Include sustainability measures in business strategy development	
	Has a water management plan or savings plan been developed?			> After audit, develop an immediate and long-term water savings plan. See Table 7	
	Have internal policies and procedures been developed around water conservation and management?			> Use the audit findings to develop policies and procedures addressing the most critical and immediate water savings measures	
Employee engagement	Are water conservation/efficiency posters displayed throughout the facilities?			> Display signage reminding guests and staff to conserve water in relevant locations, i.e., kitchens, bathrooms > See Sydney Water's Every Drop Counts program	

	Check list	Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
	Do you provide rewards/ acknowledgement programs for employee who are conserve water?			> Develop engagement and rewards programs for staff	
	Are employees provided education around water conservation?			> Include water savings training at staff meetings and provide information in public areas such as bulletin boards and internal website	
	Are employees provided regular updates on water usage and progress towards water savings?			> Provide water savings progress reports to staff	
Water tracking	Is water usage regularly metered, monitored and recorded?			> Determine water baseline > Record the location of water meters on floor plan sheet > Record the meter number, reading, date and time > Set up a monitoring schedule	
	Is water use benchmarked against industry best practice?			> After baseline is determined, benchmark against industry standard > Alternatively, calculate water rating via NABERS website	
	Have water savings KPIs and targets been set?			> After baseline, KPIs and benchmarks are determined, set target savings	
	Are water costs and program performance included in financial and business reviews?			> Add water savings performance to financial reviews and updates	
Water billing	Do you know your water costs?			> Review and record water data for every bill received	
	Are monthly water bills reviewed for accuracy?			> Double check water usage vs cost for each bill > Review audit findings and bills for areas of high water use, investigate cause and check for leaks	

Metering

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Meter reading	Are there sub meters on amenities and hot water supply?			> Consider installing sub meters on key equipment, such as pools, spas, cooling towers, etc) to help monitor water use	
	Has leak detection analysis been carried out by monitoring water meters during zero flow periods i.e. overnight?			> Record meter reading afterhours then again before opening. If there is a change in meter reading, there are leaks occurring	

Amenities

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Toilets	Are toilets single flush?			> Replace with dual flush (6/3 litre or 4.5/3 litre models)	
	If you have single flush toilets, can you reduce the cistern flush volume?			> Consider reducing flush volume by adjusting cistern float arm or install a displacement device or weight. Caution- may not be appropriate for all models	
	Are toilets dual flush?			> Check volume, replace 11/5.5 and 9/4.5 litre models with 6/3 or 4.5/3 litre models	
	Are the toilets leaking/running? (See test above)			> Fix leaks and running toilets	
	Are the cistern rubber seals on toilets replaced regularly?			> Replace every 2 years	

		Y/N	Units (no., type)	Suggested follow-up actions	
Urinals	Are urinals cyclical ('fill and dump') flushing?			> Replace with push button/pull chain or automatic sensor flushing units	
	Do urinals have automatic sensor flushing?			> Check sensors are working properly and not flushing more than once every 6 minutes regardless of number of users	
	Is the flow rate within the manufacturer's recommended range?			> If no, maintenance is required	
Sink taps (check all taps- kitchen, bathrooms, etc)	Are sink taps leaking? Check tap and pipes below.			> Fix any leaks	
	Do sink taps have flow regulators and aerators? (To check tap flow, see above)			> Install flow regulators and aerators that reduce flow to 6 litres per min > Look for WELS rated taps	
	Are taps mixed (both hot and cold together) or separate?			> Convert to mixed taps to minimise wasting water-quicker achievement of optimum temperature	
	Is the flow rate within the manufacturer's recommended range?			> If no, maintenance is required > Install flow restrictors or replace with WELS rated fittings	
Showers	Do showers have water saving showerheads? (To check showerhead flow, see above)			> Install flow regulator or aerator that reduces flow to at least 9L/min > Replace showerheads with WELS rated units	
	Are showerheads leaking?			> Fix leaks	
	Is the flow rate within the manufacturer's recommended range?			> If no, maintenance is required	
Large water boilers	Are water boilers switched off at night?			> Turn off at end of each day or install timer plug-in	
	Is temperature set too high?			> Reduce to minimum temperature needed	
	Are the boilers leaking?			> Check overflow valve, especially in older models	
	Is the boiler used frequently?			> If no, discontinue use and supply smaller more efficient kettle	
Hot water heaters	Are hot water heaters switched off at night?			> If appropriate, install timer plug-in	
	Is temperature set too high?			> Reduce to minimum temperature needed	
	Are there leaks?			> Repair any leakage	
	Is hot water heater and piping insulated?			> If no, install insulation	

