

MOUNT EMERALD WIND FARM | TRANSFIELD SERVICES



## Mount Emerald Wind Farm

[www.windfarms.net.au](http://www.windfarms.net.au)

{ renewable energy }



# Transfield Services home grown and growing

## Who is Mt Emerald Wind Farm?

Mt Emerald Wind Farm is a company with equal shares held between Transfield Services and Port Bajool.

Port Bajool, with directors John Morris and Jim Noli, have developed property in the Port Douglas and Tablelands areas for over 30 years. They remain the major landholders at Oaky Creek Farms and are keen to ensure that all neighbours views are considered and that the wind farm makes a positive contribution to the neighbourhood as well as the general Cairns/Tablelands region.

Transfield Services is an Australian-owned company and is a leading provider of operations, maintenance, asset and project management services.

The company – with a workforce in excess of 28,000 employees - works across diverse industries including mining, hydrocarbons, transport, water, energy, telecommunications and defence.

Transfield Services owns and operates a portfolio of power stations across Australia with a total generating capacity of 1,000 megawatts (MW). The company owns and operates three wind farms, including the Windy Hill project which has been operating successfully in the region for over 10 years, and has an interest in a number of wind farm development sites. These assets and sites were acquired from Queensland Government-owned Stanwell Corporation in December 2007.

Transfield also has extensive experience in project development and delivery across Australia, and has fostered close relationships with landowners and host communities. The company has an enviable track record of working with communities to develop solutions to community issues.

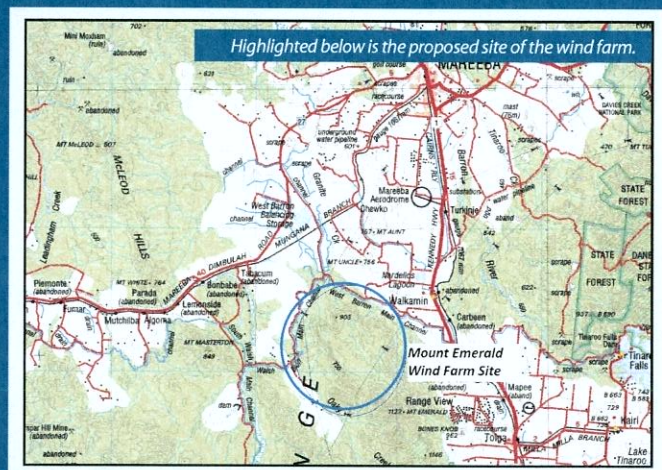
Transfield Services and Port Bajool, together as Mount Emerald Wind Farm Pty Ltd, is assessing the potential for establishing a wind farm on the Atherton Tablelands along the range between the towns of Atherton and Mareeba.

## The Site

The land on which the wind farm would be developed is privately owned and comprises a rough plateau (el. 900m) of largely sparse natural scrub land with some rocky outcrops not currently used for any particular purpose. The plateau is elevated some 300m above the surrounding plains which are predominantly used for grazing and agriculture.

The site has been chosen for the following reasons:

- It has an excellent wind resource
- There are few residences in close proximity to the site
- The site is close to the electricity grid, reducing the length of the transmission line
- Preliminary environmental studies indicate a low impact on the environment
- Support for the development from local communities



## Wind Monitoring

Wind data has been collected at Mount Emerald for over six months from two wind monitoring towers. Each tower measures wind speed and direction at various heights above the ground as well as recording other standard weather observations. The data collected to date indicates a viable wind resource that could be harnessed to produce clean renewable energy.

**Number of Turbines:** 70 to 80, depending on the capacity of the individual wind turbine generators.

**Wind Turbine Size:** The turbine blades are mounted on tubular steel towers up to 90 metres high, with each blade up to 50m long.

**Energy Produced:** Approximately 500,000 megawatt hours: enough renewable energy to power the equivalent annual needs of approximately 75,000 North Queensland homes.

## Environmental Benefits

The Mount Emerald Wind Farm would reduce Australia's greenhouse gas emissions by 14 million tonnes of CO2 equivalent during a 25-year operating life. This reduction is achieved by replacing fossil fuel energy production with clean renewable wind energy.

