Submissions Response Report

Bodangora Wind Farm

PART 3A
Major Project MP 10_0157

February 2013

SUBMISSIONS RESPONSE REPORT

The Bodangora Wind Farm Environmental Assessment was publically exhibited for a period of 60 days between 8 June and 6 August 2012. The proponent has reviewed all submissions received for the project and has submitted this Submissions Response Report for consideration by the Department of Planning & Infrastructure.

This Report considers and responds to all issues raised during public exhibition, and includes the results of additional specialist investigations and analysis undertaken. The information contained herein has been prepared by Infigen Energy, with specialist input from MasterPlan SA, Kevin Mills and Associates, Sonus and NSW Archaeology.

This Report should be read in conjunction with the Bodangora Wind Farm Environmental Assessment, which incorporates a detailed description, a full assessment including specialist investigations, and the draft Statement of Commitments for the project.

A total of 163 submissions were received for the Bodangora Wind Farm, including 12 agency submissions and 151 public submissions. Of the 163 submissions:

- 102 survey responses were received;
- at least eight objecting households provided more than one submission, and possibly many more with names withheld (although a number of supporting households have also provided more than one submission); and
- around 90 objections were received from households which are over 50 kilometres from the project area.

A detailed, tabulated record of the issues raised by each agency and submittor is provided in **Appendix A**.

An Aviation Impact Statement has been prepared by GHD for the Bodangora Wind Farm and is enclosed at **Appendix B**. A summary of other specialist input prepared, including an updated Landscape and Visual Impact Assessment is provided in **Appendix C**.

BODANGORA WIND FARM SUBMISSIONS RESPONSE

Reference	Comments Raised
1 – Health	
1(a)	*A Senate enquiry "The Social and Economic Impact of Rural Wind Farms" has recommendations for further investigations into health which have not yet been undertaken.*
	The Senate Committee heard evidence from a number of witnesses which had suffered from a range of symptoms suffered by people, described by Dr Pierpont, an American medical practitioner as 'Wind Turbine Syndrome'. In the concluding comments of the Section entitled: 'Wind Farms and Health', the following is provided: *"2.98 The Committee does not doubt that some people living in close proximity to wind farms are experiencing adverse health effects, but these are not necessarily caused by the noise characteristically produced by wind turbines. However, there were suggestions, concerns and opinions expressed that infrasound produced by the turbines is a cause of adverse health symptoms similar to those described as 'Wind Turbine Syndrome' by Dr Pierpont.* *2.99 Adverse health effects may be caused by wind turbines but they may be caused by factors other than noise and vibration, such as stress related to sleeplessness or perceptions of harm. There is insufficient rigorous research to know the answer.* *2.100 In view of the reported cases of illness and the possible consequences that any adverse health effects may have on communities' acceptance of wind farms the Committee considers that soundly-based studies of these matters should be undertaken as a matter of priority.* Recommendations 4 – 6 of the Senate enquiry relate to further research by the Australian Government in the areas of human health, the effects of infrasound, and review of research by the National Health and Medical Research Council (NHMRC). Whilst recommendations for further evidence have occurred as a result of the Senate enquiry, no further conclusive evidence of the health effects of wind farms was found. We submit that the Senate enquiry have provided a precautionary approach in their recommendations for further research. The Australian Government *Response to the Senate Community Affairs References Committee Report*[i]. "The Social and Economic Impact of Rural Wind Farms" (July 2012), states: *"The Australian Government recognises that while the Senate Committee report has captured a range of issues for many individuals and the wider Australian community, there is no strong evidence either way as to the impact of wind farms on the health of Australians. The lack of evidence therefore makes it difficult for the Government to determine what course of action to take, if any. The Government recognises that it has a responsibility for consideration of recommendations 4, 5, 6 and 7…"* The Report accepts recommendations 4 – 6 and refers to the NHMRC who are actively engaged and will shortly commission a review of the literature, which will then be incorporated into a revised public statement by the NHMRC. Until such time that a revised public statement is made, the recommendations of the Senate inquiry have no bearing on the assessment of wind farms by the NSW Government. We submit that the NSW Department of Planning already provide a precautionary

	approach through the use of the Draft *NSW Planning Guidelines: Wind Farms*, including the application of stringent noise criteria which have formed part of the EA documentation.
1(b)	*Widespread health concerns including sleep disturbance, vertigo, depression, disease, diabetes, mental health, as a result of infrasound and as caused by electrical currents, as recognised anecdotally.*
	A number of submissions refer to reports of people who believe that wind turbines are making them ill as represented in anecdotal submissions. The vast majority of these symptoms are present in the broader community including areas not near a wind farm. While these people may well have the health symptoms reported, there is still no evidence of a causal relationship between their symptoms and wind turbines. In other words, there is no acoustic, electrical or other physical force or energy from the turbines affecting their health. As these reports are not from wind farms which Infigen operate, or are anonymous, Infigen have no direct knowledge of these people's medical histories or other details, and therefore are not in a position to offer a definitive response. However, one potential explanation is offered by Simon Chapman, Professor of Health at UNSW, who has indicated that some of these cases could be as a result of the "nocebo" effect which has proven that some people who believe that something is making them ill can actually make themselves ill. They suffer a real illness even though there is no physical cause. This is the colliery to the well proven placebo effect where belief a sugar pill can cure an ailment will result in some percentage of the population experiencing a positive health effect. The most common theory in these letters is that infrasound from the wind farm is affecting them. As stated in response 2(a), the infrasound levels, measured and documented in peer-reviewed studies, have been measured to be hundreds of times lower than can be perceived, let alone impact on someone's health.
1(c)	*Recent Goyder Development Assessment Panel decision (SA) refused on grounds of health (Stony Gap Wind Farm by TRU Energy)*
	The Regional Council of Goyder Development Assessment Panel (DAP) voted three-two against the Stony Gap Wind Farm on 1 August 2012[ii]. The decision to refuse was principally on the grounds of health: "*It is considered that the nature of the proposed wind farm development will adversely and unreasonably impact on the health and amenity of the locality through noise and vibration caused by the operation and the hours of operation of the proposed wind farm development.* *The proposed wind farm development is at odds with the following Regional Council of Goyder Development Plan Objectives and Principles of Development Control: Council Wide 2.1, Objectives 1 and 2, Principles of Development Control 1, 2, 6, 7, and Council Wide 2.2, Objective 1.*" As reported by the ABC, this was the first time a wind farm application had been refused at council level[iii]. Notwithstanding the refusal, the application was recommended for approval in the Council's administration's report to the Development Assessment Panel as the construction and operation of the proposed wind farm complied with the stringent South Australian Environmental Protection (Noise) Policy 2003. The Goyder DAP comprises five members, including three independent members and two Council elected members. The decision was made after many submissions by neighbouring residents to the wind farm.

	We consider that decisions made in local government in South Australia by a local council DAP are not directly relevant to major project wind farm development assessment by the NSW Department of Planning in that the reasons for refusal have not been tested in the Court system. Judicial decisions made by the SA Environment Resources and Development (ERD) Court would be more relevant to the Bodangora wind farm. The SA ERD Court made judgement on the Allendale East wind farm proposal by Acciona Energy Oceania Pty Ltd (17 June 2011)[iv]. The Court heard the opinion of Professor Wittert, who concluded that: *"There is no credible evidence of a causal link, between the physical outputs of a turbine (or sets of turbines), at the levels that are described in the statement of Mr C Turnbull, and adverse effects on health"*. The ERD Court accepted the position of Professor Wittert and stated *"…we are therefore satisfied that public health will be protected if the noise levels predicted, by Mr Turnbull, are achieved"*. Accordingly and having regard to the weight of decision, health effects do not give rise to warrant a refusal.
1(d)	*Separation distances to neighbouring residences should be increased to 10 kilometres as a result of health risks*
	A proposal to increase the separation distance between wind turbines and neighbouring dwellings to 10 kilometres is made without any qualification and is unsubstantiated.
1(e)	*Effects on vulnerable, including elderly, ill, disabled, residents of the Wellington Correctional Centre, and effects on children including learning problems are unknown*
	Please refer to the response in 1(b), there is no evidence to suggest that there will be a negative effect from the turbines on elderly, ill, children with learning problems, or disabled residents living within or around the wind farm. In fact, the benefits from the wind farm community contribution funds can be put towards benefiting these people within the community. The wind farm will produce pollution free electricity, which compared to other traditional fossil fuel generators is a lot cleaner and favourable to better health. Infigen has attempted to consult with the Wellington Correctional Facility and to date has not received any communication or comments back from the facilities management. Further to this, the correctional facility is approximately 11km's away from the nearest turbine, and even the most anti wind farm lobbyist would argue this is adequate separation distance.
1(f)	*"Will the company guarantee that there will be no health effects or sleep disturbance?"*
	Infigen Energy will not be providing a guarantee against any ill health effects. As discussed in 1(b) there is no causal link between wind turbines and negative health effects, therefore Infigen cannot guarantee against something that has not been proven.
1(g)	*The proposal will improve health and air quality generally since it doesn't generate carbon emissions*
	Noted. Wind farms make a significant contribution to greenhouse gas emission reductions, as evidenced in recent decreases in South Australia's annual carbon dioxide emissions data detailed in response 15(d). By reducing the reliance on non-renewable resources, wind farms can contribute to reduced carbon emissions and improved air quality as detailed in statement by the American Wind Energy Association[v].
1(h)	*Not enough empirical research data is known on health impacts, and a moratorium should be applied on wind farm assessment. The absence of peer reviewed research does not mean that there is not a problem.*
	As discussed in 1(a), the Australian Government *Response to the Senate Community Affairs References Committee Report* "The Social

	and Economic Impact of Rural Wind Farms" (July 2012), states: *"The Australian Government recognises that while the Senate Committee report has captured a range of issues for many individuals and the wider Australian community, there is no strong evidence either way as to the impact of wind farms on the health of Australians."* Whilst the response details further investigations which are currently occurring, no statement is provided which indicates that a moratorium should be applied to wind farm assessments. Infigen believe that the NSW Department of Planning takes a precautionary approach in the Draft *NSW Planning Guidelines: Wind Farms*, including the application of stringent noise criteria. Recent judicial decisions such as the SA Environment Resources and Development (ERD) Court's judgement on the Allendale East wind farm proposal by Acciona Energy Oceania Pty Ltd (17 June 2011)[vi] as referenced in response 1(c) provide that health effects do not warrant refusal.
1(i)	*A cumulative health assessment of all proposed wind farms in the region is required*
	As detailed in Section 17.1 of the EA, cumulative noise and any resultant or suspected health impacts are not expected given there will be at least 10 kilometres distance between the proposed Bodangora and Uungula wind farms. The assessment on page 15 of the Environmental Noise Assessment by Sonus is as comprehensive as can be provided without knowledge of the exact layout of the adjacent wind farm. We note are not aware of any current application for Triamble wind farm in NSW, and accordingly no assessment on the effects of the Triamble wind farm has occurred.
1(j)	*No adverse health impacts expected.*
	Noted. We note that the NSW Department of Planning take a precautionary approach through the Draft *NSW Planning Guidelines: Wind Farms*, including the application of stringent noise criteria which have formed part of the EA documentation.
1(k)	*Further information is required on Electro Magnetic Radiation from transmission lines, substations, and telecommunication towers*
	Section 15.5 of the EA provides information relating to Electric and Magnetic Field (EMF) measurements associated with typical household appliances as well as those associated with electricity equipment and infrastructure e.g. 'distribution' or 'transmission' lines which form part of a wind farm. ARPANSA (Australian Radiation Protection and Nuclear Safety Agency) provides that the range of EMF expected for a substation at the substation fence is between 1 – 8 milliGauss[vii]. By comparison, an electric stove has a range of between 2 – 30mG. EMFs associated with the wind farm will be well within the relevant standards, and effects will be localised. The EMF levels at the nearest residence will effectively be nil. Accordingly, we submit sufficient information has been submitted to substantiate the proposed development in the context of Electro Magnetic Radiation.
1(l)	*Farmers will be subjected to health risks as they work in proximity to turbines*
	Prior to entering into an agreement, all landowners have made an assessment of the potential and perceived risks of the project. As per Section 15.6 of the EA and other responses contained herein, including responses 1(b) and 2(b) which discusses the assessment of infrasound and health effects, there is no scientific evidence which links wind turbines to adverse health effects. Wind turbines are compatible to existing agricultural land uses in the Bodangora area and are unlikely to impact farming practices.

1(m)	*The National Health and Medical Research Council (NHMRC) has never taken the position that there are no health problems from wind turbines. The rapid review is a work in progress and the NHMRC believe authorities must take a precautionary approach.*
	The public statement made in 2010 presents the evidence relating to the potential health impacts of wind turbines on people living in close proximity, and concluded that there is insufficient published scientific evidence which links wind turbines with adverse health effects. As detailed in the submission by NSW Health on Bodangora wind farm, the NHMRC conducted a scientific forum in June 2011 and are currently undertaking a systematic comprehensive review of evidence, with the review aiming to identify gaps in the evidence and to identify any recommendations for further research. The Australian Government have identified that a revised public statement will be prepared[viii]. The NSW Ministry of Health is supportive of a review process and will update its policy should the review bring any new evidence to light. Further, we note that the public statement made in 2010 is current with no official statement having been made since, as available on the NHMRC website which was last updated on 19 July 2012. It cannot be inferred that the NHMRC has endorsed the need for more strict planning guidelines for wind farms such as the 2 kilometre buffers which were not present in Australia in 2010. The NHMRC recommends that relevant authorities take a precautionary approach. We believe that a precautionary approach is being undertaken by the Department of Planning given the extent of investigations required by the DGRs for this project and the application of the Draft *NSW Planning Guidelines: Wind Farms*.
1(n)	*The Waubra Foundation make many claims of health impacts due to wind turbines*
	The CEO of the Waubra Foundation, Sarah Laurie, has met with the NSW Department of Health on several occasions. She has presented her argument identifying that wind turbines make people ill. In documents obtained via Freedom of Information (FOI), it is clear that NSW Health does not share the view of the Waubra Foundation, and finds the evidence, studies, and argument to be seriously lacking in credibility and validity. Several quotes from the documents obtained via FOI concerning the Sarah Laurie's presentations to the NSW Department of Health are: • *"Lowest category of scientific evidence"* • *"Inaccurate and unsubstantiated"* • *"Making assertions of causal links to wind turbines without proper studies is unjustified"* The CEO of the Waubra Foundation is also on the public record stating that serious detrimental health impacts due to wind turbines have been "documented" up to ten kilometres from wind turbines. In their submission to the draft NSW wind farm guidelines, the NSW Department of Health completely disagrees, stating, *"NSW Health advises that there is currently no health evidence to support a generic 2 km separation distance from a proposed wind turbine. Mandatory enhanced assessment of potential impacts for neighbours within a 2km radius of proposed wind turbines needs to be justified on non-Health grounds."* (NSW Health, 2012) The proponent defers to the judgement of NSW Health, and every other regulatory or government organisation in the world, that

	there are no established detrimental health impacts caused by living near wind turbines. We refer also to the judgement made with regard to Allendale East Wind Farm proposal considered by the SA ERD Court[ix], as referenced in response 1(c). The ERD Court considered evidence presented by Dr Laurie, which was dismissed as "*We were given little information about the expertise or standing of the authors of these 'publications'. Most of this work, as far as we can discern, has not been the subject of any peer review and none of the witnesses were called to give evidence*". In response to the evidence of Dr Laurie, the Court heard the opinion of Professor Wittert, Professor of Medicine at the University of Adelaide. As referenced in response 1(c), Professor Wittert concluded that: "*There is no credible evidence of a causal link, between the physical outputs of a turbine (or sets of turbines), at the levels that are described in the statement of Mr C Turnbull, and adverse effects on health*". The ERD Court accepted the position of Professor Wittert and concluded "*…we are therefore satisfied that public health will be protected if the noise levels predicted, by Mr Turnbull, are achieved*".
2 – Noise and Vibration	
2(a)	*There will be an adverse, audible noise effect.*
	A comprehensive noise assessment was undertaken by Sonus, contained in Appendix J of the EA and has concluded that the proposed turbines and substation are predicted to comply with the relevant noise criteria during operation at all surrounding neighbouring and associated land owners. Traffic and construction noise, including blasting and vibration are expected to be managed through the Construction Noise Management Plan. Accordingly, no adverse, audible noise effect is expected.
2(b)	*The assessment of infrasound and low frequency noise is inadequate as only anecdotal information is presented, and infrasound levels from wind turbines will cause health issues.*
	Infrasound is created by many natural causes (wind, ocean etc), man-made systems (cars, refrigerators, wind turbines etc) and is created by the beating of a human heart. There is no need to 'fear' infrasound as it is harmless at low to medium sound power levels. Every credible study measuring infrasound levels from modern wind turbines has shown them to be orders of magnitude below the internationally recognised level of perception of 85 dB(G), let alone the levels at which detrimental health impacts could occur. As an example, Sonus Pty Ltd undertook a study measuring infrasound levels from two wind farms in Australia and comparing the levels measured to naturally occurring sources, such as ocean waves, and man-made sources such as that existing in the Adelaide CBD (see **Appendix D**). This study was published in the peer reviewed scientific journal, Acoustics Australia. The study found that, even at a relatively close distance to the turbines of 360 metres, the measured sound power levels were only 61dB(G) which represents a sound power level of 250 times less than 85 db(G) perception/'hearing' threshold; which is less than naturally occurring infrasound at the beach. There are other peer-reviewed studies published in scientific journals around the world measuring infrasound levels from wind turbines including a study in Noise Control Engineering Journal published by the Institute of Noise Control Engineering of the USA (March/April 2011). The paper "*Low frequency noise and infrasound from wind turbines*"[x] measured infrasound from two different model wind turbines outside, and inside, residences. Infrasound power levels measured from four wind turbines within 610 metres (the closest being 305 metres) were found to be 100 times lower than the 85 dB(G) criteria. Only one turbine is located within 610

	metres of an associated residence at Bodangora. Both the peer reviewed studies above have shown that measured infrasound levels from wind turbines are well over 100 times lower than that which can be perceived by human beings, even 300 – 400 metres from a wind turbine. Using the relationship, documented in the Sonus study, that infrasound levels decreases by approximately 6 dB(G) for each doubling of the distance, the measured infrasound level from the Clements Gap turbines about 730 metres from the turbines would be about 55dB(G), or 30 db(G) below the perception threshold of 85 dB(G). At this distance, the infrasound power level would be 1000 times less than the perception threshold. Simplistically, this means that in order for a resident to perceive or hear infrasound, there would have to be 1000 turbines located within 750 - 800 metres of a dwelling. The South Australian EPA, the regulatory authority with the most experience with wind energy in Australia stated in their revised 2009 Wind farms environmental noise guidelines: *"Infrasound was a characteristic of some wind turbine models that has been attributed to early designs in which turbine blades were downwind of the main tower…Modern designs generally have the blades upwind of the tower….The EPA has consulted the working group and completed an extensive search but is not aware of infrasound being present at any modern wind farm site."* A letter from WorkSafe Victoria dated 10 February 2010 in conjunction with a wind farm planning panel hearing in Victoria (see complete letter in **Appendix E**) stated: *"The [Victorian Department of Health] has determined that the weight of evidence indicates that …there are no direct health effects from noise (audible or inaudible) at the levels generated by modern wind turbines. Numerous international reviews on low frequency and infrasound noise, and case studies of actual wind farm noise emissions have demonstrated that:* • *There is insignificant infrasound generated from modern wind turbines; and* • *Levels of low frequency sound emitted from modern wind turbines are not at a level that would lead to direct health effects"* The proponent is not aware of any regulatory authority or credible scientific organisation in the world that considers infrasound from modern wind turbines to be produced at levels anywhere near sufficient to cause health effects.
2(c)	*SA Noise Guidelines are inadequate to protect health on the basis of limited existing knowledge as they do not require an assessment of infrasound*
	The SA EPA Wind Farms – Environmental Noise Guidelines 2003 are widely described as the strictest noise requirements in the world, and were required in the DGRs for the Bodangora project assessment. These Guidelines were then used in conjunction with additional requirements provided in the Draft *NSW Planning Guidelines: Wind Farms*. The SA EPA Wind Farms - Environmental Noise Guidelines 2003 do not require an assessment against infrasound since '*The EPA has consulted the working group and completed an extensive literature search but is not aware of any infrasound being present at any modern wind farm site*'. Notwithstanding, the DGR's require identification of the known risks with respect to low frequency or infra-noise, as has been incorporated in the EA. Specific reference is made to the Hallett 3 Wind Farm development which has been withdrawn after Environment, Resources and Development Court and Supreme Court hearings in South Australia. After approval by the Regional Council of Goyder in 2009, and