Swimming pools

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Equipment	Does swimming pool have a cover?			> Install pool cover on all pools and jacuzzis > Cover pool and jacuzzis out of hours	
	Does swimming pool have a sub meter?			> Consider installing a sub meter on pools to help monitor water use and leaks	
Maintenance	Are filters cleaned through backwashing on a regular basis?			> Double check that excessive backwashing is not occurring. Be sure that backwashing occurs in accordance to health codes and practices > Schedule regular cleaning and maintenance	
	Have pool equipment and meters been monitored for leaks?			> Repair any leakage	
Settings	Is indoor air temperature set 1C above water temperature to minimise evaporation?			> Adjust air temperature to 1C above water temperature	

		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
	Is water temperature set to minimum required for comfort?			> Lower water temperature as appropriate	

Kitchen equipment

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Steamers					
Settings	Is steamer set to standby mode?			> Set to standby mode, which typically consumes minimal water	
	Is steamer timer control set?			> Setting steamer to timer should automatically switch to standby mode after a cook cycle, saving additional water and energy	
Equipment	Is steamer new model or connectionless?			> Consider upgrading to a connectionless model which saves both water and energy or a newer more efficient model	
Combination ovens					
	Is combination oven (has dry and moist heat and steam modes) boilerless?			> Consider upgrading to a boilerless model, which saves both water and energy	
	Is combination oven used in convection mode when possible?			> Setting to convection mode can reduce unnecessary water use, when appropriate	
Pasta cookers					
	Is pasta cooker set to continuous boil?			> Reducing the setting to simmer rather than rolling boil will reduce water use	
Woks					
	Is wok range flow rate set too high?			> Consider reducing the flow rate on properly insulated woks	
	Is wok waterless?			> Consider upgrading to a waterless wok > Subsidies are available for waterless woks	
Ice machines					
	Is ice machine water cooled?			> If yes, significant water savings can be found by upgrading to an air cooled model	
Pre-rinse sprayers					
	Is pre-rinse sprayer low water flow model?			> Install a water efficient low flow sprayer on all dishwashing stations > Free low flow sprayers are available through Sydney Water	
Dishwashers					
	Does manual fill valve close completely?			> Be sure valve is completely closed when wash tank is full. Repair if needed	
	Have dishwashers been calibrated recently?			> Rinse cycles and pressure setting should be set to manufacturers specifications	
	Is rinse bypass drain on conveyor type dishwashers properly adjusted?			> Adjust bypass drain if needed, improperly adjusted drain will cause excessive rinse water to drain	
	Are rinse nozzles in good condition?			> Replace worn rinse nozzles	
	Are staff adequately trained to operate dishwashers?			> If dishwashers are operated in manual mode, they may remain continuously "on" – switch to automatic mode > Staff should be trained in most water efficient use	
	Is dishwasher most water efficient model?			> Consider upgrading to a more water and energy efficient model	

HVAC (no cooling tower)

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Maintenance	Are HVAC systems scheduled for regular maintenance?			> Schedule regular maintenance and repairs	

Cleaning					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Cleaning staff	Are water management and savings actions communicated to cleaning staff?			> Include cleaning staff in education and awareness programs > Provide educational signage and fact sheets	
	Are water hoses used for cleaning floors, sidewalks and car parks?			> Use a push broom rather than water hose for cleaning > If water is required, use a water broom, which are even more efficient than high pressure hose nozzles	

Outdoor space					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Landscaping	Are there alternatives to potable water for irrigation?			> Consider rainwater or stormwater systems	
	Are native vegetation and/or low-water plants used for landscaping?			> When landscaping, utilise native and low-water plant species	
	Is compost used?			> Use compost to improve soil and will retain water	
	Are drip hoses used?			> Use drip hoses rather than sprinkler systems, minimises evaporation and water waste	
Water features	Is water recycled?			> Consider water recycling options	
	Are there any leaks?			> Repair leaks	

