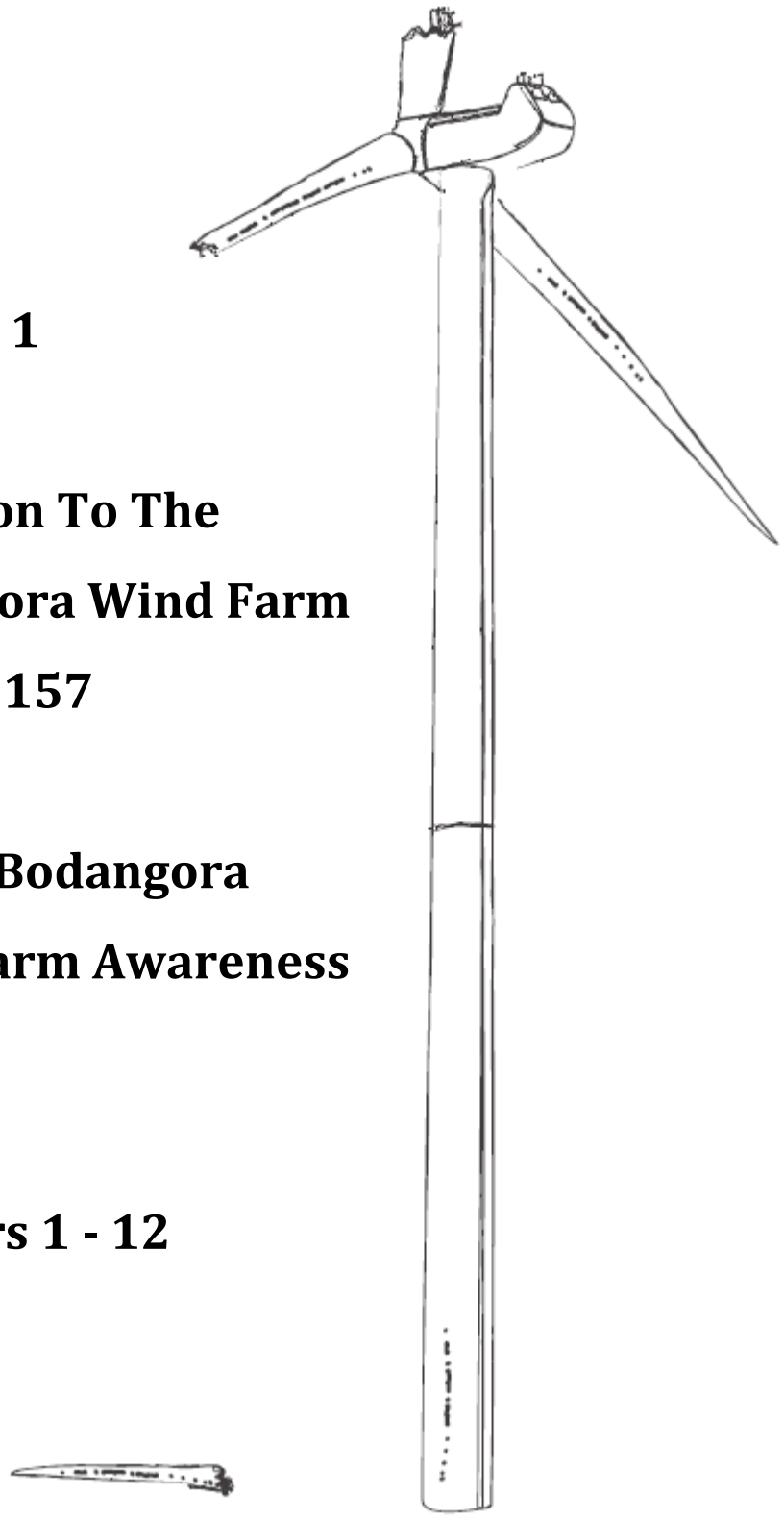


Volume 1

Objection To The Bodangora Wind Farm MP10_0157

By The Bodangora Wind Farm Awareness Group

Chapters 1 - 12

BODANGORA WIND TURBINE AWARENESS GROUP

Submission to the Department of Planning & Infrastructure

Proposed Bodangora Wind Farm MP10_0157

Bodangora Wind Farm Awareness Group

August 2012

This document contains the objection to the Proposed Bodangora Wind Farm MP10_0157 by the Bodangora Wind Turbine Awareness Group to the Department of Planning & Infrastructure in regards to the proponent Bodangora Wind Farm Pty Ltd under Infigen Energy.

1.0.1 OBJECTION TO THE PROPOSAL

August 6th, 2012

The Director General
Major Development Assessment
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Sir,

Re: Proposed Bodangora Wind Farm, Wellington Local Government Area (MP10-0157)

The Bodangora Wind Turbine Awareness (BWTAG) is comprised of a large group of concerned residents of the Wellington Local Government Area, including all neighbouring residences to the proposed Bodangora Wind Farm.

We object to the Proposed Bodangora Wind Farm ("the proposal") in the strongest possible terms. We believe this development is totally inappropriate.

This submission details our objections.

The BWTAG requests that representatives of the group be given the opportunity to speak at the Planning Assessment Commission hearing related to this proposal.

Yours faithfully,

Lyn Jarvis

CHAPTER 2 EXPLICIT CAUTIONARY NOTICE

EXPLICIT CAUTIONARY NOTICE

TO THOSE RESPONSIBLE FOR WIND TURBINE

ASSESSMENTS, APPROVALS AND DEVELOPMENT

Specifically

Directors of Wind Energy Companies, Publicly Elected Officials from Federal, State and Local Government, and Bureaucrats in Relevant Departments

BE ADVISED that, as a result of information gathered by the Bodangora Wind Turbine Awareness Group, from the clinical and acoustic research available nationally and internationally, serious medical conditions have been identified in people living, working, or visiting within 10 kilometres of operating wind turbine developments. The onset of these conditions would appear to correspond directly with the operation of wind turbines.

We remind those in positions of responsibility for the engineering, investment and planning decisions about project and turbine siting that their primary responsibility is to ensure that developments cause no harm to adjacent residents; and, if there is any possibility of any such harm, then the project should be re-engineered or cancelled. To ignore existing evidence by continuing the current practice of siting turbines close to homes represents a breach of the duty of care, and thus attracts grave liability.

THE PROPOSED BODANGORA WIND FARM

Figure 1. Shows the typical landscape across the project area including Land Owner A, B, D and House 5

2.1.0 ACKNOWLEDGMENTS

Acknowledgments

The following people contributed or assisted towards this submission on the Environmental Assessment for the Bodangora Wind Farm by Bodangora Wind Farm Pty Ltd, Infigen Energy.

Members of the Bodangora Wind Turbine Awareness Group include:

Lyn Jarvis
Carol Conn
David Babicci
Vicky Babicci
Joe Mason
Kristy Mason
John Bosanquet
Sandy Bosanquet
Linda Lyons
Nicholas Lyons
Rob Sutherland
Mary Sutherland
Tom Green
Sue Green
Ross Conn
Robert Jarvis
Michael Lyons
Kate Jarvis
Patina Schneider
Toby Martin
Andrew Birch

Consultants and Specialist Comments.

John Schneider
Dr. Sarah Laurie
Philip Raskall
Steven Cooper
L Huson & Associates Pty Ltd

CHAPTER 3 TABLE OF CONTENTS

If the Government is of the mind to approve this proposal then, as a key stakeholder we wish to receive a copy of the Draft Consent Conditions at the same time that the proponent is afforded the same opportunity

CHAPTER 4

Introduction

The Bodangora Wind Turbine Awareness Group (BWTAG) is made up of local concerned community members of the Wellington district. The group consists of, but is not limited to every neighbouring family surrounding the proposed project area.

The BWTAG has reviewed the Environmental Assessment produced by the proponent Bodangora Wind Farm Pty Ltd, Infigen Energy and strongly objects to the proposed project. The Environmental assessment falls well short of the Director Generals Requirements (DGRs) and should be rejected in its entirety.

The proponent has caused a rift in the community through the way in which it has obtained contracts with land holders; doing so secretly and without regards for the consequence to the local social fabric.

The destruction of this social fabric of this rural community has already begun. Host families have isolated themselves from their neighbours as they refuse to speak about the project to the people who will be most affected by the development; their neighbours. Families that have been friends for generations are being forcibly turned against one another as the proponent isolates host landholders through “gag” clauses.

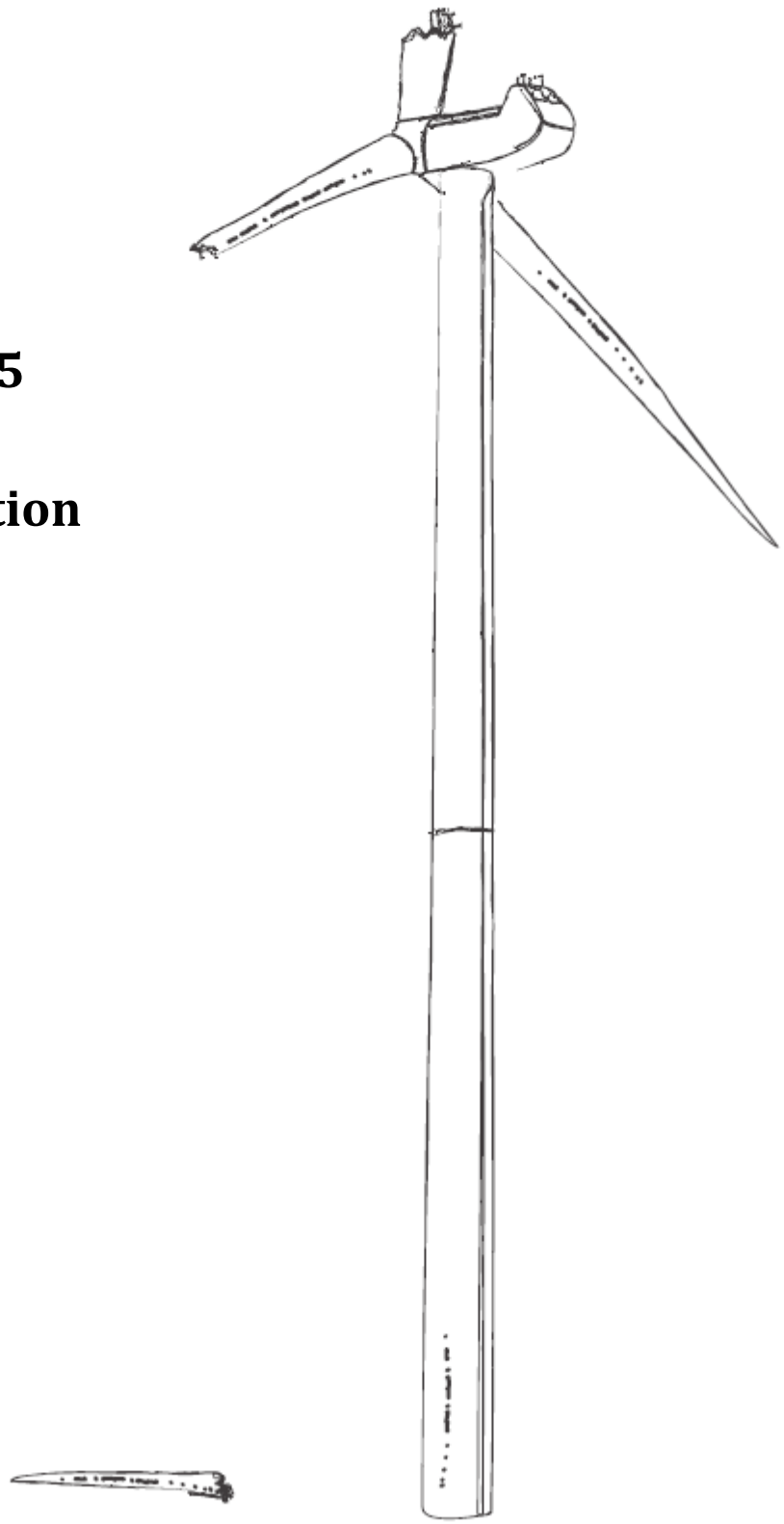
The Bodangora Wind Turbine Awareness Group objects to the proposed Bodangora Wind Farm in the strongest possible terms. The neighbouring property owners their families and the majority of the Wellington community do not want this project and request it to be abandoned before any more damage is caused to this rural community.

This document contains the objections from the BWTAG. It represents the views of not only each neighbouring landholder and their families that are directly adjacent to the proposed Bodangora wind farm but of the majority of the wider Wellington community and surrounds.

The Bodangora Wind Turbine Awareness Group would like to reserve the right to add to this submission as information becomes available.

Chapter 5

Justification



CHAPTER 5 JUSTIFICATION

DIRECTOR GENERALS REQUIREMENTS

The EA must include assessment of the following key issues for both the wind farm and transmission line:

1. Include a strategic assessment of the need, scale, scope and location for the project in relation to predicted electricity demand, predicted transmission constraints and the strategic direction of the region and the State in relation to electricity supply, demand and electricity generation technologies, and its role within the commonwealth's renewable energy target scheme. The EA must clearly demonstrate that the existing transmission infrastructure has sufficient capacity to accommodate the project:
2. Include a clear demonstration of quantified and substantiated greenhouse gas benefits, taking into consideration sources of electricity that could realistically be replaced and the extent of their replacement. reference should be made to estimating greenhouse gas emissions abatement from wind farms in NSW, McLennan Magasanik Associates, July 2010, Report to the Department of Environment, Climate Change and Water (DECCW) and the associated NSW Wind Farm Greenhouse Gas Savings Tool developed by DECCW;
3. Include an analysis for the suitability of the project with respect to potential land use conflicts with existing and future surrounding land uses (including rural residential development, building entitlement and subdivision potential, land of significant scenic or visual value, land of high agricultural value, other water users, mineral reserves, forestry and conservation areas) taking into account local and strategic land use objectives; and
4. Describe the alternatives considered (location and/or design) for all project components, and provide justification for the preferred project demonstrating its benefits including community benefits (for example community enhancement programmes) on a local and strategic scale and how it achieves stated objectives.

In Addition the EA must consideration for the following NSW Draft Guidelines:

1. The contribution of wind farms generally to any increased demand for back-up power supply, and
2. The contribution of the renewable energy target to retail electricity prices.
3. Crown Land under existing and future land use.
4. Potential cumulative social and economic impacts on the local community.

5.1.0 SUMMARY OF OBJECTIONS

Project Justification: Bodangora Wind farm Awareness Group objects to the Bodangora Wind Farm proposal

Should the NSW Government, via their agent the Department of Planning and Infrastructure approve the Bodangora Wind Farm it will be disregarding its **duty of care** to the residents in proximity to this industrial wind turbine complex.

Should the NSW Government, via their agent the Department of Planning and Infrastructure approve the Bodangora Wind Farm it will be ignoring **the precautionary principle** particularly in relation to health, welfare and community affairs as recommended by the Federal Senate Inquiry into Rural Wind Farms.

The NSW Government must:
Declare a moratorium on the construction of wind turbines until appropriate research has been carried out to assess all health effects; being mindful of the recent appeal before the South Australian Supreme Court which was upheld on the basis of non compliant noise. This action must determine the adequacy of the SA EPA Noise Guidelines which NSW also uses.

The proposal for the Bodangora Wind Farm must be rejected because:

- Wind turbine generated electricity is inefficient, uneconomic, and intermittent and does not create a net saving in CO2 emissions.
- Issues of equity where one landholder obtains an income at the expense of a neighbour.
- Issues of equity where one landholder destroys or significantly impacts the "quiet enjoyment", "rest and repose" and visual amenity of a neighbour.
- Industrial Wind sites destroy "Rurality" and are therefore contrary to residents natural and deliberate geographic and locality choice of abode.
- There has been no consideration of the effects of noise on the Wellington Correctional Centre (less than 10km from the nearest turbine), Red Lea Chicken Farm, the elderly and the disabled, all groups in the community with increased susceptibility.
- Significant doubts regarding the decommissioning process.
- Reduced land values for both host and non-host landholders alike.
- There is legislative confusion, lack of structure and no proper mechanism to deal with complaints about noise. No Government Authority (including local government, EPA or Department of Planning) appears to take responsibility for

the noise compliance of the energy company's operation. Noise complaints are referred back to the energy company. **This needs to be addressed as a matter of urgency.**

5.2.0 INTRODUCTION

A major function of government is to regulate the conduct of others so as to safeguard public health, prevent environmental damage, ensure building safety, control public order, and other similar objectives. There is a duty to take reasonable care in conducting that regulation. The Government is the ultimate custodian of all matters of Public Interest.

A duty of care is a legal obligation to avoid causing harm or injury to others. Government agencies and decision-makers are under a duty of care in many situations and have a legal obligation to take reasonable care to avoid causing harm or injury to foreseeable. The standard of care that should be observed will vary with the circumstances. For example, a higher degree of care is expected where the risk of injury is high, the potential damage is serious, or a dangerous consequence could easily be avoided. (Clayton Utz. (2006). *Good decision-making for government. Duty of Care.* www.claytonutz.com)

It is argued in this submission (Chapter 5) that there are issues of noise impacts and public health associated with the development of industrial wind turbines. These are real and demonstrable, and are supported by international peer-reviewed research.
To ignore this evidence, to vilify those who display health issues directly relating to wind turbines, and to approve wind turbine development close to human habitation would be a failure on the part of the NSW Government and its Minister for Planning and Infrastructure to honour its legislated obligations of duty of care.

Of great concern is the fact that distrust, anxiety and frank depressive illness may precede industrial wind turbine development as has already been seen in many districts. Considerations of cessation of local development, investment and expansion have also been noted. The disintegration of a former cohesive society is now very evident with the formation of divisions which will never heal. Many of our community will move away which will simply magnify our loss by way of reduced services and never be regained. Services such as schooling, health, transport and merchandising will never recover.

5.3.0 DUTY OF CARE REGARDING WELLINGTON INMATES, THE ELDERLY AND THE DISABLED.

Although concerns of health, noise and the people affected by the proposed wind turbines is examined in more detail in other chapters, the special issues regarding Government's duty of care to the residents of the Wellington Correctional Centre, their families and the employees who work there are particularly vulnerable to the impacts of noise. Their susceptibility to auditory damage is a real possibility and should be noted. The elderly and handicapped residents of the Bodangora area are often not able to articulate and defend their own interests as well, thus it is essential for government to accept their legal obligations and assume this role. A duty of care is therefore a critical element of Government's civic responsibilities to these vulnerable sectors of the population.

In relation to the Bodangora Wind Farm proposal, there is also a large Chicken Farm on two separate sites. Both of the Red Lea Chicken Farm properties and the Wellington Correctional Centre are within 10 kms of the proposed Bodangora Wind Farm which is concerning as there is increasing evidence that people are adversely affected by the noise from wind turbines out to 10 kilometres due to sound wave propagation. Moreover sound exhibits synergism so that the additive effects of several proximate wind turbines will increase the impact on people by a factor greater than the sum of their values.

Humans exposed to chronic noise which is intrusive do not accommodate with time to this noise as is often quoted. This myth remains another example of false and misleading information used by profit orientated companies to continue to damage Australian rural families. There are real issues of noise impacts and public health associated with the development of industrial wind turbines (refer Chapter 17 of this submission) that are supported by international peer-reviewed research. To ignore this evidence, to vilify those who display health issues directly relating to wind turbines, and to approve wind turbine development close to human habitation would be a failure on the part of the NSW Government and its Minister for Planning and Infrastructure to honour its legislated obligations of duty of care.

The proponent of the Bodangora Wind farm has not provided adequate information to the citizens of Wellington of any **potential impacts** of the proposed development in the area of health which includes **noise** and **vibration** and **Electro Magnetic Radiation** from **transmission lines, substations and telecommunication towers.**

Since the proponent has publicly stated that there are "no adverse health effects from wind turbines" it is unlikely they will provide any negative information. This was the case during Bodangora Awareness Groups open day when the proponent's spokesperson "rolled out" a long reel of paper listing made up ailments pertaining to wind turbines. This act of mockery was in an insult to those in the audience seeking information regarding a highly sensitive matter and shows Infigen the proponents disregard to their duty of care to this community. **It is therefore in the Government's interest and duty of care to ensure that the information they receive can be independently corroborated, and that the Department of Planning and Infrastructure take careful note of the implications for the susceptible groups in the district.**

5.3.1 BODANGORA WIND FARM PTY, LTD, INFIGEN ENERGY AND ITS DUTY OF CARE

Bodangora Wind Farm Pty Ltd, (the Proponent) and/or its parent company Infigen Energy has an obvious duty of care to any person it affects. If it wilfully neglects this duty of care then it may incur charges of criminal negligence. This duty of care is set out in Criminal Negligence code S266: (Saccorotti, G., Piccinini, D., Cauchie, L., and Fiori, I. (2011). *Seismic Noise by Wind Farms: A Case Study from the VIGO Gravitational Wave Observatory, Italy.* Bulletin of the Seismological Society of America.**101** (2): 568-578.)

which states:

Everyone who has in their charge or under his control anything, whatever whether living or inanimate, or who erects makes or maintains anything whatever, which in the absence of precaution or care may endanger human life, is under a legal duty to take responsible precautions against and use reasonable care to avoid such danger, and is criminally responsible for the consequences of omitting without lawful excuse to perform such duty.

Health consequences resulting from negligence are often liable to attract legal proceedings. It is shown here that there is significant evidence of health effects caused by sound from wind turbines. In the Environmental Assessment (EA) the proponent denies any adverse health effects in people associated with wind farms. It is disingenuous for it to claim ignorance of the rapidly increasing body of peer reviewed research that corroborates this fact. It would seem that commercial pressures dictates that wind farm construction should proceed despite any scientific and medical doubts that are emerging. To proceed without the risks to health in particular being researched and quantified may be grounds for criminal charges,

including mass class action, should adverse health outcomes develop as a result of the wind turbine operation.

5.3.2 THE PRECAUTIONARY PRINICPLE

The World Health Organisation defines The Precautionary Principle (. Berglund, B., Lindval, T., and Schwela, D. (Eds) (2000). *Guidelines for community noise.* World Health Organization, Geneva, Switzerland.)

When there is a reasonable possibility that the public health will be endangered, even though scientific proof may be lacking, action should be taken to protect the public health, without awaiting full scientific proof.

Moreover the precautionary principle is a **moral and political principle** which also calls for the burden of proof to fall on those who would advocate taking the action. In other words, no new industrial process should be imposed on an unsuspecting public without having been thoroughly, publicly, and independently studied beforehand. Patently this has not happened with the wind turbine industry and it is only in the last few years that the mounting evidence of the health effects of wind turbines are such that they can no longer be ignored.

The precautionary principle dictates that studies need to be **urgently** carried out to establish if wind turbine projects impose risks to health or safety of the target communities. A moratorium should be established and such projects should not be allowed to proceed until this is completed. If the research indicates risk, then prevention is mandated. Until then it is a matter of good governance to adopt the precautionary principle in the interests of public health.

To repeat: The introduction of the precautionary principle is currently an important and ignored recommendation of the Federal Senate inquiry into wind farms.

It is therefore mandatory that this project, the proposed Bodangora Wind Farm (and indeed other project proposals before the NSW Department of Planning and Infrastructure), be postponed and not considered for approval pending:

- A moratorium being put in place until -

- Sufficient, appropriate and independent research is performed, peer reviewed and published;

- Assurance that this research be **funded** by the industrial wind turbine industry as they are the only organisations profiting from these developments. Further, that recognition of company profits by government ensures that taxpayer funds are not utilised in the research process.

- The Department of Planning and Infrastructure is in a position to then make a considered and informed decision through its Duty of Care provisions;

- The Supreme Court of South Australia has recently upheld the appeal in the matter of Quinn-v-AGL Hallett 3 stating, there were issues of noise and **tonality** at Hallett 2 and that the South Australian EPA Guidelines under which that wind farm was assessed were insufficient to safeguard health. The SA Supreme Court returned the matter back to the Environment Resources and Development (ERD) Court for determination. It is obvious that the guidelines will need to be urgently reviewed and upgraded. Since NSW assesses wind turbine developments under the same guidelines the Department of Planning and Infrastructure should halt all development assessments immediately until the introduction of new and more rigorous guidelines are introduced.

5.4.0 CONTEXT FOR WIND ENERGY DEVELOPMENT

5.4.1 GLOBAL CONTEXT

An overview "Examining the Effects of Wind Turbine Industrial Development in Rural Areas"(Siponen D, *The Assessment of Low Frequency Noise and Amplitude Modulation of Wind Turbines*, 4th International Meeting on Wind Turbine Noise, Rome, Italy, 12-14 April 2011-07-06); Found that internationally wind turbines have not reduced the world's dependence on fossil fuels. As well wind energy supporters have also exaggerated the ability of wind to reduce sulphur dioxide, nitrous oxide and carbon dioxide.

The proponent claims that "globally, wind power is successful because it is cost effective compared to other forms of renewable energy, and accordingly has experienced strong growth globally." This statement is ironic because the only time "Infigen Energy" has ever earned a reasonable profit was when it sold off their wind farms in Spain and Portugal. It tried desperately to offload its American operations in 2010 but to "no avail" according to theage.com.au.

Figure 1. Infigen energy (ASXIFN) stock price over a 1 year period (source: Australian Stock Exchange 2012)

5.4.2 NATIONAL CONTEXT

Australia is producing wind energy but it is happening at such a low rate that it has yet to have an impact on conventional energy usage.

Miskelly, A. And Quirk (Miskelly, P (2011). Personal communication – Examination of electrical generation performance of total wind farms connected to the eastern Australian electricity grid, with installed capacity 2000 MW;

report that eleven wind turbine installations in south east Australia were examined by the Australian energy Market Operator (AEMO) and found that these turbines produced more than 80% of their output only 8% of the time, while they produced 8% of their output 80% of the time. There were two important conclusions:

1. Wind turbines do not generate as much power as they should. Even the proponents claim in the Bodangora Wind Farm Environmental Assessment puts the capacity factor at 333GWh (Gigawatt hours) which would seem to be an

overestimate given the AEMO's and (many other authorities) findings (see above).

Wind turbines work roughly at the same time, which means that if the wind is not blowing when required to meet demand, it is impossible to produce energy unless there is an alternate source of electricity on standby, namely coal or gas fired generators. It can be readily shown that on a daily basis, even when the wind is blowing, there will always be a mismatch between peak electricity production (night) and peak electricity consumption (day). Wind energy is constantly varying over a very wide range, and at times extremely. On over 30 occasions during the calendar year 2010 the total wind farm output for Eastern Australia (as determined using AEMO date) plunged to less than 2% of installed capacity, and indeed on several occasions dropped to zero. (Moller, H., and Pedersen, C.S. (2004). *Hearing at low and infrasonic frequencies.* Noise Health **6**: 37-57.)

In addition, there are frequent, sharp, unpredictable changes in the output amounting to several hundred megawatts at a time. On the electricity grid, where the load/generation balance must be managed second-by-second, this sort of behaviour is completely unacceptable for the grid operator. This then has to be compensated for by varying the output of the controllable generators which have to be kept constantly running and whose sole task is to balance the wind's vagaries.

In engineering parlance this is an example of "common-mode failure" and means that at these times the entire wind generation fleet has failed – a result of the combination of variable weather systems as they cross the continent, exacerbated by the wind turbine characteristic to produce massive changes in output in response to small changes in wind speed.

This situation is demonstrably unpalatable because this is a common-mode failure, and whether 10 or 100,000 wind farms were to be connected to the grid there would still be the same unacceptable number of common-mode failures, but with an additional twist: the larger the number of wind farms, the larger are those totally unacceptable power excursions, making it even harder to control the grid, making it more unstable and increasing the likelihood of frequent, unpredictable, widespread blackouts across the eastern Australian grid.

The Bodangora Wind Farm Environmental Assessment claims that as we construct and operate more wind farms the power industry will be able to stop burning coal and gas. In fact, seemingly perverse, the exact opposite will occur. The results of

analysis (Moller, H., and Pedersen, C.S. (2004). *Hearing at low and infrasonic frequencies.* Noise Health **6**: 37-57.) show that each increment of wind generation requires the provision of fast-acting, controllable, back up generation; that is, each new 100MW of wind farms will require 100MW of new fossil-fuelled generation solely for backup. Furthermore, each such 100MW of fossil-fuelled generation has to provide on average 60-70MW output because of the wind farms' poor capacity factor.

In the light of the above it is patently obvious that construction of wind turbines will not allow the shutdown of any coal or gas burning electricity generators, and indeed will necessitate the construction of additional back-up generators.

5.4.3 STATE CONTEXT

In Australia there are over 1000 wind turbines operating. The renewable energy plan (20% of electricity generated from renewable energy sources by 2020) calls for an almost tenfold increase in the number of turbines to meet this target.

It is apparent that there is considerable coercion on the NSW Government by energy companies and the Federal Government to deliver approval for a large number of wind turbine projects. This coercion is driven by the Federal Governments 20/20 renewable energy policy and the wind turbine industry's fear of the inevitable withdrawal of Renewable Energy Certificates (REC's) planned for 2023. In fact when the proponents representative (Jonathon Upson) was asked in Wellington NSW, at a public meeting on Sunday 22nd July 2012 that "if there were no Federal Government subsidies on the turbines would the Bodangora Wind Farm go ahead?" His reply was "No".

The high construction costs for wind turbines ($2.4 million per kilowatt hour) is more than double that of gas or coal, and the government's subsidy of wind energy will undoubtedly flow onto the consumers (domestic and industrial). While solar is more expensive again it does not have the same problems of storage and intermittency, whereas wind power requires back-up generators.

Therefore the high cost of wind power resolves into the following constraining factors:

- High capital cost
- Cost of back up generation
- Cost of connecting small turbines to the transmission infrastructure
- High repair costs resulting from a number of different scenarios and causes

- The above ensures that wind turbine produced electricity is 3 times the cost of coal fired power.

In considering the relative costs of avoiding carbon emissions, wind plus back up generation is still the most expensive, followed by coal with carbon capture and storage, then comes cycle gas turbines and the cheapest is nuclear energy.

In regard to finite fossil fuel resources, Australia has well over 500 years of reserves of coal and gas and will remain Australia's primary source of electricity production for the next decade or so, until reliable high capacity green/renewable technologies such as geothermal and solar-thermal come on line.

These and other reliable high capacity green/renewable technologies are set to replace existing technologies in the near future with the aid of the Federal Government's:

- $10 billion Clean energy Finance Corporation;
- Research, development and commercialisation of renewable energy at an early stage through the $3.2 billion Australian Renewable energy Agency, and

Research and development of clean technologies through the $200 million Clean Technology Innovation Program. (Moller, H., and Pedersen, C.S. (2004). *Hearing at low and infrasonic frequencies.* Noise Health **6**: 37-57.)

Bodangora Wind Turbine Awareness Group, as part of this submission, does not see its role to discuss the relative merits of alternative electricity generation technologies, including also other forms of renewable energy. Suffice to say, the way forward is not to engage in wind energy with its concomitant costs and subsidies, all of which will ultimately devolve to the consumer and tax payer and which will be unable to provide any cost effective reduction in carbon dioxide emissions.

Bodangora Wind Farm Awareness Group does not believe that the Environmental Assessment convincingly argues its case for the justification of the project on the grounds of economics. The EA states "The wind farm will assist in addressing global concerns about climate change, and assists in inter-generational and social equity through reducing society's consumption of finite resources" but they are unable to substantiate this in any meaningful or convincing way.

2.5.0 Green House Gas Emissions

The EA states that the "*wind farm will displace other fossil fuel generation systems; there will be net savings in the greenhouse gas emissions. Emission savings are expected up to 333,000 tonnes per year."*

This figure (derived from the NSW Greenhouse Gas Saving Tool) is fatuous and based on several questionable assumptions:

- Any power delivery by the wind farm will replace by 100 the same amount of power from a coal fired power station. This is clearly impossible as coal fired power generators take many hours to change their production outputs. Gas fired power generators have a faster uptake time but there is still a considerable lag period.
- The CO2 output from a coal fired power station is 1.07 Kg per KWh.; The more modern coal fired power stations (of which over 6,000MW was approved for construction in 2010) have CO2 outputs well below 0.90 Kg of CO2 per MWh; A CCGT (combined cycle gas turbine) CO2 produced is 0.45 Kg per Kg per MWh. It is obvious that the savings in CO2 output will depend on the type of back-up generation that is used. There is **no** indication that back-up generation, its cost and its CO2 output have in any way been considered in the EA.
- The Greenhouse Gas Saving Tool makes the assumption that there will be no carbon tax or emission trading scheme until 2015. Clearly that is no longer true since it commenced on 01/07/2012.

Further the EA states that "the project contributes to the electricity generation technologies and its role with the Commonwealth's Renewable energy Target Scheme". In truth, **far greater reduction in greenhouse emissions would be achieved through the conversion of coal fired power stations to Closed Cycle Gas Plants** of which 6,5000MW (more than 100 times the capacity of this wind farm) has been approved or are in the NSW planning system as of 14/11/2011.

5.5.0 DETERMINATION OF PROJECT LOCATION

According to the EA, the proponent states "preliminary consultation with Wellington Council which indicated general support for the project where the proponent appropriately consults, and enables local social and economic benefit for the community."

This statement is completely anecdotal at best and completely erroneous at worse. The EA also states "The project enjoys the support from the majority of the local

community." There is no proof to back up these statements. In fact, as reported in the Wellington Times on 12th August 2011 Councillors Mark Griggs and Kevin Mason launched a tirade on Infigen Energy's Frank Boland stating that wind farms are "a pox on the environment" and said "we are totally against this".

The Bodangora Wind Turbine Awareness Group BWTAG has spoken to several Councillors and to the Mayor Ann Jones and is astounded at what little information these influential people know about wind farms. It is no wonder large companies sneak into small towns with unsuspecting Councils and get EA's passed. A document over 900 pages chained to the front desk of the Council Chambers for all to review is a joke – elderly people on farms neighbouring the wind farm come in and shake their heads, they don't even know where to start to fight this Samson and Goliath battle and most give up.

Wellington Shire Council is not the consent authority for the approval of the Bodangora Wind Farm. As a Project of Critical Infrastructure the approval falls to the NSW Department of Planning and Infrastructure. Wellington Shire Council nevertheless has a role in passing along the wishes and opinions of its ratepayers to the Department of Planning as part of its own submission in response to the proponents Environmental Assessment.

The limit of Council's community consultation has been nil. After a request by Bodangora Wind Turbine Awareness Group to both Council and the proponent was denied, a public meeting was organised by the Bodangora Wind Farm Awareness Group. This meeting was held on 21st July 2012 at the Wellington Civic Centre with approximately 220 people in attendance. The overall feeling of the day was an overwhelming quest for information that had not been provided by both the proponent and Wellington Council and the declaration by the vast majority of people attending was that Wellington does not want this project to go ahead. **Wellington does not want wind turbines.**

The Bodangora Wind Turbine Awareness Group has been approached by many families from the village of Bodangora who are alarmed and upset at the lack of consolation by the proponent. These people form the nucleus of the village, have lived there for generations and have been left out by the proponent. Further information regarding the lack of community consulting is covered in Chapter 6 of this submission.

It should be noted that not one single neighbouring farm of the proposed Bodangora Wind Farm is in favour of this proposal. There are many residences that were never

contacted by the proponent which is against the Directors Generals Guidelines. There are several farms that have a dwelling within the 2 km set back zone, and a large number of houses (20), that are not even included in the proposed area of the EA, again **a breach of the Director Generals Guidelines**. It is totally unacceptable and inconceivable that a company such as the proponent is investing millions of dollars into this project and could be so ignorant of the people whose farms and homes are boarding onto this development area and leave out such vital information in their EA.

In regards to the proponent "engaging" local group, Comobella Ladies Auxiliary for their catering of their open days, many of these ladies are against wind turbines and are submitting their own objections to the Department of Planning against the Bodangora Wind Farm. It would be a falsehood on the proponent's part to assume that this group is supportive of their project.

Chapter 6 of the EA states that "neighbouring residences were progressively visited by the proponent to ensure an open communication process and opportunity for information sharing and questions." This statement is untrue as several neighbouring land holders have never been contacted and most have never been visited. Evidence of this is covered in this submission in Chapter 6.

In addressing the project location, the proponent undertook "sophisticated and detailed wind resource modelling for the Bodangora site and surrounding region." This sophisticated equipment is not described adequately in the EA nor is the data provided. Many neighbouring farms with wind monitoring on them have stated that the sound equipment was placed in positions that would enhance the proponent's desired outcomes and certainly was not placed in accordance to where the development EA states they should have been. Also, it is noted that the company that placed the sound equipment did not properly identify who they were and the purpose of the equipment with one land owner saying they "wished they never let them on their property, I didn't know it was for the wind farm". One farm family came home to find the sound equipment set up on their property without their knowledge or consent.

2.9.1 The EA states, "It provides additional income to the landowners on which the wind farm will be located". While that is true it is hoped that the wind turbine hosts have factored in the many restrictions that will be placed on them and the freedom of passage that they usually enjoy which will be taken from them. The most significant sequel however will be that increased income to one host landholder

comes at the expense of neighbours who do not wish to have wind turbines in their community. Their wishes are dismissed and they will effectively be subsidising the increased income their neighbouring hosts will receive. Platitudinous statements such as that quoted above and reflecting this attitude only serves to further fracture the community over this issue.

2.9.2 The EA states that the Bodangora Wind Farm project "is likely to provide a significant boost to the local economy particularly during the construction phase of the project including employment of local contractors and increased business opportunities for local businesses." The EA states that there will be "50 jobs available during the construction phase and no doubt local businesses may benefit to some extent". However many of these jobs will require specialist personnel – there is hardly a pool of experienced wind turbine construction workers in Wellington Shire. As with many of these projects many of the jobs will be of the "fly in-fly out" category and not result in increased local jobs. Construction is expected to take about 12 months at the end of which, after commissioning, the EA states there will be four (4).

5.6.0 LAND VALUES

2.10.1 The proponent has stated on numerous occasions that the presence of wind turbines in a district has no impact on land valuations. In fact hosts of wind turbines can increase the value of the land because of the potential for increased income.

2.10.2 There is ample evidence (both tested and anecdotal) that land values of both host farms and neighbouring farms are decreased by the presence of wind turbines. Real Estate agents have attested to this:
Shane McIntyre, National Sales Manager for Elders Rural Real Estate Services, states: "A proliferation of wind towers adjacent to a property has the same effect as high voltage power lines, rubbish tips, piggeries, hatcheries, and sewerage treatment plants, in that, if buyers are given a choice, they choose not to be near any of these impediments to value……. Experts assess the loss of value to be in excess of 30%, and sometimes up to half." (Siponen D, *The Assessment of Low Frequency Noise and Amplitude Modulation of Wind Turbines*, 4th International Meeting on Wind Turbine Noise, Rome, Italy, 12-14 April 2011-07-06

Graeme Welsh, real estate agent Goulburn, states that people from Sydney wanting to buy retirement blocks are not interested in looking at anything near an existing or proposed wind turbine. (Siponen D, *The Assessment of Low Frequency Noise and*

Amplitude Modulation of Wind Turbines, 4th International Meeting on Wind Turbine Noise, Rome, Italy, 12-14 April 2011-07-06

The contention that wind turbines on farms decrease the land value is also borne out by an interview with a resident host of several wind turbines in NSW where he has successfully appealed the Valuer General to have his land devalued which was approved and therefore has resulted in a decrease in his rate base (personal communication).

5.7.0 THE OVERSEAS EXPERIENCE ALSO AFFIRMS THE DECREASE IN LAND VALUES.

- Investigations in Ontario, Canada, have consistently found a drop in property values of 20 to 40% with properties on the market often taking twice as long to sell

- A study by McCann Appraisal in Massachusetts, USA20, concluded that "the best available evidence indicates a value loss of 25% or more will occur to homes within approximately 2 miles [3.3 kms] of the turbines." It should be noted that this report dealt with the expected effects of only TWO turbines on the village of Brewster.

Examples, for instance in New York USA and in Denmark, where falling property values have caused significant problems now leading to legislation being implemented to compensate homeowners and landholders. (McMurtry, R.Y. (2011). *Evidence of Known Adverse Health Effects related to Industrial Wind Turbines. Appendix C*. Submitted to the Appeal for Renewable Energy Approval Issued to Kent Breeze Corp. and MacLeod Windmill Project Inc., January 2011.

- From Spain a personal communication from Ramon Rodriguex, Patrimonio Natural y Cultural de Extremadura (PANACEX) (08/12/2011) outlines the following problems experienced by the proximity of wind turbines installations: Degradation of land escape that affected our rural tourism; problems with noise that affected the possibility to sleep well, the inability for tourism projects in the zone, degradation of the hunting activities, **devaluation of the price of properties in the zone affected by the wind mills**, corruption of local authorities by the multinational firms promoting wind farms and no generation of benefits in the area, not even stable employment.

5.8.0 SPECIFIC COMMENTS REGARDING THE BODANGORA WIND FARM PROPOSAL:

If construction is permitted, the Bodangora district will be completely destroyed and rendered into an industrial, despoiled landscape. This iniquitous circumstance thus ensures:

- The power company (Infigen's subsidiary Bodangora Wind Farm P/L) can make profit from wind energy production which will only be profitable because of tax payer and consumer subsidies (direct and indirect) and which will **not result in any significant reduction in greenhouse emissions;**

- Wind turbine hosts can make a profit at the **expense** of their neighbours;

- After construction, there will be a possible asset to the district of a mere 4 full time jobs;

- The wind turbine developers do not contribute any funds to the Shire Council by way of Section 94 or Rate payments.

- There are stresses on the district infrastructure (roads, environment, wildlife etc.) that cannot be contained.

- The experience of other communities with enforced industrial wind turbine sites has been an appalling lack of ongoing monitoring.

- There is currently no regulatory mechanism by which people suffering health effects from Industrial Wind Turbines can seek redress through a Government Department.

- Regulations concerning Industrial Wind Turbines have been systematically excised from **The NSW Industrial Noise Policy** because they are no longer described as **scheduled premises.**

- Regulation concerning Industrial Wind Turbines have been systematically excised from **The Protection of the Environment Operations Act (POEO Act 1997)**

- Health affected Residents, complaining to Local Council will be told they have not the resources, time or the inclination to help. The complaint will then be

referred to the developer to pursue the obviously ineffectual mechanism of self-regulation. This flawed system provides no assurances of genuine rigor or natural justice and leaves the complainant with 2 alternatives:

1. Leave the district.
2. Seek Legal recourse via the court system, if there are adequate funds to ensure justice or time to pursue a very protracted litigious process.

- Residents health can be adversely affected (refer to Chapter 17 of this submission);
- The community will obviously remain divided, far beyond the lifetime of the project. There will be the destruction of the network of neighbours with previous common aspirations and life styles who were bound together in the common cause of support and community spirit.

References:

Berglund, B., Lindval, T., and Schwela, D. (Eds) (2000). *Guidelines for community noise.* World Health Organization, Geneva, Switzerland.

Clayton Utz. (2006). *Good decision-making for government. Duty of Care.* www.claytonutz.com

McMurtry, R.Y. (2011). *Evidence of Known Adverse Health Effects related to Industrial Wind Turbines. Appendix C*. Submitted to the Appeal for Renewable Energy Approval Issued to Kent Breeze Corp. and MacLeod Windmill Project Inc., January 2011.

Miskelly, P (2011). Personal communication – Examination of electrical generation performance of total wind farms connected to the eastern Australian electricity grid, with installed capacity ≥ 2000 MW.

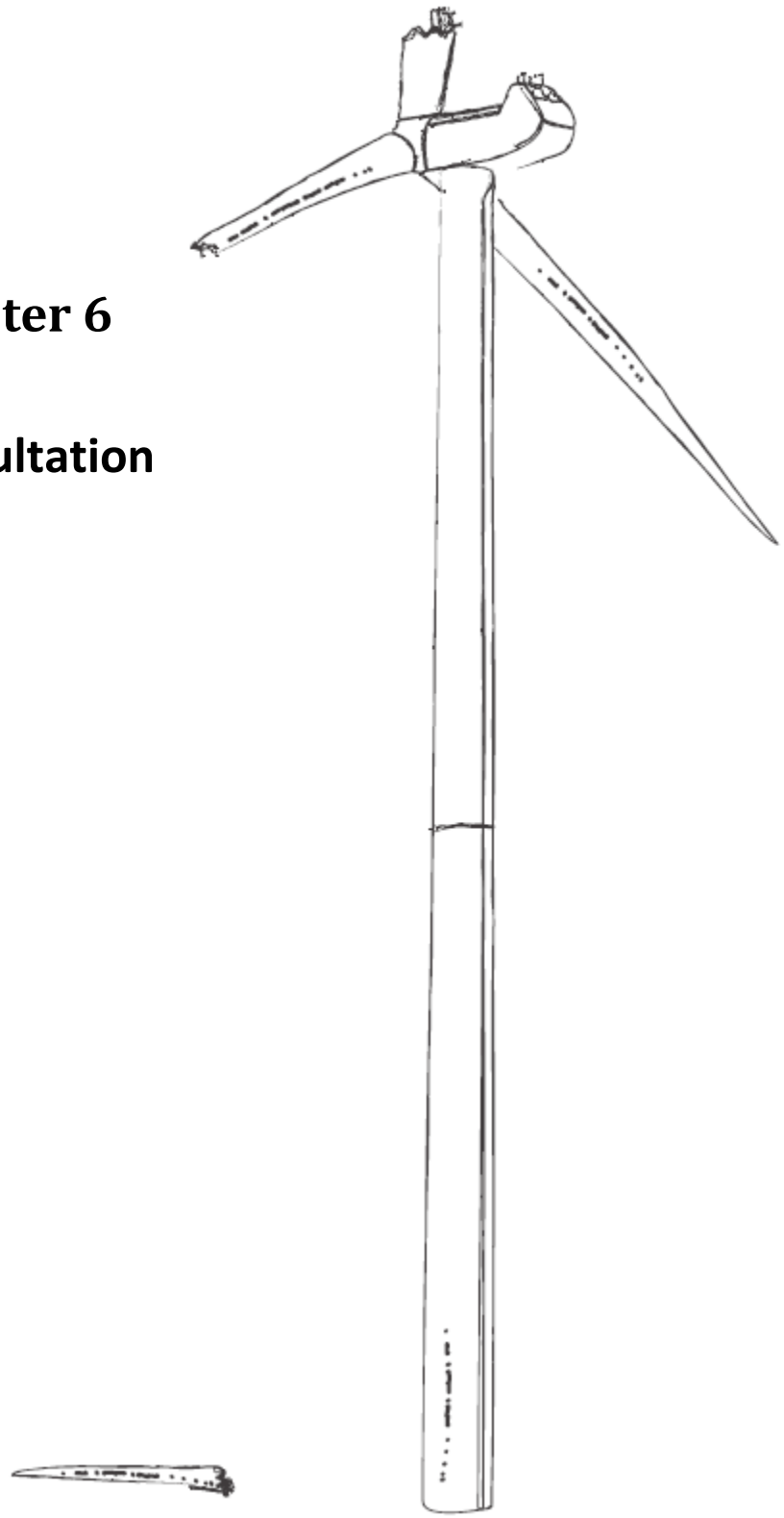
Moller, H., and Pedersen, C.S. (2004). *Hearing at low and infrasonic frequencies.* Noise Health **6**: 37-57.

Saccorotti, G., Piccinini, D., Cauchie, L., and Fiori, I. (2011). *Seismic Noise by Wind Farms: A Case Study from the VIGO Gravitational Wave Observatory, Italy.* Bulletin of the Seismological Society of America. **101** (2): 568-578.

Siponen D, *The Assessment of Low Frequency Noise and Amplitude Modulation of Wind Turbines*, 4th International Meeting on Wind Turbine Noise, Rome, Italy, 12-14 April 2011-07-06

Chapter 6

Consultation



CHAPTER 6 - CONSULTATION

DIRECTOR GENERALS REQUIRMENTS

"The proponent must undertake a consultation programme as part of the Environmental assessment process, including consultation with, but not necessarily limit to, the following parties:

1. Wellington Shire Council;
2. Department of Environment, Climate Change and Water;
3. NSW Office of Water;
4. Industry and Investment NSW;
5. NSW Roads and Traffic Authority;
6. NSW Rural Fire Service;
7. Land and Property Management Authority;
8. Central West CMA;
9. TransGrid;
10. Country Energy (now Essential Energy);
11. Commonwealth Department of Defence;
12. Civil Aviation Safety Authority;
13. Airservices Australia;
14. Aerial Agricultural Society of Australia;

relevant mineral stakeholders (including exploration and mining title holders); the local community and land owners.

The consultation process shall include measures for disseminating information to increase awareness of the project as well as methods for actively engaging stakeholders on issues that would be of interest/concern to them. The EA must:

1. demonstrate effective consultation with stakeholders, and that the level of consultation with each stakeholder is commensurate with their degree of interest/concern or likely impact;
2. clearly describe the consultation process undertaken for each stakeholder/group including details of the dates of consultation and copies ofany information disseminated as part of the consultation process (subject to confidentiality); and
3. describe the issues raised during consultation and how and where these havebeen addressed in the EA.

Supplementary Director-General's Requirements:

"A comprehensive, detailed and genuine community consultation and engagement process must be undertaken. This process must ensure that the community is both informed of the proposal and is actively engaged in issues of concern to them, and is given ample opportunity to provide its views of the proposal. Sufficient information must be provided to

the community so that it has a good understanding of what is being proposed and of the impacts. There should be a particular focus on those non wind farm associated community members who live in proximity to the site.

The EA must clearly document and provide details and evidence of the consultation process and who was consulted with.

All issues raised during the consultation process must be clearly identified and tabulated in the EA.

The EA must state how the identified issues have been addressed, and how they have informed the proposal as presented in the EA. In particular, the EA must state how the communities issues have been responded to.

6.0.1 INTRODUCTION OF THE EA

"Bodangora Wind Farm Pty Ltd is aware of the necessity for an effective and genuine consultation process, in which the community and stakeholders are actively engaged. It is important for sufficient information to be provided to ensure community members are aware of all factors of the development, and where opportunity is provided to make representations enabling community members to make fully informed comment."

"The consultation process which this chapter outlines has been undertaken in accordance with the Supplementary Director-General's Requirements, issued on 12 November 2010 and 16 August 2011. Specifically, this chapter of the EA provides the following details, as per the Director-General's Requirements (DGR's):"

6.1.0 SUMMARY OF OBJECTIONS

The Director Generals Requirements are not met in this chapter.
The Bodangora Wind Turbine Awareness Group Objects to the proposal.

6.2.0 PROCESS

Table 6.1 of the EA sets out Proponent's claim that the *"stakeholders were identified and consulted as part of the Bodangora Wind Farm project."*

"*Key stakeholders in the project include land owners within the project area, State and Local Government and other agencies."*

"Also identified as key stakeholders are neighbouring land owners within **3.0 kilometres** *of the wind farm. All stakeholders identified within the Director- General's Requirements have been consulted*."

Bodangora Wind Turbine Alliance Group (BWTAG) does not agree that ALL stakeholders have been consulted.

Table 6.1 Stakeholders:
The EA contradicts itself by stating, *"Land owners of properties within the immediate vicinity of the wind farm (dwelling occupants and landowners) within a* ***4.0 Kms*** *radius."*

The proponents have made a direct contradiction in their statement of the distances required, (or the distances that they claim) in which they have consulted landholders.

The Bodangora Wind Turbine Awareness Group has identified the following deficiencies in the consultation process and documents. BWTAG have listed all the proponents' points of consultation and made comments to all of those;

6.3.0 INDEX OF CONSULTATION DOCUMENTS.

6.3.1 MEDIA COVERAGE BY THE PROPONENT

• Daily Liberal, 25 August 2011;

Comment - Dubbo Photo News a pictorial based paper, available free of charge around Dubbo business houses.

Questions were asked to two Dubbo residents one aged 18years and the other aged 62years from South Australia

Q1: Do you believe Dubbo could support a wind Farm?
Q2: Is alternative energy something that you support?
Q3: What do you see as the possible benefit or detriment for the community?
2011

We ask two Dubbo people from two different generations for their views on this week's topic
Extract From: **Dubbo Photo News 25-Aug-2011 Page: 8 General News Market: Dubbo Circulation: 12000 Type: Regional Size: 266.50 sq.cms**

The proposed wind farm
Near Wellington
Name: Stuart Ormsby

Age: 18

Do you believe Dubbo could support a wind farm?

Possibly - it depends on whether there are enough areas of high wind – there might be a few spots.

Is alternative energy something that you support?

It has to be cost-effective. The more wind, the better and it's something you can do. The less money spent (by the government) on fixing monetary problems, those dollars could be spent on alternative energy and making Australia more independent.

What do you see as the possible benefit or detriment for the community?

Wind farms could be beneficial, solar power is mainly used and can also mean more jobs. In Australia, we can use solar power and water, but not geothermal energy. Dubbo needs to grab some form of alternative energy - even China is getting ahead of us.

Name: Darryl Knowling

Age: 62

Do you believe Dubbo could support a wind farm?

A wind farm is a good idea because you're not relying on natural resources like coal. Wind is free and it's a cleaner energy source.

Is alternative energy something that you support?

It would be a cheaper alternative but it also depends on the location where it would be. If there are people that don't want it because it creates noise then it becomes a problem. If there was a suitable location, it would be fine - as long as the local people are happy

What do you see as the possible benefit or detriment for the community?

The only thing that concerns me about the carbon tax (for example) is the potential loss of jobs. Coal mining employs a lot of people. If you do away with it, what becomes of the industry? I'm from South Australia and there are already wind farms down there.

The following is an artical printed by the Wellington times on the 5th of September 2011 from www.wellingtontimes.com.au

Windfarm windfall

FARREN HOTHAM
05 Sep, 2011 10:36 AM

A+ A-

A proposed windfarm for Bodangora will be a boon for local contractors and Wellington tradesman Brad James believes he's being heard.

