

## **BUSINESS EFFICIENCY TIPS**

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## Lighting

Lighting typically accounts for 7% of industrial electricity cost and up to 40% of energy costs in commercial buildings. Increasing the efficiency of lighting systems can create significant financial savings. An average upgrade to lighting will save over 40% of lighting energy costs.

- Turn off lights whenever they are not in use
- Keep windows clean and use natural light, by opening curtains and blinds, whenever possible
- Consider installing skylights
- Install energy efficiency globes, compact fluorescent lights (CFL) use 80% less energy than traditional incandescent globes
- To choose the correct wattage CFL for your needs divide the wattage of your existing incandescent light by 5
- Consider banking your lights and having separate switches for different work areas
- Use motion sensors or timers for security lighting or lighting in low traffic areas
- Upgrade your T8 fluorescent tubes to more efficient T5 fluorescent tubes, T5s use 35–39% less energy and can be retrofitted into most existing fittings using a conversion kit

<http://www.todae.com.au/Products/officelighting/energyefficientfluorescenttube-replacementkit/>

- Replace halogen downlights with energy saving LED or CFL alternatives. These lights will use a fraction of the energy and will create significantly less heat – both LED and CFL downlight replacements will last longer than traditional halogens
- Install reflectors and investigate de-lamping where appropriate
- When choosing new lighting fixtures look for the product that suits your lighting requirements that has the least possible energy consumption (look for wattage of the lamp and any ballasts or transformers)
- Consider the life span and maintenance costs when choosing lamps and fittings, remember the higher lighting fittings are, the harder they are to change and the brighter the lamp needs to be
- Consider energy efficient alternatives to inefficient hi-bay lighting
- Use Electric Ballasts on all fluorescent lighting systems to reduce operating costs

## Heating and Cooling

Heating and cooling are major contributors to peak demand for energy. Significant saving can be made by managing heating, cooling and ventilation systems correctly.

- Set air conditioners and heaters at the correct temperature – 24-27°C for summer cooling and 18-20°C for winter warming

*For every degree cooler in summer or warmer in winter your system will use 10% more energy*

- Improve the energy efficiency of your air conditioner by minimising internal heat gains by using energy efficient lighting; avoid the unnecessary use of electrical appliances; and locate equipment that generates excess heat outside or provide a separate ventilation system
- Decrease the demand on your air conditioning and heating systems by minimising external heat losses and gains. Consider installing insulation; double glazing; external shading; window tinting/reflective coating; and blinds/curtains
- Dress appropriately for the weather to reduce reliance on artificial heating and cooling
- Stop gaps and cracks to reduce draughts in winter and heat intrusion in summer
- Consider installing timers on heating and cooling systems to ensure that they are not operating when they don't need to be
- Don't heat or cool unoccupied spaces
- Keep your heater well maintained, according to the manufacturer's instructions - keep reflectors shiny and dust free, and clean air filters regularly

## Hot Water Systems

Hot water is costly to generate so it is important that it is produced and used efficiently. The following tips can help you choose the right water heater and ensure that it runs as efficiently as possible:

- Consider using a timer for your hot water system so that water is not needlessly heated during times when it is not needed
- Install timers on urns or replace these appliances with a kettle
- Consider installing insulation and pipe lagging on your hot water system
- Set your thermostat to a lower temperature generally 50° C for instantaneous systems and 60° C for storage systems is sufficiently warm enough
- Shut your water heater and urns off if your business closes for any extended periods of time – e.g. over Christmas
- Use waterwise appliances and install flow restrictors on taps
- Fix any leaking pipes or taps
- Locate water heating systems close to the major point of use
- When choosing a new water heater, select a system that is the right size for your needs and consider a solar hot water or heat pump system. Discounts on solar hot water systems are now available for businesses through our *Rebates for Residents* program
- When replacing your hot water system with a more efficient one check whether your business qualifies for any State or Federal Government Rebates

## Refrigeration and Coolrooms

The energy used to power commercial refrigeration systems in Australia creates approximately 6.6 million tonnes of greenhouse gas emissions p.a - the same as the annual emissions from 1.3 million cars

- Set your refrigerators and freezers to the correct temperatures;
  - Summer temperatures – refrigerator 3° and freezer - 18°
  - Winter temperatures – refrigerator 5° and freezer - 15°
  
- Check all door seals are functioning efficiently on your refrigerators, coolrooms and freezers, replace any old, cracked or inefficient seals
  