Investments in renewable energy are environmentally and commercially sustainable. The Australian Government's renewable energy scheme allows producers of renewable energy to sell the power generated and obtain renewable energy certificates (RECs). Energy retailers are required to purchase RECs to support the generation of renewable energy and achieve renewable energy targets.

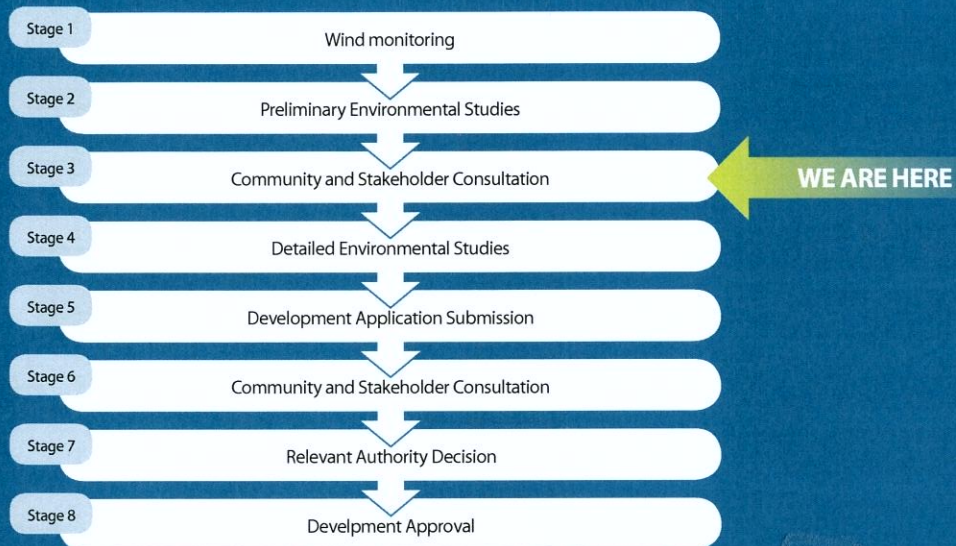


## Environment & Planning

### What is the Planning Process?

The planning process for a wind farm involves several stages as summarised below.

The Mount Emerald Wind Farm is currently at Stage 3. We anticipate the remainder of the process will take up to 12 months to complete.



### Environmental Investigations

Mount Emerald Wind Farm has undertaken a range of preliminary environmental investigations of the wind farm site over the last six months. The scope of these studies was guided by the Federal Government's Environmental Protection and Heritage Council National Wind Farm Development Guidelines (Draft - July 2010), and other best practice guidance. The key findings of these preliminary investigations are summarised below.

#### Ecology

Flora and fauna investigations and surveys (including birds and bats) undertaken by independent consultants in May 2010 identified a number of significant flora and fauna species having the potential to be found at the Mount Emerald site.

An actual on site investigation identified two plant species and one bat species of significant interest.

The conclusion of the environmental assessment to date is that with careful turbine placement and consideration given to the routing of the road and cabling network, the impacts of the wind farm are expected to be of relatively low intensity.

Further studies are planned following the wet-season in 2011 to further quantify the utilisation of the site.

#### Aboriginal and European Heritage

Preliminary heritage investigations have identified no items of cultural heritage significance at the wind farm site.

However, noting there has been little previous significant ground disturbance over the majority of the area, the potential for aboriginal cultural heritage being present within the study area is considered to be moderate.

A detailed archaeological assessment is now proposed and will include consultation with the Bar Barrum and Muluridji peoples.

It is expected consultation would result in a cultural heritage survey and a cultural heritage management plan (CHMP) or agreement pursuant to the Aboriginal Cultural Heritage Act 2003.

#### Aeronautical Risk

Given the wind turbines are likely to have an overall height greater than 110m it will be necessary to investigate the impacts the wind farm will have on aviation activities in the area both during daylight and night-time hours.

The Mareeba Airport is located approximately 11km to the northeast of the proposed wind farm and as such impacts on aviation in the area should be further investigated.