"I was talking with project manager Frank Boland and I explained when the jail came here many local contractors missed out and work went to Dubbo.

"I stressed they should believe in local contractors, local means Wellington," he said. "We are setting up a contractors' register and list, where we can tell local tradesman about what we're doing and keep them updated.

"We understand local and will work closely with them and bigger contractors will advised to work with them," Infingen Energy's Frank Boland said at a community consultation at the beautiful Comobella Hall.

Infigen Energy's Communications co-ordinator Marju Tonnisson who will work with stakeholders agreed.

"As well as local tradesman and contractors, there will be five to 10 people employed here," Ms Tonnisson said.

'And they have to live nearby or in close proximity'' Mr. Boland added.

On talk the State Governments are wary of windfarms Mr. Boland appeared positive about engaging with them. '' We have requested that State Governments talk and understand more and that the public don't believe all they see on programmes like Current Affair but learn and understand the reality'' he said

Belinda Ingram who came to look at the development ''I'm still undecided about but it's very interesting she said.

Infigen Energy's community fund will also be a boost for the shire. '' I will be looking after stakeholders and the community and we can work together and put money back into the community and the economy'' the Estonian born communications coordinator said. Ms Tonnisson has also worked with the United Nations in a street kids project and it was suggested she could work on a similar youth project here which she will look at it. She said

Local farmers have also dropped by the Comobella Hall ''On a whole they are very positive. We have asked them to do a survey and give feedback and this always works well'' Mr. Boland pointed out

''This type of community consultation and engagement does change minds and assists with a good depth of understanding'' Mr. Boland pointed out '' We are very active in working with communities'' he stressed.

This story was reported by the Wellington Times Editor Farren Hotham.

It is believed that the Wellington Community has not had any further consultation with Ms Marju Tonnisson.

Furthermore, as of 10th July 2012, It is unknown if Ms Tonnisson has made any attempts to create youth projects in Wellington as reported.
It is also unclear if Mr Boland or Ms Tonnisson set up any community funds scheme.

The proponents claim in the above media report, to work on these youth projects that they talked about with attendees at the open day. This information could possibly been misleading. Therefore, attendees that filled in surveys or made comments could have thought that those youth projects which were discussed at the open day could have been the incentive for attendees to make positive comments towards the project.

If the same survey's used in Proponents 'community consultation within the EA' taken from the 17 people who participated in Proponents survey on that day at the ' Comobella Open Days' in September 2011, were to be re-surveyed at the Public meeting on the 22nd July 2012, where 200 plus Wellington Community members were in attendance we believe the results would not reflect the same opinions.

Surveys results taken by members of BWTAG are expressed in this document.

The Wellington community would embrace the youth projects as suggested by Ms Tonnisson, but also the community, would not like to be misinformed about youth based projects or any projects for the Wellington community. To date, Proponent have not followed through on any of their projects for the community.

6.4.0 BODANGORA WIND FARM – CONSULTATION SUMMARY.

6.4.1 LANDOWNERS

- Initial call
- Face to face meetings (multiple)
- Hosted tours at Proponent's Capital Wind Farm
- Group meetings x 2

Initial call:

A large number of neighbouring landowners in and around project area did not receive an initial call.

Face to Face meetings (multiple):

A large number of neighbouring and nearby landowners have not had face to face meetings (multiple).

Hosted tours at Proponent's Capital Wind Farm:

The majority of landowners, neighbouring or nearby the project were not hosted on Proponent's Capital Wind Farm.

Group meetings x 2:

There has not been a group meeting with ALL neighbours or nearby residents to the project.

6.4.2 COMMUNITY

- See attached communication log
- Offered face to face meetings with all direct neighbours
- Updates during EA, in particular prior to the noise assessment
- Phone all direct neighbours prior to hosting open day and offered to meet individually.
- Four adverts in local paper
- Radio interview
- Individual open day invitations and project briefs to all neighbours within 5km's
- Hosted two community information days at nearby community hall
- Follow-up letters and meetings after open day, ongoing.

See attached communication log:

No communication log attached to EA Vol.1 or Vol.2

6.4.3 THE PROPONENT OFFERED

Face to face meetings with all direct neighbours:

This did not occur as the proponent did not offer face to face meetings with all direct neighbours

Updates during EA, in particular prior to the noise assessment:

This did not occur. Most neighbours and nearby residents have not been updated at any time including during noise assessment.

***Phone all direct neighbours prior to hosting open day and offered to meet individually*:**

This did not occur. All direct neighbours did not receive a phone call prior to hosting open day, in particular the residents of nearby Bodangora Village.

***Four adverts in local paper*:**

Three advertisements for the open day were placed in Wellington Times 26th, 29th & 31st August.

The fourth advertisement referred to is not an advertisment.

By the word "local" the assumption would be a newspaper that is in the town the project is proposed.

The newspaper the proponent referred to is "The Dubbo Photo News." A once a week publication of Dubbo. Dubbo is approximately 45klms west of Wellington and it is unlikely that Wellington residents would read the Dubbo Photo News. The story was a "street talk" style interview of random shoppers and unlikely to know were Bodangora Wind Farm is located. One participant was a man from South Australia the other participant unknown origin.

Radio interview, Can be view at following site

Wind farm plans almost finalised - ABC News (Australian Broadcasting Corporation)
http://www.abc.net.au/news/2011-09-05/wind-farm-plans-almost- finalised/2870246

Follow up letters and meetings after open day, ongoing:

This did not occur. Not ALL landowners around or nearby the project area received follow-up letters or offers of face to face meetings. Up to the 27th July 2012, most residents of the Bodangora Village have had no contact meetings, either face to face or in a group with the proponent.

6.4.4 COUNCIL

First meeting held with senior staff to introduce project and gain local insight.

Second meeting with Mayor and senior staff to update on the project status

Third meeting held with David Babicci who looks after roads and transport within the shire, another project update was also given to senior staff.

Presentation to full council just prior to the open day.

Formal consultation directly with roads and engineering department

RESPONSE:

Below is a letter received from Wellington Council through Public Access.

WELLINGTON COUNCIL NSW Australia

ESdf04072012

4 July 2012

Mrs Lyn Jarvis
"Geenobby"
WELLINGTON NSW 2820

Dear Mrs Jarvis,

RE: Government Information (Public Access) Act 2009 request – Proposed Bodangora Wind Farm

Please find enclosed a disc with the following information as requested:

- Heritage Item – Sandy Hollow to Maryvale Railway Line PDF, and
- Bushfire protocols – WLEP1995 and DCP No.3 (sections pertaining to bushfire controls)

Your application also made request for other documentation however, Council does not hold this information to provide you:

- Consultation Programme,
- Presentation to full Council – prior to open day, and
- Formal consultation with the roads and engineering department.

Should you require any further information in relation to this matter, please contact Planning Services, during business hours, on 6840 1741.

Yours faithfully,

Erin Strong
Manager Planning & Development Services

All Communications to be addressed to:
The General Manager
PO Box 62 WELLINGTON NSW 2820
Cnr Nanima Crescent & Warne Street
Email: mail@wellington.nsw.gov.au
Website: www.wellington.nsw.gov.au

YOUR COUNCIL ~ YOUR COMMUNITY

ABN: 57 268 387 231
Office Hours: 9.00am - 5.00pm
Cashier Hours: 9.30am - 4.00pm

TELEPHONE NUMBERS
Administration: (02) 6840 1700
Rates Department: (02) 6840 1711
Technical Services: (02) 6840 1729
Health, Building & Planning (02) 6840 1723
Facsimile: (02) 6840 1791

Note that **no documents** were available for consultation, presentation or formal consultation with roads and engineering department.

6.4.5 CONTRACTORS

Invitations to the open day were extended to all local contractors
A contractor register was established at the open day with a significant amount of interest from a wide range of professions.

Invitations to open day were extented to ALL contractors:

"Local" contractors are not defined. If the assumption is made that they are Wellington contractors, then not all contractors were invited to open day.
We have randomly contacted at least five (5) contractors in the Wellington area, and they informed us they did not receive an invite to the open day

No record of contractor register*.*

Attachment E (Vol.2): Consultation Documents

A) Sent Document

• Letter to Aerial Agricultural Association of Australia, 23 August 2011;
Incorrect date/letter
• Letter to Airservices Australia, 23 August 2011;
Incorrect date/letter
• Letter to Civil Aviation Safety Authority, 23 August 2011;
Incorrect date/letter
• Letter to Central West Catchment Management Authority, 23 August 2011;
Incorrect date/letter
• Letter to Department of Environment, Climate Change and Water, 23 August 2011;

Incorrect date/letter

• Letter to Department of Defence, 23 August 2011;

Incorrect date/letter

• Letter to Investment and Industry, 23 August 2011;

Incorrect date/letter

• Letter to Land and Property Management Authority, 23 August 2011;

Incorrect date/letter

• Letter to NSW Office of Water, 23 August 2011;

Incorrect date/letter

• Letter to NSW Rural Fire Service, 23 August 2011;

Incorrect date/letter

• Letter to Wellington Council, 23 August 2011;

Incorrect date/letter

Below is the signed Certification;

The signed Certification of Project Details and Environmental Assessment: Those documents provide;

A true representation of the proposed project;
Accurately represents the consultation undertaken;

MASTERPLAN
TOWN + COUNTRY PLANNERS

Certification of Project Details and Environmental Assessment

Project Proponent

Frank Boland
Bodangora Wind Farm Pty Ltd
Level 22, 56 Pitt Street
Sydney NSW 2000

Proponent Certification

I, Frank Boland, certify that this document provides:

- a true representation of the proposed project;
- accurately represents the consultation undertaken;
- does not seek to materially mislead; and
- that Bodangora Wind Farm Pty Ltd is committed to implementing the project environmental management measures set out in this document.

Signed F J Boland

Dated 14 MAY 2012

EA prepared by MasterPlan SA Pty Ltd

Greg Vincent
Bachelor of Arts and Urban and Regional Planning
Graduate Diploma in Urban and Regional Planning.
MPIA, CPP

Director, MasterPlan SA Pty Ltd
33 Carrington Street
Adelaide SA 5000

Consultant Certification

I, Greg Vincent, certify that this EA document:

- addresses the Director-General's assessment requirements for the EA;
- provides a thorough assessment of the potential impacts of the proposed Bodangora Wind Farm; and
- that the information contained in this EA does not seek to materially mislead.

Signed

Dated 14 May 2012

BODANGORA WIND FARM ENIVIRONMENTAL ASSESSMENT PAGE-x

The EA is not a true and correct account of the consultation or development process undertaken. There are many inadequacies and discrepancies contained within the EA that give false and/or misleading information.

The BWTAG objects to the proposal in its entirety as much of the documentation contained within the EA does not meet the DGR's.

6.5.0 CONSULTATION DOCUMENTS

Email to Goldfields Australasia Pty Ltd, 13 December 2011;

Email to Clancy Exploration Ltd; 9 December, 2011;

There appears to be a connection between Goldfields and Clancy,

Somerset Minerals and Harvest Scientific

Email to Windora Exploration Pty Ltd, 7 December 2011

No correspondence received from 'Windora' Exploration Pty. Ltd. 7th December 2011 documented in the EA. This should have been followed up by the proponent. **It does not meet the DGR's.**

Received Documents:

Four letters received;

Letter from Department of Environment, Climate Change and Water, dated 13, 2011;

This letter references preceding documents. Letter from DECCW thanks Mr Boland for his letter dated 23 August 2011 to OEH. Then references another letter to Department of Planning 25th October 2011.

Attachment A: DECCW letter dated 25th October 2011

Note on letter date 8th September has been corrected to be 13th September 2011

Letter from Land and Property Management Authority, dated 7 September 2011;

Letter from Copper Strike Limited, dated 7 September 2011;

This letter is **NOT** part of the Bodangora Wind Farm project; see Tom Eadie email below**.**

7 September 2011

Mr Frank Boland
Proponent Energy Development Pty Ltd
Level 22
56 Pitt St
Sydney NSW 2000

Re: Forsayth Wind Farm and EPM 18093

Dear Frank,

After reviewing your plans and discussing the project with you, it appears that your project is restricted to the higher areas of the Newcastle Range, east of Forsayth. The exploration permit (EPM 18093) that Copper Strike holds over that large area is highly prospective. However, the higher areas on the Newcastle Range, which is the area that you have targeted, have a lower likelihood of becoming viable for extraction.

Copper Strike is supportive of the proposed wind farm and does not believe that it will impact the exploration activity currently being undertaken. If there are any problems in the future, I am sure that we can come to a solution that is agreeable to both sides.

Yours sincerely

TOM EADIE
Managing Director

From: R & L Jarvis
To: tom.eadie@copperstrike.com.au
Sent: Monday, June 18, 2012 11:05 PM
Subject: Bodangora wind farm

Hello Tom,

I live at Wellington NSW and the Environmental Assessment for the Bodangora Wind Farm is on Exhibition.

I have noted that a letter from you to Frank Boland dated 7th September 2011 is in Attachments E. (Consultation Documents).

The letter is RE: Forsayth Wind Farm and EPM 18093.

What is the correlation between Bodangora Wind Farm and Forsayth Wind Farm, other than they are both Proponent developments.

Look forward to your prompt reply

Regards

REPLY FROM TOM EADIE MANAGING DIRECTOR COPPER STRIKE LIMITED

-- Original Message -----
From: Tom Eadie
To: 'R & L Jarvis'
Sent: Friday, June 22, 2012 9:04 AM
Subject: RE: Bodangora wind farm

Hi Lyn

I don't remember receiving anything from you in June and that is why I didn't reply then.

As for using me as a reference, that must be a mistake. We had (gone now) some tenements in NQ. I probably did write a letter (more likely in 2010) saying that a wind farm wouldn't bother our exploration activities. That is all that I did. What it has to do with a windfarm in NSW, I haven't a clue. ***Must be a mistake in their presentation.***

Regards

Tom Eadie
Managing Director
Copper Strike Limited
+61 (0)3 96400955
+61 (0)419 880333
tom.eadie@copperstrike.com.au
L9 – 356 Collins Street
Melbourne VIC 3000
Australia

Letter from Civil Aviation Safety Authority, dated 2 September 2011; and

This letter is incomplete and writer is unknown.

Letter from Central West Catchment Management Authority, dated 13 September

Attached are emails to Lyn Jarvis & Reply from Clayton Miller CWCMA

----- Original Message -----
From: R & L Jarvis
To: clayton.miller@cma.nsw.gov.au
Sent: Monday, June 18, 2012 11:25 PM
Subject: Bodangora wind farm

Hello Clayton,
RE: File: CW00082 Bodangora Wind Farm Proposal
This email was available on the correspondence however letter writer was Tim Ferraro GM
I note in your correspondence dated 13th September 2011, and draw your attention

1) Heritage - Schedule 1 Heritage items # 42 Sandy Hollow Railway Line (Wellington Local Environment Plan 1995)
The proponents have identified Sandy Hollow Railway Line in the Environmental Assessment (EA) currently on display, as being used as access 'tracks'. This includes Restricted Access Vehicles.

2) Impact on rural communities
The issues you correctly point out, such as Noise, Aesthetics (Visual Amenity), Health and Bushfire risks are of high significance to the Central West CMA. Furthermore Mr Ferraro writes these should be thoroughly be investigated, with community consultation paramount to the process.

Would you like to comment on these issues which have not been compliant with your recommendations?

I would be more than happy to meet with you to discuss this matter in more detail.
Sincerely
Lyn Jarvis
"Geenobby"
Wellington NSW

REPLY TO ABOVE EMAIL

Hi Lyn,
Thank you for your email regarding the Bodangora Wind Farm Proposal and your reference to 'Heritage' and 'Impact to Rural Communities'.
It is my understanding that Proponent Energy has recently submitted an Environmental Assessment to the Department of Planning and infrastructure for review. As part of this review the Central West CMA have been invited to make a formal submission on the above project. In this submission we plan on again raising the above issues as well as other relevant inclusions.
In the interim if you would like to discuss this further please feel free to contact me on one of my numbers below.
Regards,
To which we plan on doing
Clayton, can you please respond to Mrs Jarvis and let her know that we will review the EA and make a submission based on the inclusion of issues previously identified (as well as other inclusions)

Clayton Miller | A/Catchment Coordinator - Tablelands
Central West Catchment Management Authority
PO Box 1480 | Bathurst NSW 2795
T: 02 6339 4905 | F: 02 6339 4949 M: 0409 656 585
E: clayton.miller@cma.nsw.gov.au
W: www.cw.cma.nsw.gov.au
"Vibrant communities, healthy landscapes"

Director-General's Requirements:

"The proponent must undertake a consultation programme as part of the environmental assessment process, including consultation with, but not necessarily limit to, the following parties:

- *Wellington Shire Council;*
- *Department of Environment, Climate Change and Water;*
- *NSW Office of Water;*
- *Industry and Investment NSW;*
- *NSW Roads and Traffic Authority;*
- *NSW Rural Fire Service;*
- *Land and Property Management Authority;*
- *Central West CMA;*
- *TransGrid;*
- *Country Energy (now Essential Energy);*
- *Commonwealth Department of Defence;*
- *Civil Aviation Safety Authority;*
- *Airservices Australia;*
- *Aerial Agricultural Society of Australia;*
- *relevant mineral stakeholders (including exploration and mining title holders);*

and

- *the local community and land owners.*

The consultation process shall include measures for disseminating information to increase awareness of the project as well as methods for actively engaging stakeholders on issues that would be of interest/concern to them. The EA must:

- *demonstrate effective consultation with stakeholders, and that the level of consultation with each stakeholder is commensurate with their degree of interest/concern or likely impact;*
- *clearly describe the consultation process undertaken for each stakeholder/group including details of the dates of consultation and copies of*

any information disseminated as part of the consultation process (subject to confidentiality); and

- *describe the issues raised during consultation and how and where these have been addressed in the EA.*

Supplementary Director-General's Requirements:

"A comprehensive, detailed and genuine community consultation and engagement process must be undertaken. This process must ensure that the community is both informed of the proposal and is actively engaged in issues of concern to them, and is given ample opportunity to provide its views of the proposal. Sufficient information must be provided to the community so that it has a good understanding of what is being proposed and of the impacts. There should be a particular focus on those non wind farm associated community members who live in proximity to the site.
The EA must clearly document and provide details and evidence of the consultation process and who was consulted with.
All issues raised during the consultation process must be clearly identified and tabulated in the EA.
The EA must state how the identified issues have been addressed, and how they have informed the proposal as presented in the EA. In particular, the EA must state how the communities issues have been responded to.

6.6.0 NEIGHBOUR CONSULTATION

The EA states ***"Early consultation for the project was primarily aimed towards project scoping and identification of planning and land owner constraints;"***

No neighbouring landholders were contacted in the very early stages of the project. It is believed that it was not until the "host" landholders were under contract to the proponent to allow turbines on their properties that neighbours were contacted.
This does not comply with the DGR's.

Further, the EA also states *"Communication of project to occupants of neighbouring dwellings and land owners to the wind farm, generally within a 4.0 kilometre radius of the wind farm."*

The timing of this information was inadequate. Some land owners were given minium information but the majority of landowners were not contacted. **Bodangora Village residents were not consulted** and even with less than 2 weeks from the closing dates of submissions, Bodangora residents have still not been consulted. **This does not meet the DGR's.**

The EA states, "the provision of preliminary information about the wind farm to neighbours and contact details for the proponent, enabling the neighbouring land owners to advise the proponent of any interest/objection/comment to the project;"

Some landowners were contacted but the majority were not. **This does not meet the DGR's.**

6.6.1 DURING ONGOING PROJECT DESIGN

The EA states: - *"approaches to the broader community, including members and representatives of the broader community; members of the public targeted via local media, local businesses and political representatives once a preliminary project scope and turbines envelopes were available"*

Broader community consultation is not defined and no consultation meetings with "broader community" are known of. Public targeted via local media 3 x adverts, 1 x Dubbo Photo news, 1 x story after open day. No other print media outlets known of.

The EA states- "*neighbouring residences were progressively visited by the proponent to ensure an open communication process and opportunity for information sharing and questions."*

Not all neighbouring residents were visited by the proponent. Communication was never open and opportunities were limited. As of July 27th, the major landholder to the south of the project is still waiting for the proponent to visit, despite receiving an e-mail from Mr Frank Boland (project manager) as a result of a phone call (made to the proponent, not from the proponent).

D A Lyons Partnership

"Mt. Bodangora"
Wellington
NSW 2820
E-mail: mt.bodangora@bigpond.com

D A Lyons
Ph: 02 68466250
Fax: 02 68466220

ABN: 33547343720

M D Lyons
Ph: 02 68466351
Fax: 02 68466318

Thursday, 10 November 2011

Re: Bodangora Wind Farm

Dear Mr Boland,

We wish to express our concern to you re: the proposed wind farm for the Bodangora area. When you initially contacted us, you explained that the towers would be no-where near our property. Having had time to peruse the map of the sites, (and we might add, a map that we had to get from a neighbour, it was not supplied to us from your company) we found there are a number of towers that will be only a short distance from our boundary fence and will be clearly visible from most parts of our property. The visual impact will affect the value of our farm. At no stage did you indicate to us that towers would be placed in these positions. Instead, you said (and I quote) "they would be running in a NE and NW direction from your farm along ridges in "Glen Oak" and "Ahwahnee" and would have no impact". What we have discovered is that they in fact also run on an additional neighbouring property in a westerly direction not far from our boundary fence. Clearly visible.

Further, when we asked you which properties would be involved that are our neighbours, at no stage did you indicate that this particular neighbour was participating. Effectively, you misled us in to believing that only two neighbours would be participating and that we would not be able to see any towers.

Having done some further research into wind farms, there are also a number of issues that also concern us. These concerns that I would like to raise with you include inadequate planning for the infrastructure required and the lack of commitment to the improvement of Driel Creek, Budgalong, Gunnegalderie, Gillinghall and Goolma roads. Other concerns relate to health, visual impact, environmental impact on flora and fauna, noise and the resulting restrictions on aircraft operating for agricultural purposes. Additionally, as the captain of the local Rural Fire Service Brigade, I have concerns that the bushfire protocols should include re-training of local Rural Fire Service Personnel in the event of a turbine fire and this does not appear to have been addressed.

As an immediate neighbour to the proposed turbines, there has been a distinct lack of consultation to us by your company. The two open days you ran were not convenient for everyone to attend and we believe, very limiting to many people with work and family commitments. Not everyone connected to our business was able to attend your open days and there has not been any communication since from Infigen.

We would request a meeting with your company to discuss these issues at your earliest convenience.

Yours Faithfully,

Michael & David Lyons

REPLY FROM FRANK BOLAND.

From: Mike Lyons [mailto:mt.bodangora@bigpond.com]
Sent: Thursday, 10 November 2011 1:56 PM
To: Frank Boland
Subject: Bodangora Wind Farm

RE: Bodangora Wind Farm
Hi Michael,

Good to speak earlier. As I mentioned I will be in the Bodangora area next Thursday (17th Nov), if it is convenient it would be good to drop by at some stage during the day.

If you need to contact me, it is best via email or on 0423 778 125.

Regards. Frank

REPLY FROM MICHAEL LYONS

From: Mike Lyons [mailto:mt.bodangora@bigpond.com]
Sent: Monday, 14 November 2011 9:06 AM
To: Frank Boland
Subject: Re: Bodangora Wind Farm

Frank,
Thursday is not going to suit us as I had forgotten that we have to be in Walcha that day and won't be home till very late. Let me know when you will next be in the area and we can try and work out an appointment.
Mike

REPLY FROM FRANK BOLAND.

Mike – Thanks for letting me know, I'll keep you posted when I'm next up there. In the mean time if you ever have any questions or concerns, feel free to give me a buzz.
Regards. Frank

Frank Boland
M: 0423 778 125

The above mentioned landholder is still waiting.
This is not community consultation as required within the DGR's. **The BWTAG objects to the proposal on the grounds (one of many), "that effective community consultation has not occurred."**

The EA claims a total of 37 neighbouring dwellings to the project placed on a mail-out register for project details and information;

The 37 neighbouring dwellings placed on a mail out list is an under-representation of neighbouring dwellings. 35 homes have NOT been included in the assessment and therefore would not be on mail out list (those properties are listed in the Visual Assessment Chapter of this submission.
The proponent has not given regard to those "absentee owners" who have lifestyle blocks or weekend getaways that don't collect mail from those property mail boxes or owners with Post Office Boxes which they collect mail from town.

The EA indicates that the proponent placed articles in the Wellington Times and the Daily Liberal.

Not all residents within the project area have access to Wellington Times or Daily Liberal newspapers, and this form of community consultation is vague and may not reach the target audience.
No provisions were made for the disabled or the sight impaired.

The EA claims community information days at Comobella Hall, nearby to the wind farm project area on 2nd and 3rd September 2011:

This is correct. However, it should be noted that the Comobella Hall is situated approx 20klms from Wellington. The venue is not easily accessible for Wellington residents and to provide a broader community consultation the Open day would have been better suited to be held in a venue that did not exclude people from attending.

The EA further claims "*that neighbours within 5.0 kilometres of the project invited by direct mail."*

Not all neighbours within 5klms were invited by direct mail. Had the proponent actually completed a mail contact with every neighbour within the claimed 5.0kms, the proponent's mail out data base would have far more mail outs than the stated 37 dwellings as claimed.

Further, the proponent claimed that advertisements placed in the Wellington Times and the Daily Liberal to advise wider
community on information days;

Three advertisements in the Wellington Times and 1 in the Dubbo Photo news, is not adequate. Print media is the choice of consultation of the proponent, but it is not the most effective. Many people do not subscribe to the local papers.

The EA claims that local Central West ABC radio contacted and encouraged to provide details of the project on air;

Transcript available at;
Wind farm plans almost finalised - ABC News (Australian Broadcasting Corporation) http://www.abc.net.au/news/2011-09-05/wind-farm-plans-almost-finalised/2870246

The EA claims that at the open day*, "provision of quality and in depth project information, including proponent details, project justification, turbine, track and electrical layout, photomontages, noise contour map, and additional general information on wind farms as produced by reputable and Government sources;"*

The quality and depth of the project information was vague, photomontages were misrepresentative of viewpoints, including no night lighting images of photomontages, and general information on wind farms was not site specific. Lighting was very poor at the venue and visitors were actively discouraged from taking project information outside for better visibility.

The EA Claims that "survey forms were available and completed by a number of attendees; and 17 survey forms were completed from open day and form the graphs in Attachment F - Visual and Landscape Assessment 13.2 Community Consultation.

The EA goes on to claim that media interviews were given.

There is only one detailed in this EA, "Wind Farm Windfall" an article in the Wellington Times after open day. In addition *"Information which was provided publically and the survey form available at the community*
information day is enclosed at ***Attachment E****."*

<u>This information in Attachment E is not in this EA document.</u>

6.7.0 SUMMARY OF FINDINGS

The EA claims that ***"c****lose to 50 people attended the information sessions, including neighbours, local business owners, contractors, and land owners."*

The proponent's indications as to how many people actually attended is vague. The proponent should know exactly how many people attended. To say that "close to 50 people attended" is not presenting the facts, as defined in the next point.

The EA then states, "*a total of 26 individuals completed an optional survey on the project."*

Clearly, the proponent has inflated the survey results by claiming 26 individuals completing the optional survey on the project.

However, in Attachment F - Landscape & Visual Impact Assessment 13.2 Community Consultation: **"A total of 17 questionnaires were submitted to Proponent."**

A summary of the results of the optional survey are provided in Table 6.2. of the EA as follows.

Table 6.2 – Summary of 'Option' of Project as According to Optional Survey

OPINION	NUMBER OF RESPONSES
Strongly Oppose	1
Oppose	3
Neutral	9
Support	5
Strongly Support	8
Total	**26**

As a result of the proponent's survey, the EA claims*, "As identified, a larger proportion of the community have identified neutral to strong support for the project. Only three persons opposed the development, and only one strongly opposes the development."*

Wellington has an approximate population of 4,660 within the township and 9,200 in the surrounding area. The survey of 17 or, best case scenario 26, completed the survey forms, at a venue 20kms from Wellington is not representative of the larger proportion of the community. This is not open and transparent community consultation and **fails the DGR's.**

The EA claims, *"an outline of the specific design changes as a direct result of the community and stakeholder consultation is provided in Chapter 2 of this EA."* The turbines that were

removed WTG 8 & 9 were removed at the hosts' request who was going to have turbines but decided against hosting WTG.

This was not as a direct result from community consultation.

The consultation document indicates the proponent should consider seeking agreement with neighbours which have a dwelling within 2km of a proposed wind turbine. N/A No WTG's within 2km of a non wind.

The EA claims that there are no WTG's within 2km of a non-wind farmer residence. "*All neighbours have been and continue to be consulted with, please also see Ch.6."* **this is Incorrect.** "Westview" homestead 1.63klms Attachment F 12.0 page73 And again Attachment F 8.0 page 40 "Westview" .88klm from nearest WTG.

In reality, there has been little or no consultation with land owners and not all non-wind farmer residences have been consulted. **This does not meet DGR'S.**

"Westview" and "Marakari" properties are non - host dwellings within 2klm's of wind turbines. No agreement with these properties.

Letter below from property owner of "Westview", the Mason family

The Department of Planning
& Infrastructure
G.P.O. Box 39
Sydney NSW 2001
10th July 2012

Dear Sir,

RE: BODANGORA WIND FARM PROPOSAL MP10-0157

We, the owners of property "Westview" Spicer's Creek, Wellington object to the wind farm proposal.

"Westview" is located within 2klms of the project and according to the Environmental Assessment "Westview" will be located 1.63klms and 0.88 klms from the nearest turbine.

We have not had adequate consultation on the project and particularly the consultation required as per the Director General's requirements for dwellings located within 2klms of the proposal. Nor have we signed any consent for "Westview" to be sited within 2klms of the nearest wind turbine.

Yours Faithfully,

Joe Mason
Spicer's Run Pty. Ltd.
Spicer's Creek
Wellington NSW 2820

6.8.0 COMMUNITY CONSULTATION MEETINGS

Following the submission of the EA, and after a period of review, the future stages of community consultation are briefly summarised below:

Public exhibition of Environmental Assessment, enabling review by stakeholders, public submissions, and review, assessment and determination by the Department of Planning;

Updates on process of planning to local media providers, and periodic update newsletters circulated in local paper; Notices to local community and neighbours advising of construction works timing; and liaison with Wellington Council to determine project resources (eg water) and transport/ infrastructure requirements.

None of the above has been carried out so cannot meet the DGR's.

There is no plan to mitigate water uses and effect on the water resources in the project area. This should have been completed before the EA went on public exhibition. **This does not meet the DGR's.**

A Community Consultation Committee (CCC) will be formed to assist with future stages of community consultation for the project. Proponent have advertised and sought nominations from the local community, and a number of representatives have been nominated, including:

• Frank Barker, Mid Macquarie Landcare Group;
• Lyn Jarvis, neighbour;
(Only member of CCC to directly apply to be on committee via the advertisement by the proponant).
• Bob Sewell, local publican;
• Simon Barton, land owner;
• Peter James, neighbour;
• Frank Boland, proponent; and
• Grant Christopherson, Regional Co-ordinator of Central West Renewable Energy Precincts.

Refer to NSW Draft Guidelines –Appendix C: Guidelines for wind farm community consultative committee's page 39, **"State Government agencies will not be represented on the membership committee."**

Mr Christopherson was placed on the CCC by Frank Boland and Proponent, yet landowners who applied to be on the CCC were rejected.

The appointment of Mr Christopherson **does not meet DGR'S.**

PROPONENT from EA -The Department of Planning will assist in the appointment of an independent committee chair and in the selection of members. Once a chair is appointed and the committee structure agreed, then the committee can proceed.

RESPONSE: Extract from letter dated 28th June 2012 DOP to Frank Boland

Quote –

"*The Department has no objection to the appointment of Grahame Collier as the Committee Chair. However, pending the finalisation of the draft wind farm guidelines, please be advised that the Department does not currently have a role in appointing the independent chair or community representatives. Members should be chosen consistent with the criteria within section 2.2 of the draft guidelines."*

The full copy of this letter is attached below

Committee was formed by the 14th May 2012, not consistent with draft guidelines.

NSW GOVERNMENT | Planning & Infrastructure

Contact: James Archdale
Phone: 9228 6236
Fax: (02) 9228 6455
Email: James.Archdale@planning.nsw.gov.au

Our ref.: 10/17452

Mr Frank Boland
Development Manager
Infigen Energy Development Pty Ltd
Level 22
56 Pitt Street
SYDNEY NSW 2000

Dear Mr Boland

Bodangora Wind Farm – Community Consultative Committee

I refer to your correspondence dated 14 June, 2012 on the above matter. The Department welcomes the initiative that you have taken to establish a consultative committee.

The Department has no objection to the appointment of Mr Grahame Collier as the Committee Chair. However, pending the finalisation of the draft wind farm guidelines, please be advised that the Department does not currently have a role in appointing the independent chair, or community representatives. Members should be chosen consistent with the criteria within section 2.2 of the draft guidelines.

In regards to your request for example constitutions for other committees, you are advised to refer to the Department's *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects (June 2007)* which can be found on the Department's website.

Your contact officer for this proposal, James Archdale, can be contacted on 9228 6236 or via email at James.Archdale@planning.nsw.gov.au. Please mark all correspondence regarding the proposal to the attention of the contact officer.

Yours sincerely,

28/6/12

Glenn Snow
A/Director
Infrastructure Projects

6.8.1 COMMUNICATION LOG

Emails leading up to the formation of the Community Consultation Committee

EMAIL 1

15th March Jarvis to Boland
Expressing interest/applying for the Bodangora Wind Farm Committee

From: R & L Jarvis [mailto:geenobby@activ8.net.au]
Sent: Thursday, 15 March 2012 10:47 PM
To: Frank Boland
Subject: community committee

Frank,
Robert and I would like to be on the Bodangora Community Consultative Committee.
Thankyou
Lyn Jarvis

EMAIL 2

10th June - Jarvis to Boland
Inquiry to Frank Boland of who is in the CCC

From: R & L Jarvis [mailto:geenobby@activ8.net.au]
Sent: Sunday, 10 June 2012 10:17 AM
To: Frank Boland
Subject: Re: community committee

Frank
Can you send me a certificate of construction for a 150 metre turbine and the GPS co-ordinates for the Bodangora Wind Turbine Project please, ideally before the meeting on 20th June.
By the way, as this meeting is only a week away can you send me details of the agenda and who will be present. I would request the meeting be held were good lighting was available not like the Comobella Hall where I felt the lighting was inadequate.
Regards
Lyn Jarvis

EMAIL 3

8th June Boland to Jarvis
"From the ads were able to fill most positions"
This response was not true as Lyn Jarvis was the only position to be filled as a direct result of the advertisements.

Minutes of the 1st CCC will show Lyn Jarvis as THE ONLY APPLICANT who went through the process of selection via the advertisement, all other members were selected by proponent. One member was gained membership just days prior to the first meeting on the 20th June 2012.

8/6/12
Hi Lyn,
On page 38 of the draft NSW wind farm guidelines (attached) it sets out the background on the community consultation committee's and how they recommend the committee should be formed. The way we selected the committee was very open and transparent.

" We advertised in the local papers and from the results of that we were able to fill most positions. For the positions that were still unfilled, I referred back to the information log from the wind farm information day, from which we were able to approach several people to see whether they would be interested."

Even as late as yesterday I was able to include one of your neighbours, Mike Lyons. I think we now have a very diverse group of members that will allow for a meaningful discussion. There will also be an independent facilitator chairing the meeting.
If you have any concerns please let me know, otherwise I look forward to seeing you on Wednesday night at 6pm. I have booked the function room at the Grand Hotel in Wellington and light refreshments will be available.
Regards. Frank

EMAIL 4

Boland to Jarvis, still waiting for approval from 'Dep'.

Email 4.
----- Original Message -----

12th June 2012 Reply from Frank Boland

I can confirm that the meeting will be held at a venue with adequate lighting**. I am still waiting for the Department to approve the members of the consultation committee and** also appoint an independent chair. As soon as they get back to me, I will let you know.

Again, if you would like to meet to discuss your direct issues with the project, the invitation is open.

Regards. Frank

Frank Boland
M +61 423 778 12

The four emails above clearly show Proponent not being transparent through the selection phase of the community consultation committee.

The members were identified in the EA which was signed for certification on the 14th May 2012, clearly, the proponent would have been aware of who was on the CCC, and did **not follow the DGR'S** for selection of committee.

Only one member applied to be on the CCC the other members were asked by Frank Boland to be on the CCC. The proponent has selected the members of their choice and this selection could be seen as favouring the proponent. Therefore, the Community Consultation Committee selection **does not meet the DGR's.**

EA Certification was signed 14th May 2012- Frank Boland, as a true and accurate assessment.

It is the belief of the Bodangora Wind Turbine Awareness Group that the proponent has not selected a true community consultation committee but has selected a committee that will be sympathetic to the proponents' project.

SUMMARY OF CONSULTATION COMMITTEE SELECTION

Proponent has not followed the appropriate Draft NSW Guidelines in the correct formation of a Community Consultation Committee.
Refer to above email correspondence between Lyn Jarvis and Frank Boland in regard to CCC.

The Community Consultation Committee would have been selected by proponent before the EA went to print. Names of members were identified in Attachment C and Chapter 6.3 Future Consultation Proposed.

Certification was signed 14th May 2012- Frank Boland.

6.9.0 COMMUNITY CONSULTATION COMMITTEE ENVIRONMENTAL ASSESSMENT HARD COPIES

At the first Community Consultation Committee meeting on the 20TH June 2012, and after a lengthy debate that Proponent should make available extra hard copies of the EA as requested. Finally, on the 15th June 2012 an extra hard copy was made available and was delivered to the Wellington Council.

Requests were formally denied previously to Proponent. See email below

----- Original Message -----
From: Frank Boland
To:
Sent: Wednesday, June 13, 2012 9:56 AM
Subject: RE: community committee

Proponent will not be printing out any copies of the EA; the complete document is available online and can be viewed and printed there. As you know the EA is quite extensive and has a significant number of pages, therefore we try and limit the number of hard copies we make.

Regards. Frank

Frank Boland
M +61 423 778 125

The proponent has failed to comply with the requirements to supply extra 'hard' copies of the Environmental Assessment.
By not making available these extra hard copies at an early stage of environmental assessment, the proponent has effective reduced the community's ability and opportunity to have a good understanding of the proposal.

This does not meet the DGR'S.

6.10.0 WELLINGTON COMMUNITY HOLDS IT'S OWN PUBLIC MEETING

On the 22nd July 2012, Bodangora Wind Turbine Awareness Group hosted a community consultation meeting to engage the broader Wellington and Bodangora communities.

The Wellington community population is approximately 4,600 within the town area and the wider community is approximately 9,200. They are the community that should have been actively engaged on the proposal. The proponent has failed to inform them in such a way as to enable a good understanding of the project.

1. The Wellington Mayor, Ann Jones was requested on the 15th June 2012 to hold a public meeting. This did not happen, and is unlikely to happen. The reasons for this are not known.
2. On the 20th June 2012 Frank Boland, Bodangora Wind Farm project manager was requested to hold a public meeting and he refused the request.
3. On the 10th July 2012 Frank Boland was again requested to hold a public meeting and again refused.

From that information, the BWTAG, after many requests from the Wellington Community, made the decision to hold a meeting in the interest of getting information about the project out to the public. The BWTAG held an Open Public meeting on the 22nd July. This was the only meeting of its type held in the Wellington community.

All Wind Energy Companies who have proposed projects in the Wellington district were invited. Infigen Energy was the only attendee from the wind industry.

Infigen was invited to be one of our key speakers. Although Infigen did not formally accept the invitation, representatives did attend the meeting.

Mr Jonathan Upson presented a PowerPoint presentation on behalf of Infigen and he also participated in the" Question and Answer session".

It was evident from the audience's questions directed at Infigen about the Bodangora project in particular, that the Wellington community clearly have not been adequately informed about the Bodangora Wind Farm by the proponents.

Mr Upson admitted when questioned, that he *"has not read the EA*." Because of his lack of knowledge of the Bodangora project, Infigen were unable to identify the specifics of the project when residents asked questions.
The proponent should have had a representative at this meeting who was up to date on the project, in the absence of the project manager Frank Boland who was apparently on holidays overseas. It is interesting to note that the day after the public meeting was announced, Mr Boland went on holidays until sometime after August 6th.

It is unacceptable that Infigen can attend a public meeting with so little regard to the project. The proponents lack of knowledge of the project showed the arrogance of Infigen's lack of regard for the Wellington Community and the landowners in and around the Bodangora Project.
The attitude by the proponent was also noted and mentioned by Councillor Mark Griggs when he attended a council meeting on July 25th, 2012.

An example and further evidence that the proponent has not supplied sufficient information is when one of the 'stakeholders,' Mr John Barton of "Glen Oak," asked a member of BWTAG, *"What machinery is in the project?" W*hen asked what he meant by "machinery" he

said, (quote), "*the turbines*." The BWTAG member explained that the turbines named in the EA were Vesta V112 turbines. Mr Barton then went on to ask if they, (Vesta V112) were the same turbines at Woodlawn. The BWTAG member informed Mr Barton that Woodlawn Wind Farm (a recent bus tour from Wellington recently visited Woodlawn) contained the S88 (Suzlon turbines) which were smaller than the turbines proposed for Bodangora. As a host landholder, clearly he was not well informed.

In a separate conversation, a BWTAG member asked another 'involved landowner' Mr Rex England, "Panaroma," in a telephone conversation about health and noise issues, *"What had Frank Boland, project manager explained or given to him in terms of information about health and noise?"* The involved landowner's reply to the question was "**nothing".**

Mr Campbell Gregory "Ahwanee" another involved landowner was at the Wellington Council office building reading the Environmental Assessment, whilst it has been on display, because he stated that "he ***did know much about the project.***"

When three (3) of the involved landholders convey opinions as stated above, it may be reasonably concluded that from the lack of information to the involved landowners, the non-stakeholder residents would probably receive far less information than the stakeholders. **This lack of information would not comply with the EA**

One neighbour of the Bodangora Wind Farm Project, property "Springdale" Spicer's Creek is within 2-3klms of the project has had no information given to him, in either form i.e. telephone or email, Proponent have not been compliant to seek out all property owners.
The two homesteads on "Springdale" have not been included in visual assessment impacts.
Again, this lack of information would **not comply with the EA.**

A property purchased recently within the Bodangora Wind Farm Project and in very close proximity to wind turbines, certainly within 1klm, has had no consultation from the proponent, and certainly not prior to the public meeting held on 22nd July. **This does not meet the DGR's.**

The 'involved landowner' that will be hosting the 'Sub Station' on his family property was quoted as saying after the public meeting that he "*wishes this meeting had been held two years ago"*. He has indicated his regrets to our group.

The feedback to the BWTAG received from the public meeting is that Wellington community has finally been given the opportunity to gather information about the Bodangora Wind Farm project. The lack of community consultation **does not meet the DGR's**.

This meeting should have been the responsibility of the proponent to inform the community to allow for a good public understanding. The proponent has been scoping this project since 2008 and it wasn't until the BWTAG decided to hold a public meeting that the proponent

started to take notice of the community. This should have happened a long time ago and with only 2 weeks from the meeting date to the time the submissions close, t**his does not meet the DGR's.**

The proponent has stated that they favour the 'face to face' meetings. Some residents within and around the project area have been offered those but the majority of landowners have been overlooked. The consultation phase of the project **does not meet the DGR's.**

The proponent's mail out data base comprises 37 neighbouring dwellings. The proponent has not identified the radius from the project area that these mail outs have gone to. 37 is an under-representation of dwellings in the project area and this **does not meet the consultation requirements of the DGR's.**

The email system is limited to those who have internet access. It is very common in the Wellington and Bodangora area that some residents do not have a computer and therefore no internet coverage.

A genuine consultation process should have been held earlier in the project, and at all stages of development.

Until the public meeting on 22nd July 2012, the proponent have literally kept Wellington and Bodangora communities in the dark and suppressed information from the majority of residents.
This is contrary to the requirements of the Director General.

The BWTAG objects to the entire proposal and requests that the development be rejected.

6.11.0 PROPERTY OF WUDINA,- LOCATED INSIDE THE DEVELOPMENT AREA.

The property "Wudina", 730 Gillinghall Road, Bodangora, is situated in the heart of the Bodangora Wind Farm project area, and was purchased at auction in April 2012.

On the 22nd July 2012, the purchasers attended the Bodangora Wind Turbine Awareness community public meeting held at Wellington Civic Centre.

With information obtained from that meeting the owners quickly realised the involvement of their property "Wudina" in the Bodangora Wind Farm project, however up to that point the owners had no knowledge of the project and the position of the wind farm in relation to their newly purchased property.

They have had no consultation with the proponents, in any form and when they purchased the property had no knowledge of a wind farm in the area.

The family have expressed to the BWTAG that they may not have proceeded with the purchase if they had any prior knowledge of the development of a wind farm in the area, and in particular, turbines placed on the property they had purchased.

“Wudina”, according to the owners after their own research and discussions with David Griffin from Infigen, is believed to have 3-4 turbines sited on their land and an access track is planned to transverse the property.

Information gained from the owners is that the proponents have had no consultation with them about the project and expressly asked David Griffin for a copy of the ‘lease agreement’, which has not been produced to date.

The owners understandably are very upset and have major concerns about the property they purchased in good faith which is part of a wind farm development that they did not agree to.

It is the understanding of BWTAG from the owners of this property that they have tried to find out more information from the proponents but have been unsuccessful; another instance in the development of this project that the proponent has failed to consult all neighbours of the Bodangora Wind Farm. Every point on this property will be within 1km of wind turbines. There is no consent from owner and no Site Compatibility Certificate.

”Wudina” is the second property since the public meeting that the proponents have been advised, that are within 2kms of turbines and now “Wudina” is within 1km of the nearest turbine.
This supports the Bodangora Wind Turbine Awareness Groups belief that the proponents have failed to address the director general’s requirements, but also is lawfully wrong that the proponent can involve a landowner without their consent and site turbines and associated infrastructure on their property.

This family, whose son purchased this property found out about his newly acquired property’s involvement and the wind farm project, by attending the public meeting hosted by the BWTAG at Wellington on July 22nd 2012 and not from the proponents.

In view of the complete lack of transparency and openness from the proponents, especially to the community of Wellington and the surrounding landholders the BWTAG calls on the Dept. of Planning to refer to its own additional requirements placed on the development and to **reject the project in its entirety.**

Appendix 1 Bodangora Wind Turbine Awareness Group Community Survey

1.0.0 Introduction

The following survey results were recorded after a short intensive survey was conducted by the Bodangora Wind Turbine Awareness Group, Mudgee Alliance (BWTAG) in response the Bodangora Wind Farm Pty Ltd, (Infigen).

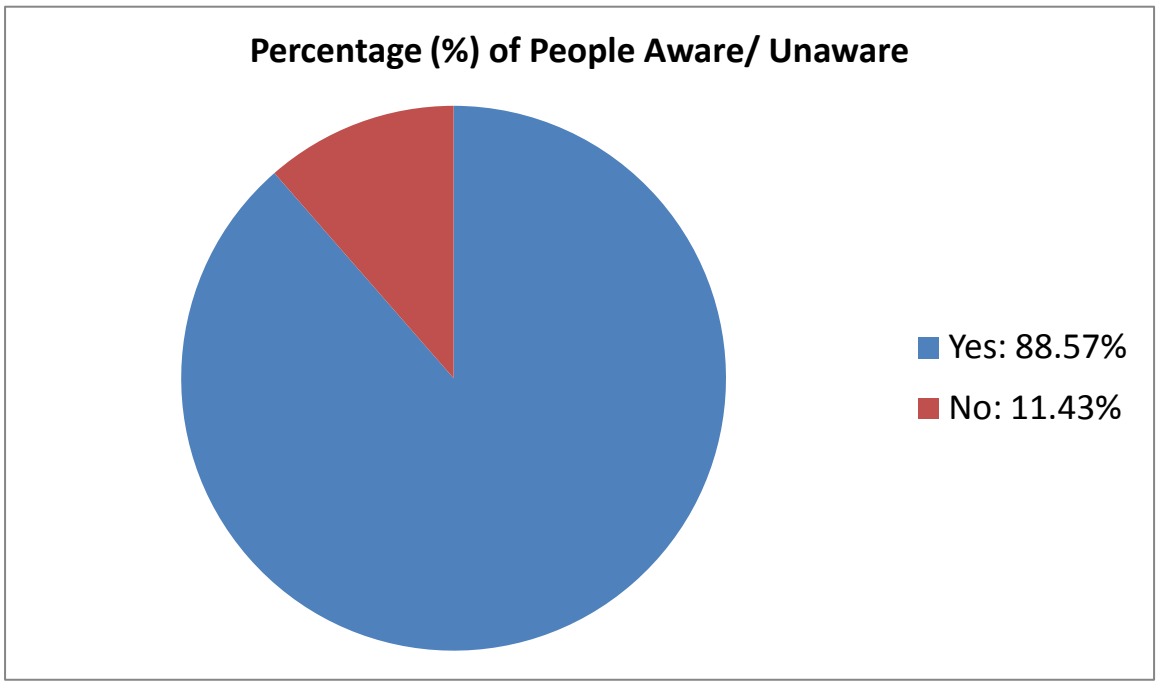
The surveys goals were to discover what the perception was of the broader Wellington's community towards the proposed Bodangora wind farm. The survey was conducted due to the concerns of the BWTAG that the survey conducted by Bodangora Wind Farm Pty Ltd, (Infigen) at Comobella hall was both unsound due to advertisement of meetings resulting in only 17 people undertaking the survey and did not address the wider communities opinions. The survey conducted was designed to show individual opinions through quantitative "*yes or no"* data and questions, with free responses and comments to all 9 questions offered.

The method of conducting the survey was through local businesses of the town of Wellington. In using local businesses, it effectively targeted local community members as shops that supply both commercial scale farm supplies and community based supplies were mainly used. People that responded to the survey questions were randomised self selected, received no support or pressure to answer any questions by the conductor of the survey and were free to write comments.

The survey was conducted on the 11th of June, 2012 and was collected on the 9th of July 2012 effectively offering the survey for 28 days. During this period of time the surveys were kept at shop counters and collected on a weekly basis. While the survey was being conducted, a number of the completed forms were stolen although "why", is not clear. The survey was designed to help form the basis of community opinion and it can now be seen through the results that the parties who would not benefit from this survey is the proponent and local host land holders of the proposed Bodangora Wind Farm project; although the diversity of responses was not clear until the results were recorded after the 9th of July.

1.1.0 Question 1: Are you aware of the project?

Graph 1 represents the percentage of people that are aware (Blue = Yes 88.57%, aware) or not aware (Red = Red 11.43%, not aware) of the proposed Bodangora Wind Farm project that took part in the Bodangora Wind Farm Project Survey.

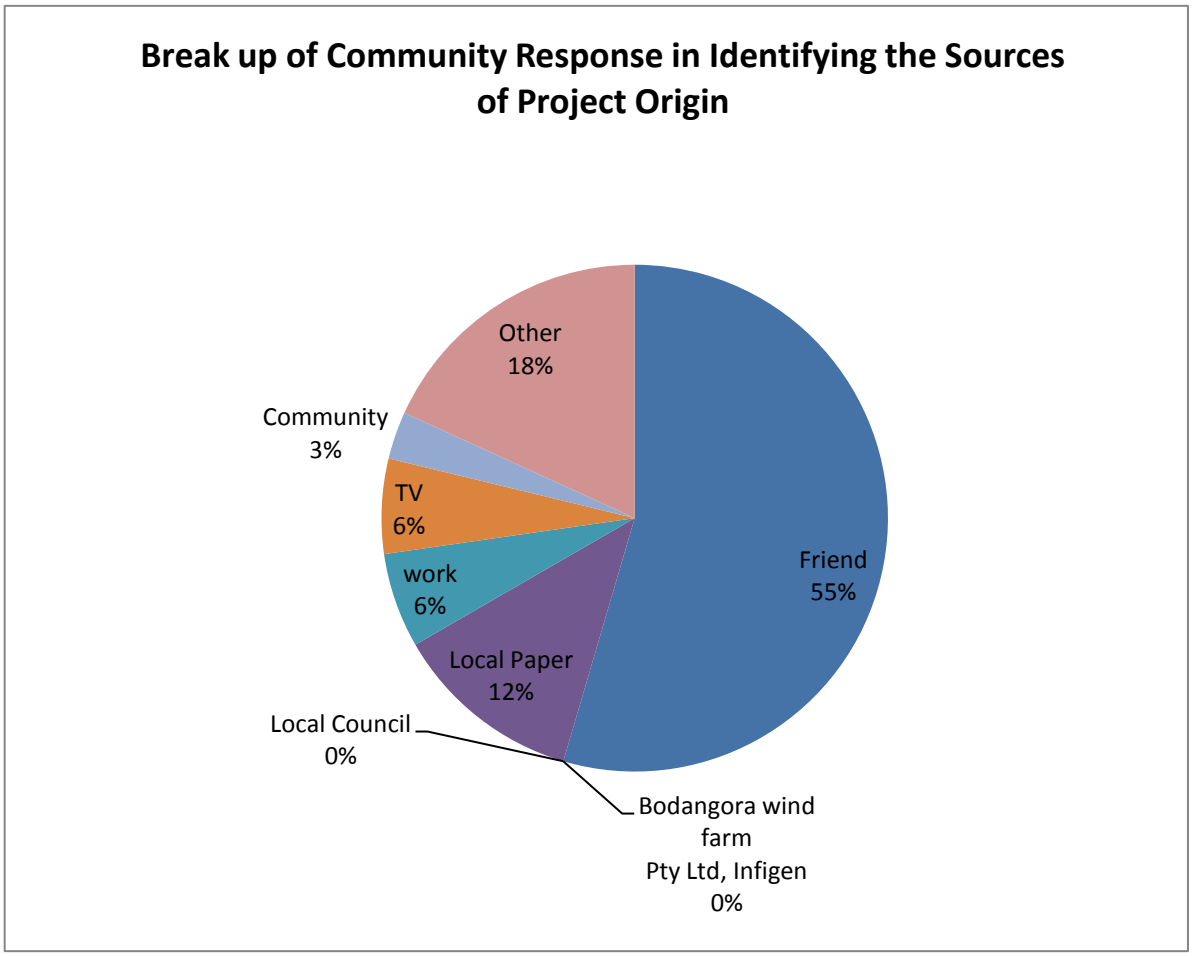


This survey question asks people of their awareness and should not be assumed that the individuals' level of knowledge of the project is the same. With this in mind it is worth noting that there are limitations in the question in which the time frame of the awareness of an individual was not documented or asked; thus an assumption of complete awareness since the beginning of the project cannot be assumed.

