

CLIPSAL
LIVINGgreen[™]
ELECTRICAL SOLUTIONS FOR A SUSTAINABLE FUTURE





Introduction

“Any switch can light a room, but ours can make the future brighter.”

As the number one manufacturer of electrical accessories in Australia, and as a member of the Schneider Electric family – the world leader in electrical accessories, we at Clipsal Australia recognise the responsibility that we have in coupling good business with good environmental outcomes.

Acting like a leader

Caring for the environment and the pursuit of sustainability has always been good business practice. With environmental issues now more topical than ever before, Clipsal has worked hard in recent times, quite successfully, to maintain and improve our high environmental standards as our business continues to grow. We have invested a great deal in planning, training, communication and continuously identifying areas in which we can reduce, control and eliminate environmental risks. Add to this our commitment to environmentally friendly product design and our ISO 14001 Certification and it's easy to see that we're not just talking like a leader, but we're acting like one.

Product Suitability Icons

In the product pages of this booklet, the following symbols represent Clipsal's recommendation for whether the product is suitable for residential, commercial or industrial applications



Suitable for residential applications



Suitable for commercial applications



Suitable for industrial applications

Clipsal Environmental Star Ratings

The following 'Clipsal Environmental Star Ratings'* represent the level of energy efficiency of each product. Use this as a simple visual guide to see how your choices of electrical accessories can contribute to a more sustainable future.



Clipsal 5 Star Rating



Clipsal 4 Star Rating



Clipsal 3 Star Rating



Clipsal 2 Star Rating



Clipsal 1 Star Rating

**These Environmental Star Ratings are intended to be used as a guide only in helping you to make a more informed choice when choosing Clipsal energy efficient products. These ratings are not warranted by Clipsal or any other manufacturer of the products.*

Some Facts and Figures

The facts

“Energy Efficiency” refers to products or systems using less energy to do the same or better job than conventional products or systems. Energy efficiency saves energy, saves money on utility bills, and helps protect the environment by reducing the amount of electricity that needs to be generated. Source: www.epa.com.au

Clipsal Australia, are committed to supporting the global strategy of achieving a more environmentally conscious and efficient society. Clipsal provide a portfolio of energy efficient solutions aimed at helping everyone to do their part towards the global objective of being more energy efficient and conscious of the environment.

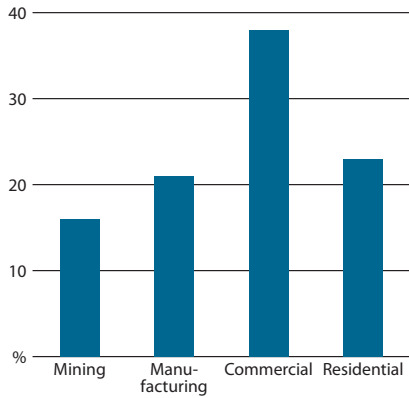
“Electricity demand has expanded strongly in the last 20 years by more than 4 per cent per year, and has doubled over the last two decades. Electricity generation is a major primary energy user, equal to around 40 per cent of total primary energy... accounting for two thirds of stationary energy emissions”. Source: *‘Securing Australia’s Energy Future’*, ©Copyright Commonwealth of Australia 2003, Chapter 1, page 36.

Clipsal has recognised this forecasted growth in electricity demand. As a result, we have created an extensive product portfolio, with the intention of offering energy efficient electrical solutions to help minimise the effect this growing demand has on the environment.



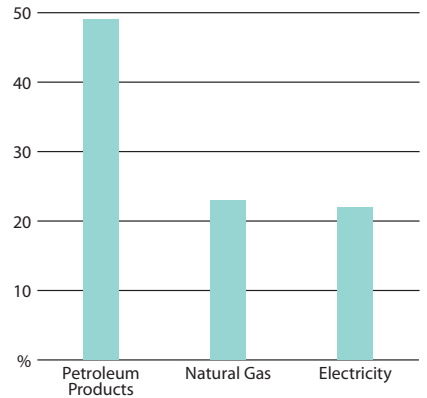
Commercial electricity consumption is projected to increase by around 38 percent by 2030

Contribution to electricity consumption growth
2003-04 to 2029-30



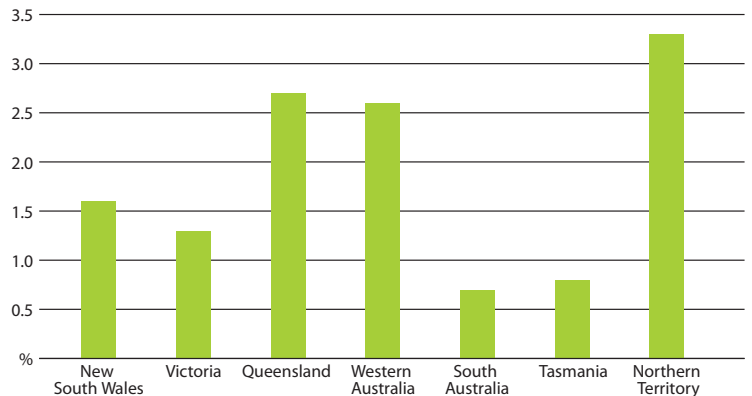
Petroleum products are expected to represent the highest level of growth in energy consumption in coming years

Contribution to growth in final energy consumption
2003-04 to 2029-30



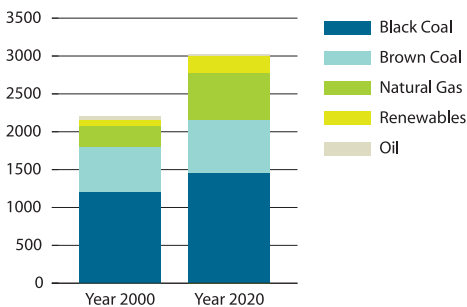
The Northern Territory, Queensland and Western Australia are expected to show the highest growth in energy consumption by 2030.