#### Noise and Visual Impact

Please refer to the separate fact sheets for noise and visual.



## Environment & Planning (continued)

### Noise

The widely accepted requirements for wind farms is that noise levels at residential dwellings not exceed the background noise level by more than 5 decibels or a level of 40 decibels (similar to standing in a quiet household).

These limits are in place such that the noise from a wind farm is not considered annoying by the average person. Before it can commence operation a wind farm must demonstrate that noise levels at neighbouring residences will meet these prescribed noise limits.

The simplest way to manage noise levels at nearby residences is to provide a sufficient "buffer" distance between the turbines and the residence.

A background noise assessment undertaken during 2010 established the current levels of ambient noise in the area of the wind farm. The wind farm layout has been re-designed several times based on this assessment so that noise levels remain within the required limits. This has included the relocation of several turbines away from nearby residences.

A further round of background noise assessment is planned for March/April 2011.

### Wind Farm Noise and Health

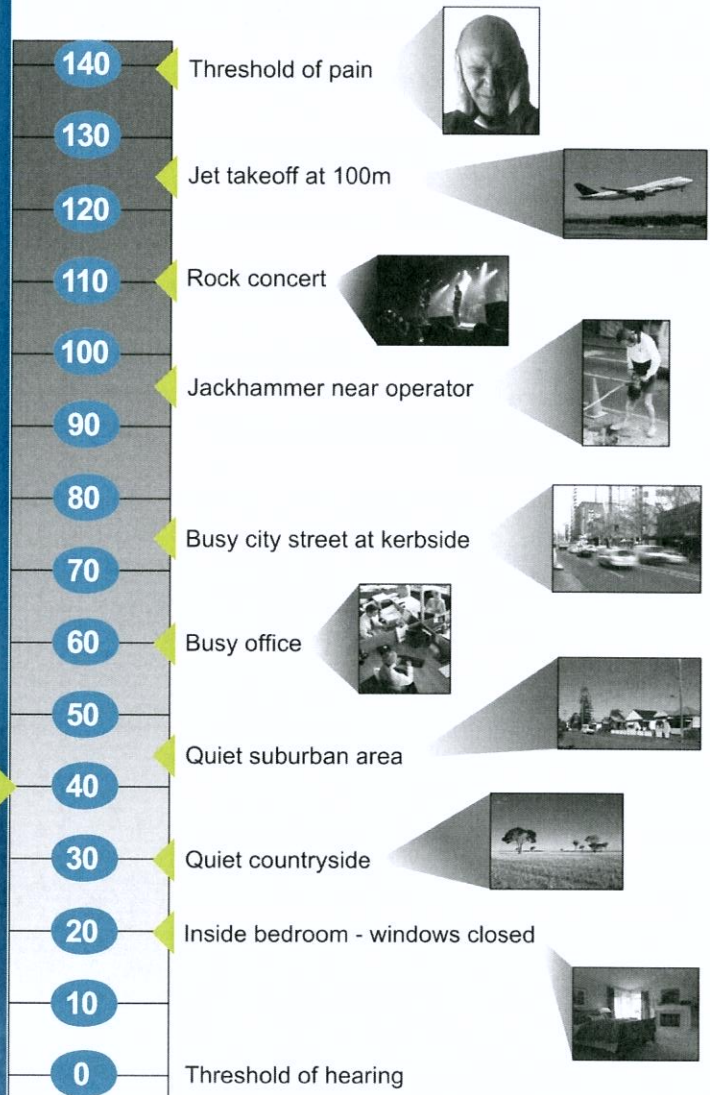
A recent review by the independent National Health and Medical Research Council concluded that there is no evidence that wind turbines make nearby residents sick.

This conclusion has also been reached by numerous health agencies around the world including the World Health Organisation (WHO).