Miscellaneous					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Rainwater tanks	Does building have rainwater tank?			> Consider installing rainwater tank	

Hospitality: Visual waste audit and waste walk-through checklist

Facility floor space: _____ m^2

Operating hours: _____

KPI units (Kg/guest//day):_____

Visual waste assessment:

This option for conducting a waste audit consists of visually sampling the waste stream and recording types and frequency of waste found in receptacles.

Main techniques:

> Visual inspection of the different waste types and systems within the building

> Estimate quantities of each waste type

> Conduct site analysis

> No physical sorting conducted

Before visual audit:

> Check with the maintenance/janitorial staff to schedule the audit at a time of day when building receptacles are all at their fullest

> Recruit two or three people to conduct the audit, depending on the size of the building and number of building waste receptacles

> Observe any OH&S requirements, i.e. plastic gloves, etc

> Ensure audit takes place on a 'typical' day, avoid times of unusually high or low waste activity such as holidays or end of financial year

Visual waste audit process:

1. Auditors should complete a walkthrough of the entire building, checking and recording the contents of 3-5 sample of waste bins on each floor or department. You should not typically have to handle garbage, a visual survey should be sufficient. Remember this is an estimate to gain a general idea of the types and amounts of waste being disposed of. Be sure to take notes.

2. Using the table below, estimate the percent bin is full, place a tick mark for each material observed in a receptacle and approximate the material volume by percentage

3. Repeat for each type of sample waste container in all locations (i.e. desk side containers, lunch/break room, kitchen, and supply rooms).

4. After completing the walk-through and recording your findings, tally the tick marks for each material. This will demonstrate which wastes were found most frequently throughout the building. For example, "copy paper was found in 5 out of 6 building waste receptacles." Also, be sure to account for percent bins are full as to not over estimate findings by assuming all bins are 100% full.

5. Repeat process for recycling bins, if applicable

Information found during a visual waste audit will help determine the types and amounts of wastes that could be recycled, reused, composted or avoided to begin with. If you already have a recycling program, this audit will let you know if additional communication and efforts are necessary to maximise recycling and reduce waste.

Terms used in audit:

Waste: garbage, trash

Materials: key supplies purchased, such as, stationary, paper, food, guest room items, cleaning supplies, etc

Recycling: recyclable materials such as paper, glass, metal, etc

Sample Visual Waste Assessment Worksheet							
Location: Repeat table for each area and recycling receptacles **Key Areas**: Kitchen, bars, guest rooms, break room, conference room, reception and central areas							
Material: Estimated visual (%)	Sample Waste receptacle 1	Sample Waste receptacle 2	Sample Waste receptacle 3	Sample Waste receptacle 4	Sample Waste receptacle 5	Sample Waste receptacle 6	Average findings
% of bin full	100%	50%	25%	10%	25%	0%	35%
Bin size	25 L	25L	25L	40L	25L	25L	27.5 L
Days since collection	1	1	1	1	1	1	1 day
Food and organics	× 50%	× 50%	× 10%	× 25%	× 0%	0%	22.5%
Cardboard	× 5%						
Copy paper	× 10%						
Newspaper	× 10%						
Aluminium cans	× 5%						
Glass							
Plastic	× 10%						
Mixed paper							
Magazines	× 10%						
Other							
Other							

Waste walk–through checklist					
Administration and communication					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Communication and policy initiatives	Has the critical need to reduce waste and recycle been broadly communicated within your business?			> Develop and post commitment policy statement > Implement employee education and engagement programs	
	Has a management team been organised to provide strategy and leadership around waste reduction and recycling?			> Create sustainability team involving senior management > Include sustainability measures in business strategy development	
	Has a waste reduction and recycling plan been developed?			> After audit, develop an immediate and long-term recycling and waste minimisation plan	
	Have internal policies and procedures been developed around waste reduction and purchasing?			> Develop policies and procedures addressing the most critical and immediate waste reduction measures, i.e., recycling and purchasing policies	
Employee engagement	Are waste reduction/recycling posters displayed throughout the organisation?			> Display signage reminding staff to recycle and conserve resources	

