Clean Energy
Fact sheets

All about Solar Photovoltaic

Why we need clean energy

Australia's stationary energy sector, which includes electricity derived from coal-fired power, is responsible for around 50 percent of our greenhouse gas emissions. Australia's environmental, economic and energy security is at risk from climate change unless we can compete in a low carbon world. Any successful climate change solution must first target the energy sector.

Australia has some of the world's best clean energy sources, many of which are already powering Australian homes and businesses. Our superior clean energy resources, like solar power, have the capacity to meet Australia's growing energy needs while providing a clean powered, sustainable economy.

Solar photovoltaic – how it works

Solar photovoltaic (PV) panels are usually found on the rooves of homes and businesses. The panels harness the sun's energy to generate zero emission electricity. Light energy is converted directly into electricity by transferring *photon* energy into electrical energy. The conversion takes place within cells of specially fabricated semiconductor crystals.

While it might be true that solar cannot generate electricity all the time, it does generate electricity when it is needed most - during peak demand hours of the day, such as hot, periods when we all run air-conditioners. Having solar panels is like having a mini power station on your roof. PV electricity is generated at the point of demand - where people live and work, which means there is no need to transfer the energy long distances across expensive infrastructure.

Greenhouse gas savings

Solar power is a zero-emission electricity source. One megawatt hour (MWh) of solar-derived electricity avoids approximately one tonne of CO_2.

In Australia

Solar PV power is installed on almost 200,000 rooftops across Australia. At the end of September 2010 we had over 300 megawatts of solar PV capacity installed nationwide - an increase of almost 10 times in less than two years. The majority of solar PV installations are now grid-connected systems. However solar PV also has a long history of supplying reliable '*off grid'* power to remote and regional Australian communities.

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Potential

Australia is blessed with the highest average solar radiation of any continent in the world, which means our solar industry has the greatest potential to lead the world.

With the right federal policy in place providing incentives for take-up, we can ensure continued growth of Australia's solar PV industry. Plans for Australia's first large scale solar PV power station are due to become operational in 2013.

Global View

Globally, the annual solar PV market grew to 5,500MW in 2008.The total cumulative PV power installed globally at the end of 2008 was almost 15,000 MW up from 9,000 MW in 2007. Germany, Spain, Japan and the USA dominate the solar PV industry accounting for 80 per cent of global capacity. The growth in these markets and the emergence of new markets in France, South Korea, Czech Republic and Portugal has driven a sixfold increase in global installed capacity over the last five years.

At the end of 2008, Germany had the highest level of cumulative installed capacity of solar PV with around 5,300 MW installed, followed by Spain with 3,200 MW, Japan with 2,100 MW and the USA with almost 1,200 MW.

Growth of solar PV around the world can be directly attributed to the legislated support provided by various governments. The development of feed-in tariff (FIT) schemes in countries such as Germany, Spain and Italy sparked rapid take-up of solar PV.

Current Issues

A feed-in tariff is a payment made by your utility for the electricity produced by a solar PV system. A gross feed-in tariff pays you for all the clean electricity your system produces and a net feed-in tariff only pays you for the excess electricity fed back into the grid. A number of Australian states have legislated feed-in tariffs but we are yet to see national consistency.

The Federal Government has however committed to a Renewable Energy Target (RET) to ensure 20 percent of Australia's electricity supply comes from renewable energy sources by 2020. The RET scheme will see purchasers of solar PV receive solar credits to assist with system costs installed after 9th June 2009. For more information on the Solar Credit scheme visit:
http://www.climatechange.gov.au/government/initiatives/renewable-target/need-ret/solar-credits-faq.aspx

About the Clean Energy Council

The Clean Energy Council is the peak industry body in Australia, creating a united strategy built on strong policy and direction in the clean energy sector.

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We aim to find solutions that deliver abundant and affordable clean energy and efficiency solutions to Australia, as quickly as possible. For more information please visit **www.cleanenergycouncil.org.au**

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