

WIND FARMS – CLEAN AND RELIABLE POWER

It's true that wind farms don't generate electricity if the wind isn't blowing. However, it's not true that we need to build additional back-up power plants in order to compensate for the times when wind farms aren't generating power.

There is already enough back-up in our energy system to be able to supply power when wind farms aren't producing much power, when demand rises unexpectedly, or when there is an outage at a coal- or gas-fired power station.

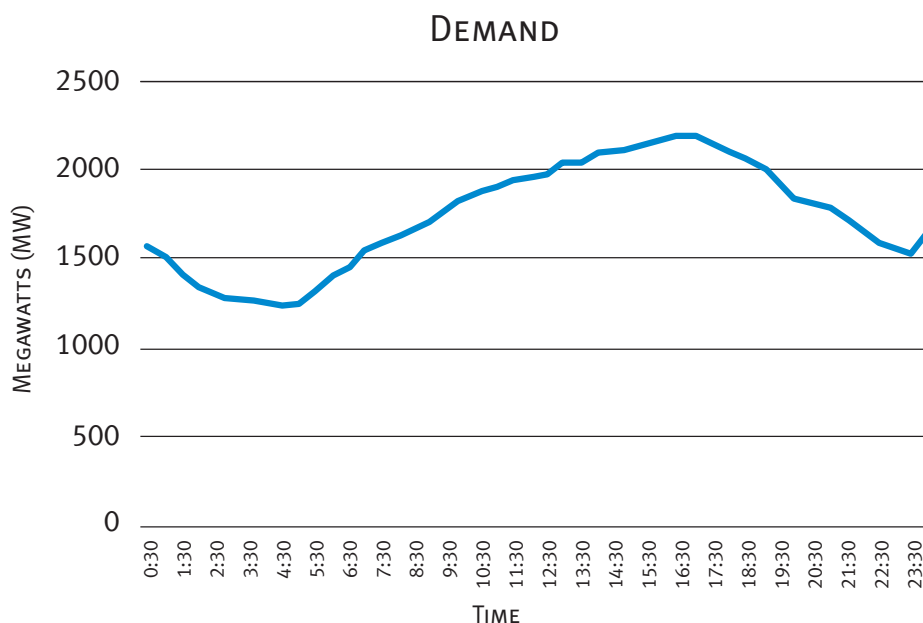
Wind energy is a highly reliable and predictable form of clean, renewable energy that can greatly reduce our reliance on fossil-fuelled forms of power generation.

Australia's energy system is built to deal with changes in demand and supply

In the course of a normal day, electricity demand fluctuates constantly and often very quickly as we turn industrial processes and domestic appliances on and off, and to meet this changing demand power stations are continually and ramped up and down to meet demand. The amount of wind power available at any one time can be predicted hours and even days in advance by looking at weather patterns. Electricity generation from other existing sources can be planned to accommodate expected fluctuations in wind generation.

Figure 1 Fluctuations in electricity demand on a typical day in South Australia

Source: Australian Energy Market Operator (AEMO)¹



Our electricity network is built to respond to large changes. For example, on a day in Victoria in December 2012, demand in the state dropped by 1 gigawatt in an hour when a cool change arrived on a hot day. That change in demand is more than double the change that would occur if every Victorian wind farm went from operating at full capacity to zero, yet our electricity network handled the change with no problems.

¹ <http://www.aemo.com.au/Electricity/Data/Price-and-Demand/Aggregated-Price-and-Demand-Data-Files/Aggregated-Price-and-Demand-2011-to-2015#2012>

More wind power means less fossil-fuelled power

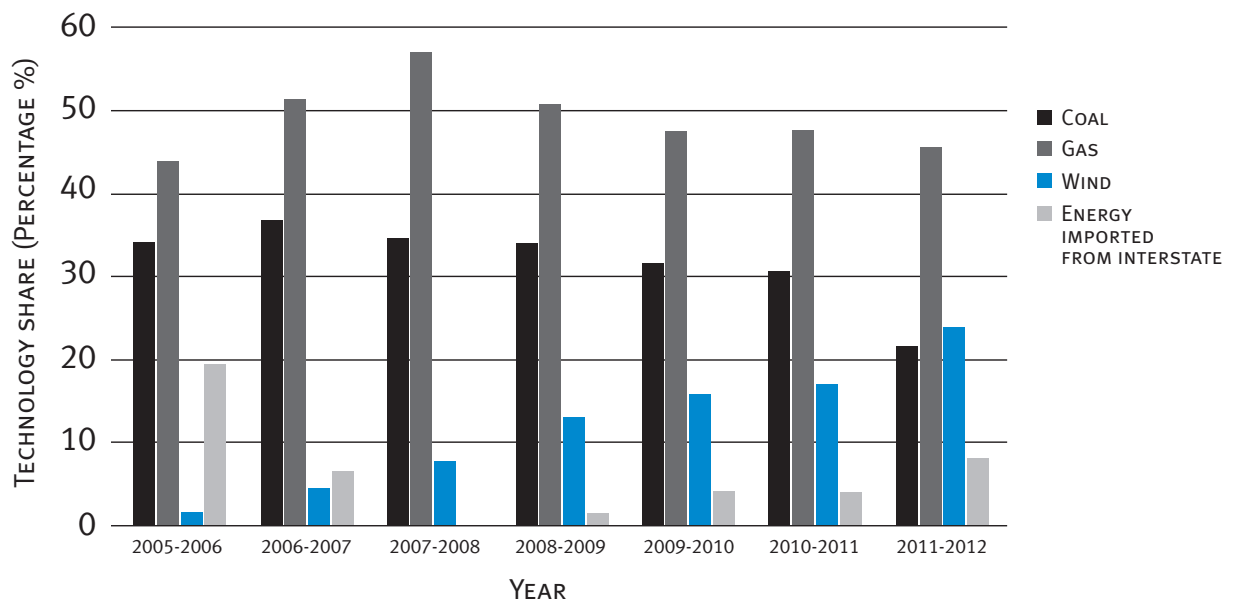
Some people mistakenly believe that generating wind energy does not reduce the amount of traditional power generated. This is absolutely untrue. Every unit of wind energy prevents the generation of a unit of traditional, fossil-fuelled energy.

The figure below comes from the 2012 South Australian Historical Market Information report by the Australian Energy Market Operator². It shows South Australia's annual energy use by fuel type, with wind generation increasing from about 5 per cent in 2005-06 to approximately 24 per cent of annual demand by 2011-12.

The graph clearly shows that as wind energy has been deployed, the demand for coal- and gas-fired electricity has reduced.

Figure 2 Annual energy by fuel type – South Australia

Source: Australian Energy Market Operator (AEMO)



² <http://www.aemo.com.au/Electricity/Planning/Reports/South-Australian-Advisory-Functions/South-Australian-Historical-Market-Information>