		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
	Are rewards/acknowledgement programs provided for employee who recycle and reduce waste?			> Implement engagement, education and rewards programs for staff	
	Are employees provided education around waste reduction and recycling?			> Include waste reduction and recycle training at staff meetings and provide information in public areas such as bulletin boards and internal website	
	Are employees provided regular updates on recycling and progress towards waste reduction?			> Provide waste reduction and recycling progress reports to staff	
Waste, materials and recycling tracking	Are waste, materials (stationary, paper, supplies, food, guest room products, etc) and recycling regularly monitored and recorded?			> Record material, recycling and waste levels and spending when a bills are received > Determine waste, material and recycling baselines	
	Have material, recycling and waste reduction KPIs and targets been set?			> After baselines are determined, set target savings against industry standard (when available) with timeframes	
	Are material, waste and recycling program performance included in financial and business reviews?			> Add waste reduction, material and recycling performance to financial reviews and updates	
Waste, material and recycling billing	Are monthly waste, material and recycling bills reviewed for accuracy and efficiency?			> Double check all bills for accuracy upon receipt > Review your material use by recording and monitoring invoices for consumables such as food, kitchen and hotel supplies, paper, stationary and other common purchases > Review visual waste audit findings against material purchases and look for supplies that are consistently being disposed of- can these be reused, reduced or avoided?	

Recycling

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
General waste	Are there recyclable materials in the general waste, i.e. cans/bottles?			> Communicate recyclable materials and goals to staff regularly > Post signage reminding staff and guests to recycle and what materials can be recycled	
	Is there high contamination in recycling bins, i.e. garbage in paper recycling bins?			> Communicate recyclable materials and goals to staff regularly > Post signage reminding staff and guests to recycle and what materials can be recycled	
Comingled	Is comingled recycling provided?			> Consider providing comingled recycling bins in offices, guest rooms and conference centres	
Paper	Is paper recycled?			> Provide comingled or paper recycling in key areas, such as offices, conference centres, guest rooms, lobbies and near printers/copiers/faxes	
	Are secure documents recycled?			> Contact your recycling provider and discuss options for secure document recycling	
Plastic	Is plastic recycling available?			> Contact recycling provider > Consider comingled recycling options > Provide receptacles in key areas, i.e. kitchens, restaurants	
Aluminium/metal	Is aluminium/metal recycling available?			> Contact recycling provider > Consider comingled recycling options > Provide receptacles in key areas, i.e. kitchens, restaurants	

		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Glass	Is glass recycling available?			> Contact recycling provider > Consider comingled recycling options > Provide receptacles in key areas, i.e. kitchens, restaurants	
Location	Are waste bins provided at each desk in offices and guest rooms?			> Remove waste bins from office desks and replace with co-mingled or paper recycling bin > Provide recycling bin in each guest room > Provide centrally located waste bins rather than individual bins	
	Are general waste and recycling bins located in convenient locations?			> Place recycling bins near printers/copiers and high traffic areas such as lobbies > Only provide the minimum number of waste bins necessary and have recycling bins next to general waste bins	
Awareness	Are employees and guests informed and provided information on recyclable materials and goals?			> Give regular waste reduction updates at staff meetings > Provide signage and information to guests about waste reduction goals	
	Are recycling bins clearly labelled with accepted recyclables?			> Label bins and post signs near waste and recycling bins noting accepted materials	
	Are waste and recycling bins consistent in colour and design making them the clearly distinguishable?			> Try to ensure waste and recycling bins are different from each other and consistent in colour and size to avoid confusion or accidental waste disposal rather than recycling	
	Are there examples of good practice, i.e. reuse paper trays near printers, double sided printing signs near printers?			> Place reuse trays and recycle bins near printers/copies > Post reminder signage > Recycling bins near vending machines	
	Are cleaning/janitorial staff informed on waste reduction and recycling initiatives?			> Review recycling procedures and accepted materials with cleaning staff > Include cleaning staff in waste and recycling education initiatives > Update cleaning policies and procedures to include waste reduction and recycling principles of best practice	

