

Why we need clean energy

Energy drives the economy; however Australia's stationary energy sector is derived mostly from high-emission fossil fuels and is therefore responsible for 50% of our greenhouse gas emissions. Australia's economic security is at risk from climate change unless we can compete in a low carbon world. Any successful climate change solution must target the energy sector specifically.

Australia has some of the world's best renewable and low-emission power sources. Some of these technologies are in development and will soon join the existing mature clean energy technologies that are already meeting the growing energy demand while giving us a clean-powered, sustainable economy. This Fact Sheet is part of a series that provide the basics about clean energy.

Energy Efficiency – how it works

Energy efficiency can be seen as an effective, immediate means of meeting energy needs more sustainably through reducing energy demand while maintaining or enhancing function.

Individuals can practice energy efficiency at a personal level through simple measures such as replacing light globes or turning off appliances at the power point to more sophisticated actions including replacing appliances, ensuring sufficient insulation and solarising the domestic hot water service.

On a larger scale, the building sector also known as the *built environment*, is a key target for increasing energy efficiency, with the energy consumption of equipment and appliances within residential and commercial buildings in Australia such as lighting, heating, cooling and ventilation responsible for almost a quarter (23 per cent) of Australia's greenhouse emissions – a figure that is rapidly growing.

Fortunately, a number of measures can be put in place in order to reduce the amount of energy used around the home, office and other workplaces such as supermarkets and shopping centres. And importantly, these improvements can be financed through energy performance contracts (EPCs) which use future savings in energy costs to underwrite the financing for the upfront capital upgrades.

Energy efficiency measures include the adoption of Minimum Energy Performance Standards (MEPS) for appliances; correct passive building design techniques; active energy control devices; innovative air conditioning systems; optimised building management systems; and the use of insulation, shading and thermal mass.

Greenhouse gas savings

Energy efficiency is one of the most cost-effective ways to reduce greenhouse gas emissions and energy costs. According to research undertaken by the *Centre for International Economics*, the building sector could reduce its share of greenhouse gas emissions by 30 - 35 per cent through energy efficiency improvements, while still accommodating growth in the overall number of buildings by 2050.

In Australia

Australian buildings typically have not been designed to high levels of energy efficiency and lag the energy efficiency levels in place overseas.

A number of rating schemes exist to classify the energy efficiency of commercial buildings, including the Australian Building Green Rating (ABGR) scheme, which provides accredited assessments of the greenhouse intensity of office buildings by awarding a star rating on a scale of one to five, and Green Star Accreditation, measuring the performance or expected performance of buildings in a number of categories and lists the energy performance of projects according to the equivalent ABGR level, to enable comparison.

In residential buildings, insulation is a simple and cost effective way to save energy and reduce greenhouse gas emissions. Around 4.7 million homes in Australia have insulation - equivalent to 60 per cent of all homes.

Insulation is a key component to improved energy efficiency, in residential and commercial buildings also, and mandatory energy efficiency levels are a major driver for the uptake of insulation. From May 2004, minimum mandatory energy efficiency levels for new residential construction have been progressively introduced nationally. Further, from May 2006 similar minimum energy efficiency requirements will be progressively introduced for new commercial building construction and in NSW the BASIX scheme for mandatory energy efficiency in new buildings has also contributed to increased uptake.

Potential

By using improved levels of insulation, proper shading and more efficient glazing Australian buildings could substantially reduce the amount energy required in heating and cooling. According to the Australian Greenhouse Office's Your Home Technical Manual, ceiling and roof insulation can save up to 45 per cent on heating and cooling energy use, while wall insulation can save an additional 15 per cent and floor insulation can save 5 per cent.

While almost 60 per cent of Australian homes have insulation, in most cases the insulation is only in ceilings/roofs. Only around 30 per cent have wall insulation. If these homes were to install ceiling and roof insulation we might conservatively assume a 25 per cent saving over heating and cooling costs – which, in over 3 million homes adds up to around 20 to 30 petajoules of energy savings. Beyond residential homes, the commercial sector also consumes large quantities of energy for heating, cooling and ventilating buildings which could be reduced through improvements to the thermal efficiency of buildings.

Global view

International standards for energy efficiency, particularly in the US, are well ahead of those currently in place in Australia with California leading the way.

Current Issues

The Rudd Federal Government promised to introduce a AU\$240 million Clean Business Fund including a \$90 million Green Building Fund to support energy efficiency fit-outs. Previously there was little incentive for the implementation of energy efficiency measures in the commercial or residential building sector - the onus is firmly on the building owner to implement energy efficiency measures because it is the right thing to do, or to realise cost savings in the long term.

An ABS survey among households with no insulation found that not being a home owner or responsible to insulate the home was cited as the main reason for not having insulation (34 per cent), followed by cost (16 per cent) and not getting around to do it (12 per cent). These reasons illustrate that information programs alone are unlikely to be a major driver of improvement in existing homes - hence there are strong grounds for regulation and incentive schemes to overcome apathy surrounding efficient use of energy and an overdue emphasis on upfront costs with failure to appreciate total life-cycle costs.

About the Clean Energy Council

The Clean Energy Council is the peak industry association that brings together the three fields of energy supply, business outcomes and environmental priorities. With over 410 members, providing close to a quarter of Australia's electricity, \$5.7 billion in annual sales and employment to over 20,000 people, our members have the knowledge and the technologies to drive the new clean-powered and efficient economy.

Go to www.cleanenergycouncil.org.au and register for info, events and updates.