1.1.1 Question 1 Additional: If so how did you find out about the project?

In addition to Question one, individuals surveyed we asked to identify how they found out about the project and given 4 options including a free response style.

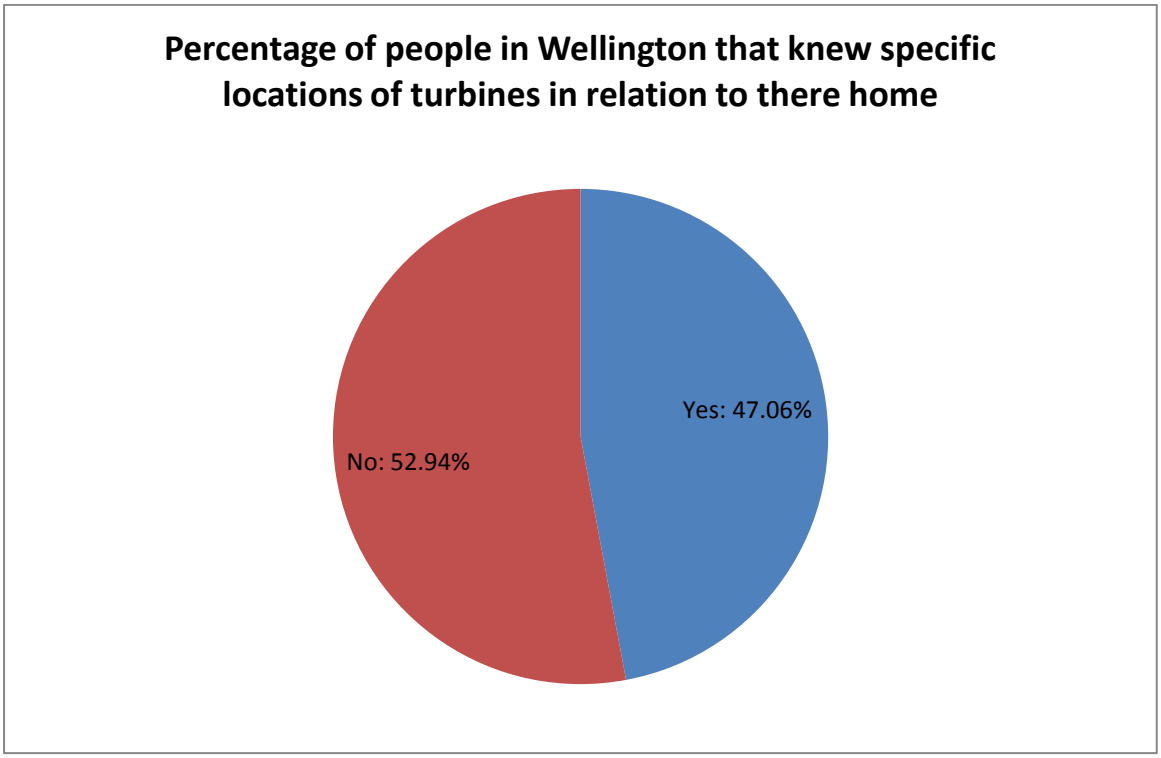
Graph 2 shows the percentage of individuals that were able to answer the additional question 1 answer following the "*Yes*" response in question 1.



It should be noted that the majority of communications between the Bodangora Wind Farm project and that of the community through media channels was conducted and initiated by the Bodangora Wind Turbine Awareness Group, Mudgee Alliance (BWTAG) and not by local government or the proponent within the local community. With this in mind it is shown that 33% of responses were through local media channels such as community notice boards in local shopping centres, flyers in local businesses, articles published in local papers and a campaign of community awareness through television; all of which was conducted by the BWTAG. It should be also noted that the proponent and local council had 0% responses. Friend response suggests "word of mouth" as the community is relatively small this was expected to be the greatest response, (67%).

1.2.0 Question 2: Do you know specifically where turbines will be sited in relation to your home?

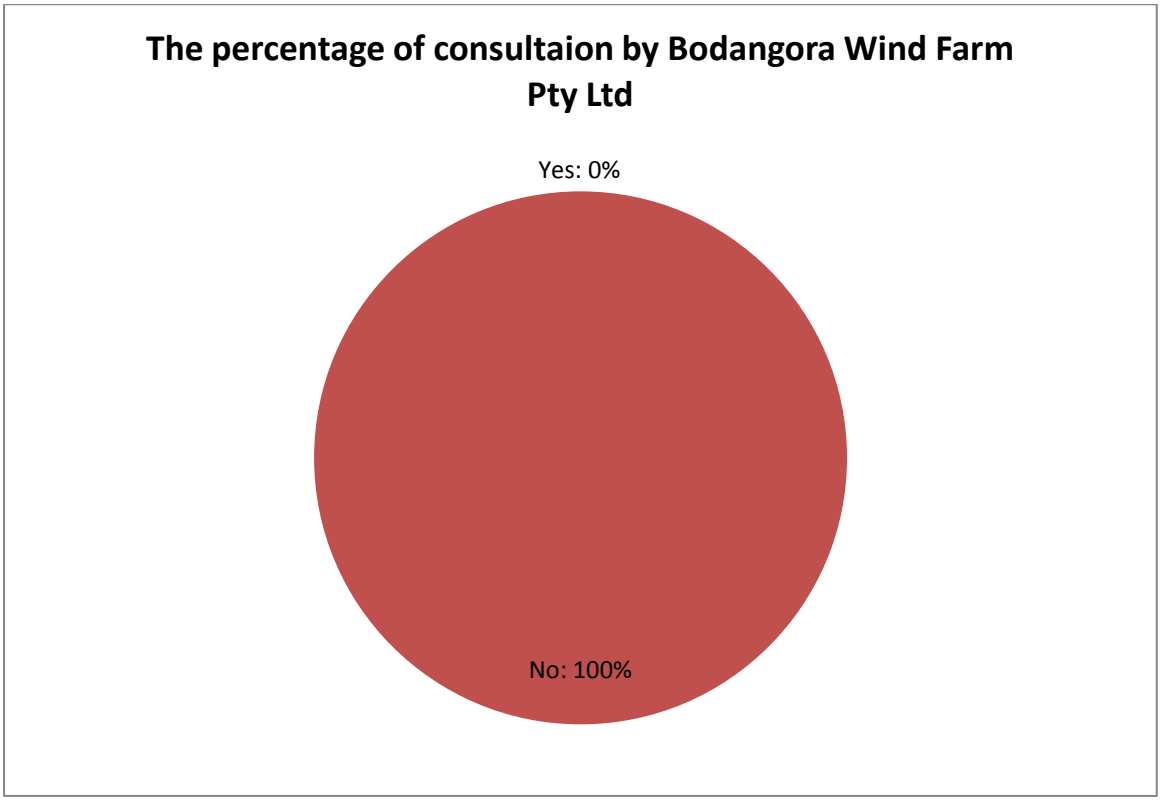
Graph 2 shows the percentage of people in the Bodangora Wind Farm Project Survey that knew where the area was (the proposed Bodangora Wind Farm project) in relation to their homes. (Yes: 47.06%, Blue) and (No: 52.94%, Red). 34 individuals responded to this question



Note that survey Question 3 does not ask to identify specific turbine locations and thus could be confused as the location of the proposed project zone. Due to the unspecified nature of the survey a limitation on the actual location provided by individuals is not known and could be confused as the location "*Bodangora*".

1.3.0 Question 3: Have you been contacted by Bodangora Wind Farm Pty Ltd, (the proponent) of this project, and consulted on the project?

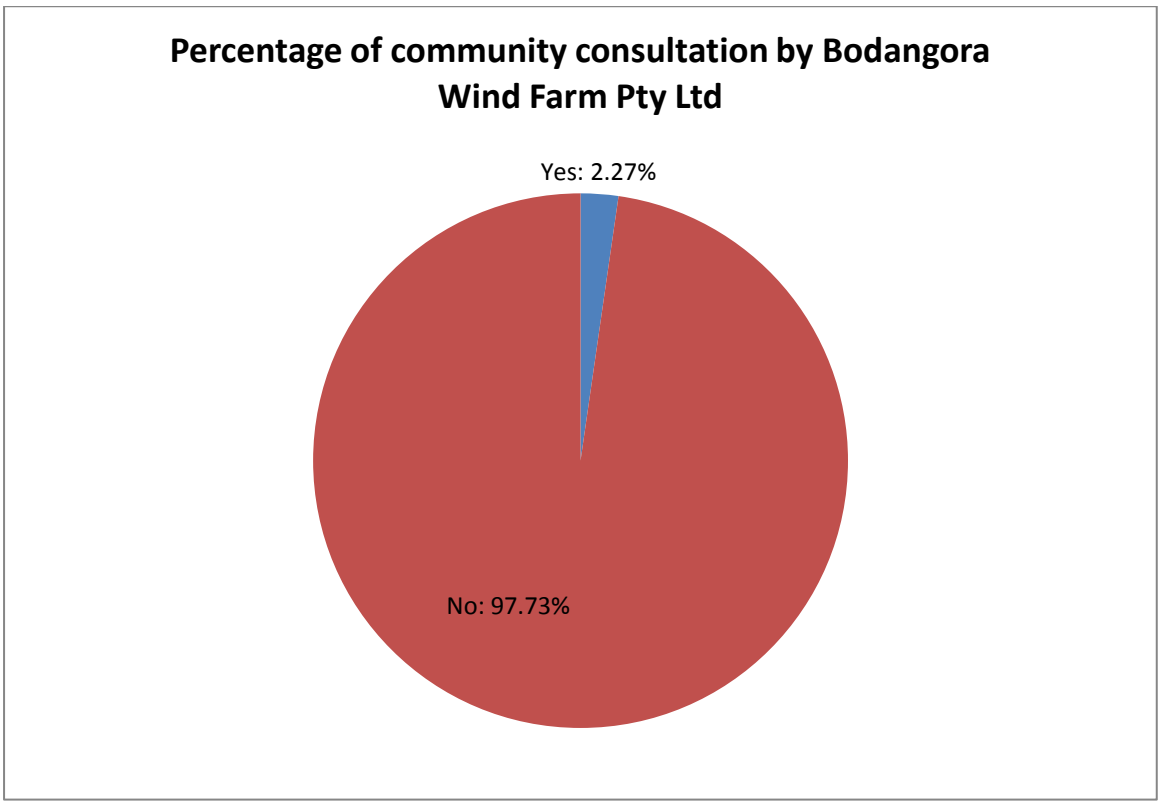
Graph 4 shows the percentage of people that took part in the Bodangora Wind Farm Project Survey that have been directly contacted by the proponent. (Yes: 0%, Blue) and those who have not been contacted by the proponent (No: 100%, Red) in relation to the proposed Bodangora Wind Turbine project. 34 individuals responded to this question.



In addition, comments were taken in relation to question 3 and recorded stating. "*Why hasn't Infigen sent a rep to my workplace, (the gaol) to discuss the project?"*

1.4.0 Question 4: Do you feel as though there has been adequate community consultation on this project?

Graph 5 shows the percentage of people in the Bodangora Wind Farm project survey that believe there has been enough Community consultation (Yes: 2.27%,Blue) and individuals that believe there has not been enough community consultation (No: 97.73%, Red) on the proposed Bodangora Wind Farm project by Bodangora Wind Farm Pty Ltd. 88 Individuals responded to this question

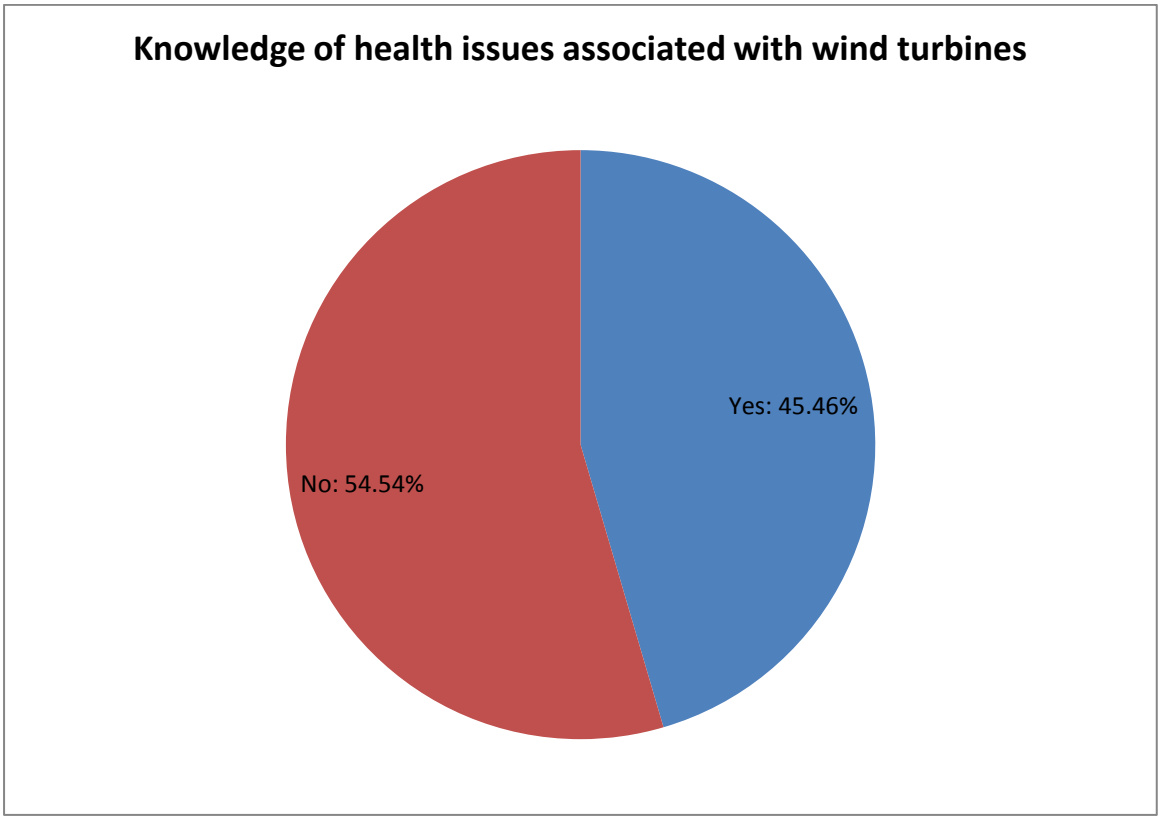


In addition to question 4 comments were recorded and stated. "*Very inadequate"*.
During the "*Community Consultation meeting"* hosted by the proponent under the project name "Bodangora Wind Farm Pty Ltd", it was stated by the Office of the Mayor that the locations of Infigen's community information days at "*Comobella Hall"* would not be suitable in order to inform the general community. This is shown through the Bodangora Wind Farm Project Survey in which 97.73% believed that there has been a lack of community consultation.

For this particular question, 88 people were directly surveyed throughout the township of Wellington and its direct surrounding area. The focus on this question was as a direct result of the Director Generals Requirements of "Community Consultation."

1.5.0 Question 5: Do you know about the health issues associated with wind turbines?

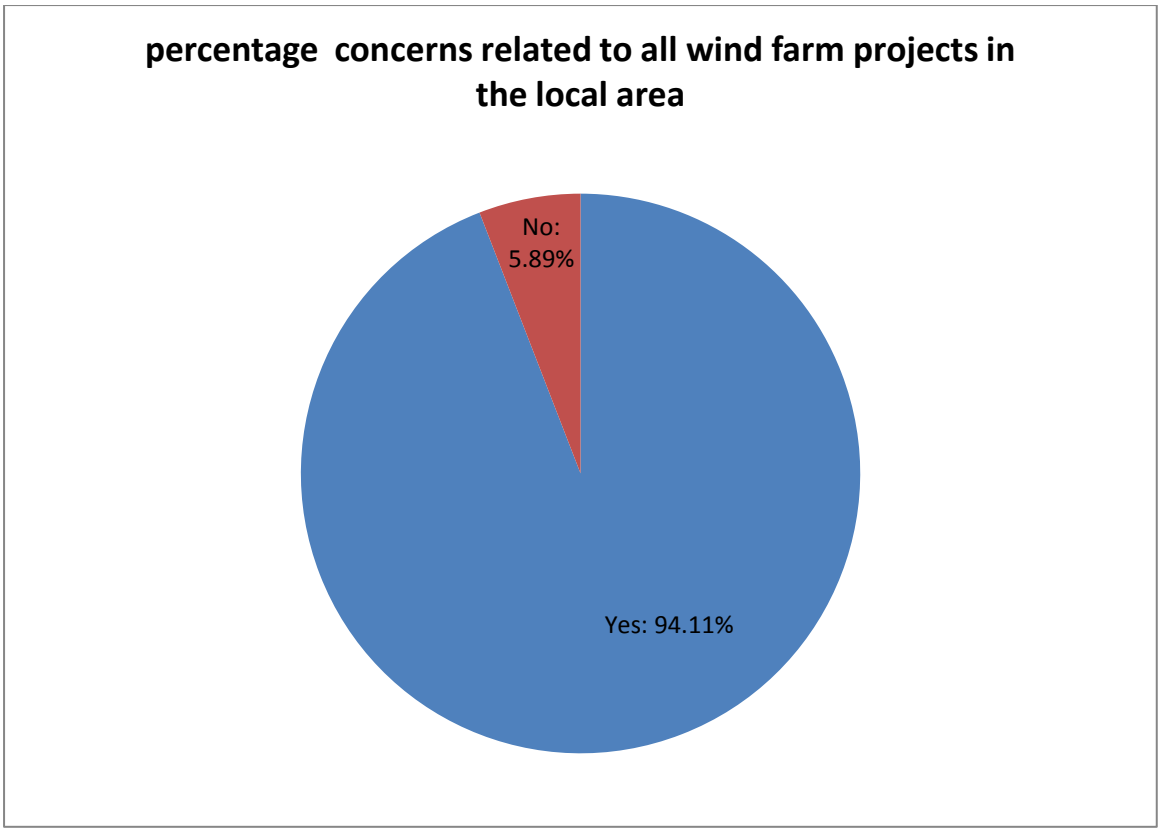
Graph 6 shows the percentage of people that took part in the Bodangora Wind Farm project survey that knew (Yes: 45.46%, Blue) or don't know (No: 54.54%, Red) about health issues associated with wind turbines. 33 individuals responded to this question.



In addition to question 5 comments were recorded, 4 were stated "*serious health and mental issues", "nothing specifically", "Concerned about noise and health impacts and how it will affect our cattle"* and *"would like to know more".*
Survey Question 5 was well placed in relation to the recent and current media in the local area regarding health effects.

1.6.0 Question 6: Do you have any concerns with wind farm projects in your area?

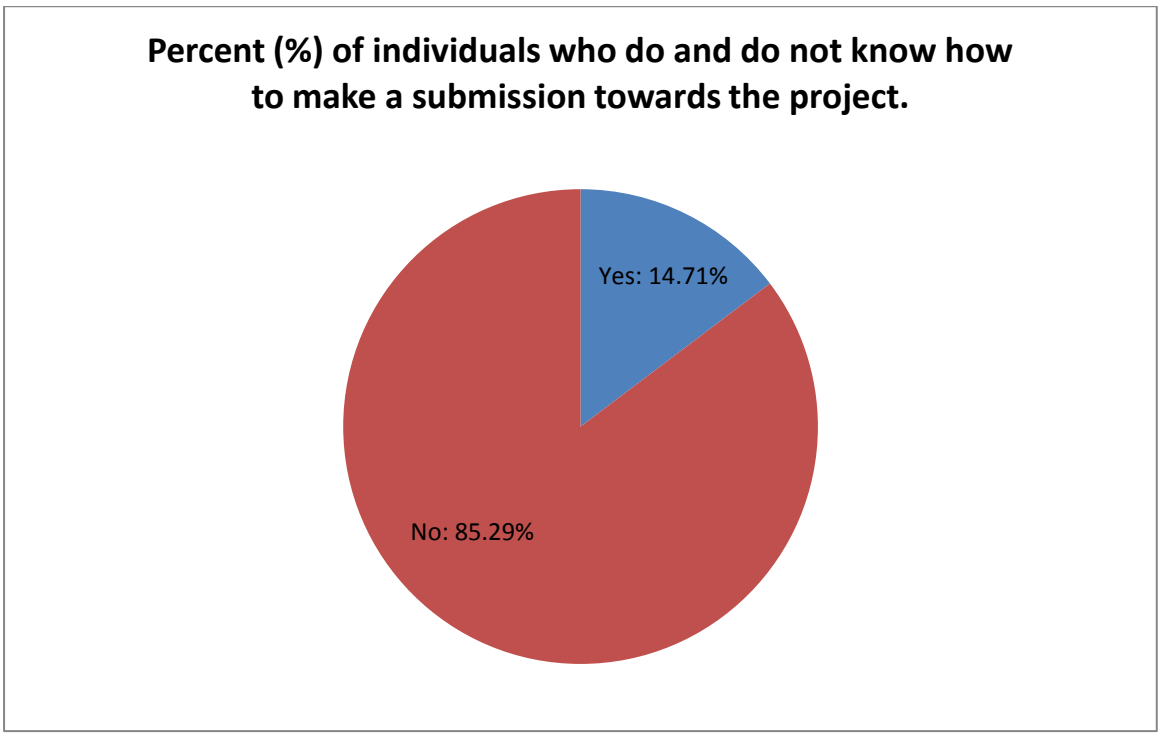
Graph 7 shows the percentage of people that are concerned (Yes: 94.11%, Blue) or unconcerned (No: 5.89%, Red), relating to all wind farm projects in their local area. 34 individuals responded to this question.



Question 6 of the survey is of specific significance as there are currently several proposed wind farm developments underway in the Midwestern region. These are specifically within and surrounding the Wellington district. This survey result clearly identifies the lack of knowledge and information surrounding the wind energy sector.

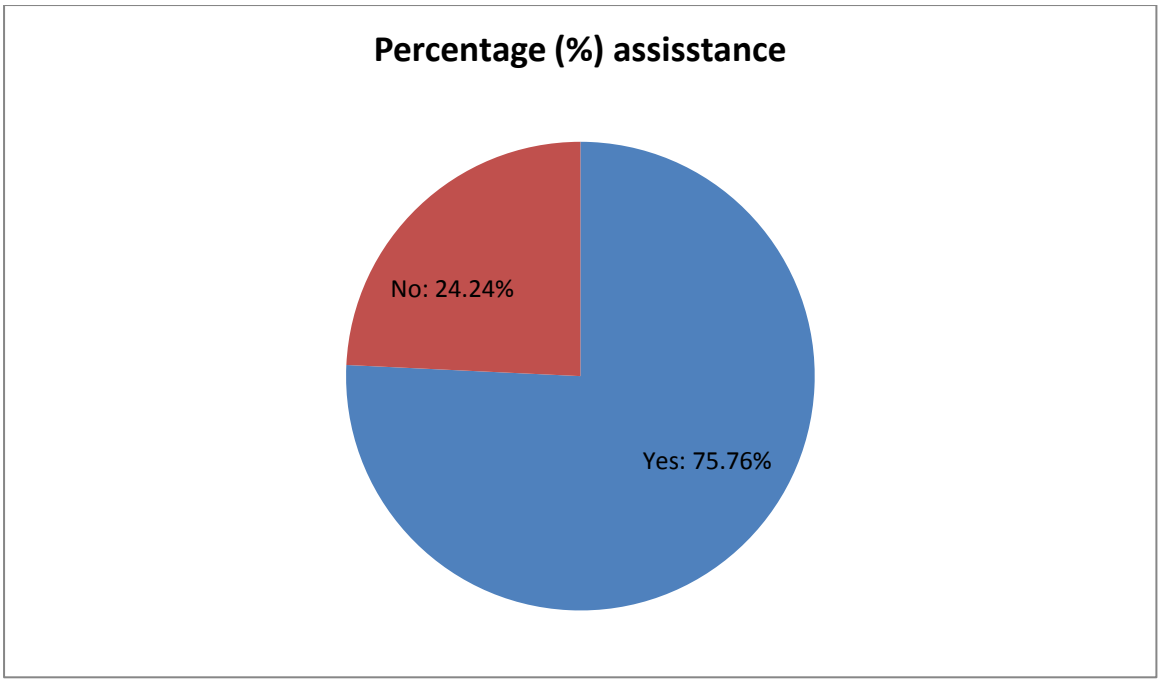
1.7.0 Question 7: Do you know how to go about making a submission to the Environmental Assessment of this project?

Graph 8 shows the percentage of people that took part in the Bodangora Wind Farm project survey who do, and do not know how to make a submission to the Environmental Assessment of the project. 34 individuals responded to this question.



1.8.0 Question 8: Would you like further assistance?

Graph 9 shows the percentage of people that would (Yes: 75.76%, Blue), and would not (No: 24.24%, Red) like further assistance who took part in the Bodangora Wind Farm project survey. 33 individuals responded to this question.



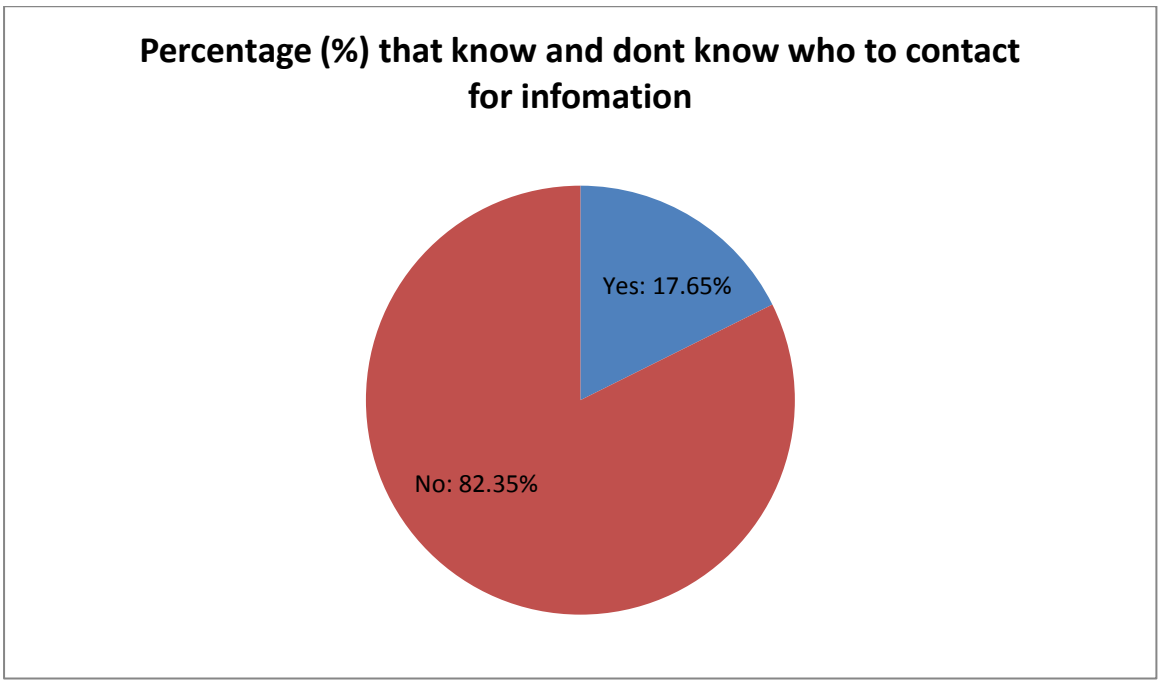
In addition to question 8 additional comments were recorded, six stated "*consultation with local community", "Everything", Objection submission", "What effects, how big and Farming concerns"* and *"making a submission"*.

The survey comments suggest that the amount of people opposed to the Bodangora Wind farm development is greater than those able to make submissions. This is shown through the response to the above question. People do not know who to contact (survey question 9) and there are people who would like help making additional comments on the proposal; such as making an objection submission.

This statistic clearly shows that less than 25% of the community feels confident with the information supplied to them. Over 75% of the community feel as though more information is needed in order to conduct their actions towards the proposed Bodangora Wind Farm project.

1.9.0 Question 9: Do you know who to contact for more Information?

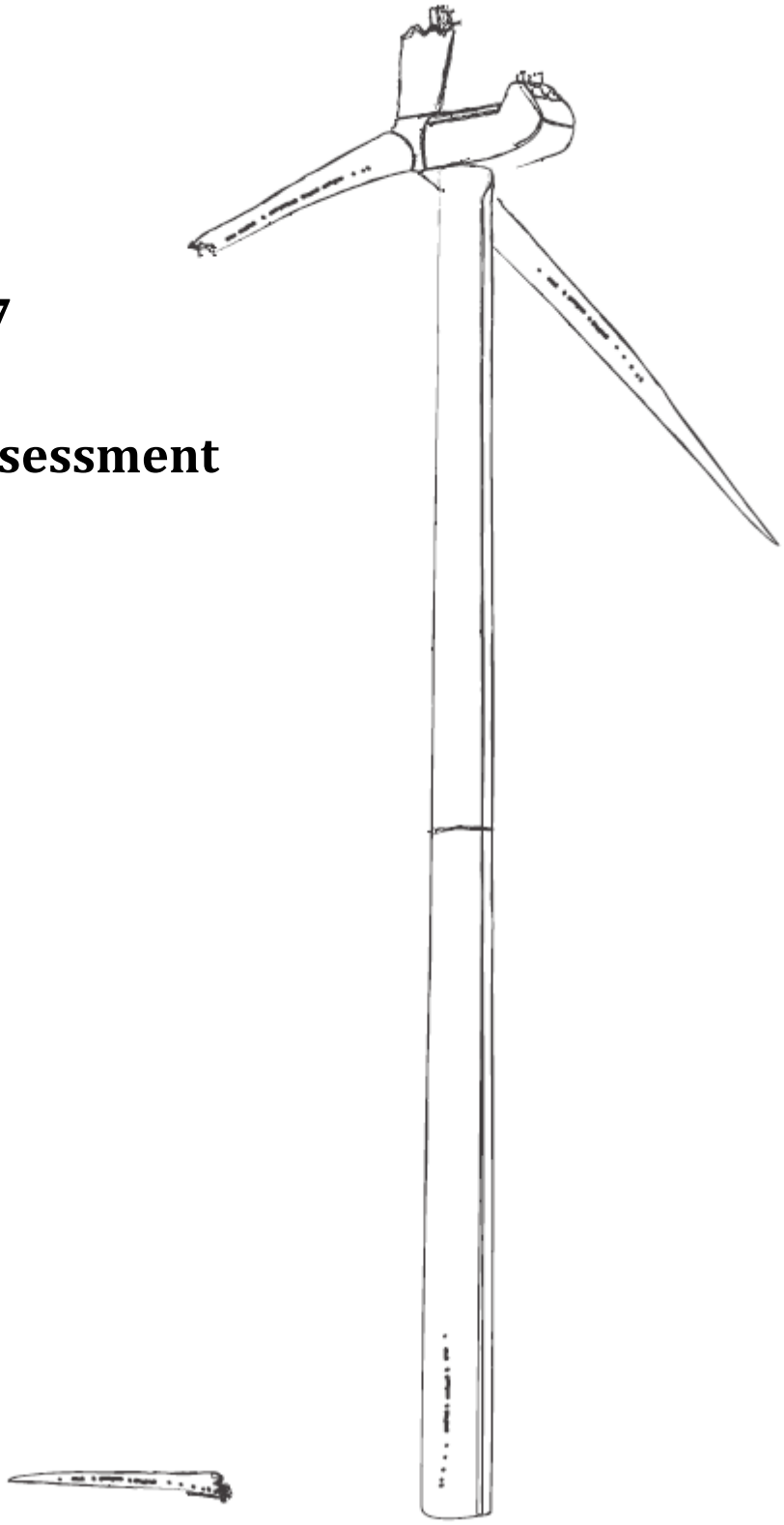
Graph 10 shows the percentage of people that took part in the Bodangora Wind Farm project survey that know (Yes: 17.65%, Blue), or do not know (No: 82.35%, Red) who to contact for more information about the proposed Bodangora Wind Farm project. 34 individuals responded to this question.



The answer to Question 10 clearly shows the lack of advertisement and community consultation undergone by the proponent. Less than 18% of the community surveyed know who to contact. From the results of this question, it can be shown due to the nature of the survey being quantitative that the 82.35% that don't know who to contact, would also not know were to receive additional information, this is shown through question 8: "Would you like further assistance?" were 75.76% of the community surveyed would like further assistance.

Chapter 7

Visual Assessment



Chapter 7 VISUAL ASSESSMENT

Director-General's Requirements:

"Provide a comprehensive assessment of the landscape character and values and any Scenic of significant vistas of the area potentially affected by the project, including both the wind farm and the transmission line. This should describe community and stakeholder values of the local and regional visual amenity and quality, and perceptions of the project based on surveys and consultation.

Proponent has failed to meet DGR'S has not included both wind farm and transmission lines in visual amenity, perceptions were based on 17 survey forms filled in at an open day, not representative of a population of over 12,ooo

Assess the impact of shadow 'flicker', blade 'glint', and night lighting form the wind farm.

Identify the zone of visual influence of the wind farm (no less than 10 kilometres) and assess the visual impact of all project components on this landscape. Include an assessment of the visual impacts associated with the transmission line, including impacts on local and regional views. Alternate pole designs should be presented and assessed and the potential for undergrounding in sensitive locations should be assessed.

Proponent has not met DGR'S, not all project components on the landscape have been assessed, including transmission lines and alternate pole designs. Or any potential future dwellings have been assessed.

Include photomontages of the project taken from potentially affected residences (including approved but not yet developed dwellings or subdivisions with residential rights), settlements and significant public view points, and provide a clear description of proposed visual amenity mitigation and management measures for both the wind farm and the transmission line.

Proponent has not met the DGR'S, has not included all residences.

Provide an assessment of the feasibility, effectiveness and reliability of proposed mitigation measures and any residual impacts after those measures have been ***implemented.***

Proponent has not met the DGR'S – the planting of trees to mitigate the visual impact of wind turbines is not feasible. White Box & Yellow Box native to area will take approximately 100-200 years to reach maturity and would provide no visual mitigation for the life of the wind farm. (*Australian Wildlife Service 2012)*

7.1.0 Summary of Objections

Visual Impact: Bodangora Wind Turbine Awareness Group. OBJECTS to the Bodangora Wind Farm proposal

Visual impact of a wind turbine development is a major consideration. While distance and scale of the landscape can produce different perceptions of the impact on the landscape the human eye is often drawn to 'artificial' vertical features, regardless of distance, making them seem bigger. This is something that cannot be reproduced in a photomontage especially when a wide angle lens is used where the superimposed wind turbines will seem more distant, particularly in the centre of the picture. The photomontages give a sense of turbines that have been "faded out" and
therefore we feel are not a true representation of the final visual impact.

Issue is taken about the creation of "visibility indices" which rely heavily on the presence, or proposed planting of, vegetation screening. Vegetation, if new planted, takes a significant number of years to grow to a height where it may influence turbine visibility; vegetation already in existence is subject to the vagaries of nature (drought, tree fall – a significant factor, and other influences) that can result in the removal or modification of vegetative screening. In other words, the inclusion of vegetative screening into the modelling for visibility is an anathema and does not translate to ground truthing over time.

Photographs taken to represent the landscape in Chapter 8 are only partially representative of the area:

7.2.0 Demographic Profile

The Wellington Council area is located within the Central West Slopes and Plains of New South Wales, with its major suburban centre of Wellington located 362 kilometres north of Sydney at the junction of the Macquarie and Bell Rivers. The Wellington Council area is bounded by Warrumbungle Shire in the north, the Mid-Western Regional Council area in the east, the Cabonne Council area in the south, and Dubbo City in the west.

In addition to the town of Wellington, which has a population of 5200, the Council area includes the villages of Geurie, Mumbil, Stuart Town and Euchareena as well as extensive rural areas, bringing the total population to 9200. The Council area encompasses a total land area of about 4,100 square kilometres. Rural land is used primarily for agriculture, particularly sheep and cattle grazing, with some viticulture and tourism.

Agriculture and related industries are Wellington's major industries. Cropping, wool, beef and prime lamb are the major activities worth more than $43 million.

The growing tourism industry is driven from key attractions such as the world-renowned Wellington Caves (including Phosphate Mine and Japanese Gardens), Lake Burrendong, Burrendong Botanic Garden and Arboretum, Mt Arthur Reserve, several wineries and boutique galleries attracting thousands of visitors from across NSW, Australia and the world annually.

The original inhabitants of the Wellington area were the Wiradjuri Aboriginal people. European settlement dates from the 1820s when a convict settlement was established

The wind turbines will dominate, scar and industrialise the rural landscape.

The wind turbines will degrade the scenic qualities of the rural landscape in which residents have chosen to live, completely altering the visual environment and alienating residents whose rights to the quiet enjoyment of their property have usurped. The siting of WTs affects the visual aesthetic properties of surroundings, especially in locations where people place a high value on the landscape. (Visual Impact of wind energy).

Visual Impact has a direct effect on amenity, defined as resources available for people's convenience, enjoyment and comfort, in this case landscape. (*Wind energy facts-environment*). A landscape attracts different perceptions since aesthetics values such as beauty and diversity are subjective (Schwahn, 2002), while its value will also be influenced by use (eg.national park, wildlife habitat, agricultural land.)

There will be cumulative visual effects both locally and within the Wellington Council area, Bodangora Wind Farm Mudgee Road , Ungula Wind Farm, Twelve Mile Wind Farm, Wellington Correctional Centre (Mudgee Road), Wellington Gas Fired Power Station Mudgee Road, Transgrid (ERM) overhead powerlines, Existing Substation (Mudgee Road), Red Lea Chickens Mudgee Road, Gas Pipe Line, Cobbora Mine, construction of roads and other projected wind farms between Mudgee and Wellington will create a massive industrial impact on the rural landscape.

Bodangora Wind Farm, Wellington Correctional Centre, Existing Sub Station, Gas Fired Power Station, Transgrid Transmission Lines, Red Lea Chicken Farm, Spicer's Creek Tomatoes are all located within 15klms of the township of Wellington on the Mudgee /Goolma Road NSW, and are either within the project area or located in close proximity to the proposed Bodangora Wind Farm development.

7.3.0 Visual Influence & Zone of Visual Influence

The Environmental Assessment Visual Assessment 8-4, states "whilst there are no formal visual guidelines for assessment of wind farms in NSW the assessment has been undertaken

in accordance with provisions of Best Practise Guidelines (British National Wind Energy Association, 1994)

Abstract from (*Best Practises Guidelines for Implementation of Wind Energy Projects in Australia-March 2002)*
The following documents were reviewed:
• Sustainability and Due Diligence Guidelines – World Wind Energy Association
• European Best Practice Guidelines for Wind Energy Development – European Wind Energy Association
• Wind Energy Development Best Practice Guidelines – Irish Wind Energy Association
• Best Practice Guidelines for Wind Energy Development – British Wind Energy Association
• Best Practice Guidelines: Consultation for Offshore Wind Energy Developments – British Wind Energy Association
• South West Public Engagement Protocol for Wind Energy – South West Renewable Energy Agency (U.K.)

A search of the available literature indicated a general lack of similar documentation used overseas. Of the material identified, most had been created some years ago and has not been revised since. Consequently, this material was not considered to wholly reflect the current wind industry. The review indicated that through the application of the revised Best Practice Guidelines and an accreditation process, the Australian wind industry will create a benchmark for wind proponents in other countries

The Environmental Assessment did not endorse *the Best Practise Guidelines of Wind Energy Projects in Australia – March 2002*, for the Bodangora Wind Farm.

The EA uses guidelines that are from an outdated British Guideline document. (BWEA 1994)

Consideration should be given to the accuracy of data from a guideline dated 1994, and potentially that data may not be relevant to the visual assessment of wind turbines 150 metres tall, in the Bodangora Wind Farm Project.

Modern turbines are becoming lager both in size and capacity, and hence more dominant in the landscape. At the same time, the spacings between turbines is increasing, thus lessoning their density in a given area. The development of the technology is therefore changing the visual impact of wind farms from high density groupings with high rotational speeds to fewer, larger machines operating at lower rotational speeds.

Other visual impacts of wind turbines are lighting and, ancillary facilities such as stores, substations, transmission lines and roads also impact on amenity, these have not been assessed in the Bodangora Wind Farm project as visual impact to residences.

7.4.0 Zone of Visual Influence (ZVI)

The Environmental Assessment 7.0 Zone of Visual Influence page 21 Vol.2 Attachment F (*including 7.1.1 and 7.1.2)*

The EA States:
As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note that the ZVI is based solely on topographic information. In reality the Bodangora Wind Farm is far less than that shown in the following ZVI figures due to screening from vegetation and buildings.
Then goes on to say in the last paragraph; "The ZVI has been included in this report to demonstrate the methodology used in the viewpoint analysis process and should not be considered to be accurate portrayal of the visual impact."

The proponent's metholgy used in Viewpoint Analysis and the ZVI is not an accurate portrayal, so how can the visual impact are considered if the proponent claim that it is not accurate. Consider if one process of evaluation is not correct then it would be reasonable to assume that all other methods for calculations are contingent upon each others accuracy and if that is not the case then the proponents' metholgy is nothing more than educated guesses on the visual impacts of dwellings. This is unacceptable, the proponent favours the use of "worst case scenario" but there is no starting point to metholgy of the process. The suggestion of a worst case scenario implies that there is a lesser chance of visual impact but if we apply worst case scenario and it turns out to be less than the worst case scenario, then, that must be better than the worst case scenario. Yet in the confusion of accurate evaluation the proponent can not state with accuracy the figures they put forward in this EA are even close to the actual visual impact of neighbouring dwellings and dwellings that were not assessed in the project area.
The proponent claims in the EA attachment F page 21, that 'detailed site investigations were undertaken to ground truth the findings and define a visual catchment for the proposal'. Essentially being the area of land which will have views of turbines, the proponent then selected locations for further investigations.

From the EA (*attachment F page 22 and 23)* On investigation of Figure 10 and 11, we note that Figure 10 page 22 shows that the ZVI for turbine No. 8 be in the 'green zone' meaning that, from the legend, that the Zone of Visual Influence, Number of Visible Turbines is 1-10 turbines.
Then in Figure 11- Viewpoint Locations (attachment F page 23) the BWF 25, from the legend has the BWF in the 'blue' to indicate Viewpoint Location and direction as Low Visual Impact.
Further contradictory evidence provided by proponent in 8.0 Viewpoint Analysis, Attachment F page 48 BWF 25. "The proposed wind farm is obstructed from view by the topography and dense vegetation. The proposed sub station will not be visible from this viewpoint and therefore the viewpoint has no visual impact."
The proponent has assessed and put forward information from Figures 10 and 11 the visual impact of turbines with no reference to a sub station, Figure 10 in the ZVI clearly shows this

viewpoint as having a 1-10 turbines visible, then goes on to state that there will be no visual impact from BWF 25.
The proponents own admission in the EA that" the mythology used in the viewpoint analysis process should not be considered to be accurate portrayal of visual impact", and the example explained above certainly agrees with the proponents view that, the process put forward in this EA not be considered to be accurate.

The visibility of a windfarm is of course also affected by topography. The concept of The ZVI in professional landscape work originated in the 1970s. Typically, topographic Sections would be plotted and sight lines analysed at, say 100, intervals. This manual Process was and is crude, slow and laborious. Faster and more refined manual techniques were developed using contour maps and templates or overlays. By the mid-1980s, Jarvis (1985) is describing the use of custom-written computer programs to produce ZVI and Related visual assessment tools, but one is a program that takes six hours to execute 100,000 sections checking intervisibility; he gives an example of a ZVI covering 20 km2
based on a 150 m grid.

Hankinson (1999) describes three possible stages or components of a ZVI. First, a desktop study during which an experienced assessor can usually read the local contours from a 1:25,000 or 1:50,000 plan and gain a good idea of the likely extent of visibility. Next, an analysis (computer based) using a digital terrain model (DTM), cross-sections etc is carried out. Finally, site evaluation. She emphasises the distinction to be made between the ZVI (from the desk study and site evaluation) and what she terms the Zone of Theoretical Visibility (ZTV) derived from computer modelling (Hankinson, Box 16.7, page 367).

7.5.0 Two main sources of error in any ZTV.

Zones of Visual Influence (ZVI) are never wholly accurate and other tools such as photomontage are never wholly realistic. Suggestions are made of ways to address these issues.

ZVI are never accurate (Hankinson, 1999). They contain several sources of error
and it may not always be feasible to separate these errors or to estimate their size and potential effects. If the errors are known, this should be stated. The existence of error should always be acknowledged. Such errors may matter less if the purpose of the ZVI is to compare the relative effects of two or more sites or to compare alternative layouts, where it is the comparison which is being evaluated, and not the precision of specific locations. They are not necessarily a reliable basis for predicting visibility from exact locations, which must always rely on additional pre- and post-ZVI desk and site assessment. They are a useful basis for selecting potential viewpoints for consideration (but must be subjected to detailed site testing),

First, data errors built into the computer program used include the contour intervals in the baseline data, which affect the degree of interpolation used in the program; and the accuracy and reliability of that data (other error refinements include whether the program takes account of the curvature of the earth etc)(Hankinson, Box 16.8, page 369). For example, a ZTV derived from a DTM based on 1:50,000 contour information (10 m contour interval) may be interpolated and rounded to the nearest metre in the program. The *"1 minterpolation"* assumes a straight-line slope between two contours and cannot take account of rocky terrain that can vary by up to 9.9 m without appearing on the 10 m contour base. Purchased data (from Ordnance Survey) and data digitised in-house also all contain inaccuracies or errors.

The second source of error arises because the ZTV is theoretical, that is it usually assumes a perfectly bare and smooth terrain unencumbered by houses, buildings or other structures, vegetation, hedges, woodland and forests. The site evaluation is the opportunity to take account of landform features that do not appear on the ZTV and landscape features that affect visibility such as trees, hedgerows, fences and buildings. Some programs are being developed that allow the introduction of surface features such as tree cover into the computation of ZVI (e.g. Turnbull Jeffrey Partnership, 1995 and illustrated in the Beinn An Tuirc ES). The key conclusion offered by Hankinson is that users and readers of ZTV/ZVI in environmental statements need to be alert to and explicit about the inherent sources of error, assumptions and limitations of the tools.

Zones of Visual Influence (ZVI) are never wholly accurate and other tools such as photomontage are never wholly realistic. Suggestions are made of ways to address these issues concern for the landscape, visual and other environmental effects of tall, industrial or technological structures in the landscape is not new (e.g. Goulty, 1990). In the case of windfarms, however, there is universal acknowledgement that the potential landscape and visual effects are among the most important and to some extent the most intractable issues for obvious and well-rehearsed reasons (e.g. Coles & Taylor, 1993; Lindley, 1994.)

We have reviewed a range of guidelines on windfarm development. There is universal acknowledgement that visual effects are important, that they depend on distance, size, visibility and other factors, and on both landscape and visual receptors. Whilst there is some evidence to suggest a degree of professional landscape consensus on VIA and significance, there is extremely diverse and subjective opinion among other stakeholder groups. Some guidelines quote specific distances for recommended ZVI or for the relative impacts (and by implication significance) of visual effects in relation to distance. Some guidance appears to be re-cycling guidance from other sources and justification for any specific distances quoted in these documents is rare. In most cases any distance-effect guidance is not related directly to or varied with the size or height of turbine towers, but appears to be based on first-generation

In addition, there is the cumulative effect of up to 1200 turbines for the Wellington, Bodangora and Mudgee districts.

The wind turbines are 150 metres high. They will be sited along ridgelines. Viewing the turbines from a valley floor, for instance, as will be the case from a significant number of residences, the ridgelines will increase the height impact. For instance a dwelling is sited in a low valley where 33 turbines will be visible to a greater or lesser extent, the impact of which will only be ameliorated by vegetation screening, However, if that house was at a higher elevation and the turbines sited on the same ridgeline then the probability is that the second house will have a greater visual impact and no vegetation screening will filter the views from that dwelling.

Issue is taken about the creation of "visibility indices" which rely heavily on the presence, or proposed planting of, vegetation screening. Vegetation, if new planted, takes a significant number of years to grow to a height where it may influence turbine visibility; vegetation already in existence is subject to the vagaries of nature (drought, tree fall – a significant factor, and other influences) that can result in the removal or modification of vegetative screening. In other words, the inclusion of vegetative screening into the modelling for visibility is an anathema and does not translate to ground truthing over time.

"Due to their size and required position on the top of ridges, the wind turbines will be prominent and difficult to screen at the site." Difficult in reality is impossible.

Photographs taken to represent the landscape in Chapter 8 are only partially representative of the area

The EA does not meet director general's requirements because, there are no photographs or assessments incorporating the Bodangora Wind Farm and the existing Transmission Lines, or the proposed transmission line structures. This indicates the highly restrictive nature of the selected photographs.

There are no views that include the significant number of residences to the south of the development, which are 3 and 4 klms fron project.
No appraisal of Bodangora Village resident's homes that clearly indicates the density of residences in that area. The EA fails to assess all residents within the project area and does not meet the director general's requirements.

Few photographs are taken from the valley floors so no representation of the topography.
The photographs seem to be chosen to exclude residences within the development area, giving the false impression that this rural area is sparsely populated which it is not the case false and mis-leading

7.6.0 Landscape and Visual Impact Assessment

Visual Desensitisation Attachment **F; Landscape and Visual Impact Assessment 3.0 Study Method page 8.**

The proponents also claim that another influence is the desensitisation of viewers to visual modification due to existing land use in the area. For example the presence of agricultural equipment surrounding homesteads and the presence of storage areas, farm equipment and sheds through the landscape can have a greater visual influence from viewpoints than the proposed development in the distance. Examples given within context of the site include farming equipment, the Wellington Substation and the transmission lines.

This is claim is as far from the truth as the examples are from the project area. Firstly the Wellington Sub Station is 12klms from the project site, and the transmission lines run in a northerly direction from Wellington through the Wuuluman area which is not near the Bodangora Wind Farm project area.

The proponents expect the Wellington community to accept their claims that farming equipment will desensitise the visual influence of 150 meter turbines there is no known piece of farming equipment in the Wellington region that is 150 metres in size.

The comparison of wind turbines and farm equipment is untested in this EA, there are no studies which support the proponent's claims, and they are subjective and misleading to make suggestions that farm machinery could even come close to desensitisation of the wind turbines.

Agricultural machinery claimed to be surrounding homesteads and the presence of storage areas, farm equipment and sheds through the landscape again is a claim that is unfounded. The proponent is suggesting that all farm machinery is located around the homesteads.
Typical farm machinery found in and around the project area would be no more than 10 meters high "worst case scenario" and a wind turbine 150 meters. A grazing enterprise, that would have no farm equipment or machinery, has not been assessed.
The suggestion that wind turbines impacts are desensitised from farm equipment is simply not possible, and the proponent has made unsubstantiated claims.

The proponent has not done modelling or photo views from homesteads to assess the visual impact taking into consideration of the farm equipment.

There is no basis to this desensitisation and should be REJECTED as creditable on the basis that the proponent would not know what is actually around homesteads in the project area, because they did not access any private property to take photos or viewpoints.

The machinery proponents refer to, may be temporarily parked around the homestead while the farmer takes his lunch break and not there on a permanent basis, or at the homestead 24 hours a day seven days a week 365 days a year.

Furthermore, there are no maps or scientific facts or studies to support this theory.

Visual Desensitisation 3.0 Study Method page 8. Vol.2

1.

Wellington Substation sited 14klms
From project area will not have relevance
to desensitisation

2.

Existing infrastructure. Not sited in project area. Is not identified and could be a photo anywhere. Not being identified and no maps or GPS co-ordinate, studies to support this infrastructure is in project area.

3.0 STUDY METHOD: ATTACHMENT F page5.
3.1 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Proponent claims in EA;
"The purpose of a landscape Assessment and Visual Assessment is to identify and determine the value, significance and sensitivity of a landscape. The method applied to this study involved systematically evaluating the visual environment pertaining to the site and using value judgements based on community responses to scenery. The assessment was undertaken in stages as noted:"

The proponent claims that the method involved systematic evaluation based on community responses to scenery.
There are no studies in regard to scenery in the EA for responses from community. This is false and misleading information.

Photo trickery makes the wind farms smaller; developers may use techniques by using computer generated images in planning applications that turbines seem smaller than they really are in reality.

In a separate study by University of Sterling found serious flaws in the images that are presented as part of a visual assessment in the planning process, and we have found this to be the case in the Bodangora Wind Farm project.

Macdonald said the accepted practice was for a photograph of the landscape where the turbines are to be sited to be taken on a camera with a 50mm lens. This is then "stitched together" with other 50mm shots to create a long, shallow panorama on an A3 page.

But the human eye does not take in the whole panorama; it focuses on the middle section where the computer-generated images of turbines have been placed, giving the impression of a small development on a large landscape.

"A printed 50mm photographic image will always under-represent our perception of the scale of a more distant object because we are looking at a flat image devoid of any depth information," Macdonald said.

The only way someone can get a realistic impression of what the turbines would really look like is to place the image on a curved display, with one eye closed.