### Wind turbines limit at household

## THE LEVEL OF COMMON SOUNDS

Indicative A-weighted decibel (dBA) noise levels in typical situations







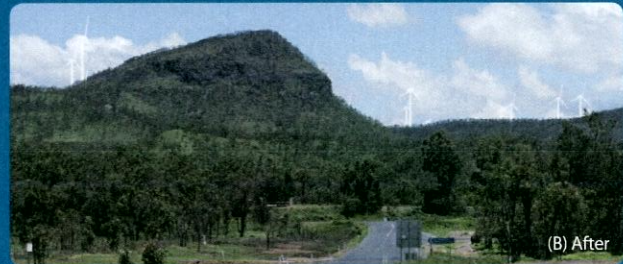
(A) Before



(A) After



(B) Before



(B) After

## Visual

A preliminary landscape assessment of the wind farm and its impacts was undertaken in accordance with the Wind Farms and Landscape Values National Assessment Framework, produced by the Australian Council of National Trusts.

It is acknowledged that due to the nature of the landscape in which they are proposed to sit i.e. on a ridgeline surrounded by a relatively flat landscape, the towers will be visible from many locations and little can be done to screen them using natural vegetation and landform. However, it is important to note that the towers will have a low visual prominence from the Kennedy Highway and it can be reasonably assumed the majority of regional traffic will utilise this route.

This apparent change in the visual character of the landscape could be embraced by the local community with the new scheme potentially enhancing a tourist trade, creating an additional attraction to the area. Given the main tourist route is exposed to only minor visual impacts it can be said that the new infrastructure would give visitors a choice of tourist journeys, taking them either along the Kennedy Highway with relatively untouched landscape character in keeping with the current values of the site or alternatively, the visitor can experience the full scale of this renewable energy project from Channel Road while travelling to existing local tourist attractions such as Mount Uncle Distillery or Granite Gorge Nature Park, or the potential new Renewable Energy Centre located adjacent to the wind farm.

The wind farm will be visible from various locations in the surrounding area, including from residences and roads. Two photomontages have been prepared showing potential views of the wind farm.

A - from the Kennedy Highway Chewko Road intersection near Walkamin (viewpoint 14)

B - near the intersection of Chettle Road and Springmount Road (viewpoint 6)

These montages are a close approximation of the appearance of the wind farm from these two viewpoints. The visual significance of the wind farm will vary from person to person and is largely subjective.



# How Wind Farms Work



## How Wind Farms Work

Wind turbines convert the energy of the wind into electricity. The turbine blades are turned slowly by the wind, and this rotation spins a generator to produce electricity. The electricity travels through transformers and a transmission line into the local electricity network for distribution to consumers.

Almost all commercial wind turbines producing electricity consist of three blades connected to a hub that rotates around a horizontal axis.

