

Frequently Asked Questions

WIND FARMS

What is a wind farm?

A wind farm is a group of wind turbines which generate electricity. The individual turbines are arranged in a pattern to make maximum use of the available wind resource. Wind farms include wind turbines, access tracks, underground cabling, a substation and a control room.

The High Road Wind Farm will involve the installation of between 30 and 40 wind turbines in an area stretching three kilometres west from the Kennedy Highway, near the intersection with Tumoulin Road.

How does a wind turbine generator work?

A wind turbine generator, or "WTG", is a type of windmill that converts the energy of the wind into electricity by driving a generator. The generated electricity is then distributed via a substation and transmission line to the electricity grid for use by consumers. Most commercial wind turbines consist of a cylindrical tower, topped by an enclosure (or "nacelle") housing a gearbox and generator. The nacelle is connected to a rotor, usually comprising three blades, which spins as air flows past the turbine.

What size are wind turbines?

Wind turbines vary in size depending on their generating capacity and the availability of consistent winds. The turbine options for High Road will have a blade length of between 40 and 45 metres and will be mounted on a tower approximately 80 metres tall.

What is a wind turbine constructed from?

Wind turbine towers are made of a series of steel tubes assembled on site using a large crane. The tower is fixed to the ground through a large concrete footing. Turbine blades (or "rotors") are generally made of fibreglass composite or similar lightweight materials.

Why is wind energy called 'renewable energy' or 'green energy'?

The terms 'renewable energy' and 'green energy' are often used interchangeably. Renewable energy is sustainable energy from the natural environment obtained from sources that are essentially inexhaustible including sunlight, wind, water (hydroelectric) and geothermal heat. Fossil fuels, by contrast, are finite and cannot be replenished. Renewable energy is also non-polluting, meaning it does not emit greenhouse gases such as carbon dioxide.

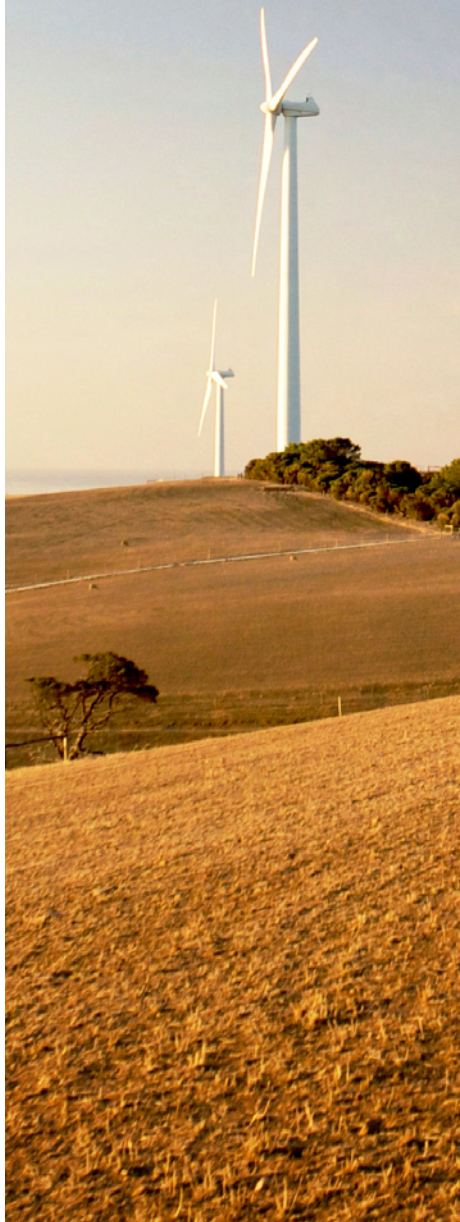
Do the wind turbines move in response to changing wind directions?

To maximise the harnessing of the wind resource, wind turbines are rotated toward the prevailing wind using a computerised system. At High Road the prevailing winds are easterlies.

Do wind farms operate all the time?

Wind turbines start operating when the wind is about 15 kilometres per hour. Maximum power output is achieved at approximately 50 kilometres per hour. At wind speeds greater than 90 kilometres per hour the wind turbines are shut down to avoid damage. Turbine rotors and towers are also designed to withstand a direct lightning strike without sustaining serious damage.

The High Road Wind Farm is expected to generate electricity around 90 per cent of the time.



How noisy are wind farms?

Wind turbines produce two potential noise sources: a swoosh associated with the turbine blades passing through the air and the mechanical noise of the gearbox and generator. Blade noise is minimised through blade design and gearbox/generator noise is limited by enclosure within the nacelle.

The wind farm must comply with strict noise guidelines in order to best integrate with the surrounding community. This is achieved by ensuring there is adequate separation between individual turbines and nearby residences.

What is the operating life of a wind farm?

Wind farms generally have long term agreements between 20 and 30 years – often determined by the life span of the turbines. Agreements may be renewed or new turbines installed if conditions remain favourable. If a wind farm is to be decommissioned, the site is returned to its original land use.

WIND ENERGY IN AUSTRALIA

What portion of Australia's electricity is generated by wind farms?

In 2009, the Energy Supply Association of Australia reported that Australia's power is predominantly obtained from coal (80 per cent) and gas (13 per cent). Around one per cent of Australian electricity is produced by wind. This proportion is expected to increase over the coming years as more wind farms are developed.

High Road Wind Farm

How much energy will the High Road Wind Farm produce?

The High Road Wind Farm has the potential to supply sufficient renewable energy to power more than 30,000 North Queensland homes.

Will the wind farms affect any birds or animals in the area?

Extensive flora and fauna studies have been undertaken as a part of the environmental studies for the High Road Wind Farm development and only limited impacts are expected. Transfield Services is committed to the protection of flora and fauna.

Will the wind farm be open to tourism?

There is strong community interest in wind farms as a result of climate change being so topical. Several Australian wind farm sites have established viewing areas, information displays and cafes. Transfield Services welcomes input from the community regarding opportunities for supporting local tourism.

Will the Project generate local employment?

The wind farm construction will generate employment and expenditure in the area both during and post construction. The use of local goods and services will be strongly encouraged. Workers required for the project will include plant operators, truck drivers, mechanics, welders, fencers, electricians, labourers and other trades typically used in civil construction. It is estimated that the on-site workforce will peak at around 110 people.

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