

# Clean energy fact sheet

We all want affordable, reliable and clean energy so we can enjoy a good quality of life.

This fact sheet sets out how EnergyAustralia is leading a transition from fossil fuels to cleaner forms of energy.



## Our approach

EnergyAustralia is one of the country's biggest generators of power from fossil fuels. Each year we produce around 20 million tonnes of greenhouse gases, mostly carbon dioxide or CO<sub>2</sub>, from burning coal and gas to supply electricity to our 1.7 million customers and the broader market on the east coast of Australia.

For around a century coal-fired power plants have provided Australians with reliable and affordable power and supported jobs and economic development. But with climate change, the old ways of generating power are no longer environmentally or socially acceptable.

The way we generate, deliver and use energy has to change. As a big emitter of carbon, it's up to us to lead the transition to cleaner energy in a way that maintains that same reliable and affordable access to energy for everyone.

## The challenge

Renewable electricity is generated from resources that produce low or no emissions, like the sun (solar systems), water (hydroelectricity) and wind (wind turbines).

Of course we all want to reduce our emissions as fast as possible. But cleaner forms of energy can be expensive, take time to plan and build, and can lead to higher household bills if we aren't thoughtful.

While costs may come down over time, a household switching to 100% wind power energy today would face adding another \$300 to their annual electricity bill, based on an average household consumption of 5MWh.

Compared to coal and gas, renewable electricity is intermittent meaning it is less reliable and harder to control as the sun doesn't always shine and the wind doesn't always blow.

Minimising or, where we can, avoiding financial hardship is part of the challenge as we transition to cleaner generation. We need to do this while preserving reliability of supply.

Our approach involves supporting the development of clean energy while helping our customers to manage their own consumption so they use less energy, because when they do that they generate fewer emissions and they save money.

## Supporting renewable energy

We're constantly assessing opportunities across the east coast of Australia to support renewable developments through foundation agreements which commit us to taking power from new projects.

Right now, EnergyAustralia has the rights to more than 460 megawatts of electricity generated by wind farms in New South Wales, Victoria and South Australia. Based on an average household consumption of 5MWh this is enough to meet the needs of 282,000 homes for a year.

We operate and jointly own Cathedral Rocks wind farm, and have power purchase agreements to buy the output from several other wind farms: Mortons Lane, Taralga, Boco Rock, Gullen Range, and half the output of the Waterloo wind farm – which we also operate.

Through these long-term agreements we underpin around 12.5 per cent of the large-scale wind projects in the National Electricity Market, equating to more than \$1 billion of investment in new renewable generation.

## Helping customers use less energy

Increasingly, our customers are taking control of their energy consumption. It's our job to help them make decisions that are right for them.

So, we're offering our existing residential customers carbon neutral electricity free of charge – all they have to do is register via our website. When they sign up, customers can offset at no cost to them all the carbon emissions generated from the electricity they use.

While getting off the grid entirely isn't viable for most people today, battery storage technology is rapidly evolving. Together, solar panels and batteries are allowing customers to capture energy generated on their rooftops and store it for use during peak periods when prices are higher or when the sun isn't shining.

In October 2016 we announced a \$9.3 million investment in solar inverter system innovator, Redback Technologies. The Redback system – combining a smart solar inverter, battery enclosure and intelligent energy management software into a seamless package – allows customers to decide how they use, save and even sell energy captured from their roof-top solar panels.

## Reducing our emissions

In 2014 weak wholesale energy markets led us to close a major coal-fired power station at Wallerawang in regional New South Wales; it's still one of the largest plants to permanently close in Australia.

It was a tough decision because of the impact it had on jobs and the local community. But closing the plant meant we reduced the annual carbon emissions from our generation portfolio by about 5 mega-tonnes of CO<sub>2</sub> – the equivalent of planting 35 million trees per year and maintaining them over their lifetime.

And because we need reliable and affordable energy we're investing to make our existing power stations more efficient. For example in 2015 we completed a major maintenance program at the Yallourn power station in Victoria which has allowed the plant to produce power for another 100,000 homes without having to burn more coal.

A critical part of our role also involves investing in and trialling technology; roof-top solar systems and battery storage are two examples.

Today we provide solar panels for homes and commercial sites. We also support 148,000 electricity customers with solar photovoltaic systems, up 6.1 per cent in 2016 compared to 2015.

We think it's our responsibility to keep driving the industry toward the next big innovation.

## Snapshot: Renewable energy assets



### WATERLOO WIND FARM

Operating since October 2010, Waterloo wind farm's turbines provide clean energy to homes in South Australia. The wind farm has 43 turbines mounted on 80-metre high towers; a generation capacity of 131MW; and 1.8kms of 132-kilovolt transmission line that connects the Waterloo substation to the South Australian network.



### CATHEDRAL ROCKS WIND FARM

The Cathedral Rocks wind farm in South Australia has 33 wind turbines with total generating capacity of 66MW. Each turbine blade measures around 80 metres across. Cathedral Rocks is a joint-venture project between EnergyAustralia and Spanish renewable energy company, Acciona Energy.