Primary energy consumption growth, by region
Average annual growth 2003-04 to 2029-30



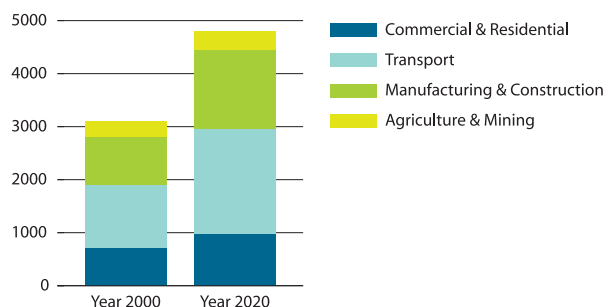
Source: The ABARE e-report by Muhammad Akmal and Damien Riwoe on Australian energy national and state projections 2029-30, page numbers 3, 4 and 5.

Energy inputs into electricity generation



Source: 'Securing Australia's Energy Future', ©Copyright Commonwealth of Australia 2003, Chapter 1, page 41.

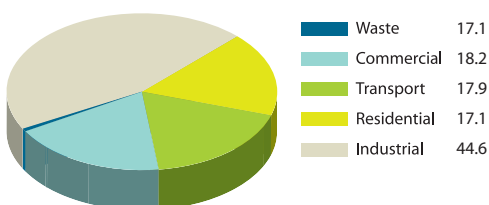
Total Australian final energy consumption



Source: 'Securing Australia's Energy Future', ©Copyright Commonwealth of Australia 2003, Chapter 1, page 40.

The following pie chart illustrates a typical community emissions profile.

Community Emissions - National Average



Source: Cities for Climate Protection™ Australia Program Report 2000-2001.

Where is the potential for energy efficiency in Australia?

Sector	Energy efficiency potential (%)	Energy end use 2000-01 (PJ)	Percentage of energy use (%)	Energy efficiency potential (PJ)	Percentage of energy efficiency potential
Manufacturing and mining	6.2	1250	67	78	51
Commercial	10.4	224	12	23	15
Residential	13	399.5	21	52	34
Total		1873.5	100	153	100

Source: 'Securing Australia's Energy Future', ©Copyright Commonwealth of Australia 2003, Chapter 6, page 110.

Company strategy for a brighter future – leading by example

Clipsal have formulated numerous business strategies to promote energy efficiency whilst implementing solutions for a sustainable future.

Environmental Business Practices

Clipsal's commitment is evident through:

- Strong portfolio of Energy Efficient product solutions
- Commitment to all (BCA), Building Code of Australia requirements
- Compliance with RoHS (Reduction of Hazardous Substances) – although not compulsory in Australia
- Manufacturing practices – ISO 14001 (Environmental management systems) standard for Environmental Management
- ISO 14001 – Compliance with material waste disposal techniques
- Compliance to the ISO 18001/AS4801, Safety Management Systems standards
- PVC minimisation strategy
- (E) Environmental Improvement projects, including resource conservation for energy, water and material waste.

Clipsal recognises the importance of continuous improvement and intends to work toward stronger, sustainable outcomes in these areas.

On the move

Clipsal Australia is committed to the long-term objective of targeting environmental sustainability and offering environmental solutions. Part of Clipsal's involvement in this global strategy is reflected in the latest project for Clipsal Australia, the development of Clipsal's new head office / manufacturing facility at Gepps Cross. Through this \$35M transformation, Clipsal are targeting a 5 Star Green Rating for building development and a 5 Star Energy Rating.

Clipsal intend to use the new sight as a case study, showing how businesses can be leaders in the global objective of being committed to the global strategy of conserving the environment.

Artist's impression of the Clipsal's new head office / manufacturing facility at Gepps Cross, South Australia.

CLIPSAL on the
move

International certification

“Clipsal’s accreditation demonstrates a strong commitment to social responsibility, and proves that our products are manufactured in a safe workplace where environmental risks are identified and controlled.”

Brad Williams, Clipsal’s Health, Safety and Environment Manager.

After several years of hard work, in November 2006 Clipsal Australia was proud to announce the achievement of the ISO 14001 standard for Environmental Management and ISO 18001/AS4801 for Safety Management, both of which are internationally recognized benchmarks.

The improvement in Clipsal’s systems has been a big focus in manufacturing and distribution divisions and has brought about a reduction in injury rates, an improvement in the working environment for our employees and the identification and control of several potential environmental risks. According to Brad Williams, Clipsal’s Health, Safety and Environment Manager, ‘The standards achieved require a high level of health, safety and environmental management with both certifications focusing on continuous improvement in these areas.’



Certified
Environmental
Management

ISO 14001 Lic CEM20445
SAI Global



Occupational
Health
and Safety

AS/NZS 4801 Lic OHS 20319
OHSAS 18001 Lic IOHS 20319
SAI Global



Photo courtesy of NASA

Environmental policy - RoHS compliance

"Take care of the earth and she will take care of you."

Wherever practical, Clipsal products incorporate materials that can be effectively recycled.

Initiatives



Clipsal Australia has a dedicated HS&E department that monitors and implements the Environment Policy formulated by its parent company the Schneider Electric Group. The policy takes a holistic approach to environmental issues such as water and energy conservation. A good example of this is the recent successful trial of waterless urinals in the Clipsal Australia Pty Ltd head office.