	appeals to both the ERD and Supreme Courts in South Australia, media reports indicate that the Hallett 3 Wind Farm has been withdrawn following non-compliant noise data recorded at the operating Hallett 2 Wind Farm adjacent[xi]. If anything, the situation provides context for the application of the SA EPA Wind Farms Environmental Noise Guidelines in the *monitoring* of wind farms following construction. Environmental noise assessments are, by definition, an estimated *assessment*, based on background noise monitoring, noise propagation modelling and estimations against the stringent noise criteria. Monitoring of the noise created by the wind farm following construction will be required as proposed in the Draft Statement of Commitments for the Bodangora Wind Farm, and a contingency strategy will be prepared in the event the commissioned turbine noise exceeds the noise predictions.
2(d)	*Background noise modelling occurred for six weeks in summer only, and did not account for seasonal variations or at night when weather conditions are favourable.*
	As detailed in the Section 11.1.1 of the EA and Attachment J, noise predictions were conducted using the propagation model, ISO 9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors" (ISO 9613). This noise propagation model is widely accepted as an appropriate model for the assessment of wind farms when appropriate inputs are used. The ISO 9613 model has the ability to take into account the distance between the source the receiver, topography, hardness of the ground and atmospheric absorption at different frequencies in either temperature inversion or downwind conditions. The inputs selected are based upon those agreed by experts and is conducted for an atmospheric stability class that is most conductive to noise propagation. Accordingly, although background noise modelling was not undertaken in winter, a conservative approach is taken with a conductive atmospheric stability class to provide a worst case scenario.
2(e)	*Verification is required that the equipment used and logger positions have enabled an accurate assessment*
	The Guidelines provide an entire range of requirements in which loggers must comply, including certification, calibration, wind speed measurements, and for periods of rain and data collection. Logger positions were based on initial predictions of the wind farm noise, where preference was given to houses with the highest predicted noise level and without commercial agreements. The measurements of background noise were conducted in accordance with the Environmental Noise Guidelines 2003.
2(f)	*Assessment is against out-dated SA EPA 2003 Noise Guidelines (2009 version is current)*
	The SA EPA Noise Guidelines 2003 provide a more stringent noise assessment than the 2009 version, and were the version of Guidelines required pursuant to the DGR's. It should be noted that the SA EPA Noise Guidelines 2003 were revised in 2009 to raise the 'baseline' wind farm noise limit from 35dB(A) to 40dB(A); a significant increase in the allowable noise limit. The Bodangora wind farm will still comply with the stricter 35dB(A) limit contained in the 2003 Noise Guidelines.
2(g)	*"Will the company guarantee that there will be no noise impacts, or offensive noise?"*
	Infigen Energy will not be providing a guarantee against any noise impacts or offensive noise. A comprehensive noise assessment was undertaken by Sonus, contained in Appendix J of the EA and has concluded that the proposed turbines and substation are predicted

	to comply with the relevant noise criteria during operation at all surrounding neighbouring and associated land owners. It is worth noting that NSW has the most stringent noise criteria for wind farms in the world.
2(h)	*Noise is minimal, and within required limits. 'There is more noise living near a highway, train line or airport' (38991)*
	Noted. A comprehensive noise assessment was undertaken by Sonus, contained in Appendix J of the EA and has concluded that the proposed turbines and substation are predicted to comply with the relevant noise criteria during operation at all surrounding neighbouring and associated land owners. Traffic and construction noise, including blasting and vibration are expected to be managed through the Construction Noise Management Plan. Accordingly, no adverse, audible noise effect is expected.
2(i)	*No assessment has been made on the cumulative noise effect of turbines*
	An assessment of cumulative impacts of wind farms was provided on page 15 of Appendix J of the EA. This assessment is as comprehensive as can be provided without some form of prediction based on a known layout of an adjacent wind farm. Whilst the Director General's requirements have been prepared for the Uungala wind farm, no EA has been submitted. We are not aware of any current application for Triamble wind farm in NSW, and accordingly no assessment on the effects of the Triamble wind farm has occurred.
2(j)	*Topography, surface composition, inversion layers and differences in wind speed at individual dwellings affect noise levels at a residence*
	As detailed in Section 11.1.1 of the EA and Attachment J, noise predictions were conducted using the propagation model, ISO 9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors" (ISO 9613). This noise propagation model is widely accepted as an appropriate model for the assessment of wind farms when appropriate inputs are used. The ISO 9613 model has the ability to take into account the distance between the source the receiver, topography, hardness of the ground and atmospheric absorption at different frequencies in either temperature inversion or downwind conditions. The inputs selected are based upon those agreed by experts and is conducted for an atmospheric stability class that is most conductive to noise propagation.
2(k)	*Ambient noise levels inside properties are likely to be lower; one study identifies that noise attenuation inside dwellings is likely to be only 3 – 5dB(A) in typical Australian weather board dwellings and accordingly dwellings will not meet indoor noise requirements*
	The SA 2003 Noise Guidelines establish an onerous outdoor level which inherently protects the internal acoustic amenity of a dwelling. As such, there is no requirement within the SA Guidelines to achieve an indoor noise level. Notwithstanding, testing has been conducted across a range of typical Australian weatherboard dwellings with the noise reduction across the facades being significantly greater than 5 dB(A).
2(l)	*The assessment did not measure tonality, corona and/or aeolian noise from the transmission line.*
	We acknowledge that the noise effects of wind over transmission lines have not been addressed in the Environmental Noise Assessment Report. Notwithstanding, the proponent is confident that the transmission line acoustic levels would comply with the SA EPA 2003 Noise Guidelines.
2(m)	*The frequency of occurrences of meteorological conditions that exacerbate impacts have not been assessed, including the van den Berg effect.*
	Page 16 of the Environmental Noise Assessment discusses amplitude modulation, including the van den Berg effect during specific

	meteorological conditions. Although no specific assessment considered the frequency of occurrences of meteorological conditions which increase modulation depth, the assessment concludes that the there is no scientific research to indicate that the stringent SA 2003 Noise Guidelines do not adequately account for modulation.
2(n)	*No explanation is given for an atmospheric stability class that is 'most conducive to noise propagation".*
	The meteorological conditions used in the accepted ISO 9613 model "Acoustics – Attenuation of sound during propagation outdoors" represent either downwind or temperature inversion conditions. This noise propagation model is widely accepted as an appropriate model for the assessment of wind farms when appropriate inputs are used. The ISO model is based on "*meteorological conditions favourable to propagation.., these conditions are for downwind propagation… or, equivalently propagation under a well-developed moderate ground based temperature inversion".*
2(o)	*Computer models are inadequate measuring for low-frequency noise propagation.*
	The ISO 9613 is an accepted propagation model, and includes low-frequency propagation.
2(p)	*Use of an A-weighted value for assessment or compliance purposes does not address all of the noise impacts associated with wind farms, particularly as the A-weighted filter attenuates low frequencies and cannot provide a true indication of impacts.*
	The SA 2003 Noise Guidelines establish an A-weighted criterion on the basis that it represents the human response to noise from a wind farm. Reference has also been made within the Environmental Noise Assessment to the C-weighting and G-weighting networks to provide additional information.
2(q)	*The assessment provides assessment under the worst-case scenario but not under normal circumstances, a range of meteorological circumstances should be provided*
	The predicted noise levels in the Sonus assessment are based on meteorological conditions most conducive to noise propagation. The predicted noise levels easily achieve the objective requirements of the SA 2003 Noise Guidelines under these conditions. The predicted noise levels under 'normal circumstances' will be lower.
2(r)	*The noise demonstration at the public meeting failed to identify the existing background levels in Wellington*
	The demonstration was provided to assist the community in understanding the approach and noise level requirements of the SA 2003 Noise Guidelines.
2(s)	*Buildings provide a greater degree of attenuation at high frequencies compared to low frequencies*
	Noted. Notwithstanding, the SA 2003 Noise Guidelines establish an onerous outdoor level which inherently protects the internal acoustic amenity of a dwelling. The accepted ISO 9613 propagation model includes low frequency propagation and the predicted noise levels easily achieve the objective requirements of the Guidelines.
2(t)	*Monitoring of Waterloo and Hallett wind farms (SA) has demonstrated that even when wind farms are operating within noise guidelines, there are still adverse impacts at residential properties*
	The SA 2003 Noise Guidelines are widely accepted as establishing onerous noise level requirements. The monitoring results can be reviewed if made available.
2(u)	*The amplitude modulation factor was not included*

	An assessment on amplitude modulation was provided in Section 11.2.2 of the EA, and further detailed on Page 16 of Attachment J of the EA.
3 – Visual	
3(a)	*The project will cause a detrimental visual impact to the landscape, reduce amenity, and effect existing rural landscape character. Turbines will be visually prominent along the ridgelines and will negatively impact on quality of life.*
	The proponent accepts that some people find wind turbines unattractive, and represent an unwelcome change on the landscape. Conversely, other people find wind turbines to be attractive and calming elements on a landscape, and consider wind turbines to be more appealing than other forms of public infrastructure, including electricity generators (such as a coal fired power station). It would not be practical or possible to erect wind turbines in places where they cannot be seen, as by nature wind farms are large structures and must be located along elevated hills and ridgelines where the wind resource is exists to make the project viable. The proponent has volunteered to provide native vegetation screening to nearby neighbours, upon request, to assist in mitigating the visual effects of the project. Submissions refer to the effect of the project on the 'existing rural landscape character'. We submit that the 'rural landscape' existing at the project area is defined by Zone 1(a) 'Rural' of the Wellington Local Environmental Plan. The objectives of the Zone 1(a) Rural, provide for the intention of the land for agriculture, to preserve land for cropping and grazing, to protect or conserve soil stability, forests of a commercial nature, mineral deposits, environmentally or cultural sensitive areas, and water resources. The objectives of the Zone 1(a) Rural do not preclude other forms of development where the primary input of the land will be retained. We note that the project area is not located in Zone 1(c) 'Rural Small Holdings', which more closely considers whether forms of development are 'in keeping with the character of the locality' and if they are 'compatible with existing or likely future small holdings or hobby farms'.
3(b)	*The proposed turbine height of 150 metres is taller than existing wind farms. The turbine model is not confirmed and impact cannot be accurately assessed.*
	Turbines around Australia and the world vary in tower height and blade length. As the technology advances the turbines have typically got taller and have a larger rotor diameter. For the Bodangora project, Infigen has pre-empted the technology expansion and is seeking approval for a turbine envelop up to 150m in tip height. In order to undertake a thorough environmental assessment, we have selected one of the largest turbines currently on the market, the Vestas V112 3MW wind turbine. This has a tower height of 94m and a blade length of 56m.
3(c)	*Not all neighbouring dwellings have a photomontage, and viewpoints fail to be representatives of actual views. No photomontages were created for Bodangora Village.*
	The Landscape and Visual Impact Assessment contained in Attachment F of the EA details the methodology undertaken. As detailed in Section 8.1.1 of Attachment F, viewpoint selection is informed by the zone of visual influence analysis, topographical maps, field work observations and other influences including access and landscape character. Viewpoints were also selected to illustrate a combination of present landscape character types, areas of high landscape or scenic value, visual composition (e.g.

	focussed or panoramic views), a range of distances, varying aspects, various elevations, various extents of wind farm visibility, and sequential views along specific routes. Viewpoint photographs were taken from *accessible public land*, including viewpoints which are adjacent to residences that would have views of the development. A total of 30 viewpoints were incorporated in the EA. As detailed in Section 9.1.1 of Attachment F, the photomontage selection process was undertaken to best represent a range of distances as well as locations with differing views with the selected photomontages representing the 'worst case' scenario in terms of visual impact. Infigen acknowledge that viewpoints and photomontages were taken from accessible public areas only, in order to convey an image of the wind farm from typical vantage points and from potentially affected residents. A number of vantage points were selected nearby to neighbouring dwellings to wind farms, as best as possible. We note that the Draft NSW Planning Guidelines for Wind Farm indicate a place emphasis on an assessment of visual impact for any neighbouring dwellings within 2 kilometres of any proposed wind turbine. No turbines are proposed within 2 kilometres of any neighbouring dwelling.
3(d)	*Turbines add visual interest and will not have unreasonable visual effect.*
	Noted. The visual impact of a wind farm can be a positive attribute to the landscape, with many people considering that wind turbines are an attractive and calming element on a landscape, and may be more appealing than other forms of public infrastructure, including electricity generators (such as a coal fired power station).
3(e)	*The assessment does not adequately consider cumulative visual effects, including other wind farm projects, the Wellington Correctional Centre, Wellington Substation, Transgrid transmission lines and the Red Lea Chicken Farm.*
	Chapter 17 of the EA provides a detailed assessment of the cumulative impacts of the wind farm together with other recent and proposed developments in the landscape. Further detail specific to the visual assessment is also provided in Section 8.3.3 of the EA. Infigen acknowledge that there are a range of existing developments which have altered the appearance of the natural landscape from a broader perspective, however it is not expected that the wind farm will contribute to 'a massive industrial impact on the landscape' as described in submissions. The Wellington substation and Correctional Centre are partly concealed from view by screen planting when travelling along Mudgee Road, and are located at a distance of around 11 kilometres from the Bodangora wind farm. At such distances, the wind farm is expected to be a major element in the landscape. As a 330kV and 132kV high voltage transmission line exist in the landscape, the proposed transmission line between the wind farm and the proposed substation will form a far smaller structural element in the landscape. The EA acknowledges that there may be a perceived visual impact if two wind farm developments are constructed (Bodangora and Uungula wind farms), as developments may be viewed in succession when travelling through the landscape. The distance is estimated to be at least 10 kilometres between the nominated project boundary of the Uungala wind farm and WTG 18 of the Bodangora wind farm. It is therefore unlikely that receptors in the locality will be able to view both developments in combination. In particular, the EA

	describes that there are few sensitive receptors located at the ridge lines in which the turbines of the Bodangora wind farm are located which will have views to Uungula. We note are not aware of any current application for Triamble wind farm in NSW, and accordingly no assessment on the effects of the Triamble wind farm has occurred. The Red Lea Chicken Farm is located in an area of rural land use, and is sufficiently separated from the wind farm.
3(f)	*The visual impact of associated infrastructure including roads, substations and power lines is not adequately identified (including no photomontages).*
	The visual impact assessment focused on the wind turbines as these are most obvious project components and will be most visible on the landscape. Viewpoints 25 in Attachment F of the EA considered the potential for visibility of the substation from a group of properties on Gunnegalderie Road, and concluded that the substation would not be visible from this viewpoint. Accordingly, no photomontage was created as no visual impact from sensitive receivers is expected. Underground transmission cables will be used throughout the wind farm as far as possible with an overhead transmission cable may be used for connecting WTG18 to the substation as shown in Figure 1.3 of the EA, Project Overview. As detailed in the Preferred Project Report, previously an overhead cable was proposed to connect WTG18 to the substation. It is likely that this will be a combination of both overhead and underground cables depending on sensitivities including terrain, creek crossings, flora and fauna, visual, and geotechnical restrictions. The proponent will endeavour to use an underground cable where practical in order to minimise perceived visual impacts. No photomontage of overhead 33kV transmission lines were prepared as views are expected to be largely obstructed by topography and native vegetation, and given the transmission line will be relatively low to the ground in comparison to the height of the turbines. The 33kV transmission line will cross Goolma Road, however is a far smaller element than the existing 132 and 330kV transmission lines already existing in the wider locality. The construction of the wind farm will involve new and upgraded access tracks to enable access to turbine sites, with access tracks widened to approximately 9.0 metres. These tracks will be reduced to a width of approximately 5.0 metres following construction; tracks are expected to be consistent with existing local or farm roads in the locality.
3(g)	*Blade glint will be a visual nuisance and has not been adequately assessed*
	The risk of blade glint has been assessed in Chapter 8.4.2 of the EA. Blade glint is not expected to be a nuisance as it is generally experienced at roads with higher altitudes to a wind turbine hub, which will not occur at Bodangora. At present there are no formal regulations or guidelines pertaining to blade glint, however management measures in accordance with the Victorian Wind Farm Guidelines are proposed including surface treatments to ensure low reflectivity and matt coatings are proposed as a preventative measure as part of the Draft Statement of Commitments.
3(h)	*EA has not adequately assessed community and stakeholder values of local and regional visual amenity and quality*
	The DGRs provide that the assessment of visual impacts should *"describe community and stakeholder values of the local and regional amenity and quality, and perceptions of the project based on surveys and consultation"*. The Landscape and Visual Impact Assessment undertaken by Moir Landscape Architecture and enclosed at Attachment F of the EA has made an assessment of the community and