The University of Stirling report also found the use of the industry-standard 50mm lens to be misleading (*(Visualation:Perspective or Perception; Alan McDonald)*

Viewed by the human eye 1.8 m from the ground across a *"flat"* surface such as the sea, the horizon will be of the order of 6 km distant, due to the curvature of the earth. Viewed at an elevation of 60 m, the horizon will be of the order of 32 km distant and from the top of a 1000 m mountain the horizon will be at a distance of approximately 113 km. A tall structure standing above the horizon would of course increase these distances significantly; for example, for an observer at 1.8 m who is viewing a man-made structure 50 m tall, the effective distance to the horizon is 34 km and for a 100 m structure the distance is 46 km (Miller & Morrice, no date).

However, actual human perception is affected by the acuity of the human eye. In good visibility (visibility is meteorologically defined as the greatest distance at which an object in daylight can be seen and recognised), a pole of 100 mm diameter will become difficult to see at 1 km and a pole of 200 mm diameter will be difficult to see at 2 km. In addition, mist, haze or other atmospheric conditions may significantly affect visibility (Hill et al, 2001). Assuming this relationship is linear, and assuming absolute clarity of view, this suggests that the outer limit of human visibility in clear conditions of a pole (e.g. a notionally cylindrical wind turbine tower) 5000 mm (5 m) in diameter (a representative figure for a 60+ m high tower) will be of the order of 50 km; and the absolute limit of visibility imposed by the limit of the horizon viewed across a flat plane is similar at approximately 46 km.

Two important issues, depth perception and size constancy, deserve further discussion. At least six monocular cues (cues dependant on one eye only, compared to binocular cues that require both eyes) are recognized as being used in the perception of C depth and relative distance. These include (i) interposition (one object partially obscuring another appears nearer), (ii) the relative size of the retinal image (an object of known size is perceived to be further away if the image is smaller), (iii) the height of an object relative to other objects (an object at a lower level is perceived to be nearer), (iv) objects that appear clearly visible are judged to be nearer than others which are less clear, (v) linear perspective (converging lines in the landscape can create this effect), and (vi) movement cues (fast movement is judged nearer than slow movement by a stationary observer). We can therefore surmise that these phenomena will act to increase or decrease the apparent distance of a windfarm from the observer in the landscape.

Prediction and then evaluation of significance are at the heart of EA. All developments produce effects, which may be positive or negative. All developments produce effects which vary in size or magnitude and such variation may be spatial or temporal or both. It may or may not be feasible, technically or economically, to reduce or mitigate such effects. After mitigation, an effect may still be significant because of size, location, type, risk or related factors. Such significance may be temporary or permanent, reversible or irreversible. Significance is therefore always relative and context-specific, which may be local, regional, national, supra-national or international.

Ultimately, significant is whatever individuals, people, organisations, institutions, society and/or policy say is significant – it is a human evaluative and subjective judgement on which there may or may not be consensus. It is therefore important that two separate but critical characteristics of all effects – magnitude and significance – are clearly distinguished.

The wide diversity of opinion evident on the merits or otherwise of windfarms, including their visual effects, and the implicit expression of opinion on significance within that diversity of opinion, should not be surprising. It is therefore also important that in the EA, the foundations and assumptions on which significance is based must be clear and explicit. It is the Bodangora Community perception that the Bodangora Wind Farm will have an adverse visual impact to the rural landscape in the project area.

Example Graph: Renewable Energy Technologies
Source: PAN 45 (revised 2002): Renewable Energy Technologies

General Perception of a Wind Farm in an Open Landscape

Perception

Up to 2 kilometres likely to be a prominent feature

2-5 kilometres relatively prominent

5-15 kilometres only prominent in clear visibility – seen as part of the wider landscape

15-30 kilometres only seen in very clear visibility – a minor element in the landscape

From this graph up to 2klms the wind turbines are likely to be prominent, yet some viewpoints in the EA have a nil-low visual impact from dwellings up to 2klms.

7.7.0 LANDSCAPE CHARACTER

Table 8.1 – Summary of Landscape Character Values Visual Assessment 8-6 – Chapter 8

The EA states that an assessment of the prevailing character elements of the region and can determine the following according to the regions identified in Figure 7- landscape character units' page13. Of Attachment F as summarised in Table 8.1

Figure 7 is of no value.

The EA states that generally one of the first steps in carrying out a landscape and visual assessment is to identify and map the landscape character of the surrounding area. The South Western Bioregion,Landform,Water Bodies and vegetation are all non site specific and we refer you to the flora and fauna section of this submission.
Horner and Maclennan,et al,2006 landscape description is not typical of the Bodangora Wind Farm project area and the EA states that "the study" area is similar to what Horner and Maclennan refer to we reject the landscape character from the EA.

The LCU 1: Wellington
This is descriptive of the township of Wellington but has no bearing on the Bodangora Wind Farm landscape which is 15klms to the north east of Wellington.

The LCU 2: BODANGORA
The settlement and human influence are far greater than the EA suggests, with Bodangora Village a highly populated area within close proximity to the project site. Proponents states that some roadside vegetation may obstruct views. There is very little roadside vegetation in and around the Bodangora Village is described as open low hills The EA fails to map these character units of Bodangora and it is very difficult to assess on the basis of proponents description. Table 7: LCU2 is meaningless and associated photographs are not representative of the landscape.

The LCU 3: MOUNT BODANGORA
Mount Bodangora is the highest point of visual influence in and around the project area, it is heavily vegetated, views of the project area would be high and there would be no vegetation

obstructing views of development from Mt. Bodangora, given it is 743 meters high. Ranges associated with Uungula are not relevant to the Bodangora Wind Farm. Table 8: LCU3 is meaningless.

The LCU 4: COMOBELLA
The Comobella landscape has no relevance to the Bodangora Wind Farm and is far enough away from the project area that this information is of little significance. Table 9: LCU 4 is meaningless.

The LCU 5: SPICER'S CREEK
The landscape of Spicer's Creek is extremely different to the project area is not relevant to the project.

The Summary of Landscape Character Values

- Photographs taken to represent the landscape are only partially representative of the area.

- All landscape characters for these photos have been assessed as 'moderate' and "low - moderate"

- The three photographs do not represent the area accurately they are selective and misleading. For the proponent to suggest that the entire project area is of a moderate and low-moderate landscape is false.

- **No maps or studies have been assessed of these study areas.**

.

Summary of Landscape Characters Continued.
The following is a comparison of what the EA has described the landscape character and the actual landscape character

Photo from Chapter 8 – Visual Assessment

Table 8.1 Chapter 8 Visual Assessment has Mt.Bodangora as moderate landscape quality and moderately vegetated landscape

Actual photo taken of Mt. Bodangora and landscape in project area

Photo from Mt. Bodangora- clearly shows heavily vegetated *(photo from Lyons family album 2012)*

- **Mt. Bodangora is 743 meters and has heavily vegetated landscape**.

- **Bodangora** – *This landscape character is taken from the Mudgee Road and South West of Mt. Bodangora and is not typical of the actual landscape. From this view you are looking from Mudgee road in a north west direction towards the Bodangora common and to a more westerly view of this photo there is the Bodangora Airport.*

- **Spicer's Creek** – "The area to the North East of the Wind Farm has been rated "moderate"

This photograph is actually to the **North West** of project area.

These visuals are of selected areas within or very near to the project area and should not been assessed as 'typical'.

NOTE: Landscape Character of "Comobella" represented in this landscape values page 8 -6, the photo was not in Attachment and therefore comments relating to this landscape character cannot be evaluated or assessed.

7.8.0 View Point Analysis

Attachments Vol 2. Page 23.

The proponent's viewpoint analysis in the EA, fails to be representative of all rural residences within or nearby the Bodangora Wind Farm project.
Roadside views do not reflect visual impact from residences around or nearby the project**.**
The EA states that studies have been taken from accessible public land

Viewpoints that are not near residences;
BWF 01- Mitchell Hwy (attachment F pg 24) 12.18 klms from nearest turbine

Not adjacent or nearby to a residence does not meet DGR'S

BWF 02 – Old Station Road (attachment F pg. 25) 10.27klms from nearest turbine.

BWF 03 – Old Station Road (attachment F pg. 26) 7.09 klms from nearest turbine

- **BWF 03 -Not adjacent or nearby to residence, does not meet DGR'S**

BWF 05 – Forrestvale Road (attachment F pg 28) 5.33 klms from nearest turbine

- **BWF 05 -Not adjacent or nearby to a residence, does not meet DGR'S**

BWF 06 - Comobella Road (attachment F pg.29) 7.29klms from nearest turbine

- **BWF 06 -Not adjacent or nearby residence, does not meet DGR'S**

BWF 07 – Windora Road (attachment F pg.30) 8.02 klms from nearest turbine

- **Not adjacent or nearby to residence, does not meet DGR'S**

BWF 09 – "Unsealed local Road" (attachment F pg.32) 5.26klms from nearest turbine

- **BWF 09 -Not adjacent or nearby to residence, does not meet DGR'S**

BWF 16 – Driel Creek Road (attachment F pg. 39) –
This road is a farm access track. Not representative of visual assessment to Bodangora Village were 12 dwelling are located. A view from "Claim Jumpers" Road would have given a more accurate visual assessment for property "Eden" a nearby residence in Bodangora Village, approx 2.1klms from nearest turbine.

- **BWF 16 -Not adjacent or nearby to residence, does not meet DGR'S**

BWF 29 - Oakey Creek Road (attachment F pg.52) 6.26 klms from nearest turbine

- **BWF 29 -Not adjacent or nearby to residence, does not meet DGR's**

BWF 30 – Oakey Creek Road (attachment F pg.53) 8.55klms from nearest turbine

- **BWF 30 -Not adjacent to residence, does not meet DGR's**

The Viewpoints within 8.0- Viewpoint Analysis - are misleading, they appear if the viewpoints were taken from the residences but not one viewpoint was taken from a dwelling within or nearby the Bodangora Wind Farm project area.

Example:
Viewpoints (BWF's) 08,10,11,12,13,14,15,17,19,22,23,26 & 28.

From the information in the analysis of these viewpoints, it is mis- leading to assume that from those viewpoints, that the view of the nearby homesteads is located at those viewpoints, this is incorrect.

However the viewpoints are NOT from homesteads but in most cases located some distance away from homesteads but the viewpoint implies this would be the actual viewpoint from the residence and the residence is being assessed for visual impact. **No residence assessed by these viewpoints -Does not meet DGR's**

Examples 1:

BWF 22 – Mudgee Road……"Entrance to "Geenobby" North view

No reference to "Geenobby" Homestead which is 500 meters east of this viewpoint.

Viewpoint BWF -22

Image cropped from BWF -22 is not near "Geenobby" residence and the assessment for BWF 22- Does not meet DGR's for visual impact.

The Summary of Visual Impact (12.0) Table 17 - Summary of nearby residences (Houses 14 to 26) clearly hows "Geenobby", "based on topography" will see 80% of turbines with nil-low potential visual impact.

Proponent Comments of visual impact for this Viewpoint;
"Views of the proposed wind turbines are significantly obstructed by native vegetation. Some filtered views of the proposed wind turbines may be visible to the north, however for the most part the wind turbines will not be noticeable."

Land use is……. "A major travel corridor".
This is misleading. The view of the road is a major travel corridor, however in this instance the BWF 22 – should be assessed for the visual impact from "Geenobby" homestead, not the travel corridor.

Land use in this area is beef cattle production it is a working agricultural entity.
Whilst the viewpoint is of the Mudgee Road in a northerly direction, it is not the view the homestead will have of the turbines. No assessment or reference has been made to "Geenobby" homestead and therefore. Does not meet DGR'S

The homestead is at an elevation of 424 meters. Viewpoint elevation is at 400 meters. Elevation of the homestead has not been assessed, and therefore the viewpoint at the front entrance may be relevant to the proponent's comments but has no relevance to the ACTUAL impact from homestead.
Turbines situated in south east and south west direction will be clearly seen from "Geenobby" homestead. This has not been assessed in the analysis.

Example 2.

BWF 10- Bodangora Road – Entry to "Marakari" East

Viewpoint BWF 10- Bodangora Road

Image cropped from BWF -10

Landscape description from viewpoint. Page 33 EA Attachment F
View from entry to the homestead "Marakari" on Bodangora Road.
The EA states;
"*A group of pepper tees are planted at the entry to the property in the foreground and screen views to the proposed wind farm."*

7.9.0 Potential Visual Impact – Page 33 EA Attachment F
Proponents state no dwellings within 2klms of turbine.
The "Marakari" homestead is located approximately 2klms east of this viewpoint within **1 km** of the proposed wind turbine.
"Marakari" homestead is located within 1klm of turbines. This homestead is within 2kms of a turbine, no consent from landowner or a site compatibility certificate and does not meet DGR'S.
The EA claims this homestead will be screened from the "pepper trees" in the middle of picture and "Marakari" is located 2klms east of this viewpoint and as stated in EA, will be closer to the turbines, that being 1klm from proposed turbines as stated in Potential Visual Impact. Yet this impact is assessed as LOW. If a dwelling is 1klms from turbines which does not meet DGR'S, it would be unlikely that the dwelling will have a reported low visual impact.

The conflicting information in the Environmental Assessment, raises doubt that visual impact for at least the examples given above, in relation to the visual impact of homesteads from the viewpoints as mentioned above and the data being contradictory of the information provided by the proponents.

Director Generals Requirements;
Include photomontages of the project taken from potentially affected residences (Including approved but not yet developed dwellings or subdivisions with residential rights), settlements and significant public view points, and provide a clear description of proposed visual amenity mitigation and management measures for both the wind farm and the transmission line.

- ***BWF10 Does not meet DGR'S***

The proponent has not adequately satisfied the director general's requirements to assess the visual impact of these example residences.

The Mitigation methods used to assist in the visual reduction of the wind farms visual impact include wind break screen plantings around homesteads and along property boundaries and roadsides.
The proponents have failed to comply with Council DCP'S for the mitigation methods.
DCP No 3: "The planting of trees within 12m of a road formation or 150 meters of a road intersection is not supported."

From Viewpoint BWF22 – Mitigation methods have screen plantings of trees well within

these requirements of the DCP No 3.

Note the mature trees in centre of photo are at the intersection of Mudgee Road and Gillinghall Road and are within 12 meters of a road formation and within 150 meters of an intersection.

Chapter 7 Planning Context

The Development Control Plan (DCP No.3) that has been quoted in the Environmental Assessment for the Bodangora Wind Farm has been manipulated out of context.

Examples of this have been listed below, and the full quotation of the DCP No.3 from Infigen in the EA is listed in full below these examples.

Wellington Council's Development Control Plan No.3 (DCP)
Source: Council's website www.wellingtonnsw.gov.au

26. Roadside vegetation

The mowing of roadside verges, beyond a point that reveals guideposts to approaching traffic is not encouraged. Where mowing is undertaken the grass should be left as long as is practical, so as to retain some effectiveness for stormwater and soil conservation purposes.

- ***This DCP No.3 Requirement is not cited in chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm – it has been left out entirely.***
  Wellington Council DCP #3(part)
- The grading of roadside swales is to be minimal and undertaken in such a manner as to disturb as little topsoil as possible. Culverts will be installed with an invert of such a grade as to allow sediment transport to pass through and past the culvert, so as to minimize maintenance.

Proponent

- *minimal grading of roadside swales to maintain topsoil, and culverts to be installed with an invert of such a grade as to allow sediment transport to pass through and past the culvert, so as to minimise the maintenance;" –*

Source chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm

Wellington Council DCP#3 (part)

- The disposal of waste material on road reserves is not permitted. Waste material includes building waste, fill from road construction activities, contaminated material from industrial activities, the remains of slaughtered animals, household rubbish and the like.

The EA states;

"- *the disposal of waste material, including fill from road construction activities and contaminated material from industrial activities on road reserves is not permitted;*

Source chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm

Wellington Council DCP #3 (part)

- The planting of trees within 12 metres of a road formation or within 150 metres of a road intersection is not supported, unless in accordance with a development consent.

Correctly cited, the EA as "the planting of trees within 12 metres of a road formation or within 150 metres of a road intersection is not supported, unless in accordance with a development consent;" *Source chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm*

Wellington Council DCP #3(part)

- The planting of trees within 500 metres of rail crossing is not supported, unless in accordance with development consent. *This DCP No.3 Requirement is not cited in chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm*

this clause has been left out of EA entirely.

Wellington Council DCP #3(part)

- Native grasses within the road reserve will not be disturbed unless in accordance with a consent. Wherever possible temporary work sites, trenching for communications or utility purposes, or grazing, will be chosen so as to avoid stands of native grasses (Kangaroo grass and the like.)

- *native grasses within the road reserve will not be disturbed unless in accordance with a consent. Wherever possible temporary work sites, trenching for communications will be chosen to avoid stands of native grasses;"*

Source chapter 7 Planning Context 7-24 EA for Bodangora Wind Farm

In summary the Wellington Council DCP #3 is not presented in the Bodangora Wind Farm Environmental Assessment in its entirety and in some parts has been taken out of context to represent a more favourable compliance to the proponent but incorrectly not following the Development Control Plan of the Wellington Council.

7.10.0 MITIGATION

Attachment F Vol 2 page 78

The proponent has suggested a range of methods for mitigating the visual impact, but has not supplied a list of these measures for assessments. The mitigation methods the proponent favours for the project are screen plantings, and the photo of existing homestead foreground planting page 79 14.0 Mitigation methods shows very advanced "peppertrees" that would take at least 30 years to reach maturity, this study has not been identified as in the project area.

The existing roadside plantings also used as an example as mitigation fails to describe the loss of vegetation from road upgrades during the construction phase, again a very poor method of mitigation as these types of 'box' trees take hundreds of years to mature.

Figure 22: 'Roadside Screen Plantings" does not have a scale to ascertain the distance front the roadside, as the Wellington council DCP no. 3 does not allow the planting of trees within 12meters of a roadside.

Methods from proponent of screen plantings are not in accordance with Wellington Council's DCP No.3.

"That planting of trees within 12metres of a road formation or within 150metres of a road intersection is not supported."

Example of the DCP No.3 breach

14.3.1 Mitigation Methods - Photomontage

Photomontage of proposed wind turbines from Mudgee Road

Photomontage of proposed wind turbines from Mudgee Road with mature roadside plantings

Note the very large trees in the middle of photo used as mitigation methods are non-compliant with DCP #3.

Figure 24: Photomontage mitigation method – *Roadside planting*

Proponent breaches DCP No.3 Wellington Council with mitigation methods

Mudgee Road near intersection Gillinghall road.
This view is clear of vegetation and the mitigation methods for this viewpoint would be minimal for the nearby residence.

Actual view of intersection of Goolma Road and Gillinghall Road. *Clear of vegetation (photo; Lyn Jarvis June 2012)*

Proponents view with mitigation from EA BWF22 Figure 24 page78.

In this example the mitigation of screen plantings breaches the Wellington Council DCP No.3 that plantings can not be planted ***12 meters of a road*** *formation or* ***150 metres of an intersection****. This particular screen planting is approximately 5 meters from the roadside of the Gillinghall Road and 6 meters from the Goolma Road and is situated at the intersection of these roads.*

BWF 22 Mitigation Methods would not be effective if plantings were to be undertaken at the intersection of Gillinghall & Goolma Road as homestead is at a higher elevation, than viewpoint. Visual assessment using this mitigation method is flawed for three reasons, 1) trees will not grow quick enough to screen homestead. 2) Homestead is at a higher elevation and 3) Wellington Council DCP#3 does not allow planting of trees within 150meters of an intersection or 12meters of a roadside.

An estimate of how long it would take to grow trees to their potential for mitigation purposes is 100-120 years and possibly 200 years. (*Jenny Smits. Australian Wildlife Service's 2012) See email below.*

From: Jenny Smits
Sent: Monday, July 09, 2012 8:49 AM
To:
Subject: Re: Tree Height

Goodness - that is a hard one. I will put in a bit of research if I have time. Would depend on soil depth, nutrients, aspect, rainfall etc. But to give an indication for how long it takes for a tree to be good habitat for birds and mammals, (hollow forming)...Box Gum Woodland species - Yellow Box, White Box, Blakelyis takes 100-120 years and up to 200 years.

The expected life of a Wind Farm is estimated at 25years, so the ill thought out mitigation measures of tree plantings are totally inadequate, to a solution of visual impact and should be rejected as mitigation methods.

Given the fact that trees, assuming to be Yellow Box, White Box or Blakelyis gum, in this instance, at the intersection as described in Figure 24. (Page 80) the plantings are planted at ground level yet the Turbines are on the distant ridgelines, it would not be plausible to suggest these trees could mitigate the turbines visual impact.

Mitigation methods of tree plantings could also have a detrimental flow on effect to any wind data collected, pre- mitigation tree plantings within the project area and no mapping or data to support this has been assessed for mitigation methods post construction. No methology has been identified to the mitigation throughout the project area.

The Draft Guidelines recommend as a possible measure of mitigation that turbines be located “where possible”, “away from areas with high visibility from local residents.
This recommendation has no merit and possibly won’t or can’t be enforced.

In the Bodangora Wind Turbine project, turbines are not located away from high visibility of local residents. Not all dwellings in project area including 12 residences in Bodangora area were assessed for visual impact. This does not comply with the director generals requirements.

Turbines are not located away from high visibility of local residents in fact the proponents have been negligent in not thoroughly investigating ALL the properties within the project area, the nearby neighbouring properties for dwellings and any potential home sites yet to be built. Listed below are dwellings not assessed in the EA for the Bodangora Wind Farm? The proponent makes claims to the visibility of local residents, but for that data to be accurate, the views should have been taken from residences, not some distance away, which was the case in the viewpoints presented in the EA.

Wind Farm developers want to locate their wind farms on ridges, because that is where the high winds are. To suggest to them they might put their turbines somewhere else, if residents can see them would only be met with a laugh.

Surely the Department does not rely on the developer’s advice, that turbines can be obscured by landscaping, this is not an effective answer. The Wellington and Bodangora areas have been in the droughts over many years and the last drought lasting ten years, what mitigation measures do the proponents have in the event of trees dying during drought, fire or disease? Will the proponent replace these trees over the life span of the wind farm and will the proponent protect these planting from livestock, which may destroy these initial plantings. There has been no data presented in this Environmental Assessment for the “worst case scenario” for mitigation methods that is if the trees do not grow tall enough, eaten by native animals or domestic animals or die.

People’s homes would need to be screened and surrounded by very high hedges to the minium height of 20meters for any benefit of lessening the visual impact. Homes will not have the same enjoyment of the rural landscape and any such mitigation methods will have a negative impact on the homeowners’ current enjoyment and serenity of their home & garden by being imprisoned by a wall of trees and hedges surrounding their homes. Not the visual amenity that most enjoy presently.
These mitigation methods will also increase the bushfire risk with increased tinder & leaf matter in very close vicinity to homesteads.

VISUAL AMENTIY

Visual Amenity is the value derived from satisfaction: the portion of an asset's value deriving from the benefit or satisfaction that its owner gets from owning it. This rather clinical definition however help's demonstrate that amenity value is a non-financial (and therefore in today's world) less tangible value that an object/area/view may have to an individual or group.

Visual amenity is quantified not by a dollar value but how something makes you feel. "Visual Amenity" is a measure of the visual quality of a site or area experienced by residents, workers or visitors. It is a collective impact of the visual components which make a site or area a pleasure to be in. In this context you can only value the impact for yourself.

Australian Courts are taking notice of the visual amenity issues relating to wind farms.
An Australian Court has blocked a wind farm planned by Spanish renewables group Acciona Energy.

Extract: Acciona has withdrawn its appeal against a ruling that barred its proposed 69MW wind farm at Allendale East because of its effect on local views- the first time an Australian **project has been blocked on "visual amenity" grounds**.

Full story can be found at:
www.rechargenews.com/energy/wind/article288937
Oliver Wagg, Brisbane.

This ground breaking case highlights the concern that wind farms do cause visual amenity disturbance in the landscape.
The State of Victoria recently took a far harder line with developers, setting a 2klm limit around homes and banning turbines altogether from many areas in the state.
The Bodangora Wind Farm has 3 residences within 1klm of turbines and this does not meet the Director General's Requirements.

8.9.0 View Point Selection Process

The EA states that 35 viewpoints were analysed, yet only 30 were documented. The proponent failed to assess all dwellings in or around the project area to 4klms and further.

An examination of the proponents viewpoint analysis was undertaken by the Bodangora Wind Turbine Awareness Group, which provided an alternative viewpoint to the assessment in the EA. Photographs that could be taken from the residences were taken and are within or nearby the project area.

In the EA assessment of the images, we found that there were discrepancies in the viewpoints, compared to the actual views from dwellings and other viewpoints.
We note that the proponents have taken the photos from roadsides and public access vantage points but have neglected to also include residences within and around the project area, which would have been accessible from the vantage points the proponent has used.
Some roadside viewpoints have been taken at secluded and minor rural roads that would have no assessment value to the impact of visual assessment of rural homesteads.

THIS ENVIRONMENTAL ASSESSMENT HAS FAILED TO ASSESS ALL DWELLINGS WITHIN OR NEARBY THE PROJECT.

35 homes within or nearby the project area have not been included in any visual assessment by the proponent.

They include, but not limited to:

Camla – Gillinghall Road
Gold Hill – Gillinghall Road
Gillinghall – Gillinghall Road
Hartford- Forrestvale Road
Westview Cottage – Driel Creek Road
Geenobby Cottage – Goolma Road
Geenobby Cottage No.3 – Goolma Road
Springdale Cottage- Spicers Creek Road
Budgiboma – Spicer's Creek Road
Bon View- Forrestvale Road
Fernleigh- Spicer's Creek Road
Fernleigh Cottage- Spicer's Creek Road
Budgalong Homestead No.2
Bodangora Village (12 dwellings)
Eden - Bodangora
Hill Head – Goolma Road
Inverness – Inverness lane off Goolma Road
Glen Mitchell Cottage – Bodangora Road
Knowles House Gillinghall Rd.
Wandrona – Wandrona Lane
Spicers Creek House – Goolma Road
Spicers Creek Post Office House – Goolma Road
Lechidale- Goolma Road
Jim Pratt's – Bodangora Road

All of these dwellings are within or nearby the project area.
The proponent has not included these residences for assessment for visual impact and therefore does not meet DGR'S

8.9.1 Process of View Point Analysis

On the 30th June 2012, The Bodangora Wind Turbine Awareness group, examined the viewpoint photographs contained in the Environmental Assessment for the Bodangora Wind Farm, we found many variations to actual views and views that had no relevance to the Bodangora Wind Farm. The proponent should have made the effort to contact the landowners of neighbouring properties, at least within a 4klm radius but did not.

We used a Cannon 40mm lens camera and the day was bright and sunny.
We travelled by car around the wind farm project area and used the roads and access tracks that will be used during construction stage. by.
The roads we used are listed below:

- Gillinghall Road
- Goolma Road
- Spicer's Creek Road
- Driel Creek Road
- Budgalong Road

Of the 30 BWF's Viewpoints in the EA. 14 of those were not accurate views of the property or homestead location, Most were taken at angles that potentially did not give an accurate Viewpoint Analysis.

The difference between the proponents viewpoints and their analysis is somewhat mythical compared to the actual "on the ground" location analysis. These viewpoints that should be from the homesteads and weren't, will potentially change the visual impact ratings for those dwellings, from nearest turbine locations.

Examples of this has been discussed previously in Viewpoint Analysis 8.3

The 12 homes located in Bodangora Village approx 2.5 klms from project area could have been assessed from the public road access, but none were in the EA. It is noted that viewpoints were taken from public access roads only.
We also note proponents were able to place sound monitoring devices at dwelling location homesteads for sound monitoring purposes in the very early stages of the proponents planning and the same due consideration should, and could have been placed on the homesteads for an accurate viewpoints of visual assessment.

Some of the EA viewpoints were taken from the property entrance, some of those entrances are kilometres from the homestead, this potentially minimises the visual impact rating. This is misleading and not a true and accurate viewpoint to assess residences.

8.3.2 *Viewpoint and Photomontage Analysis (Masterplan Vol. 1 Visual Assessment 8-10*)

TABLE 8.1 – Summary of Landscape Character Values – MasterPlan

Bodangora Wind Farm Environmental Assessment Visual Assessment 8-6

There are viewpoints that have been taken to reflect a positive outlook for those residents but in actual fact many of these residences, were either left out of the assessments altogether or viewpoints from these residences were taken at incorrect angles and positions to the actual homesteads, therefore creating a misleading interpretation of the viewpoint of visual impact.

Following are three Examples
12.2.2 Summary of visibility from nearby residences (page 73 Vol. 2)

EXAMPLE 1
Property name "Westview", Driel Creek Road BWF 17. Section 12.0 SUMMARY OF VISUAL IMPACT clearly states "Westview" as House 11, is not an involved landowner 1.63km to nearest turbine with 80% visible wind turbines "based on topography", Potential visual impact rated as LOW .
The proponent did not get consent from "Westview" owners or a site compatibility certificate prior to this EA was put on exhibition. "Westview" homestead is within 2klm does not meet DGR's

Photomontage 5. BWF 17 – "Westview"

Photomontage taken from "Westview" property entrance.
This is not the view from "Westview" homestead

LANDSCAPE DESCRIPTION 8.0 Viewpoint Analysis BWF 17:

Land Use: "Rural Residence"

SUMMARY OF VISUAL IMPACT 12.0 page 72.
12.2.2 Summary of visibility from nearby residences

The proponent claims "*Residence appears to be orientated away from the proposed wind farm with expansive views to the west. Woodland vegetation to the east would screen views of the proposed wind turbines."*

This is incorrect description of location of "Westview homestead"

"Westview homestead" has an easterly aspect at back of residence and extensive living and entertaining area that faces the east and the visual impact from 80% of turbines to be seen and 1.63klms from the nearest turbine the residence visual impact has not been correctly assessed and will have a significantly different visual impact to what has been assessed in EA.

On the same property "Westview" in Attachment F;

8.0 VIEWPOINT ANALYSIS - 8.2 VIEWPOINT SUMMARIES page 54

Viewpoint BWF 17 (PM05) the Environmental Assessment States

"Distance to nearest proposed turbine" is 0.88km."
The EA states another different distance to the nearest turbine for this property

The EA also states in; 12.2.2 Summary of visibility from nearby residences (page 73 Vol. 2) that "Westview" is 1.63klms from nearest turbine.
Clearly the proponent has no idea were turbines are placed to homesteads in the project area. The proponent has also claimed that "there are no residences within 2klms of the project area." (*Jonathan Upson BWTAG public meeting 22nd July 2012.)*

"Wesview" facing towards project area

Photo above: Actual view from the "Westview" homestead taken 30th June 2012 overlooking wind farm project area north east of homestead. (*photo bwtag)*

Below Photo from EA "Westview"(photomontage 05 – BWF17)

The two photos above of "Westview" are in stark contrast to each other; however the top photo taken by BWTAG is taken from the house with permission from the Mason family, whilst the proponents' photo is taken at the property entrance and not near the homestead. There is no assessment for "Westview Cottage" which is situated within 100meters of the main homestead.

Proponent failed to comply with Director General Requirements;

- Viewpoint was not taken from "Westview" homestead.
- Had the viewpoint been assesses from "Westview" homestead (E108deg) then the assessment potential visual impact would be rated differently.

- There is little or no roadside vegetation around “Westview” homestead. None that would mitigate the potential visual impact of 150meter turbines. This residence actually faces the project area to the East.

The letter below, to Frank Boland & cc Department Planning & Infrastructure, is from the Mason family expressing their concerns of proximity to turbines their house. The Mason family have given the BWTAG permission to reproduce this letter for the purpose of this submission.

15th July 2012
“Westview”
Wellington NSW 2820

My Husband, Michael and I **object** to the proposed installation of the proposed Bodangora Wind Farm in very close proximity of our home.
Apparently our home:” Westview Homestead” and “Westview Cottage” are the closest dwellings of all in the immediate area of the proposed wind turbines.
We object your operation for heath reasons, being the noise and the electrical current. We both have health issues. Michael has had a severe stroke and is mostly wheel chair bound and resides in “Westview Homestead” all of the time as a result. I have been ill with anxiety and depression.
We have noted in literature that the elderly, ill and the young are those most affected health wise by the impacts of wind turbines.
We believe we would not be able to comfortably reside anymore in our own home should the proposed Bodangora Wind Farm go ahead. We would be forced out of our own home.
We believe our home would lose value and we would lose privacy should turbines be installed and maintained.
Please take very seriously our letter. It is written truly and sincerely. We object to the proposed Bodangora Wind Farm.
Ann & Michael Mason

EXAMPLE 2.

8.3.4 BWF 22 – Entrance to “Geenobby” homestead House number 16.
The viewpoint BWF22 - to assess the viewpoint analysis should not be considered as an accurate assessment of the impact of visual assessment from residence 16.

Below is actual photo taken from “Geenobby” homestead, view looking towards a North

West view. *(photo Lyn Jarvis June 2012.)*

View from”Geenobby” homestead overlooking Gillinghall road were a Semi-trailer truck has entered left into Gillinghall road. View North West.

Below is view BWF 22 and is taken from the EA. *(Attachment F page45)*

Any potential impacts to this residence assessed in this EA would not be accurate as the positions of the viewpoint in relation to the actual view from homestead are 500meters apart and at different elevations. The EA has the view from the Mudgee Road and at the front entrance to property “Geenobby”; however the two photos are very different if the proponents are assessing the visual impact to homesteads.

“Geenobby” homestead is 500 meters from this viewpoint at a higher 26 meters elevation.

Any potential impacts could not be mitigated as stated in the EA- Viewpoint Analysis "Potential Visual Impact" page 45. A combination of topography and vegetation in the foreground is likely to obstruct views of the turbines". This impact is not possible from the home where elevation is greater than viewpoint analysed. Trees simply do not grow tall enough to mitigate the visual impact of 150 meter turbines.

Masterplan Visual Assessment 8-11 states Figure 8.8 provides an indication of a **moderate visual impact** nearby to neighbouring Dwelling 16, along Mudgee Road.

Then the expected visual impact to "Dwelling 16" as indicated in Table 8.2 is rated **as "nil-low".**

Two assessments of same dwelling are two different visual impacts assessment from the same viewpoint. Surely this is unacceptable that two views could be different.

The visual layout of turbines in relation to the horizon and skyline profile is

an important factor for consideration when assessing the effect at a viewpoint. The extent, pattern and proportions of structures in the view in relation to the scale and form of the landscape and the skyline are all important.

The method behind the assessment does not correspond to peoples views from their residences.

Visual Assessment does not meet Director Generals Requirements for assessment of visual impact from residences.

TABLE 8.2

8.9.2 Photomontages

Viewpoint and Photomontage Analysis

Bodangora Wind Farm Environmental Assessment 8.3.2 Chapter 8-10

The illustration of potential landscape or visual impacts using photographs,

wireframes and photomontage is now commonplace and expected in EIA, and video montage may soon become more widespread. The development of these and related visual or virtual reality techniques is now an area of major research and development interest. The issues are inevitably complex. Perkins (1992), for example, asks what influences *"perceived realism"*? Whilst image quality may be important, he points out that realism may be affected by the context or content of the image portrayed. A proposed windfarm placed in a remote landscape may be perceived by a viewer as containing an element of incongruity and inappropriateness that will affect their evaluation of the visualisation.

It should also be obvious that the human eye sees differently than a camera lens, both optically and figuratively. The focusing mechanisms of human eyes and camera lenses are different; human eyes move, and the brain integrates a complex mental image; human vision is binocular and dynamic, compared to a camera that tends to flatten an image. These and related issues of perception have already been referred to in section 3.4.

Shuttleworth (1980) is a relatively early example of a continuing body of work using photographs as surrogates for real landscapes, although the work is mainly concerned with landscape character and quality assessment, and not visualisation and realism *per se*. He points out the obvious differences and distortions between the two-dimensional image and the three-dimensional perception of a scene or viewpoint by a human observer. He stresses:
The need to insert aids in photographs to provide constancy scaling and perspective resolution. Perceptual ambiguity can be reduced if the field of view is as large as possible and if depth cues are deliberately included in the photograph.
Interestingly, Shuttleworth found that photographic simulation was most reliable in dealing with the overall perception of the landscape, but less reliable when dealing with perception of detailed elements and characteristics in the landscape.

A photomontage can imply a degree of realism that may not be robust, and can seduce even a critical viewer into investing more faith in that realism than may be warranted.
Certainly our case-study analyses confirm a widespread belief that photomontages almost always underestimate the true appearance of a windfarm from most viewpoints.

There can be several causes of this underestimation. The most obvious is the use of panoramic or wide angle lenses that produce subtle and sometimes not so subtle distortion.
Wide angle lenses in particular have the effect of enlarging the foreground and reducing or receding the background in a manner that directly under-represents the apparent magnitude of windfarms in landscape scenes. The general use of the 50 mm lens on a 35 mm format camera is recommended. For photomontage, the focal length of the lens used and other relevant technical detail should always be quoted.

A second reason is the common submission of visualisations that are relatively small, often accompanied by a recommendation to view them from an unnaturally short distance.
For example, some case-study ESs suggested viewing distances of 17, 23 or 24 cm. Our judgement is that this configuration is a strain on the eyes, is difficult or impossible to use and fails to capture any semblance of realism. Because most viewers will in practice observe these images from longer distances, a subtle but powerful under-representation of the visual effect is introduced.

A typical, comfortable viewing distance for reading A4 pages is 30-40 cm, and a typical, comfortable viewing distance for larger images at either A4 or A3 held at arm's length is 50-60 cm. We therefore recommend that what is comfortable and natural for the viewer should dictate the technical detail and not *vice versa*. This means that visualisations should be designed for typical viewing distances of 30 – 50 cm and that most visualisations should be correspondingly larger (a recommendation also made in Stevenson & Griffiths, 1994). A full image size of A4 or even A3 for a single frame picture, of approximately 20 cm is therefore to be preferred, rather than the common use of images with a height of approximately 10 cm.

The photomontages selected for this study have concentrated on assessments that do not refect the visual impact from dwellings; the proponent has either taken photomontages near property entrances or from roadside views that have no correlation to dwellings in the study area. Proponent claims that viewpoints have been selected to represent a range of landscape types, areas of high landscape value, representative of dwelling and roadside locations.

Only two of the photomontages are near dwellings and they are still approximately 500-1000 meters from the dwelling, so are not representative of dwellings in study area.

Photomontage locations were identified to represent the views of the closest affected neighbours to the wind farm, and to identify locations where high visual impact is expected. Identification of the photomontage viewpoint location is provided spatially in Figure 14 of **Attachment F**.

In Figure 14: Photomontage Locations, the proponents claim that this represents views from the closest affected neighbours. This is incorrect.

Figure 14 (page 56 attachment F) has identified 9 photomontages PM01 to PM09. These photomontages are not near any residences and only PM08 and PM09 have a dwelling relative close, of those two photomontages one; PM09 is of a stakeholder residence "Ahwahnee". We reject the proponents claim that these photomontages represent the dwellings of neighbouring properties.

Of the photomontages presented in Figures 8.1 -8.9, consider the following;

Figure 8.1 – from roadside not near residence.

Figure8.2 – Dwellings 24 and 25 are "unknown dwellings" to the west of the project area, they have been assessed as a moderate visual impact in this reference.

However, in 12.0 (attachment F page 73) Summary of Visual Impact , House 24 and 25 both "unknown" and 4.07km and 4.33km respectively to nearest turbine, with dwelling 24 having no potential visual impact recording in that summary whilst dwelling 25 is assessed as having a nil-low potential visual impact.

The proponents claim in photomontage these residences have a moderate visual impact in Figure 8.2, then go on to 12.2.2 Summary of visibility from nearby residents and the visual impact is note noted believed to be nothing and the other is assessed as nil-low.

Another contradiction of assessment and the proponent has again failed to accurately define the visual impact of residences.

The proponent has also chosen to use residences in this study of photomontages that are further away in distance to other nearby neighbouring residences that are within 3klms, the proponents could have chosen these residences that are at 4.07km and 4.33kms. There are 16 dwellings in the proponents Table 17 page 74 attachment F, that are less than 4.07klms from the nearest turbine , yet the proponents has not used these residences as their example of' final visual image'.

Figure 8.3 and 8.4 are not representative of the Bodangora Village. No Bodangora Village dwelling has been included in this visual assessment. Figure 8.4 is from Driel Creek road, a minor rural road used only as a 'farm access track'. There are dwellings within 1klm of these photomontages, but proponent has not included those for assessment.

Figure 8.5 or House No. 11 (12.2.2 attachment F page 74) is 1.63klms from nearest turbine, yet proponent claims that turbine 40 has been removed, we have no substantial evidence of this and there has been no indication or studies of any "substantial" reduction in visual impact for this dwelling that is in the EA document. The removal of any turbines should be determined prior to any Landscape and Visual Impact Assessment so a more accurate assessment can be untaken. It is not established by proponent if the turbine is deleted or removed or been relocated to another site in the project envelope.

Figure 8.6 provides a photomontage of dwelling 10 an associated dwelling, this study indicates that dwelling 10 will receive a high visual impact but in 12.2.2 (attachment F page 74) House 10 which is 0.87klms from nearest turbine has been assed as nil –low. Another contradiction of assessments.

Figure 8.7 provides a photomontage of dwelling 4 an associated landowner with an expected visual impact of moderate. Yet in 12.2.2 (attachment F page 73) House 4, o.67klms from nearest turbine has been assessed for potential visual impact as low. Another contradicting assessment by the proponent.

Figure 8.8 provides an indication of Dwelling 16, a nearby neighbouring dwelling and the proponents claim to expected visual impact is moderate. Yet for this dwelling 16 in 12.2.2 (attachment F page 74) this dwelling is rated as nil-low.

Visual Impact to dwellings Chapiter 8 (page 8-23 Vol 1 EA)

From the information provided by the proponent in the Environmental Assessment they have failed to accurately assess the neighbouring and nearby dwellings and included in their assessment associated landowner houses that have a financial agreement with proponent. It is not a true refection of the assessment of the neighbouring dwellings and the proponent has failed to make those assessments available in the EA.
The proponent claims, highest visual impact of the proposed development is expected within a 2.0 kilometre radius of the wind farm and all dwellings located within a 2.0 kilometre radius of any turbine are associated landowners this is an incorrect statement and is misleading the Department of Planning and Infrastructure.

Briefly the homesteads that are non associated that are within 2klms from information in this EA are, "Westview", "Bodangora Station" and "Marakari", we will expand on this later in this submission.

Views of turbines from neighbouring dwellings 13 and 13B have not been assessed correctly and no assessment was taken from the homesteads, the viewpoints for these dwellings were taken from the Mudgee road, but do not accurately portray the dwellings view towards the turbines.
Dwellings 14 and Dwelling 15 have no potential visual impact (12.2.2 attachment F page 74) and dwelling 14 is located high on a rise looking towards the turbines in south west direction, screening will not mitigate the visual impact of dwelling 14. Dwelling 15 also has not been assessed for potential visual impact (12.2.2 attachment F page 74). Proponents' studies for these two dwellings have not been found in this EA.

The proponent claims that dwellings 16, 20 and 21 will be generally contained by undulating topography typical of the area. The proponent has not assessed the loss of vegetation that will be caused by construction phase and the impact the views from these dwellings will have after the loss of the generally uncleared landscape this area presently has.
Dwellings 20 and 21 are unknown by the proponent and unidentified in the Ea, however both these landowners were in the original scoping of the area in the early stages in 2008 and have had contact with the proponent on that occasion. It seems unlikely that the proponent can not identify these landowners in the studies. Further, it goes to dismiss claims of the proponent that they have extensively consulted all neighbouring landowners of the project. These would be two that proponent have not sent mail outs and contacted.

Proponent claims that there will be no expected views of the sub station or views of overhead 33 kV transmission line, yet no studies or modelling are in the EA to substantiate these claims.

The EA clearly refers to Dwellings / House 07, 08 and 09 (12.2.2 attachment F page 73), that "homesteads will have views of overhead power lines. Proponent has again produced contradicting and misleading information to form part of this Environmental Assessment.

In some cases roads and or property addresses, were listed as "un-known" but with some consultation from residents, this information would be clear. Unfortunately desk top studies do not have the " ground truthing" detail that is expected to fully assess visual impacts with more realistic viewpoints.

Example of "un-known" properties and misleading information

- BWF 07- Windora Road - the property "Girraween" is very close proximity to this view but not assessed.

- EA states references to Dwelling 24 and Dwelling 25 yet actually in FIGURE 8.2 in Masterplan EA these dwellings are not included.

- FIGURES 8.3 -8.4 The Visual Impact to Bodangora Village has been rated as moderate to High, There are some residents homes are within 500 meters of the viewpoint BWF15, those dwellings have not been assessed.

8.9.3 View Point Locations

Bodangora Wind Turbine Awareness summary of discrepancies of viewpoint analysis in comparison to the BWF viewpoints in Environmental Assessment 8.0 attachment F.

BWF 04 – Forrestvale Road (photo from EA attachment F 8.0)

"Forrest Vale" homestead is within close vicinity of this viewpoint, but was not assessed for visual impact.
BWF04 – *Forrestvale Road (5.89Klm) 80% visibility "Forrestvale" and "Bonview" Homesteads have not been assessed from this viewpoint and therefore their impact has not been included in EA.*

BWF 08 *(photo from EA attachment F 8.0)*

BWF 08 – Note view taken from entrance of property "Bodangora Station" not from residence, 600 metres from this viewpoint.
BWF 08 – *Montefiores Road NR Elong Elong Road "Bodangora Station" viewpoint is assessed from the property entrance. The homestead is located 600 meters from this viewpoint, so could not be considered accurate assessment of the impact to this residence.*

BWF 10 (*photo EA attachment F 8.0)*

BWF 10 – Note view taken from property front entrance, not dwelling

BWF10 – *"Marakari" Viewing distance from nearest turbine as per potential visual impact is 2.85klms. Yet the homestead is within 1klm of the nearest turbine... Note that this residence 'Marakari" is not included in 12.2.2 – Summary of Visibility from nearby residences.*

BWF 11 *(photo from EA attachment F 8.0)*

BWF 11- Note view taken from property entrance

BWF11 – *Bodangora Road – Entrance to Property 1008 Bodangora road. 2.24 klms from nearest turbine, not included in 12.2.2. The homestead's visual impact will be different to the viewpoint as it is set high on a hill approximately 500 meters from this viewpoint.*

BWF 12 *(photo from EA attachment F 8.0)*

BWF 12- Note view taken from 150 meters from "Glen Mitchell" property entrance.

BWF12- "Glen Mitchell" Bodangora Road. 2.68 klms from nearest turbine with 20% visibility. This viewpoint was taken to the north. The viewing direction in EA states photo taken from EAST. The Project area is North East of this viewpoint.

BWF13 *(photo from EA attachment F 8.0)*

BWF 13 – Note view taken 150 meters from the entrance to 135 Dick Street Bodangora Village.

BWF13 *Bodangora Road – Bodangora Village. 2.99klms from nearest turbine, with high visibility. There is a densely populated area within the Bodangora Village and these residents have not been included in any impact assessment*

BWF 14 *(photo from EA attachment F 8.0)*

BWF 14- View was taken across the road approximately 200 meter from "Lechidale" homestead.

BWF14 – *Mudgee Road and Bodangora road intersection. This viewpoint has not included two homes at this viewpoint, Pratt's residence 200meters west and the "Lechidale" historic homestead which is directly opposite to the viewpoint. Both have not been included within this assessment.*

.

BWF 15 *(photo from EA attachment F 8.0)*

BWF 15- Homestead "Eden" is located within 150 meters of this viewpoint

BWF15- *Driel Creek Road- From this viewpoint there is a property "Eden" within the Bodangora Village located, that is within very close proximity to this viewpoint which is 2.65klms with an 80% visibility. Yet this residence has not been included in assessment.*

BWF 16 *(photo from EA attachment F 8.0)*

BWF 16 – Random rural viewpoint, should have included surrounding homesteads at Bodangora Village

BWF16 – *Driel Creek Road. This viewpoint is from a very minor unsealed road, only used by local farmers to access the property "College Green" (host), has little relevance to visual impact. Whereas BWF15 could have benefited from a more detailed assessment.*

BWF 17 *(photo from EA attachment F 8.0)*

BWF 17 – "Westview" This is from the property entrance and homestead view of turbines is not relevant to this viewpoint**.**

BWF17- "*Westview". This viewpoint has been taken from the property entrance with a south east direction towards project. This viewpoint is not indicative of the actual viewpoint from "Westview" homestead and "Westview Cottage", both homes located within 100 meters of each other and the viewpoint assessed as high and potential visual impact as moderate. The view from these homes will not have the vegetation as stated in EA and will not screen the view because there is no vegetation from these homes outlook to the south east. It is important to note that these two residences are within 2klms of the Bodangora Wind Farm.*

Statement from Bodangora Wind Farm Environmental Assessment Visual Assessment *(8-23 .Vol 1.)*

"The highest visual impact of the proposed development is expected within a 2.0 kilometre radius of the wind farm."
All dwellings located within a 2.0 kilometre radius of any turbine are associated land owners." **This statement from proponent is incorrect and mis-leading.**

'"WESTVIEW" is 1.68klm from nearest turbine and is **not an associated landowner**. (See below attached letter from the Mason family landowners "Westview".)

In the absence of landowner consent then proponent needs a Site Compatibility Certificate for this property. A SCC has not been documented, either on DOP website or in the EA.

The Department of Planning
& Infrastructure
G.P.O. Box 39
Sydney NSW 2001
10th July 2012

Dear Sir,

RE: BODANGORA WIND FARM PROPOSAL MP10-0157

We, the owners of property "Westview" Spicer's Creek, Wellington object to the wind farm proposal.

"Westview" is located within 2klms of the project and according to the Environmental Assessment "Westview" will be located 1.63klms and 0.88 klms from the nearest turbine.

We have not had adequate consultation on the project and particularly the consultation required as per the Director General's requirements for dwellings located within 2klms of the proposal. Nor have we signed any consent for "Westview" to be sited within 2klms of the nearest wind turbine.

Yours Faithfully,

Joe Mason
Spicer's Run Pty. Ltd.
Spicer's Creek
Wellington NSW 2820

BWF 19 (*photo from EA attachment F 8.0)*

BWF 19 – View taken at property entrance to property "Wandrona". Buildings in right background of photo are of "Landsgrove", an involved landowner.

BWF19- *Wandrona Lane- entrance to "Wandrona" homestead. This viewpoint is misleading as the "Wandora" homestead is a further 3.5klms in distance from this viewpoint*

BWF 22 *(Photo from EA attachment F 8.0)*

BWF 22- Taken from property entrance to "Geenobby" off Mudgee Road.

BWF22- *Mudgee Road – This viewpoint is taken from the front entrance to the property "Geenobby" at an elevation of 477meters, yet the homestead is at 503 meters elevations and this would substantially alter this viewpoint from "Geenobby" homestead. The viewing direction from the homestead is to the North West. This viewpoint is in the direction of north. The visual sensitivity from this viewpoint has been assessed as "moderate" due to the land use as a "major travel corridor".*

This viewpoint is confusing as it describes the land use as a major travel corridor yet the property "Geenobby" is a working Stud Beef Cattle enterprise and the proponent have not made an attempt to assess the visual impact of this dwelling. It is a false impression to assess the BWF 22 as a major travel corridor and exclude the dwelling's visual impact.

BWF 23 *(photo from EA attachment 8.0)*

BWF 23 – View taken from property entrance to Mt. Bodangora

BWF23- *Mt. Bodangora – This viewpoint position is not of any relevance to the two homesteads known as dwelling 13 and 13B. "Mt. Bodangora Homestead" and "Mt. Bodangora Cottage". Therefore Mt. Bodangora impact can not be assessed as accurate visual impact. "Mt. Bodangora Cottage" has no vegetation around the home and is another 300 north west of the* main homestead.

BWF 26 *(photo from EA attachment F 8.0)*

BWF 26 – View taken from property 'old entry' "Spicer's Run" not "Gillinghall" as stated in EA.

BWF26- *Spicer's Creek Road- This viewpoint was assessed looking towards a southerly direction to "Gillinghall" property. A neighbouring property to this viewpoint. The proponent has incorrectly identified this viewpoint. It is in fact the property "Spicer's Run" and "Gillinghall" is located 500mtrs west of this viewpoint*

Photo below of "Gillinghall" property homestead;

"Gillinghall" homestead west of viewpoint BWF 26. *(photo bwtag June 2012)*

- *"Gillinghall" property, located 500 meters from viewpoint BWF 26.*

- *'Gillinghall" homestead has not been included in any assessments.*

- *Proponent has failed to assess "Gillinghall" in the Bodangora Wind Farm Environmental Assessment.*

BWF 28 (*Photo taken by bwtag June 2012)*

*"Old School Residence" Spicer's Creek. This residence has not been assessed from viewpoint BWF 28 (photo bwtag***)**

BWF28 – *Spicer's Creek Road /Mudgee Road Intersection- This viewpoint is 3.97klms from the nearest turbine and has a residence located directly behind the viewpoint. Actually across the road from viewpoint BWF 28.*
The proponent has not included this residence in any visual impact assessment in the Bodangora Wind Farm Environmental Assessment.

Of the examples above of discrepancies in the viewpoints, the proponent has failed too accurate assess the potential visual impact from dwellings located near the viewpoints, and most of the residences highlighted above could have been assessed from the viewpoints taken if the photographs were taken at different positions to best represent the homesteads. The proponent has used views that do not represent the actual viewpoint of dwellings and therefore does not comply with the Director General's Requirements.

8.10.0 Visual Effects & Assessment

The EA references turbine height of 150 metres, the Telecommunication section uses Suzlon S88 turbines for the calculations and proponents have not declared what turbine will be used. (See attached email below –Frank Boland).

12/6/2012
Hi Lyn,

Hope you had a good long weekend.

We are yet to formally decide which turbine we will be installing at the Bodangora project; therefore we don't have a construction certificate. Could you please elaborate further on what you need it for and I might be able to provide something similar for you?