- Load products while they are still cool
  
- Defrost frozen goods in the refrigerator
  
- Locate refrigerator systems and coolrooms away from direct sunlight or any other sources of heat
  
- Turn off refrigerator and coolroom lights when they are not needed
  
- Consider switching anti-sweat heaters off when they are not required
  
- Keep condensers clean and ensure that they are sufficiently ventilated
  
- Consider locating compressors and condensers in a cool, well ventilated area outside
  
- Minimise stock levels in coolrooms to allow better air circulation
  
- Make sure compressor fans are clean and free of dust
  
- Avoid purchasing open refrigeration and freezer units - install plastic strips on all existing open refrigeration units
  
- Consider turning off refrigerator units that contain non perishable items at night
  
- Install plastic strips on the coolroom doorways to maintain internal temperature when the doors are opened and closed
  
- Regularly defrost freezers
  
- If the majority of your business' energy use is the result of refrigeration investigate the benefits of a tariff analyst

## Efficient Equipment

Office equipment accounts for approximately 20% of electricity used in the commercial sector. ENERGY STAR is an international energy efficiency standard for office equipment. ENERGY STAR enabled equipment can be programmed to switch to a low power mode if not in use for a specified period, providing significant savings.

- Most monitors use more energy than your hard drive – ensure that you switch off your monitor when you are not at your desk
- Choose a sleep mode instead of a screen saver – screen savers waste a lot of power
- Consider upgrading to laptops which can use 90% less energy than desktop computers
- Ensure that all office equipment, including printers, are turned off at the wall at the end of the day
- When choosing a printer consider an inkjet model - they use up to 95% less energy than laser printers
- Photocopiers use large quantities of energy, so choose the smallest size that will meet your needs
- When choosing a printer select a model that can print double sided and set your printer default setting to duplex
- Choose post consumer waste recycled paper
- Ensure that all equipment is maintained and in good repair
- When possible print in black and white as this uses less energy than colour printing
- When choosing new computer equipment, choose the smallest sized monitor that is appropriate for your needs – new LCD screens use less energy than the old CRT monitors
- When replacing office equipment ensure that old equipment is correctly recycled – the old CRT monitors contain heavy metals and need to be taken to an e-waste recycler
- Refill/reuse your printer cartridges – when disposing of these items, they should be sent to a specialised recycler, most Australia Post outlets have receptacles where you can place spent cartridges
- When choosing new office equipment look for Energy Rating labels and select the best rating possible

## Stand-by Power

Stand-by power is the energy consumed by an appliance when it is plugged in but not in use. It has been estimated that standby power costs Australians more than \$950 million p.a. Stand-by power represents an avoidable cost that is not attached to any income generating activity.

- Program your computer to power down your printer, scanners and copiers when you turn off your computer
- When investigating standby power in your workplace look for appliances that have lights on; that are warm; or make a humming noise when they are not in use
- Make sure that ALL appliances that have transformers are switched off at the wall - not only do they use standby power but they are also a fire hazard
- Consider installing timers on appliances that are used at regular intervals
- Use a power board with separate switches to access hard to reach plugs

## Commercial Kitchen Equipment

Commercial kitchens use significant amounts of electricity, water and gas. Increasing efficiency in your commercial kitchen will reduce your operating costs and increase profit margins

- Check, maintain and clean seals on ovens, warmers and Bain Maries on a regular basis
- Ensure that appliances such as stove tops, rangehoods, fryers, ovens and Bain Maries are only on when they need to be
- Always keep lids on when heating foods and use the right sized appliance for the job
- To ensure that optimal running efficiencies are achieved regularly check and clean your rangehood
- Check urns and instantaneous boiling water units for leaking seals
- Regularly check dishwasher seals for leaks and keep clean and free of debris
- Insulate rangehood ducts to prevent heat from escaping into the ceiling cavity
- Install flow restrictors on taps where appropriate
- Ensure that any pre-rinse spray arms are fitted with new, water efficient fixtures – new fixtures have flows as low as 4 L per minute without reducing water pressure and performance
- Consider putting urns, slush puppy machines and hot water storage units on timers

## Other Resource Efficiency and Greenhouse Emissions Reduction Tips

- Consider switching to an accredited Green Power or Natural Power product
- Consider Carbon Offsetting to reduce your business' environmental footprint
- Consider purchasing renewable energy generation technology such as solar panels and/or wind turbines to generate some or all of your energy requirements on site – contact the ***switch your thinking!*** team for information on Government incentives currently available for business and industry
  