The Schneider Electric manufacturing division have engineers dedicated to designing and implementing programs that eliminate the use of toxic materials in products manufactured in their plants. These programs have also been embraced in the Clipsal manufacturing process, demonstrated by a current push to remove hazardous substances from all products. This is in accordance with the European Union RoHS Directive 2002/95/EC.

By law, Australia does not have to comply with the rulings of RoHS (Reduction of Hazardous Substances). Clipsal Australia however, has set a target to comply to the RoHS directive, as we strongly believe in the principles and benefits offered to the environment, through the initiative.

Details of Clipsal's Environment Policy and current initiatives can be found on the Clipsal Australia Pty Ltd web site, www.clipsal.com

The RoHS directive stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment". This directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

Manufacturers need to understand the requirements of the RoHS directive to ensure that their products and their components comply. *Reference - www.rohs.gov.au*



Government support

National Government action to support the energy efficient solution.

Clipsal have recognized the opportunities for helping to create a more energy efficient society in accordance with Government initiatives and legislation.

In a document published by the Commonwealth of Australia in 2003, it has been highlighted that "The potential economic and environmental gains from increasing the uptake of commercial energy efficiency opportunities warrant a high-priority response from Government".

Source: 'Securing Australia's Energy Future', ©Copyright Commonwealth of Australia 2003, Chapter 6, page 110.

Clipsal's environmental strategies and energy efficient product offerings help to support government's overall strategies for a greener Australia. Clipsal intends to continue supporting green initiatives by ensuring that we are able to offer an energy efficient product range, and adopt green manufacturing processes wherever possible.

One highly topical, key Government focus is the phase out of incandescent lighting, replacing all instances with alternate energy efficient lighting sources including CFLs (Compact Fluorescent Lamps) and LEDs. CFLs are an energy efficient alternative, consuming a lot less energy, using lower wattage globes and saving consumers dollars on their power bills per year. Using CFLs could result in an enormous 80% saving in electricity consumption.

Clipsal are committed to supporting this national initiative, with targeted solutions on incandescent lighting issues.



Environmentally sustainable developments

Meeting your requirements

Why build “green”? Buildings consume 32% of the World’s resources including 12% of its water and up to 40% of its energy, while being responsible for 40% of waste going to landfill and 40% of air emissions – Greenbuilding Council of Australia.

ABGR Australian Greenhouse Rating & energy efficiency

The Australian Building Greenhouse Rating (ABGR) is considered a benchmark for clients to showcase their commitment to the Environment. “The Australian Building Greenhouse Rating scheme assists office building owners and tenants to reduce energy use, reduce energy costs and reduce greenhouse emissions” (www.abgr.com.au).

Clipsal Australia, as manufacturers of energy efficient product alternatives and solutions, can assist clients with creating an energy efficient building and improve on the ABGR star rating.

Green Building council of Australia

“The Green Building Council of Australia (GBCA) has developed a national environmental rating tool for buildings called the ‘Green Star’ rating system” (www.gbcaus.org)

The Green Building Council of Australia take a holistic approach towards helping clients achieve their desired Green Star ratings. One key category within the GBCA Green Star rating tools is Energy.

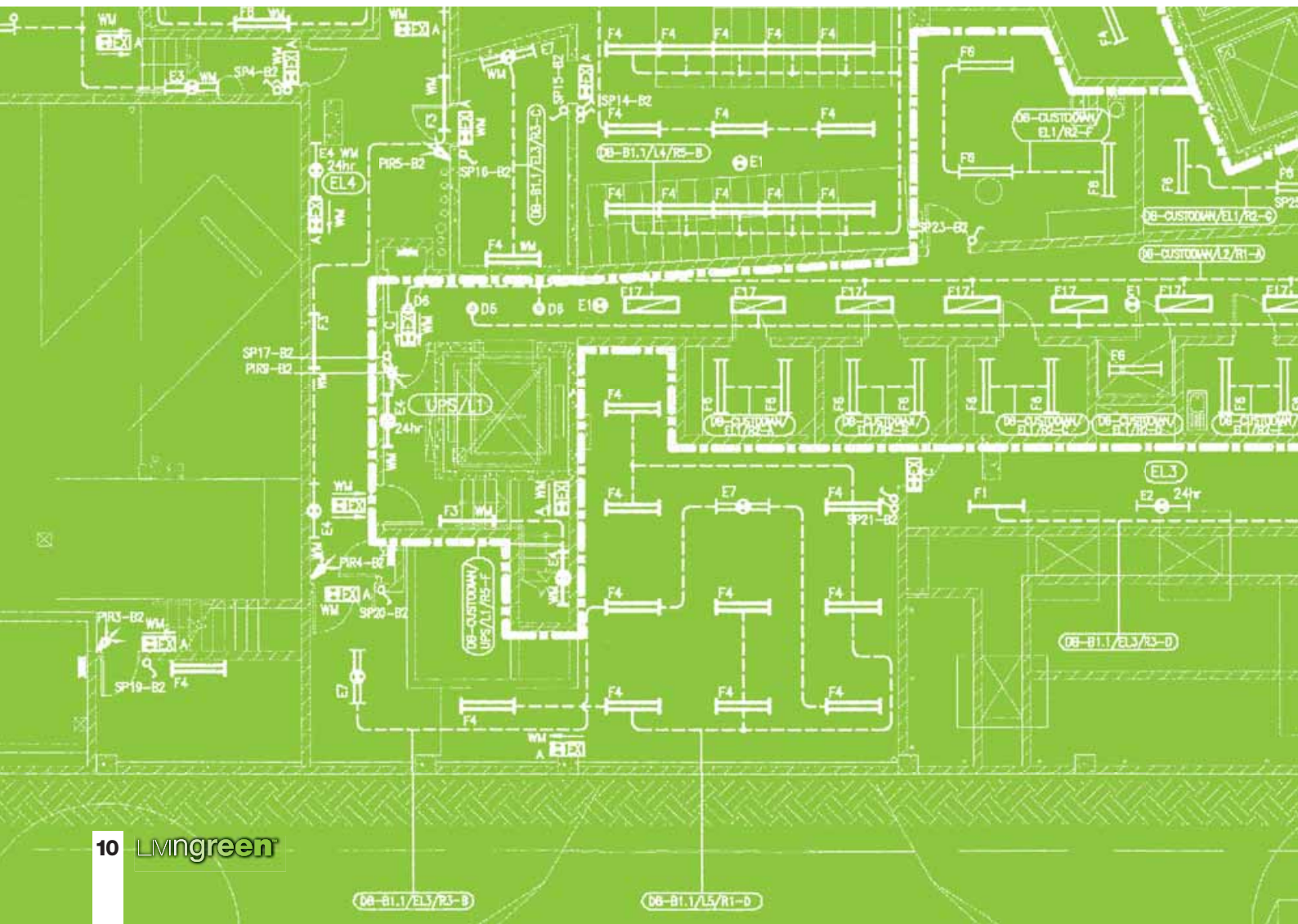
Clipsal Australia can look to assist you in meeting set criteria in the Energy category of the Green Star Rating tools.

