

# Energy Smart lighting



Lighting costs the average New South Wales household up to \$100 each year. Careful selection of lamps and fittings can cut your energy costs for lighting by more than half.

This brochure can help you choose the most energy efficient lighting options for your home.

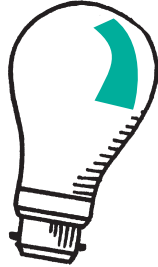
## Types of lights

There are three main types of household lamps or lights to choose from—incandescent, halogen and fluorescent. These lights are suitable for different rooms and uses in your home (see chart on opposite page).

### Incandescent

Incandescent lamps or bulbs are the most commonly used type of lighting. They are inexpensive to buy, but running costs are high. In addition, bulbs have to be frequently replaced as they last only 1000 hours.

Incandescent lamps are recommended for infrequently used rooms.

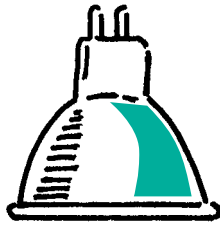


40W  
60W  
75W  
100W

### Halogen

Halogen lamps are about twice as energy efficient as standard incandescent globes. They are more expensive to buy, but last up to 2000 hours.

Halogen lamps are ideal for highlighting features such as a painting on a wall or for reading. Halogen lamps are low voltage lights and require a transformer.



### Fluorescent

There are two types of fluorescent lamps—compact and tubular.

Fluorescent lamps are the most energy efficient form of lighting. They are expensive to buy but cheap to run and last up to 8 000 - 16 000 hours.

#### Compact fluorescent lamps

Compact fluorescent lamps are designed to fit into conventional light sockets (bayonet and edison screw fittings). They use around one fifth of the power of incandescent globes to provide the same amount of light. They come as a one or two-piece lamp. The advantage of the two-piece lamp is that the bulb can be changed without having to buy a complete unit.

Compact fluorescent lamps are ideal for rooms where lighting is required for long periods of time, such as in the living room and kitchen.

Frequently switching fluorescent lights on and off reduces their life. They are not recommended for bathrooms and toilets.



### Tubular fluorescent lamps

Tubular fluorescent lamps, also known as tube lights, are available as straight or circular tubes. They are cheaper to buy than compact fluorescent globes.

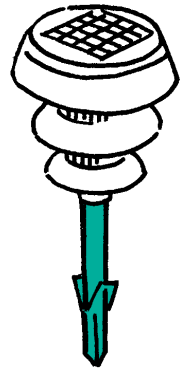
Tube lights are ideal for kitchens, garages and workshops.



## Solar lighting

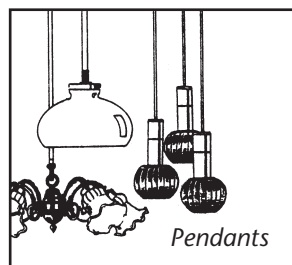
Solar power can be a practical and cost-effective alternative to conventional electrical lighting. Where lighting is required at a great distance from electrical circuits such as in the garden or along driveways, solar lights may be the answer. They are easy and economical to install. Solar powered lights do not require electrical cables to be run from the home. Electricity is produced by a solar panel during daylight hours, and stored in a battery for use at night. Up to eight hours of lighting can be obtained, if the solar panel is installed in a sunny location.

Solar lights are available from solar equipment retailers and specialised lighting stores.

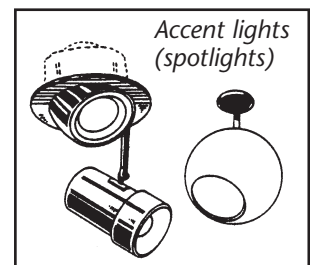


## Light fittings and room surfaces

Besides choosing the right globe for your needs, it is just as important to make sure the fitting you place it in will maximise light output. There are many types of light fittings available for different purposes. They include pendants, downlights



Pendants



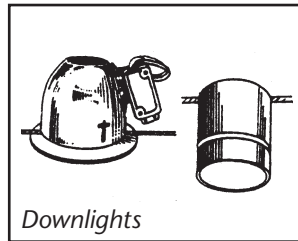
Accent lights (spotlights)

(recessed lights), accent lights (spotlights), close-to-ceiling, wall lights, portable and exterior lights.

Pendant fittings hang from the ceiling and provide maximum light from a single globe. They are recommended for general illumination.

Downlights (or recessed lights) provide bright pools of light, more suited to special purpose lighting such as highlighting a picture. They are however, a poor source of general illumination. Up to six downlights may be required to illuminate a room to the same level as one

pendant light, resulting in higher electrical and replacement costs. In addition, downlights vented to the roof space allow heated air to escape from the room, increasing heating costs.

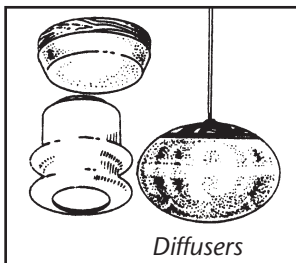


Downlights

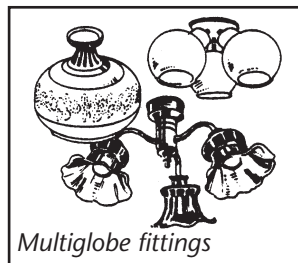
If down lights are used it is recommended that one switch type per light is used and only relevant lights are switched on when required.

