RENOVATING AND BUILDING AN ENERGY EFFICIENT HOME

FAST FACTS FOR HOUSEHOLDS

Renovating or building a home can be very rewarding, but can also be a daunting process. Your choices will affect your future living costs and quality of life – so it's important to get it right.

A power smart home offers a range of benefits: it's warm in winter, cool in summer and will help to cut your power bills.

Whether you're building a brand new home or renovating there are many things you can do to build a power smart home.

HOUSEHOLD HOTSPOTS: WHERE TO SAVE POWER

The first step in planning a power smart home or renovation is to find where savings can be made.

There are plenty of simple things you can do that make a big difference to how much power you use in your home. Some things to consider before you start could be:

- which part of your home you are renovating
- how your home is orientated
- the building materials used
- insulation
- heating and cooling choices
- the type of lighting
- choice of hot water systems
- landscaping.

If you are using a designer or architect, you may like to include these power saving areas in your planning discussions. Clever thinking at the design stage can pay huge dividends later on.

DID YOU KNOW? Designing with power efficiency in mind can significantly reduce your power bills and impact on our environment.

ORIENTATION

The way your home is situated determines how much sun it gets. You may be able to influence comfort and natural light, and impact on heating and cooling needs. For example, facing your windows towards the north will take advantage of the winter sun. North facing windows get sun for the longest part of the day in winter and can be shaded in summer. This helps keep your home warm in winter, cool in summer and reduces the need to turn on lights and expensive air conditioners and heaters.

Building a home that isn't well situated on a block can mean paying more for heating, cooling and lighting.

DESIGN FEATURES

The design of a home can impact on how much power you use. There are lots of great design features that can help make your home energy efficient. Here are some power saving design tips:

- Create zones by grouping rooms with similar uses together, separated by doorways. This will allow you to heat or cool only those areas you are using.
- Install the right size windows, in the right locations. This will help let the winter sun in and keep the summer sun out as well as maximise cross ventilation. Using awnings or shutters can also help to regulate the amount of sun entering your home.
- Install skylights. They can provide three times as much light as a vertical window of the same size. You can make your skylight more energy efficient by using special glazing or making your skylight smaller.
- Keep 'wet' areas like your kitchen, bathroom and laundry close together and locate your hot water system nearby. This saves on plumbing and reduces the amount of water cooling in the pipes, making your hot water system more efficient.

If you are renovating, try to keep the new energy efficient section of your home separate using a door or dividing wall.

BUILDING MATERIALS

Heavy building materials such as concrete or double brick have high thermal mass. This means they can absorb high amounts of heat during the day and release it when the temperature cools down.

Lightweight materials such as timber or plasterboard cannot absorb as much heat and therefore have a tendency to heat up and cool down quickly. This means you will need to use more heating and cooling to control the temperature in your home.

INSULATION

Insulation is a must have in any energy efficient home. Up to 35 per cent of heat loss and gain from a house can be caused by a ceiling that's not insulated.

Insulating the roof, walls and suspended floors can save you money and reduce your energy use. Insulating can also assist with weatherproofing and some types of insulation also have soundproofing qualities.

When choosing insulation, the most important factor to check is the R-value. The R-value measures a material's capability to resist temperature flow; the greater the R-value, the better the resistance. Ask your supplier for details.

DID YOU KNOW? Insulation is the single most effective item you can add to your home to improve its thermal efficiency. It can keep you up to 7ºC cooler in summer and 10ºC warmer in winter.

HEATING SYSTEMS

Energy efficient heating systems will save you money and reduce the amount of energy used each year. With so many heating options available it can be hard to tell which one is best, so here are a few tips:

- Always check your insulation, draughts and window furnishings to make sure they're providing you with the best protection from the cold.
- Look for heaters with a high Energy Rating. Read the Energy Rating label to help you choose the most efficient model (the more stars the better). Check out the Save Power Retailer Program for more information.
- If you use a heating system, make sure it allows you to heat individual zones. This lets you control your energy use by only heating the rooms you are using.
- Avoid electric heaters such as bar, fan and oil-filled models if possible – they are expensive to run.
- Keep your heater's thermostat set between 18ºC to 21ºC in winter. Decreasing your temperature setting by just one degree can reduce your power bill for heating by up to 15 per cent*. Use a thermometer to check how warm your rooms are.