Clipsal Australia, through their commitment to the environment, have been responsible for the design and manufacture of numerous energy efficient product solutions, providing cost effective and environmentally friendly solutions for developers.

“By recognising and rewarding environmental leadership in the top 25% of the market, Green Star aims to assist the building industry in its transition to sustainable development”

(www.gbcaus.org)

For more information on Green Building Council of Australia, and information on Green Star Ratings, please visit www.gbcaus.org



Efficient Energy Systems

"Efficient Energy Systems, a branch of Clipsal Australia's green initiative, continues to be a leader in the installation of superior lighting and energy management systems throughout Australia".

Suppliers of Clipsal KW/2 lighting reflectors, without doubt the best lighting reflector technology in the world.

Efficient Energy Systems

Since 1992, Efficient Energy Systems (EES), a subsidiary of Clipsal Australia, has pioneered and continues to be the leader in the installation of superior lighting and energy management systems throughout Australia. Thousands of office, educational, commercial, manufacturing and health facilities have reduced their lighting energy bills using EES designed solutions and the proven technology of Clipsal KW/2 lighting reflectors, without doubt the best lighting reflector technology in the world.

Efficient Energy Systems specialises in the supply of luminaires and lighting schemes for new buildings, and are also highly experienced in the upgrade of existing lighting systems to meet current building codes and market expectations.

Our parent company Schneider Electric offers a comprehensive range of energy efficient solutions for commercial and industrial business.

For more information on how EES can assist you to meet your building requirements, visit www.eesaustralia.com



KW/2 Reflectors



CTTR136ELW840S

**Lighting that is twice as efficient –
Kilowatts are halved**



Most commercial buildings are lit with fluorescent light fittings creating the biggest energy and maintenance saving opportunity. Replacing inefficient lighting can achieve generous energy savings. With the use of high performance reflectors, triphosphor fluorescent tubes and low loss or electronic ballasts, this produces the optimum energy and maintenance savings.

- Simple technology, KW/2 advanced reflector technology is used to increase the light output from fluorescent light fittings,
- In some instances, it may be possible to use half the number of fluorescent tubes in a light fitting to get the same lighting result,
- KW/2 reflector profiles are custom designed for each light fitting type to get the best lighting result each time,
- Available in many shapes and sizes to suit just about any application, from offices to street lighting,
- Depending on the body shape of the existing fluorescent light fitting, KW/2 reflectors may be able to be retrofitted,
- Twice as efficient with reduced maintenance.

Environmentally friendly product offerings

“Electricity generation currently accounts for 35% of Australia’s total greenhouse gas emissions and is continuing to grow...”

As demand for electricity grows, it is important to find ways to reduce the greenhouse gas intensity of electricity supply as well as adopt strategies to conserve energy.

This is where Clipsal Australia and the diverse range of energy efficient products comes in. Clipsal manufactures and sells numerous products that help to lower greenhouse gas emissions, encourage/promote energy efficiency, save consumers money each year on their electricity bills and most importantly, help preserve our environment for future generations.

Facts about Clipsal Products

- Over 94% of Clipsal products are PVC free[~]
- Clipsal products are 97% Halogen free*
- Clipsal products are manufactured in accordance with the RoHS directive 2002/95/EC (restricting the use of certain hazardous substances in electrical and electronic equipment) – this is not compulsory, however Clipsal values the benefits of this directive and have voluntarily taken part.
- Products are packed and distributed in packaging that is made from 85% recyclable material, and promoted in literature printed on 80% recycled paper.

[~]PVC is only present in Clipsal’s conduit and conduit fittings.

*3% Halogen is found in products containing PVC.

PVC Minimisation Strategy

Clipsal Australia values the importance of continual improvement. Although PVC is only present in a small percentage of Clipsal products, the importance of its replacement is recognised.

PVC is a material used nationally by all conduit and conduit fitting manufacturers, so it becomes an issue for all in this field. Clipsal are proactively working towards further reducing this figure, investigating alternative plastic options that still maintain the high quality and high chemical resistant nature of our existing conduit product offerings.