Fittings with multiple globes are also an inefficient form of lighting. Around six 25 watt globes are required to produce the equivalent light output of a single 100 watt globe.

The type of light fitting, together with the design and colour scheme of a room, will influence the



Diffusers



Multiglobe fittings

amount of illumination. A light-coloured room, for example, will appear brighter and better lit than a room with dark surfaces.

Similarly, dark-coloured or heavily tinted lampshades and diffusers reduce illumination considerably. Dusty or dirty globes and fittings can reduce light output by up to 50%.

## Planning a lighting system

When planning a lighting system for your home, it is important to choose lamps and fittings to suit the room and the purpose for which the light is required.

- Use soft background light for general lighting, such as a fluorescent tube in the kitchen or a ceiling-mounted light in the centre of a bedroom.
- Use task or special purpose lighting for areas where work is carried out or where features are to be highlighted, such as over kitchen benches, for reading and to highlight a painting or ornament.
- A surface-mounted light is more effective than a recessed one. Task lighting avoids the effect of shadows cast by central overhead lighting and reduces the wastage of having to light up a large area when only a small area is in use.
- Place light switches at the main exits of each room. This will encourage people to switch off lights when leaving rooms. Use two-way switches.
- Dimmers can be used to create moods or effects within a room, and some energy is saved with their use. Dimmers cannot be used with standard fluorescent lights.

Room	Lighting type	Incandescent	Quartz halogen	Tubular fluorescent	Compact fluorescent	Solar
Kitchen	General	▲		●	●	
	Task	▲	●			
Living room	General	▲			●	
	Task		▲		●	
Dining room	General	▲	▲		●	
	Task	▲	●		▲	
Study	General	▲			●	
	Task		▲		●	
Master bedroom	General	●			●	
	Task	●	▲		●	
Children's bedroom	General				●	
	Task	●	▲		▲	
Laundry	General	▲		●		
	Task	▲	●		▲	
Hallway	General	▲			●	
	Task	▲	●		▲	
Bathroom	General	▲		●		
	Task	●	●			
Outdoor feature	General		●		▲	●
Security — constant	Task			▲	●	●
Security — motion detection	Task	●	▲			

● = recommended lighting source ▲ = alternative lighting source

## How much light?

The amount of light required in each room of a home varies. The following table is a guide to the maximum amount of light required per square metre of floor area in a room.

\* Watts per square metre

	Fluorescent (W/m <sup>2</sup> )*	Incandescent (W/m <sup>2</sup> )*
General purpose lighting	3 – 5	15 – 25
Specific task lighting	9 – 15	30 – 50

Equivalent luminaire	20 watt compact fluorescent	65 watt* quartz halogen	100 watt incandescent
Running costs (8000 hours)	\$16	\$52	\$80
Purchase cost **	\$10-15	\$5	\$1
Average life	8000 hours	2000 hours	1000 hours
Total costs (Over 8000 hours usage)	\$26-31	\$72**	\$88

(Running costs are based on the general tariff as at December 2001).

\* includes power consumed by the transformer.

\*\* approximate retail cost.

Please note that several quartz halogen lights may be required to adequately light a room.

## The cost of lighting

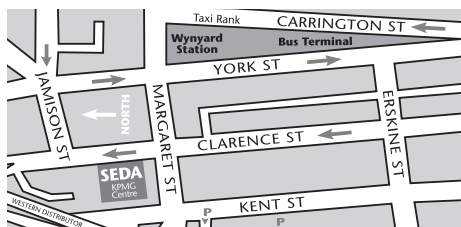
The cost of running a light is directly related to the wattage of the globe. The higher the wattage, the higher the running cost. Fluorescent and quartz halogen lights use extra energy in the light fitting.

The type of lighting you choose will affect the amount of electricity used, and hence the cost of your lighting bill. The table above shows variations in running costs for lighting systems using different globes to produce the same amount of light.

## Handy lighting hints

- Turn off lights when not required.
- Do not leave outdoor lights on all night or during the day—consider using timers or sensors.
- Use the lowest wattage light needed to adequately light up an area.
- Use task or special purpose lighting to supplement general lighting wherever possible.
- Keep lights and fittings clean.
- Avoid using downlights.
- Avoid using multiple globe fittings.
- Use compact fluorescent lamps in rooms where the light is on for long periods.
- Avoid having several lights activated by one switch—use separate switches for each light.

The Energy Smart Information Centre is a free advisory service provided by the NSW Government. Energy experts can provide information on a wide range of topics including Energy Smart design for new homes and renovations, appliance selection, solar and wind power systems, choosing heating and cooling systems, insulation, lighting and water saving devices.



Trains: Wynyard Station is 3 mins walk away.  
Buses: York & Carrington Sts adjacent to Wynyard Park.  
Travel to SEDA by public transport to save greenhouse gas emissions.



[www.seda.nsw.gov.au](http://www.seda.nsw.gov.au)



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