# Solar power
## for a brighter Australia

Using energy from the sun to power our homes, communities and businesses


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Solar photovoltaic technology:

- ➜ generates electricity from sunlight
- ➜ produces no greenhouse emissions or noise and has no moving parts
- ➜ is unobtrusive and decentralised – close to where the electricity is needed
- ➜ is fuelled by the sun, an infinite source of energy.

# solar PV families

## Powering our households

Solar photovoltaics (PV) – panels on roofs that capture the sun's energy to produce electricity for our homes and businesses – have been around for years.

Once an exclusive technology used only by organisations such as NASA to power the Space Station and satellites, solar PV is now within reach of Australian families.

Today solar PV power is installed on around 25,000 homes across Australia.

Solar PV cuts household power bills and greenhouse gas emissions by limiting demand for coal-fired electricity. Further, homes with solar PV are protected from the record oil prices and the future rises in electricity costs required to pay for reduced greenhouse gas emissions from coal-fired generation.

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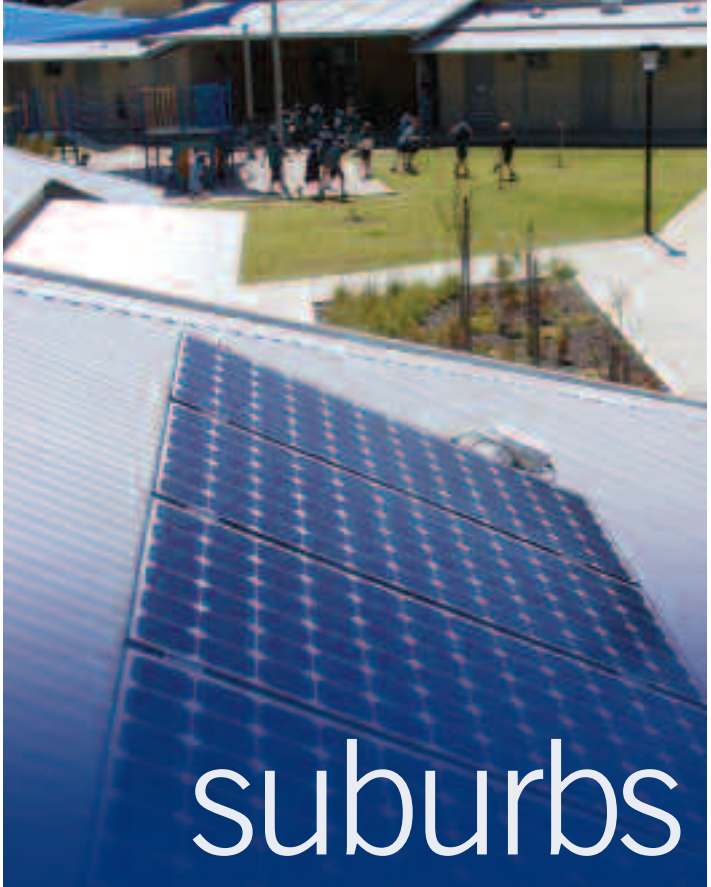

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# suburbs

## Powering our suburbs

Soaring demand for energy-guzzling appliances such as air-conditioners, plasma televisions and DVD players has greatly increased house-hold energy consumption.

This has placed our electricity infrastructure under stress, requiring $24 billion in infrastructure investment over the next five years. To illustrate, the Queensland Government estimates that for every air-conditioner installed the electricity industry has to spend an extra $13,000 on more poles and wires to manage the load.

Ultimately, to meet the needs of a few, it is all consumers who pay the price.

Solar PV is perfect for supplying electricity when we need it the most – at peak times on summer afternoons.

On a hot day when air conditioners and commercial loads are going flat out, solar PV systems are at their best. And because grid connected systems are located in our suburbs where the power is needed – on homes and commercial and community buildings – solar power reduces the stress on infrastructure and helps avoid blackouts.

On days when householders are at work and school, solar PV systems can sell unused electricity back into the grid, which goes on to power industry and commerce.

# regional communities

## Powering our regional communities

© BP Solar

Solar PV has a long history of supplying reliable 'off the grid' power to outback and regional communities.

Isolated tele-communications and repeater stations, transport signalling, and working properties are supported by a vast number of solar PV installations.

Remote properties facing the highest oil prices on record are able to replace diesel generation with solar PV for quiet, dependable power.

# local industry

## Locally grown, globally known

**Direct employment:** Currently over 1,300 people employed across the industry

**Manufacture Panels and systems:** Two major manufacturers of PV modules and systems

**Manufacture System components** 15+ local manufacturers of batteries, inverters, etc

**Distributors:** Over 250 small to medium businesses distributing and re-selling systems

**Installers and designers:** Over 210 accredited designers and installers, typically owner operated small businesses

**Consumers:** 25,000 families have PV on their roofs

Australia has a competitive advantage when it comes to solar PV. It is the sunniest continent in the world and has well-established and recognised strengths and capabilities in most aspects of the industry chain.

In fact, we have been an industry pioneer. Australian manufacturers of panels and components are exporting to the world.

From 1997 to 2004 BP Solar and Origin Energy invested over $80 million in their solar manufacturing facilities here. More than 1,300 people are directly employed in the PV industry supply chain across Australia, contributing to industry sales of over $285 million in 2005.

Government support has been a cornerstone of PV growth in recent years.

The Australian Government's Photovoltaic Rebate Program (PVRP) and the Renewable Remote Power Generation Program (RRPGP) have underpinned recent annual market growth. In the past five years sales have more than doubled, reaching $285 million in 2005, of which $132 million was from exports.

