renewable power ventures

There is an accelerating need for energy in the industrial and developing worlds. Industrialized countries, given the global warming trend and increasing air pollution, are recognizing the impact of carbon-based technologies on the environment. Many governments and multi-national corporations are searching for solutions and are working toward a goal of creating clean and sustainable economies based on renewable energy. Australia is heavily dependent on coal for electricity, more so than any other developed country. About 84% of electricity is derived from coal. Practical efforts to reduce this level of reliance on fossil fuels are being sponsored by the various Australian Governments.

Renewable Power Ventures is a renewable energy development company formed by Babcock & Brown, National Power Company (USA) and Carbon Solutions. These parties are also the developer / operator of the Lake Bonney Wind Farm in South Australia and Alinta Wind Farm in WA (currently under construction).

Renewable Power Ventures is committed to the development of innovative and environmentally responsible renewable energy solutions.

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Capital Wind Farm

The proposed Capital Wind Farm site is located off Taylors Creek Road, Tarago Road and Mt Fairy Road, approximately 12 kms South and South East from Tarago. Renewable Power Ventures (RPV) has been monitoring the wind in different locations in the Tarago Region for almost 2.5 years, having mapped the potential energy over some 4000km^2. As a result of this process, the project location was selected as having the highest potential for a commercially viable Wind Farm. In determining the best site, a number of criteria were used to assess the overall project, most notably:

- Wind Resource – consistency in speed and direction.
- Access to High Voltage Transmission Lines
- Environmentally Compatible
- Zoning – Rural 1(a)

The development for the site would be completed in a single stage, resulting in up to 69 wind turbine generators being installed and a substation to connect the windfarm to the Kangaroo Valley / Canberra 330kV transmission line. RPV proposes to seal Taylors Creek Road as part of the project development.

Renewable Power Ventures is seeking approval for the installation of up to sixty nine wind turbines, associated electrical cabling, substation & facilities, sealing Taylors Creek Road and construction of access roads. The turbines would be sited according to standard design practice including consideration of prevailing winds, environmental and visual impact, noise and the continuation of existing agricultural activities. Each wind turbine will connect to a substation that would be built on-site, and connected to the Kangaroo Valley – Canberra 330kV transmission line.

Why use Wind Energy.....

The benefits of wind for supplying our energy needs is something to consider:

- Significant positive impact on the local and regional economy
- New Employment opportunities
- Short development timeframes
- The fuel is free, abundant and inexhaustible
- Clean, safe and reliable electricity supply
- Reduces Australia's greenhouse gas emissions
- Sustainable development mechanism

The significant wind resource within the Tarago region makes this wind farm energy efficient and cost-effective. On completion, the Capital Wind Farm will comprise of up to 69 wind turbines of up to 3 Mega Watts each. During its 25 year service life the wind farm will supply clean electricity for up to 90,000 households. This means a decrease of greenhouse gas emissions by 500,000 tonnes per year.

Benefits for stakeholders.....

Wind energy developments have benefits for many stakeholders, including the State, landholders and the community as a whole.

For **New South Wales**, wind energy is attractive for its contribution to:

- The State's efforts to reduce greenhouse gas emissions and meet energy supply policy objectives, including increased energy security and diversity; investment and employment in industry.

For **Southern Tablelands communities,** wind energy projects are attractive because:

- They provide opportunities for employment and regional development – "local involvement policy"
- Sealing Taylor's Creek Road
- Diversify and strengthen the local economy
- The potential for an operation and maintenance industry offers further opportunities for growth in employment investment and new skills.

For the **broader community,** wind energy is attractive because:

- Environmental benefits through greenhouse gas abatement and reduced air pollution, and is consistent with widely held values of sustainability;
- Reduces existing transmission losses through embedded generation;
- Increases generating capacity in NSW at a time of extremely high growth in electricity demand.

For **landholders** wind energy projects are attractive because

- They can provide a secure long-term income stream which complements income from other land uses such as farming;
- Lease fees in turn flow through the local economy

Wind Farm Issues.....

Will the turbine noise affect me?

Virtually everything with moving parts will make some sound, and wind generators are no exception. Well designed wind generators are generally quiet in operation, and compared to the noise of road traffic, trains, aircraft and construction activities, to name but a few, the noise from wind generators is very low. Outside the nearest neighbouring houses, which are at least 800 metres away, the sound of a wind generator is likely to be about the same level as noise from a flowing stream about 50-100 metres away or the noise of leaves rustling in a gentle breeze. This is similar to the sound level inside a typical living room with a gas fire switched on, or the reading room of a library or in a quiet office.

As the table shows, the sound of a working wind farm is actually less than normal road traffic or a busy office. Even when wind speed increases, it is difficult to detect any increase in wind generator sound above the increase in normal background sound, such as the noise the wind itself makes and the rustling of trees. From the studies completed to date, no neighbouring house will be over the NSW Government threshold for wind turbine noise of less than 35dbA or no more than 5 dB above background noise.

If you have any other questions about noise affecting your house please contact RPV staff for a comprehensive explanation and view of the computer calculated noise map that has been completed for the local area.

Sound Level	dBA
Threshold of hearing	0
Rural night-time background	20-40
Quiet bedroom	35
Wind farm at 350m	35-45
Car at 60km/hr at 100m	55
Busy general office	60
Truck at 45km/hr at 100m	65
Pneumatic drill at 7m	95
Jet aircraft at 250m	105
Threshold of pain	140

What is the impact on Birds?

