Fact Sheet 7

Lighting improvements

Residential Efficiency Scorecard

The Scorecard is a home energy rating program.

An accredited assessor will visit your home, look at the building features and fixed appliances, and generate a certificate showing an energy star rating, hot weather rating and appliance efficiency ratings.

Your Scorecard assessor will give you advice on how to make your home more comfortable and energy efficient, so you can keep energy costs down.

To find out more about the Scorecard or to request an assessment, visit www.victorianenergysaver.vic.gov.au/scorecard.

The Scorecard lighting rating

The lighting system in your home can use a lot of energy. The Scorecard certificate tells you how much of your energy use is related to lighting and what you can do to improve it.

The Scorecard rating includes the type of light fitting as well as the type of lamp. The rating also includes any gaps around light fittings, especially downlights, which can create draughts that impact your comfort and energy cost.

Opportunities to improve lighting efficiency are included on the second page of the certificate.

Scorecard's major focus is on improving older types of lamps and downlights which include gaps and compromise insulation coverage.

About lighting

The most common forms of lighting found in homes are light-emitting diodes (LEDs), fluorescent lamps and halogen lamps.

Incandescent (tungsten filament) lamps were the most common form of lighting for decades, but have been phased out over recent years to be replaced by more efficient types of globes.

These can either be recessed into the ceiling (downlights), ceiling-mounted (pendant or track lights) or wall-mounted lights (sconces or track lights).

Light Emitting Diode (LED)

LEDs are highly efficient lamps with a very long life.

LEDs come in many forms and can replace existing lamps in general-purpose lighting fixtures (for example, bayonet or Edison screw) or downlight fittings.

LEDs also come in many colours of light. Unless you want party lights, you will probably want to install "warm white" lamps that are similar to the colour of the older style incandescent lights. If you need more clarity for fine work or definition of objects, you may wish to use "cool white" coloured lamps.

Fluorescent

Fluorescent lamps are also very efficient and have only recently been surpassed by LEDs.

Fluorescents can take the form of tubes, circles or more compact forms that can be used in general purpose fittings.

Compact fluorescent lamps (CFLs) can be used as replacements in general-purpose lighting fixtures, although size constraints can limit the style and brightness of CFL you can use.

Incandescent

Incandescent globes are now rarely found in general fixtures, but are more common in specialised fixtures such as chandeliers or outdoor floodlights.

Incandescent lamps are inefficient, typically using 6 or

more times the energy of an LED and can generally be replaced with LEDs or CFLs.

Halogen

Halogen lamps are most often found in recessed downlights or track lighting, but there are also versions available to use in general light fixtures.

Halogens typically use 6 or more times the energy of an LED and generate a large amount of heat both in the room (and in the roof cavity with recessed lights)

Colour temperatures

“Cool white”, “warm white” and “daylight” are variations of colour. The colour is measured in degrees Kelvin (shown by the letter K). All LED and CFL lamps have their colour written on the packaging so you can check before purchasing.

Here are the typical ranges for each colour temperature:

- Warm white – 2000K to 3000K
- Cool white – 3100K to 4500K
- Daylight – 4600K to 6500K

About light fittings

Recessed downlights

Most older style recessed downlights bring a few different issues to the energy efficiency performance of the house.

If they contain halogen lamps (MR16 model code), they will be using a lot of energy.

Halogen lamps also generate a lot of heat which contributes to over-heating the room on hot summer days. For the same reason, insulation must be kept well clear of the part of the light fitting that protrudes into the roof. This means that the ceiling insulation in rooms with many recessed fittings is likely to perform poorly. Even small gaps in insulation can lead to a large drop off in efficiency.

Gimballed downlight fittings (those that have an adjustable centre piece) and the larger style of recessed light common from the 1970s and 1980s often have significant gaps to allow heat from the lamp to escape. These gaps also allow air leakage from the room below in winter and from the roof cavity into the room in summer.

Track lighting

Older styles of track lighting (downlights) may still contain halogen lamps (GU10 model code) which use a lot of energy. Track lighting does not have the same problems as recessed downlights in terms of gaps around the lamp or in insulation because they are attached to the underside of the ceiling.

Improving lighting performance

Replace ceiling- and wall-mounted lamps with LED lamps. These are widely available through supermarkets, hardware and lighting stores. They will give you an instant reduction in energy consumption.

When replacing recessed fittings there are four options:

- Replace the lamp in the existing fitting. Note that when replacing low-voltage halogen lamps (known as MR16 or 12-volt lamps) with LEDs, there may be incompatibilities between your existing transformer and the LED lamps. This can lead to poor performance or flickering. This option will not solve the issue of gaps in insulation or air leakage through the fitting.
- Replace the transformer and the lamp. This will not solve the issue of gaps in insulation or air leakage through the fitting.
- Replace the whole fitting with a sealed LED unit. New fittings have ratings that either allow insulation to be placed against the sides (CA90 rated) or over the top of the fitting (IC4 rated).
- Replace recessed fittings with non-recessed fittings such as track lighting, pendant lighting, ceiling-mounted or wall-mounted lighting.

Consult your electrician for advice on the requirements for fittings and insulation.

Other considerations for lighting use

Ways to cut lighting power bills:

- Turn lights off in rooms when not in use.
- Use task lighting (reading lamps) and turn off the main lights in the room.
- If night lights are required for small children or in stairwells, ensure low wattage sensor lamps are used, rather than leaving a room light on.
- Light coloured surfaces reflect more light so if repainting is required, choose a lighter colour for ceilings and walls.
- If you are renovating, consider placing new lighting circuits that allow you to choose which lights you have on in a room. The more flexibility you have to turn some lights off, the lower your energy costs will be.
- Check to see if there are any government funded schemes that will change your light bulbs to more efficient ones.