Regards. Frank

Frank Boland
M +61 423 778 125

Vestas V112 are referred to on page 2.5 –Assessment of Project Alternatives.

Clearly the turbines had been decided but the proponent misleads by not being transparent on turbines issue. It does not make sense why Infigen would withhold important information such as turbine size

The Major Project application states 25 – 40 turbines.

The EA -Chapter 3-Project Description states maximum of 33 turbines each with a generation capacity of 2.0 and- 4.0 MW. A total installed capacity of 120 MW. Depending on the Turbine model selected and the number of turbines installed.

Without the accurate data and turbine models it would be very difficult to assess any of the data complied within this EA. Specifically to Visual assessment of photomontages. The proponent uses "worst case scenario", implying that there is some doubt as to what Wind Turbines will be used. This is unacceptable as data would vary with each different turbine specifications and visual impact from turbines 150 meters or 180 meters in height.

The wind turbines referred to in EA are 150 meters high. They will be sited along ridgelines. Viewing the turbines from the valley floor, for instance, as will be the case from a significant number of residences, will increase the height impact. For instance "Geenobby" homestead

is 25meters higher than the viewpoint were the potential visual impact, with “some filtered views” and 80% of visible turbines is rated as Potential visibly impact NIL to LOW (section 12- summary visual effects page 74 volume 2.) The process of the method to assess the visual impact the proponent has already noted it is not accurate portrayal, so if we do not know what turbines are being used in project and the methodology is flawed then we conclude this EA is nothing more than a document that is making uneducated guesses to what may or may not be the case for the visual impact of the Bodangora Wind Farm.

While distance and scale of landscape can produce different perceptions of the impact on the landscape the human eye is often drawn to ‘artificial’ vertical features, regardless of distance, making them seem bigger. This is something that cannot be reproduced in a photomontage especially when a wide angle lens is used where the superimposed wind turbines will seem more distant, particularly in the centre of the picture. The photomontages give a sense of turbines that have been “faded out” and therefore we feel are not a true representation of the final visual impact.

There are a range of generic issues concerning visual impact assessment, based on a consideration of the evidence gathered from all the assessments made at all the viewpoints visited, and considering the literature examined and the environmental statements reviewed. We concentrate on visual effects and leave the key issues surrounding technical visualisation to the final discussion.

Although it is tempting to try to offer specific and conclusive diagnoses or prescriptions, it is clear that the wide variety of factors that influence the core issues under investigation – magnitude, distance and visibility – are such that any generalisation is dangerous. On the other hand, practice cannot proceed effectively if the conclusion is that there are so many variables that nothing useful can be said. An attempt is therefore made to strike a balance between definitive conclusions and an acknowledgement of the context specific issues that can affect these conclusions. Whenever a comparison is made– for example, that movement increases apparent size or visibility – this is always assuming that other factors are held constant (e.g. light, distance etc).

The character of the landscape and especially elements within it affect perceptions of magnitude. In landscapes that were free of man-made elements the turbines were sometimes much more conspicuous in the middle and long-distance ranges and this could affect our judgements of their magnitude. Windfarms or turbines framed by other developments sometimes had a greater apparent impact than those with no framing, because the other elements provided visual cues for judging size, depth and distance.

Why are the scenic issues any different from tree removal?

Effectively, the NSW government has placed ownership of the scenic landscape in the hands of households. However, in comparable situations such as cutting down

neighbourhood trees, the right to veto is held with the local council. This is also the case for wind farms in many other countries.

***In the NSW policy the consent for development must come from individual property owners. This appears to go against the spirit of "consent" in the State Environmental Planning Policy (Infrastructure) 2007 which is made under the Environmental Planning and Assessment Act 1979. It defines consent with reference to the "consent authority" – the council, minister or public authority having the function to determine the application*.**

If requiring individual household consent is deemed a more satisfactory model, it should also be the case for tree removal and coal seam gas mines.

Based on average wind speeds, NSW has relatively low capacity and therefore low potential wind resources in comparison with Victoria, South Australia, Western Australia and Tasmania. *(E-Brief Wind Farms: regulatory developments in NSW Page 3 of 13)*

Issues in Debate

(E-Brief Wind Farms: regulatory developments in NSW Page 3 of 13)

While the benefits of wind power are acknowledged, various concerns and issues also figure in the debate. The issues involved are of concern to all levels of Australian government and feature as part of the broader debate about the development of renewable forms of energy. These issues include:

- The contribution of wind to emissions abatement and government targets for renewable energy;
- The role of wind energy in ensuring a reliable supply-demand system for electricity;
- Economic competitiveness of wind energy when compared to other electricity generating technologies;
- The proximity of wind farms to residential dwellings;
- Health concerns for those living in the vicinity of wind farms;
- Noise impacts;
- Community involvement in wind farm development; and
- Brief Wind Farms: regulatory developments in NSW Page 3 of 13
- Visual amenity and environmental impacts.

.

The Draft Planning Guidelines set out a framework for the assessment of the impact of a proposed wind farm on the landscape character, landscape values, visual amenity and any scenic or significant vistas. The assessment must take into account: The visibility of the proposed development; the locations and distances from which

the development can be viewed; Landscape values and their significance; and the sensitivity of the landscape features to change.

LANDMARK COURT CASE OF VISUAL AMENITY IN AUSTRALIA

Man vs wind farm 1-0 - ABC South East SA - Australian ...

www.abc.net.au/local/stories/2011/06/22/3250488.htm

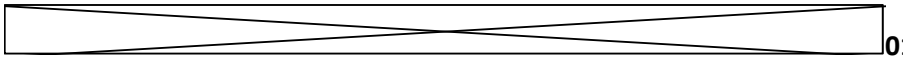
22 June, 2011 6:37PM ACST
Man vs wind farm 1-0
By Tash Impey (Cross Media Reporter)

In a decision that has rocked the renewable energy industry courts have ruled in favour of a man who lodged an appeal against the development of a proposed wind farm in Allendale East on the basis of visual amenity.

Wind farms- which way will the wind blow? » Mellor Olsson

*www.mellorolsson.com.au/.../**wind**-**farms**-which-way-will-the-**wind**-b...*

Wind farms- which way will the wind blow?



01-02-2012

There is no doubt that South Australia is at the forefront of wind energy, with it now contributing over 20 per cent of annual electricity production. Despite the prominence of this industry, the reaction to wind farms has been mixed.

There are a number of recent court decisions regarding wind farms. An appeal in the Environment, Resources and Development (ERD) Court against a Council's decision to approve a wind farm in the State's South East highlighted some of the concerns in relation to wind farm developments.

Acciona Energy was given Development Consent by the District Council of Grant to erect 46 turbines near Allendale East. A local farming family appealed against the Council's decision. Three main issues were dealt with on appeal – visual impacts, noise generated from the turbines and health effects.

In South Australia, development applications are required to be assessed against a Council's Development Plan. The Council's Plan included provisions for the development of renewable energy facilities in "appropriate" localities, as well as a number of provisions seeking the retention of the "existing pleasant rural landscape". The Court concluded that both objectives could not be achieved, and determined that the turbines proposed would be incongruous and would detract from the existing character and visual amenity to an

unacceptable degree, due to the height, scale, number, siting and overall appearance of the wind turbines in a flat, pleasant rural landscape. On this basis the Court upheld the appeal and overturned the decision of the Council.

Does this sound like a person who cares?
"It is a fundamental tenant of any planning system that the decision of the 'responsible authority' must be final; a planning approval can not be rescinded, once given. NIMBYs are most often concerned with visual impact"
Jonathan Upson (Review of EPBC ACT)
Babcock & Brown

Another example of Visual Amenity and the Law

1 Penelope Crossley Sydney Law School New Law Building (F10 ...

www.planning.nsw.gov.au/LinkClick.aspx?fileticket=UV...

Penelope Crossley
Sydney Law School
New Law Building (F10)
The University of Sydney
Sydney NSW 2006
Ph: 02 9351 0388
Email: penelope.crossley@sydney.edu.au
3 February 2012

Policy, Planning Systems and Reform
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

To whom it may concern
Draft NSW Planning Guidelines for Wind Farms
Thank you for the opportunity to comment on the Draft NSW Planning Guidelines for Wind Farms ('the **Draft Guidelines'**).
As an academic and lawyer who formerly practised in this area, one of my fields of research is the use of private nuisance claims against wind farm developments.1 This research is relevant to the development of the Draft Guidelines, because while planning permission reflects that the planning approvals body believes that the benefits of the wind energy project outweigh any negative impacts to neighbouring landowners, it is not a defence to any subsequent private nuisance claim2 as it is not
1 See for example, Penelope J. Crossley, (2011) 'Private Nuisance: An ill wind for wind energy projects?' 19(2) *Torts Law Journal* 135-152

2 Private nuisance has been defined as ‘the unreasonable and unjustified interference by the defendant in the use of his land with the plaintiff’s right to enjoy his property.’ *Sedleigh-Denfield v O’Callaghan* [1940] AC 880 at 902 (Lord Wright). Three types of interference have been recognised by the courts as constituting a nuisance:
(a) causing encroachment onto a neighbour's land, short of trespass;
(b) causing physical damage to a neighbour's land or any building works or vegetation on it; and
(c) interfering with a neighbour’s comfort and convenient enjoyment of his or her land. 2 Thus planning permission does not prevent any interference from a neighbouring wind farm being a nuisance.Planning permission will, however, alter the character of the locality by which any subsequent private nuisance claim is judged, with the question of private nuisance being decided by reference to a locality ‘with that permitted development or use and not as it was previously.’3

2. The impact of wind farms on visual amenity

In order to achieve optimal turbine effectiveness, wind energy projects are normally situated in exposed positions ‘above other erect structures such as trees, buildings, and other obstacles so as to limit any disturbance in the wind flow.’7 This means that wind energy projects are often located in rural or semi-rural areas with fewer built structures and the wind turbines are highly visible. Indeed, Wawryk has noted that many of the best wind speeds are in coastal areas which are often areas of
7 J M Sloan, ‘Wind Energy Development in the United States: Applying the Nuisance Argument to Address Impacts to Visual Values’ Paper presented to Virginia Polytechnic Institute and State University (15 August 2009). 4 In addition, wind energy project sites are ideally located close to where the electricity generated will be used, due to the higher rates of load loss over longer distances. 5

Recommendations: *That any impact on individual visual amenity be weighed against the social utility and public interest in NSW meeting the 20% renewable energy target by 2020. That the meaning of the phrase 'the zone of visual influence of the wind farm (no less than 10 km)'19 be clarified.*

19 NSW Planning and Infrastructure, Draft NSW Planning Guidelines: Wind Farms, (December 2011), 4

20 Ibid, 6

Yours sincerely

Penelope Crossley
Lecturer
Sydney Law School
Ross Parsons Centre for Commercial, Corporate and Taxation Law

8.11.0 Shadow Flicker

Blade glint and shadow flicker have been much investigated, and there is general agreement that neighbours need to be protected from them. However, the draft Guidelines only require these to be assessed in relation to residences within 2 kilometres (p. 20) This distance may not be enough. Dr David McBride and Mr Bruce Rapley have written on these topics in an essay 'Blade Flicker, Shadow Flicker, Glint: Potential Hazards of Wind Turbines', published in a peer-reviewed volume of essays. They conclude:

> Of more significance [than Photosensitive Epilepsy] is the general annoyance and visual nuisance that can be caused by the sun either being occluded by the blades (blade flicker) or the resultant shadow falling across a building (shadow flicker) or close to people. This can be very irritating even if it does not cause an immediate health problem such as triggering photosensitive epilepsy. Wind turbine farms should not be placed so close to human habitation as to cause significant shadows falling on any structures or outside areas where people normally would congregate. This problem would largely be eliminated by siting turbine farms more than 2.5 km from human habitation, although glint may require a greater setback distance. (McBride and Rapley, 2010, p. 91)

In view of McBride and Rapley's recommendation, the Guidelines should stipulate that an assessment should be made for blade glint, blade flicker, and shadow flicker on all residences within 3 kilometres. This will fit in with the need to do a visual assessment on all residences within 3 kilometres, because – as we have seen – a wind farm is likely to dominate its landscape out to 3 kilometres from turbines.

The fact that the Guidelines stipulate an examination of shadow flicker only in relation to residences within 2 kilometres, and that the Department has paid no attention to the enhanced visibility of wind farms in hilly terrain, or to McBride and Rapley's study (published in 2010)

Any moving object that passes between a light source and an observer has the potential to cause flicker—a repeating cycle of changing light intensity for the observer. In this context, flicker relates to the perception of fluctuating brightness at frequencies lower than those covered by persistence of vision. Persistence of vision is the retention of an image on the retina of the eye after the optical excitation is ended. This is very important in cinematography that presents a series of very brief images in quick succession on the screen that the eye interprets as smooth, flowing motion, rather than a series of jerky still images. Old movies that were shot at a very slow speed display this flicker. Just think about seeing an old Charlie Chaplin movie to recall observing this effect. Modern movies are shot at 25 frames per second that is faster than the eye can detect the flow of images as a series of individual frames.

People will notice flicker at frequencies usually less than 50 Hz, although this varies with intensity. Above 50 Hz, the brain's response to the flicker lasts longer than the flicker itself and the persistence of vision takes over and converts the flicker into a continuous image.

It is known that flicker frequencies between 10 to 25 Hz can cause problems such as eyestrain, headaches, nausea and seizures. The latter effect will be covered in more detail in the section on photosensitive epilepsy.

There are many sources of flicker in everyday life, Table 1.

For wind turbines, the rotating blades passing in front of the sun from the observer's perspective will cause a flashing series of light/dark images to pass across the eye (retina). This is referred to as Blade Flicker. If the observer is looking at the ground or another object, such as a building, the shadows of the rotating blades will cause reflected images to pass across the retina. This is referred to as Shadow Flicker.

The blades of wind turbines are generally white and as such can reflect the sun, like a mirror, and this effect is called Glint. As the blades are often rotating, an observer could potentially observe flicker, shadow flicker and glint almost simultaneously, depending on the exact angle of their vision. The question is: are these phenomena annoying or dangerous? To answer this it is necessary to examine three potential areas: photosensitive epilepsy, visual distraction and annoyance...

The Shadow Flicker reference in the Environmental Assessment (EA) as assessed by Aurecon in 2011 (Figure 17, below) is not a true representation of shadow flicker, particularly for houses situated to the Southeast or Southwest of the project. This figure only displays shadow flicker information for houses to the East and West of the project.

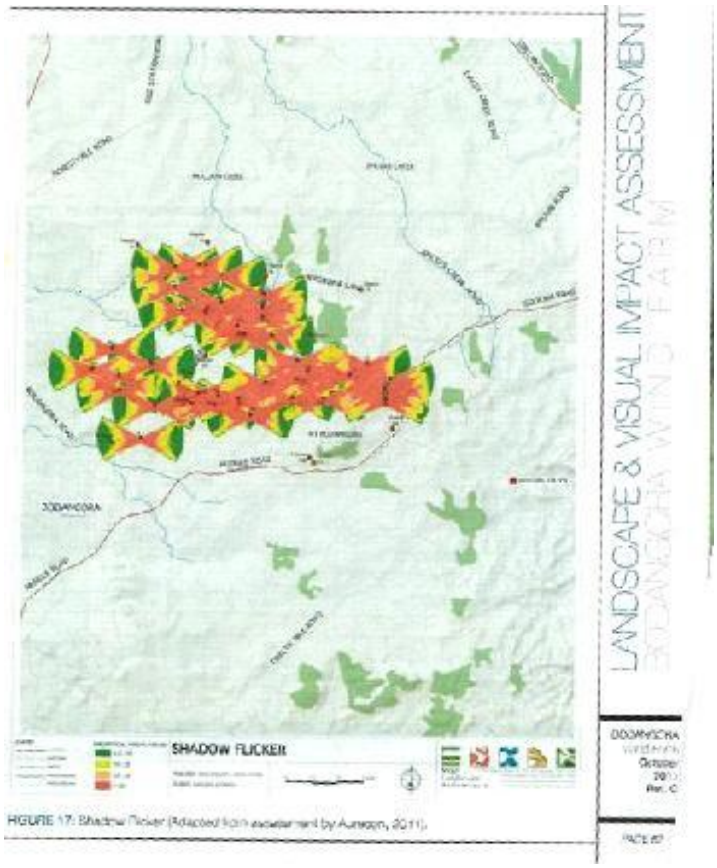


FIGURE 17: Shadow Flicker (*adapted from assessment by Aurecon, 2011)*

This shadow flicker study in the Environmental Assessment (*attachment F 10.0 Visual Effects page 67.)* does not include data to support the claims of the proponent.
There is no direction of residences available in relation to shadow flicker and not all residences are in study group.
No distances are represented from turbines in relation to dwellings
There is no data in relation to turbine hub height and rotor diameter.
The study does not give the time of year this study was undertaken.
There are no studies that support the daylight hours which turbines operate.
No metrological data to support the proponents claims to assess the frequency of bright sunshine and cloudless skies
There is no wind direction data available for elvaualtion.
The proponents' claims that local influences including screen planting should also be considered when assessing the potential shadow flicker from the proposed development, but proponents have not used their own methodology for this assessment in the EA document.

Photos from EA 10.0 Visual Effects page 67 attachment F

Examples of shadow intensity variation with distance and turbine blocking small proportion of sunlight that the proponent has supplied for shadow flicker. (Source Aurecon, 2011)

The proponent has not given height dimensions or distance, size and topography or supplied what hemisphere these images were taken. We reject the claim that these images will reflect the true accuracy of Shadow flicker from the Bodangora Wind Farm.
The example of shadow flicker on roads again is the same as for the previous photos, meaningless and not site specific. The tree lined road that is represented could be sited anywhere in the world and has no relation to the Bodangora Wind Farm

Photo from EA page 68 attachment F

Example of shadow flicker on roads

Example of shadow flicker on roads

This example is also a ‘highway type’ of road that is not a true indicator of the roads in the Bodangora Wind Farm project.

Figure 5.3: Shadow Calculation

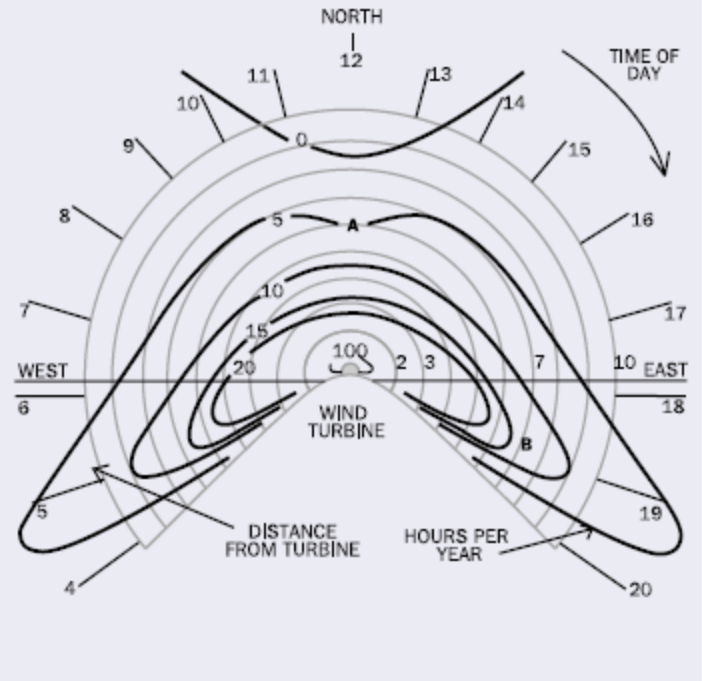


Figure 17b. Shows the actual shadow created. Note that the shadow is not directly left to right (west to east) and there is various directions of showdown created depending on the sun location.

8.12.0 Blade Glint and Reflectivity

The proponent has not included any studies for the Bodangora Wind Farm and the impact on the residences and rural landscape. The mitigation of low reflectivity and matt coatings, if done, (attachment F page 69.) which suggests that the proponent may not do any mitigation of Blade Glint

Direct sunlight shining on the turbines, either intermittently as the sun moves in and out behind clouds, or for longer periods in bright clear conditions, have the effect of increasing the prominence of the structures and this effect operated over a wide middle distance range. Viewpoints to the south of a windfarm (in the arc from east through south to west) experience this effect whereas back-lit effects occur at viewpoints to the north (in the arc from east through north to west).

Glinting, as the sun is reflected directly into the eye of the observer, can occur over long distances, at least up to 12 km, but is very occasional and is also sensitive to very small changes in angle of view. A flickering effect as the movement of the blades casts a shadow on the tower can occur in bright sunlight and can attract the eye at relatively short distances of from 3 - 5 km; this effect is most marked when the angle of the sun is low in the sky.
These potential effects should be considered for viewpoints involving residents or motorists.

The seasonal effects of light (linked with weather and cloud cover) should be considered in relation to human receptors. For residents, year-round conditions are relevant. For tourists and other recreationists, winter conditions will affect fewest people and summer conditions will affect most.

The movement of the blades, in all cases where this is visible, increases the visual effect of the turbines because it tends to draw the eye. Movement with clarity at distances up to 15 km in clear conditions or conditions of strong contrast between the rotors and the sky, but only if you are looking at the windfarm.

8.12.1 Night Lighting

Night lighting NSW Draft Guidelines

Where night lighting is proposed, its visual impact should be assessed. Photomontages should be provided showing representative views of any turbine night lighting. Night lighting should be limited to that required for aviation safety. The lighting should be designed to minimise impacts on the ground and at dwellings while providing for appropriate aviation safety. Glare from night / obstacle lighting can be mitigated through measures such as:

; reducing the number of wind turbines with lights to that required for aviation safety. Using obstacle lighting that minimises light intensity at ground level, mitigating light glare from obstacle light through measures such as baffling.
The EA states that existing night time illumination originates from isolated homesteads and motorists travelling along local roads.
And night lighting should not be used as an issue on the Bodangora Wind Farm. This may be the case for human population but any night lighting will affect the nocturnal bat and bird species. Refer Ch. 8.
The EA also states that in attachment F 10.8 page 69 "there will be night lighting of the turbines."
No night lighting has been assessed in the Bodangora Wind Farm Environmental Assessment.

8.13.0 Cumulative Impacts & Cumulative Visual Impacts

The tranquil rural landscape setting of the Bodangora region will be impacted by this wind turbine development. The present landscape is low topography and heavily vegetated with ridgelines in the distance.
Wellington is a town in inland New South Wales, Australia located at the junction of the Macquarie and Bell Rivers. The town is the administrative centre of the Wellington Shire Local Government Area. The town is 362 kilometres from Sydney on the Great Western Highway and Mitchell Highway.

We have listed below the **KNOWN** wind farms (* = Mid-Western Council Community News dated December 16th 2011) in the area. This total between 658 and 776 wind turbines ranging from 2.5, 3.2 and 4.5 megawatts.

*Windamere Wind Farm	30-40 Turbines
*Ilford Wind Farm	8-10 Turbines
*Crudine Ridge Wind Farm	70-106 Turbines
*Uungula Wind Farm	(330) now - indications are 250 Turbines
*12 Mile Wind Farm	10-15 Turbines
Bodangora Wind Farm	40 Turbines

Hargraves to Triamble 330 Turbines (in early stages of wind monitoring)

None of these wind farms have been assessed by the proponents of the Bodangora Wind Farm and the cumulative impact on residences within the Wellington and Bodangora areas. The BWF- EA does not contain any information of the above proposals.

8.13.1 Cumulative Visual Impact

An assessment has been provided on the cumulative landscape and visual effects of the development, in association with other planned developments in the locality of the proposed wind farm, and according to the way a landscape is experienced. The cumulative impact of the wind farm can generally be assessed through the determination of the distance of the proposal to other
developments. The Environment Protection and Heritage Council defines the potential cumulative
visual impact as high visual impact within 3.0 kilometres, medium visual impact around 6.0 kilometres,
and low visual impact at more than 12 kilometres.

This paragraph in Chapter 8 Visual Assessment 8-30 of the EA clearly states a high visual impact within 3klms but all data contained in this EA has dwellings that are within 2klms as having a nil to low visual impact.
The EA claims there is a low visual impact at more than 12kilmoteres yet there are no studies that relate to visual impacts out to 12klms.

There is no cumulative Zone of visual influence map was produced to show overlapping affected areas within different dominance thresholds.
The Zone of influence Map does not overlay outside the 10klm range to include the Twelve Mile Wind Farm, Gas Fired Power Station or the Wellington Correctional Centre.

8.14.0 Existing development in Region

- Wellington Gas Fired Power Station
- Existing Wellington Sub Station
- Transgrid Overhead Transmission Lines
- Wellington Correctional Centre
- Red Lea Chicken Farm
- Spicer's Creek Tomatoes
- Narrabri to Wellington Gas Pipeline
- Young to Wellington Gas Pipeline

Most of these developments are located within 15klms of the proposed Bodangora Wind Farm and will substantially impact the Wellington Local environment and infrastructure, if these projects cluster in the Wellington Council area.
Wellington Council has not fully investigated the potential of expansion of the proposed development in the region and the cumulative impact with the proposed development, including stress on roads, hospitals, schools and associated needs of the developments.

The EA does not address any of the existing developments and their cumulative impacts to the landscape or infrastructure.

8.15.1 Nearby Residences

The EA states that there are 26 homesteads located within close proximity (within 6klms) of the proposed wind turbines and references Figure 19 (*12.2 Summary of Visual Impact –Nearby residences page 72 attachments F Vol2.)*
Note: Figure 19 "Nearby Residences" can not be clearly read and it is unclear what proponents are explaining in this Figure 19.
Figure 19 does not have all the residences that are within the project area.

The EA also states that of the 26 receptors assessed 12 are involved landowners. This is false. Two landowners "Budgalong" and "Bodangora Station" have provided letters of objection to the Department of Planning and Infrastructure that they are referred to as 'involved landowner'. They are not. On the 20th June owner of "Bodangora Station" Toby Martin, in a face to face meeting with Frank Boland at "Bodangora Station" asked what was meant by an involved landowner. The response from Frank Boland- Bodangora Wind Farm Project Manager was "I don't know"
On the night of the first Community Consultation Committee meeting at the request of Toby Martin the same question was put to Frank Boland. His reply on that occasion was "that they are involved with wind turbines."
The proponent has not been transparent to the landowners of nearby residences around the project and it is this type of responses that the community does not relate to.
The proponents' Representatives Mr David Griffin and Mr Jonathan Upson at a public meeting on the 22nd July 2012 were asked about their PowerPoint graphic that claims "there are no dwellings within 2klms" and the EA also states this.
Both Mr. Upson and Griffin had no idea about the content of the Bodangora Wind Farm proposal and ,after denying that it was the case in the first instance, then admitted after being shown the EA document were it was written that dwellings are within 2klms were indifferent to dwellings were that close to turbines in the project.

We reject the claim that houses located along the Mudgee Road (houses 16, 13 13B and 14 will be screened by screen planting around properties.
No studies were done at these houses and therefore no definitive conclusions can be assumed.

8.17.0 Mitigation Methods

The Bodangora Wind Turbine Awareness Group rejects the mitigations measures for the proposed wind farm and questions whether it is generally accepted that the matt white finish and three bladed designs is the most acceptable turbine. Turbines will be located in prominent locations along ridgelines and will be visible within the wider locality and some distance from the project and the colour will not be an indicator to the visual amenity.

We reject that topography and existing vegetation will assist in obstructing views of the wind farm to any degree. Turbines that are 150meters in height on ridgelines in a rural landscape will not be possibly to mitigate from the neighbouring residences at elevated positions from native vegetation.

The 37 kilometres of underground cabling used throughout the project will not preserve the native vegetation and 37 kilometres of native vegetation will be destroyed during the process of laying the underground cabling. Creating a visual blight on the environment and potentially scarring the landscape creating erosion and destroying habitats.

Further, cumulative visual impacts 11.1.4 (page 71 Vol 2),this would change any mitigation measures as screen planting may affect the optimum harvest of output from wind turbines and therefore may not be included for this reason for mitigations of visual impact .

EA states also that there are “minimal obstructions in the landscape and smooth topography”, which is in contradictions to the viewpoints assessment of topography and vegetation as filters and mitigation to visual impacts of dwellings.

11.1.4 Limitation on broad scale expansion (page 71 vol 2)

The Ea states that "The landscape of the area allows for optimum harvest of wind energy."
"There are minimal obstruction in the landscape and smooth topography and easy access to the grid which is beneficial to the output of a wind farm."

This may contradicts the mitigation measures for screening to minimise the

The proponent accepts that the Bodangora Wind Farm will alter the existing landscape, in fact the proponents' states that it is undeniable that the placement of turbines into the rural landscape will alter the existing landscape and character of the area. The proponent goes on to compare the turbines to transmission lines, towers and associated infrastructure, yet there are no existing infrastructure as the proponent suggests, to the Bodangora Wind Farm project and the project will result in impacts on scenic values of the combination of rural and pastoral land, which typically are the same, however, whilst this admission is in the later stages of the EA, it still reinforces the fact that the developer has been trying to hide behind untruths in this Environmental Assessment and that wind farms do impact the rural landscape.

The proponents' objective was not to determine whether the proposed impacts are visible or not visible, but to determine how the proposal will impact on existing amenity, landscape character and scenic quality. If there are to be negative impacts, then they must be investigated and mitigated to reduce impacts to a suitable level. The proponent has not done these investigations, they claim all through this EA document that in most viewpoints the impact will be mitigated by screen planting, this is simply not possible, either by local government restrictions (DCP #3) or restrictive practises of trees plantings that will take the life time of the wind farm to reach the level of mitigation required for screening.

The proponent goes on to state that the visual impact of wind turbines depends on the individual viewer's sensitivity to the acceptance of change. We don't accept that in this EA that a study was done on viewers acceptance to change, nor was neighbouring landowners consulted in the scoping stage of the project or when the 'stakeholders' were given greater consultation than nearby residents. If early consultation took place then the acceptance level could have been worked through until some compromises were made to get an agreed proposal on the project that was acceptable to all landowners not just a selected few, the minority.

This did not happen and rather than the acceptance of the visual change, landowners are forced into change of the rural landscape and the proponent still has not accepted that all landowners have equal rights to a fair and equal opportunity to changes of their amenity.

It is the proponent who is dictating and forcing upon landowners of neighbouring properties to be convinced that any change is going to be for the better, the mitigation methods are going to solve all the visual impacts we may suffer and the native vegetation is going to be disturbed by 1.32 hectares.

The proponents continues with some very artist licence in thinking that a visitor travelling along the Mudgee Road may perceive the wind farm as an interesting feature of the landscape, in contrast to the nearby residents perception of the change who may be more critical of the development.

Does it matter what a visitor travelling along the Mudgee Road thinks, we suggest not, does it matter what a nearby resident may have to put up with from the intrusion of the wind farm on their lifestyle and their pristine rural landscape. Yes it does.

How ridiculous to suggest that visitors may have a different acceptance as nearby residents. This is typical of the contempt that the developer has for the unfortunate residents that are just" casualties of a major project". Of course there will be differences of opinions for residents who will be impacted greater than those who are just in the area for short periods of time.

The proponent doesn't stop there, they go on to suggest that the greatest visual effect will be from residents in the immediate vicinity of the wind farm, however the proponents then go on to claim that screening and vegetation protecting the homestead from strong winds will assist in the screening of views to the wind farm.
Assumptions are again made that homesteads have the necessary screen planting around their homes to protect themselves from those strong winds. There is no suggested planning for those homes that do not have that level of screening around homes.

Vantage points of the wind farm will be in all areas of the proposed project area, there will be no amount of screen planting that is going to mitigate the visual impact and the proponent continues to describe these same mitigation techniques and expect residents to accept those as best practise, and convince themselves that it will work. No screen planting will mitigate the turbines from nearby homes within

the expectant lifetime of the wind farm; it is laughable to keep suggesting these techniques as a means to mitigation.
The proponent has not produced data in this EA that these mitigation methods work effectively and there are no studies from the proponents working wind farms that are used as comparative studies.

The Bodangora area does not have the capacity to absorb this type of industrial development, this theory also, has not been examined in the EA and any suggestion that the landscape could absorb this development is farcical.

The proponent states that when implemented with appropriate environmental management, the development of the wind farms can be undertaken with low impact on the surrounding environment, whilst providing positive local, regional and national benefits. We challenge the proponent to guarantee their statement, and enter into a written contract with all nearby neighbours and nearby residents that the wind farm, will have a low visual impact on the surrounding environment and that the wind farm will provide local, regional and national benefits. We are ready when the proponent is to sign up for the guarantee.
The professional opinion of Moir Landscape Architecture must be under some doubt as many errors have been found throughout this EA document and in particular the example we have highlighted below;

Section 4.0 Regional and Site Context
4.2.2 (attachment F page 11 Vol. 2.) Water Bodies
When Moir LA state "A number of minor creek lines run through the study area forming part of the Macquarie River Catchment, ***draining*** into Lake Burrendong."
Of course we know that the Macquarie River does not drain into Lake Burrendong.

And a further glaring mistake;
Section 5.0 Landscape Character
5.1.3 Attachment F page 12 -Water Bodies
"Lake Burrendong is the most prominent water body of the region, created by the Burrendong Dam on the Macquarie River. Macquarie River is one of the main inland rivers of NSW and runs south east past Dubbo and through Wellington Valley before reaching Lake Burrendong."

For the information of the proponent and Moir Landscape Architecture, the following information on the Macquarie River.

You may wish to check our information to confirm that the Macquarie River actually travels in northwest commencing at Bathurst through Wellington then onto Dubbo.

Macquarie River

From Wikipedia, the free encyclopedia
Jump to: navigation, search

The **Macquarie River** is one of the main inland rivers in New South Wales, Australia. Its headwaters rise in the central highlands of New South Wales near the town of Oberon. The river travels generally northwest past the towns of Bathurst, Wellington, Dubbo, Narromine, and Warren to the Macquarie Marshes. The Macquarie Marshes then drain into the Darling River via the lower Barwon River.

Burrendong Dam is a large dam (capacity 1,190,000 Megalitres) near Wellington which impounds the waters of the Macquarie River and its tributaries the Cudgegong River and the Turon River for flood control and irrigation. The dam creates Lake Burrendong.[1]

The proponent and Moir Landscape Architecture when considering the extent of the quantified impact and community response, socio-economic and environmental benefits significantly outweigh any visual impact that may result from the proposal, may like to recheck their data to correct any errors in particular the direction and positioning of major landscape features in the wellington and Bodangora area. Information collated by Moir Landscape Architecture for the purpose of the Environmental Assessment of the Bodangora Wind Farm should not be considered to

be absolute and that the content of Moir LA, reported could contain further inaccuracies that could potentially change the character values of the landscape and therefore the visual impacts associated with the MoirLA data in the Environmental Assessment for the Bodangora Wind Farm.

The Bodangora Wind Turbine Awareness Group object to the statements contained within the Conclusions.

DIRECTOR GENERALS REQUIREMENTS

"A conclusion justifying the project taking into consideration the environmental, social and economic impacts of the project, the suitability of the site, and the public interest."

Proponents claim the following

- *Expected that almost no clearing of trees will occur. FALSE refer to chapter 8*
- *"Worst case scenario of vegetation removal is a maximum of 1.32 hectares FALSE*
- *No views in the region have been assessed with an impact greater than 'moderate', and no views from neighbouring dwellings have been assessed with an impact greater than 'low', with the majority having a 'nil-low' impact or no views altogether. FALSE*
- *Vegetation screen planting at various dwellings and along roadsides will further assist in reducing views of the turbines FALSE*
- *Turbines 8 – 9- 28 -40 – 47 removed following community consultation*
- *No turbines proposed within 2.0 kilometres of ANY neighbouring dwelling. FALSE*
- *Noise generated during the construction of the project has been identified as a potential issue as the predicated noise IS SLIGHTLY HIGHER of the noise criteria set by the relevant guidelines. FALSE*
- *Unlikely to be any unreasonable impacts to the soil, water and air quality as a result of the project. False refer to chapter 9*
- *Measures and procedures have been proposed which will ensure the project layout either avoids disturbing heritage places altogether. FALSE refer to chapter 11*
- *The majority of responses from the consultation process have expressed a positive regard to the project FALSE refer to chapter 6*
- *The wind farm is NOT expected to cause any additional impact on the environment at this location. FALSE refer to chapter 8*
- *The wind farm is located in a sparsely settled area. FALSE*
- *It is considered that any adverse impacts will be relatively minor. FALSE refer to chapters 6-9*

The proponent fails to justify any of the above claims to a standard that is acceptable and feasible. The growing amount of obvious errors in this Environmental Assessment is akin to a high school assignment.

Commissioned studies from the BWTAG have found flaws in many sections of this EA, that need to be addressed before any construction of the proposal commences.

The fact that not all dwellings have been assessed and that some are within 2klms of the project contravenes the Director Generals' Requirements and this project should be rejected on that basis.

The proponent claims that there will almost be no clearing of trees, this would be totally implausible. The EA states that a maximum of 1.32 hectares of vegetation will be removed.

How could this be possible, and how could we manage those expectations?

Vegetation is not defined and vegetation means any and every bit of natural vegetation that currently exists. The proponent has not supplied suitable studies or modelling to represent the project vegetation. Claims have been made, yet are not support with evidence.
When 100 years old trees are removed the amenity will never be the same as it is today.

The removal of trees from the Gillinghall road where the road is less than 9 meters in width would be a massive destruction of the environment. The EA suggests the mitigation of visual amenity and screen plantings, but falls short of assessing the true amount of native vegetation, the proponents have not quantified the level of impact to native vegetation in the Bodangora Wind Farm project area.

The claim that no 'views' have been assessed as greater impact than 'moderate is incorrect.

This suggests that ALL views have been assessed, and the 35 residents mentioned above were not assessed, it is incorrect to mislead on the assessment that "no views" are greater impact than moderate.

Ratings for the Visual Sensitity, Visual Effect and Potential Visual Impact. For Dwellings greater than Moderate are listed below;

Dwelling 22 rated as 'Moderate'+ Moderate+ Moderate

Dwelling 17 rated as High + Moderate + Moderate.

Dwelling 13 rated as High + Moderate+ Moderate

Dwelling 11 rated as High + Low+ Moderate

11.1.4 Limitation on broad scale expansion (page 71 vol 2)

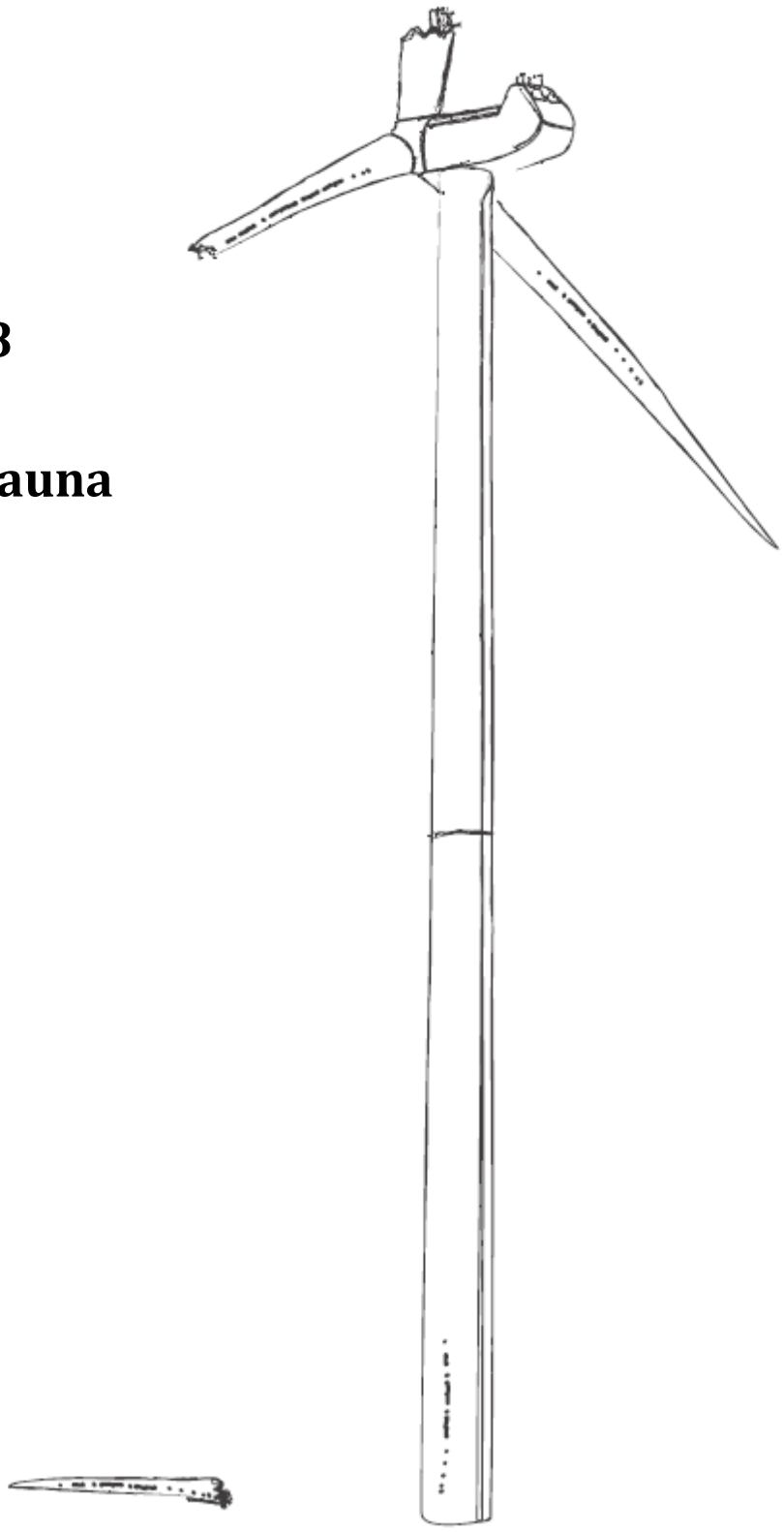
The Ea states that "The landscape of the area allows for optimum harvest of wind energy."
"There are minimal obstruction in the landscape and smooth topography and easy access to the grid which is beneficial to the output of a wind farm."

This may contradicts the mitigation measures for screening to minimise the visual amenity.

The information supplied by proponent in the Conclusions is incorrect.

Chapter 8

Flora & Fauna



CHAPTER 8 FLORA & FAUNA

DIRECTOR GENERAL REQUIREMENTS (DGR'S) THE EA MUST:

Include an assessment of all project components on flora and fauna (both terrestrial and aquatic, as relevant) and their habitat consistent with the Draft Guidelines for Threatened Species Assessment (DEC 2005), including details on the existing site conditions and likelihood of disturbance (including quantifying the worst case extent of impact on the basis of the vegetation type and total native vegetation disturbed (hectares of clearing.)

The EA must specifically consider impacts on threatened species and communities listed under both State and Commonwealth legislation that have been recorded on the site and surrounding lands, impacts to riparian and/or instream habitat in the case of disturbance of waterways, and to biodiversity corridors. In addition, impact of the project on birds and bats from blade strikes, low air pressure zones at the blade tips (barotrauma, including the potential nature/extent of impacts, significance of such impacts on threatened species and mitigation measures), and alterations to movement patterns/flight paths resulting from the turbines must be assessed, including demonstration of how the project has been sited to avoid and/or minimise such impacts.

The EA must also consider flight paths, roosting and nesting sites for aerial species. If any of the bat and bird species likely to be impacted by the wind turbines are also listed under State and Commonwealth legislation, then the significance assessment for each of these species must consider impacts from the wind turbines as well as impacts from habitat loss; details of how flora and fauna impacts would be managed during construction and operation including adaptive management and maintenance protocols (including the mitigation and/or management of weeds); and measures to avoid, mitigate or offset impacts consistent with "improve or maintain" principles.

Sufficient details must be provided to demonstrate the availability of viable or achievable options to offset the impacts of the project (including water quality, salinity, soils and biodiversity).

8.1.0 SUMMARY OF OBJECTIONS

The Bodangora Wind Turbine Awareness Group does not believe that the DGR's have been adequately met by the EA and the development should be rejected.

Attachment G 2.2 Topography, Geology and Soils states that *"Soils are often stony and/or; most of the deeper and more productive soils have been extensively*

cleared of their natural vegetation". The use of the word "mostly" and "more" are not quantified or shown by maps or photographs.

Attachment G 3.1 "Survey Methods", clearly state that "not all methods may be appropriate or necessary in all situations." However it does not show what situations would be required in order for the survey methods to be appropriate nor does it show where the survey methods were not appropriate.

In addition to the inadequate survey method description it does not state the differences between the flora survey and the survey conducted for birds. Nor does it show the details of who exactly was instrumental in the survey or under what conditions the survey was conducted; this indicates that the consistency of the survey is not constant.

Attachment G 3.2 "Flora Survey Method", vegetation classification documents the plant species in the area, however does not produce a map of the location of the species or area surveyed.

Attachment G 3.2 "Flora Survey Method, Survey Design and Technique" clearly demonstrates that multiple people were involved in the survey collection and several routes were taken by individuals. However it fails to show where the "*traverses"* were, the type of vegetation they were surveying and the topography of the land as well. No identification of threatened species and their habitat was targeted.

In addition to the survey design and technique it states "*Each of the proposed wind turbine tower location was visited as were the most logical access routes and notes were specifically made on the vegetation and habitat at each site, see Appendix 4."* This contradicts itself showing in appendix 4, where it clearly states that turbines 9-16 were not visited (see report by Smit, 2012) and declared as *"cleared paddock."*

Turbine sites were not preliminary determined in the October surveys. Page 102 of the *EA* states, *"The second field survey in July 2011 was undertaken, once the preliminary layout of the wind farm had been determined."* At that time, all flora surveys at each turbine site would have been in winter July 2011. This time of survey is not appropriate for survey of many important species.

Attachment G 3.2 Nomenclature, "*Open Woodland, does not state if the data was quantified. Exotic grassland may have been assessed to be where introduced species and cover was greater than 75%"* - It does not state if this was quantified via plot

area/transect length methods or by a subjective 'guess' given at each site. It does not state how this process worked for traverses, and if each traverse was treated separately. As a result, it does not show if each assessment was even across vegetation boundaries.

No GPS of traverses or maps were provided in the EA or supplied by the proponent. The EA does it state or give the exact species occupancy and only gives generalised data. No percentages of grass and ground cover are given along with species present. No statement is made as to how these percentages were obtained. They could have been subject to a "guess", as opposed to a method of transect lengths and plot area methods.

Attachment G 3.2 suggests native grass lands possessed species under 75 percent but does not show what percentage actually is present; this is unprofessional. If species occupancy is exactly 75 percent then it should be considered native vegetation and clearing is not allowed due to it not occurring since 1 January 1990, (Reference: *"Your Land Has Rights, prepared by the Environmental Defender's Office NSW (EDO)"* the local CMA has not been mentioned in the construction phase in order to determine the clearing eligibility of the native pastures nor has the Environmental Planning Assessment act of 1979 been addressed in Attachment G.

3.3 Fauna Survey Method, Attachment G show a general recording of birds but does not show what method was used to determine their presence, in this instance it suggests that the traverse and wandering meander methods were used to assess for all fauna, threatened or otherwise. It does not show what proportion of time was spent searching for fauna, and then flora, during these traverses. It does not say how many staff undertook the surveying at the same time. In addition, no night surveys were undertaken for fauna. It does not differentiate between bird traverses and flora and fauna traverses, if they were the same then the majority appear to be on the road and not in the proposed project area.

The EA attachment G does not show any surveying for *"threatened species specific"* methods. Such species such as the Koala was not surveyed; this clearly shows that the Guidelines were ignored for this process.

The EA does not address concerns surrounding ground surveys in relation to Flora and Fauna. It does not state how many ground surveys were undertaken, the time frame of the surveys nor the locations i.e. in grasslands or tree locations.

The EA also shows, that after a generalised search of information, many species are absent from the generalised area, however this does not mean that the species does not exist in the area and should have been taken into more consideration. The absence of a species from survey data does not necessarily mean it does not inhabit the survey area. Thus a conclusion that a species does not exist should not of been made in the EA or the assessment.

The EA shows surveys that were driven and walked, however fails to make note of the speed of the driven surveys, or indeed, which surveys were driven and which of those were walked.

The EA does suggest that the country is not good habitat for threatened animals other than bats. However does not state why this is the case, i.e. the Koala. In addition it does not provide literature to support and refer to any national or state recovery plans.

Quoll country: Favourable habitat contains generally older and more structurally diverse forests which support a range of habitat requirements such as trees with hollows, hollow logs on the ground, rocky outcrops, caves and rock crevices. They require large areas of relatively intact vegetation (several thousand hectares and up to 4000ha) (reference:*www.wildlife.org.au/wildlife/speciesprofile/.*)
but may also traverse more open country such as farmlands, rocky outcrops and other treeless areas when moving between feeding areas. All these areas are present in the project area but have been brushed over and ignored for significance.

Other species were not directly targeted such as the Superb Parrot. The EA has no mention of how this species was targeted in surveys. Nor does it state whether or not surveys sites were considered favourable habitat for Superb Parrots.

Attachment G makes no attempt to provide maps or data of the areas searched. It does not show how many stems per hectare were present at each site and how many trees at each site were native, exotic or actually known hollow bearing trees, as converse to non-hollow bearing species. The survey does not address every tree in an area assessed (larger than 30cm) or if it sub-sampled at 50+ stems per site.

Attachment G Flora 4.1 Vegetation Patterns and Plant Communities: does not show summaries of literature review or what data and information was collected.

In addition it states *"The study area supports some stands of modified woodland and scattered paddock trees and patches of trees; much of the area is treeless. Within the grazing land, there is often very little native ground cover and native shrubs, in particular, are quite rare."*
This is incorrect as much of the area within the proposed Bodangora project area has not been cleared or modified with the past 25 years, nor has it been fertilised through agricultural practices resulting in an abundance of native grasses and even re-forestation in some parts.
Due to the grazing practices of many of the landholders in the proposed project area, native grasses are able to fully complete their growth cycles without hindrance of grazing animals i.e. sheep and cattle. As a consequence, the claim made by Mills and Associates is not valid.

Furthermore, under the sub heading of Forest/Woodland of the Granite Country it states that *"much of this country supports a mix of native and exotic plants; many of the natives are surviving amongst the large outcrops of granite."* The survey does not quantify the use of "*much.*"

Attachment G 4.1 states that "*Today, there is almost no native grassland understorey remaining."* This again is not true and has been disputed. In addition it does not show or state in which paddocks native pasture is found.

Attachment G 4.2 "Plant Species Recorded" states, "*No threatened plants have apparently been recorded within 20 kilometres of the study area (NSW Wildlife Atlas). No threatened plant species were recorded within the study area in this study. Given the highly modified character on the whole area, particularly the ground cover, it seems unlikely that any such species occurs on the wind farm site."* **This is not true** as can be plainly seen in Flora and Fauna Chapter 9. This clearly shows that there has been a lack of research done in order to identify threatened plant species and as a direct result this assessment has **failed the Director Generals Guidelines.**

Attachment G 5.1 "Habitat for Native Animals" uses the word "much" in an attempt to quantify a scientific meaning. It does not state exactly what"*much"* is. In addition, the EA shows that large hollows are very rare, but does not give reference to literature to back this claim or compare to other woodland studies done around the similar area. Again, the use of quantified and scientific language is missing due to the word "*often"* and "*much"* constantly being used in an attempt to gain some scientific credibility.

EA attachment G, illustrates that the majority of tower locations were viewed as having modified grazing lands. This has not been quantified and does not show which tower locations have been situated on modified grazing lands.

Attachment G, *"Step 2-Field Survey and Assessment"* makes no mention of targeted species. In addition there is no specific data or any summary of survey results in terms of numbers or important habitats. The results of the survey in section 4 and 5 are not quantified.

Step 3 – "Evaluation of Impacts", Spotted-tailed Quoll shows sighting a "*few years ago in the vicinity of the granite country"* but does not provide a map of the location or the area of the *"granite country".* In addition the Superb Parrot was observed and states the hollows are rare, however gives no evidence to support this statement with a lack of specific data. Questions are raised in this instance such as the scientific data behind the statement that, "17 % of tree hollows are rare." No supporting documentation is offered as to the dch of species with large hollows. No supporting evidence is offered as to the dch of the 73% of trees without hollows. Without these being addressed or targeted in the survey the assessment is rendered inadequate and does not meet the DGR's.

The overall lack of quantified language is evident and scientific evidence is a "*rarity*". The use of term such as "mostly", " much", "rare", "a few" and "almost" is inadequate to form a true assessment of the areas of flora and fauna with survey results showing a standard well below the standards expected and required by the Director General.

Step 3 of Attachment G, grey crowned babbler, "*Such woodland is rare in most parts of the wind farm site."* Continues to suggest that *"The species is a ground bird and could not be impacted by blade-strike."* But gives no evidence to support this. The body shape of the bird would suggest otherwise regarding blade strike. (Refer to Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012.)

Threatened communities of Attachment G also shows a lack of scientific evidence and quantified language or data. This is a *"very"* important aspect of the survey that has been given "*little*" attention with the use of this language being inappropriate stating, "*The quality of the native understorey in most areas is low to very low, although stands of these trees are common in the district."* Quantification is lacking .

Step 4 of Attachment G of the survey shows the development *"avoiding high valued habitats."* However. it does not show were these habitats are, fails to show how these habitats were assessed in terms of quality, is unsuccessful in demonstrating the mitigation methods to avoid these habitats or indicate a buffer zone around these habitats. It further states that "*There will some minor impact on tree cover in a few areas;"* but yet again fails to state precisely what the number "*few"* is represented by.

Set 5 of Attachment G states in regards to key thresholds, *"However, the impact of the wind farm infrastructure is not likely to reduce the long-term viability of any local population of a listed species, population or community."* This is not referenced and shows no evidence of this statement being true.