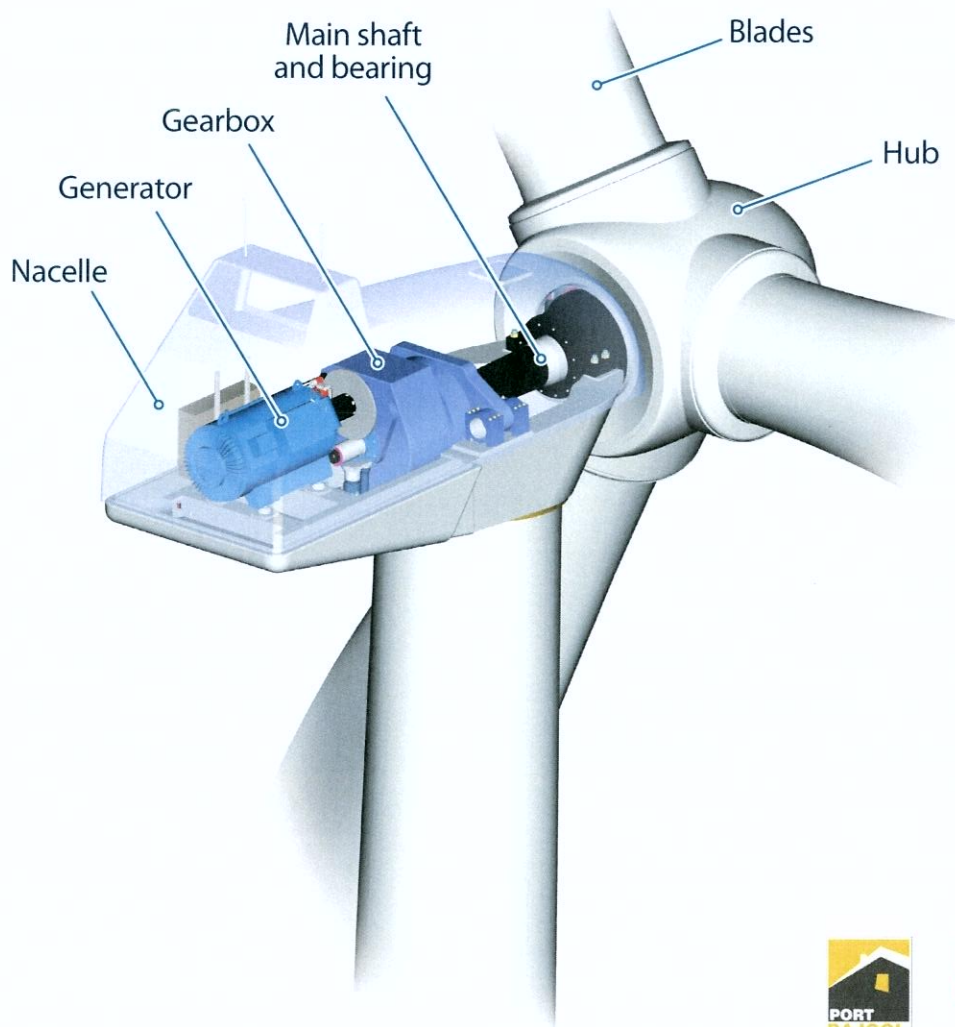
The hub is connected to the gearbox and generator which are located inside the nacelle, the large part at the top of the tower.

The turbine blades and rotor drive a high speed generator via a step-up gearbox.

The generated electricity passes through cables from the nacelle to the base of the tower. Here it is stepped up to high voltage in a generator transformer for supply to the transmission system.

Each of the turbines connects to the transmission system via the on site substation.

The wind turbines start operating at wind speeds of around 13 kilometres per hour and reach maximum power output at around 49 kilometres per hour. At very high wind speeds, such as gale force winds, the wind turbines shut down to avoid damage to the equipment.





## Community and Stakeholder Engagement

Mount Emerald Wind Farm is committed to engaging with the community and other stakeholders on all its projects; from inception through to operation and decommissioning. Our approach includes the following elements:

- Early and inclusive engagement - our community engagement activities for the Mount Emerald project started at the inception of the development approval process, allowing us to incorporate community feedback into the wind farm design and scoping of the detailed environmental studies
- Open and transparent consultation - Mount Emerald Wind Farm will provide the local community with all relevant information about the project so that they may actively and constructively participate in the project development phase
- Timely and responsive feedback - we have established a stakeholder database, whereby comments are recorded and responded to in a timely manner. We commit to providing feedback to the community on how their comments have influenced the project
- Maximise community benefits - Mount Emerald Wind Farm will work closely with the community and Tablelands Regional Council and other key government departments
- Conflict resolution - Mount Emerald Wind Farm will engage with groups/individuals in an effort to understand concerns and resolve conflict.