	stakeholder values of the landscape in the project area. Section 5.0 of Attachment F provides an assessment of landscape values in terms of landform and scale, landcover, settlement and human influence, movement, rarity and intervisiblity with adjacent landscapes, and has been assessed as being located within an area of 'moderate' landscape quality. The proponent has undertaken community consultation and a survey to assess perceptions of the project. The results of the survey undertaken only 3 people opposed the project from the 26 that completed the optional survey. Submissions refer to the effect of the project on the 'existing rural landscape character'. We submit that the 'rural landscape' existing at the project area is defined by Zone 1(a) 'Rural' of the Wellington Local Environmental Plan. The objectives of the Rural Zone , provide for the intention of the land for agriculture, to preserve land for cropping and grazing, to protect or conserve soil stability, forests of a commercial nature, mineral deposits, environmentally or cultural sensitive areas, and water resources. Accordingly, the objectives of the Zone 1(a) Rural do not preclude other forms of development where the primary input of the land will be retained. We note that the project area is not located in Zone 1(c) 'Rural Small Holdings', which more closely considers whether forms of development are 'in keeping with the character of the locality' and if they are 'compatible with existing or likely future small holdings or hobby farms'.
3(i)	*Planting vegetation as a mitigation strategy is not feasible given time to maturity, drought, and Council's requirements clearances within road verges.*
	Vegetation screening has worked successfully in the past and if there is a specific request or requirement to provide screening, Infigen will work with local flora specialist to select adequate species types. Given the size of the wind farm it is not possible or our intent to screen the entire project from all public roads and vantage points. We also note the DCP No 3 The planting of trees within 12 metres of a road formation or 150 metres of a road intersection is not supported. Infigen will take this into consideration with any screening that is implemented.
3(j)	*The 'Best Practice Guidelines for Wind Energy Development', 1994 referenced in visual assessment are out-dated.*
	Specific assessment requirements for the Bodangora wind farm were set by the DGRs for the project, and by the Draft *NSW Planning Guidelines: Wind Farms*. The reference to the *Best Practice Guidelines for Wind Energy Development* was made in conjunction with other technical best practice guideline documents including the *Wind Farms and Landscape Values National Assessment Framework*, 2007[xii], produced by the Australian Wind Energy Association and the Australian Council of National Trusts, for the Australian Government, plus the draft National Wind Farm Development Guidelines, 2010[xiii] produced by the Environment Protection and Heritage Council. These guidelines were all considered in the approach/methodology taken to satisfy the DGRs for the project.
3(k)	*Use of Zone of Visual Influence analysis is inaccurate and flawed.*
	As provided in the EA, the Zone of Visual Influence (ZVI) is undertaken to identify the areas of surrounding land from which the wind farm may be partially or completely visible, as determined through the use of digital topographic information and 3D modelling, and is based on topographic data and a turbine height of 150 metres. The ZVI does not consider the height and location of vegetation and structures on the landscape which in reality provide screening of turbines. However, the use of ZVI to identify viewpoint locations for further analysis as part of the project, and the limitations of ZVI

	are clearly identified in the EA. Queries were raised with regard to the use of ZVI as an assessment tool, however the ZVI analysis was required as part of the DGRs.
3(l)	*Incorrect assertions that properties may be somewhat desensitised from visual impact given the presence of agricultural equipment and infrastructure (such as substation and transmission lines).*
	Comments were made on page 8 of Attachment F of the EA with regard to visual desensitisation of views due to existing land uses in the area, for example the presence of agricultural equipment, storage areas, farm equipment and sheds being located in the immediate landscape of dwellings. These comments have relevance since the project area is located within Zone 1(a) 'Rural' of the Wellington Local Environmental Plan, of which provides the intention of the land for agricultural uses. There are a number of farming properties in the wider locality, of which will contain a presence of agricultural equipment, storage areas, farm equipment and sheds in the immediate landscape of dwellings. We note that the project area is not located in Zone 1(c) 'Rural Small Holdings', which more closely considers whether forms of development are 'in keeping with the character of the locality' and if they are 'compatible with existing or likely future small holdings or hobby farms'. The presence of the Wellington substation and transmission lines nearby to the project area are discussed in responses 3(e) and 3(f).
3(m)	*Photomontages as a tool for analysis are deceptive and are not representative of actual human perception.*
	Photomontages are a recognised tool for analysis in visual impact assessments for many developments including wind farms, and was a required component of the assessment as part of the DGRs.
3(n)	*SA Environment, Resources and Development Court overturned Local Council decision to approve wind farm based on visual impact.*
	The ERD Court considered the Allendale East wind farm proposal by Acciona Energy Oceania Pty Ltd (17 June 2011)[xiv]. The previous decision by the District Council of Grant to approve the development was reversed and the application subsequently refused, on the basis that the introduction of 46 wind turbines into the locality would detract from the existing character and level of visual amenity to an unacceptable degree. Specifically the assessment of visual impact relates to the unique local Development Plan, being the District Council of Grant Development Plan (consolidated on 16 October 2008). The wind farm was proposed to be located in the Primary Industry Zone of the Development Plan, for which Objective 1 states: *"Objective 1. A Zone primarily for general farming, horticulture and commercial forestry which retains the existing pleasant rural landscape."* The judgement considered that the provisions of this particular Development Plan placed a high value on the scenic qualities of the landscape, both generally and in the Primary Industry Zone. As described by part 26 of the decision, "*…as this Court has previously recognised, our focus, in this assessment when considering planning policy in South Australia, must be directed to the relevant Development Plan.*" In summary, the Court was of the opinion that the development would not 'avoid or minimise' adverse visual impacts on the character and amenity of the locality to the 'acceptable level' sought by the Plan.

	Accordingly, the Court recognises that an assessment must be made on a case by case basis having regard to the relevant guiding policies. We therefore submit that direct reference to the circumstances are not relevant to the assessment at this Bodangora Wind Farm.
3(o)	*No assessment of night lighting has been undertaken, including no preparation of photomontages of night lighting*
	As detailed in Section 8.4.3 of the EA, no light lighting of turbines is proposed or is required by the Civil Aviation Safety Authority (CASA), and accordingly no photomontages of night lighting have been prepared. CASA has indicated that they will not require wind farms to have aviation lights unless the turbines are over 150 metres tall or penetrate an aerodrome's OLS; neither of which apply to the Bodangora wind farm. In the unlikely event that aviation lights are needed, the proponent will select very focussed aviation lights which maximise the intensity of light within about +/- 2 degrees from the horizontal thereby minimising the light intensity seen at ground level consistent with the Draft NSW Planning Guidelines: Wind Farms.
3(p)	*The EA had a limited assessment of viewers' acceptance and sensitivity to change*
	Infigen accept that the wind farm will be visible and will result in a change to the existing landscape and associated values. The Landscape and Visual Impact Assessment had a role in quantifying the overall visual impact of the wind farm, but ultimately the perception of the wind farm will vary depending on the individual viewers' sensitivity to change. The LVIA acknowledges that "*The sensitivity towards change varies greatly depending on the users connection with the landscape*", and provides some context. We acknowledge that the greatest visual effect of the wind farm is most likely to be felt from residents in the immediate vicinity of the wind farm. Acceptance of change will vary depending on the individual, and the effect to landscape is subjective in nature.
4 – Community consultation	
4(a)	*Lack of consultation/communication generally with both neighbours and the broader community.*
	The extent of Infigen's community consultation is explained in some detail in Chapter 6 of the Environment Assessment. Infigen Energy sought out meetings with neighbours closest to the proposed project and reminded landowners involved in the project to advise Infigen if they heard of any neighbours who had concerns. Below is a summary of the consultation activities. - Face to face meetings with people interested in being involved in the project and or that had concerns with the project (prior to information days, after and ongoing); - Presentation to full council meeting; - Two community information days at local hall - Infigen sponsored bus tour to the Woodlawn Wind Farm - Multiple mail outs - Participation in local media articles and radio interviews; - Establishment of a Community Consultation Committee.
4(b)	*Consultation with Wellington Local Aboriginal Land Council should occur*
	The Wellington Local Aboriginal Land Council (WLALC) is currently in administration, as it was at the time of the heritage assessment

	of the Bodangora wind farm was prepared. Attempts to make contact by telephone or writing were made last year. The letter was returned from Australia Post, and phone calls failed to reach them. Accordingly we have been unable to consult with WLALC.
[redacted]	[redacted]
4(d)	*Limited participation on bus trip to Woodlawn wind farm provided by Infigen:* *'…it was a great pity that the people who are against Bodangora wind farm didn't take the advantage to make the trip and see first-hand how they operate and have questions answered by a representative of Infigen Energy.'*
	Noted. Infigen individually sent letters to neighbours within 5km of the project to invite them on a tour of the Woodlawn wind farm on Sunday 8 July, 2012. This provided neighbours with the opportunity to view and existing wind farm and for Infigen to answer questions. The tour was also advertised in the Wellington Times, however only 16 members of the community attended.
4(e)	*The Community Consultation Committee (CCC) should be formed in time to address the commitments made in the EA. The selection process for the CCC was not transparent.*
	The Bodangora Wind Farm CCC was formed in line with the new NSW draft wind farm guidelines and sought to have a diverse group of members. The CCC was advertised in the local papers and through other media, some of the positions were filled via responses to the ads, other people were contacted as a result of the information they provided at the community open day. All people who responded to the ad were granted a position on the CCC unless there were multiple people from the same household apply. The CCC was established prior to exhibition period of the DA closing and it is envisaged to be ongoing. It provides a conduit between the proponent and the broader community and is one of many ways community consultation is undertaken.
4(f)	*Proponent's survey at Comobella Hall is not accurate of local opinion*
	Every visitor to the open day at Comobella Hall was asked to fill in a brief survey about the project. There were 26 surveys completed and only 3 people indicated that they opposed the project.
4(g)	*Consultation with Airservices Australia, Aerial Agriculture Association of Australia and Wellington Aeroclub should occur*
	The proponent has consulted with the relevant aviation groups in relation to the wind farm. After the layout was finalised, a letter with the turbine co-ordinates and project information was sent on 23 August 2011 to all aviation stakeholders including both the AAAA and Airservices Australia. After receiving feedback from Airservices Australia, the proponent commissioned an Aviation Impact Study to confirm that there was no impact on the Wellington Airport. A copy of this study is included in **Appendix B**. The owner of the airport, Wellington Shire Council, has been consulted extensively. Infigen have consulted with a representative of the Wellington AeroClub, Rex Turner. Although generally supportive of the project, concerns were raised regarding the proximity of WTG 43, particularly during the landing of larger aircraft at night to service the Wellington prison. Infigen have supplied the Wellington AeroClub with information about the project, including the most recent copy of the wind farm layout, and a copy of the Aviation Impact Study. The Wellington AeroClub will consider this information at the next

	committee meeting and provide feedback to Infigen.
4(h)	*There has been a lack of consultation with mineral exploration tenement holders*
	Consultation has occurred with all mineral exploration license holders. There was initially some confusion over who was managing the exploration tenements, which was clarified by the Department of Trade and Investment. Some of the licences were being managed by different entities or subsidiaries that were not readily apparent. After holding the information day in September 2011, all holders of exploration licences were sent a notification letter in early December 2011. This letter outlined the proposal and sought any comments or suggestions on the proposal. These addresses were provided by the Department and included; Somerset Minerals Pty Ltd, Clancy Exploration Ltd and Windora Exploration Ltd. Despite hosting the information session in September 2011 and sending individual letters in early December 2011, we only received an initial email from Clancy Exploration in December 2011 and a formal response from Somerset Minerals in April 2012. The response from Somerset Minerals was received after the EA had been submitted and reviewed for adequacy. There have also been several emails attempting to further understand their position and alternative options. Somerset Minerals through Harvest Scientific have expressed some concern about extraction of minerals around the Kaiser mine should the wind farm proceed. Following receipt of this feedback and based on the historic significance, Infigen Energy micro-sited these specific turbines further away from the Kaiser Mine Shaft. The proponent will continue discussions with this company, in this regard. Another licence holder attended the open day and verbally advised that this area was of low prospectivity compared to the area they were currently drilling. The name of this staff member was not recorded, however he was believed to be involved in the Alkane's Comobella drilling program. The NSW Department of Industry provided a submission commenting on the proposal and reiterated the advice received from the licence holder. It is understood that the exploration licences over the remainder of the site are of low mineral potential. Infigen will continue to consult with all mineral exploration licence holders, however based on the information provided to date, the proponent does not believe that wind farm will materially restrict further exploration activity in the region. We also believe that the wind farm is significantly closer to commercialisation than re-opening the Kaiser Gold mine or establishing any other new mines in the Bodangora area.
4(i)	*The consultation undertaken with exploration license holders has not met the Director General Requirements*
	This consultation process with exploration license holders is discussed above in response 4(h). Certain mineral exploration tenement holders have not actively engaged in this process, on these occasions it has been assumed that they either have no issues with the wind farm proposal or their tenements are of very low prospectively. As stated in the Director Generals Requirements; "the level of consultation with each stakeholder is commensurate with their degree of interest/concern or likely impact", the proponent is confident that this level of consultation has been met with the relevant mineral exploration tenement holders.
4(j)	*Not all neighbours were contacted about the project, and the mail out system to 37 dwellings failed to identify all neighbours, including residents of Bodangora Village*
	Infigen endeavoured to capture every residence surrounding the project. The original address list was formulated during the

	consultation process and also from the councils contact list. Infigen acknowledges that some residences, particularly in the Bodangora Village, may have been overlooked and hopes that during this has now been rectified. To ensure there was still information flow to these neighbours, other forms of media and communication were used. A full meeting and BBQ dinner with the Bodangora village was held on 11 September 2012 and included a thorough discussion on the project.
4(k)	*There was no follow up after the community open day at Comobella Hall*
	Infigen strongly disagrees with this statement. Following the two open days many follow up letters and additional information packages were sent out and face to face meetings occurred. This process has resulted in many changes to the layout, including the removal of turbine 40, 47, and 28. In addition we have since established a Community Consultation Committee (CCC) and Infigen has hosted and sponsored a bus trip to our Woodlawn Wind Farm. A further more detailed community information day will be held closer to the commencement of construction.
4(l)	*No neighbouring landowners were contacted in the very early stages of the project; host land owners have been in negotiations since 2008*
	Infigen refutes this statement; three of the closest neighbours were contacted about the project prior to any of the current landowners being contacted. Although initial contact was made in 2008, the first lease agreements were not executed until later in 2009. From the very first day, Infigen's representatives told the landowners that if any other neighbours or stakeholders were interested in being involved in, or concerned about, the project, to direct them to the project manager. Taking this stance was successful in making the project inclusive and the group of host landowners has changed during the development phase.
4(m)	*Advertisement in Dubbo Photo News is not the 'local paper'*
	All advertisements were published in the Wellington Times Newspaper; other advertisements and articles may have also been published in the Dubbo newspapers; however the Wellington Times was the primary media source.
4(n)	*Follow-up letters and meetings after the open day did not occur*
	Following from the two open days many follow up letters and additional information packages were sent, and face to face meetings occurred. This process has resulted in many changes to the layout, including the removal of turbine 40, 47, and 28. The project manager continues to meet regularly with neighbours and other stakeholders involved in the project. Not all neighbours received a follow-up letter directly after the open days; this depended on whether they had indicated at the open day whether they required further information. In addition, there were attempts to make contact with those residents who were unable to make it to the open day. Below are some further responses regarding specific instances that were raised in the BWTAG submission: Bodangora village – numerous Bodangora residents and interested contractors were contacted following the open day. As discussed previously, not all residents were contacted directly after the sessions. Please also refer to response 4(j). The BWTAG submission indicates that the proponent did not meet one of the major landowners to the south of the project, it is

	assumed that this is the Mt Bodangora property. This is the first property that the proponent ever contacted about the project, during this phone call, they indicated that they didn't want to participate or meet with us to discuss opportunities. This same property was also contacted prior to the noise monitoring program and was sent an invitation and spoken prior to the information session on 8th August 2011. On all of these occasions and four other more recent attempts, the resident has not accepted an invitation to meet and discuss the project. It is also worth noting that they are a current member of the CCC. This same submission also states the Springdale property, which is 4.5km's from the nearest turbine, has also received no information. This statement is in error. During 2011, the proponent made several unsuccessful attempts to contact this property. A call was later returned confirming that the registered owners live on the NSW South Coast. After a lengthy phone discussion with Mr Warren Crittle (the property owner), there were three emails exchanged from 17-21 October 2011. An offer was also made by the project manager to drive down and meet on the South Coast, which was never accepted. This same submission comments on the property that has recently exchanged hands after a sale, please refer to response in 7(b).
4(o)	*Not all local contractors were invited to open day and there is no record of the contractor register*
	It was an open invitation for the community information days; both contractor and residents could attend. The neighbouring land owners to the project were sent individual invitations, and to further promote the open days multiple advertisements were published in the local paper and the proponent participated in several local radio segments. We currently maintain a construction register for the project and prior to construction commencing we will host several information sessions specifically for any interested contractors. The proponent has also met with the Central West Industry Capability Network (ICN) to introduce both the Flyers Creek and Bodangora projects.
4(p)	*Infigen staff displayed a lack of knowledge about the project at the residents' public meeting*
	This meeting was not organised by Infigen and was scheduled while the project manager was overseas. At short notice, two Infigen staff members attended and represented the company. Most of the concerns and questions raised concerned wind energy and wind farms in general, and the staff present were very capable of responding to these questions and concerns.
4(q)	*Host land owners have limited knowledge of the wind farm*
	BWTAG make several claims that three host landowners are not well informed about the project. All host landowners have a detailed knowledge of the project and have played an important role in the wind farm design. The proponent speaks, and meets, with the host landowners on a regular basis. The claims BWTAG make about them being ill informed are quoted out of context. For example, they apparently asked one of the landowners whether the project manager had explained or given them information about health and noise, the answer they claim he gave was 'nothing'. Assuming this was the answer, it is likely that he gave this answer due to being well informed and unconcerned about wind turbines and negative health impacts. Please also refer to the response 4(a) and Chapter 6 of the EA for further information on the amount on the level of communication and information flow.
5 – Process	
5(a)	*Associated land owners have contracts which contain 'gag clauses' preventing discussions with neighbours*

