Gunning Wind Farm

FACT SHEET

This $147 million wind farm will bring employment and other tangible benefits to the community of Gunning in NSW's Upper Lachlan Shire.

First settled in the 1820s, the Gunning district has been synonymous with Australia's tradition of fine wool production.

It is also known for its windy weather, which is why ACCIONA Energy chose to build its newest wind farm 15 kilometres northeast of Gunning on the Cullerin Range.

Wind energy is becoming recognised as a viable alternative to coal-fired power. While new to Gunning, wind farm technology has been operating successfully and safely around the world for more than 20 years.

Wind and sheep farming work together well; sheep grazed on the wind farm site both during and after construction.

Wind turbine installation at Gunning Wind Farm

Building the Gunning Wind Farm

The Gunning Wind Farm comprises an electrical substation and operation and maintenance facilities plus 31 turbines which send power to the substation via 17km of underground cabling.

A 14km-long 132kV transmission line was constructed to connect the wind farm to the 132kV Yass-Goulburn transmission line. Turbines generate electricity at 12kV which travels via underground cables to the substation where it is stepped up to 132kV to match the grid voltage.

Construction began in April 2010 and created about 100 jobs, bringing significant economic activity to the Gunning region. The wind farm was completed in May 2011.

A great deal of work was done prior to development of the wind farm. Technical studies identified constraints and the best design, with independent consultants engaged to report on:

- flora and fauna
- cultural heritage
- traffic and transport
- geology and hydrology
- landscape and visual amenity
- sound

The wind farm has a capital value of $147 million and has the capacity to provide 46.5MW of clean, renewable energy a year.

Generating clean power and jobs

Each of the 1.5MW turbines at the Gunning Wind Farm can provide sufficient electricity to power approximately 750 homes and save more than 5,250 tonnes of greenhouse gas emissions a year.

In total, the wind farm can power 23,250 homes and save more than 162,750 tonnes of greenhouse gases a year.

Eight permanent staff are responsible for overseeing the operation and for maintenance. Maintenance employees will be required for the wind farm's expected 25-year life.

The wind farm is monitored remotely via a fibre optic network which sends real-time information to our control room in Melbourne. The turbines are controlled remotely for the purpose of safety and maximum efficiency.

Aerial view looking west during the construction phase

ACCIONA Energy and the Gunning community

ACCIONA Energy will establish a Community Benefit Fund and a local sponsorship program to deliver tangible benefits from the wind farm to the local community. These initiatives will commence in May 2011 and run for the life of the project.

The fund will support services, events and projects which directly and indirectly benefit the community in the immediate vicinity. ACCIONA Energy will administer the fund and an advisory committee will be established comprising representatives of the local community and the Upper Lachlan Shire Council.

How a wind turbine generates electricity

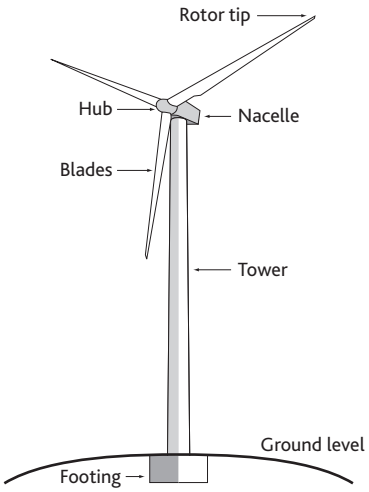
Turbines convert wind energy into electricity as their blades spin a shaft connected to a generator. The electricity travels through a transformer and into the local electricity network.

Wind turbines generally start to turn at wind speeds of 12km/hr. Most turbines reach maximum power at a wind speed of about 50km/hr.

During gale force winds of 72km/hr and above, the blades are angled or 'feathered' into the wind and generation ceases so the turbines are not damaged.

The rotor turns the blades at between nine and 15 revolutions a minute at a maximum tip speed of 230km/h.

The nacelle contains a generator, transmission system and power transformer and is designed to rotate around the tower to face into the wind, allowing the turbine to produce electricity regardless of wind direction.



A typical modern wind turbine structure

Midway point of turbine installation prior to commissioning

WIND TURBINE FACTS

Two ACCIONA wind power turbine types are in use at the wind farm, one with an 82m rotor and the other a 77m rotor. All major components were shipped to Port Kembla (Wollongong) and trucked to Gunning.

The turbines have the following features:

Foundations: Each tower base is anchored into position by approximately 250m^3 of reinforced concrete. The octagonal footings are approximately 16m wide and 1.5m thick.

Towers: The steel towers were made in Korea and are 80m high with a base diameter of 4.5m and top diameter of 2.5m.

Nacelle and hub: These components were produced in Spain. They have a combined weight of approximately 65 tonnes and together are 12.5m long and 4m high.

Blades: There are two blade types in use at the Gunning Wind Farm. Manufactured in Brazil and Spain, the fibreglass blades are up to 40m long and weigh up to six tonnes each.