### STONY GAP WIND FARM

We are working on a new wind farm in South Australia, 125km north of Adelaide. The proposed Stony Gap wind farm will have 35 turbines on towers 85 metres high. These turbines will be able to produce up to 105MW of clean electricity, or enough energy to meet the needs of more than 64,000 homes.



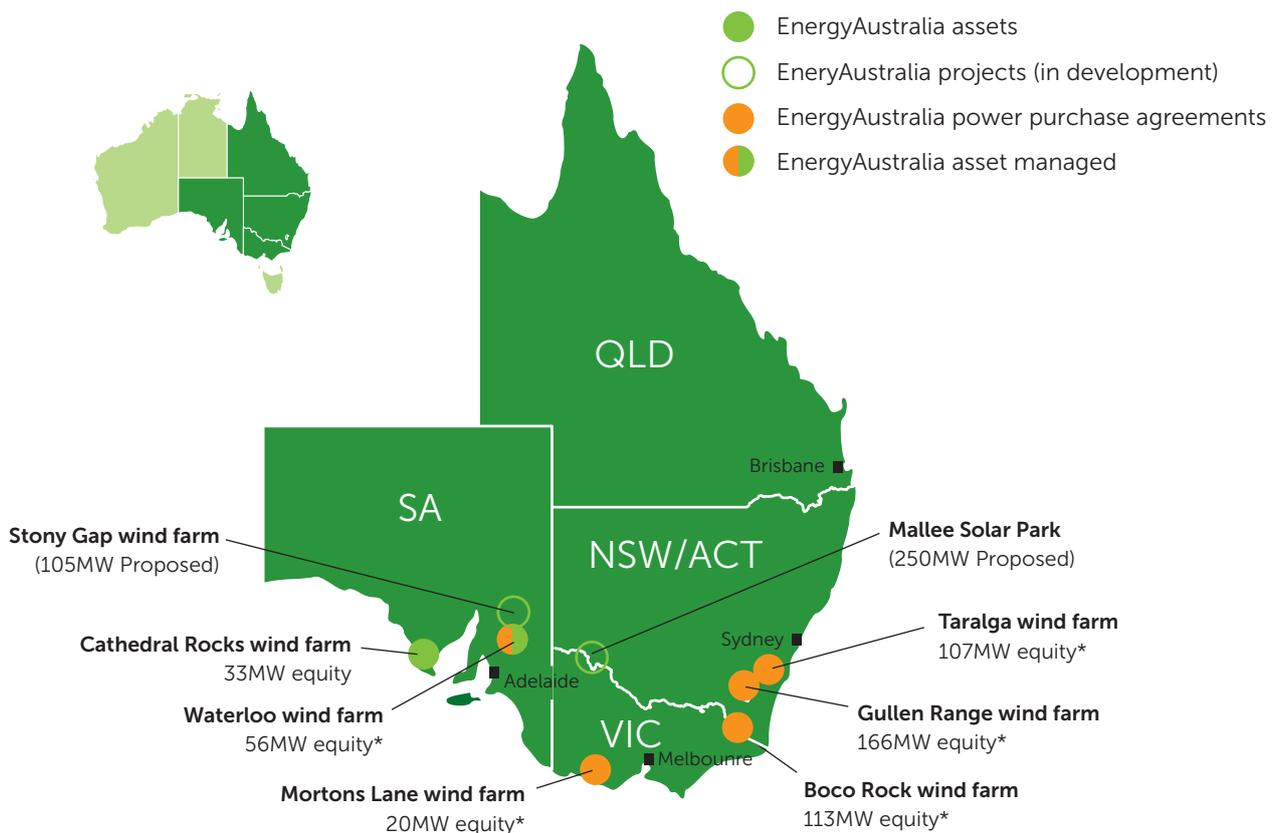
### MALLEE SOLAR PARK

We are proposing to build a solar power station in northern Victoria up to 250MW using proven photovoltaic technology. The development could provide emission-free electricity to more than 60,000 Victorian homes for more than 20 years.



## EnergyAustralia's power purchase agreements

MORTONS LANE WIND FARM	TARALGA WIND FARM	BOCO ROCK WIND FARM	GULLEN RANGE WIND FARM
Mortons Lane wind farm is in western Victoria, about 38km east of Hamilton and 220km west of Melbourne. It has 13 Goldwind GW82/1500 wind turbines and total generating capacity up to 20MW.	Taralga wind farm is on ridgelines just east of the Taralga township, in the Southern Tablelands of NSW. The wind farm's 51 turbines have total capacity of 107MW of clean renewable energy.	Boco Rock wind farm is 10km south west of Nimmitabel and 30km north of Bombala in NSW. Its 67 turbines generate up to 113MW of renewable energy.	Gullen Range wind farm is in the Southern Tablelands of NSW on the Great Dividing Range. Its 73 turbines can at full output generate 166MW of electricity.



\*including capacity purchases (PPAs)