	There are no 'gag' or confidentiality clauses that inhibit landowners from speaking to neighbours about the proposal. There are also no clauses in the lease agreement that inhibit landowners from speaking about the health impacts of the project, even if land owners came to believe there were any. From the very first meeting the landowners were encouraged to notify the project manager of any neighbours who are either interested in joining the project or have any concerns. Having this open communication flow has helped the project develop into its current design.
5(b)	*The NSW Government has a duty of care and should utilise the precautionary approach in assessment*
	Infigen consider that the DGRs requirements and the *Draft NSW Planning Guidelines: Wind Farms* are precautionary in nature, and require the proponent of a wind farm to consider all possible effects of a wind farm. In particular, the Draft *NSW Planning Guidelines: Wind Farms* states, under Section 1.3(e), Key matters in the assessment process, Health: "*The approach to health issues in these guidelines have been developed in consultation with the NSW Ministry of Health. The guidelines adopt a precautionary approach for the consideration of health issues. This includes requiring proponents to consider health issues as well as comply with stringent operational performance criteria including stringent noise criteria.*" (Our underlining). Specific reference is made to the Hallett 3 Wind Farm development which has been withdrawn after Environment, Resources and Development Court and Supreme Court hearings in South Australia. After approval by the Regional Council of Goyder in 2009, and appeals to both the ERD and Supreme Courts in South Australia, media reports indicate that the Hallett 3 Wind Farm has been withdrawn following non-compliant noise data recorded at the operating Hallett 2 Wind Farm adjacent[xv]. If anything, the situation provides context for the application of the SA EPA Wind Farms Environmental Noise Guidelines in the *monitoring* of wind farms following construction. Environmental noise assessments are, by definition, a measured *assessment*, based on background noise monitoring, noise propagation modelling and estimations against the stringent noise criteria. Monitoring of the noise created by the wind farm following construction will be required as proposed in the Draft Statement of Commitments for the Bodangora Wind Farm, and a contingency strategy will be prepared in the event the commissioned turbine noise exceeds the noise predictions. This monitoring is *precautionary* in nature.
5(c)	*NSW Planning Guidelines: Wind Farms are only draft and no decision should be made until guidelines are finalised*
	Although not finalised, the application of the draft *NSW Planning Guidelines: Wind Farms* provides a precautionary approach by the NSW Government given more stringent criteria apply to the assessment of the EA. The draft *NSW Planning Guidelines: Wind Farms* provided additional requirements for the Bodangora EA beyond the DGRs and were therefore not the sole assessment criteria.
5(d)	*The public had limited access to hard copies of the EA and only sixty days in which to comment.*
	The complete EA document was available for download during the period of public exhibition online. The EA is extensive at nearly 900 pages, and printing multiple copies of this document would be uneconomical and wasteful. Additional copies of the EA were provided to Wellington Council to satisfy public requests. The EA was exhibited for a period of 60 days in accordance with the draft *NSW Planning Guidelines: Wind Farms*. Previously,

	development under Part 3A of the Environmental Planning and Assessment Act would have required a period of public exhibition for only 30 days.
6 – Flora and Fauna	
6(a)	*The proposal will result in the destruction of flora and fauna, including the loss of habitat and grassy box woodland.*
	Chapter 9 of the EA together with Attachment G (Flora and Fauna Assessment) provides a detailed assessment of the potential flora and fauna effects of the proposal. The assessment of the general impact of the proposal (Section 9.3.1 of EA) quantifies that the proposal has a relatively small overall footprint, that infrastructure can be located to avoid local habitat features such as woodland features including avoiding large, mature trees with hollows, and that the majority of infrastructure features will be located in cleared areas. Assessments in the EA have been made with regard to blade strike to birds and bats, air turbulence and barotrauma. Assessments have indicated that there is no supportive habitat or topographical features present within the project area for large soaring raptors or large waterbirds which would be most likely to collide with turbines, and the records of bird heights within the project area as recorded during the field surveys identified that the majority of birds flew below the local tree height and well below the base of the rotating blade height. A quantified assessment has been made in Section 9.4.1 of the EA which details that almost no trees will be required for removal according to the current project design. The 'worst case' loss of vegetation has been calculated at 1.32 hectares, which is based on WTG 7, 8, 13, 24, 28, 30, 31, 34, 35, 44 and 46 having at least some vegetation, and a turbine footprint of 1,200 square metres. Micro-siting the turbines and cable and access track routes by up to 50 metres will avoid vegetation removal. The impact of *White Box - Yellow Box - Blakely's Red Gum Woodland* will be avoided by micro-siting infrastructure. Accordingly, the proposal is not expected to cause the 'destruction' of flora and fauna.
6(b)	*Further assessments and surveys are requested for specific fauna including the Wedge-tailed Eagle, Little Eagle, Spotted-tailed Quoll, Koala, Grey Crowned Babbler, Yellow-Bellied Sheath-tail Bat, Black Swan, Glossy Black Cockatoo and Brown Treecreeper.*
	Detailed assessments have been included in the EA to assess the potential for threatened fauna to occur in the project area, including for the Spotted-tail Quoll, the Grey-crowned Babbler, and the Yellow-bellied Sheathtail bat. Other threatened species including Little Eagle (not recorded during field surveys) is only an occasional visitor to the project area and are not likely to be significantly impacted given habitat features will be avoided, and the Brown Treecreeper (not recorded during field surveys) is unlikely to be supported in the project area given the degraded remnant woodland which exists. At the time of the assessment, no local records could be found which suggest Koalas located in or near to the project area, despite questioning land owners. The more recent observation of a Koala is more likely a wandering male that could have come from some distance away. We note that SEPP no. 44 (Koala Habitat Protection) does not cover the Wellington Local Government Area. However, the only SEPP no. 44 food tree occurring in the area, *Eucalyptus albens*, can and will be avoided by the proposed wind farm. The Construction Environmental Management Plan will address measures required in avoiding tree clearance. The Office and Environment and Heritage Submission on the Bodangora Wind Farm acknowledge that the development will have

	minuscule impact on both the Koala and Little Eagle. The Glossy Black Cockatoo was not identified during the field surveys undertaken. The Wedge-tailed eagle was recorded during both surveys but is not a threatened or protected species in NSW. While raptors do fly at rotor height, they have demonstrated excellent avoidance behaviour around wind farms. The Black Swan is not a threatened species recorded in the project area and was not spotted during field surveys.
6(c)	*No assessment has considered the effects of noise on birds.*
	Neither the DGRs nor Draft NSW Planning Guidelines: Wind Farms require an assessment of the effects of noise on birds. Notwithstanding, Infigen are not aware of any regulatory authority or published, credible studies of the effects of wind farms on the behaviour of birds as a result of noise from wind farms.
6(d)	*Further assessments on clearances of roadside vegetation are required.*
	The report assessed the roadside vegetation and notes its occurrence in some places. The assessment, and protection of roadside vegetation will occur as part of the construction phase of the project. The Construction Environment Management Plan will identify any requirements to protect roadside vegetation during the construction period, and will be monitored by a qualified environmental auditor.
6(e)	*The flora and fauna assessment has failed to provide targeted and stratified surveys and statistical findings for many threatened species. No GPS coordinates are provided for the routes taken and there were no night assessments. There are no 'species-time' or 'species area' curves identified for bird surveys.*
	The Flora and Fauna Report gives the end points of the survey transects, with routes generally following the configuration of roads and tracks through the area. A typical route was driven with stops at all remnant vegetation which were then searched on foot. Table 3 and Appendix 3 of the Flora and Flora Report details the extent of surveys undertaken to locate species in a highly cleared, rural environment. Indeed, 60 species of birds were recorded in 33.6 hours of observation and surveys were carried out in both Summer and Winter. Night time assessments/surveys, other than for bats, would provide no additional information on threatened species. The two nocturnal species, Spotted-tailed Quoll and Squirrel Glider were assessed and their potential habitat will not be impacted directly by the wind farm. Measures for the protection of nearby potential woodland/rocky habitat will be contained in the Construction Environmental Management Plan. Further, the report by Australian Wildlife Services (AWS) raises various issues with regard to the survey and assessment methods employed in the study. The identified 'deficiencies' arise because the authors have taken a very strict scientific approach to the gathering of data. For practical reasons, a balance must be struck between the amount of survey undertaken and the assumptions that one makes. Considerations are based on the country being surveyed, the species involved, the habitats present and the type and scale of the proposed development. An acceptable approach is to undertake a reasonable amount of survey work, targeting those areas likely to contain significant species, etc, and to make some assumptions about habitat use. The Flora and Fauna Report assumed that some areas would be

	inhabited by threatened species even though they were not identified in the field survey (e.g. woodland birds and quoll). The Flora and Fauna Report also considered that the wind farm could be readily located without removing woodland or other habitat important to threatened animals. Finally, the Construction Environmental Management Plan and the proposed Superb Parrot survey ensure that no important issue is overlooked at the detailed design stage. The AWS Report gives the impression that the wind farm area is covered in important habitat for threatened species, however this is clearly not the case. If the vast majority of the area was natural habitat then further more detailed surveys would have been undertaken. The rural and highly modified character of the land dictated the way that the surveys and assessments were carried out.
6(f)	*No effect to native animals or habitat expected*
	Noted. Chapter 9 of the EA provides a detailed assessment of the project. The project has been designed to avoid vegetated areas which provide important habitat, and micro-siting of project elements will further assist in avoiding vegetated areas. The proposal is unlikely to diminish biodiversity values, and is unlikely to impact threatened species and communities including the White Box Yellow Box Blakely's Gum Woodland, the Spotted-tail Quoll, the Superb Parrot, the Grey-crowned Babbler, or the Yellow-bellied Sheathtail Bat. Any vegetation required for removal will be off-set by an area of revegetation four times that removed.
6(g)	*The EA does not contain a vegetation map for independent assessment of impacts, including no identification of wetland or 'granite country' areas.*
	The aerial photographs in the EA and provided elsewhere in the documentation demonstrate that the large majority of the project area is grazing land, and that woodland area are avoided by or can readily be avoided by the wind farm infrastructure. As noted in the Flora and Fauna Report, there are virtually no wetlands in the project area, other than farm dams and some ephemeral wet areas near watercourses. There is no value in mapping these. The 'granite country', containing rocky areas and some woodland is identified as significant in the Flora and Fauna Report and will be delineated in more detail in the Construction Environmental Management Plan prior to any development occurring.
6(h)	*Specific vegetation clearance details are required as a result of siting of project elements*
	Appendix 4 of the Flora and Fauna assessment provides a summary of the existing vegetation conditions at each wind turbine location. The micro-siting of turbines and cable and access tracks by up to 50 metres will assist in the avoiding vegetation clearance, and will be undertaken with an ecologist. The Draft Statement of Commitments for the project identifies that the Flora and Flora Management Sub-Plan of the CEMP will require a vegetation clearance register, including tree locations, type, size and numbers.
6(i)	*All avoidance measures and justification in final project locations should be provided.*
	Noted. Documentation of avoidance measures and final project locations can be incorporated in the Flora and Flora Management Sub-Plan CEMP.
6(j)	*Field survey for Superb Parrot to confirm the area is not a breeding site is not necessary as it is well established that northern-most breeding sites are near Molong, 85km north.*
	Noted. The Office of Environment and Heritage has recommended that further field surveys for the Superb Parrot are not required. Further surveys were proposed as part of a preventative measure to confirm whether the species is only a winter visitor to the area.

	Upon formal confirmation that Superb Parrot surveys are not required, this can be removed from the draft Statement of Commitments.
6(k)	*Artificial rocky outcrops will not provide microclimate features required for habitat and rocky outcrops should be avoided for turbine siting.*
	Noted. Large rocky outcrops will be avoided by micrositing as far as possible, however some rocky outcrops may be unavoidable. Material can be disposed elsewhere, either on or off site if this is the preferred approach.
6(l)	*A further bird/bat monitoring program should be required beyond that proposed following construction.*
	A bird and bat collision monitoring program is proposed to be undertaken once the wind farm is operational, and will be developed with reference to the Australian Wind Energy Association (AWEA) July 2005 report *"Wind Farms and Birds: Interim Standards for Risk Assessment"*. Prior to implementation, the proposed monitoring program will be submitted to the Office of Environment and Heritage for approval. This will be updated in the draft Statement of Commitments.
6(m)	*A range of mitigation activities should be explored including details of successes of measures used at other sites.*
	Noted. The Flora and Fauna Management Sub-Plan as part of the CEMP can explore a range of mitigation measures. In particular, Infigen will assess the success of previous mitigation measures utilised during the construction of its range of now operational wind farms. This will be updated in the draft Statement of Commitments.
6(n)	*A detailed offset strategy should be provided to Office of Environment and Heritage, including a suitable metric and location remote from the influence of the turbines.*
	A detailed offset strategy will be prepared and submitted to the Office of Environment and Heritage for approval, if vegetation clearance is required. As identified in the draft Statement of Commitments, the offset strategy will include a suitable metric and locations. It should be noted that vegetation clearing will be minimal throughout the project area and is estimated to be as low as 1.32ha. Based on the 'worst-case' loss of native vegetation as a result of the project of 1.32 hectares, an area of 5.28 hectares would be required for vegetation offset. A nominal location for vegetation offset has been identified within the land owned by the Glen Oak Pastoral Company Pty Ltd, identified as Land Owner D under separate cover in **Attachment B** to Preferred Project Report. As detailed on correspondence contained at **Appendix F**, the land owner has provided their consent for the purchase of up to 6 hectares of land for the purpose of developing a vegetation offset area/s. Kevin Mills and Associates have undertaken a review of aerial photography for the property, and together with several previous field studies, are confident that there is sufficient native vegetation on this property to provide the required native vegetation offset. The exact location/s for offset within this property will be determined in consultation with an ecologist to ensure that the most valuable area is selected, once the exact area required for offset is determined.
6(o)	*The effects of seed dispersal of weeds will be worsened by the wind farm.*
	The wind farm is not expected to worsen the existing effects of seed dispersal of weeds by wind. Infigen are not aware of any evidence which suggests that turbulence caused by wind turbines increases the distance or intensity of seeds travelled.

6(p)	*The use of unquantified descriptive words in flora and fauna assessment is inappropriate, e.g. 'often', 'most', 'much', 'majority'.*
	Specific calculations and data resulting from the flora and fauna surveys undertaken are provided in the appendices of Attachment G of the EA. 'Summary words' are used for discussion purposes and references are made to appendices throughout.
6(q)	*The second field survey undertaken in July 2011 was during winter, which is inappropriate for many species*
	The initial field survey was taken in October 2010 (spring). The second field survey was undertaken in July 2011 once the layout of the wind farm had been determined and was particularly aimed at winter so that there were both surveys in summer and winter. There are species that are only present in winter and species act differently in winter, two good reasons to do winter surveys, as long as summer surveys are also carried out. In this case, the Superb Parrot would not have been recorded unless the winter surveys were undertaken. The field survey was undertaken in accordance with the DRGs and in accordance with the *Guidelines for Threatened Species Surveys and Assessment* (2004), which is considered adequate.
6(r)	*WTG16 is situated at dense woodland. Other WTG sites including 10, 12, 13 are within 50 to 200 metres of woodland and will require clearance.*
	BWF has sited all turbines as carefully as possible to minimise environmental impact and especially vegetation removal. WTG 16 was micro-sited to the south east to avoid the wooded area. WTG sites 10,12 and 13 have all also be located to avoid the main wooded area, and it is believed that this is adequate set-back distance. Figure 1.3 shows the layout overlayed onto the aerial image, from this it is possible to site the turbines in relation to the main wooded areas.
6(s)	*The tree hollow assessment is limited to the western part of the development area, no GPS locations of hollows are provided, and no assessment indicates the species.*
	A total of 361 trees were surveyed at five locations across the project area. GPS coordinates of the five tree hollow surveys locations are provided in Appendix 5 of the Attachment G. Tree removal can be minimised through the micro-siting of turbine locations. Although a specific GPS coordinate has not been measured upfront for each and every hollow-bearing tree, an ecologist will assist in determining the best possible routing of access tracks and cables to assist in avoidance of hollow-bearing trees, as well as other sensitive habitat features. Where tree clearing cannot be avoided, and ecologist will be engaged to develop an appropriate tree clearance protocol.
6(t)	*Conclusions assume the absence of a species in the project area when survey results does not confirm it does not inhabit the survey area*
	The conclusions rely partly on the fact that the wind farm infrastructure can readily be located on cleared and modified land (e.g. pasture improved), so that habitat potentially used by unrecorded threatened species will not be impacted.
6(u)	*Consider the potential for Zieria obcordata to occur on site and conduct surveys for this species.*
	Zieria obcordata is a small shrub growing in 'eucalypt woodland or shrubland dominated by species of *Acacia*, on rocky hillsides', and occurs from 'Wellington to Bathurst'[xvi]. The closest turbines are about 11 – 12 kilometres to the north of the closest known population, located 15 kilometres to the east of Wellington. This perennial species is quite distinctive and would have been found in the areas to be utilised by the wind farm if it had been present. This species is listed in Appendix 7 of the Flora and Flora Report as a species surveyed for and assessed. Note that the draft Statement of Commitments requires that rocky areas are to be avoided as far as

	possible.
6(v)	*Native grasses regularly occur in grazing land and often complete full growth cycles*
	We acknowledge that native grasses do occur in grazing areas. However, this does not make it native grassland nor of value to wildlife.
6(w)	*The assessment states "No threatened plants have apparently been recorded within 20 kilometres of the Study Area"*
	We acknowledge that at least some records occur within 20 kilometres. This was a typographical error in the report and the reference was supposed to be '10 kilometres'. Five threatened plant species were surveyed for and assessed (i.e. all recorded species in Wellington Shire), as listed in Appendix 7 of the Flora and Fauna Report.
6(x)	*Clarify whether all turbine sites were visited during flora and fauna assessment*
	Appendix 4 of the Flora and Fauna Report tabulates all wind turbine sites, demonstrating that all sites were visited except six sites that were added later (once the report was nearly finished). These sites were assessed from aerial photographs and knowledge of the paddocks in which they occurred. These sites will be further assessed during preparation of the Construction Environmental Management Plan. There is clearly plenty of room at each of these sites to locate the infrastructure without removing impotent woodland. Refer also to response 6(r).
6(y)	*Rocky outcrops are evident in the central and southern parts of the project area and are known habitat areas of the Spotted-tail Quoll.*
	We generally agree with this statement. These areas were stated in the Flora and Fauna report as potential habitat for the Spotted-tail Quoll. The draft Statement of Commitments requires that rocky areas are to be avoided as far as possible, and that such protection is included in the matters to be addressed in the Construction Environmental Management Plan.
6(z)	*Unsubstantiated claims of 'poor soils' in the project area*
	This was a botanical assessment based on reference to the type of vegetation growing in the locality and the appearance of soil.
6(aa)	*Seven of the nine bat survey points are outside of the project area*
	Bat community monitoring locations were targeted in three major habitat areas (woodland remnants, creeks and open pasture), and three sampling sites were monitored in each. The surveys closely followed the NSW Department of Environment and Conservation *'Threatened Biodiversity Survey and Assessment Guidelines'* (2004). Known and/or considered possible occurrences of bat species within the wider region were reviewed prior to the study to ensure that appropriate field methods were selected to target threatened species.
6(ab)	*Further surveys, flight, feeding and habitat analysis are required for the Superb Parrot.*
	A further survey for the Superb Parrot is recommended. As the report notes, the locality is on the eastern edge of the species' geographic distribution and outside its breeding area, hence the species were present in winter but not in summer.
6(ac)	*Assessment of White Box Yellow Box Blakely's Red Gum Woodland does not provide stratified assessment of cover, quality/condition and exotic species present.*
	The small remnants of this type of vegetation are readily avoided by the wind farm infrastructure, so detailed descriptions are not considered necessary. Information on location and protection measures will be provided in the Construction Environmental

	Management Plan.
6(ad)	*Minimum clearing area of 1.32 hectares does not include upgraded and new access tracks, transmission line clearing, fire clearing etc*
	The '1.32 hectare' figure for maximum clearing areas is low because all of the infrastructure can be located through micro-siting in the detailed design stage so that native vegetation of any value can be avoided.
7 – Land and ownership	
7(a)	*The wind farm will result in the devaluation of neighbouring properties.*
	The most authoritative study of potential impacts on neighbouring property prices in Australia as referenced on page 16-4 of the EA was commissioned by the NSW Valuer General[xvii], and concluded: *"The main finding was that the wind farms do not appear to have negatively affected property values in most cases. Forty (40) of the 45 sales investigated did not show any reductions in value."* *"No reductions in sale price were evident for rural properties or residential properties located in nearby townships with views of the wind farm"* *"The results for rural residential properties…were mixed and inconsistent; there were some possible reductions in sales prices identified in some locations alongside properties whose values appeared not to have been affected. "* A larger, more comprehensive study was conducted in the USA by the Lawrence Berkeley National Laboratory for the US DOE[xviii] which analysed over 7400 property transactions near 24 wind farms in 9 separate states. This study is widely seen as the largest and most comprehensive study of neighbouring wind farm property values yet conducted, by one of the most prestigious research institutes in the USA. The conclusion of this study was that, *"based on the data sample and analysis presented here, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities."* A survey by independent consultant QDOS Research Pty Ltd[xix], interviewed two real estate agents in Bungendore, NSW, near the Capital and Woodlawn wind farms. A sample of quotes from the real estate agents that appeared in the report are as follows: *"The biggest problem for people beforehand was fear of the unknown."* *"The actual effect on sales has been minimal."* *"We sold one in between two wind mills, it didn't impact the sale at all. It was about eighteen months ago."* *"It had a good effect on the rental market during construction and now."* *"We're still selling properties with views of the wind farm, there's no effect on prices."* Two local real estate agents near the Capital Wind Farm have been quoted in the media regarding their experiences. Real Estate agent Judy Alcock wrote a letter to the editor of the Crookwell Gazette[xx] stating, *"I do not believe that either the Veolia (waste site) or (Capital) wind farm developments have greatly impacted on buyers decision to purchase in our area".* An article published online on the Now UC website (online publication of the School of Journalism, University of Canberra[xxi] included the following two paragraphs:

	"Brady's Country Wide Real Estate has sold many properties in the vicinity of the Capital Wind Farm near Bungendore and owner John Brady believes he has not seen a marked impact on property values. *"Before they were built in this region they definitely had a negative fear factor, a fear of the unknown, but once they were built here, people just took them on their merits," Mr Brady said. "We recently sold a property on Taylors Creek Road that is about a kilometre from two wind turbines and I had no problem selling that. I've spoken to people who have lived in amongst the wind turbines and they don't seem too bothered."* Therefore, from both formal studies and anecdotal remarks of real estate agents near the largest wind farm in NSW, we consider evidence provides that a wind farm will not have a material effect on neighbouring property values.
7(b)	*One land owner has unknowingly bought into the wind farm project.*
	One parcel that contained a possible access track and cable route has been recently sold. The proponent was unaware that the sale had occurred. This property had no formal lease arrangement and there was only verbal permission from the previous owner to locate the infrastructure on the property. Since finding out about the sale we have met with the new owner and offered to include them in the project through a lease agreement or remove the tracks and cables from the proposal. At this stage we are still awaiting their decision. There had been considerable consultation with the previous landowner in relation to this parcel of land and the previous owner was the brother of one of the main landowners within the project.
7(c)	*Property will become harder to sell, with longer selling times.*
	Response 7(a) details evidence in relation to the risk of a decrease in neighbouring property prices where adjacent to a wind farm. As no effects to land values are expected, and since the selling price is directly related to demand, we do not consider the properties will be harder to sell or that they will have longer selling times.
7(d)	*The EA incorrectly lists property names and incorrectly identifies non-associated dwellings within 2 kilometres of turbines.*
	We acknowledge that discrepancies in the EA and its attachments incorrectly listed a non-associated property within 2 kilometres of a wind turbine. Clarification was provided to the Department of Planning and Infrastructure in correspondence dated 10 August 2012 with regard to dwelling location and address details for neighbouring properties to the wind farm. This information has been replicated under separate cover in **Appendix C** to Preferred Project Report. The proponent has since confirmed the occurrence of the discrepancy with the affected land owners, and the location of proposed infrastructure in relation to their dwellings. Infigen confirm there are no non-associated dwellings located within 2.0 kilometres of any wind turbine.
7(e)	*Additional income to associated land owners.*
	Noted. The project will provide additional income to land owners within the project area that can be reinvestment back into improved rural production on the land.
7(f)	*The project area has a low population density.*
	Noted. The project area comprises rural lots with scattered dwellings at a very low density. Bodangora township is a historic

	settlement with few rural residential properties.
7(g)	*The wind farm will cause restrictions on other developments in the area.*
	The proposed wind farm is consistent and compatible with the existing and future land use of the region. Assuming any future developments comply with the relevant planning requirements, then the wind farm will not impose any restrictions. The project area is located in the Rural Zone 1(a) as defined by the Wellington *Local Environment Plan 1995*. The Rural Zone provides restrictions on the range of developments which can occur. The objectives of the zone provide for the intention of the land for agriculture, to preserve land for cropping and grazing, to protect or conserve soil stability, forests of a commercial nature, mineral deposits, environmentally or cultural sensitive areas, and water resources. Objective 1(d) states: • *"to ensure that the type and intensity of development is appropriate in relation to the characteristics of the land, the rural environment, and the costs of providing public services and amenities".* As provided by Clause 13(3) of the Local Environment Plan, *"Council shall not grant consent to the creation of an allotment it is satisfied will be used for the purpose of agriculture if the allotment has an area of less than 400 hectares and there is a dwelling on that allotment."* There are limited opportunities for more intense forms of development to occur given the provisions of the Rural Zone 1(a). Every application assessed on its merits considers the zone for that particular location, in addition to the range of use of the land at that location and in the wider locality. It is expected that there will be limited opportunities for the wind farm to 'cause restrictions' to other developments given the existing zone policy.
7(h)	*The geology of the land will not support a wind farm.*
	Initial geotechnical studies and advice from various turbine suppliers is that the sub surface material is very suitable for turbine foundations. At this stage the rock type identified has been predominantly granite and sedimentary, with no limestone formations identified. Prior to going out to tender for turbines and starting construction, a detailed geotechnical study will be undertaken.
7(i)	*Rural dwelling/building entitlements have not been considered, including influence of land values where building entitlements can no longer be realised.*
	Assessments in the EA have been based on those existing dwellings both within and adjacent to the project area. Full disclosure has been provided to residents within the project area. Any proposals for new dwellings outside of the project area will be required to be assessed in consideration of the land and the existing land uses in the area, including the wind farm (if approved). Consultation with both associated and neighbouring landowners have not identified any specific existing building entitlements. An assessment on the effects of land values is contained in response 7(a).
7(j)	*The NSW Valuer-General report which demonstrates land values will not be affected is dated and relates only to 45 properties*
	Refer comments in 7(a).
7(k)	*Comments by local real estate representatives indicate that capital values on properties affected by wind farms and comparable*

	industrial developments fall by at least 30%
	Claims that property values may decrease by at least 30% are unsubstantiated. Submissions have attached a letter from a real estate agent concerning the sale of one of the properties involved in the Flyers Creek project upon which is proposed to be located one wind turbine. The real estate agent's letter states the (partially completed) house and land was "marketed at $610,000" but only sold for $395,000 and the wind farm was a negative factor. Infigen have never heard from the land owner that they were unsatisfied with the sale price of the property. A conflict of interest may occur where a real estate agent fails to attract an offer near to the marketed price of the property.
7(l)	*There is no compensation to neighbouring land owners for the loss of market value*
	The Land & Environment Court's decision in 2010 for the Gullen Range Wind Farm[xxii] provides a succinct and authoritative response. Excerpts from the decision appear below: *"150 The Guardians* [opponents to the wind farm] *advance the proposition that a consequence of approval of the wind farm will be that a number of properties which are in the vicinity will suffer from "blight" for which there should be payment of compensation if the project were to be approved…* *154 Such a proposition faces a number of insurmountable hurdles.* *155 The first is that the wind farm, as earlier noted, is a permissible use on all of the parcels of land upon which it is proposed….* *159 If the concepts of blight and compensation, as presented by the Guardians, were to be applied to this private project (a proposition which I reject) then any otherwise compliant private project which had some impact in lowering the amenity of another property…would be exposed to such a claim.* *160 Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of landuse planning but would also be contrary to the relevant objective of the Act, in s 5(a)(ii) for "the promotion and co-ordination of the orderly economic use and development of the land…As a consequence, we decline to consider any issues relating to claims for compensation."* Accordingly, compensation to neighbouring properties of wind farms is not warranted, since this would set a precedent for *any* private project in which amenity is affected, and would be in contravention to land use planning which seeks to achieve the orderly and economic use of the land.
7(m)	*Overseas evidence, including in UK indicates land values have decreased due to proximity to wind farms*
	Reference to an article in UK paper the Daily Mail '*Wind farms DO hit house prices: Government agency finally admits that thousands can be wiped off value of homes'* refers to the Valuation Office Agency re-categorising homes into lower council tax categories as a result of reduced property prices. Reference is made to turbines located less than 600 metres (or 650 yards) of a neighbouring dwelling. Reference is also made to a study in 2007 by the Royal Institute of Chartered Surveyors[xxiii] who identified that: *"Terraced houses sited within 1 mile of a wind farm were observed to be 54 percent lower in value and semi-detached houses within 1 mile of the nearest turbine were 35 percent lower than similar houses at a distance of four miles. However, beyond that one mile zone* [approximately 1.6 kilometres] *no clear linear relationship between physical distance to the wind farm and*

	transaction price was observed." At the Bodangora wind farm, no turbine is located within 2 kilometres of a neighbouring dwelling. Overseas wind farm developments are not subject to the stringent criteria of which Australian wind farm developments are, and consequently turbines have been located closer to existing dwellings in the past. Further references are made to property prices in response 7(a).
8 – Safety	
8(a)	*There is a catastrophic risk of blade throw, including debris, ice and burning blades thrown outside of the project area. There are up to 20 public roads within 1,300 metres from the turbines.*
	Turbine blades do fail on very rare occasions. In these rare occasions, the blade often cracks or have some other problem resulting in the turbine shutting down before the blade is "thrown" due to the extensive automatic fault monitoring within the wind turbine. Therefore, occurrences of turbine blades being "thrown" some distance from the turbines are exceedingly rare. The instances of 'blade throw' are so rare that Infigen's insurance provider, which insures wind farms worldwide, does not even compile or track data with regards to how often it occurs. There are no reported instances of a human being, in the history of the world, being injured by a wind turbine blade "throw." In the unlikely event that it ever snowed at Bodangora and the turbines were stationary at the time of the snow shower, the start up speed of the turbines is slow enough that the snow would fall gently during the first few rotations. Wind turbines are commonly installed in high snow fall areas in North America and Europe.
8(b)	*The turbines present as a fire danger as a result of lightning strike or mechanical failure, given the location within a high risk fire, and since no restrictions have been placed on high or extreme fire danger days.*
	The risks of lightning strike and mechanical failure have been considered in Section 15.4 of the EA. A range of standards which will be employed to maintain electrical safety standards for the project are detailed in Section 15.3 of the EA. All turbines will be lightning grounded. A Bushfire Risk Management Sub-Plan for both the construction and operational phases of the project will be prepared in consultation with the NSW Rural Fire Service and based upon the *Planning for Bushfire Protection Guidelines* (RFS, 2006). A range of measures are proposed as part of the draft Statement of Commitments for incorporation in the Sub-Plan with regard to construction and operation works to reduce risk. Although it is unlikely that turbines will be turned off on high or extreme fire days, a range of contingency plans, procedures, drills with the RFS and regular fire inspections are proposed during operation.
8(c)	*The development shall incorporate adequate access for fire fighting purposes, in accordance with Section 4.1.3 of Planning for Bush Fire Protection 2006.*
	Noted. A Bushfire Risk Management Sub-Plan for both the construction and operational phases of the project will be prepared in consultation with the NSW Rural Fire Service and based upon the *Planning for Bushfire Protection Guidelines* (RFS, 2006). We note the requirements for access for fire fighting in the draft Statement of Commitments for the operational phase of the project

	including the incorporation of inner protection areas, suitable buffers between vegetation and installed equipment and working areas, and the maintenance of alternative access tracks where existing.
8(d)	*The wind farm will stretch the limited resources of RFS Spicers Creek in fighting wind farm -related fires and risk public safety.*
	There is no doubt that the risk from bushfires started by lightning, machinery, or other human activities, within the project site far exceed the very small chance of a fire starting within a Bodangora wind turbine. It is worth noting that completion of the project will enable improved fire fighting capabilities should a fire start from one of these other, more likely, factors. As just one example, the access for RFS trucks to the ridgelines, where a lightning strike fire would likely start, will be significantly improved as a result of the project. There will also be a detailed bush fire management plan that will be prepared in consultation with the local RFS. It is proposed that one of the site vehicles will be equipped with a small tank and hose. Please refer to response in 8(e).
8(e)	*A Bushfire Risk Management Plan is to be prepared, in accordance with ISO31000 and will incorporate operational and emergency evacuation procedures in accordance with Planning for Bush Fire Protection 2006.*
	Noted. The Bushfire Risk Management Sub-Plan will be prepared in accordance with ISO31000 and will incorporate operational and emergency evacuation procedures as required.
8(f)	*Structures should be separated from bush fire hazards by identifying adequate asset protection zones, to minimise the impact of radiant heat.*
	As requested, a 20 metre inner protection area buffer is proposed. This will be detailed in the Bushfire Risk Management Sub-Plan as described in the draft Statement of Commitments.
8(g)	*There are safety issues related to vehicle construction traffic, including near property entrances and along local roads.*
	A Construction Traffic Management Sub-Plan will be prepared in accordance with the draft Statement of Commitments, in consultation with local councils and the RTA. As detailed in the EA, measures will be undertaken to ensure safety particularly during the movement of oversize vehicles with infrastructure parts. Measures include the use of traffic control personnel, pilots and police escorts for oversize vehicles, plus signage, flashing lights and temporary speed restrictions. On-site speed reductions will be implemented for the project area. In accordance with the community consultation requirements in the draft Statement of Commitments, information will be provided to ensure local community and businesses are advised of construction activities, including details of traffic disruptions and controls, and the construction of temporary detours. Traffic control measures together with appropriate consultation will assist in reducing the risk of incident near property entrances and along local roads.
8(h)	*Turbines will cause visual distraction to road users which are unsafe.*
	There is the risk that the turbines may cause a visual distraction to road users, or where road users are intentionally viewing turbines, however it is not expected that this will present any greater risk than other road features including billboards, LED signs, or buildings or architecture with unusual designs or colours. An assessment of shadow flicker was made in the Landscape and Visual Impact Assessment in Attachment F of the EA with regards to

	distraction to motorists who experience shadow flicker. There is only a negligible risk associated with the distraction of motorists due to shadow flicker. Blade glint is another potential aspect which could cause distraction to drivers, but this occurs particularly where the road is located at a higher altitude than a turbine hub which will not occur at Bodangora. It is intended that separate approval, including detailed investigations will be sought for the development of a viewing platform for the wind farm. A viewing platform will include education material about renewable energy, the electricity network, and local Bodangora history, and will allow a location for residents and visitors to safely view the wind farm.
8(i)	*The EA does not provide detail of the regular maintenance of turbines to ensure safe operation.*
	Wind turbines require very little maintenance and are typically only a service every six months. During the warranty period the turbine supplier is in charge of servicing the turbines, at the end of the warranty period the service and maintenance contract is normally extended. The detailed service and maintenance schedule will be determined by the supplier once they have been awarded the contract. All components are monitored to ensure safe operation of the machines.
9 – Aviation	
9(a)	*Low flying agricultural aircraft applying fertilisers and pesticides will be affected, including the control of noxious weeds and pests.*
	It is expected that aerial operations will still be able to be undertaken for neighbouring properties to the wind farm. The prominent and visible nature of the turbines will mean they will be easily avoided by pilots. Associated land owners are aware of the implications of the development in constraining future aerial agricultural operations within the project area however will seek alternatives. While agricultural aircraft used for fertilisers and pesticides may be restricted to application during certain wind directions and/or calm wind conditions, this does not prevent agricultural spraying for neighbouring properties or alternative methods of application of materials to control noxious weeds and pests. The proponent will work with any affected parties to help make alternative arrangements if it is decided that their traditional means of aerial agriculture are no longer practical.
9(b)	*Aerial Agricultural Association of Australia (AAAA) policy guidelines provide that wind farms are a direct threat to agricultural aircraft*
	The Aerial Agricultural Association of Australia (AAAA) opposes wind farms on farm land on *economic* grounds. This was made clear by their CEO, Phil Hurst, during a meeting at the Federal Department of Infrastructure on December 1st, 2011. Mr. Hurst stated he had no safety concerns with regards to wind turbines as they are so prominent visually, he stated that it was inconceivable that an Agricultural pilot could run into one. He stated that his opposition to wind farms was purely economic as farm land with wind turbines on it was no longer able to be sprayed thereby reducing the economic opportunities for his members. Farmers involved in wind energy projects are aware that the potential for aerial spraying of their land will be limited by the erection of wind turbines.
9(c)	*Turbines will cause turbulence, which will affect safe aircraft movements and make aerial application of pesticides difficult.*
	Please see response in 9(b) on the AAAA's stance relating to safety concerns and wind farms. Further to this, the Sustainable Energy Development Authority (now Department of Energy, Utilities and Sustainability) issued in its 2002 *Wind Energy Handbook* that wind speed impacts are generally confined to a distance from each turbine equivalent to 10 times the vertical height of the turbine, e.g for a turbine height of 150 metres this would be a distance of around 1.5 kilometres. In reality this figure may be lower due to local topography attenuating the turbulence.

	More recently, the Australian Department of Infrastructure and Transport released the National Airports Safeguarding Framework, of which Guideline D is "*Managing the risk to aviation safety of wind turbine installations (wind farms)/wind monitoring towers*[xxiv]". This Guideline provides that turbulence may be noticeable up to 16 rotor diameters from the turbine. The Bodangora wind farm is expected to have a rotor diameter of 112 metres, which may present turbulence within approximately 1.8 kilometres downwind. The Guidelines state: *"At this time, the effect of this level of turbulence on aircraft in the vicinity is not known with certainty. However, wind farm operators should be conscious of their duty of car to communicate this risk to aviation operations in the vicinity of the wind farm."* Infigen will communicate the risk of turbulence when providing details of final turbine locations including to CASA, Department of Defence, AirServices Australia, the AAAA, plus the Wellington AeroClub and identified aerial application operators. Most recently, Infigen have consulted with a representative of the Wellington AeroClub, Rex Turner. Although generally supportive of the project, concerns were raised regarding the proximity of WTG 43, particularly during the landing of larger aircraft at night to service the Wellington prison. Infigen have supplied the Wellington AeroClub with information about the project, including the most recent copy of the wind farm layout, and a copy of the Aviation Impact Study. The Wellington AeroClub will consider this information at the next committee meeting and provide feedback to Infigen. We note that a photograph of offshore wind turbines has been presented in a submission which identifies an apparent vapour trail. The off shore wind farm bears no resemblance to the Bodangora wind farm, proposed on land with hills and trees.
9(d)	*The proposal will effect defined air traffic routes, operating heights, and add ferrying times*
	As provided in the Aviation Impact Statement at **Appendix B**, the location and height of the proposed wind farm will not affect flying operations at the Bodangora Airport. The only potential impact on operations will be a likely limitation on circling to the north-eastern side of Runway 13/31. The proposed wind farm does not impact on the approach and departure space for any of the runways. We note that there are no departures from runway 05 due to the rising terrain. Night operations on 13/31 facilitated by the recent installation of runway lights are also not affected by the proposed wind farm. Ferrying times will be unchanged as flying operations will not be affected. Infigen have consulted with a representative of the Wellington AeroClub, Rex Turner. Although generally supportive of the project, concerns were raised regarding the proximity of WTG 43, particularly during the landing of larger aircraft at night to service the Wellington prison. Infigen have supplied the Wellington AeroClub with information about the project, including the most recent copy of the wind farm layout, and a copy of the Aviation Impact Study. The Wellington AeroClub will consider this information at the next committee meeting and provide feedback to Infigen.
9(e)	*Aerial support for fire fighting will be affected, such as water bombing and spraying fire retardant along ridge lines. Taking off to east will be difficult when planes are loaded and heavy with water.*
	The RFS has written to another wind farm proponent clarifying that, "the presence of wind turbines is unlikely to restrict our fire fighting operations" (See **Appendix G**).