Attachment G, 7.3 Assessment under the EPBC act states clearly, "*The impact on listed migratory species has also been assessed below, by applying the significant impact criteria for migratory species."* This makes no sense as it is listed with White box woodlands, Yellow box, Blakely's red gum woodland complex and superb parrots. No method is referenced as to what species is being applied to "significant impact criteria" for migratory species?.

Reference is made to Impacts of the Proposed Wind Farm on White box, Yellow box and Blakely's red gum woodland, in attachment G. "*The sites for the wind farm infrastructure do not support this community as defined in the guidelines from the Commonwealth*." This has not been quantified scientifically in the survey or report. "*Based on abundance of native understorey and presence of mature trees, almost none of the treed areas in the vicinity of the wind farm meet the minimum criteria for the community."* The use of "almost none" suggest that there is an exception, this has not been mapped or identified and needs to be quantified scientifically. To remain in such unscientific language **does not meet the DGR's**

Attachment G, "Conclusion, EPBC Act" states that "*In our opinion, the proposed wind farm is not likely to have a significant impact on matters of national environmental significance listed under the Environment Protection and Biodiversity Conservation Act."* The use of "*in our opinion"* is not of a scientific basis but rather a subjective phrase and cannot form a scientific source of impacts.

Attachment G Section 8, "Conclusion and Recommendations. Have clearly stated *community is very patchy in its occurrence, covers only small areas and is of low floristic quality."* Where previously it was said that there **was no** woodland that met

the criteria. This statement contradicts itself and reflects the unprofessional nature and tone carried throughout the assessment and EA.

Attachment G Appendix 3 Bird Survey Sheet. (Finish): 064975 6416528 has a missing number. Survey start "*GPS (Start) WGS84: 55 0696794 6414048 – 0696951 6410895"* Two starting points in the same location of this traverse. Two separate surveys began in the same location which would suggest duplication and inaccuracies in the data.

Bird survey sheet "*No.: Bod09*" has a GPS coordinate of "*GPS (start) WGS84: 55 0699913 6140487*" This is an incorrect GPS coordinate and does not exist anywhere within the area of the survey conducted.

Bird survey sheet "*No.: Bod11*" has a GPS finish coordinate of "*(finish) 0691085 640????"* this survey is inconclusive and missing numbers of the finish GPS coordinate. Any data collected in this survey is inconclusive.

Bird survey sheet "*No.: Bod18*" has a GPS finish coordinate of "*(finish) 0691085 640????"* this survey is inconclusive and missing numbers of the finish GPS coordinate.

Tree hollow survey form "*Site No.: THoll.02, GPS (WGS84): 55 071510 6410001*" has a missing number and is inconclusive.

Tree hollow survey form "*Site No.: THoll.03, GPS (WGS84): 55 0691392 6408352 to 0693091 6414317*". This is confusing and shows that the possibility of the surveying was inconsistent. It does not show the survey area assessed per site.

Tree hollow survey form "*Site No.: THoll.05, Location: Northeast of Bodangora (mine site)."* The use of this site as a survey point is obviously inappropriate for a commercial scale wind turbine development. The reasoning behind using this point is unclear.

Flora and Fauna Assessment, Attachment G appendix 7, List of Threatened Species recorded for the locality clearly show "Flora, threatened species, Selected Area -148.83333,-32.58333,149.33333,-32.25000 returned a total of 113 records of 5 species. Report generated on 11/10/2010 - 21:45 (Data valid to 25/04/2010)".

This has clearly demonstrated that the proponent and the assessor "Kevin Mills and Associates" did in fact know of threatened flora within 20km of the proposed project area and have blatantly ignored it as stated previously in the flora and fauna assessment.

Attachment G, 4.2 Plant species recorded states "*No threatened plants have apparently been recorded within 20 kilometres of the study area (NSW Wildlife Atlas). No threatened plant species were recorded within the study area in this study. Given the highly modified character of the whole area, particularly the ground cover, it seems unlikely that any such species occurs on the wind farm site."* This clearly demonstrates that the Flora and Fauna Assessment produced by Kevin Mills & Associates for the proponent who signed off on its integrity did so knowing full well that it is inconclusive.

8.2.0 FLORA

8.2.1 PROJECT AREA.

Chapter 9.2.1 of the EA does not give any indication of the sites that were assessed for flora composition within woodland and scattered paddock trees. No indication was given to indicate what the species of exotic grass species so dominant was. Nor was there any data to indicate what Forbs were present. Further, no time-line was given indicating if the assessment was carried out at the right time of year. A survey carried out at various times of the year is scientifically an essential component if the turbines are being operated all year round. The assessment by Mills & Associates admits it is *"not a complete inventory of the species that would occur in the study area*", so the full extent of Flora & Fauna is not known. This is inadequate. Critically endangered species of flora & fauna may exist in the development area. No adequate attempt to document and to determine what" actually" is present has been made. No mapping or associated data has been provided.

This is totally inadequate for the EA to meet the DGR's.

There was no mapping to illustrate or justify the claim of "poorer soils" in the EA.

"Almost all of the remnant trees, patches of trees and the occasional patches of native grassland in the lower areas are part of the White Box – Yellow Bow – Blakely's Red Gum Woodland."

White Box woodland is covered under the EEC, Threatened Species Conservation Act, 1995. There appears to be no effort to accurately locate and map these species and thus no accurate assessment of the likely impact is possible, especially at, but not restricted to, turbine sites. **This does not meet the DGR's.**

All these species are listed as critically endangered. Although a limited survey was conducted and some turbine locations were visited, there is no evidence of a specific species survey. In fact, turbine locations 9,10,12,13,15 & 16 were not visited at all. (Appendix 4, Summary of Wind Turbine Locations.)
In addition to the sites not visited and the reasons given, the following photographs give conclusive evidence that indicate the EA reasons are incorrect. (See Figure 2).

Also refer to Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012. P9

(Figure2.) WTG-16 site. It would be impossible to construct any turbines on this site without extensive habitat destruction taking place. The Mills & Associates survey states that TWG-16 was not visited as it was a "cleared area". Obviously false.

The EA indicates "almost no native grassland understory remaining….." In contrast, photograph 4 of Mills and Associates survey report (p11) clearly shows native ground cover. How is this quantified? No data is available within the EA and the claim contained within the EA is factually contradicted by the reports photograph.

Of the turbine sites themselves, the assessment claims reports of the flora in the immediate area of each turbine. **This is not correct.** On page 4 of the survey by Mills and Associates it states, '*each of the proposed wind turbine tower locations was visited….."* **This is untrue**.
In the same report, Appendix 4 (pA24) clearly states that sites 9,10,12,13,15 & 16 were **not** visited. WTG 16 is proposed in heavy timber (See Figure 2, above) and for the survey to claim that it is situated in a cleared paddock is **clearly false.**

The assessment of the impact the development would have on fauna and Flora is very flawed. The claim is made (p2 Mills and Associates) that *"much of the area is completely cleared of tree cover, although stands of woodland and paddock trees are typical of many places; see cover photograph."* The cover photograph gives a false impression that trees are few and far between and that woodlands are almost non-existent. It has been carefully selected to portray a landscape with scattered trees and only several small clumps where trees have been retained in groups. Of the total number of farms involved in the proposed development, the photograph was taken on the most open area that could be found. In fact, the farming management practises actively encourage the retention of trees and woodlands.
Photographs below, and contained within this submission have been taken throughout the proposed development belie the claim made above and re-enforce the fact that, in truth, the development area is not as claimed in the assessment.

This does not meet the DGR's requirements of "*details on the existing site conditions and likelihood of disturbance (including quantifying the worst case extent of impact of the basis of vegetation type and total native vegetation disturbed (hectares of clearing.)"*

(Figure 3)

This photograph (Fig 3.) was taken in the far SW corner of the development. Looking back at Mt. Bodangora in the distance, it clearly shows that the area is not as described in the assessment. It is not "*completely cleared of tree cover.*"

(Figure 4)

The photograph in figure 4 is taken in the far western edge of the development area and looks back at Mt. Bodangora in the distance, on the far right. It can be plainly seen that although some cropping obviously takes place, the farming management systems are careful to ensure that the numerous woodlands and paddock trees are preserved to enable the natural fauna and flora habitats to thrive. The claim that pastures are highly modified is not correct.

(Figure 5)

Figure 5 was taken from the site of TWG- 30 and looks in a slightly NE direction toward the wind monitoring mast (white dot on the distant horizon), located on *"Ahwahnee."* Mt. Bodangora is located well to the right of this photograph. It can be obviously concluded that the development area is not as claimed in the assessment and EA. It would be impossible for cropping to take place in this area.

(Figure 6)

Figure 6 depicts typical topography and flora that would be located at a large number of turbine sites. This photograph was taken near TWG 16, but would be indicative of the landscape near other turbine sites such as: 12,13,17,18,30,35 & 44.

(Figure 7)

Figure 7 is the reverse angle photograph to that depicted on the front of the "Flora and Fauna Assessment" by Mills and Associates. Looking toward Mt. Bodangora which is situated in the distance, the view from ground level is indicative that whilst some irregular cropping does take place, the description used in the assessment is not as accurate as it suggests. Again, whilst cropping does occur, it is not a case of, *"much of the are being completely cleared of tree cover"* as is claimed.

(Figure 8)
Figure 8 is taken to depict the landscape to the immediate left of Figure 7. Mt. Bodangora is in the background on the right and this again shows that much of the landscape is in fact covered with woodland and trees

No estimation can be made if the sites were not visited and any assumptions made as to the overall impact of the development are suspect.
For these reasons alone, the EA should be rejected in its entirety.

Turbine sites 9,10,12,13,15 & 16 were not visited. Of these sites:

Site 16 is clearly in the middle of heavy timber and woodland. (Figure 2, above.)
Site 13 is in next to old timber and remnant woodland. (Figure 3, below)
Site 12 is 20m from heavy timber and remnant woodland (Figure 4)
Site 10 is 90m from an isolated pocket of timber and remnant woodland.

Any or all of these sites may have an impact on flora and fauna due to their close proximity. This has been regarded as of no significance and has been ignored in the EA due to the sites not being visited. **This is inadequate and does not satisfy the integrity and requirements of the DGR's.**

(Figure 9) WTG 13 site. (Note old, established White Box trees and native grasses in foreground.)

Maps and data need to be completed for any credible assessment.
It is not possible for the EA to contain accurate information when it is clear that data has been either altered, or has simply become lacking in integrity due to it being incomplete or missing. The result is that the EA lacks integrity.

The EA states that almost no native grassland understory remains. No data or mapping is included in the survey to enable an assessment of accuracy of this statement or how such conclusions were obtained. Further, the nature of the management of much of the farmland in the development area has a bias toward the retention and proliferation of native pastures and grasses so the statements in the EA are false.

For the EA to claim otherwise reflects the misleading and ill-informed nature of the assessment. This is due to a lack of accurate data that should have been collected (but was not), when the assessment was carried out.

(Figure 10. WTG-30 Site. Heavy rock, native grasses and established trees.)

(Figure 11) Heavy timber near WTG 12. Another site not visited because it was a "clear area."

Within the assessment (and also contained in the EA), Mills & Associates identified the following endangered flora: White Box, Yellow Box Blakely's Red Gum. On 15th March 2002 an independent panel of scientists, known as the NSW Scientific Committee, made a final determination to list White Box, Yellow Box and Blakely's Red Gum Woodland as an **Endangered Ecological Community (EEC**) under the Threatened Species Conservation Act 1995 (TSC Act).

The EA states "*woodland to forest is evident containing Red* Stringybark *Eucalypts macrorhyncha,* Tumbledown Gum *Eucalyptus delbata,* Long-leaved Box *Eucalyptus nortonii* and Red Box *Eucalyptus polyanthemos.*. No data is available to support this statement, nor is any mapping supplied.
Red Stringybark species is also listed under the Threatened Species Conservation Act (1995.) Again, there appears to be no effort to accurately locate and map these

species and thus no accurate assessment of the likely impact is possible as a result of the development, which does not meet the DGR's.
Fuzzy Box (Eucalyptus conica) is also listed as being present throughout the development area. This species is listed as "Environmentally Endangered."
An excerpt from the Scientific Committee of the NSW Dept. of Environment and Heritage states:

"Only one small stand is currently known from a conservation reserve, at Weddin Mountains National Park near Grenfell."

"In view of the above the Scientific Committee is of the opinion that Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions is likely to become extinct in nature in New South Wales unless the circumstances and factors threatening its survival cease to operate."
(Reference: Associate Professor Paul Adam, Chairperson Scientific Committee
Proposed Gazettal date: 24/09/04
Exhibition period: 24/09/04 - 05/11/04)

Remnant trees are of vital importance as they provide future seed banks and genetic repositories. Thus, the importance of accurately mapping the timber in the EA cannot be overestimated. The **EA is inadequate** as it does not propose any data or programme to ensure the future of these surviving trees and that other species of trees remain undisturbed. Similar to above, no accurate mapping was undertaken. No accurate assessment is possible and again, the proponent does not meet the DGR's.

The EA fails to satisfy the DGR's in that the EA "must specifically consider impacts on threatened species and communities listed under both State and Commonwealth legislation that have been recorded on the site and surrounding land."

It should be noted that seven, (7) of the tree species listed in both the assessment and the EA are trees known to be supportive of Koala populations.
No part of the assessment or EA deals with the possibility of Koala populations within the development area despite local knowledge of Koala presence in the past, suggesting that they may still be found in the area. This is inadequate and the EA fails the requirements set out by the Director General.
The Australian Wildlife Services is in consultation with local landholders regarding the possibility of survey and if necessary, re-introducing Koalas into the Bodangora

area. This does not mean that Koalas no longer live in the area simply that the survey work has not yet been carried out

The EA claims is also made that "the majority of the project area comprises exotic pasture land used for cropping or grazing, where little native ground cover or native shrubs occur. This is typical of the rural landscape associated with the Tablelands and Western Slopes of NSW. "
This statement is misleading as it does not include any survey data to substantiate its claim. Nor does it include any data that can be compared to that of the development area. In addition, no specific data is provided to indicate that the survey took place at the right time of the native flora growing season.

8.3.0 PRESENCE OF THREATENED FLORA

The assessment by Mills & Associates and repeated as part of the EA states, "*No threatened plants have apparently been recorded within 20kms of the study area."* This is inadequate and false and appears to be nothing more than a desk top survey. To state that something is "apparently" gives no true indication of what "actually" is in existence. A full and complete survey of the area should have been completed prior to the EA going on public exhibition. For example:

The endangered flora found within 20 kms includes *Ziera obcordata* and is included in the Department of Lands reasons for the covenant found on "Bulbudgerie." There are **only two (2) known sites of this endangered flora in NSW. One of these is less than 10kms from the development area.**

The EA statement also contradicts the list of threatened species contained *on a Dept. of Lands covenant on "Mount View", a property immediately next to the eastern side of the development area. (Lot 78 DP 754320 endangered species within 20 kms is Zieria obcordata (Figure12.)*
This species is rare to NSW and has a very restricted distribution with a known geographic range of approximately 110 km. All records, both historic and recent, occur from only two separate localities within Central West NSW. These include the general area around the Wuuluman locality, approximately 15 km east of Wellington in the Central West Slopes Botanical Division of NSW and the general area around the Rock Forest locality, approximately 15 km North West of Bathurst in the Central Tablelands Botanical Division of NSW.

(Reference: Department of Environment and Conservation (NSW) 2007, *Zieria obcordata* Approved Recovery Plan, Department of Environment and Conservation (NSW), Sydney.)

It is quite obvious that those conducting the survey and for this EA simply didn't bother to look. **The EA does not meet the DGR's and the EA should fail on this aspect alone.**

(Figure12.*)* *Zieria obcordata*

Further, there is a list of Threatened Species contained within the Mills and Associate Assessment (pA30). This indicates that the EA is being contradicted by its own listings and brings the integrity of the EA into doubt.

8.4.0 FAUNA

8.4.1 KOALAS

This species is not mentioned as being targeted in the survey and is only briefly mentioned in the EA, despite the presence of a large number of tree species in the development area that are capable of supporting Koala populations. As mentioned above, there are seven (7) separate tree species available within the development area that could support Koalas. Local historical records also support claims by landholders that a Koala population may exist within the development area.

No part of the assessment or EA deals with the possibility of Koala populations within the development area despite local knowledge of Koala presence in the past,

suggesting that they may still be found in the area. No mapping of habitat has been carried out**. This is inadequate and the EA fails the requirements set out by the Director General.**

The EA (9.2.2) states "*Targeted bird counts as part of the investigation recorded 2281 individual bird observations of 60 species in 33.6 hours. The results indicate that 97 percent of the birds were active below 20metres with only 0.4 percent of birds flying above 50 metres from the ground."*
No data is offered as to how the birds were targeted or the method used. No data is included as to the species/time curves and the direction of the flight paths, nor the exact time that the survey was undertaken.
The Bat Fauna Assessment report contained in the EA identified the Bat species recorded as "*including the White-striped Freetail Bat, Gould's Wattled Bat, Chocolate Wattle*
Bat, Southern Freetail Bat, Longeared Bats, Yellow-bellied Sheathtail Bat, Large Forest Bat, Southern Forest Bat and the Inland Forest Bat."

The South-eastern Long-eared Bat [83395] may occur but calls are not distinguishable reliably from other sympatric *Nyctophilus* species using" Anabat" detectors and processing with zero-crossing analysis. No data is offered to indicate the type of detector used in this survey. On the possibility of Nyctophilus species being present, no data is supplied to answer this.

Further, the assessment by Mills and Associates indicates that 9 bat survey points were used. Of those nine sites:

- Six (6), were taken on or beside a public road.
- One (1) was taken 650m from the highway on a private road.
- Only two (2) were taken inside the existing development area. Of these two:

Both of these were taken in the far south corner area of the development area and only 2.6kms from each other.
Only one of these two was taken on private property. The other was on a public road.

Overall, an extremely limited section of the development area as surveyed.
No survey for bats taken inside the existing development area was more than 750m inside the border (of the proposed development area.) There remains a vast area of the development area that was not surveyed.

No conclusive evidence of the bat population and how the development might affect them can be drawn from any of the data as it is not indicative of what might actually be present.

This is a very inadequate survey and as such, does not meet the DGR's.

According to the Australian Bat Society, (ausbats.org.au), "*a survey of bats should be taken at each and every turbine site to assess the activity of the bats*." This was not carried out.

8.4.2 WEDGED TAILED EAGLE

(Figure 13. Wedge Tailed Eagle nest located within the development area and within 500m of a turbine site)

Wedge tailed eagles are permanent residents in the development area and the properties immediately adjacent. These birds are believed to be of great significance to the local Aboriginal population. All eagles need to nest in is a large mature tree. They are the largest bird of prey in Australia and are often seen soaring throughout the development area.

The EA has not described how, (or even "if,") they have undertaken habitat assessment and do not provide data or habitat mapping. **This does not satisfy the DGR's.**

8.5.0 HABITAT FOR NATIVE ANIMALS

8.5.1 TREE HOLLOWS:

"Kevin Mills and Associates consider 17 percent of hollow bearing trees as "not common" (EA Ch. 9 p7)

No data is supplied to substantiate this statement including the percentage area of the site that was searched, the appropriate method for assessing tree hollows and what was stratified and targeted to hollow bearing trees. No data is supplied to explain what methodology was used to determine "not common." The entire tree hollow survey was limited to the western part of the development area. No part of the survey was taken in the more heavily timbered area north and west of Mt. Bodangora which is located on the eastern side of the development area.

No indication can therefore be drawn as to the likely impact on hollow trees during the construction of the turbines.

Tree hollows survey was carried out at very selective locations. Only 361 trees were surveyed.

Significant mature trees in the eastern area were not surveyed and some of these were likely to be affected or completely removed to make room for access tracks, road construction and other sequelae of major infrastructure. This is again inadequate.

The eastern area of the development site was not adequately surveyed and the EA has not described how they have undertaken habitat assessment. Nor does it provide habitat mapping". This again fails the DGR's.

Ch.9 p7 of the Assessment:

"Rocky outcrops are especially evident in the Central and Southern parts of the study area." This is inadequate as these areas should have been mapped for proximity to the tower sites.

The Spotted-tailed Quoll is known to use the habitat of the development area. This species of fauna has been seen twice in the development area and may use the rocky outcrops as habitat. This animal is listed as a vulnerable species. **The EA contains no development impact or management plan for this species and thus fails the DGR's.**

Ch.9 p7 of the Assessment:

" Low-lying flats and riparian zones along watercourses provide some wetland habitat, although all wetlands in the area are rare and ephemeral in nature. Farm dams within the project area provide relatively small areas of open water with little fringing wetland vegetation, only useful for low numbers of a few species."

No mapping details are provided for these areas. Further, no data of the "few species" has been included. This leaves the EA inadequate and **does not meet the DGR's.**

No details are given to indicate if the dams were assessed for birds. There is no data of the dams and no assessment of the area or habitat they provide for water birds and flora even though the assessment admits that there is some wetland habitat. **This fails the DGR's.**

The tree hollow assessment is seriously flawed. If the GPS co-ordinates are to be believed:

- The 1st hollow tree survey site is at a site on a property now not hosting turbines.

- **The 2nd is at a site near the Menindee Lakes in far Western NSW, some 616kms west of the nearest turbine site in this development.**

- The 3rd survey starts and ends on a single road and is only 6.4kms in length.

- The 4th survey point starts just north of the village of Bodangora. There are a large number of roads leading away from the start point. The route of travel is not defined in the EA. The end point is the same as the end point for the 3rd survey meaning that 6.4 kms of this survey could easily be a repeat of the previous one.

- The 5th and final survey was taken near a turbine site (WTG-44.). This site is near a disused mine. It would be highly likely that during the mining processes, trees would have been cleared from this area and it would be therefore unlikely that mature trees containing hollows would now be present.

Because of the explicit inaccuracies contained within the tree hollow survey, a detailed assessment is not possible. There is no evidence to suggest that the GPS co-ordinates of all hollow trees have been recorded. To ensure that these trees will be avoided in the construction of the turbines. **This does not meet the DGR's.**

8.6.0 THREATENED SPECIES WITHIN THE LOCALITY AS RECORDED

Neither the report by Mills and Associates nor the EA contains any assessment of the impact of the turbines on the flight paths on the seasonal migration, food trees, grass and flight corridors of any threatened species.

8.6.1 SUPERB PARROT

(Figure 14.) Adult Male Superb Parrot

Within the avifauna found in the Bodangora area are significant numbers of parrots. The Superb Parrot (*Neophema swainsonii*), (figure 14) is often sighted in the development area and its surrounds. (The Superb Parrot is listed as **vulnerable** under the NSW TSC Act and the Commonwealth EPBC Act.) Requiring hollows for nesting and protection, they rely on woodland habitat for flowers, fruits and seed, particularly in Box and Blakely's Red Gum. As one of the many Australian bird species that uses tree hollows for breeding, ANY clearing of woodland areas has had a large impact on the parrot and its numbers may continue to decline in the future. *The total population of these birds is estimated to be only a few thousand.* (Reference: Birdlife International Factsheet 2008.)

There does not appear to be any reference to the National Action Plan, nor does it appear that they have undertaken any targeted surveys for this species.

This is totally inadequate and does not meet the DGR's.

(Figure 15.) Grey Crowned Babbler

The assessment by Mills and Associates reports that the Grey Crowned Babbler (figure 15) was reported as being sighted in woodlands along the Gillinghall Road in 2011. No attempt was carried out in the Assessment by Mills and Associates to target this species in a vegetation stratification survey, nor to map the woodlands in which it was sighted or in which it may occur in the future. No accurate assessment of the impact of the development can be made on this fauna as the data was not supplied. **This is inadequate and does not meet the DGR's.**

8.6.2 SPOTTED-TAILED QUOLL

(Figure 16.) Spotted-tailed Quoll

The EA states, "*This species has been recorded twice within the project area, and is likely to be very thinly distributed throughout the project area and the wider region. Granite outcrops (as defined in Section 9.2.2.1) may provide for habitat."*

No maps are provided in the EA that indicate where the rocky outcrops are. No determination of the impact of the development can be made as the EA cannot indicate where this species might be found. This is inadequate and **does not satisfy the DGR's.**

"The species is usually solitary but usually occupies an area of several thousand hectares" (Reference: Belcher and Darrant: 2004, Claridge et al. 2005)

The area requires a full and thorough survey targeting habitat and assessment of the likely impact of the development on this species. **The information on this species contained within the EA is insufficient and does not satisfy the DGR's.**

8.6.3 YELLOW-BELLIED SHEATH-TAIL BAT

The EA states*, "The only threated bat species recorded in the project area was the Yellow-bellied Sheath-tail Bat, which is listed as vulnerable in the NSW Threatened*

Figure 17. Yellow-Bellied Sheath-tail Bat. (Photographer:H&J Beste
Rights: © Australian Museum)

Species Conservation Act. It was recorded at three creek sites, very irregularly, and by just a few calls each night."
It goes on to state, *"An assessment has been undertaken in determining the potential presence of additional threatened fauna species (including bat species) within the project area which was not recorded during the field surveys. This assessment included a determination of the extent to which the study area satisfies the habitat requirements and preferences, and previous records."*

No results of this assessment are included in the EA. No mapping of habitat is provided to enable an accurate assessment.

The only offering in the EA is *"Monitoring of barotrauma during the first year of operation."* Monitoring should be carried out for the life of the project.
This is inadequate and does not meet the DGR's.

The EA states, *"International migratory species listed by the EPBC Act occur in the locality, including diurnal birds of prey (eg Nankeen Kestrel) and waterfowl (eg native ducks). These species are not threatened in Australia, and are in some cases abundant. No important habitat for such species has been identified within the project area."*
No allowance or study has been made in the EA for migratory species of birds and bats that may use the development area as a flight corridor. With Lake Burrendong only a short distance away to the south of the development area, at least a basic survey should have been carried out to determine the likely impact the development would have on migratory species that would transit through on their way to Lake Burrendong.
Domestic species of birds such as the Black Swan (*Cygnus atratus)* is protected under the *Australian National Parks and Wildlife Act*, 1979 and is a frequent visitor to the areas farm dams. No study in the assessment has been made of these types of birds. Although a protected species, the **DGR's have been ignored** as the Black Swan is included under State legislation of aerial species. **The EA and assessment does not meet the DGR's requirements.**

8.6.4 GLOSSY BLACK COCKATOO

(**Figure 18. Adult Male Glossy Black Cockatoo : Photo - Wikipedia)**

The glossy black-cockatoo (*Calyptorhynchus lathami*) is another aerial species that has been ignored in the EA. Local farmers in the Bodangora area have reported this bird on their farms over a long period of time and it is listed as vulnerable in NSW, under the *Threatened*
Species Conservation Act 1995. Again, the EA has ignored the DGR's by not listing this species as possibly occurring in the development area and has failed to provide any data or survey material as to its habitat. **This fails the DGR's.**

8.7.0 IMPACT OF PROPOSAL

8.7.1 GENERAL IMPACT ASSESSMENT

The EA claims, (9.3.1) *"infrastructure has been located to avoid local habitat features, including creeks, high quality remnant woodland, rocky outcrops or other features which could be important to flora and fauna."* These areas should have been mapped prior to the EA going on public exhibition as no accurate assessment can be made as to the likely impact of the development without such information. Any assumptions made as to the likely impact of the development without accurate and factual information to support such claims are speculation at best. **This fails the DGR's.**

In an effort to obtain maps and data to determine where the surveys were taken, the manager of the development, Mr Frank Boland, was contacted and asked where the data is. His reply was that it did not exist. (See Appendix A and B)

Further, on the same section, the EA also states: *"large, mature trees with hollows have been avoided and can be retained to ensure maintenance of the existing habitat."* Once again, there is no documentation to support this statement. No maps are provided to prove that this action can be carried out and thus the statement is doubtful. **This fails the DGR's.**

"The 'worst case' loss of native vegetation is calculated at 1.32 hectares. This calculation is based on WTG's 7, 8, 13, 24, 28, 30, 31, 34, 35, 44 and 46 having at least some native vegetation, and a turbine footprint of 1,200 square metres (refer Appendix 4 to Flora and Fauna Report, ***Attachment G****). All other turbines locations are exotic grassland or crops and support little or no native ground cover."*

This estimation does not take into account any destruction of fauna & flora that would occur in the widening of existing roads, the construction of almost 40kms of new tracks within the development area, 37kms of cable laying and a service track beside the cables (which means a secondary track of 37kms),5.8 kms of overhead transmission lines and the service roads to erect towers and install the lines, sub-station, service area (estimated at 10ha alone), onsite gravel quarries and construction compound. None of these have been included in the EA's calculation of worst case scenario of 1.32 hectares.

In referring to Attachment G, Appendix 4, the assessment used descriptions of turbine sites as "*mostly treeless* (turbines 1 & 5), *"almost treeless"* (turbines 17, 19 & 25.) None of these turbine sites (17, 19 & 25) have been included in the EA as I" *having at least some native vegetation*" This is inadequate. The claim of 1.32 hectares is hopelessly incorrect. Mapping should have been carried out prior to the EA being release for public exhibition to ensure that the information supplied was correct and factual. This is not the case, guesses have been used in assessing the habitat surrounding turbine sites and it is possible that hollows, bats, reptiles, native grasses and other flora & fauna could be affected because the assessment is seriously flawed.

Neither the EA nor the assessment by Mills and Associates contains any evidence to substantiate their claim of 1.32hectares. There is no photographic evidence submitted to support the claim that at least 22 turbine sites have no vegetation or trees. In the event turbines are micro-sited a re-assessment of the new site needs to be carried out.

Further, the mitigation measures suggested in this section are inadequate. The EA should have shown exactly where clearing needs to occur. It is difficult to assess the environmental impact without exact locations. This brings the integrity of the EA into question.

The EA goes on to say, "*there is no supportive habitat or topographical features present within the project area suitable for large soaring raptors or large waterbirds which would be the most likely to collide with turbines."* **This is false.**

Wedge-tailed Eagles are known to live in the area and are frequently seen soaring throughout the development area. Figure 6 (above) clearly shows that these raptors live and breed locally. The photograph was taken within 500m of a turbine site.

Also refer to Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012. P6.

The EA state, "In order to minimise the likelihood of impact to birds of prey:

No turbine will have perching places;
Turbines will not have night-lighting, this will minimise the attraction of nocturnal birds and bats;"

8.7.2 PERCHING PLACES

It is not possible for turbines to be devoid of perching places for birds when the size of the nacelle (figure 3.1 of the EA) is said to be 14m long, 3.9m high and 3.9m wide. There is arguably no bird in Australia, other than the Emu that could not fly to, land and perch on an area of this size! **This is not a mitigation solution and as such does meet the DGR's**

8.7.3 NIGHT LIGHTING

This is contradicted in Chapter 3 of the EA where it is stated that lighting will be installed. Bats and other nocturnal birds of prey will still be attracted to the lights, irrespective of the location, as a source of possible food and thus be susceptible to blade strike. **This is not a mitigation solution and again, does not meet the DGR's.**

As part of mitigation plans, the EA states, "*Barotrauma is most likely to occur where bats swerve to avoid a moving turbine blade, but meet a zone of low pressure and suffer expansion of air in the lungs. It is difficult to mitigate for barotrauma issues, and deterrent devices are not available."* This is inadequate. **It does not meet the DGR's** which in part, state:
"The EA must specifically consider impacts on threatened species and communities listed under both State and Commonwealth legislation that have been recorded on the site and surrounding lands, impacts to riparian and/or instream habitat in the case of disturbance of waterways, and to biodiversity corridors.In addition, impact of the project on birds and bats from blade strikes, low air pressure zones at the blade tips (barotrauma, including the potential nature/extent of impacts, significance of such impacts on threatened species and mitigation measures), and alterations to movement patterns/flight paths resulting from the turbines must be assessed, including demonstration of how the project has been sited to avoid and/or minimise such impacts…."
The EA, in saying "*It is difficult to mitigate for barotrauma issues, and deterrent devices are not available"* is admitting it does not have a mitigation method and the development should be dis-allowed.

It is saying that it is too hard and so the proponent is not going to respect the requirements of the DGR'. The integrity of the EA would be laughable if the issue was

not serious. Some species of bats are listed as ***Vulnerable*** *under the TSC Act and* ***the proponent simply ignores the issue and thumbs its nose at the Department of Planning. The EA should be rejected in itsentirety.***

The EA must also consider flight paths, roosting and nesting sites for aerial species. If any of the bat and bird species likely to be impacted by the wind turbines are also listed under State and Commonwealth legislation, then the significance assessment for each of these species must consider impacts from the wind turbines as well as impacts from habitat loss; details of how flora and fauna impacts would be managed during construction and operation inluding adaptive management and maintenance protocol.

The final bat mitigation method in the EA is: *Given that the majority of bat calls were identified along the creek lines and in the woodlands, which are areas where the design avoids placing turbines, we can reasonably conclude that the design of the turbine layout minimises the opportunity for barotrauma.* **This is no proof of minimised barotrauma and fails the DGR's.**

No mapping of woodlands and creeks has taken place. This means the EA cannot accurately indicate where the turbines are in relation to these woodlands and creeks and thus what affect the turbines will have on the bats. Conversely, surveys were not taken at all turbine sites so the presence of this fauna throughout the development area is unknown and unrecognised.

The whole section of the Impact of the Proposal is inadequate. **It does not in any way meet the DGR's and the development should be rejected out of hand.**

8.8.0 THREATENED SPECIES

8.8.1 PLANTS

The EA states: *"Threatened plant species: the field surveys did not find any threatened plant species, and none are expected to occur within the project area."*

No indication is given as to how the search for threatened species took place**. Section G** says that the *"traverse method*" was used. No details are offered to indicate where the survey went. Maps are not included and Mills and Associates concede that the survey *"should not be regarded as a complete inventory of the species that would occur in the study area."* It is not possible to come to the conclusion that there are no threatened species whilst at the same time, admitting that the survey was not complete. It is logical and highly probable that

"notwithstanding no threatened plant species were identified" because they simply didn't examine over the whole of the development area. **This does not meet the DGR's.**

Chapter 5, p108 contains the statement that: "*The land is highly modified, much of which supports exotic grassland cover, and is cropped or pasture improved, and precludes the likelihood of threatened plants occurring,"* The EA is devoid of any maps to support such a statement and this is insufficient for any EA. No maps have been provided to show where the likelihood of threatened species may exist. No investigation took place to see if the modified areas were containing grasses and forbs. It could reasonably be argued that this survey may not have even taken place. **It does not meet the DGR's.**

The same page of the EA goes on to say, *"Those sites that support native plants, such as road reserves and the granite country were targeted by the field surveys."* Again, there is no data or maps to support the statement and to indicate where the "granite country" is located. Native plants are found throughout the development area. This is obvious to anyone who actually observes, as a number of the farms have management practises that encourage native grasses to persist and thrive. No evidence is put forward to support the claim that these sites were in fact targeted. In a survey where the assessment "*should not be regarded as a complete inventory,*" it is easy to determine that no threatened plant species were identified. **This does not meet the DGR's.**

8.9.0 THREATENED SPECIES ANIMALS

Within the EA (p109) is stated," *three threatened species and one threatened community have been identified by the flora and fauna assessment*," The threatened community is not named. It could be an animal community. It could be a flora community. Specific factual details are not provided.

Of the species listed: "*White Box - Yellow Box - Blakely's Red Gum Woodland: The quality of native understory is low to very low, although stands of these trees are common in the district. Whilst the wind farm will result in some loss of native vegetation that is part of the listed community, the loss is small and high value sites are not involved."*

No data is provided to indicate where the loss of this community will be. No details are provided on how the assessment of the quality of the native understory was decided.

This does not meet the DGR's.

The EA further states, "Spotted-tail Quoll: Not likely to be widespread in the area. No turbines are proposed in the area where species have been spotted in the past and the likely habitat, being the granite country and in large areas of woodland." Again, no mapping is provided to determine where this species is located.
"The species is usually solitary but usually occupies an area of several thousand hectares" (Reference: Belcher and Darrant: 2004, Claridge et al. 2005)

For this species to occupy an area of several thousand hectares and for no turbines to be proposed in the "granite country" should essentially mean that no turbines would be built. No data is provided and no mapping has been carried out to determine exactly where this species lives and roams. This species is a Threatened Species within the development area. The EA does not address or propose any management strategies for this animal. **This does not meet the DGR's.**

8.9.1 SUPERB PARROT:

Although no breeding is likely in the project area where the bird is a winter visitor, micro-siting of infrastructure should avoid tree hollows which the bird depends upon for breeding. Blade strike is unlikely to be a threat since the parrot is a ground feeder and seldom fly above the canopy. ***This is false.***

These birds frequently fly above the canopy. Their anatomy and body form and flight action are consistent with birds that fly long distances and this is likely to be above the canopy. These birds also depend on trees for food. Consideration of trees used by these birds was not carried out. Further, no assessment was taken of the impact of the effect of increased traffic and access as well as the upgrading of roads. To simply state that they will not be affected by blade strike is not addressing the likely impacts of the development.
This does not meet the DGR's.

8.9.2 GREY-CROWNED BABBLER:

"This bird resides in natural woodland with a native understory, which is rare in most parts of the wind farm site. The wind farm does not impact upon any natural woodland. The species is a ground bird and could not be impacted by blade strike."

There is no reference to where the native understory is located. No maps are provided. Being mostly a ground dweller, the impact on the native vegetation by

construction of roads to get to the turbine sites on the habitat used by this species is not provided. **This does not meet the DGR'S.**

P109 of the EA states*, "Other threatened species that are occasional visitors are not likely to be significantly impacted as habitat features including woodland and rocky outcrops will be avoided. No threatened species is likely to occur in large flocks through the area and blade strike is unlikely to be significant. Most species which have been identified are ground birds and are unlikely to fly above the tree canopy.*
There is no evidence to support this claim. No mapping has been carried out to determine where the rocky outcrops are. There is no systematic or explicit data collection to support this claim.
No research has been provided to determine the likely impact of migratory species, noting that a significant body of water is not far away from the development area (Burrendong Dam) which is known to attract a substantial number and variety of migratory aquatic species of birds. No effect of the development on the flight path of migratory birds heading to this water has been considered.
The definition of the percentage of trees required to determine woodland is not provided. There is no evidence supporting or indicating what or where the impact will be as a result of the development.
No data is provided in the EA to indicate the amount of cover which exists from other grassy box woodland.
In effect, no real study of the effect of this development has been carried out. All statements contained within the EA are based on poorly collected sporadic data without any mapping or systematic analysis of the entire area.
This is totally inadequate and does not meet the DGR's.

P110 of the EA states*, "In accordance with the justification against key thresholds as Step 5 of the Guidelines:*
• the proposal is unlikely to diminish biodiversity values of the area;
• whilst some trees will be removed which form part of the White Box – Yellow Box - Blakely's
Red Gum Woodland, and this woodland is utilised by threatened animals, the proposal is unlikely to reduce the long-term viability of a local population of the species, population or community given the impact can be avoided and minimised through micro-siting of infrastructure and the retention of vegetated areas, rocky outcrops and hollow-bearing trees;
• the wind farm is very unlikely to accelerate the extinction of species, population or community
or place that species, population or community at risk; and

• *the proposal will not affect any declared critical habitat."*

All of the above is unproven and lacks substance. The claim is made that the proposal is "unlikely" to diminish biodiversity values of the area.
This cannot be substantiated without the amount of data that has been omitted and the data that has been provided is not reflective of the entire area. Much of the information (e.g. bats) is based on a survey taken either outside the development area or is within 700m from the edge in the extreme Southwest corner of the proposal. That is not indicative of the typical impact the proposal would have on the fauna within the boundaries of the development.

The EA goes on to state,"Whilst some trees will be removed which form part of the White Box – Yellow Box - Blakely's Red Gum Woodland, and this woodland is utilised by threatened animals, the proposal is unlikely to reduce the long-term viability of a local population of the species, population or community given the impact can be avoided and minimised through micro-siting of infrastructure and the retention of vegetated areas, rocky outcrops and hollow-bearing trees;"

This section of the EA contradicts an earlier claim (p 107) that *"large, mature trees with hollows have been avoided and can be retained to ensure maintenance of the existing habitat*." On one hand the EA is saying that the trees will be avoided and then it goes on to say that some will be removed. Statements that the proposal is "*unlikely to reduce the long-term viability*" are without any data to validate this assumption.
An assumption is all that can be made because no actual detailed survey has been carried out.

A further point raised on the same page says*, 'the proposal will not affect any declared critical habitat.'* No evidence is offered to determine where this critical habitat is located or what condition it is in. The above statement cannot be substantiated with the evidence (or lack of) contained in the Assessment by Mills and Associated and consequently reflected in the EA. The assessment (table 4, p13) says that there are no critical habitats, yet the statement above indicates that there are some but the development won't affect it. It contradicts itself and creates doubt as to the integrity of the EA and the accuracy of the information it contains. **The lack of information does not allow the EA to meet the DGR's.**

8.10.0 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

P110 of the EA states, "*The impact of the Superb Parrot is not expected to be significant, as: hollow-bearing trees are critical to the parrot and the wind turbine and infrastructure layout can be constructed without the loss of any hollow-bearing trees.*
Native grassland utilised by feeding parrots is largely absent from the area and little native grassland would be impacted by the proposal; and the winter occurrence of the parrot is outside of the breeding period of the birds.

No evidence is used to support these statements. No GPS locations of hollow-bearing trees are submitted. Their location is unknown which means they cannot be protected/avoided so that no loss occurs. The last statement implies that the turbines will only be operated in winter which is outside the breeding period of the birds.
The native grasslands utilised by Superb Parrots are widely spread across much of the development area. As can be seen by the photograph (Figure 19) below, the claim within the EA (p108) and assessment that much of the development area is open *farmland and is" highly modified, much of which supports exotic grassland cover, and is cropped…"* is simply false. Native grassland is obviously widespread throughout the development area. This negates many assertions of the EA regarding the lack of such grassland.

(Figure 19. View to the East from WTG-30, approximately the middle of the development area toward Mt. Bodangora.)

No such targeting of this area for native grasses occurred. This area is predominantly "granite country" and no systematic survey through this area took place. Superb Parrots are also known to include non-native crops and grasses as part of their diet. (Reference: Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012)

This does not meet the requirements of the DGR's.

P110 of the EA states, "The Policy Statement prepared by DEH '*White Box – Yellow Box – Blakely's Red Gum Woodland'* (2006) provides strict procedures for identifying the community. Almost none of the treed areas in the project area meet the minimum criteria for the community. Notwithstanding micro-siting of project elements can avoid woodland areas.

Micro-siting of the turbines is not possible because the EA does not know where these tree communities are in the first place. No data or survey was provided by the assessment to indicate where these communities are located. For the EA to state that "*almost" none of the treed areas in the project…."* is nonsense.

Figure 20 (below) clearly indicates an example of woodlands within the development area. In addition, Figures 2 and 11 (above), give a very good broad angle view of the many types of woodlands within the area. Micro-siting can only take place with sound knowledge and data collection. A true assessment cannot be possible when turbine sites are not visited and properly assessed. This has not taken place and **is not compliant with the DGR's.**

(Figure20. White Box and Yellow Box Woodland within the Development Area)

In the final part of this section of the EA (p111), Mills and Associates, *"recommends that the proposal is unlikely to have a significant impact on any matters of national environmental significance, and that a referral to the Commonwealth Minister for the Environment is not warranted."*

Conversely, with the amount of data and information that has not been included, that has not been collected, or has simply been omitted, along with the lack of thoroughness and professionalism in which all aspects of the flora and fauna surveys have been carried out, there should be no reason for this development proposal NOT to be forwarded to the Commonwealth Minister for the Environment.

It has rarely met (if at all), any part of the Director General's Requirements for Fauna & Flora **and should be rejected in its entirety.**

8.11.0 MITIGATION

Before any mitigation processes or procedures can be carried out, accurate assessments and information must be first obtained. This has not happened throughout the Fauna & Flora section of the EA and as stated above, the DGR's have rarely, if at all, been met.

It is therefore not possible for the *EA "to provide a summary list of measures which should be adopted to mitigate the impact of the project on flora and fauna (including bats) species, both for protected species and generally…."* ***Accurate data & maps simply do not exist.***

(Refer to Appendix for e-mail sent from Mr Michael Lyons to Mr Frank Boland and his reply. E-mail, dated July 11th & 12th, 2012 respectively).

The assessment by Mills and Associates, and subsequently, the EA, cannot recommend micro-siting of turbines because they do not know what fauna and flora is present at or near the turbine sites in the first place.

The option suggested to involve an ecologist to determine "*the best possible routing of access tracks and cables to assist in avoiding creeks, woodland, and rocky outcrops in cleared areas as they provide valuable habitat. In particular, avoidance of hollow-bearing trees"* requires the ecologist to be in possession to information that will allow them to make an informed decision. The information that person requires in not contained in any assessment associated with the EA.

This section further states that "It is expected that almost no clearing of trees will occur, although some ground cover will require removal where tree clearing cannot be avoided."

No data is provided in the assessment or the EA to allow this to occur.

Many turbine sites are located in woodlands which contradicts the EA and assessment by Mills and Associates.

Typical of such sites, especially in the central, southern and eastern sides of the development area, Figure 21 is actually located within Figure 22.This is another glaring error in the EA

To state that "almost no clearing of trees will occur" is simply false. It is impossible to get to a number of turbine sites without extensive tree clearing.

Figure 21. Typical of terrain at WTG -30. This is located within Figure 14 (Below))

Figure 22. Woodland in which Figure 13 is located**.**

The DGR's simply have not been met. The accuracy of the information contained within the EA and the assessment by Mills and Associates does not truly reflect the actual existing site conditions as required. It is not possible to do so when a number of the proposed turbine sites were not visited and assessed. Therefore, any conclusions that might be put forward for mitigation cannot be relied upon to be factual. Terminology used throughout the assessment and EA such as *"about, almost, often and mostly"* are not indicative of any realistic genuine and scientific measurement.

Also refer to: Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012.

For the EA (p112) to further suggest, "*an ecologist accredited as a Biobanking Assessor will be engaged to develop an appropriate tree clearance protocol*" is indicative that the data that should have been collected prior to the EA going on public exhibition was not collected. The exact locations of any environmental impacts should be mapped prior to assessment so that the true impacts can be evaluated.

"Prior to construction, a field survey for the Superb Parrot will be undertaken."

This should have been carried out prior to the assessment being handed over to construct the EA. The proponent cannot claim that "*almost no clearing of trees will occur"* if one of the methods used to assess the likely impact on the Superb Parrot is yet to take place and turbine sites were not visited. *"Targeted surveys along those ridges and other places where trees may be removed by the wind farm infrastructure" should have already taken place.*

This is inadequate and unprofessional. ***It does not meet the DGR's.***

"Where possible no large dams should be constructed within 1.0 kilometre of turbines."

This is inadequate. Turbines are located within 1km of the development area boundary and neighbouring farms are not contracted to restrictions by this procedure. No consultation with neighbours in this regard has been carried out. **This does not meet the DGR's for Community Consultation.**

In relation to environmental management and construction procedures:

Weed control measures will be implemented to ensure invasive weed problems are not exacerbated, particularly in the avoidance of the spreading of invasive weeds as previously listed.

This may not be a complete list of the invasive weeds listed in the area. A number of invasive weeds are known not to be present at the time of the year the survey took place. Other weeds are present during other seasons of the year. Further, research should have be undertaken to ensure that in the process of road construction, the

gravel sourced and imported from outside the immediate vicinity is free of weeds that do not currently exist within the development area. No mention is made of strategies to contain such weeds as imported before they have a chance to impact within or outside of, the development area. This is inadequate.

8.12.0 VEGETATION OFF-SET STRATEGIES

"Whilst vegetation clearance will be avoided as far as possible, as previously indicated small amounts of vegetation clearance to the White Box – Yellow Box – Blakely's Red Gum Woodland is likely to occur within the project area" **This is false.**
It is unknown what amount of these vegetative types will be removed because no accurate assessment exists. Huge amounts an varieties of trees may possibly be under threat. The EA cannot say with any accuracy the amount or number of trees that will be impacted.

Reference

Scientific Review of Flora and Fauna Assessment Methodologies Undertaken for the Report, "Bodangora Wind Farm Environmental Assessment" by Smits & Wilson, 2012.
www.wildlife.org.au/wildlife/speciesprofile
Associate Professor Paul Adam, Chairperson Scientific Committee
Proposed Gazettal date: 24/09/04
Exhibition period: 24/09/04 - 05/11/04)

Photo of Yellow Bellied Sheath-tailed Bat: Australian Museum Website
Photo of Glossy Black Cockatoo
http://en.wikipedia.org/wiki/Glossy_Black_Cockatoo
Belcher and Darrant: 2004, Claridge et al. 2005
Department of Environment and Conservation (NSW) 2007, Zieria obcordata Approved Recovery Plan, Department of Environment and Conservation (NSW), Sydney.
Birdlife International Factsheet 2008.)
"Your Land Has Rights, prepared by the Environmental Defender's Office NSW (EDO)"

Flora and Fauna Appendix A & B

E-*mails to Mr Frank Boland requesting further information, and his reply to Mr Michael Lyons. E-mails dated July 11th & 12th, 2012*

Appendix A

Michael & Linda Lyons

"Mt Bodangora"
Wellington
NSW 2820
Ph: 2 68466351
Fax: 2 68466318
E-mail: mt.bodangora@bigpond.com

Wednesday, July 11th, 2012

Mr. Frank Boland,
Development Manager
Infigen Energy Development Pty Ltd
Level 22
Pitt Street
Sydney NSW 2000

CC: Ms Anna Timbrell

Re: Bodangora Wind Farm
Department of Planning Number 10-1057

Dear Mr Boland,
I refer to the above proposed Bodangora Wind Farm (DOP Number 10-1057.)
Could the proponent please provide the following additional information, mapping and data that was undertaken or required in accordance with the Director General's Requirements (DGR's.)

1. Soil mapping that shows the areas of "poor soils" as per 9.2.1 (p103)
2. Mapping of vegetation types and conditions that were assessed as per 9.2.1 (p103)
3. Mapping of the habitat condition or quality, including rocky areas, rare wetlands, riparian vegetation and all farm dams identified in 9.2.1 (p105) ("Areas of rocky outcrops have also been identified.....especially evident in the central and southern parts of the study area"...."Low lying flats and riparian zones long the watercourses provide some wetland habitat.") 9.2.1 (p10s)

4. Mapping or GPS locations of trees with hollows, especially where large mature trees with hollows have been avoided and can be retained to ensure maintenance of the existing habitat." (p107)
5. Please could you provide justification to why seven of the nine bat survey points are outside of the wind farm project area?

Thanking You,

Michael Lyons

Response from Mr Frank Boland (Infigen) Re: Bodangora Wind Fam.
Dear Mike,
Thank you for your email and also your contribution to the CCC meeting on Tuesday night.
I will endeavour to provide some answers to your questions, any that I am not able to answer and you would still like some further information, please include this in your submission. Alternatively I can try and obtain some additional material from Kevin Mills who was our specialist consultant.

1). I am not aware of a specific map showing soil types in the region, the comment about 'poor soils' is more likely to be an observation from the survey team. We are also yet to undertake a detailed geotechnical assessment, we planning to commission this during the next 6 months. I would be happy to share some of these results.
2). Again I am not aware of a specific map, however in Attachment D there appendix 1 there is a list of vegetation types and in the body of the report there are some references to conditions.

3). The habitat quality condition etc has been examined for each turbine location and area of disturbance, this can be found in appendix 4. On page 8 of attachment 5, there is a section that discusses both rocky outcrop habitat and also wetlands areas.
4). Please refer to appendix 5 (tree hollow survey results) in Attachment D for a list of findings and co-ordinates.

5). I disagree that 7 out of the 9 are outside the project site. There were a couple of extra sites monitored due to previous project boundary incorporating some additional properties. The bat specialist selected a range of monitoring sites that represented a variety of habitats across the site. Full results of bat survey can be found in Attachment E.
I hope this points you in the right direction, if you would like to discuss any of them further please let me know. I would also be interested to know if you have any concerns with flora and fauna in relation to the proposed

wind farm.
Regards. Frank
Frank Boland
M +61 423 778 125

Appendix B

Michael & Linda Lyons
"Mt Bodangora"
Wellington
NSW 2820
Ph: 2 68466351
Fax: 2 68466318

E-mail: mt.bodangora@bigpond.com

Wednesday, July 18, 2012

Mr Frank Boland,
Development Manager
Infigen Energy Development Pty Ltd
Level 22
Pitt Street
Sydney NSW 2000

CC: Ms Anna Timbrell

Re: Bodangora Wind Farm
Department of Planning Number 10-1057

Dear Mr. Boland,
I refer to the above proposed Bodangora Wind Farm (DOP Number 10-1057.)
I would like to ask if the proponent could provide the following additional information.
1. In the assessment of bats, did they assess for threatened Nyctophilus bat species likely to occur in the area? These cannot be detected properly using ANABAT ecolocation. If not, please provide justification.

There were 174 calls from Long-eared bats (Nyctophilus) in the survey within woodland (and also lots in creek lines and some in pasture). Difference between the different species of Nyctophilus cannot be distinguished using ANABAT (see guidelines for surveying threatened bats).
Note that Nyctophilus corbeni is listed under the EPBC Act as Nyctophilus timoriensis
2. Could you please provide the bat ecolocation graphs or samples of each species.
For the benefit of Ms Timbrell and the Dept. of Planning, this letter is not a submission to you on this development but simply to ask further questions of the proponent.