There have been a number of studies conducted worldwide that have quantified the level of birds that were killed as result of striking a moving turbine blade. There are a number of aspects that determine the overall likelihood that this will occur, including proximity to native habitats and the migratory path of some species. So as to fully assess the risk, independent studies have been completed as part of the development. The table below, from a US study, indicates the relative proportion of bird-strike that may occur from wind farm development when compared with other sources of bird-strike.

Mortality Source	Lower Limit	Upper Limit
Vehicles	60 Million	80 Million
Buildings & Windows	98 Million	908 Million
Power Lines	0.1 Million	174 Million
Communications Towers	4 Million	50 Million
Wind Farms	10,000	40,000

Will my view be affected?

Houses located in the region will be situated within the local setting of a number of wind generators. Screening trees and shrubs around residences and local topographical features will influence how many wind generators can be seen from each residence. Computer generated views have been produced of several prominent locations in the area to determine the windfarm's appearance.

If you have any concerns as to how the wind farm may affect your views, please fill out the request form attached to this brochure for a Photomontage (computer generated view). RPV will visit you personally and take the necessary photographs to construct the views.

What are the fire risks?

As you know, significant fire risks exist during different seasons, most notably during the hottest and windiest months of the year. Sources of fires from the project include vehicles, construction activities, and human influences (e.g. cigarettes). As for the equipment, it is intrinsically safe, having earths for all components of the wind turbine generator. During construction there are a number of measures being taken to minimise the risk of fire. A comprehensive Fire Management Plan will be developed, including a Fire Prevention Plan; and the Fire Fighting Plan in the unfortunate event of a fire starting. As a minimum, the following measures will be established:

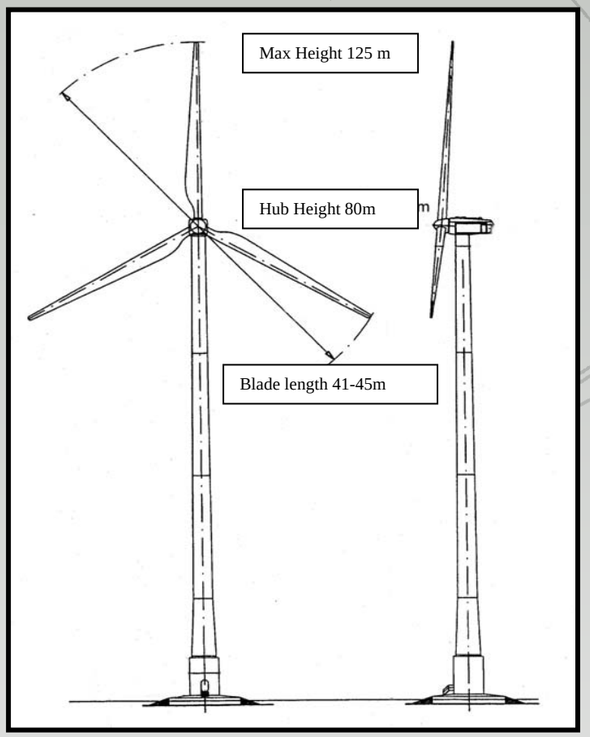
- On-site Fire Unit for immediate Fire Fighting
- Education process for construction related staff
- Immediate cessation of work upon direction of local authorities

Flora and Fauna

Flora and Fauna studies have identified the presence of a Yellow Box community of high conservation value. RPV will fence this area to prevent any stock from being able to access the area and to preserve its current status. "No Go" areas have been established on the project site that will ensure important flora is left untouched during the development.

Basics of Capital Wind Farm...

The selection process for the wind turbine generators has commenced and will be completed by mid 2005. Below is a diagram that shows the basic features of the wind turbine generator.



Turbine Specifications

Tower

- Colour_____off-white / grey
- Height_____approx. 80 metres to hub
- Base Diameter_____approx.4.3 metres
- Top Diameter_____approx. 2.3 metres

Generator

- Colour_____off-white / grey
- Output_____Up to 3000 kW (3MW)

Blades

- Colour_____off-white / grey
- Length_____41-45 metres
- Rotating Speed_____approx 13-17.7RPM

Operational Wind Speeds

- Cut in_____approx. 12 km/h
- Cut Out_____approx. 90 km/h
- Survival_____approx.240km/h

Environmental Assessment.....

In the detailed feasibility studies carried out by and for RPV, wide ranging factors and their associated effects were analysed and considered in context with the development at Capital Wind Farm. The following points formed the framework of the overall development impact assessment.

- Greenhouse reduction
- Socio economic benefits including local participation
- Wind turbine operational and construction noise
- Transport routes and associated management
- Water quality management
- Soil erosion and dust from construction and trucks
- Viewsheds and minimising the visual impact
- Hazardous material and spill management
- Statutory Planning Framework – local and state
- Flora and Fauna considerations
- Environment Protection and Biodiversity Conservation Act 1999
- SA EPA Noise Guidelines
- Various NSW Legislative requirements
- Australian Heritage Commission Act 1975
- Aircraft Operations and Safety at Canberra and Goulburn Airports
- Various Dept of Environment and Conservation requirements for Water and Noise Management
- Fire Prevention and Fire Fighting Management
- Regional and State Planning Objectives and directives
- Local council policies

Facts & Figures.....

Operational 2006	
Turbines (Capacity)	Up to 69 (124-177 MW)
Electricity Production	Approx 400-500 GWh
Household Equivalent	90,000 households
% of NSW's power needs	1%
% of Australia's Renewable Energy Target	2%
Wind Speed at 80m	>7.5m/s
Emission Offsets	Up to 500,000 Tonnes
Cost	Approx $210M
Value of Local Participation	$30-50 million