	As provided in response 9(d), the Aviation Impact Statement at **Appendix B** identifies that the location and height of the proposed wind farm will not affect flying operations at the Bodangora Airport. As the Aviation Impact Statement has identified, there are currently no departures from runway 05 due to the rising terrain and accordingly taking off to the east will not be affected. It is worth noting that the completion of the project will enable improved fire fighting capabilities should a fire occur within the project area, given improved access along upgraded access tracks.
9(f)	*The proximity causes a major safety risk, with potentially catastrophic consequences and no turbines should be located within 5 kilometres of the airfield*
	The Aviation Impact Statement at **Appendix B** identifies that the location of the closest wind turbine is 5.05 kilometres north-east of the airport. According to the CASA guidelines the proposed wind farm is not near an Obstacle Limitation Surface, and therefore does not represent a hazard to aircraft operation.
9(g)	*Stakeholders will be affected including the Correctional Centre, mining companies, recreational/private aircraft, air ambulance and Royal Flying Doctor Service, RAAF*
	The proposed wind farm will not inhibit any services currently being operated by any of the above mentioned. Please refer to the Aviation Impact Statement enclosed as an **Appendix B**.
9(h)	*Wind monitoring towers are especially hazardous due to low visibility*
	Wind monitoring towers have been installed in the project area for a number of years and additional monitoring towers will be installed to provide for ongoing meteorological investigations and power curve certification. Pursuant to Clause 39(2)(a) of the SEPP (Infrastructure) 2007, wind monitoring towers are exempt development. As a tall structure however, locations of the wind monitoring towers have been provided to CASA, Department of Defence, AirServices Australia, the AAAA, plus the Wellington AeroClub and identified aerial application operators. 'As constructed' locations will also be provided. The permanent wind monitoring towers will be located in the immediate vicinity of turbines.
9(i)	*The 05-23 run-way is NNE and conflicts with turbine zone*
	As detailed in the Aviation Impact Statement at **Appendix B**, the potential wind farm will not impact the approach and departure space for any of the runways. We note that there are currently no departures from runway 05 in the direction towards the proposed wind farm given the rising terrain and alignment of the runway.
9(j)	*The 13-31 runway is ESE meaning turbines conflict with take-off, landing and circling.*
	As detailed in the Aviation Impact Statement at **Appendix B** the potential wind farm will not impact the approach and departure space for any of the runways. The only potential impact on operations would be a potential limitation on circling to the north-east side of runway 13/31.
9(k)	*Inclement weather, smoke, low visibility and night operations will reduce visibility and the risk of catastrophic event is higher*
	As detailed in the Aviation Impact Statement at **Appendix B**, the potential wind farm will not impact the approach and departure space for any of the runways. Pilots should be very cautious during these conditions and should not be flying at low heights during such conditions due to the

	inherent danger of flying into the elevated ground or other objects.
9(l)	*There are 13 local airstrips located on properties in the area which will be affected*
	During the consultation process the feedback received indicated that the majority of landowners in vicinity of the project utilise the existing Bodangora airstrip. There are two known airstrips within the project area located on host landowner's properties, being Glen Oak and Gunnegalderie. The owner of Glen Oak advised that their air strip hasn't been utilised in the last 15-20 years and they now use the Bodangora airstrip if they need to land a plane. Gunnegalderie still use their landing strip occasionally for aerial spraying; it is located a significant distance from the nearest turbine and is unlikely that the wind farm will impose any restrictions. All of the other airstrips are located outside of the project area and according to the CASA guidelines the proposed wind farm is not near an Obstacle Limitation Surface, and therefore does not represent a hazard to aircraft operation.
9(m)	*Aviation Impact Study (AIS) to be submitted to Airservices Australia.*
	Noted. Infigen have provided a copy of the Aviation Impact Statement to AirServices Australia (Mr Joseph Doherty) for comment on 25 October 2012
9(n)	*Impact on flight procedures, communications, navigation, radar and surveillance.*
	As provided in response 9(d), the Aviation Impact Statement at **Appendix B** identifies that the location and height of the proposed wind farm will not affect flying operations at the Bodangora Airport. We note that there is no radar at the Bodangora airport.
9(o)	*Wind farm will jeopardise future upgrades of the airport for night use and instrument approaches*
	The Aviation Impact Statement at **Appendix B** indicates that the night operations on runway 13/31 facilitated by the recent installation of runway lights will not be affected by the proposed wind farm. We note that there is no radar at the Bodangora airport.
10 – Shadow flicker	
10(a)	*Effects of shadow flicker to dwellings have not been adequately assessed and/or impacts are expected.*
	The Landscape and Visual Impact Assessment incorporates an assessment of shadow flicker expected as a result of the proposed turbines. As identified in the EA, the assessment has shown shadow flicker is expected to five associated dwellings (1, 2, 4, 5, 19). The five associated dwellings are expected to have shadow duration in the range of 4.7 to 30.7 hours per year, a shadow occurrence of between 24 and 103 days per year, and a daily shadow duration of between 11 and 43 minutes per day. The assessment has identified that no neighbouring dwellings to the wind farm will be affected by shadow flicker. The assessment was been undertaken in accordance with the DGRs for the project.
10(b)	*No assessment has been made on the effects of shadow flicker on livestock*
	There is no specific requirement to undertake shadow flicker assessments on livestock. It would also be very difficult to undertake any assessments giving the roaming nature of the animals. Our experience at all of our operating wind farms are that the livestock use the shadow of the turbines as protection and are not bothered by the rotating blades.
10(c)	*No assessment has been made on the effects of shadow flicker on children*
	The effects of shadow flicker on children are expected to be the same as the effects of shadow flicker on adults. Refer to the discussion in response 10(a).

10(d)	*No assessment has been made on the effects of shadow flicker on persons with epilepsy*
	Reference is made to an article investigating how shadow flicker can induce seizures in persons with epilepsy, with guidelines recommending that to reduce flash frequency, and that revolutions should be kept to sixty revolutions per minute for a three-bladed turbine. Modern wind turbines rotate at speeds around 20 rpm, or one revolution every 3 seconds. This results in a shadow flicker frequency of about 1 per second in accordance with the article's recommendations. The shadow flicker frequency of modern wind turbines is well below that could potentially affect people with epilepsy. The suggestion that two or three wind turbines could line up and all cause shadow flicker for the same residence is impossible given the distance between turbines.
11 – Roads, Transport and Traffic	
11(a)	*Further damage will occur to dangerous country roads during construction.*
	Infigen will undertake a detailed condition survey for roads in conjunction with the Wellington and Mid Western Regional Councils to document the condition of local roads prior to the commencement of construction. Infigen will upgrade sections of local roads as necessary to accommodate oversize vehicles. Following construction, further detailed condition surveys will be undertaken to ensure the roads are in no worse condition than prior to construction beginning. Accordingly, no 'further damage' is expected to occur to local roads. A Construction Traffic Management Sub-Plan will be prepared prior to construction in conjunction with the Wellington and Mid-Western Regional Councils, RTA and the NSW Police to ensure that a safe road environment is maintained for all transport operations.
11(b)	*Assurance that upgrades, repairs and maintenance will occur as stated.*
	The draft Statement of Commitments can be updated to incorporate an agreement to confirm that upgrades will be undertaken, including ensuring Council roads are in no worse condition than prior to construction beginning. The upgrades will also be required as part of condition to any approval. An inspection and maintenance program will also be established to ensure local road conditions are maintained.
11(c)	*The specific impacts, including 'wear and tear' on roads and the financial contribution required for upgrade and repair should be quantified upfront.*
	The specific upgrades required and a detailed condition survey for roads will be determined as part of the Traffic Management Sub-Plan. The construction and traffic management plans will be detailed and finalised prior to construction commencing.
11(d)	*Roads are narrow, featuring sharp bends, and not designed to handle over-size vehicles.*
	Appropriate upgrades will be made to local roads to ensure they are suitable for oversize vehicles to carry the expected loads. As identified in Section 12.4 of the EA, a number of roads have been identified which may require further investigation to ensure capacity, including the intersection of Goolma and Gillinghall Road (swept path analysis and turning angles), the Mitchell Creek crossing on Goolma Road (bridge strength), and Gillinghall Road general (surface). The proponent has considered the relocation of the site office and construction lay down area, at a location closer to the intersection of Goolma Road and Gillinghall Road in response to discussions with various stakeholders and a detailed review of the submissions.

	This proposal would reduce the number of vehicle movements along the upper parts of Gillinghall Road. The relocation of the site office and construction lay down area *is not included* as part of this application, and would be subject to further detailed investigations in the event it forms a future variation to any approval granted.
11(e)	*All road upgrades, including where damages occur, will be borne by proponent. Will the proponent contribute to annual maintenance of public roads in Wellington Council?*
	The proponent will bare all costs for road upgrades to enable the construction of the development. A detailed condition survey will be undertaken prior to construction to ensure that local Council roads are reinstated to an appropriate condition following construction. The proponent has met with the Wellington Shire numerous times and has committed to entering into a Voluntary Planning Agreement (VPA). Details of the structure and quantum of this VPA are still being negotiated. It is envisaged that some of the funds from this VPA will be put towards road improvements.
11(f)	*Detailed road condition surveys by independent consulting engineers are required by Wellington and Mid-Western Regional Council, e.g. to determine pavement width and strength, bridge crossings, design layout and pavement strength.*
	Detailed road condition surveys will be undertaken by experienced professionals to the satisfaction of the Wellington and Mid-Western Regional Councils. Road condition surveys will be undertaken for all roads affected by the proposal including for the transport of constituent materials, such as concrete to/from the local concrete batching plant. In the event that the project cannot utilise concrete from an existing local concrete batching plant, then separate planning consent for a concrete batching plant for the project will be sought. As discussed with Council, these surveys will be undertaken after the projects have received its determination and prior to any construction commencing.
11(g)	*Severe damage as a result of construction may result in roads downgraded to gravel*
	A detailed condition survey will be undertaken prior to construction to ensure that local Council roads are reinstated to an appropriate condition following construction.
11(h)	*The CEMP Traffic Management Sub-Plan should consider school bus routes, for example traffic movements should avoid 8.00 – 9.30am and 2.30pm – 4.00pm on school days. Delivery should occur in daylight hours only. Oversize vehicles are not to travel in convoys.*
	Infigen acknowledge that the timing of construction vehicle movements have the potential to impact upon sensitive land uses, such as schools. The timing of vehicle movements will be detailed in the Traffic Management Sub-Plan in consultation with Wellington and Mid-Western Regional Councils. Local deliveries will occur during daylight hours only which will mitigate safety problems on local roads and to reduce noise effects to local dwellings.
11(i)	*Improvements will be made to local roads. Public roads within the wind farm operational area will be returned to the conditions prior to construction.*
	Noted. In accordance with Wellington Council's requirements, the proponent will reinstate Council roads to an equivalent condition as found in condition survey. This will form part of the Traffic CEMP.
11(j)	*Wellington Council to be consulted in preparation of Traffic CEMP*

	The Traffic Management Sub-Plan will detail those specific requirements as requested by Wellington Council, and will be finalised in consultation with Council prior to construction. Infigen will undertake a detailed condition survey of Gillinghall Road and any other Council roads if trafficked by wind farm vehicles, and will reinstate roads to a better condition than that found in the condition survey. Infigen acknowledge that Council request that Twelve Mile Road is not used for transport of parts for the substation construction, and should be used for light traffic only (up to 12 tonne GVM). Gillinghall and Gunnegaldrie Roads will be sealed to a width of 6.0 metres for a distance of 150 metres either side of the point of access to the property when residences are located within 400 metres of the road. The Traffic Management Sub-Plan will provide detail of speed limits, quarterly inspections throughout construction, signage requirements, and details of underground and overhead powerline locations pursuant to the requirements of the Roads Act 1993.
11(k)	*A Voluntary Planning Agreement (VPA) is required by Wellington Council to incorporate upkeep and maintenance of roads for the life of the project.*
	Infigen has engaged with the Wellington Shire Council to commence discussions on entering into a Voluntary Planning Agreement (VPA). Details will be negotiated over the next month to determine structure and quantum.
11(l)	*Confirm swept path analysis for Goolma Road and Gillinghall Road based on 55 metre vehicle*
	Correct – please refer to Figure 3 of Attachment K in the EA.
11(m)	*Road access is to comply with all requirements of Road and Maritime Services including safe intersection sight distances (SISD), Ausroads design requirements, seal and drainage requirements, formal agreements/permits, traffic control and other specific requirements as provided in Road and Maritime Services Submission*
	The Traffic Management Sub-Plan will detail the requirements for road design to comply with all relevant standards. This will include minimum SISD as established in Austroads Guide to Road Design and RMS Supplements to Austroads Guide to Road Design for a 100 km/h speed zone, Austroads requirements for a Rural Property Access including treatments at each access road to allow safe turning treatments, sealing requirements for a minimum of 20 metres from the edge of Goolma Road, culverts of minimum 375 millimetre with sloped headwalls to maintain longitudinal drainage, and for all redundant access points to be removed following construction. Gates, grids and similar structures will be reviewed to ensure suitable lateral clearance for the largest load to access the site, and any damage within a classified road reserve will be repaired to existing conditions prior to construction, including any damage to road pavement, culverts, bridges, causeways, stock grids, signage, verges or traffic facilities. The Traffic Management Sub-Plan will detail measures to ensure vehicles travelling in oversize and overmass loads do not travel in convoys or platoons. Appropriate structural investigations will be undertaken to ensure bridges have adequate capacity including the Mitchell Creek crossing. All permits will be sought for the use of oversize and overmass vehicles. All traffic control will be carried out in accordance with the RMS Traffic Control at Work Sites Manual and a Road Occupancy Licence obtained.
11(n)	*Extensive traffic movements along local roads will effect amenity*
	Although there is the risk that traffic movements along local roads will affect amenity, a range of measures are proposed to be

	undertaken during construction as detailed in the draft Statement of Commitments to mitigate noise from vehicles in addition to the construction processes to achieve an appropriate level of amenity in accordance with the relevant noise criteria. Local deliveries will occur during daylight hours only to mitigate safety problems on local roads and to reduce noise effects to local dwellings. The Traffic Management Sub-Plan will detail measures to avoid sensitive uses such as schools during children pick up/drop off times. Prior to construction, when significant construction traffic periods and impacts on local road conditions are expected, the local community potentially affected by the works will be contacted and informed by letter of the proposed works as detailed in the draft Statement of Commitments. Through the implementation of these measures, it is expected that appropriate levels of local amenity will be achieved during the construction period of the wind farm.
11(o)	*Department of Primary Industries (Crown Lands) will need to be contacted to determine appropriate actions to enable use of Crown roads where enclosure permits apply*
	Infigen energy will contact Crown Lands prior to construction to enable use of Crown roads for the transportation of construction materials and infrastructure.
11(p)	*There are hazards associated with traffic impacts, including agricultural based movements along or across the roads, such as movement of stock and moving of oversize machinery*
	Prior to construction, when significant construction traffic periods and impacts on local road conditions are expected, the local community potentially affected by the works will be contacted and informed by letter of the proposed works as detailed in the draft Statement of Commitments. The information provided will include details of the proposed work, the location of the work, and the dates and times of the works. Where possible the proponent will work with landowners to minimise the impact on agricultural activities. Associated landowners are aware of the constraints the wind farm works may cause on agriculture during construction, a similar plan will be worked up with them. It is anticipated that construction vehicles would have to wait for passing animals, like any other traffic on rural roads.
12 – Heritage	
12(a)	*The proposal will result in the destruction of historic, heritage and cultural areas.*
	A cultural heritage assessment has been undertaken as Chapter 10 and Attachment I of the EA in accordance with the DGRs. In consideration of the consultation undertaken, desktop review and field survey assessment, the project is not likely to impact upon European heritage places. The Sandy Hollow to Maryvale railway line currently exists as a farm access road, and is proposed to be used for wind farm access, however it is not expected there will be any impacts beyond those in which the railway line already sustains as a road. The Kaiser Mine is located nearby to proposed WTG44, however does not warrant heritage status. Two Aboriginal artefact locales were identified as part of the field survey assessment, one of which can be avoided by micrositing and the other is an existing access road. The project contains eroded and disturbed soils, and sub-surface Aboriginal objects are not predicted to have a high probability of being present. Legislation is in place for works to cease should historic items be encountered. Accordingly there is no 'destruction' of historic, heritage or cultural areas expected as a result of the proposal.
12(b)	*Blasting activities and construction traffic will effect historic features.*

	An assessment on vibration generating activities, including blasting was made as part of the noise assessment for the project in accordance with the DGRs. All blasting will be undertaken by qualified professionals in accordance with ANZECC guidelines for blasting in proximity to neighbouring dwellings. As stated in the EA, '*The separation distances between the potential blasting activities and the nearest dwellings are in the order of magnitude for which ground vibration and airblast levels have been adequately controlled at other sites*. *Monitoring will occur around sites where blasting occurs to monitor and ensure compliance with the Blasting Guidelines.*' The unlisted Kaiser Mine complex is the nearest man-made historic feature, located approximately 200 metres from WTG44. It is expected that low-level blasting that will occur on site can be adequately managed to avoid effects on historic features at the site.
12(c)	*The Sandy Hollow to Maryvale railway line has been used inappropriately for a number of years; and converting this to an access track will compromise the integrity of this heritage place.*
	The Sandy Hollow to Maryvale railway line exists largely as a local road within the Glen Oak property in the project area. It is expected that the use of this road is preferred in comparison with the alternative, which is to create a new access track within the project area. The heritage assessment has determined that the conversion of the local road in which the Sandy Hollow to Maryvale railway line is located to a wind farm access track is not expected to cause any additional impacts to the railway line which are not already sustained.
12(d)	*Claims that Kaiser Mine does not warrant heritage status are unwarranted and effects and unsubstantiated.*
	The Kaiser mine is situated outside any proposed impact areas of the Bodangora Wind Farm. However, it is emphasised that micrositing of turbines will be undertaken with sufficient care to ensure that there are indeed no inadvertent impacts to any surface or underground feature of the site, including the Kaiser Mine.
12(e)	*The heritage artefact survey was minimal and conclusions cannot be drawn, in particular with Aboriginal heritage in the locality.*
	The heritage artefact survey covered an extensive part of the project area, including 31 survey units. The heritage assessment states '*The majority of the proposed impact area was subject to pedestrian survey*'. We note that an additional archaeological survey is proposed to be undertaken in any area proposed for development not already surveyed as part of the draft Statement of Commitments. Conclusions which consider the likelihood of further Aboriginal heritage items in the project area have been based on detailed investigations of landforms and terrain, and an assessment of the Aboriginal use of the landscape and activities which occur. The Aboriginal representatives of the registered Aboriginal parties who participated in the field survey, and the archaeological consultants, concluded that there were no Aboriginal cultural heritage constraints to the proposal.
12(f)	*No mitigation measures are proposed for Aboriginal objects identified during site surveys.*
	Two Aboriginal artefact areas were identified as part of the field surveys. The stone procurement area (SI18/L1) has recommended mitigation measures involving the micro-siting of the access track between WTG35 and 37 allowing the diversion of the proposed access road around this object. The other stone artefact (SU3/L1) is of low local scientific significance, and is highly disturbed, located at an existing access track. The recommendation has been made as part of the EA that given the low scientific significance and location on an existing access track, mitigation measures for this artefact are considered unwarranted.
12(g)	*No survey was undertaken along Mitchells Creek or at Mt Bodangora.*

	The methodology for the heritage survey is detailed in Chapter 10 and Attachment I of the EA. As no infrastructure or construction works are proposed along Mitchells Creek or at Mount Bodangora, the heritage study has not undertaken a field survey at locations.
13 – Rural Uses	
13(a)	*The project will result in reduced agricultural productivity, and no quantifiable assessment is made on the impact to agricultural uses.*
	Each land owner will lose a 7 – 6 metre diameter area for each wind turbine once constructed, plus additional clearance areas in the order of 20 metres surrounding the turbine base. Whilst this does result a very small loss of 'agricultural productivity', it is more than made up by guaranteed payments to land owners regardless of commodity prices or weather conditions. Further, hosting wind turbines have enabled many farmers to 'stay on the land' and continue to farm due to this additional income. Wind turbines are therefore a benefit to farmer's individual agricultural businesses and contribute to increased agricultural productivity.
13(b)	*An assessment should be made on the health effects of livestock, working animals, and chickens at the Red Lea Chicken Farm from audible/infrasound exposure, including effects on breeding.*
	Similar to the alleged effects of infrasound on humans, Infigen is not aware of any convincing peer-reviewed evidence of a relationship between any alleged health symptoms in animals, including effects to breeding or egg laying associated with wind turbines.
13(c)	*There will be financial effects as a result of loss of agricultural productivity in the area.*
	Please refer to response 13(a).
13(d)	*There will be no effect to livestock activities as a result of the wind farm.*
	Noted. A small area of grazing land will be lost as identified in response 13(a). As identified in response 13(b), there are no expected effects to the health of livestock as a result of the wind farm.
13(e)	*Truck movements will limit access for agricultural activities.*
	Please refer to response in 7b, if the new landowner elects not to be involved in the project the proposed access tracks will be removed from their property. Irrespective if they elect to host an access track, Infigen does not believe there will be any limitation to the movement of stock or other agriculture activities. In fact the new all-weather access tracks will make access within the properties easier and accessible all year round.
13(f)	*Consideration should be given to Infrastructure Proposals for Rural Lands*
	Section 5.4.9 of the EA addressed consideration of *Infrastructure Proposals for Rural Lands.*
14 – Community and Rural Infrastructure	
14(a)	*The project has caused division and alienation within the rural community. No assessment has been made on community cohesion, relationships, lifestyle impacts, etc.* *"The division in the local community, created by the proponent paying host landowners large sums of money, attacks the very fabric of our rural community."*
	A major proposal of any kind is likely to cause different reactions in community, including some in opposition and some in support. Therefore, any proposal for change can be 'divisive', as it is common for people to fear change.