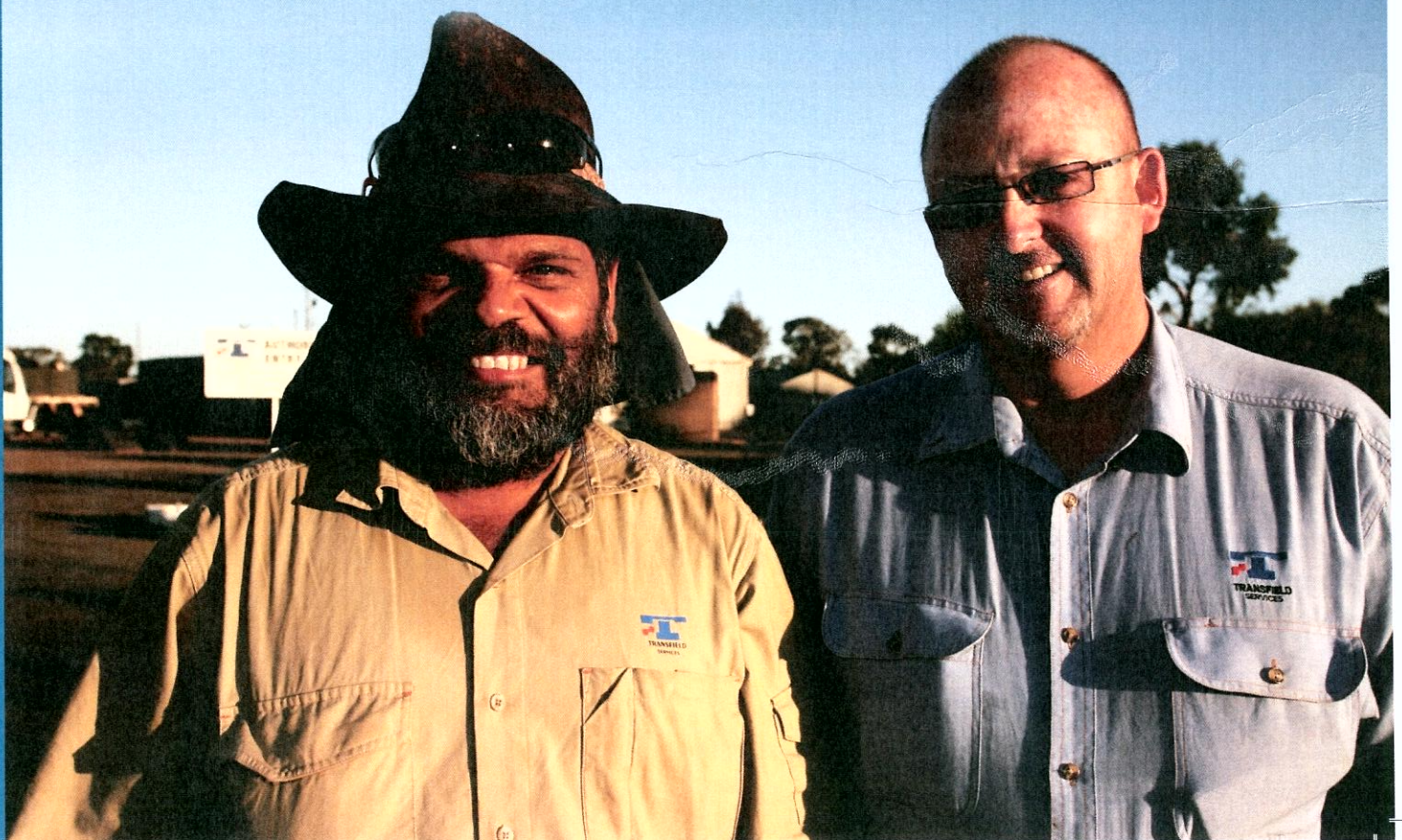
## Aboriginal Community Engagement

Mount Emerald Wind Farm recognises the local customary needs of Aboriginal people and the significant importance of preserving their culture and customs. The Company is committed to:

- Respecting the values and beliefs of Aboriginal people by creating a Company culture that respects and acknowledges Aboriginal culture, heritage, values and beliefs;
- Understanding the potential impact our business can have on Aboriginal people and their communities by encouraging and building our peoples awareness and understanding of Aboriginal relations and culture;
- Listening to Aboriginal people and together partnering to ensure mutually beneficial outcomes for Aboriginal communities, our clients, our partners and our business.

Mount Emerald Wind Farm acknowledges Aboriginal people as the original carers of their lands and therefore their involvement in our business is vital to our success.

Transfield Services Project Manager, Terry Johannesen, can be contacted on (07) 3248 8765 or [johannesent@transfieldservices.com](mailto:johannesent@transfieldservices.com).







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## *For more information*

Contact Transfield Services Project Manager Terry Johannesen  
on (07) 3248 8765 or [johannesent@transfieldservices.com](mailto:johannesent@transfieldservices.com)  
with any questions.