Halogen Free Product

Clipsal have successfully recognised the need for a Halogen free alternative for conduit and conduit fittings with 97% of Clipsal products being Halogen free. Unlike conventional PVC, the special plastic alloy used to manufacture our HFT conduit and fittings, contains no Halogens (Chlorine, Bromine, Fluorine, Iodine) therefore no corrosive gases are released in the event of a fire. Preventative fireproofing and the damage reduction following a fire have gained increasing importance as today’s commercial buildings house more and more people, technology infrastructure and equipment. HFT conduits and fittings are fire resistant, self-extinguishing within 10 seconds and non-dripping. They also have an operational temperature range of between -40°C to 140°C, which is greater than similar PVC units.

In addition to Clipsal’s comprehensive range of HFT conduits and fittings, Clipsal recently released a Low Smoke Zero Halogen (LSZH) LAN (Data) cable. Our LSZH LAN cable is rated to category 6 performance and complies with all relevant international standards.

For Halogen free conduit and conduit fitting options visit www.clipsal.com.

Clipsal Australia's commitment to the environment is demonstrated in the vast range of energy efficient products offered to market. The Clipsal range of energy efficient products is designed to help the environment, improve surroundings and save money.

C-Thru Dimmers™



CLIPSAL
GREEN STAR RATING

Simple Saver

Using a 60-watt globe at full illumination for eight hours per day would consume 175 kWh per year. A dimmer reduced to half brightness for half the time would save you 26 kWh per year.



Timers

Pneumatic Time Delay Switches



CLIPSAL
GREEN STAR RATING

Leave the timer in charge of turning the light off

Air valve timers are primarily designed for convenient operation of fans and lights in areas that will only be occupied for short periods of time. They can be set to switch off automatically, in anywhere from approximately two minutes to up to 20 minutes.



Sunset Switches



CLIPSAL
GREEN STAR RATING

Lights on only when you need them!

- These switches use a light sensor to turn on once natural light levels drop below the desired level,
- They automatically adjust to seasonal changes,
- Some also have inbuilt timers which means you can achieve even greater efficiency.

TIP: If you miss turning the lights off by just one hour every morning and evening you're using 109 kWh per year.



Mechanical Timer Switches



CLIPSAL
GREEN STAR RATING

Switches in the 56 Series Range allow time control in environments that require IP56 rated products such as dusty or wet areas. They are available in 24 hour and 7 day configurations.



Electronic Push-Button Timers



CLIPSAL
GREEN STAR RATING

Electronic timers will automatically turn the load off after a preset period of between 15 seconds and 254 minutes. So when the lights are left on, the switch will turn them off for you.

The results are real energy and cost savings in a variety of applications.





Cent-a-meter



CM113A

Monitor energy consumption instantly

Cent-a-meter is an electricity monitor, with a large LCD display that makes it easy to check the operating costs and energy consumption of your electrical appliances. It displays greenhouse gas emissions, temperature and humidity with a peak power limit alarm function. Most importantly, it can save you money and energy, which in turn benefits our precious environment.

Monitor and conserve energy use

- Simply press the mode button to check the power and electrical current used. This is calculated in cents per hour.

Reduce electricity costs and greenhouse gas emissions

- Contribute to environmental conservation and reduce your energy use by using the greenhouse gas display mode.

Set the alarm and save

- Peak power consumption can be reduced by using the alarm to keep power usage and cost below a set amount.

Set your comfort level

- Temperature and humidity display shows the comfort level. This allows you to turn off electric heating and cooling when not required.

Helps cool the globe

- It will change the way you think about energy use and conservation during daily activities.

Lights from Motion

Indoor Infrascan Motion Detector



751

Low cost, convenient lighting

Motion detectors offer a low cost and convenient way to ensure lighting and other loads are only consuming power when a room is occupied. Units respond to people movement, and automatically shut down after a preset time-out period once the room is no longer in use. Unnecessary use of power is thereby significantly reduced. Running costs are correspondingly reduced, as are the resultant greenhouse gas emissions.

A 250-watt security light left on all night will use 1000 kWh per year. However, if a Clipsal Infrascan activates even 10 times a night, you will only use 152 kWh per year.



Indoor 360° Infrascan Motion Detector



753

Savings can also be achieved by fitting an indoor Infrascan or 360° Infrascan in rooms like walk-in robes, pantries, stairwells, corridors, laundries and open living areas to ensure all lighting is switched off when areas are unoccupied.



Outdoor Infrascan Motion Detector



750WPR

An Outdoor Infrascan helps keep lighting to a minimum. Using infrared technology, it will only react to heat movement so that you only use lights when they are needed, making them ideal in carports, near entrance doors, or other outdoor locations.



Energy Controller



5610/240/4K8

Save 30% per year on your power costs

The Clipsal Energy Controller is designed to save energy consumed by fluorescent lighting.

Features:

- Energy efficiency saves 25-30% of power cost
- Easy to retrofit, simple, quick installation
- No modification of light fitting required
- Any number of units can be installed per site
- Fail safe – system wide failure not possible
- Current sensing for stable lamp switching
- Voltage sensing, “brownout” minimisation
- Extends life of tube, ballast and fitting
- Reduced temperature of light and fitting
- World leading technology and innovation
- Designed and manufactured in Australia.

The unit operates in one of two modes – Normal and Economy mode. In Normal mode, the standard 240V a.c supply voltage is applied to the load. After a short time has passed to allow all lamps to strike and warm up, the voltage applied to the lamps is reduced and the Energy Controller enters Economy mode. When running in Economy mode, the supply voltage is decreased by approximately 15% of nominal. Energy consumption by fluorescent lighting may be reduced by up to 30%.



Exhaust Fans



CEF40

New backdraft shutters increase efficiency of room heaters and air-conditioning

Exhaust fans now include backdraft shutters that prevent air escaping into the ceiling space when the fan is not in use.