	A certain amount of 'divisiveness' may already exist in a community. For example, some people in the Bodangora and wider communities make the majority of their income off the land by farming and have lived in the district for generations, while others have moved to the district relatively recently, live on hobby farms or 'lifestyle' blocks and do not make a living farming. Farming results in certain amenity impacts that may not be well received by lifestyle block owners who desire residential zone amenity protection. This may already result in one 'divide' in the community that existed well before the wind farm was proposed. The spreading of false information, or a scare campaign of misinformation, can increase the perceived divide in the community making reasoned, sensible discussions of the real issues problematic. This can lead to a perception that a wind farm is a divisive proposal. In other communities, this has not occurred. Infigen's Lake Bonney wind farm is the largest wind farm in the southern hemisphere with an electricity capacity of 278 Megawatts. The project was built in three stages, the last of which did not receive one written objection during the planning process. Neither Infigen Energy, nor the local council, Wattle Range Council, have received one complaint from a neighbour for noise, health or any other issue. The CEO of the Wattle Range Council has made a submission documenting the lack of complaints as shown in **Appendix H**.
14(b)	*No assessment is made on the demands on health, educational and recreation services, housing availability (including rental), community organisations, and as a result of an increased demand for skilled labour etc.*
	It is expected that the project will have a negligible effect on health and recreation services, and community organisations, and accordingly no assessment in the EA was provided to this effect. Any demand expected in the region as a result of the accommodation of construction staff for Bodangora Wind Farm is expected to create a positive effect for the region. It is expected that adequate accommodation can be sought in surrounding communities including Wellington, Mudgee, Gulgong and Dubbo. As discussed in 14(c); both the community benefit fund and VPA will potentially increase the flow of fund towards some of those community groups and hopefully make significant improvements.
14(c)	*Further details are required for the voluntary community enhancement program, and the proponent has not yet followed through with any community projects.*
	Infigen proposes the following two voluntary community enhancement programs: Bodangora Community Enhancement Fund: The quantum and structure of this fund will be linked to the performance of a specific turbine. Each year this fund will receive 2% of gross revenue from the nominated turbine. A committee will be selected to administer the fund and will consist of; a Bodangora resident, host landowner, neighbour, and a member of Infigen. This committee will determine where these funds are allocated each year within the community. Voluntary Planning Agreement (VPA): This agreement, as outlined in 11(k), will be negotiated with the Wellington Shire Council and will be controlled by members of that council. It is envisaged that this fund will be used more broadly with the Wellington Local Government Area.
14(d)	*The project will provide a positive contribution to community support and funding.*

	Noted. The proponent will commit to a voluntary enhancement program to offset residual impacts in the local area, and to benefit the community of Wellington local government area.
14(e)	*Council will seek to enter into a Voluntary Planning Agreement (VPA) with Infigen.*
	As discussed in 14. (d), Infigen has already engaged with the Wellington Shire Council to commence negotiations on the VPA.
14(f)	*The majority of construction staff will not be local and there is no guarantee to businesses in Wellington. The contractor register has not been produced yet.*
	During the consultation for the Bodangora project the proponent has maintained a consultation register and will continue to update this prior to construction commencing. If a larger construction firm is the successful tenderer, Infigen will pass on this register to maximise the uptake of locals as sub-contractors. Infigen also proposes to utilise the Industry Capability Network (ICN), an organisation which connects proponents and local contractors to ensure project managers are aware of the skills, experience and contact details of local contractors to maximise the hiring of local, qualified contractors and service providers. Infigen has worked closely with the ICN for its Capital and Woodlawn wind farms and will for Bodangora wind farm also.
15 – Economics	
15(a)	*Wind farms are not a viable business, as have a high capital cost and rely on other energy sources as backup.*
	It is widely recognised by the Australian Electricity Market Operator (AEMO) and electricity analysts and consultants in Australia, that wind energy is currently the most cost effective means to generate new renewable energy in Australia. Electricity markets operate most effectively when they have different types of generation available (i.e. coal, gas, hydro, wind, etc) as each generation technology has its advantages and disadvantages. Whether or not an electricity generator is 'baseload' and the economics of an electricity generation plant are not relevant matters in planning assessment.
15(b)	*Tax payers subsidise the wind industry, in the form of Renewable Energy Certificates (RECs).*
	The only incentive provided to the wind energy industry is the Commonwealth Renewable Energy Target legislation. According to the Independent Pricing and Regulatory Tribunal FY13 price determination, the cost of the average NSW household for the large-scale renewable energy target scheme is $38 per year per household. There are no taxpayer subsidies paid to the wind energy industry.
15(c)	*The wind farm will introduce financial benefits and opportunities for employment and local contractors.*
	Noted. The economic benefits of the wind farm are detailed in Section 16.2 of the EA.,
15(d)	*Will not help climate change, does not create a net saving in Co2 emissions*
	Wind farms make a very significant contribution to greenhouse gas emission reductions as large amounts of electricity cannot be stored in a practical manner. When wind energy increases in the National Electricity Market (NEM), some other form of generation must be turned down to keep the system stable. As one example of documenting this, AEMO has published a graph documenting that greenhouse gas emissions from electricity

	generation plants in South Australia have declined by 27 percent over the past six years (see **Appendix I**). It is also worth noting that in Q3 CY12, there has been no electricity generated by burning coal, partly due to wind energy replacing the need for these plants. Clearly, this is resulting in significant greenhouse gas emission savings. In addition, both the NSW and Victoria Governments have commissioned expert, independent forecasts of greenhouse gas emission reductions due to wind farms which also confirmed significant greenhouse gas emissions reductions.[xxv].
15(e)	*The project will result in additional spending in Wellington by construction staff, such as for accommodation.*
	Noted. The project will result in increased opportunities for employment during construction, and opportunities for local contractors. Local service providers can benefit from flow-on effects from staff in the area requiring accommodation, and food and general supplies.
15(f)	*The cost of electricity and taxes will increase as a result of infrastructure costs, Renewable Energy Certificates, power pricing agreements including Renewable Energy Targets, the impact of carbon tax etc*
	As previously mentioned, the Independent Pricing and Regulatory Tribunal FY13 price determination, the cost of the average NSW household for the large-scale renewable energy target scheme is around $3/month per household. There are no tax payer subsidies paid to the wind energy industry. The only incentive provided to the wind energy industry is the Commonwealth Renewable Energy Target legislation. Investment in establishing the carbon tax, Renewable Energy Certificates and other renewable innovation programs and agencies demonstrate the Australian Government commitment to the clean energy sector. It has also been widely reported that wind energy in South Australia is actually reducing the wholesale cost of electricity; one example is the Australian Electricity Market Operator (AEMO) reporting that the wholesale price of electricity in SA when it is 'windy' is half of the 'typical' or average wholesale price. [xxvi]
16 – Electricity Production	
16(a)	*Wind farms are inefficient.*
	Wind farms are not inefficient. According the Wind Energy Handbook (Burton, 2001), the average efficiency of a wind turbine is around 77-80 % of the theoretical limit of power that can be extracted from wind. This is far greater than 33 %, the thermal efficiency of coal. It is widely recognised by the Australian Electricity Market Operator (AEMO) and electricity analysts and consultants in Australia, that wind energy is currently the most cost effective means to generate new renewable energy in Australia.
16(b)	*Wind farms create intermittent electricity production and are unable to produce base load power.*
	Electricity markets operate most effectively when they have different types of generation available (i.e. coal, gas, hydro, wind, etc) as each generation technology has its advantages and disadvantages. While wind farms produce electricity intermittently, production is highly predictable. Like all other registered generators in the National Electricity Market (NEM), control systems will be installed that will ensure the BWF will conform with all AEMO requirements. Whether or not an electricity generator is 'baseload' is not a relevant matter in planning assessment. For example, a number of gas fired 'peaking' power plants do not provide base load power either, typically running less than 10% of the time.

16(c)	*Support for renewable energy projects.*
	Noted. The project will contribute to Australia's economic health through reduced reliance on non-renewable resources.
16(d)	*Support for non-polluting energy projects.*
	Noted. The wind farm is expected to provide clean electricity for 35,000 homes annually.
16(e)	*Other electricity production techniques are more efficient i.e. gas turbine power stations*
	Generator efficiency is also discussed in 16(a). Electricity markets operate most effectively when they have different types of generation available (i.e. coal, gas, hydro, wind, etc) as each generation technology has its advantages and disadvantages.
16(f)	*Greenhouse gas reduction estimates should no longer be based on computer modelling. The figure derived from the NSW Greenhouse Gas Savings Tool is fatuous and based on several assumptions.*
	As previously identified in 15(d), South Australia's approximate annual carbon dioxide equivalent (Co2 e) emissions have shown a trend in decline over the past few years, predominately due to increased wind generation. Computer modelling provides an estimate, however AEMO provides evidence based upon existing wind farm for reductions in carbon dioxide emissions. Assessment against the NSW Wind Farm Greenhouse Gas Savings Tool was part of the DGR's.
16(g)	*The site is well selected given the wind resource and electrical connections available.*
	Noted. Section 2.4 of the EA provides justification for site selection, and Section 2.5 provides an assessment of project alternatives. Factors for consideration include sophisticated and detailed wind resource modelling undertaken for the site which confirmed the capability of sustaining a viable wind farm, and that connections to electrical transmission are available via the 132kV Wellington to Beryl transmission line.
17 - Decommissioning	
17(a)	*The decommissioning plan should be comprehensive and ensure liability rests fully with the developer or successors in law.*
	Attachment D of the EA is the Decommissioning and Rehabilitation Plan. The Plan clearly and comprehensively details the liability of the developer as the lessee of the land in the decommissioning of wind farm equipment. It is not considered that the community will be burdened in any way during the decommissioning of the wind farm. This legal requirement is also included in the lease agreements with the project landowners, and will undoubtedly be included in the project's conditions of consent, should it be approved.
17(b)	*Details should be provided to indicate the transfer of liability if Infigen is liquidated or if the wind farm is sold to other energy provider.*
	There is an obligation in wind farm property leases for the transfer of obligation for the decommissioning of the wind farm if the wind farm changes ownership. The lease states: *"4.14 Removal of Wind Farm Plan and Equipment* *(a) Within one hundred and eighty (180) days of the termination of this Lease, all Plant and Equipment whatsoever sited above the surface of the Leased Property and all Plant and Equipment sited on the surface of the Leased Property shall be removed by the Lessee. Plant and Equipment sited below the surface of the Leased Property shall be removed to a minimum depth of four hundred (400) millimetres.*

	(b) Concrete foundations shall be expressly excluded from the requirements of clause 4.14(a), but only upon the condition that a smoothed, even covering of soil is placed to a minimum depth of four hundred (400) millimetres over such concrete foundations. *(c) Roads, fences and gates shall be expressly excluded from the requirement of clause 4.14(a).* Accordingly, in the instance that the wind farm is sold, the responsibilities of the decommissioning of the wind farm will be transferred to the new lessee of the land. It is also anticipated that the decommissioning of the wind farm will also be a commitment in the conditions of any development approvals.
17(c)	*The wind farm should be decommissioned, not replaced and continued for operation.*
	Noted. The benefits of decommissioning vs the replacement and repowering of the wind farm will be considered at the time with a new development application.
17(d)	*A security bond should be used to capture all demolition costs, e.g. a security bond to Council/NSW Government.*
	The proponent states in the EA that the above ground infrastructure will be removed once the wind farm ceases operation. This same requirement will also likely appear in the conditions of consent should the project be approved. In addition, the proponent has this same legal obligation in its lease arrangements with the landowners involved in the project. It is routine for large infrastructure projects, like the Bodangora wind farm, to be debt financed before, or after, construction of the project. In the unlikely event that the proponent was to become insolvent, the finance company would take over operation of the wind farm, earning the revenue from the project, and at the same time assuming all obligations of the project. In this unlikely case, the financier(s) would decommission the wind farm. It is important to note that various studies have documented that the scrap value of current wind turbines will largely, if not completely, offset the cost of decommissioning the wind turbines. For the above reasons, there is no need for a decommissioning bond. It should be noted that decommissioning bonds substantially increase the cost of the wind farm project, a cost which would then flow on to consumer electricity bills.
17(e)	*'Scrap value' for turbines will not cover decommissioning costs. There is no evidence of how the decommissioning costs are to be off-set or the volume, type and destination of materials.*
	The hosts of the wind farm share the same opinion as Infigen that the salvage potential of the wind turbines will outweigh the decommissioning costs. Turbines consist mainly of metals including of steel, aluminium, copper, glass fibre, polyester, carbon fibre, and epoxy. All of the metal components will be recycled as scrap metal at various resource recovery centres. Blades will require a more complex recycling process including mechanical, pyrolysis, oxidation in fluidised bed, and chemical processes. As stated in the EA, Infigen is currently undertaking an extensive research program on how to maximise the salvage potential from wind turbines. Regardless of whether or not the 'scrap value' for turbines will cover the decommissioning costs, the decommissioning is a requirement for the lease. As stated in the decommissioning plan, Infigen will undertake a quantitative survey on the decommissioning costs of the Bodangora wind farm prior to the end of the warranty period on the turbines, and if required establish a trust fund for the costs of

	decommissioning, with a five year review.
17(f)	*The materials are hazardous and cannot be recycled.*
	The materials used to construct the turbines are not hazardous, and can be recycled as described in response 17(e).
17(g)	*The decommissioning plan does not address foundations or cabling (only turbines).*
	It is stated in Attachment D of the EA that some of the electrical infrastructure typically has a longer design life than the turbines. Through consultation with the transmission network service provider, we will determine whether it is preferential to retain the intra-wind farm electrical reticulation. If it is not required, and depending on the ability to recycle, some of the cabling may be dug up and recycled. There is no question that removal of the concrete foundations would cause more environmental disturbance and harm then leaving them in place. Therefore, there is no rationale to removing the foundations. It is also a condition of our lease agreement to cover the foundations and reseed with appropriate top soil and seed type once the turbines have been decommissioned.
17(h)	*The decommissioning process requires significant logistics, e.g. dismantling, transport, upgrading roads etc and these details or liability has not been provided.*
	The process required in the decommissioning of the wind farm is acknowledged in the decommissioning plan, including the dismantling and removal of infrastructure parts with a crane and transport of parts offsite, and the upgrading of local roads as required. The details of these processes will need to be prepared at a later date in consultation with authorities as required. The costs required in the decommissioning process will be considered by the proponent during the preparation of the quantitative survey to determine if a trust fund is required for decommissioning.
18 – Climate	
18(a)	*Wind farms impact microclimate up to 18 – 23 kilometres downwind including the evaporation of soil moisture by the redirection of air downwards. This will have an effect on agricultural activities and increase costs to farmers.*
	A report by the Australian Wind Energy Association funded by the Australian Greenhouse Office (2004), *'The compatibility of wind farming with traditional farming in Australia*[xxvii] summarised the range of existing research into the local microclimatic effects of wind turbines. This report indicates that a reduction in wind speed occurs at its maximum around 2 rotor diameters downwind of the turbine (i.e. 224 metres), and in the case of a single turbine, is fully restored around 10 diameters downwind of the wind turbine (i.e 1,120 metres). Research has shown that little modification takes place near the ground, and that evapotranspiration will remain unchanged. Although this research is specifically for a single turbine, and the wake distribution of several turbines as part of a wind farm is more complex, any increased wind speed just outside of the rotor area becomes mixed back into the rotor area of subsequent turbines and the effect of wind speed changes are mitigated. The summary states *"As regards wind speeds at the ground, the reduction is expected to be low, as in the single turbine situation, and hence the possible impact on microclimate small*". Accordingly, it is unlikely that the Bodangora wind farm will have any substantial effect on regional or local rainfall patterns.
19 – Council fees and services	
19(a)	*The proponent should be charged Council land rates and waste collection fees*