For more information the Save Power website has a separate fact sheet on how to heat your home efficiently and energy efficient appliances.

COOLING SYSTEMS

Air conditioning can account for a large part of your power bill, especially in summer. A well designed home with insulation can maximise cross ventilation and exposure to the hot sun, reducing the need for air conditioning.

Choosing the right air conditioner is also vital in reducing your power use. An inefficient system can cost you hundreds of dollars. There are some simple tips you can follow to make sure you are buying the best one and make sure it's working efficiently.

- Always check your insulation, draughts, window furnishings and awnings first, to make sure they're providing you with the best protection from the heat.
- Choose an air conditioner with a good Energy Rating or an Energy Star label. You can do this by looking for these labels or asking your supplier.
- Choose a system that best suits your home. There are many options available including fans and evaporative based systems. Ask your supplier for details.
- Set your air conditioning at 23ºC to 26ºC. Setting the air conditioner a few degrees higher in summer can save $65* off your power bill.
- Ceiling fans are more energy efficient than air conditioners. Consider using fans more and the air conditioner less. Using fans with the air conditioner is more efficient.

For more information the Save Power website has a separate fact sheet on cooling your home and energy efficient appliances.

LIGHTING

Everyone uses lights in their home. There are great ways you can make lighting your home more efficient.

- Make the best use of natural light. Having well situated windows and skylights can reduce your need to turn on lights in the first place.
- Use compact fluorescent lights. Compact fluorescent lights (CFLs) can reduce your lighting costs by up to 75 per cent* when compared to traditional incandescent light globes.

- Use alternatives to halogen lights. Halogens are considered power intensive because several halogen lights are often needed in the place of one incandescent or fluorescent light bulb to achieve even lighting levels in a room. Consider alternatives such as LED downlights or floor or bench lamps fitted with CFLs.
- Make sure each light has a separate switch. This enables you to use one light instead of several. If using down lights, split them out onto different switches. Avoid large banks of recessed lights or down lights – they are high power users.
- Use sensor lights in outdoor areas. This will turn lights on only when you need them.

For more information the Save Power website has a separate fact sheet on lighting your home.

DID YOU KNOW? A 50W halogen down light used 4 hours a day will cost more than $18* a year to run. If you had a room with 8 halogens and ran them for 8 hours each day, it would cost you almost $300* every year.

HOT WATER

Electric hot water can account for up to a third of a home's energy use. Using an energy efficient heating system such as solar, gas or heat pump hot water can help bring down power costs. Other ideas to reduce your hot water bill include:

- Installing the hot water system as near as possible to the kitchen, bathroom and laundry. Shorter water pipes reduce the amount of water cooling in the pipes and make your system more efficient.
- Insulating exposed hot water pipes, especially the first two metres leading from the hot water system. Closed cell rubber insulation is your best option.
- Using efficient appliances such as 3 star WELS rated showerheads. The less hot water you use the less it costs you.
- Consider using a gas boosted solar hot water system. These systems cost less to run when boosted with off-peak electricity.

For more information the Save Power website has a separate fact sheet to help you tap into hot water savings.

LANDSCAPING

Planting deciduous or native trees can shade your home in summer and provide a natural cooling effect. Take care when planting so that they won't completely block the sun or drop leaf litter in gutters or on solar collectors.

Allow room on any western side for shade – either plants or awnings.

For more information on how to build a power smart home, visit the Australian Government website www.yourhome.gov.au

Find out how you can save power and money, and help our environment.
Visit savepower.nsw.gov.au

* Savings based on household electricity price July 2011.

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