Supplies and purchasing

Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Offices and conference centres					
Paper	Are paper and stationary products made from recycled content? If yes, what percent is recycled (5,30,100%)?			> If yes, consider sourcing options with higher recycled content when possible > If no, source options with recycled content	
	Are there paper or stationary products that are rarely used?			> Review paper and stationary needs and discontinue unnecessary or duplicate products	
Toners	Are toner and printer cartridges remanufactured?			> Rather than buying new cartridges, source remanufactured options	
	Are toner and printer cartridges recycled?			> Recycle cartridges to manufacturer or designated recycling facility	
Purchasing procedures	Is there obvious waste of unused items i.e. office stationary, food, etc?			> Review purchasing procedures and avoid reordering unneeded supplies	
	Have staff that purchase supplies been informed of waste reduction policies and initiatives?			> All staff who are involved in purchasing should be briefed on waste reduction measures and sustainability purchasing policies	

	Check list	Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
	Are 'green' supplies purchased?			> When purchasing new office supplies, look for green options such as 'stapleless' staplers, reusable clips and refills > Prioritise supplies that minimise packaging or packaging can be recycled or returned for reuse	
Bathrooms					
Cleaning products	Are cleaners supplied with environmentally friendly cleaning products?			> Discuss changing to green products, i.e., non-toxic, biodegradable, phosphate free	
	Are bathroom tissue and paper towels made from recycled content?			> Source options with recycled content > Source items that minimise packaging	
Kitchens					
Kitchen supplies	Is food sourced from local producers whenever possible?			> Utilise local producers to minimise transport and waste costs resulting from long distance travel and spoilage	
	Is organic food purchased?			> Consider sourcing organic foods, which do not use harmful chemicals and pesticides	
	Are there high levels of food in kitchen waste bins?			> Look into composting options, i.e., set up compost in outdoor areas, community garden, worm farm > Review kitchen procedures for ways to reduce excessive food waste, examples, minimise over prepping food, revise menu to maximise food purchases, assess food deliveries upon arrival and do not accept spoiled food > Donate left over food to local charity or farmer	
	Are there high levels of food in restaurant and café waste bins?			> Consider reducing portion sizes > Provide guests with environmentally friendly takeaway containers	
Takeaway and dining	Are disposable dishes, cups and utensils used for in house dining or takeaway meals?			> Use reusable utensils rather than disposables for in house dining > If disposables are necessary, source those that can be recycled, reused more than once and/or made from recycled/ biodegradable content	
	Do employees use disposable dishes and utensils?			> Supply employees with reusable dishes and utensils	
	Are plastic bags automatically given to guests for takeaway meals?			> Ask guests if they need a bag or utensils rather than automatically giving	
Misc supplies	Do maintenance and grounds keeping staff use green chemicals or less toxic alternatives to such chemicals as paints, fertilisers and pesticides?			> Discuss changing to green products with grounds and maintenance staff > Supply and source green product alternatives	
Equipment					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Copiers, printers and faxes	Do all copiers/printers/faxes have duplex capacity? Number yes: Number no:			> Purchase multipurpose printers/copiers with duplexing capacity > Consider rationalising copiers and printers into a fewer number of multipurpose printers/copiers	

	Are all computers and printers default settings set to print double sided?			> Set defaults to print double sided	
	Is office and kitchen equipment recycled or properly disposed at end of use?			> Avoid sending outdated equipment to the landfill, find a recycling centre or donate	
	Are mobile phones recycled?			> Collect mobile phones and chargers and recycle > Set up a mobile phone recycling bin at work. Visit www.mobilemuster.com.au	

Communications					
Check list		Y/N	Units (no., type)	Suggested follow-up actions	Responsibility
Electronic communication	Do you send paper invoices?			> Switch to paperless (electronic) billing	
	Do you send out paper advertisements or promotions?			> Send advertisements via email > Minimise throw away guest and customer giveaways	
	Is your mailing list regularly updated?			> Remove duplicate and out of date addresses from mailing lists	

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Note: Website references current as of January 2009

NSW Business Chamber

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