Thanking You,

Michael Lyons

SCIENTIFIC REVIEW OF FLORA AND FAUNA ASSESSMENT METHODOLOGIES UNDERTAKEN FOR THE FOR THE REPORT *"BODANGORA WIND FARM ENVIRONMENTAL ASSESSMENT"*

Prepared by Ms Jennifer Smits[1] & Dr George R Wilson[1 2]

[1] Australian Wildlife Services

[2] Associate Professor Fenner School of Environment & Society, Australian National University

Australian Wildlife Services
ABN 29 008 552 243

.ph: (+61) 2 6281 2160
.fax: (+61) 2 6285 1885
.web: www.awt.com.au
george.wilson@awt.com.au

Summary

Australian Wildlife Services was consulted to undertake a scientific review of the methodologies and documents relevant to the Flora and Fauna Assessment, part of the Bodangora Wind Farm EA. This included Chapter 9, Attachment G and Attachment H. On review, it was difficult to make an assessment of the likely impact of this wind farm on the flora and fauna present based on the current version of the EA as there was a significant amount of data and mapping missing, including information requested by DGRs and recommended in the *Threatened Species Survey and Assessment: Guidelines for Developments and Activities* (Working Draft) (DEC 2004). A request was placed with the developer Infigen for additional data and maps. These items are outlined below along with summary points on review of the methodologies.

Consistently through Chapter 9 and Attachment G, unquantified or qualified statements are used with use of words such as: much of, the vast majority, are rare, a few, most, almost, often. There is little attempt to make meaningful scientific correlations and arguments between the data and summary text, making it difficult to pass this document as a scientific assessment of likely impact of flora and fauna.

On 11/07/2011, the developer was requested to provide the following additional information, mapping and data they have undertaken or required under the DGRs:

1. Soil mapping that shows the areas of "poor soils" as per 9.2.1 (p103)
2. Mapping of vegetation types and conditions that were assessed as per 9.2.1 (p103)
3. Mapping of habitat condition or quality, including rocky areas, rare wetlands, riparian vegetation and farm dams identified as per 9.2.1 p105 ("*Areas of rocky outcrops have also been identified… especially evident in the central and southern parts of the study area."…."Low-lying flats and riparian zones along watercourses provide some wetland habitat*")
4. Mapping or GPS locations of trees with hollows, especially where "large, mature trees with hollows have been avoided and can be retained to ensure maintenance of the existing habitat." p107
5. Please could they provide justification to why seven of the nine bat survey points are outside of the wind farm project area?

It is likely that further data and mapping will be requested of Infigen so as local stakeholders are able to make an informed evaluation of the quality of the EA and the assessment of the impact on flora and fauna.

Unless further information can be provided, it appears that this assessment of flora and fauna has failed to show targeted and stratified surveys for many threatened species potentially occurring, or historically occurring within the project boundary such as Koalas, Quolls and Superb Parrots. There are statements to the effect that they have undertaken targeted surveys, but these techniques are not described, survey locations nor criteria for target locations are not described, nor data provided. The lack of statistical information also makes it difficult to assess the methods employed by Kevin Mills and Associates. For example, there is a lack of 'species-time' or 'species-

area' curves to assess whether survey effort or survey area was sufficient to represent the majority of species at the site.

Fauna surveys

Superb parrots

Chapt 9 p106 – notwithstanding the pending surveys for superb breeding habitat during spring/summer, data is needed to assess the impact of turbines on Superb Parrot flight paths and habitat fragmentation on their seasonal migrations, food trees and grass, and flight corridors during winter? As well as an assessment of the impact of increased road traffic during construction phase leading to increased flushing leading to road strike. These threatening processes are outlined in the National Recovery Plan for Superb Parrots (Baker-Gabb 2011).

It is not clear whether they undertaken detailed superb parrot feeding vegetation mapping and surveys (flowering trees, acacia species, grasslands and crops) and assessed the proximity of these habitat types to turbines and cleared areas?

The proponent appears to have not contacted BirdLife Australia for their expertise for this species? Nor referenced material within the National Recovery Plan.

Chapt 9 p 113: Will the results of the superb parrot study pending be available for public viewing and comment before proposed construction? This survey is expected to target woodland on ridges - were woodland areas on ridgelines not surveyed previously in both winter and summer for all bird species, including superbs? Targeted surveys should be required for this species for wintering populations, these are more likely to be impacted than summer populations – as they breed further south (see National Recovery Plan Superb Parrot – 2011 & Figure 1 below).

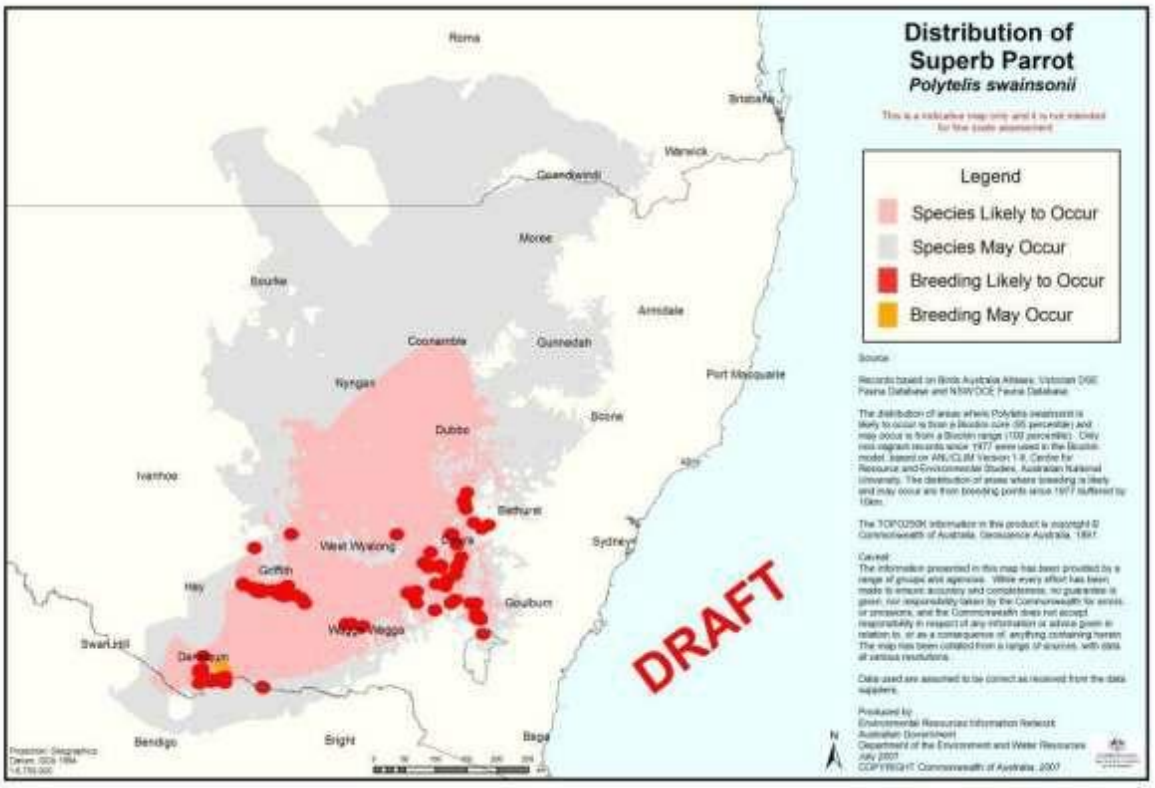


Figure 1. Distribution of the Superb Parrot from Baker-Gabb, D. 2011. National Recovery Plan for the Superb Parrot Polytelis swainsonii. Department of Sustainability and Environment, Melbourne.

Chapt 9 p 109: "*Blade strike is unlikely to be a threat since the parrot is a ground feeder and seldom fly above the canopy*. "

- **These birds frequently fly above the canopy. More references are need here to back up this statement. See Manning et al etc. Their anatomy and body form and flight (wing flap) action are consistent with birds that fly long distances above canopy height.**

Attachment G: 7.3 Impact of the Proposed Wind Farm on the Superb Parrot*: "native grassland utilised for feeding by the parrots is largely absent from the area and very little would be impacted by the wind farm*"

- **please reference this statement, they clearly target non-native grasses and crops in other regions as well as flowering trees, acacia species and plants with lerps - see the National Action Plan**

Other threatened birds

Attachment G 7.2: " *The Grey-crowned Babbler requires natural woodland with a native understorey. Such woodland is rare in most parts of the wind farm site. The wind farm does no impact on any natural woodland, so the impact on the habitat of this species is very unlikely to be significant*."

- **Fair enough except if the woodland is rare in "most" parts of the wind farm site – where exactly DOES it occur. Were these sites targeted – can they provide traverse maps showing where these areas were targeted for this species**?

Chapt 9 p106: Grey crown babbler was observed at one site. However there is no indication of site stratification that targeted this species.

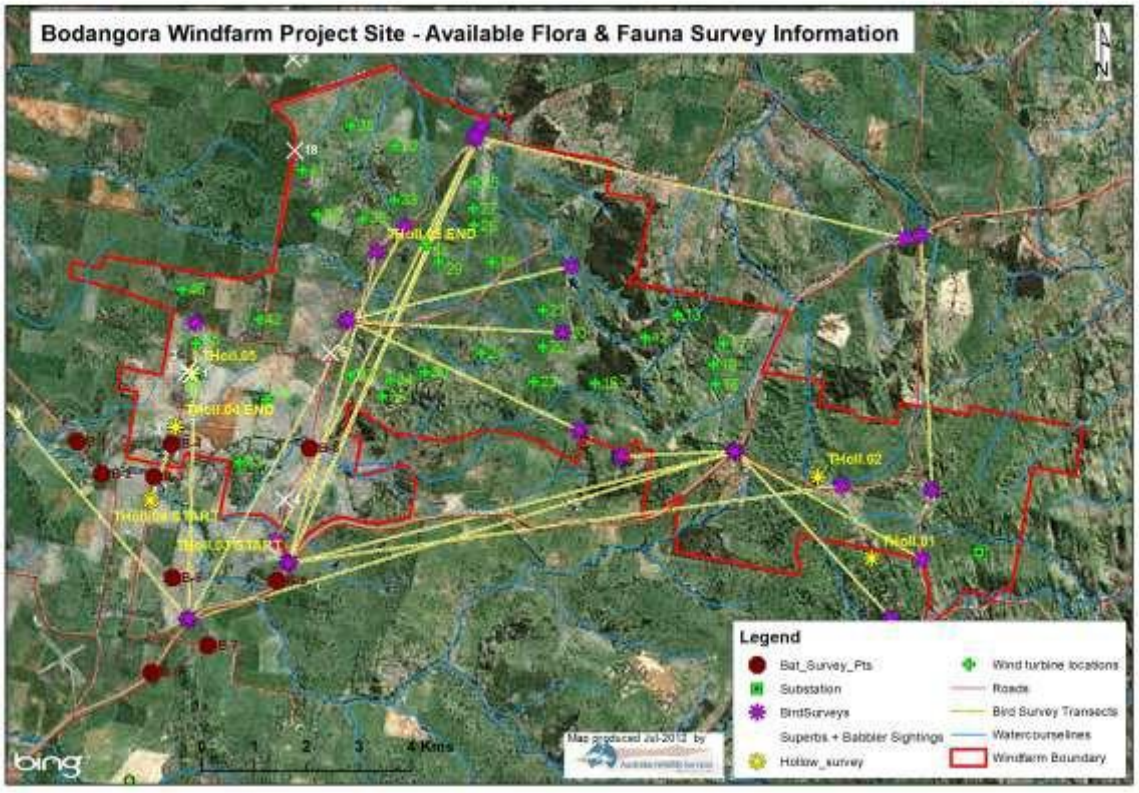
- **How many similar sites did they assess for this species?**

Brown treecreeper

One record of the Brown Treecreeper exists within the project boundary and several others within a 10km radius of the project area (Atlas of Living Australia CSIRO www.ala.org.au). This species was not targeted during surveys.

Survey effort – birds

It is uncertain where the traverses were undertaken for the bird survey. Using line of sight, it appears that many of the traverses were via road (see map below). It was also unclear whether these traverses were also for flora and habitat surveys. What proportion of time was spent on birds during these traverses compared to flora? Was more than one assessor used?



Using line of sight (may be otherwise but information not provided in the EA), the km for each traverse and mins taken for each was determined using ARCGIS (see table below). It is not justified why these methods were taken, how each traverse was stratified between different vegetation types and why some traverses were searched for much longer than others.

Site_no	Location	km*	mins	km/mins	m/mins
BIRD 01	Gillinghall Road	8.633	125	0.069	69.062
BIRD 02	Gillinghall Road, Spicers Road to Mudgee Road.	8.434	60	0.141	140.569
BIRD 03	Badalong Road to Gunnegalerie	4.890	43	0.114	113.727
BIRD 04	Gunnegalerie gate along Mudgee Road to Bodangora	8.780	25	0.351	351.212
BIRD 05	Driel Creek Road - Bodangora Road to Dunedoo Road	7.782	27	0.288	288.236
BIRD 06a	Glen Oak (not sure why two starting pts)	4.384	270	0.016	16.239
BIRD 06b	Glen Oak (not sure why two starting pts)	4.898	270	0.018	18.139
BIRD 07	Landsgrove Ridge - Driel Creek Road û Isali Street x Mudgee Road	8.592	110	0.078	78.110
BIRD 08	Gilinghall Road along Mudgee Road to Gunnegalderie gate	10.912	30	0.364	363.740
BIRD 09	Gunnegalderie property	4.137	140	0.030	29.553
BIRD 10	Gunnegalderie to Mount Bodangora	2.160	110	0.020	19.638
BIRD 11	Bodandora to Meadowlands	End coordinate of traverse not provided			
BIRD 12	Gillinghall Road	9.158	189	0.048	48.457
BIRD 13	Glen Oak property	4.136	184	0.022	22.479

Site_no	Location	km*	mins	km/mins	m/mins
BIRD 14	Along highway and into Gunnegalderie property	10.661	37	0.288	288.130
BIRD 15	North of Bodangora	5.679	60	0.095	94.646
BIRD 16	Gunnegalderie	4.373	300	0.015	14.577
BIRD 17	Gallinghall Road	6.200	65	0.095	95.381
BIRD 18	Bodangora to Meadowlands gate	End coordinate of traverse not provided			
BIRD 19	Gallinghall Road	8.891	35	0.254	254.027

***line of sight – may be otherwise but information not provided in the EA**

Chapt 9 p 108: "*there is no supportive habitat or topographical features present within the project area suitable for large soaring raptors or large waterbirds which would be the most likely to collide with turbines*"

- **This may have been overlooked by the consultant, there is plenty of habitat for large soaring raptors. See wedged-tailed eagle nest photo from local landholder (Figure 2) – all they need is a large mature tree to nest in.**

Figure 2: Wedged-tailed Eagle Nest – South of development area – photo by Mike Lyons.

Koalas and Quolls

There is no mention of targeted Koala surveys despite historical records for the species in the area and presence of food trees. The EA states in Attachment G Section 4.2 Table 4 "*Lack of local records*

suggests species is these species is often dominant or prominent." Three historical records exist within the Atlas of NSW Wildlife (www.bionet.nsw.gov.au) and *CSIRO Atlas of Living Australia (www.ala.org.au):* 6km, 7km and 10km from the project boundary. Local knowledge of the species exists where people remember seeing them when they were growing up.

Attachment G Section 7.2 "*The Spotted-tailed Quoll is not likely to be widespread in the area; the location where the species was observed a few years ago is in the vicinity of the granite country and where there are quite large areas of woodland. One or both habitats may be important for the quoll. There are now no turbines in that area*."

- **It is unclear where this granite country is, nor high quality quoll habitat could this be mapped with proximity to towers and new tracks/transmission lines.**

Vegetation surveys and results

Methods used by the consultant include transect and random meander. These are some of the recommended by the threatened species guidelines (DEC2004) but the guidelines recommend also applying plot-based surveys in addition 'to ensure the survey area is adequately sampled'. Plot based sampling has not occurred in this field survey and flora assessment, and justification why has not been provided. Advantages of plot-based surveys (DEC 2004) are:

- they enable a quantitative examination of species distribution and abundance;
- they are more likely to detect inconspicuous or threatened species, as a smaller area is sampled in a concentrated search; and
- they provide a basis for any subsequent monitoring required.

In outlining methods undertaken, the consultant has not provided information on site locations, survey effort, site stratification, number of traverses/random meanders and they do not provide or summarise the results other than floristic for the entire project area in Appendix 1. They do not provide the recommended information to be recorded (see below) – floristics, structure, vegetation boundaries, or which sites were targeted for specific threatened species.

Could they please provide more information on where the traverses and meanders were? Map? Were these traverses stratified to vegetation type or topography or habitat targeted for threatened species?

Table 5.1 Suggested survey techniques and effort for plant transects (traverses) and random meanders

Survey technique	Suggested minimum effort	Information recorded
Transect	1x100m traverse per stratification unit <2 hectares 2x100m traverses per 2-50 hectares of stratification unit 3x100m traverses per 51-250 hectares of stratification unit 5x100m traverses per 251-500 hectares of stratification unit 10x100m traverses per 501-1000 hectares of stratification unit, plus one additional 100m traverse for each extra 100 hectares thereof	Floristics, structure, vegetation boundaries
Random meander	30 minutes for each quadrat sampled within the same stratification unit as the quadrat	Targeted for threatened species

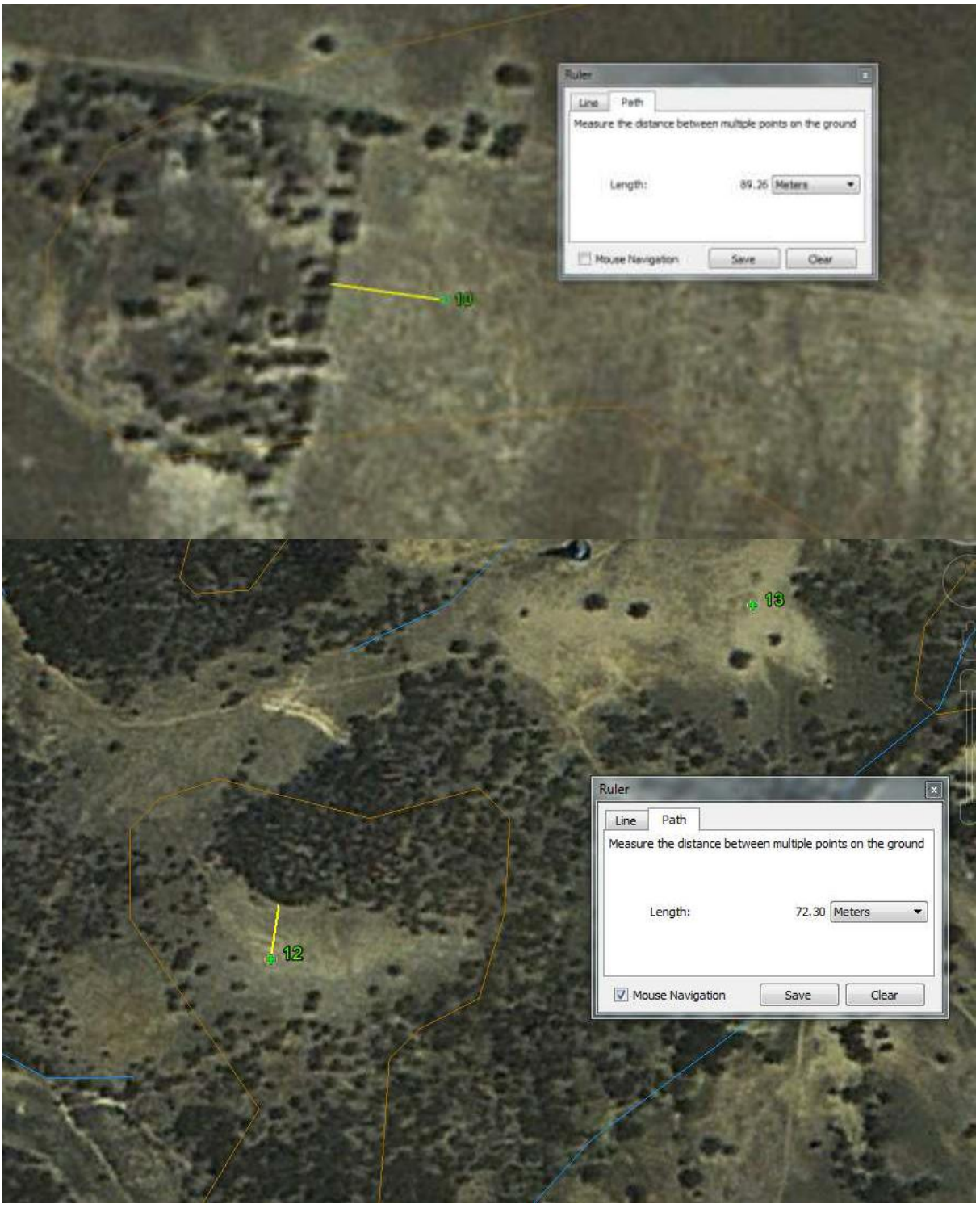
Table 5.2 Suggested survey techniques and effort for plant quadrats

Survey technique	Suggested minimum effort	Information recorded
Quadrat	At least: 1 quadrat per stratification unit <2 hectares 2 quadrats per 2-50 hectares of stratification unit 3 quadrats per 51-250 hectares of stratification unit 5 quadrats per 251-500 hectares of stratification unit 10 quadrats per 501-1000 hectares of stratification unit, plus one additional quadrat for each extra 100 hectares thereof.	Floristics, structure, threatened species

They claim p9 "*each of the proposed wind turbine tower locations was visited and most logical access routes and notes were specifically made on the vegetation and habitat at each site; see Appendix 4*." But it appears that the only data provided for vegetation at each site in Appendix shows only general notes such as "*Exotic grassland; very scattered Eucalyptus albens*" rather than detailed descriptions of vegetation floristics and structure, and condition. Dominant exotic species or dominant understorey species are not specified in Appendix 4, only presence of dominant overstorey. Could this information please be made available?

But conversely to the statement quoted above "*each of the proposed wind turbine tower locations was visited"*, Appendix 4 states that turbines 9-16 were not visited and declared 'cleared paddock'[1]. Inspection of Google Earth at each of these sites shows clearly trees within 50-200 m of each location (see example WTG 10; WTGs 12 & 13).

[1] WTG 9 since removed from wind farm layout.



Turbine sites were not preliminary determined until the second set of surveys was undertaken (see page 102 of main EA document "*The second field survey in July 2011 was undertaken once the preliminary layout of the wind farm had been determined*"). This suggests to the reader that each of the turbine sites may have been only assessed during winter, July 2011, which is unlikely to be appropriate for many forbs etc that actively grow in spring or warmer months. It even states on p9 of Attachment G that October/Spring was the better time of year to detect most species "*the survey was fairly thorough and one survey period was at a good time of the year (spring after good local rain)".*

Attachment G states "…*references consulted as part of the study include the work of Althofer & Harden (1980), Dubbo Field Naturalists Society (1984) and Cumberland Ecology (2005). Contact was also made with the Central West Catchment Management Authority in Wellington for information*." However there is no attempt to summarise or reference the material collected from these sources.

- **What was the information collected from these sources and was it utilised in this study?**

Attachment G Section 4.1: "*At most, tussocky native pasture is found in a few paddocks, sometimes dominated by species of Speargrass Austrostipa spp. and/or Redleg Grass Bothriochloa macra*."

- **Could the consultant please map the vegetation they have assessed – and indicate where these 'few' paddocks are?**

Attachment G Section 7.1: "The vast majority of tower locations and access routes are across cleared and heavily modified grazing land. Some clearing of vegetation is required at a few tower sites, as summarised in Appendix 4.

- **Why isn't this statement quantified if they claim to have visited each of the 33 sites.**

Attachment G Section 7.3: Impact of the Proposed Wind Farm on White Box Yellow Box Blakely's Red Gum Woodland: "*The sites for the wind farm infrastructure do not support this community as defined in the guidelines from the Commonwealth*."

- **At no stage of Chapter 9 or Attachment G is this quantified scientifically other than generalised sweeping statements. Data on each site and stratification unit must be provided including native species present and cover %, exotic species present and cover % AND condition. Then assessments can be made on whether these communities can be listed as per the policy listing information by the Threatened Species Scientific Committee (TSSC).**

Chapt 9 p103: "*The project area supports some stands of modified woodland and scattered paddock trees, although the understory and groundcover to almost all woodland areas is exotic grassland or a mix of native and exotic plants, with the exception of some areas including along roadsides (including Gillinghall Road)"*

- **Which sites did they assess for flora composition within woodland and scattered paddock trees. What is the exotic grass species so dominant? Forbs present? Where they assessed at the right time of year? Not provided in Attachment G.**

Chapt 9 p 103: "*on the ridges, whilst there is almost no native grassland understory remaining, tussocky native grasses are found in a few paddocks, sometimes dominated by species of Speargrass Austrostipa spp. and/or Redleg Grass Bothriochloa macra*"

- **Please provide mapping of these areas with proximity to turbines and cleared areas. Not provided in Attachment G. Ridge vegetation is often the only remaining remnant of woodland areas and to remove these could cause an environmentally tipping point in terms of landscape functionality.**

Chapt 9 p 108: "*Those sites that support native plants, such as road reserves and the granite country, were targeted by the field surveys, notwithstanding no threatened plant species were identified*."

- **How were these targeted? Were they stratified? Where the modified areas assessed also for native grasses and threatened forbs? Not provided in Attachment G.**

Chapt 9 p 109: "*White Box - Yellow Box - Blakely's Red Gum Woodland: Whilst the wind farm will result in some loss of native vegetation that is part of the listed community, the loss is small and high value sites are not involved*."

- **No map of the high value sites provided. Not provided in Attachment G.**

Chapt 9 p 110:"*The Policy Statement prepared by DEH 'White Box – Yellow Box – Blakely's Red Gum Woodland' (2006) provides strict procedures for identifying the community. Almost none of the treed areas in the project area meet the minimum criteria for the community*."

- **Other than stating that the 'majority of the woodland areas do not have a substantially native understory' there is no data or summary of data providing the evidence for this statement. For example: Percentage of sites assessed where understorey was native and % where understorey was non-native; total floristics for each site (not for the entire area) including quantified plant coverage to show that thresholds for this statement are met as per the DEH Policy Statement.**

Chapt 9 p 104: Presence of Threatened Flora "*No threatened plant species have been recorded within 20 kilometres of the project area, or within the project area. Given the highly modified environment within the project area, it is unlikely that any threated species would occur*."

- **Threatened flora has been historically recorded within 20 kms of the project area – this data is shown in Appendix 7 of Attachment G. How is it unlikely that any occur here? Please provide references for this statement.**

Flora, threatened species, Selected Area - 148.83333,-32.58333,149.33333,-32.25000 returned a total of 113 records of 5 species.
Report generated on 11/10/2010 - 21:45 (Data valid to 25/04/2010)

Plants	Map	Scientific Name	Common Name	Legal Status	Count
Fabaceae (Faboideae)					
	☐	*Swainsona recta*	Mountain Swainson-pea	E1	88
	☐	*Swainsona sericea*	Silky Swainson-pea	V	1
Fabaceae (Mimosoideae)					
	☐	*Acacia ausfeldii*	Ausfeld's Wattle	V	4
Orchidaceae					
	☐	*Caladenia arenaria*	Sand-hill Spider Orchid	E1	1
Rutaceae					
	☐	*Zieria obcordata*	-	E1	19

Source: Attachment G

Habitat mapping and condition assessment & proximity to infrastructure

(not undertaken or data not provided)

Attachment G 7.2: "*The Bodangora wind farm avoids all high value vegetation or habitats; components of the wind farm are located to avoid all important native habitats. The development will be mitigated in those areas where there could be some native habitat loss by minimising the footprint of the development and micro-siting components to avoid local habitat features, such as rock outcrops*."

- ***It is good that the wind farm is located to avoid all important native habitats (although they go onto say that where there could be loss …which is it – avoid all habitat or some habitat loss?) but there has been no assessment provided of habitat quality. Could they please provide habitat quality assessment methods, and mapped results?***

Chapt 9 p107: "*infrastructure has been located to avoid local habitat features, including creeks, high quality remnant woodland, rocky outcrops or other features which could be important to flora and fauna*".

- **These data and habitat conditions need to be mapped or gps points provided to show how these local habitat features have been 'avoided'? This should include non-native habitat. As per the Threatened Species Survey and Assessment: Guidelines for Developments and Activities (Working Draft) (DEC 2004) The habitat assessment should include information on:**
- **landscape features in the study area (e.g. river banks, rocky outcrops, dry slopes, wetlands, undulating terrain)**
- **any other features that could provide habitat such as hollow-bearing trees or culverts**
- **the DECC BioMetric vegetation types.**

Chapt 9 p 105: "Low-lying flats and riparian zones along watercourses provide some wetland habitat, although all wetlands in the area are rare and ephemeral in nature. Farm dams within the

project area provide relatively small areas of open water with little fringing wetland vegetation, only useful for low numbers of a few species."

- **Were farm dams assessed for waterbirds or is this an assumption? If so, please provide literature/reference/evidence for this statement.**

Tree Hollows

"*Of 361 trees which were surveyed as part of the field investigations, 17 percent of trees had at least one hollow. Kevin Mills and Associates consider 17 percent of hollow-bearing trees as 'not common'*" Chapt 9 p105 (also see Attachment G Section 5.1)

a) **In what unit area were these trees assessed eg what percentage of the landscape was assessed or in hectares? Were the surveys stratified by vegetation type?**
b) **If KM&A consider 17 % hollows 'not common' what is the basis and literature for this definition?**
c) **Data not provided: What was the bch of tree species with large hollows? What was the dch of the 73% of trees that did not have hollows. And what species were assessed – only species known to produce hollows or all trees present. Were all trees at a site assessed or were the trees sub-sampled? Why were the sample sizes and sample areas different. Can they quantify the area at each site assessed – including information such as stems per ha or density?**

Minimum clearing

Chapt 9.3.1 p 107: Worst case scenario clearing: What evidence do they have to support that 22 sites have 0 native vegetation or trees? The worst case for all 33 sites is 3.96 ha cleared. This does not include a figure for roads widening and reinforcing.

The impacts of clearing along the length of transmission lines and 39km of upgraded or new tracks have not been included in the 'worst case scenario' for clearing. Furthermore, using 30-40m cleared areas around each tower location, Google Earth showed 16 turbines to be in presence of trees that needed to be cleared. Not the 11 stated in the 'worst case scenario' for clearing (section 9.3.1).

Microsighting

Chapt 9 p 107: **If microsighting is undertaken, will landholders be notified and given the opportunity to protest? Will further surveys of those sights be made?**

Lack of qualification of data represented

Use of unqualified terminology is throughout Chapter 9 and Attachment G. For example Attachment G Section 4.1: "*The study area supports some stands of modified woodland and scattered paddock trees and patches of trees; much of the area is treeless. Within the grazing land, there is often very little native ground cover and native shrubs, in particular, are quite rare… …The understorey in most places is exotic grassland or a mix of native and exotic plants; i.e. native pasture. The majority of the study area is exotic pasture with few if any trees*."

"*At most, tussocky native pasture is found in a few paddocks, sometimes dominated by species of Speargrass Austrostipa spp. and/or Redleg Grass Bothriochloa macra*."

"*Within the grazing land, there is <u>often</u> very little native ground cover and native shrubs, in particular, are quite rare*."

" <u>Almost all</u> of the remnant trees, patches of trees and occasional patch of native grassland in the lower areas are part of the one plant community, the White Box - Yellow Box - Blakely's Red Gum Woodland."

Section 7.3*: "Based on abundance of native understorey and presence of mature trees, <u>almost none</u> of the treed areas in the vicinity of the wind farm meet the minimum criteria for the community."*

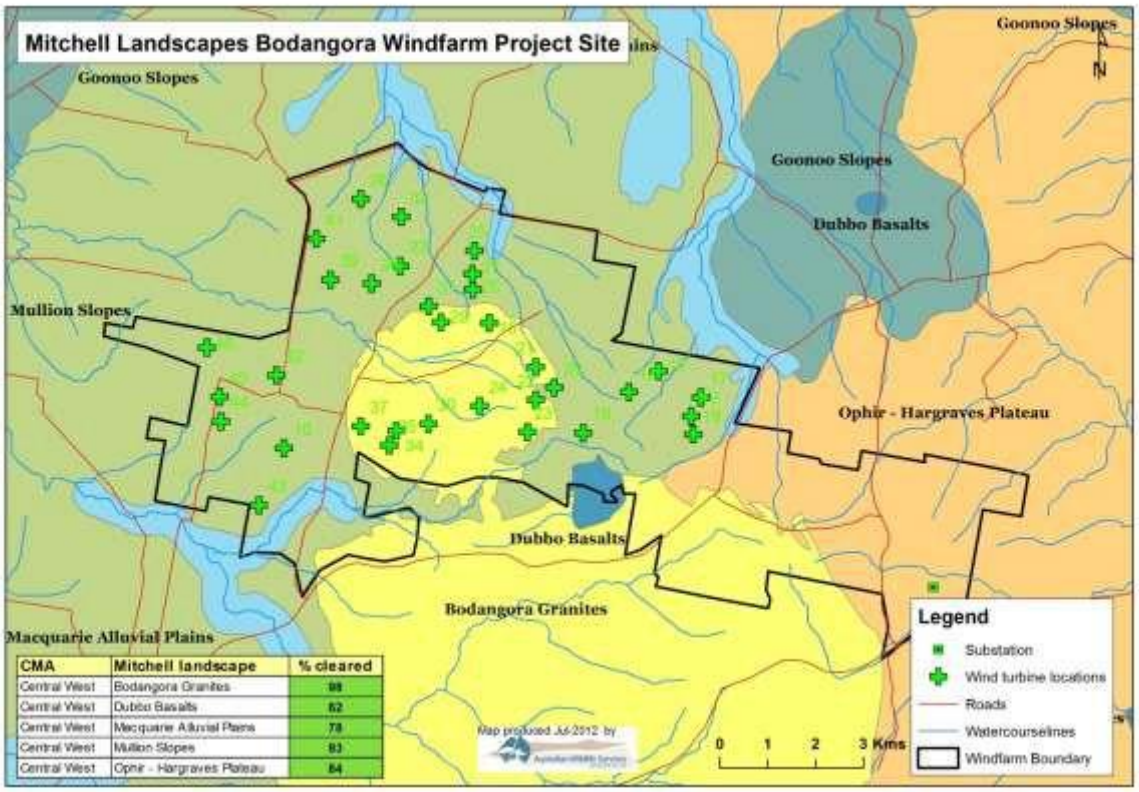
- **The assessment would be more scientifically rigorous if the consultant could quantify or map these areas. There is no indication to the reader what the percentage of any of these vegetation types occur across the landscape and where Especially in relation to proximity to tower locations or areas to be cleared. What percentage of ground cover is exotic or native at each site assessed? What number of forbs were found at each site – if assessed at the correct time of year?**

Mitchell landscapes

While the proponents are not required to satisfy legislation enacted by the *Native Vegetation Act 2003* as the development is being assessed under Part 3A of the EP&A Act, consideration should be given to the Mitchell landscape types affected within the project area. Such highly cleared areas are likely to be in an environmentally or functionally fragile state – where small pockets and remnant of vegetation are important to continue to connect the landscape and habitats. While these landscapes could be better managed to encourage regrowth of healthy systems through grazing management and revegetation, emphasis needs to be put on the importance of retaining remnant vegetation in these areas. The Mitchell Landscapes present in the area are shown in the table below. All landscape types have been highly cleared 78-98%, where it is recommended that no clearing occurs in ecosystems that are more than 70% cleared and not in low condition (Native Vegetation Act 2003).

CMA	Mitchell landscape	Revised % cleared
Central West	Bodangora Granites	**98**
Central West	Dubbo Basalts	**82**
Central West	Macquarie Alluvial Plains	**78**
Central West	Mullion Slopes	**93**
Central West	Ophir - Hargraves Plateau	**84**

Source: *Eco Logical Australia, (2008). Editing Mitchell Landscapes, Final Report. A Report prepared for the Department of Environment and Climate Change.*



Bats

The report 'Matters of National Environmental Significance' provided in the preliminary Environmental Assessment for Infigen for the Bodangora Windfarm (2010) show *Nyctophilus timoriensis** (South-eastern form) / *Nyctophilus corbeni* (Greater Long-eared Bat, South-eastern Long-eared Bat) potentially occurs in the area. During surveys by Greg Richards and Associates Anabat ecolocation methods were used. This is an accepted methodology for assessing many threatened bat species (see Survey guidelines for Australia's threatened bats DEWHA (now SEWPAC) 2010). However it is not an appropriate methodology for assessing for *Nyctophilus* species as the difference between the different species of *Nyctophilus* cannot be distinguished using ANABAT (as per the National guidelines for surveying threatened bats). During the survey by Greg Richards and Associates – 174 calls from *Nyctophilus* species were recorded in woodland areas (and also recorded in creek lines and some in pasture), but presence of threatened *Nyctophilus* species cannot be determined using this method. National guidelines for surveying threatened bats (DEWHA 2010) recommends harp trapping methods. Why weren't these methods employed?

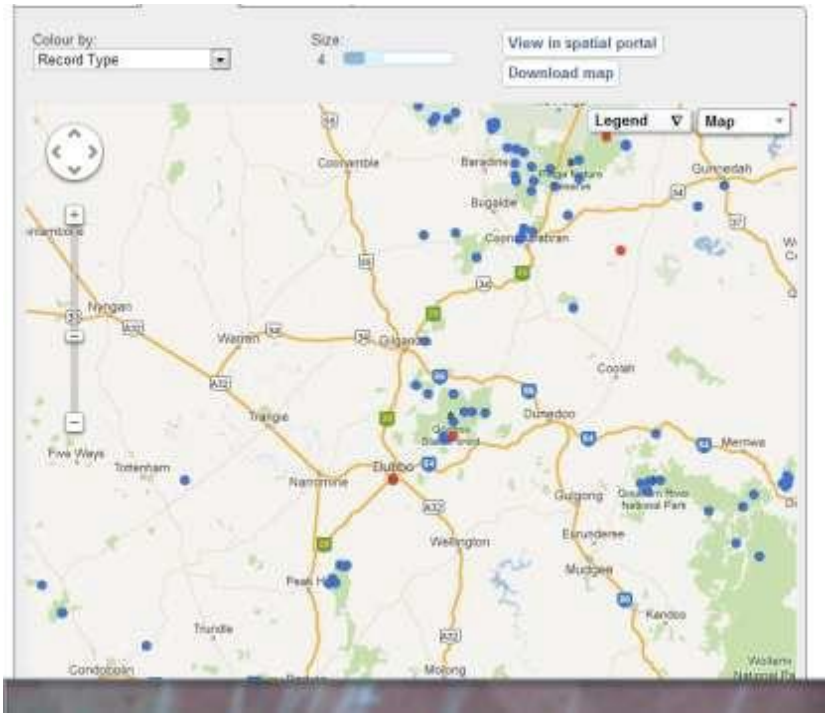
> *Note that *Nyctophilus corbeni* is listed under the EPBC Act as *Nyctophilus timoriensis. Prefered methods to survey for this species include*
>
> Historical distribution of this bat shown in map below showing records to the north and south west. It is unlikely that presence of this species has ever been assessed the project area.

- **Could they please provide the bat ecolocation graphs or samples of each species?**

- P113 (chapt9): "*Monitoring of barotrauma during the first year of operation*" – **this should occur for the life of the wind farm!**

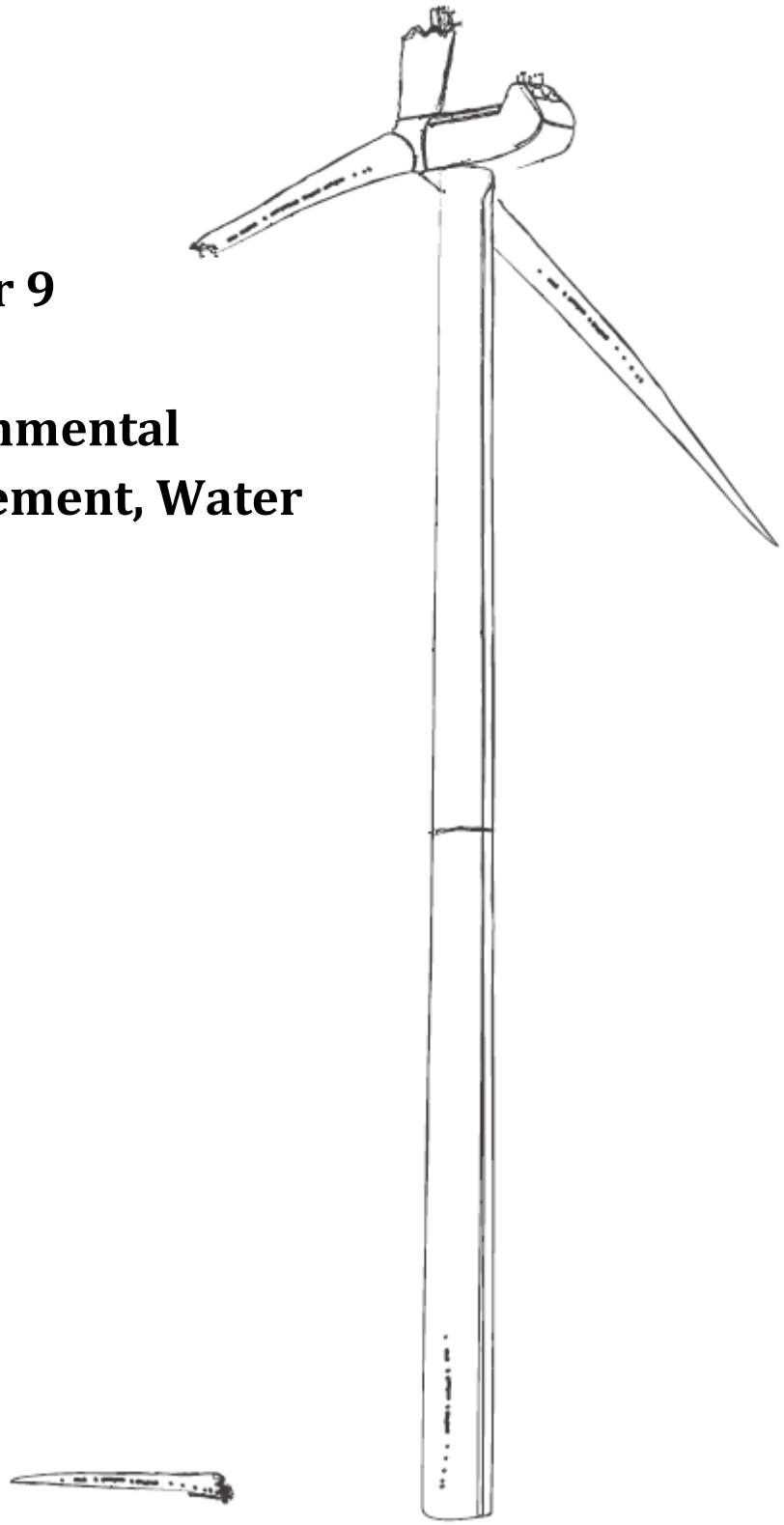
Historical distribution

Nyctophilus timoriensis : Central Long-eared Bat:



Chapter 9

Environmental Management, Water & Soils



CHAPTER 9 ENVIRONMENTAL MANAGEMENT, WATER AND SOILS

Director Generals Requirements

1. Identify water demands and determine whether an adequate and secure water supply is available for the life of the project including the statutory (licencing)/water sharing plan context of the water supply sources, and assess potential environmental impacts associated with the identified sources, including impacts on groundwater.
2. Where the project would cross significant waterways, the EA must identify likely impacts to the waterways and measures to minimise impacts on hydrological, water quality, aquatic and riparian impacts.
3. Details of the design of the waterway crossings where such crossings are to be located in third order or higher streams are to be provided.
4. EA must also address soil erosion issues, the potential for clearing to create a salinity risk and the potential for accidental spills to affect water quality.
5. The EA must include an environmental risk analysis to identify potential environmental impacts associated with the project, proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of the additional key environmental impact(s) must be included in the EA.
6. The EA must also detail measures to contain any hazardous substances to prevent the contamination of pastures and dams."

In addition the proponent must consider the following additional guidelines

1. **Construction Environmental Management Plan (EMP)**
   Applicants should provide an outline Environmental Management Plan (EMP) identifying how the site will be managed through construction and future operational and maintenance specifications.
2. Requirements for Development Applications (DAs) and an accompanying Environmental Impact Statement (in the case of State significant development) or a Statement of Environmental Effects (in the case of local or regional development) are specified in Schedules 1 and 2 of the *Environmental Planning and Assessment Regulation 2000*. If the development is SSD, additional requirements to address in an EIS may be specified in Director-General's Requirements. A guide for applicants on

information that may need to be included in an Environmental Impact Statement is provided below.

3. Description of the proposal

A detailed description of the wind farm proposal should be provided so that all the impacts can be identified and assessed. The description should include the following information:

- proposed generation capacity and envisaged lifespan of the wind farm
- proposed market for the energy and any relationship with any electricity generator, network retailer or any energy users
- height, capacity, materials, design and standards of all components of the proposal
- the transmission connection on the site and to the grid/energy users – capacity, length, route, any easement issues, substations, ownership/ management arrangements
- estimated project costs including transmission infrastructure and access roads
- the number of construction and operational employees on site and off-site
- outline land ownership or lease arrangements (if leasehold indicate the number of landowners
  and length of lease)
- overview of the proposed operational, management and maintenance regime
- overview of the arrangements for decommissioning
- possible future expansion or future stages

4. Site layout

The site layout should be described. Plans, sketches, diagrams, maps, aerial photographs or photomontages should be provided indicating the location of the following:

- any land proposed as wind farm sites and associated construction - indicate:
- the current land use
- location of all residences within 5 km
- any significant vegetation communities, water bodies, buildings or features
- existing transmission lines, pipelines, roads or crown easements
- proposed lay-out and spacing of turbines; administration buildings, access roads, any viewing facilities, landscaping, any noise and visual screening. If flexibility in the layout or spacing of turbines is sought to enable post approval micro-siting, the extent of flexibility sought should be described and justified
- proposed transmissions lines on the site and to the grid and substations
- construction area including access roads, construction camps, fabrication or assembly areas, any on-site concrete batching facilities; stores for fuels and any dangerous goods, storage areas for soil and construction materials, drainage protection and sediment control works. and
  rehabilitation works.

- possible future expansion area, where relevant

5. Construction issues

The construction activities related to site establishment, construction or post construction rehabilitation should be described. This may include:

- Proposed location of construction facilities and overview of construction phase
- The construction program and any staging, including:
- the construction period and daily hours
- construction location
- proposed sources and volumes of construction materials, chemicals, fuels and other materials to be transported to the site
- Details of site establishment works, such as:
- the establishment of site offices, construction compounds, temporary concrete batching plants, stockpiles of materials, the erection of temporary fencing, lighting and signage
- relocation and adjustment of utilities and services; any diversion of drainage lines
- any demolition of unwanted buildings and structures.
- Details of construction works such as:
- tower fabrication, assembly and erection
- blade/rotor assembly and erection
- construction of underground and above ground transmission lines and connection to the grid and associated substations
- upgrading or construction of temporary and permanent access tracks
- temporary and permanent erosion and sediment control structures
- buildings and maintenance facilities.
- any vegetation clearing in construction and other areas - outline rehabilitation plans, showing final contours and drainage for the site along with the staging of the rehabilitation and landscaping
- Transport issues, including:
- method of transporting large items to site
- proposed truck routes and any upgrade works or road safety protocols required on the access routes to allow for transport of large items
- Demonstration that the proposed wind farm will be capable of meeting structural adequacy /design requirements in the relevant standards, Building Code of Australia (BCA), wind turbine manufacturers' specifications and other relevant standards for the construction of wind turbines
- Provide details of waste management and disposal, such as:
- volumes and types of surplus fill and demolition material; proposed transport arrangements;
  disposal methods and sites; recycling opportunities and stockpile requirements

- the management strategy for any contaminated spoil or materials.

6. Mitigation and management of issues

Applicants should include a Management Plan in their assessment report outlining proposed avoidance, mitigation, management and monitoring measures. If a DA is approved, mitigation, management and monitoring requirements will also be specified in the conditions of consent.

The EIS should include an assessment of the likely effectiveness of the proposed mitigation and management approaches to avoid, minimise or manage impacts. Particular attention should be given to potential impacts on neighbours within 2 km of a proposed wind turbine (that do not host the facility).

The Plan should include:

- an outline of an environmental management plan (EMP) for the construction and operation of the wind farm. This should consist of a compilation of the applicant's commitments with regard to the location, layout, design or technology features to minimise or manage impacts on the environment
- an outline of environmental monitoring, auditing and reporting program, and
- an outline of the ongoing community consultation program including complaints management and conflict resolution measures.

7. Management

The Environmental Management Plan (EMP) should demonstrate sound environmental practice during the construction, operation and decommissioning of the proposal and the environmental management principles which would be followed in the subsequent planning, design, construction and operation of the proposal. Issues that the EMP should address include (but are not limited to):

- construction stage; where relevant, including:
- erosion and sedimentation management
- noise and dust
- constraints on land clearing, rehabilitation and revegetation
- waste management
- transport management
- management of operation impacts including maintenance
- induction programs for construction and operational staff
- operational stage, where relevant, including:
- describe how environmental performance will be managed to meet acceptable outcomes

  including measures to manage noise emissions, visual impacts, flora and fauna impacts, electro-magnetic interference impacts, emergency management measures including measures in relation to bushfires

- describe maintenance activities associated with the project to demonstrate how appropriate environmental performance will be met
- undertake an environmental risk analysis covering the operations phase
- outline relevant training provisions to ensure employees are aware of their environmental and compliance obligations
- outline procedures for the periodic review and update of the operational component of the EMP
- an outline of how compliance with licensing and approval requirements will be achieved and due diligence attained

9.1.0 SUMMARY OF OBJECTIONS

Environmental Management, Water and Soils: Bodangora Wind Turbine Awareness Group Mudgee Alliance objects to the Bodangora Wind Farm Proposal:

The EA does not adequately consider the NSW planning Guidelines, specifically related to wind turbines.

The EA completely avoids many sections of the Director Generals Requirements.

The air quality, water, soil study and management of hazardous substances produced in the EA is inadequate in suggesting the possible causes and effects associated with an event of mismanagement in environmental water and soil related issues.

The EA is exceptionally vague on the mitigation of associated water and soil environmental impacts directly imposed by the proposed construction site. It limits the EA to the proposed areas and does not sufficiently include neighbouring properties, waterways, dams, contours, water storage areas, creeks, rivers and underground water flow.

The Soil and Water Management Plan (SWMP) to address these issues has not been prepared and the EA provides no timeframe for its completion, only the assurance "prior to construction." When? Will this final plan be available for community consultation and possible modification if found to be lacking in safeguards for the integrity of water, air quality and soil structure? The Director General's requirements are quite specific on the issues of risk analysis and mitigation plans which must be properly completed in the EA. They have not been and the EA fails the DGRs.

Proposed mitigation measures by the proponent are totally inadequate as potential impacts during the construction phase on the vegetation, air quality, waterways and soils are inadequately addressed. The avoidance of soil and water contamination by hazardous substances has also not been satisfactorily addressed.

The water and soil study produced in the EA is inadequate in suggesting the possible causes and effects associated with an event of mismanagement in environmental water and soil related issues.

The Soil and Water Management plan – CEMP is completely unsuccessful in adopting and discussing the mitigation and problems that have been identified in the EA.

Proposed mitigation measures by the proponent are totally inadequate as potential impacts and water supply requirements are not addressed.

9.2.0 AIR QUALITY

The construction of windfarm earthworks, the transport of large amounts of materials, drilling and explosive operations will impact negatively upon air quality in the form of airborne dust. The clearing of vegetation to provide both tracks and the construction of turbine bases, resulting in the exposure of large areas of soil, will add to this air pollution problem.

The mitigation of impacts to air quality relies on watering the stockpiles of soil and bared areas. This presupposes the availability of water supplies which may be unavailable locally. The Wellington Shire Council will then be approached to supply water; they are presently unaware of this drain on water resources.

After the construction phase, the EA does not address the issue of the increase in evaporation of soil moisture by the redirection of air down to the surface by the rotating blades, which is of particular concern to the farming community. Somnath Baidya Roy (Department of Atmospheric Sciences, University of Illinois) Journal of Wind Engineering and Industrial Aerodynamics,2011, says “It’s something like the wake from the propeller of a boat. Now this added turbulence mixes air, up and down, and creates a warming and drying effect near the ground.” He says “the affects can be felt for miles”.

9.3.0 GEOLOGY AND SOILS

The Geotechnical Assessment has not been undertaken. There is no responsibility taken for “preliminary investigations” so all further comments could be subject to change by the operator after proper assessments have been made.

Where there is erosion on steep tracks what are the “relevant engineering standards” to control this erosion?

9.3.1 SOIL VULNERABILITY

The EA contends “existing areas of erosion are rare;” this statement is untrue ,as soils in this area are prone to erosion (Figure 1), and the landholders in this Bodangora area consider their soils fragile (figure 2), prone to erosion (Figure 3) and salinity, especially when disturbed (figure 4).

Figure 1. show heavily eroded gully/water way.

The construction of roads on slopes and steeper areas when necessary for the construction of turbine bases, and the clearing of vegetation in construction areas will result in diversion of surface water that will exacerbate already erosion prone soils (Figure 2).

Figure 2. Shows the susceptibility of soil water erosion.

Figure 3. Show the depth of erosion forming water holes

Figure 4. Shows the severity of erosion in a disturbed area

In the document the statement “comprehensive controls will be applied during the construction phase to minimise any potential for construction” makes no sense.

The SWMP has not been prepared and the assurance that it will be “prior to construction” is an intention promised with no timeframe given or reference to community input into the possibility of modification of plans. When will the SWMP be available?

A full geomorphic assessment on any watercourses has not been completed.

The possibility of the introduction of introduced weeds in straw bales and mulch to be used for disturbed areas has not been addressed.

Details of the promised revegetation of bared areas of soil are inadequately described as to species, methods of revegetation or personnel responsible for this part of the project.

There is no identification of who will inspect erosion or sediment devices.