	Wellington Council is the determining authority on land rates to wind farm properties. It is not anticipated that additional payment of land rates are required, since the predominant land use of cropping and grazing activities will remain. Land rates are determined based on land values, rather than improvements to the land.
20 – Waste management	
20(a)	*Details should be provided on the types and quantities of waste generated, and the effect to local landfill*
	Waste storage, handling and disposal details will be incorporated in the CEMP as referenced in Section 3.11 of the EA. The principal wastes likely to be generated include surplus topsoil, excavated material, packaging material, general construction debris and minor amounts of domestic waste. Some materials will be recyclable. Wastes generated during construction and the proposed handling and disposal details will be incorporated in the CEMP, to be approved by Wellington Council.
21 – Project components	
21(a)	*The application will not be valid if turbines other than Vestas 112 are proposed, e.g. noise, visual and communications assessments.*
	It is common practice to utilise an 'indicative' wind turbine model as the tendering process for wind turbines does not normally occur until after planning approval. Wind turbine companies are understandably reluctant to commit the substantial time, resources and expense to responding to a tender for turbines for a project that has not gained planning approval. The great majority of proposed wind energy projects in Australia have received a planning decision with an indicative wind turbine. As documented in several places in the EA, including the Statement of Commitments, should a different wind turbine be selected for the project, a new acoustic report will be submitted to the Director-General utilising that turbine's noise characteristics to demonstrate compliance to the Bodangora DGR's, Draft NSW Planning Guidelines – Wind Farms and the 2003 SA EPA Noise Guidelines.
21(b)	*Micro-siting of +/- 100 metres inappropriate as changes will effect noise, visual and flora and fauna assessments.*
	The micro-siting of turbines and other infrastructure is expected to benefit the Bodangora project and was recommended as part of the mitigation methods for the project proposed by specialist consultants. The micro-siting of turbines and infrastructure is proposed to avoid features including native vegetation and heritage features, such as tree hollows, and an Aboriginal stone procurement site. It is not expected that micro-siting turbines will cause any great effect to the visual assessment when assessed as a whole. The final design will be subject to review by the approval authority or by the Principal Certifying Authority prior to construction.
21(c)	*Clarification on where overhead/underground 33kV cabling is proposed, including the connection to substation and vegetation clearance as a result.*
	As described in the EA, the following is proposed: • Approximately 37 kilometres of underground 33kV cabling to provide connections between the wind turbines within the project area, located along access track corridors as far as possible. Overhead cabling will be used between wind turbines as necessary including in sensitive locations such as where creek crossings are involved, where there are areas of sensitive vegetation, or where trenching is not otherwise appropriate. • A 5.8 kilometre overhead or underground transmission line, providing connection between the wind farm (WTG18) and the proposed substation. The Preferred Project Report details that previously an overhead transmission line was proposed

	between WTG 18 and the proposed substation. This has now been revised to provide either, with the most likely option being a combination of both overhead and underground cables depending on terrain (such as creek crossings), geotechnical considerations and areas of native vegetation. The proponent will endeavour to use underground cables where practical in order to minimise any perceived impact of an overhead line. Generally underground cabling will be located along access tracks and accordingly the vegetation clearance has been considered as part of access track and road widening.
21(d)	*Provide certainty of connection to 132kV Wellington-Beryl transmission.*
	Infigen is in the advanced stages of negotiating a connection agreement with Transgrid. The final connection agreement will not be finalised until the turbine type has been chosen and construction start date is known. To date a detailed connection options report, system studies and initial workings of the dynamic studies have been completed.
21(e)	*Provide the source of 30,000m^3 of gravel.*
	Gravel is primarily used for tracks and wind turbine hard stand areas within the project. On most projects we are able to crush and re-use some of the material taken out from the foundations for gravel, otherwise we try and utilise existing quarries and local gravel businesses. Infigen is confident that this amount would be possible to source locally.
21(f)	*Clarify whether a concrete batching plant will be located on site.*
	It is most likely we will be able to source the concrete from existing batching plant facilities in the Wellington area. In the event that the project cannot utilise concrete from an existing local concrete batching plant, then separate planning consent for a concrete batching plant for the project will be sought.
21(g)	*Total installed capacity of 120MW requires individual turbines to have a capacity of 3.63MW not maximum of 3MW.*
	The capacity of the turbine has not yet been confirmed, hence the reason for capacity range as indicated in Chapter 3 of the EA. The 3MW is the indicative turbine size and not the maximum. We are seeking approval for 33 turbines with individual installed capacity of up to 4MW. Although there are currently no turbines on the market at this size we wanted to anticipate any technology improvements. The grid connection point estimated to be suitable for approximately 120MW. The indicative turbine is one of the largest on the market and a very suitable turbine for the Bodangora site.
21(h)	*Confirmation that Turbine 40 is removed and Dwelling 11 is more than 2 kilometres away from the nearest turbine.*
	Infigen can confirm that WTG40 has been removed from the project. The closest turbine to neighbouring Dwelling 11 (Westview) is WTG41 at a distance of 2,096 metres. Confirmation was provided to the Department of Planning subsequent to the EA and is enclosed under separate cover in **Appendix C** of the Preferred Project Report.
22 – Compliance and Environmental Management	
22(a)	*Turbine/s should be terminated if non-compliant with noise guidelines during operation, and/or a contingency strategy should be prepared for additional noise attenuation.*
	Noise compliance testing will occur once the wind farm is operational. As outlined in the draft Statement of Commitments, in the

	event that the commissioned turbine noise exceeds the noise predictions, the turbine(s) in question will be reset to a lower noise mode for use under certain operating conditions. This will occur to the satisfaction of the approval authority in accordance with the criteria set by the noise guidelines. This is, in effect a 'contingency strategy' for the non-compliance of turbines. Further detail is provided in response 22(k).
22(b)	*Environmental Protection Licence (EPL) triggers exist under Protection of the Environment Operations Act 1997 for onsite concrete production.*
	If an onsite concrete batching plant is required for the development, Infigen will need to seek separate licensing, including those triggered by a scheduled activity pursuant to Schedule 1 of the *Protection of the Environment Operations Act 1997*.
22(c)	*Any dust generated will be controlled by watering the access roads and building sites.*
	Noted. In accordance with the draft Statement of Commitments, the wetting of access tracks and building sites will be undertaken to reduce dust.
22(d)	*The wind farm is not expected to impact on the quality of water resources.*
	Noted. Section 14.3 of the EA addresses mitigation measures to ensure water quality is not affected by the project.
22(e)	*Flora and Fauna, Soil and Water and Heritage Construction Environmental Management Plans Sub-Plans to be prepared as per draft Statement of Commitments.*
	Noted. Construction Environmental Management Sub-Plans will be prepared in accordance with the draft Statement of Commitments.
22(f)	*Cultural awareness training is to be undertaken by local Aboriginal community members and recognised in Cultural Heritage sub-plan.*
	If required for any of the construction activities, cultural awareness training will be undertaken by local Aboriginal community members. At this stage it is unknown whether this will be required. The cultural heritage plan will be included in the construction environmental management plan.
22(g)	*The proponent should ensure public notification is made with regard to noise and construction in accordance with the draft Statement of Commitments.*
	Noted. Public notification will be undertaken in accordance with the draft Statement of Commitments.
22(h)	*Provide details of the timing of the Soil and Water Management Plan. The investigations and mitigation measures for erosion and soil and water management contained in the EA are inadequate.*
	Like all of the construction environmental management plans, they will be prepared prior to construction commencing and will incorporate the conditions of consent. It will be prepared in conjunction with the successful construction company and turbine supplier to ensure it accurately reflects their design specifics.
22(i)	*Drainage effects in relation to erosion during construction have not been adequately addressed.*
	Chapter 9 of the EA provides an assessment of potential impacts to air quality, geology and soils, water and hazardous substances in the project area. The level of detail provided is considered sufficient for the EA. The Soil and Water Management Sub-Plan will incorporate further details with relation to erosion prevention during construction. It is common practice that the detail will be undertaken prior to development consent being provided. A range of measures have been proposed as part of the assessment

	contained in the EA including those detailed in the draft Statement of Commitments, and specifically Table 20.5 (Flora and Fauna) and Table 20.8 (Soil and Water Management).
22(j)	*The use of straw bales and mulch for erosion control poses a risk for the introduction of noxious weeks.*
	Noted. Alternative erosion control measures can be sought if necessary.
22(k)	*Details for a noise monitoring and compliance programme should be provided.*
	An operating noise monitoring and compliance programme will be prepared prior to operation and endorsed as an Operational Noise Management Sub-Plan. Prior to construction, Infigen will develop a noise compliance assessment protocol to be implemented following commissioning of the wind farm. The protocol will be developed by an acoustic engineer in consultation with the Department of Planning and the Environment Protection Authority as required. Prior to the commissioning of the wind farm, neighbours to the wind farm will be provided with details of the commissioning and contact details in the event that disturbance occurs at their residence. Within three months of commissioning, compliance checks will be undertaken for the closest relevant receiver residences to confirm that wind farm noise levels do not exceed criteria at this location and to verify reliability of predictions. If complaints are received in the first month of operation, then the assessment must be implemented within two weeks, or as soon as practical, of a complaint being received. If a complaint can be reasonably judged to be related to the exceedance of relevant criteria, then the proponent will modify the operation of the wind farm to reduce the noise levels experienced at the affected residence while the investigation is being undertaken and/or will undertake noise testing at the affected residence. Where the compliance assessment identifies exceedance of criteria for specific wind speeds or under certain atmospheric conditions then the proponent will limit the operation of the contributing turbines and provide a plan to the Department of Planning indicating how compliance will be ensured for the operation where exceedance occurs. The necessary measures to achieve compliance will then be implemented. The proponent may also provide improvements to the affected residence in place of or in addition to modification to the wind farm operation to reduce the impact for the specific neighbour.
23 – Communications	
23(a)	*Digital TV reception will be affected.*
	An assessment on the potential impacts to digital television is provided in Section 13.2 of the EA. The assessment provides that digital television services are not subject to ghosting degradation in high signal strength areas, however some reduction of service area could occur as a result of reflected signals at the limits of the service area. There may some isolated areas which are shadowed by local hills resulting in reduced signal levels. Such effects are unlikely, but also difficult to exclude. Where degraded digital television services are reported to the proponent, a range of techniques are proposed for mitigation at the cost of the proponent in Section 13.3 of the EA. These include replacement or repositioning of antenna, the provision of an alternative satellite service, or the installation of a TV or FM repeater station to provide service to groups of residents in a shadow zone.

23(b)	*The wind farm will interfere with UHF and Micro wave bands.*
	An assessment of UHF and microwave bands is provided in Section 13.2 of the EA. The assessment has concluded that all turbines except for WTG10 achieve sufficient horizontal clearance for VHF/UHF and microwave band point to point radio services. Although WTG10 has insufficient horizontal clearance, the vehicle path profile indicates there is sufficient clearance above the turbine as generated by the digital elevation model data. Microwave band point to multi-point registrations are located at significant distances from the wind farm. Additional consultation is proposed with a range of operators as part of the draft Statement of Commitments, including the closest microwave band point to multi-point registration operated by Murray Regional Telecommunications in Wellington, and the operations of point to point radio systems which cross the project area.
23(c)	*The effects on Ch6 UHF Open CB Radio (Emergency Channel) which has an aerial on Mount Bodangora and is used by NSW Ambulance and Rural Fire Service, VHF 121 and VHF 243 MHz Civil and Military Aeronautical Calling and Discuss Frequency has not been discussed.*
	As described in response 23(b), sufficient clearances are expected for UHF radio, including CH6 UHF CB and VHF Radio. Accordingly, there are no expected effects for the emergency channel, NSW Ambulance, Rural Fire Service, or Civil and Military Aeronautical Calling and Discuss Frequency.
24 – Mineral Resources	
24(a)	*The location of WTG44 and 45 within the historical Kaiser Mine area is problematic, given the gold and copper resources which exist.*
	Turbine 44 has been micro-sited away from the old Kaiser Mine site. After engaging with the exploration licence holders in 2011, the only correspondence we received back was from Global Mineral Resources Ltd (GMR) and an initial response from Clancy Exploration. No response was received from other exploration licence holders that were contacted. Despite engaging actively with GMR in early December 2011, the response was not received until after the EA had been submitted and passed adequacy. Contrary to the views held by GMR, Infigen does not believe that locating those two turbines here will limit or sterilise the future exploration potential of the site. In the correspondence the proponent offered alternative options than removing the turbines from the layout, which included: The option to reach an agreement about compensation of relocation cost if the mine does become viable while the wind farm is operating; The alternative option was not acknowledged or considered by the exploration licence holder. In the absence of any further details from the exploration licence holders, Infigen has done some further research through publically available reports and presentations and it appears the primary focus in the Bodangora region is further north towards Comobella. Infigen therefore believes that viability of the wind resource and the likelihood of the wind farm proceeding outweighs the prospect of the wind farm interfering with any of the exploration tenements in the Bodangora region.
24(b)	*The location of WTG43 may compromise future access to an area which has been the subject of recent exploration drilling.*
	Infigen notes the correspondence received from the Department of Trade and Investment on the 6th December 2011. Based on figure 2 within that letter, it would appear that turbine 43 is between two groups of borehole investigation. The presence of the turbines in

	that vicinity is unlikely to compromised any further drilling programs and BWF is prepare to consider micro-siting this turbine further north to distance it from the southern boreholes if required. As mentioned in the 24(a) this option has not been acknowledged by the exploration licence holder. A certain level of exploratory drilling is required to maintain their license. Access to these borehole areas is currently limited and difficult. Once operational there will be all weather tracks to each turbine, including to the area of investigation near turbine 43.
24(c)	*The wind farm will impede drilling and geophysical surveys, both airborne and ground based, and will also create an obstacle to future mining.*
	As discussed in 24(b), ground based access for drilling and geophysical surveys will be improved by the presence of the wind farm infrastructure. The turbine footprint will only be a fraction of total exploration licence. It is proposed that a 50m clearance buffer be imposed from the edge of the foundation and any other wind farm infrastructure for drilling programs. Other than exploration activity there are currently no plans for commercialisation of these potential mineral resources. The information provided by the Department of Trade and Infrastructure shows that the majority of the wind farm area has a low to moderate prospectively. Infigen has put forward an alternative solution for the turbines located at the old Kaiser mine area.

[i] Australian Government, Response to the Senate Community Affairs References Committee Report, The Social and Economic Impact of Rural Wind Farms Government Response, July 2012: http://www.health.gov.au/internet/main/publishing.nsf/Content/69E9D2BCF1CEEEB3CA257A76001BBC75/$File/Wind%20Farm%20Response.pdf

[ii] Regional Council of Goyder, Development Assessment Panel Minutes 01/08/12: http://www.goyder.sa.gov.au/webdata/resources/files/Minutes%2001-08-12.pdf

[iii] ABC News, *TRUenergy to challenge wind farm snub*, 14 August 2012: http://www.abc.net.au/news/2012-08-14/truenergy-to-challenge-wind-farm-snub/4197310

[iv] Environment Resources and Development Court of South Australia, Paltridge & ORS v District Council of Grand & Anor (2011) SAERDC 23(17 June 2011): http://www.austlii.edu.au/au/cases/sa/SAERDC/2011/23.html

[v] American Wind Energy Association, *Wind Turbines and Health*, 2010: http://www.awea.org/learnabout/publications/upload/Wind-Turbines-and-Health-Factsheet_WP11.pdf

[vi] Environment Resources and Development Court of South Australia, Paltridge & ORS v District Council of Grand & Anor (2011) SAERDC 23(17 June 2011): http://www.austlii.edu.au/au/cases/sa/SAERDC/2011/23.html

[vii] Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) as summarised by Western Power (WA) *Electric and Magnetic Fields:* http://www.westernpower.com.au/documents/reportspublications/brochures/13923_WP_EMF_Brochure_Web.pdf

[viii] Australian Government, Response to the Senate Community Affairs References Committee Report, The Social and Economic Impact of Rural Wind Farms Government Response, July 2012: http://www.health.gov.au/internet/main/publishing.nsf/Content/69E9D2BCF1CEEEB3CA257A76001BBC75/$File/Wind%20Farm%20Response.pdf

[ix] Environment Resources and Development Court of South Australia, Paltridge & ORS v District Council of Grand & Anor (2011) SAERDC 23(17 June 2011): http://www.austlii.edu.au/au/cases/sa/SAERDC/2011/23.html

[x] Noise Control Engineering Journal, An International Publication, Published by the Institute of Noise Control Engineering of the USA. March – April 2011, Volume 59 Number 2. *'Low frequency noise and infrasound from turbines'*: http://www.maine.gov/dep/ftp/bep/ch375citizen_petition/pre-hearing/AR-52%20chapter%20375%20-%20verrill%20dana%20submission%20-%20O_Neal%20Report.pdf

[xi] *AGL withdraws proposed Hallett 3 wind farm plan, ends community-led litigation*, 23 August 2012. Adelaide Now: http://www.adelaidenow.com.au/business/sa-business-journal/agl-withdraws-proposed-hallett-3-wind-farm-plan-ends-community-led-litigation/story-e6fredel-1226456927040

[xii] *Wind Farms and Landscape Values National Assessment Framework*, 2007[xii], produced by the Australian Wind Energy Association and the Australian Council of National Trusts, for the Australian Government: http://www.cleanenergycouncil.org.au/accreditation/certified-wind-farms-australia/Landscape-Values.html

[xiii] Draft National Wind Farm Development Guidelines, 2010[xiii] produced by the Environment Protection and Heritage Council: http://www.ephc.gov.au/taxonomy/term/25

[xiv] Environment Resources and Development Court of South Australia, Paltridge & ORS v District Council of Grand & Anor (2011) SAERDC 23(17 June 2011): http://www.austlii.edu.au/au/cases/sa/SAERDC/2011/23.html

[xv] *AGL withdraws proposed Hallett 3 wind farm plan, ends community-led litigation*, 23 August 2012. Adelaide Now: http://www.adelaidenow.com.au/business/sa-business-journal/agl-withdraws-proposed-hallett-3-wind-farm-plan-ends-community-led-litigation/story-e6fredel-1226456927040

[xvi] NSW Flora Online. *Zieria obcordata*, 2002: http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Zieria~obcordata

[xvii] Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia. Report prepared for NSW Valuer General, 2009: http://www.lpi.nsw.gov.au/__data/assets/pdf_file/0018/117621/t0L51WT8.pdf

[xviii] Ernest Orlando Lawrence Berkeley National Laboratory, *The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis*. 2009. Funded by the Office of Energy Efficiency and Renewable Energy of the US Department of Energy. http://eetd.lbl.gov/ea/ems/reports/lbnl-2829e.pdf

[xix] QDOS Research Pty Ltd, Research Report to Infigen Energy. *Community Perceptions of Wind Farms.* May 2012. Available online http://www.infigenenergy.com/Media/docs/Infigen-Energy-Survey---Community-Perceptions-on-Wind-Farms--35fa87a2-1d81-430e-a906-9d0a3d5c4e32-0.pdf

[xx] Letter to the Editor of the Crookwell Gazette by Judy Alcock published 12 July 2011

[xxi] NowUC: The online publication of the School of Journalism at the University of Canberra, 26 March 2012, *Wind farm protests over the sounds of silence:* http://www.nowuc.com.au/2012/03/26/wind-farm-protests-over-the-sounds-of-silence/

[xxii] King & Anor v Minister for Planning; Parkesbourne-Mummel Landscape Guardians Inc v Minister for Planning; Gullen Range Wind Farm Pty Limited v Minister for Planning (201): http://www.austlii.edu.au/cgi-bin/sinodisp/au/cases/nsw/NSWLEC/2010/1102.html?stem=0&synonyms=0&query=gullen%20range

[xxiii]The Royal Institute of Chartered Surveyors, UK. *What is the impact of wind farms on house prices*, 2007: http://www.st-andrews.ac.uk/media/RICS%20Property%20report.pdf

[xxiv] The Australian Department of Infrastructure and Transport, The National Airports Safeguarding Framework, 2012, Guideline D: *Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers:* http://www.infrastructure.gov.au/aviation/environmental/nasf/files/4.1.3_Guideline_D_Wind_Turbines.pdf

[xxv] NSW Department of Environment, Climate Change and Water, *Estimating Greenhouse Gas Emissions Abatement from Wind Farms in NSW.* 2010: http://www.environment.nsw.gov.au/resources/climatechange/GHGabtmntWindFarms.pdf

[xxvi] See Table 2 of the *2011 SA Supply & Demand Report*, AEMO

[xxvii] Australian Wind Energy Association, 2004, *The compatibility of wind farming with traditional farming in Australia*. Report funded by Australian Greenhouse Office: http://www.w-wind.com.au/downloads/CBP9_Traditional.pdf