Clipsal Airflow exhaust fans are available in traditional round designs or the new square designed centrifugal fan with whisper quiet operation.



Ceiling Sweep Fans



ACES48SS

Cool and circulate air more efficiently

With low consumption 65W motors, ceiling fans consume less electricity than most light bulbs. With the added benefits of:

- Air circulation
- Cooling
- Low running cost
- Energy efficiency
- Ceiling Sweep Fans provide an excellent option for low-cost cooling
- Secure alternative for air movement over opening a window.



5620 Series Reset System



5623S & 5621FVJ

Master switch

A retrofit table lighting control device, which can be used as part of a cost effective system that can offer significant lighting energy cost savings in existing commercial buildings. Lighting groups (in a cellular office, for example) can be automatically switched OFF via the central control panel and manually controlled ON or OFF via the local light switches, without the need for extensive re-wiring of existing lighting circuits. The unit incorporates an electronic circuit that switches up to 6A of fluorescent light fittings OFF when the 240V a.c. supply to a lighting circuit is pulsed OFF and back ON again over two seconds. This OFF pulse sets lighting to the OFF state until users turn the lighting in their vicinity back ON again from their local press light switch. The central time based control of lighting circuits can be provided by an existing Building Management System, a Clipsal C-Bus System or a time clock which can provide a two second on/off pulse.





The many benefits of Clipsal C-Bus

“Energy management – flexibility – user friendly – integration”

C-Bus provides simplicity and flexibility in the work place as each system is specifically designed for the building footprint and the needs of the people who use the building.

Unlike traditional wiring, all of the controlled lights and electrical devices on a C-Bus System are ‘networked’ together, which means they interact and operate within preset parameters or based on facts such as time of day, light level, occupancy, and temperature.

Lighting control with C-Bus is not about reducing light, it offers the correct light when required. Some of the options include:

- People will turn lights on, but not necessarily switch them off. The networking capability of C-Bus easily caters for a basic function of Manual ON – Auto OFF.
 - Simple time scheduling can be used to turn lights or electrical devices off when they are not needed.
 - › Staged shutdown of office lighting at preset times that do not significantly affect the occupants of the building
 - › Weekend time schedules may operate more frequently to provide maximum energy savings
 - › Power can be switched off to devices that sit in stand-by mode such as TVs in hospitality applications
 - › Only necessary lights turn on as part of a ‘cleaners schedule’.
 - Corridor linking provides a safe environment for staff during after hours operation and energy efficiency by switching off lights when not required.
 - Occupancy sensors are ideal to provide energy savings up to 60% for rooms that have irregular usage;
 - › Cellular offices
 - › Class rooms
 - › Conference rooms
 - › Amenities
 - › Lunch rooms
 - › Storage rooms.
 - Natural daylight can be used to reduce energy consumption by controlling the amount of artificial light used to light an area such as:
 - › Perimeter of office buildings with glazing
 - › Warehouse with skylights
 - › Walkway and soffit areas
 - › Atriums.
 - Office environments may have lighting that exceeds the standards. This provides an opportunity to dim the fluorescent fittings and maintain a constant light as required by AS/NZ1680.
 - Functions such as “All Off” provide smaller commercial environments peace of mind that all lighting and electrical devices have been shutdown to provide energy savings.
- Blinds and shutters may open and close automatically based on time of day, amount of light, or temperature difference between inside and outside, thereby reducing thermal transfer through windows;
 - › In summer, they may close during the afternoon period on the western façade of a building
 - › In winter, they close after-hours to keep the warmth inside the building.
 - Heating and cooling can be easily linked to lighting control to provide energy savings from efficient operation;
 - › In meeting rooms and classrooms, when all lights are off, the air-conditioning in the room can be shutdown
 - › Office towers can benefit by aligning air-conditioning zones and lighting zones.
 - More convenient controls such as touch screens and remote controls make it easier for people to control lights in lecture theatres, meeting and board rooms as well as hospitality applications.
 - Lighting areas and control functions can be easily changed if requirements change. For example, if a new tenant leases a floor in an office tower, the lighting control can be re-assigned according to the new office requirement.
 - Likewise, if a worker is in the office on a weekend, they only have to switch on their work area – not the entire level of lighting.
 - › The path to their work area may also be lit up accordingly.
 - Security lighting can remain off unless an alarm is triggered – then every light can turn on full for cameras to record the breach of security;
 - › This is useful for medium to small businesses as well as hospitality and retail.
 - The C-Bus protocol has integration capabilities via industry standard protocols such as BACnet, LON, Modbus, and OPC. Alternatively, the protocol is open to third parties who operate proprietary systems such as security and audiovisual.

Project Example – Defence Plaza Sydney
25 level office tower
Clipsal C-Bus system and other
energy efficiency products.
Reduced energy consumption 936,500kWh pa
Reduced energy running costs \$88,900 pa
Reduce CO² (Greenhouse) Gases 903 tonnes pa



C-Bus is totally flexible, providing infinite customisation for any environment. Sydney Opera House, Manchester Stadium, McLaren's F1 Headquarters, 10 Downing St, The MCG, Brisbane Magistrate Court, as well as Hilton, Sofitel and Westin Hotels around the world are just some of the sites using C-Bus to provide better energy control.

Case study

Australian Defence Force Academy (ADFA) Library Campbell, ACT

Achieving practical energy savings

Introduction

The Australian Defence Force Academy (ADFA) installed Clipsal Lighting Controls as an energy conservation measure for the Defence Energy Efficiency Program. This program resulted from the Federal Government's commitment to energy and greenhouse emissions reduction.