9.5.0 PROJECT AREA AND DRAINAGE

The effect on surface flows for agricultural purposes has been drastically understated as the majority of the proposed project area relies heavily on these flows in order to maintain agricultural practices.

The "downstream effects" of water diversion on neighbouring properties' dams and water courses are not addressed adequately.

Mapping of the area for water source locations is nonexistent. The local area is riddled with natural springs which are relied on as a source of water for various agricultural activities such as stock water, and also for native wildlife. The location of both permanent and temporary tracks should be more focused and detailed with consideration to the water sources. This EA does not meet the DGRs.

Much of the surface water in the project site will find its way into underground sources. The area under the EA is identified as having several creeks that all move towards larger systems before moving into major waterways. The consequences of contaminated water draining well beyond the construction site could have devastating effects.

Watercourse crossings of an unspecified number are listed along the Sandy Hollow to Maryvale Railway line and between the Gillinghall Road and Wondrona Lane where there is a minimum of 6 water crossings; all will need to be upgraded. Further, there is an unspecified number of crossings between WTG 18 and the substation as well as two locations along the Gunnegalderie Road. There are two access tracks mentioned bringing the total potential upgrades to 16 from 17 mentioned creek crossings being potentially upgraded in the proposed project area alone. The EA is misleading in stating that few crossings require upgrading. In addition to these crossings that may potentially affect drainage and flow of water through the project area the EA states that two other locations along the access track to the north of WTG13 and 27 will need to be upgraded, however these two WTG points are 4.3Km away from each other with several crossings to the north of their location. The means used to identify these two upgrade locations is inadequate and potentially misleading.

The laying of pipes and cables across a watercourse is a controlled activity under the Water Management Act 2000 but as yet no applications for approvals have

commenced. The possible use of overhead 33kV cables at sensitive locations is not discounted. The visual impact of these cables has been given no consideration.

9.5.1 WATER DRAINAGE

The EA shows large sections of waterways, creeks and drainage points. It identifies that the site is situated on ridgelines that effectively drain into these waterways, however falls short of suggesting mitigation management specifically but not limited to lack of consideration of contamination, erosion and the reduction or effect of the flow of water through these areas as a direct result of construction. In addition to the short fallings it does not identify or recognise the differences in natural drainage or waterway management in relation to obstructions and contamination by the potential impacts of the project in the EA.

Soil distribution in relation to earthworks is concerning as the EA is suggesting the construction phase will occur predominantly in but not limited to ridgelines. In doing so the upset of limited shallow topsoil may occur resulting in a large risk of erosion. This is inadequate.

Given that most surface water will find its way into underground sources and that the area under the EA is identified as having several creeks of irregular flowing periods that all move towards larger systems before moving into major waterways. The consequences for contaminated water can have devastating effects as drainage occurs and moves well beyond the construction site.

Impacts on drainage as specified in the EA suggest that there will be few new/upgraded creek crossing. However in the identification of the creek crossing upgrades, three (3) along the Gillinghall Road have been identified. However, an unspecified number are listed along the Sandy Hollow to Maryvale Railway line and between the Gillinghall Road and Wondrona Lane where there is a minimum of 6 water crossings, indicating that all will need to be upgraded. Further, there is an unspecified number of crossings between WTG 18 and the substation as well as two locations along the Gunnegalderie Road. There are two access tracks mentioned bringing the total potential upgrades to 16 from 17 mentioned creek crossings being potentially upgraded in the proposed project area alone. The EA is misleading in stating that few crossings require upgrading. In addition to these crossings that may potentially effect drainage and flow of water through the project area the EA states that two other locations along the access track to the north of WTG13 and 27 will need to be upgraded, however these two WTG points are 4.3Km away from each other with several crossings to the north of their location. The means used to identify these two upgrade locations is inadequate and potentially misleading.

9.6.0 WATER SUPPLY REQUIREMENTS

The construction period will have an estimated water requirement for up to 10 megalitres of water, and additional 2 megalitres of water if a concrete batching plant

is used on-site. Wellington Council is the designated supplier to an unspecified contractor, again is the Council aware of this drain on water resources?

In case of a fire in the area of the turbines no provision of water storage for fire-fighting purposes has been mentioned.

9.6.1 WATER SUPLY AND SURFACE FLOW

The water studied in the EA is significantly unsustainable as there has been little attention to the underground water sources, flows and supply. In addition the effect on surface flows for agricultural purposes has been drastically understated as the majority of the proposed project area relies heavily on these flows in order to maintain agricultural practices.

The diversion of surface water from construction sites is in direct relation to possible erosion effects. The gathering and re-dispersing of surface water can have large effects on erosion where there were previously none. The Soil and Water management plan suggests ways in which water will be diverted however in no way does it discuss the effects of such large scale diversion from construction sites.

The CEMP does not show the "downstream effects" of water diversion on neighbouring properties. In response to the prevention of sedimentary soils and contaminated water leaving the site the CEMP does not show the risks associated with the potential risk of flooding of the construction site in prone areas; the local area surrounding and containing the proposed site is prone to the irregular flooding of dams, creeks, rivers and waterways.

Section 5.4.10 *why fish need to cross the road* refers to the EA 14.3.1 in regards to the identification and assessment of the road upgrades at creek crossings is specified. However the assessment of each crossing is nonexistent and simply refers back to section 5.4.10 for the assessment. This is completely inadequate in meeting the DG's requirements.

9.6.2 WATER STORAGE

The EA makes note of dams, though suggests that they are minimal in size and number and insufficient to host low numbers of few species of bird and aquatic life. However within the proposed area alone there is a minimum number of 145 dams and outside the proposed area but within the neighbouring area consists of a minimum number of a further 50. This suggests that the area is in fact able to support a larger numbers of aquatic birdlife and native birds than was predicted in the EA.

Lake Burrendong is situated approximately 20 kilometres south of the proposed project site. The lake consists of some of Australia's largest and diverse range of plant species with a water surface of over 7,000 ha easily accommodating large populations of large size birdlife throughout the year. The EA recognises Lake

Burrendong as a significant water source however fails to reflect in the dam's ability to be home to large aquatic and non aquatic birds and large populations less then 20km directly south of the proposal. The EA also fails to address the significance of bird flight path to and from the Lake over the proposed wind turbine sight.

9.7.0 ENVIRONMENTAL MANAGEMENT OF HAZARDOUS SUBSTANCES

Up to 30,000 litres of oil will stored at the site of the substation, 2,000 litres of oil across the proposed wind turbines. Batteries stored on site are also a potential source of leakage. The site will also contain a wastewater septic system.

There is no regime of inspection outlined to ensure leakages of oil do not occur resulting in the contamination of soils and local water courses.

The use of earth dams to contain secondary containment of spillages from the transformers to contain maximum total containment volume is sited; does this include provision for heavy rain events?

There is no mention in the EA of the possibility of leaching of chemicals from the concrete bases, which could continue for decades. Any measures to prevent this leaching have not been given.

9.7.1 EROSION AND SEDIMENT CONTROLS

The proposed control measures for the site in response to sediment and erosion is not addressed. There are major shortfalls associated with the range of mitigation measures as described in the CEMP. The EA does mention mitigation in events and in accordance with the appropriate authorities, however does not address the issue of the problems nor does it suggest what the control and mitigation methods would be.

The local and surrounding areas of the proposed site are situated on predominantly Granite based soils including but not limited to sandy, sandy loam, loam and limited clay content. This suggests that during substantial rain flow or constant rain throughout the construction phase, the soils are highly prone to becoming "soup." This occurs when the soil becomes saturated, allowing water flow to occur through the soil with ease. The local and surrounding area is highly prone to this effect and the CEMP does not show any means of mitigating contaminated soil, sediment or water from leaving the site via water flow through the soil under these circumstances.

The EA suggest that spill equipment will be available on site. However it does not say who will be responsible for the equipment, or if there will be staff constantly monitoring the equipment.

9.8.0 WATER DISTRIBUTION AND USE

The EA has estimated 10 megalitres of water would be used from the Wellington Shire Council, however when the EA was submitted the council was unaware of its role in the construction and development of the Bodangora wind farm proposal. This

included the amount and source of the water the council was willing to supposably supply.

The EA describes that in an event that an onsite concrete batching plant is used that the contractor would be required to source an additional 2 megalitres of water. However after consulting the council they are unaware of their obligations as stated in the EA.

9.9.0 SOILS

The EA states "*Existing areas of erosion are rare.*" This statement is untrue, as soils in this area are prone to erosion due to the Granite parent material and low (<15%) clay content. Areas surrounding the proposed project are predominately sandy loam and loam based.

Landholders in this Bodangora area considered their soils fragile and prone to erosion, especially when disturbed by machinery. The construction of roads on slopes and the clearing of vegetation during construction would lead to erosion.

"Comprehensive controls will be applied during construction to minimise any potential for construction." This statement makes no sense as the mitigation methods need to be put in place well before construction phase of the operation to minimize all construction sites' impact on soil. This statement gives the illusion that soil mitigation will occur before problem arises, however it fails to note that preparation and prevention methods are required.

The EA does not mention the use of geological mapping or soil science in an overview of the project area. It also does not mention the basis of the quality of soils in the proposed project area.

Communication from Frank Bolland, project manager states: That no geological survey was conducted during the process of the EA.

The EA states that "The preparation of a Soil and Water Management Plan (SWMP) as part of the Construction Environmental Plan to outline the water floor and erosion & sediment control measures that will be utilised to mitigate the potential impacts of the construction works." The plan is not ready and has not been conducted and should have been included in EA. All the following information on mitigation of potential issues of erosion, prevention of sediment laden or contaminated water leaving the construction site "will be designed" "prior to construction." At the current stage the EA was prepared prior to the construction phase and has, as of the time of this objection not been written. Although construction timeframes have been stated, the time frame of the design of the mitigation measures has not. This leaves no time for the community to modify, or address concerns with the SWMP on any grounds.

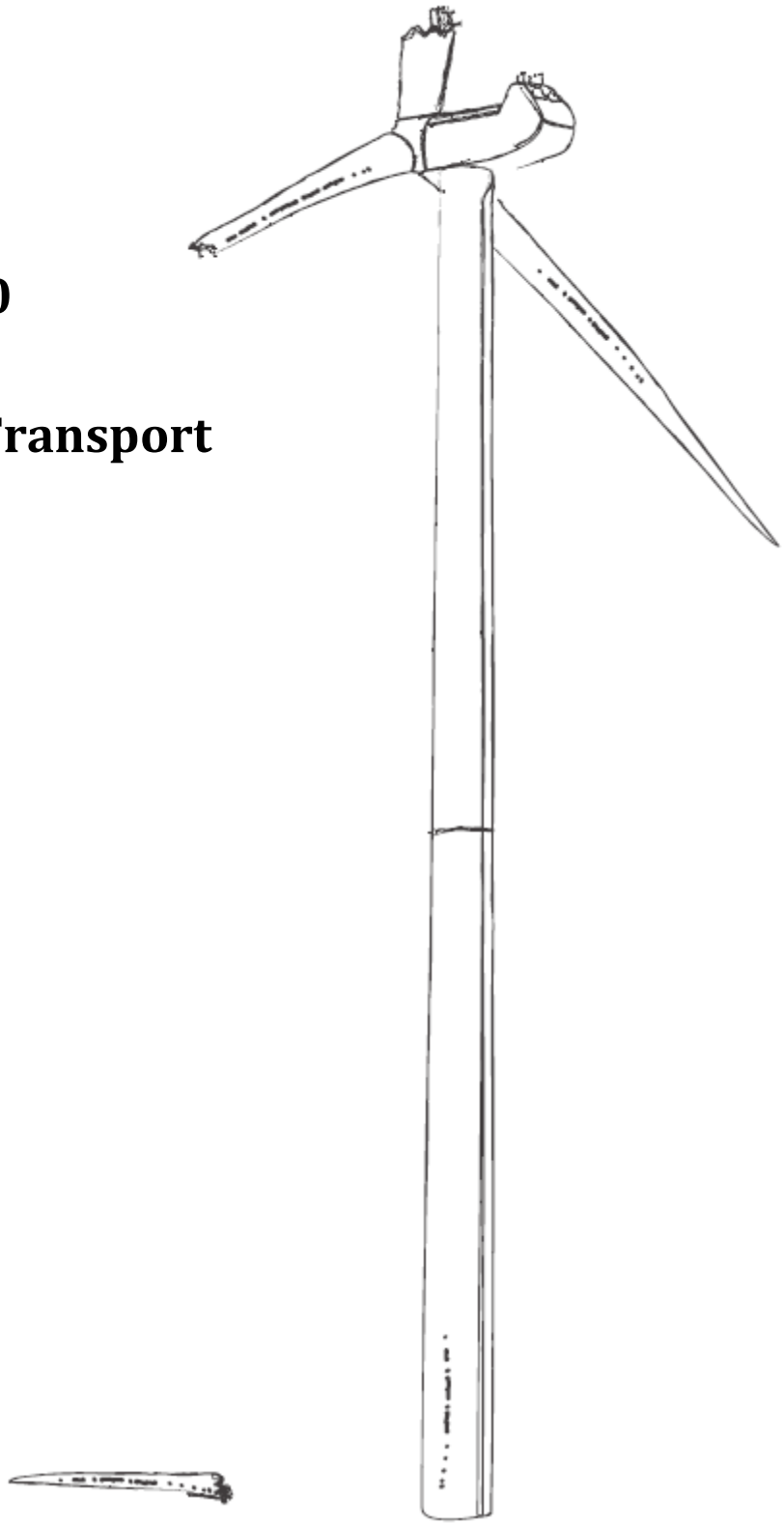
The EA states that "A full geomorphic assessment will be conducted on any watercourses where crossings are required" however it fails to address the time frame to conduct these assessments and the period of time in which they will be

assessed. This leaves an opening for the assessment to be started and concluded during the upgrade.

The use of “straw bales…. and mulch will be applied to all disturbed areas”. This poses a large risk associated with the introduction of noxious weeds and grasses into a relatively free zone, as well as posing a risk of new introduction of weed species.

Chapter 10

Traffic & Transport



CHAPTER 10 TRAFFIC AND TRANSPORT

DIRECTOR GENERALS REQUIRMENTS

The EA must address the following

1. Likely impacts from works and works traffic on the surrounding areas, major arterial and local road networks, local public transport (including bus-only lanes along Broadway), Including impacts on cyclists;
2. Details of anticipated truck routes including origins and destinations of major movement to and from the site;
3. Opportunities to maintain pedestrian access and safety adjacent to the subject site during the period of works; and
4. An assessment of the potential increase in toxicity levels of the loads transported, the preparations of an incident management strategy for accidents.

In addition the proponent must consider the following NSW draft guidelines

1. **Traffic and transport**

   The assessment should consider construction and operational traffic impacts, including:

- details of traffic volumes (both light and heavy vehicles) and proposed transport routes (including site access) during construction and operation
- an assessment of the potential traffic impacts of the project on road network function (including intersection level of service) and safety
- an assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the project (including over-dimensional traffic) during construction and operation, including full details of any required upgrades to roads, bridges, site access provisions or other road features
- details of measures to mitigate and / or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control soil erosion and dust generated by traffic volumes
- details of access roads within the site including how these would connect to the existing road network and ongoing operational maintenance.

  If a Development Application for a wind farm that is State Significant Development is approved, conditions of consent typically include detailed specifications requiring proponents to commission a road dilapidation survey and submit it to the Director-General prior to the commencement of construction. Conditions may require the survey to:
- assess the condition of all public roads proposed to be traversed by construction traffic associated

  with the project in consultation with Council and the RTA,

- identify any upgrade requirements to accommodate project traffic, and
- clearly outline any recommendations from the Council and RTA and how these have been addressed.

  All upgrade measures identified must be implemented to the satisfaction of Council and the RTA prior the commencement of construction.

10.1.0 SUMMARY OF OBJECTIONS

Traffic and Transport: The Bodangora Wind Turbine Awareness Group objects to the Bodangora wind farm proposal.

The EA does not address the Director General's requirement because the details of measures to mitigate the construction and operational phase impacts are not specifically identified or provided.

The EA has not considered the additional Director Generals Requirements outlined in the NSW draft guidelines

10.2.0 CONSTRUCTION

The EA describes that the most likely origins of the major components for the project will be from Newcastle Port. Due to the size of these components, dimension and mass restrictors will apply to the 450 km route length described. The RTA NSW is the responsible road authority for the entire route except the last 15 kms along Gillinghall Road, which is the responsibility of the Wellington Council. The movement of the components along the State Highway network will have minimal impact subject to swept path turns at intersections and traffic density. The Gillinghall Road will experience major impact in terms of traffic volumes and a massive increase of the freight tonnage moved. This will cause a rapid deterioration in the pavement conditions, significantly increase the danger to the motoring public and increase the public liability risk exposure for Wellington Council.

10.3.0 NATURE OF DELIVERY VEHICLES

Table 12.1 indicates the dimension and on-road mass for the various components for the Restricted Access Vehicles (RAV) heavier than 42.5 tonnes, wider than 2.5 m or longer than 19m. The Rotor Blades, Transmission Poles and Tower Sections are over-width and over-length components.

The main transformer and nacelles are over-width and over-mass components.

10.4.0 ROAD NETWORK IMPORTS

Attachment K, Traffic and Transport Issues, further details are provided. Figure 1 shows the Transformer Delivery Vehicle which has a laden on road weight of 160 tonnes. Figure 3 shows the Swept Path – Intersection of the Mudgee and Gillinghall Roads showing the Blade Delivery Vehicle.

These vehicles will have significant impact on the Gillinghall Road which currently has a 4.5m width of pavement material. This is barely suitable for occasional stock transport vehicles, (one or two per month), and even less suitable for harvest wheat traffic in summer. The section of road and the intersection which the construction vehicles will be using will be severely impacted by this proposal.

The Transformer Delivery vehicle has a rigid trailer unit 16.2 m long with ten axles to bear the load uniformly on the road pavement. This vehicle is designed to operate on expressway standard road pavements. However on Gillinghall Road with a central crown in the cross-section and with tight vertical curvature on the crests and three causeways to traverse, the rigid frame and a 160 tonne load will cause severe point wheel loads at the centre and ends of the trailer unit.

Essentially, there is insufficient load-sharing provision in the delivery vehicle design to avoid major road pavement damage. Major redesign and reconstruction of the road alignment and causeways is required.

Similarly, the Blade Delivery Vehicle shows a minimum ground clearance of 487mm which, combined with the 44m adjacent axle length, means it will be unable to negotiate several crests and causeway accesses.

The road reserve along Gillinghall Road contains significant stands of remnant vegetation, causing the alignment of the road to meander in places. The EA does not address the issue of the impact of the road upgrading works and the effects on and extent of the roadside flora and fauna. **This does not met the requirements of the DGR's.**

It is likely that the road redesigning will have a significant effect on this remnant vegetation due to the widening of cut and fill batters to accommodate the necessary vertical design constraints. Refer to Fauna and Flora section within this submission.

A further issue with the project, which is not identified in the EA, is the effect that the visual impact of Turbine Generators 17, 18 and 19 would have on the road safety of traffic travelling along the Goolma Road from Mudgee towards Wellington. From the Goolma Road the towers are located in close proximity, and clearly visible to the road Due to the tower height, this would be a major distraction to motorists travelling at high speed along a section of road containing several curves. (*Figure 1, below).* In the EA it was argued that the roadside vegetation would effectively screen the towers, which is not the case. This matter should be the subject of specific consideration by the NSW RTA. **It does not meet the DG'R's.**

For vehicles travelling east past the Bodangora village turnoff the distraction factor is slightly reduced due to the greater distance from the initial view point, but many more towers would still be visible. Despite claims made to the contrary, **the EA does not meet the DGR's.**

10.5.0 ON-SITE ROAD UPGRADES

The new access roads to provide access to the Wind Turbines and other infrastructure total some 40 kms in length. The EA states that access roads to a width of 9m are needed, making the area of land exposed to erosion some 36 Hectares. This does not include the site area exposed. If each tower site disturbs 100mx100m, then a further area of 68Ha is exposed to soil erosion.

The area in which this project is located is extremely susceptible to erosion as indicated in the attached photos (Figures 2 and 3.)

Figure 1. Shows the road view during a corner looking directly at proposed WTG 17, 18 and 19.

Figure 1 shows the potential distraction that would be created by the turbines WTG 17, 18 and 19 that motorists would face whilst cornering along the Goolma Road.

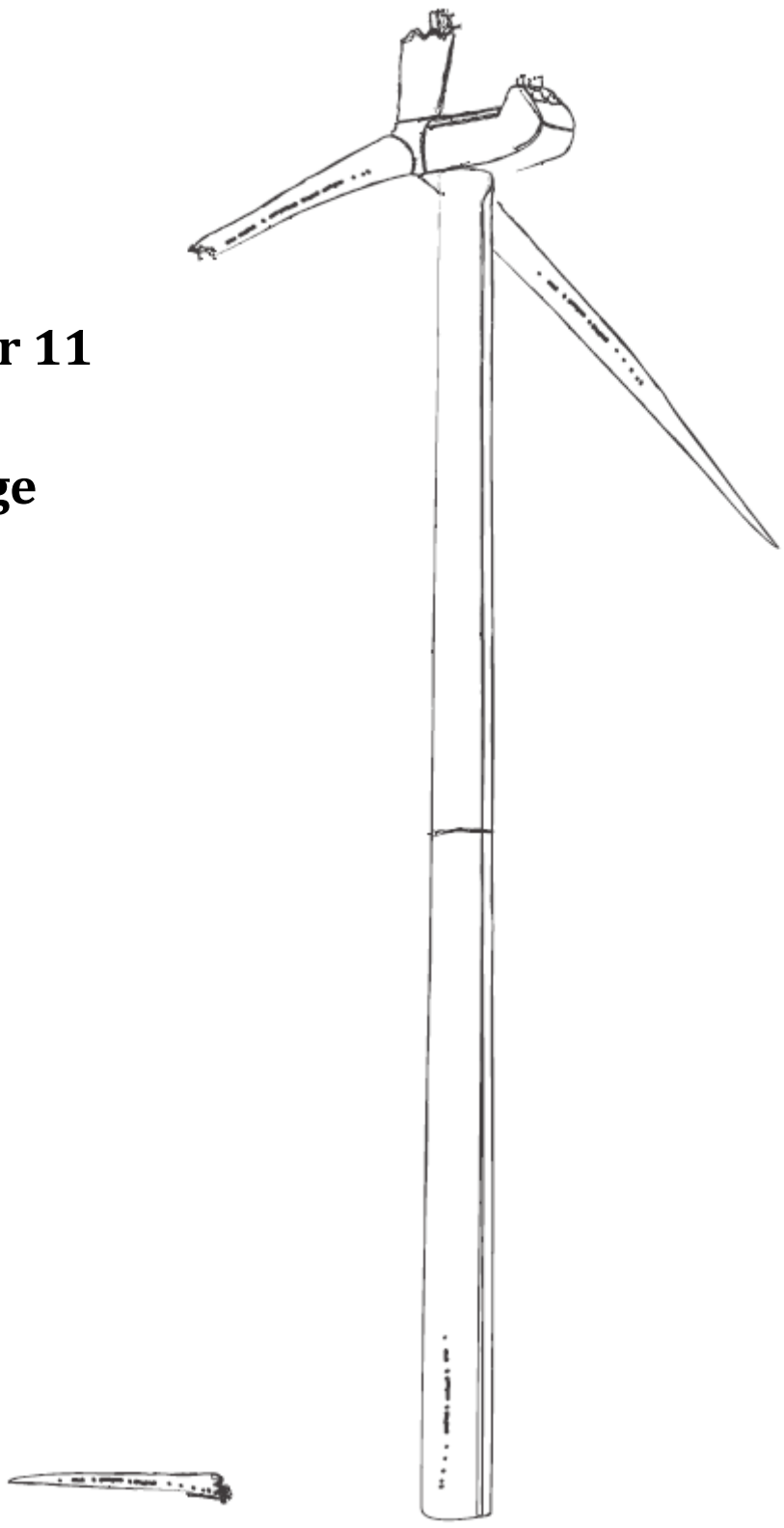
The EA makes no attempt to quantify the extent of the soil erosion and land degradation issues that are shown in figure 2 and figure 3, which is considered a major deficiency. In 1938 the Soil Conservation Service of NSW commenced at a site opposite the Mid-West Correctional Centre. For a development proposal of this scale not to properly address the issue of soil management in the Wellington District is a snub to the Director General's Requirements.

Figure 2. Shows erosion that has occurred within 10m of the Gillinghall Road.

Figure 3. Shows typical erosion that has occurred within the proposed development area.

Chapter 11

Heritage



CHAPTER 11 HERITAGE

DIRECTOR GENERAL REQUIREMENTS (DGR's)

Aboriginal Heritage -*"*The EA must include an assessment in accordance with Draft Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation (DEC, 2005) that identifies all items of Aboriginal cultural heritage at the site, the potential impact of the project components on indigenous heritage values (archaeological and cultural). The EA must demonstrate effective consultation with indigenous stakeholders during the assessment and in developing mitigation options (including the final recommended measures).

Non-Aboriginal Heritage - The EA must provide sufficient information to demonstrate the likely impacts of the proposal on non-indigenous heritage values (including heritage vistas) consistent with the guidelines in the NSW Heritage Manual. Where impacts to State or local non-indigenous heritage items are proposed, a statement of heritage significance must be included and measures identified to mitigate and manage impacts.

In addition the proponent must consider the following additional Director Generals Requirements.

1. Consultation with community organisations (environmental groups, heritage organisations, parent and citizen committees, community service groups) and indigenous organisations (local land councils, elders groups).
2. Identification of both Aboriginal heritage and European heritage
3. Have consideration for heritage issues as well as measures to avoid, manage or mitigate relevant impacts from the wind farm.

Other heritage issues

The assessment should:

- provide sufficient information to demonstrate the likely impacts of the wind farm on any historic heritage values (including heritage vistas)
- where likely impacts to State or local historic heritage items are likely, outline proposed mitigation and management measures (including consideration of the effectiveness and reliability of the measures) generally consistent with the 'NSW Heritage Manual'.
- provide a statement of heritage significance where impacts to State or local historic heritage items are proposed.

The construction program must include a protocol to appropriately respond, where during the course of construction, a previously unidentified historic relic is uncovered.

All works likely to affect the relic should cease and the OEH notified in accordance with the Heritage Act. Works should not recommence until authorisation has been given by the Heritage Office in OEH.

11.1.0 SUMMARY OF OBJECTIONS

Heritage: The Bodangora Wind Turbine Awareness Alliance objects to the Bodangora wind farm proposal.

The EA does not take into consider the damage that could potentially be caused on local heritage items.

The proponent has not sought to consult local Heritage groups or community members who are known for in relation to local heritage.

11.2.0 NON–ABORIGINAL HERITAGE.

The EA in section 10.2.1 states under section 'Recorded Heritage Places'

"Non-Aboriginal heritage is protected by the *NSW Heritage Act 1977*, which is to ensure that the heritage of NSW is adequately identified and conserved. The Act provides protection to items that have been identified, assessed and listed on various heritage registers, including State Government Section 170 registers, Local Environmental Plans, and the State Heritage Register.

A search of the Australian and State heritage databases has been undertaken, revealing the following heritage places which are protected by State and Commonwealth legislation:

• 42 items listed on the Register of the National Estate present within the Wellington Council, none of which are within the project area;

• 59 items of the NSW heritage database are present within the Wellington Council, three of which are located within, or are in proximity to the Bodangora project area:

- Bodangora Gold Mine Former Remains – Chimney, Shaft and Engine Footings, Bodangora;
- Sandy Hollow to Maryvale Railway, Sandy Hollow and Maryvale;
- St Paul's Catholic Church, Bodangora;"

The EA then goes on to say state, “The three heritage items which are listed on the NSW heritage database are identified on Figure 4.1.”

When a search was done in the EA on Figure 4.1 there were **no** three items listed above found on the map or if they were they are not located as indicated on the map. This is a failing in the EA regarding correctly identifying these heritage items.

The EA states the Bodangora Gold Mine Former Remains – Chimney, Shaft and Engine Footings and St Paul’s Catholic Church are “The two items which are located outside of the project area are not expected to be impacted as a result of the project, as they are located away from any proposed physical development.” What is not considered in the EA is these two items hold significant heritage value to the residents of Bodangora and surrounding areas. These items are the remains of a by-gone era that is not forgotten. The constitution and condition of the brick chimney and stone church would be very susceptible to the blasting that would be required to construct the footings of the industrial wind turbines. There are already signs of weakness in the chimney stack which may not withstand the ground vibration associated with explosive blasting.

Figure 1. Old chimney stack Bodangora

Figure 2. Saint Paul's Chatholic Church Bodangora

Figure 3. Inside View of Saint Paul's Catholic Church

11.3.0 SANDY HOLLOW TO MARYVALE RAILWAY LINE

The EA states in section 10.2.2 that "New South Wales Archaeology have concluded that the proposed impact to the railway/road would be negligible, as it is not expected that there will be any additional impacts beyond those to which the railway line already sustains as a road." This statement is completely false. Please refer to the following correspondences.

The Sandy Hollow to Maryvale Railway line is located within the project area. Correspondence with NSW Archaeology Pty Ltd from a member of the Bodangora Industrial Wind Turbine Awareness Network (BIWTAN) is shown below;

NSW Archaeology Pty Ltd

Hello,

RE: Environmental Assessment for the Bodangora Wind Farm MP10-1057.

I refer to your Statement of Heritage Impact of the Sandy Hollow to Maryvale Railway Line dated 12th September 2011, and respectfully offer the following comments.

You claim -"The Heritage Item - Sandy Hollow to Maryvale railway line is the only access to property "Glen Oak". - INCORRECT.

The landowner has used the railway line inappropriately for many years, to access a second house on "Glen Oak" property, but to say that it is the only access into and through this property is incorrect and misleading.

"Glen Oak" homestead and property entrance is directly off the Gillinghall Road and approximately 1km North West from the railway track entrance currently being used as a farm access track.

You state that it "is unlikely that the railway line would require to be modified for the use of the wind farm construction and operation. Accordingly impacts can be considered negligible". This is INCORRECT.

*This **access track (railway line)** is one of the main access tracks within the project area and will be required to have very heavy traffic movements including the 120t Restricted Access Vehicles to be able to take the turbine parts into the project site as well as cranes, heavy earth moving equipment and general construction vehicles, which is in vast contrast to the passive rural vehicles currently travelling the railway line.*

The railway line in its present state would most certainly require significant upgrading and widening and in some parts of the railway line there are 'cuttings' that are barely wide enough for two cars to pass and wide farm implements would not be able to travel over most parts of the existing railway line .

Any upgrading of this magnitude would compromise this important heritage item.

Your report seems to focus, incorrectly on the access road through "Glen Oak" property, yet does not consider that the landowner has been degrading the Sandy Hollow to Maryvale Railway line for years without due consideration to the impacts this is having on this significant heritage item for the Wellington area.

*Your "alternate strategy" to construct a new road for access through "Glen Oak" property is flawed **because there is already an existing access to "GlenOak", which** does not require the use of the Heritage item, "Sandy Hollow to Maryvale Railway line."*

In the instance of a heritage item being at risk of degradation I don't believe that the land owner's inconvenience should come before the preservation of the Sandy Hollow to Maryvale Railway line.
I look forward to your reply,
Sincerely

Lyn Jarvis
"Geenobby"
Wellington NSW 2820
0417452777

This then prompted the reply from NSW Archaeology Pty Ltd which is shown below;

----- Original Message -----
From: <julie@nswarchaeology.com.au>
To: <geenobby@activ8.net.au>
Sent: Tuesday, July 03, 2012 5:01 PM

Dear Lyn
Thanks for your email re the Bodangora Wind Farm. I will forward it to Infigen.
Julie
Dr Julie Dibden
NSW Archaeology Pty Ltd

Correspondence again to NSW Archaeology Pty Ltd from BIWTAN is shown below;

From: "R & L Jarvis" <geenobby@activ8.net.au>
To: <julie@nswarchaeology.com.au>
Cc: "Bodangora Station" <bodangorastation@hotmail.com>
Sent: Tuesday, July 03, 2012 5:23 PM
Subject: Re: Bodangora EA
Hello Julie,

As your company was the author of the Statement of Heritage Impact, I would like a response from you in regard to the points I have made.
Infigen engaged your company for this report and you are the contact in the Environmental Assessment so I would have thought that you should be the one to address any issues that have arose as a result from your report.
I would appreciate a direct response to my original concerns.

Regards
Lyn Jarvis

At the time of writing there has been no reply from the poponent or NSW Archaeology on these very important matters.

It is quite clear that the EA has not considered thoroughly enough, the impact the development will have on this heritage listed item being the Sandy Hollow to Maryvale railway line if it intends on upgrading the heritage listed item for the heavy vehicles required to construct this project. Any upgrade of this railway line would **not be consistent with the DGR's.**

11.4.0 KAISER MINE

In section 10.2.2 of the EA it states "One item of potential historic significance was identified during the field survey for the project, being the Kaiser Mine, located nearby to the proposed WTG 44." The EA then goes to state "New South Wales Archaeology have determined that the Kaiser Mine does not warrant heritage listing. The following is the Statement of Significance as prepared in determination of the significance of the item:

"This item cannot be directly linked to people or events of historical importance; there is only very limited potential for the site to yield additional information and the site is not rare, representative of its type and does not display significant technological or aesthetic qualities."

There is no proof in the EA to support this statement and it would be found to be offensive to the people of the Bodangora area. Like all of this by-gone era of the gold rush days, the Kaiser Mine is part of the history of the Bodangora settlement and its history needs to be maintained for future generations. The closeness of the Kaiser mine to WTG 44 is stated in the EA "The Kaiser Mine is located near to, but outside of the proposed development site within the project area. It is not expected that there will be any direct impact to the Kaiser mine, and any associated impacts can be appropriately mitigated." No scientific evidence is offered in the EA to determine the exact location of either, relative to the other.

Based on the location of the Kaiser Mine in Figure 7 of the EA, and the lack of information the EA contains, no scientific evidence has been put forward that there will be no direct impact to the Kaiser mine when it is situated so close to the proposed turbine. The EA states there are tunnels running some 245 metres underground (Rex England pers comm. 2011). No evidence is contained within the

EA confirming the qualifications that Mr. Rex England has to make any statement on the tunnels in the mine. No evidence is offered it terms of maps or diagrams to substantiate his claim. It is not stated in the EA where these tunnels run but with the lengths stated in the EA it could easily run underneath or very close to WTG 44. With the construction of the footings for the turbine this could easily jeopardise the integrity of the mine as well as the safety of the construction crew.

The fact the EA states it will only identify the mine site as a restricted area is not good enough. The mitigation technique proposed is inadequate and **does not meet the DGR's.**

11.5.0 HISTORIC TREE AT "GLEN MITCHELL"

Strezlecki tree on the roadside outside the property of "Glen Mitchell"

Figure 4. Strezlecki tree, shows the proximity to the glen Mitchell road

Figure 5. Strezlecki tree, shows the markings made clearly viewing "86" with bark covering the full date of "1865"

11.6.0 SURVEY AREA

The EA in section 10.2.1 states under section 'Field Survey Results'

"As previously identified, a field survey has been undertaken in accordance with the Office of Environment and Heritage *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW.* The archaeological survey was a comprehensive pedestrian and vehicle traverse survey and was undertaken by five people over a four day period, and aimed at locating Aboriginal objects and non-Aboriginal heritage items."

It then goes on to state that of the area that was surveyed within the project area had an "Effective Survey Coverage' average of 0.3% of the proposed project area. This is totally inadequate to draw any conclusions. Particularly related to the terms used in the EA that "The archaeological survey was a comprehensive pedestrian and vehicle traverse survey". This statement cannot possibly be correct with such a small amount of the real actually being surveyed. No data is offered to indicate how much time and resourced were dedicated to the search for either type of heritage items. No confident conclusion can be drawn with only 0.3% of the project area covered. This is not an adequate survey and **the EA fails the DGR's.**

The DGR's state, "*The EA must provide sufficient information to demonstrate the likely impacts of the proposal on non-indigenous heritage values (including heritage vistas) consistent with the guidelines in the NSW Heritage Manual."* With such a small amount of the total area being surveyed**, it is simply not possible for the DGR's to have been met in any way by the EA.**

11.7.0 SUMMARY

It states in the EA, "The Director General states in his requirements to demonstrate the likely impact of the proposal on heritage vistas." This has not been considered in the EA.

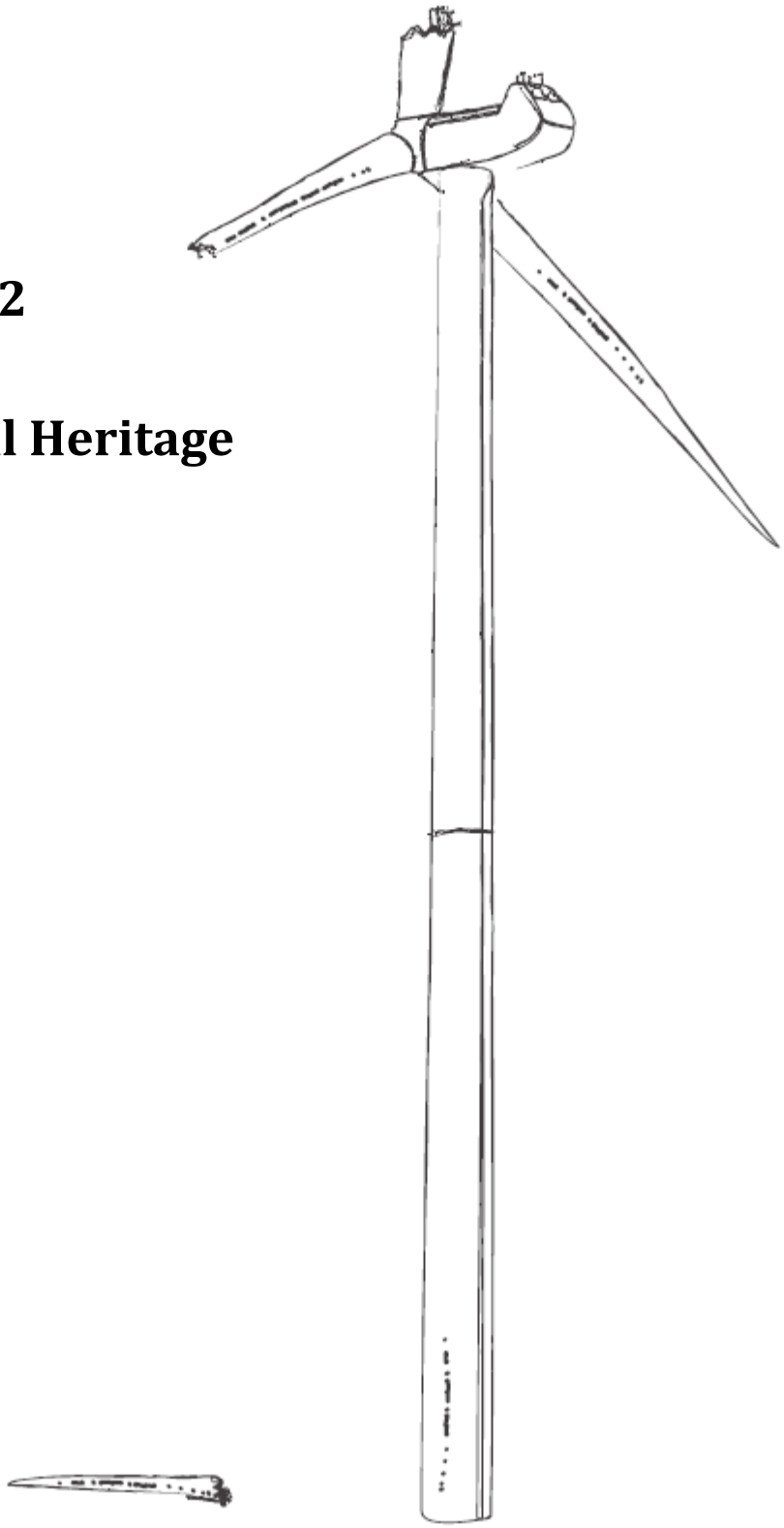
Further, Mt. Bodangora is the highest point across Australia on the latitude on which it sits and can be seen from great distances. It is visible from the mountains of the Warrambungle Ranges at Coonabarabran in the north as well as Mt Canobolas at Orange in the south.

The size of the proposed industrial wind turbine is 150m to its highest point. In total, with 33 of these structures across a heritage landscape such as this and 8 of the turbines ending up being taller (height above sea level) than Mt. Bodangora, the destruction of the heritage vista for future generations to come is assured.

This aspect of the turbines being higher than Mt. Bodangora fails the DGR's in terms of visual impacts. It has not been addressed in any part of the EA. **The EA and the entire proposal should be rejected.**

Chapter 12

Aboriginal Heritage



CHAPTER 12 ABORIGINAL HERITAGE

DIRECTOR GENERAL REQUIREMENTS:

1. The EA must include an assessment in accordance with Draft Guidelines for Aboriginal Cultural Impact Assessment an Community Consultation (DEC, July 2005)that identifies all items of aboriginal cultural heritage at the site, the potential impact of the project components on indigenous heritage values (archaeological and cultural).
2. The EA must demonstrate effective consultation with indigenous stakeholders during the assessment and in developing mitigation options (including the final recommended measures).

In addition the proponent must consider the following from the NSW Draft Planning Guidelines:

The assessment should:

1. Provide sufficient information to demonstrate the likely impacts of the wind farm on Aboriginal heritage values / items (archaeological and cultural) and outline proposed mitigation measures (including consideration of the effectiveness and reliability of the measures) in accordance with the DEC (2005) '*Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation'* (in the case of a proposed wind farm that is State Significant Development).
2. The assessment must be undertaken by suitably qualified heritage consultants and demonstrate effective consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures).
3. The construction program must include a protocol to appropriately respond, where during the course of construction, a previously unidentified Aboriginal object(s) is uncovered. The protocol must provide for all work likely to affect the object(s) to cease and for the OEH officers to be informed. In addition, registered Aboriginal stakeholders should be informed of the finds. Works should not recommence until an appropriate strategy for managing the objects has been determined in consultation with OEH and the Aboriginal stakeholders and a permit or written authorisation has been obtained from OEH
4. Provide sufficient information to demonstrate the likely impacts of the wind farm on any historic heritage values (including heritage vistas) where likely impacts to State or local historic heritage items are likely, outline proposed mitigation and management measures (including consideration of the effectiveness and reliability of the measures) generally consistent with the 'NSW Heritage Manual'.

5. Provide a statement of heritage significance where impacts to State or local historic heritage items are proposed.

12.1.0 SUMMARY OF OBJECTIONS:

Aboriginal Heritage: Bodangora Wind Turbine Awareness Group objects to the Bodangora Wind Farm Proposal.

The assessment of Aboriginal cultural heritage is superficial and has dismissed the area as insignificant to any possible Aboriginal stakeholders, claiming further surveys as not necessary.

The assessment of the non-Aboriginal cultural heritage has also been dismissed as irrelevant and of no significance ignoring the fact that the pastoral history, and associated historic villages, buildings and mines form a vital part of the district's cultural past.

The Bodangora area is known to be home to the Warradjuri people as identified in the Environmental Assessment. New South Wales Archaeology Pty Ltd understands that the project area is likely to contain stone artefacts across the majority, if not all Survey Units defined within the study. This area has not been surveyed previously. Accordingly, there is only this one opportunity to do this properly otherwise Aboriginal heritage could be lost forever.

During the recent but insignificant study undertaken (ESA of 0.3%), the study has revealed some remnants that remain today. Camp sites and caves located just outside the development area clearly indicate there were sufficient resources historically to support a moderate-sized population of hunter-gathers

P12 of the assessment "*The proposed activity areas are located in paddocks that have been almost entirely cleared of their original natural vegetation and habitats. Most of the land is ploughed, cropped paddocks or exotic grassland."* **This is misleading.**

No maps are provided to substantiate this claim in a scientific manner, either in the assessment or the EA.

Refer to section contains within this report on "Fauna & Flora" for a comprehensive description of what the landscape is actually like.

12.2.0 HERITAGE CONTEXT.

"Aboriginal use of this landscape is predicted to have been sparse, of low intensity, and restricted to a limited range of activities such as movement through the country,

hunting and gathering forays etc. These types of activities that would have resulted in artefact discard which is patchy and low density in distribution."

This statement is not substantiated. The assessment carried out admits that the surveyed are amounts to about 0.3% of the development area. In addition, the assessment also admits that conditions for the survey were less than optimum. As a result of those conditions, the effectiveness of the survey is brought in to question and cannot meet the guidelines set down by the Director General (DGR's).

12.3.0 FIELD SURVEY RESULTS

"The archaeological survey was *a comprehensive pedestrian and vehicle traverse survey and was undertaken by five people over a four day period, and aimed at locating Aboriginal objects and non- Aboriginal heritage items."*

This is false. The Effective Survey Coverage (ESG) is stated in the survey as o.3% of the area. It is not possible to justify the above statement with such a low level of ESG. The requirement within the DGR's is that the EA," *identifies all items of aboriginal cultural heritage at the site…"* Clearly, this has not been the case and **the assessment and the EA both fail the DGR's.**

P123 of the EA: "The dearth or Aboriginal objects most likely reflect low effective survey coverage, given the thick grasses within the survey area." Based on the above statement, it would be impossible for the Heritage Assessment in Attachment I to be accurate. **This also fails the DGR's** The EA goes on to state, *"The environmental contexts in which the turbines and other infrastructure are proposed contain eroded and disturbed soils as a result of moderate levels of environmental degradation. Accordingly, a program of subsurface testingundertaken within the impact assessment and planning phase of the project is not considered to be necessary or warranted."*

This is misleading as many of the turbines are located in or very close to timbered areas that would most likely have remained undisturbed for (possibly) centuries. There are no maps of the soil types provided with the assessment or the EA to prove that the soils are as claimed.

Further, it cannot be justifiably claimed that subsurface testing should not be undertaken when only 0.3% of the entire development area has been effectively surveyed. The conclusions drawn in the assessment and the EA are drawn on unjustifiable and unscientifically researched conclusions based on such a small percentage of the development area.

It is quite possible, and highly probable that aborigines lived and frequented the area. Figures 1, 2 & 3 below reflect that possibility.

Figure 1.Typical of trees in the area that bear scars that may be of Aboriginal heritage

.**Figure 2.** Possible Aboriginal scar tree within the development area

Figure 3. Typical of the aboriginal history within the development area, this tree shows distinctive signs of possible aboriginal markings.

P22 of the Assessment: Scarred and Carved Trees.
"The likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires." This statement is not scientifically backed up by actually inspecting the development area. Figures 1 to 3 (above) clearly dispel any notion that the likelihood of these types of trees could not exist in the proposed area.

10.1.2of the EA states, *"The proposed impact areas are located on landforms and terrain which is highly amorphous and generally undifferentiated in character. Biodiversity is assessed to be relatively low, and water sources are ephemeral. Accordingly, Aboriginal use of this landscape is predicted to have been sparse, of low intensity, and restricted to a limited range of activities such as movement through the country, hunting and gathering forays etc. These types of activities that would have resulted in artefact discard which is patchy and low density in distribution."*

This is not referenced in any way. There is no data to back up this claim and it is not authentically justified. Aboriginals may well have lived on a permanent basis in the area. A desk top study or one that only looks at 0.3% of the entire area cannot determine what artefacts of historical items may be in the development area. As such, it is impossible to assess the likely impacts of the development on aboriginal heritage values. **This fails the (DGR's.)**

12.4.0 RECORDED HERITAGE PLACES

The assessment is only a desk top survey at best. The GPS co-ordinates supplies for the location of the recorded aboriginal objects in '"***Table 1 AHIMS site search"*** do not relate on anything that may be inside the development area. This does not conform to the DGR's in that almost nothing within the development area has been identified due to a lack of survey effectiveness. No assessment of the impact of the project on the heritage components to aboriginal people has been carried out.

12.5.0 EA RECORDED FIELD SURVEY RESULTS

"Two Aboriginal objects were identified within the project area:

• An artefact locale (696852, 6411952), being a scatter of stone artefacts found along five metres of a farm track, including a chert flaked piece and retouched artefact, and quartz items including a core.

There is no potential for the site to contain subsurface archaeological deposit, however it is likely that the items were likely to have been larger given the locale is highly disturbed from road grading and traffic. This item is located along a proposed access track. "

This is not conclusive. There is much potential for the site mentioned above to contain deposits. If some can be found even now, after the site has been used for years as a road, the potential for other areas to hold artefacts could be very high. With the degradation that has occurred in this particular site there is no justification for the EA to infer that all other areas will be of no consequence. **This is not meeting the requirements laid down by the DGR's.**

The second site is a *"possible stone procurement area (692880, 6411849) at a quartz outcrop which possesses evidence of having been struck by means of hard hammer percussion. While the exact nature of the use of this quartz outcrop for this purpose is uncertain, archaeological excavation would be required for determination. This item is located along a proposed access track.*"

No mitigation of this is mentioned. An archaeological excavation should have been carried out already. The results of this excavation will have implications as to the re-routing of the access track. This in turn will have consequential impacts on the fauna and flora in the immediate vicinity**. This fails the DGR's for Fauna and Flora impacts**

as well as it is not mentioned in that particular section of the EA and should have been disclosed.

"The dearth or Aboriginal objects most likely reflect low effective survey coverage, given the thick grasses within the survey area. Any unrecorded items present are likely to be present in low or very low density and a patchy distribution." This is not known for certain. No evidence is used to justify this statement.

"During the field study, no landforms (or areas in landforms) were identified that are likely to have been environmental focal points that Aboriginal people would have habitually occupied, and hence would result in high density concentrations of artefacts". This statement is false. The Mitchell's Creek is a known focal point of aboriginal history (Reference: Wellington Museum) and runs nearby the development area. There would be a strong likelihood that aboriginal relics and artefacts could be present on the low lying flats and adjacent hills of the development area, if not further away. No evidence in the assessment or the EA is presented to indicate these areas were searched.

Further, Mt. Bodangora could easily have been a focal point for aborigines. Offering shelter in any of several caves would have been an attraction to the Aboriginal people in the area. Providing a high and clear vantage point, it would have been easy for them to detect any movement in the local area. This aspect has been overlooked in both the assessment and the EA. Whilst the caves are not inside the development area, the aboriginal people could easily have walked the several hundred metres from the nearest cave to the boundary of the development area. Because the assessment has failed to consider this possibility, this failure has also been reflected in the EA **leading to a failure to meet the DGR's.**

"Soils across the proposed activity areas are either absent or skeletal (ie lithosols) or very shallow, meaning there is no subsurface potential in the majority of proposed impact areas. The components of the project are small-scale, discrete and primarily narrow, linear impacts. In addition, it is considered that in regard to the archaeology itself, subsurface testing is unlikely to produce results much different to predictions made in respect of the subsurface potential of these landforms. Accordingly, a program of subsurface testing undertaken within the impact assessment and planning phase of the project is not considered to be necessary or warranted."
There is no evidence offered to support this statement. No data or maps of the soils have been offered to substantiate the claim that the soils area absent, skeletal or very shallow.

"New South Wales Archaeology Pty Ltd understand that the project area is likely to contain stone artefacts across the majority, if not all Survey Units defined within the study. As identified within Section 12.1.12, any unrecorded stone artefacts are predicted to be present in very low or low densities only. No landforms have been identified that are likely to have been environmental focus points for habitual occupation, in addition, biodiversity is assessed to be relatively low, and water sources are ephemeral.

Accordingly, Aboriginal use of this landscape is predicted to have been sparse, of low intensity, and restricted to a limited range of activities which is likely to have resulted in artefact discard which is patchy and low density in distribution.

New South Wales Archaeology concludes that the proposed impacts to the archaeological resource can be considered of low impact. Impacts as a result of the physical infrastructure proposed within the project area will be discreet in nature and will occupy a relatively small footprint. Archaeological resources within the broader area will not sustain any impacts as a result of the proposal.

New South Wales Archaeology concludes that direct impacts to the archaeological resource can be considered of low significance. Impacts as a result of the physical infrastructure proposed within the project area will be discreet in nature and will occupy a relatively small footprint. Archaeological resources within the project area, but outside of the infrastructure envelopes will not sustain any impacts as a result of the proposal.

None of the Survey Units or Aboriginal object locales in the project area has been assessed to surpass archaeological significance thresholds which would act to preclude the proposed development.

NSW Archaeology Pty Ltd should be unable to come to the conclusion that it has. Only a very small percentage (0.3%) of the entire development area was effectively surveyed. The amount of grass and herbage coverage that existed at the time of the survey was sufficient to force the assessment to admit that it was a major factor in the lack of effective area that was surveyed. The road on which a small artefact was discovered highlights the potential for the area to contain significant aboriginal cultural heritage. After many years of being used as a farm track, after many years of degradation erosion, it was still able to come up with a small item of aboriginal history for the survey team to find.
For the assessment to dismiss the find as insignificant is unprofessional at best. On the contrary, the assessment and the EA should have reflected the find as significant in terms of not so much that it was of aboriginal cultural heritage, but the fact that

the immediate area of the find as in such poor condition. This should have led NSW Archaeological Pty Ltd survey teams to consider the probability that had the survey been carried out at a better time that was more conducive to the ground cover being much less, the likelihood of more significant discoveries of aboriginal cultural heritage would most likely be far greater. Instead, the assessment and the EA opted to be satisfied with an effective survey area of less than half of one percent (< 0.5%) of the entire development area, whilst at the same time admitting, "*that the project area is likely to contain stone artefacts across the majority, if not all Survey Units defined within the study.*"

The way in which the assessment for aboriginal cultural heritage and resultantly, the EA has been presented reflects the inadequacies of the survey and the way in which it was carried out.

The EA does not meet the DGR's and the Bodangora Wind Turbine Awareness Group opposes the Environmental Assessment of the Bodangora Wind Farm Proposal.

REFERENCES:

Wellington Museum (2012)