By maintaining industry capacity through these programs, the Government's investment of $85 million has produced industry sales of over $1 billion over the last five years, including exports of about $500 million.

This is an investment leverage ratio of more than 12 times and is delivered by more than 300 small businesses across Australia.

Figure 1: PV Industry Sales ($million)

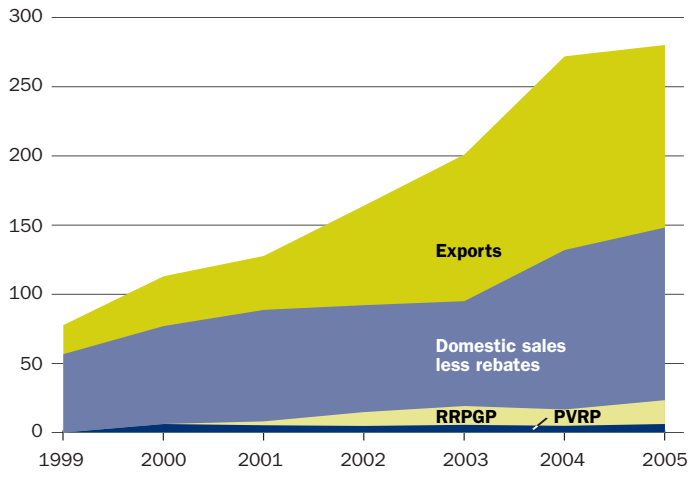
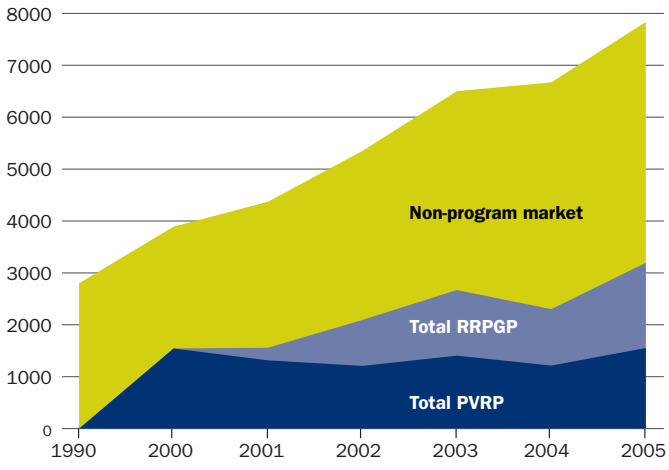



Figure 2: Annual Installed Solar PV Capacity (kW)




**The Photovoltaic Rebate Program and Renewable Remote Power Generation Program have supported around 38 per cent of all PV systems installed over the last five years. Importantly these schemes have provided a market base for the many small businesses active in the industry and leveraged growth in the overall market. In the absence of this support the industry would be less than half the size it is today and with little or no grid connected activity.**

# solar PV

## A global industry

# global

Australia's global position has slipped in the past five years as other countries embrace PV to meet their energy needs and greenhouse challenges.

While a 16 per cent average growth over the last five years may sound impressive, global growth in solar PV has averaged 40 per cent in the same period.

This global growth came about via a number of innovative and successful programs which recognise the economic and environmental benefits of clean energy, such as:

- ➜ tax rebates for customers who invest in clean energy such as PV (United States), and
- ➜ higher electricity prices paid by retailers for excess PV power sold back to the grid – feed-in tariffs (some European and Asian countries).

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# government investment

## Leveraging industry growth

Australia faces serious energy challenges in the near future. Solar PV can't solve all our problems but it can:

- ➜ Improve energy security
- ➜ Ease peak demand
- ➜ Save on infrastructure costs
- ➜ Cut greenhouse gas emissions
- ➜ Be a global leader

### Improve energy security

More than 650 million litres of diesel a year generate electricity for households, communities, and businesses in rural Australia. These consumers face the highest oil prices on record and it is predicted that Australia will require imports to meet half of our oil demand over the next 20 years. Solar PV is a natural alternative to expensive diesel.

### Ease peak power demand

Australia's peak power demand is growing each year and the investment needed to meet it will be $24 billion in the next five years. Yet much of the peak demand infrastructure required will be used for just a few hours on a handful of days throughout the entire year. Solar PV is an efficient way to meet peak demand.

### Save on costs with on-site power

Unlike centralised coal-fired power plants, solar PV typically generates power in the same place it is consumed. PV thus saves on the infrastructure costs required to transport electricity long distances on poles and wires.

### Delivering emissions-free electricity

Climate change is occurring more rapidly than scientists previously thought. A recent Australian Government report said "the latest research says we can expect more severe droughts and storms, as well as changes in rainfall. This means it is crucial that all sectors of the community start to plan for potential impacts now." The CSIRO confirms the economic impacts of climate change will particularly harm Australia's leading export earners, agriculture and tourism, and have flow-on effects for the whole economy. Yet under current policy settings greenhouse emissions from electricity generation will be 129% higher than 1990 levels by 2030. Failure to act now means leaving a mess for the next generation to clean up when the economy may not be so robust.

**Current electricity market arrangements do not appropriately reward these benefits of solar technologies, nor do they provide appropriate price signals for energy efficiency.**

— Commonwealth's 2004 Energy White Paper, p. 46.

With policy frameworks that recognise the value of solar PV technologies and address the barriers to deployment, our energy challenges can be met head-on.

7 August 2006