Background

The project included lighting controls for 36 different buildings. The majority of these buildings were educational facilities including lecture theatres, classrooms, general break-out areas, reading areas and lecturers' offices. The ADFA Library is a three storey building used by both ADFA and University of NSW academics, staff, students and cadets. The building is approximately 20 years old and incorporates light fittings that are predominantly single tube 36W fluorescent up-lighting fittings.

Design Considerations

Staff and students often utilise the library unsupervised, and leave lights turned on after leaving. Students are required to attend many different buildings on the campus.

The lighting solution required controls to be consistent across the campus and easy for staff and students to use without specific user training.

The Solution

Efficient Energy Systems (EES) were contracted to install Clipsal Lighting Energy Controllers to provide static dimming, occupancy movement sensors and a Clipsal C-Bus Control and Management System.

Installation was mostly completed during normal working hours, with any potential disruptive work conducted before the library opened.

Significant Savings

The lighting electricity consumption in the library was separately metered to provide a consumption load profile. This is shown right. The energy consumption prior to the project can be observed as a constant load of about 65kW, indicating excessive usage and no switching. The post implementation profile indicates both less electricity and being used during the day, and none after hours with regular switching after the library closes.

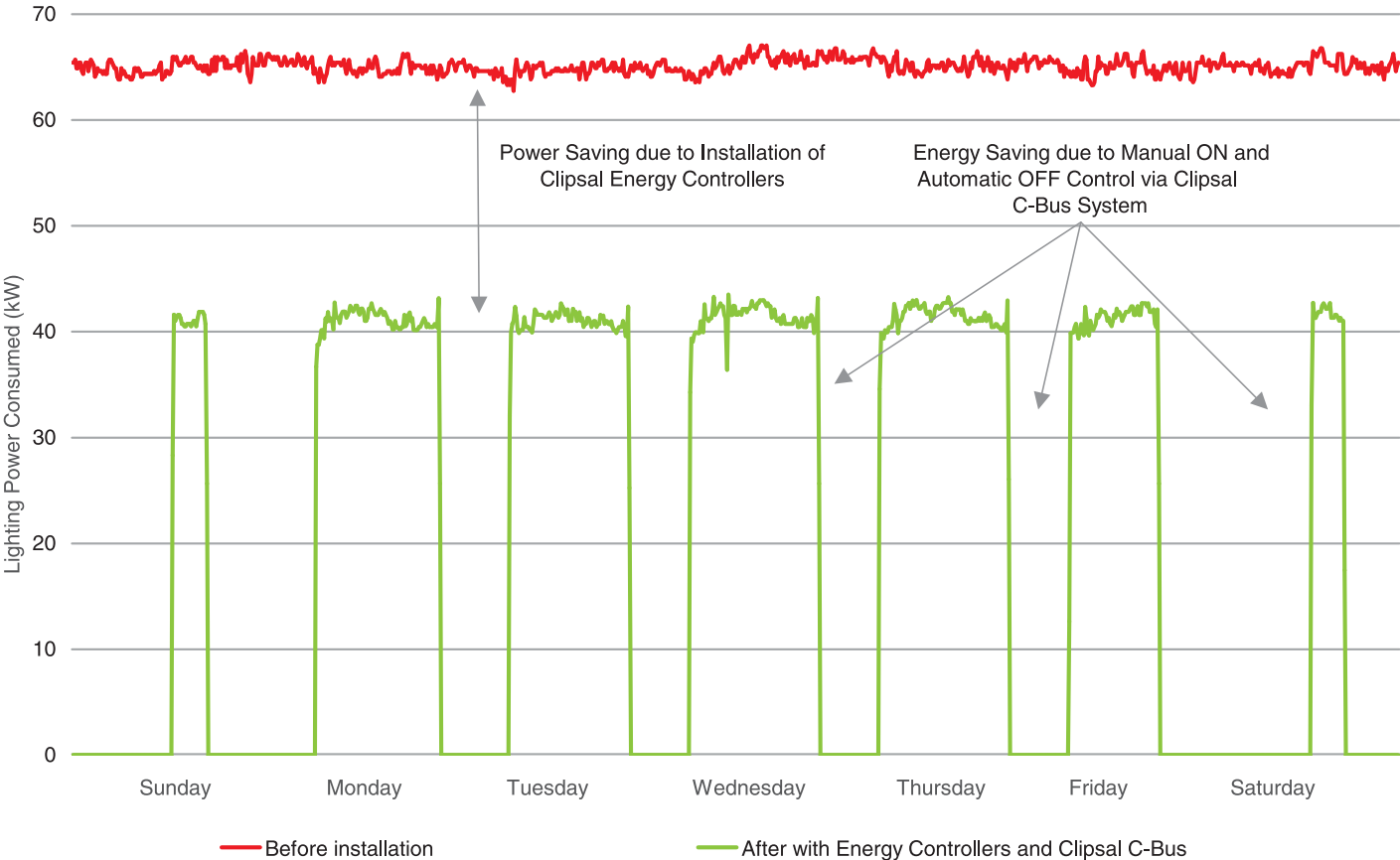
The result was a reduction in electricity consumption for the Library lighting alone of 2,244kWh, equivalent to 8,078MJ of energy each week. This will provide an annual energy saving of 420GJ and a cost savings in excess of \$7,500 p.a. The project will provide a return on costs in approximately 2.1 years.

