

# 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 22 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. The world is changing with fossil fuel generation being replaced by lower emissions energy.

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.

Costs of renewable energy have been falling rapidly. New renewable power is now cheaper than some forms of coal and gas generation – but it cannot provide 100 per cent of anyone's energy needs.

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. Renewable electricity is one piece of the energy puzzle – but more pieces, such as energy storage, are needed to deal with intermittency. The challenge is that some of these technologies remain more expensive than historic forms of generation.

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

Right now, EnergyAustralia has the rights to more than 800 MW worth of renewable energy, combining solar and wind farm power purchase agreements, and we half-own the Cathedral Rocks wind farm.

Through our long-term renewable agreements worth \$3 billion we underpin 11 per cent of the large-scale wind and solar projects in the National Electricity Market. Based on an average annual household consumption of around 5MWh this is enough to meet the needs of around 320,000 homes for a year.

In addition, we operate two utility-scale battery storage systems. The stand-alone Ballarat terminal station and co-located Gannawarra solar farm battery assets represent a combined storage of 80 megawatt-hours, giving EnergyAustralia the largest battery trading portfolio of any retailer in the NEM.

This is enough capacity to store power for more than 40,000 homes for an hour of critical peak demand before being recharged.

Our focus is now on projects that help provide stability and integrate renewable power into the national energy system, including opportunities with pumped hydro technology and an energy recovery facility at the existing Mt Piper power station in New South Wales.

We think solar and wind energy, demand response, pumped hydro, battery storage and intelligent energy management systems – supported by flexible gas-fired generation – will underpin a new, modern energy system in Australia. The challenge is identifying the best and cheapest mix.

## 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. We offer our existing residential customers carbon neutral electricity free of charge – all they have to do is register via our website. When they sign up to *Go Neutral*, 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 maker, 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 oversupplied 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.

Initially, we tested the impact of not running Wallerawang in the market for many months, and saw no price or reliability impact. This meant, unfortunately, the plant had to close.

It was a tough decision because of the impact it had on jobs and the local community. But closing the Wallerawang power station 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.

Today we support around 11,000 residential electricity customers with solar photovoltaic systems. To better cater for commercial and industrial customers with cutting-edge technologies, in July 2019 we acquired 49 per cent in solar and LED lighting company, Echo Group.

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

# Clean energy portfolio

## Owned assets



### CATHEDRAL ROCKS WIND FARM

The Cathedral Rocks wind farm in South Australia has 32 wind turbines with total generating capacity of 64MW. Cathedral Rocks is a joint-venture project between EnergyAustralia and Spanish renewable energy company, Acciona Energy.

## Power purchase agreements

### MORTONS LANE WIND FARM

Located in western Victoria, about 38km east of Hamilton. It has 13 wind turbines and total generating capacity up to 20MW.

### TARALGA WIND FARM

Located in the Southern Tablelands of NSW. The wind farm's 51 turbines has total generation capacity of 107MW of clean renewable energy.

### BOCO WIND FARM

Located 10km south west of Nimmitabel in NSW. Its 67 turbines generate up to 113MW of renewable energy.

### GULLEN RANGE WIND FARM

Located in the Southern Tablelands of NSW. At full output its 73 turbines can generate 166MW of electricity.

### WATERLOO WIND FARM

Located in the Tothill Belt, SA. Operating since October 2010, it has 43 turbines mounted on 80m high towers with generation capacity of 131MW.

### BODANGORA WIND FARM

Located near Wellington in NSW it has 33 turbines and total generating capacity of 113MW. The project was developed by Infigen Energy.

### COLEAMBALLY SOLAR FARM

Located 5km north of Coleambally in NSW. The solar farm has about 560,000 panels and total generating capacity of 150MW. The project was developed by Neoen.

### ROSS RIVER SOLAR FARM

Located 20km south east of Townsville, Queensland. The solar farm has about 413,000 panels with total generating capacity of 116MW. The project was developed by Palisade.

### MANILDRA SOLAR FARM

Located 1km east of Manildra, NSW. The solar farm has about 466,000 panels and total generating capacity of 46MW. The project was developed by First Solar.

### GANNAWARRA SOLAR FARM AND BATTERY STORAGE

Located in north west Victoria, the solar farm combines 50MW capacity with a 25MW/50MWh Tesla battery storage system. The facility can power around 25,000 homes annually, including managing peak demand. EnergyAustralia holds the rights to the solar farm output and to charge and dispatch energy from the battery storage system until 2030. The battery storage project was backed by the Victorian Government and ARENA under the Victorian Energy Storage Initiative.



### BALLARAT BATTERY STORAGE

Located at the Ausnet terminal station, the 30MW/30MWh Fluence battery storage system can power more than 20,000 homes for an hour of peak demand before being recharged. EnergyAustralia holds rights to charge and dispatch the energy until 2033. The battery storage project was backed by the Victorian Government and ARENA under the Victorian Energy Storage Initiative.

# Clean energy portfolio

- Wind
- Solar
- Storage