- Use environmentally friendly cleaning, specifically products that;
  - Don't have any carcinogens
  - Have a low phosphorus content
  - Are plant-base and biodegradable
  - Have minimal packaging that is recyclable
  
- Choose local suppliers and consider sharing deliveries with neighbouring businesses
- Involve staff in efficiency drives, or incentive schemes
- Consider low emission vehicles
- When choosing new equipment and plant factor in whole-of-life costs
- Regularly check your tyre pressure - flat tyres create drag on the car resulting in greater fuel use. An under-inflated tyre can increase fuel consumption by 3% and take 10,000 km off the tyre's life
- Look for ways to reduce wastage - If every office worker in Australia used one less staple per day, for a year 88.3 tonnes of steel would be saved p.a

## Efficiency Auditing

To receive the best possible return on investment for resource efficiency actions it is important to understand consumption patterns of your businesses. Energy, water and waste audits will help you to identify major costs and inefficiencies. There are a number of commercial businesses that offer efficiency audits, if you require assistance choosing an auditing service download the Sustainable Energy Development Office's *Energy Smart Directory* at:

[www.energysmartdirectory.com/](http://www.energysmartdirectory.com/)

Alternatively there are a number of templates available online to assist businesses to conduct their own energy, water and waste assessments.

Start investigating your energy usage with *Synergy's Energy Calculator* at (Note: Calculator based on A1 tariff)

[www.synergy.net.au/at\\_home/energy\\_calculator.xhtml](http://www.synergy.net.au/at_home/energy_calculator.xhtml)

## Energy Performance Contracting

Energy Performance Contracting is a smart way of financing energy efficiency upgrades, whereby future energy savings pay for the cost of upgrades. Allowing you to make the energy upgrades you need now and pay for them later through the energy savings that result. Any large building, or group of buildings, is an ideal candidate for performance contracting, including schools, hospitals, commercial office buildings and light industrial facilities.

For more information visit:

[www.aepca.asn.au](http://www.aepca.asn.au)

## Building Management System

Using a Building Management System (BMS) to gain tighter control over your building can cut total energy costs by up to 30%.

Through the BMS, services such as air conditioning, ventilation and heating, lift services, hot water systems and lighting are able to be controlled in ways that minimize energy use while optimizing comfort and functionality.

For more information on Building Management Systems visit:

[www.energysmart.com.au/sedatoolbox/esm8.asp](http://www.energysmart.com.au/sedatoolbox/esm8.asp)

## LIGHT INDUSTRY

### Motor Systems

Roughly 28% of Australia's total electricity consumption results from the use of industrial and commercial motors. By improving the efficiency of motors and checking the suitability of the motor type for a particular task, it is possible to save up to 40% of energy costs.

- Use variable speed drivers (VSD) which automatically choose the most efficient operating speed to achieve significant energy savings
- Choose the most energy efficient motor and equipment that suits your needs
- Always switch off equipment when it is not in use
- Choose appropriately sized equipment
- Service and maintain all equipment

### Compressed Air Systems

Compressed air is often referred to as the fourth utility (after water, electricity and gas). It is also one of the most expensive industrial utilities, with about 10% of all electrical energy used by industry employed in compressing air.

- Maintain equipment by regularly checking for and repairing leaks in air lines - by stopping leaks it is possible to save 25-40% of energy costs associated with air compressors
- Always turn equipment off when it is not being used
- Reduce pressure to the lowest setting required
- Avoid using air compressors if possible – e.g. use a broom to clean flat surfaces
- Locate compressors in well ventilated areas – cool intake air provides greater efficiency

### Fans and Pumps

Most pumps and fans are not run at their maximum efficiency and the potential savings are disproportionately large - it is possible to reduce energy costs by over 80% by halving the speed of pumps or fans

## **What is Cogeneration?**

Cogeneration is one of the major technologies that can significantly reduce greenhouse gas emissions from industry, typically by up to two thirds. It turns otherwise wasted heat into a useful energy source, providing greater efficiency. Cogeneration also offers benefits to industry in terms of reduced operating costs and increased utilisation of resources. Cogeneration has proven to be a reliable technology, currently operating at over 100 sites across Australia.

For more information about cogeneration visit the Sustainable Energy Development Office's website at

[www.sedo.wa.gov.au/pages/cogen.asp](http://www.sedo.wa.gov.au/pages/cogen.asp)