For more information on how EES can assist you to meet your building requirements, visit www.eesaustralia.com



efficient energy systems

Australian Defence Force Academy, Campbell, ACT - Library Building
Lighting Control Installation for Energy and Greenhouse Gas Saving
Typical Pre and Post Energy Monitoring of a Lighting Distribution Board



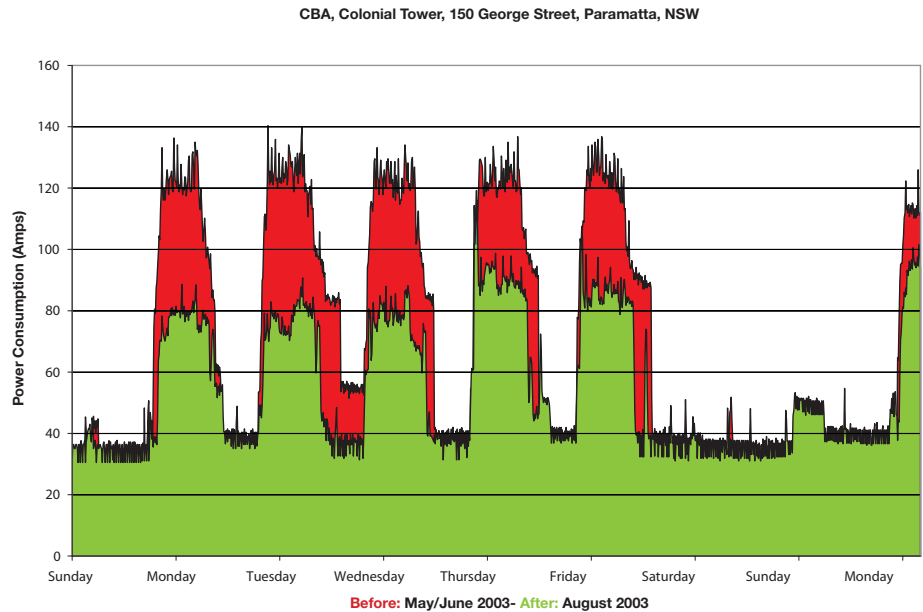


Achieving energy savings

Two practical studies

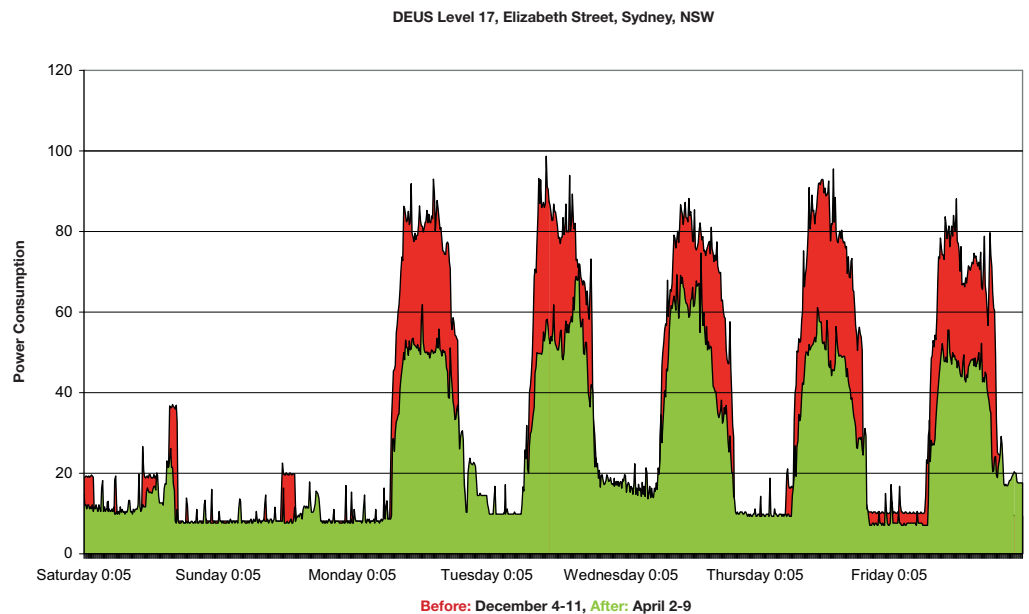
Commonwealth
Bank (CBA)
Paramatta
Colonial Tower.

■ Before Clipsal products
■ After Clipsal products



Department
of Energy,
Utilities and
Sustainability
(DEUS).

■ Before Clipsal products
■ After Clipsal products



Practical Energy Savings

These graphs represent two actual commercial applications where energy consumption was measured before and after the installation of Clipsal products. Significant savings have been achieved in both instances with the use of 5621 Series Reset Switches and 5610 Series Energy Controllers in the CBA installation, and KW/2 lighting reflectors and C-Bus products in the DEUS installation.



An integrated approach based on responsibility and business

A corporate commitment to sustainability

Leveraging our sustainability commitment and company capabilities to meet our customers' growing focus on energy usage.

Corporate conclusion

Clipsal Australia is committed to the global objective of creating a healthier happier planet for now, and for generations to come.

- ❶ Manufacturing and providing the nation with energy efficient, environmentally friendly product solutions
- ❷ Manufacturing solutions based products under the RoHS directive 2002/95/EC
- ❸ Manufacturing products that are majority PVC free and halogen free
- ❹ Continuing on with the company PVC minimisation strategy
- ❺ Assisting businesses nationally to achieve credit points towards Green Star Ratings with our energy efficient product solutions
- ❻ Maintaining the award of ISO 14001 Standard for Environmental Management and ISO 18001/AS4801 for Safety Management

Clipsal Australia aims to lower Greenhouse gas emissions and work towards an environmentally sustainable planet. We will do this by manufacturing energy efficient products and utilising environmentally friendly practices which all assist in positioning Clipsal Australia as an organization focused on creating a 'greener' Australia.



Clipsal Living Green has been printed on 80% recycled stock. This stock meets ISO14001 and IPPC criteria, representing an environmentally 'better' paper choice.



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	Sunshine Coast Sth	0438 282 299
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