

The Proponent has proposed the development of a new electricity generation facility with a capacity of up to 270 megawatts (equivalent to approximately 785,663 megawatts per hour per annum) through wind generation technology, near Nimmitabel in southern NSW. In comparison to other forms of renewable energy generation (such as hydro, biomass, solar thermal, solar photo-voltaic and geothermal), the Proponent has identified that wind generation technology comprises a mature and market-ready technology involving generally lower production costs, higher energy return for capital investment and nil water requirements (which is of specific advantage given large parts of Australia including the site area being drought affected). The Proponent has identified that wind farm generation is particular suited to the site area on the basis of available wind resources (based on wind monitoring since 2008), proximity to transmission infrastructure and relatively low population density of the area that could be impacted by potential amenity impacts. The Proponent has not considered any alternative to the project involving non-renewable sources of energy generation (such as coal or gas) on the basis of their non-renewable nature, greenhouse gas emissions and potential for higher generation costs in the future under a more carbon-constrained economy. Limited availability of fuel (without the need for potential significant additional investment on resource extraction or transport from further afield) and limited water resources would also make these options less attractive at the study site.

In consideration of the above factors, the Department accepts that there is a need for the project with respect to helping to secure the State's electricity supply and that the do-nothing option (which would miss the opportunity for strengthening the capacity and resilience of the NSW electricity supply base) would not be ideal. In respect of the question of whether wind generation constitutes the most suitable generation solution to achieve identified electricity requirements, the Department acknowledges questions raised by some community members in relation to the reliability of wind-generation technology, given the inherent variability of wind resources. Whilst the Department accepts that a wind farm would not be able to achieve the operation capacity factors (i.e. 70-90%) achieved by traditional coal or gas-fired baseload power stations, the continuous operation of which at high capacity throughout the year would not be limited by fuel availability; the Department notes that if sited within a suitable wind resource, wind farms can be relied on achieving a consistent annual output (at capacity ratings around 25-35%) and therefore constitute a reliable annual generation source into the National Energy Market (NEM). In this regard, the Proponent has identified (based on based on wind monitoring to date) that a viable and consistent wind resource exist on site which would enable capacity factors consistent with industry standard to be achieved. The Department also notes that wind generation comprises a mature technology with similar energy conversion efficiency ratings (i.e. the proportion of usable energy within an energy source that is converted to electricity) to other established forms of generation including coal fired generation (i.e. around 35-45%) and is a proven form of energy supply to the National Energy Market (NEM). The Department is also satisfied that the electricity generation technology proposed for the project has been determined with due consideration to available alternative technologies and to constraints and opportunities on site (including limited water resources, available wind resources, proximity to transmission infrastructure and low population density). On the above basis, the Department considers the proposed Boco Rock Wind Farm project would have a role in helping to meet the energy requirements of the State.

The project also responds to State and Federal Government policy on greenhouse gas reduction and the increased use of renewable energy sources of electricity generation, in particular the recent Commonwealth commitment to expand the existing Mandatory Renewable Energy Target (MRET) of 9,500 gigawatt-hours of energy generated by renewable sources by 2010 to 45,000 gigawatt-hours by 2020. The new national target (the Renewable Energy Target – RET) aims for 20% of the electricity generated in Australia to be obtained from renewable sources by 2020 and would absorb existing and proposed State and Territory targets. The Proponent has identified that the project would help meet the RET targets for renewable energy as well as provide significant greenhouse gas benefits as Australia moves towards a more carbon constrained market. The Proponent has suggested that the greenhouse gas payback period for the wind farm (including manufacture, transport, construction, operation and decommissioning) would be in the order of six to eight months, after which the turbines would provide a neutral greenhouse gas outcome. The Proponent has estimated that the proposal has the potential to result in net annual savings of greenhouse gas of approximately 699,240 tonnes of CO₂ equivalent per annum through the displacement of other greenhouse gas intensive generators in the National Electricity Market. This would be equivalent to taking approximately 161,487 cars off the road (based on an average unleaded petrol car emitting approximately 4.33 tonnes of CO₂ equivalent per annum) or supplying green electricity for up to 113,436 households (based on an average Australian household usage of 6.926 megawatts per hour per annum).

The Department accepts that the project would provide important greenhouse gas benefits by resulting in no greenhouse gas emissions during the majority of its operational lifetime. The Department further notes that the project has the potential to displace other more greenhouse gas intensive generators in the National Electricity Market, although acknowledging that the extent of this displacement may vary from that estimated by the Proponent (noting that the project may not always be in direct competition with non-renewable generators in the National Electricity Market but with other renewable generators, which would result in nil displacement of emissions). Notwithstanding this variation, Department accepts that the project constitutes an important step in the State's transition toward a low carbon economy and would help meet State and Commonwealth targets in relation to greenhouse gas reduction. In this regard, the Department considers the project to be entirely consistent with priorities and targets of the NSW State Plan including "achieve a 60% cut in greenhouse gas emissions by 2050 in line with the Federal Government targets" and "achieve 20% renewable energy consumption by 2020 in light of the Federal Government's expanded Renewable Energy Target" and is justified on the grounds of greenhouse gas reduction. The Department notes that the need for and importance of new renewable energy generation projects (such as the Boco Rock Wind Farm project) to help meet growing electricity demand and help the State's transition toward a low carbon economy, is clearly reflected in the declaration of the project and like renewable generators of greater than 30 megawatts as critical infrastructure (refer Section 3.2).

The Department also notes that project has the potential to provide direct economic benefits to the State and locally through direct investment, employment generation and multiplier effects at all stages of project development including construction and operation (e.g. benefits to the local service industry through patronage from construction and operation personnel). Specifically, of the \$750 million capital investment value of the project, the Proponent has estimated that around \$280 million is likely to be directly invested in the Australian economy (including NSW) for the acquisition of plant and components required for the project that are manufactured in Australia. The project would also provide opportunities for local landowners to supplement and diversify rural income by providing a source of income from the turbines hosted within their properties. The Proponent has also proposed direct community contributions totalling between \$260,000 and \$305,500 per annum depending on the turbine layout (which equates to between \$5.2 and \$6.11 million over the life of the project) to offset residual impacts and benefit the broader local community by funding local community and infrastructure projects. With wind turbines generating greater public interest, the project also has the potential to increase visitors to the area with associated indirect benefits to the local tourism, service and other associated industries.

3. STATUTORY CONTEXT

3.1 Major Project

The project is declared to be a Major Project under *State Environmental Planning Policy (Major Development) 2005* because it is development for the purpose of an electricity generation facility for wind generation that has a capital investment value of more than \$30 million (Schedule 1, Group 8, clause 24(a)). The project is therefore subject to Part 3A of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) and the Minister for Planning is the approval authority.

3.2 Critical Infrastructure

The project is classified as critical infrastructure in accordance with section 75C of the EP&A Act by virtue of the Minister's declaration of 11 November 2009 relating to renewable energy projects including the Boco Rock Wind Farm Project (MP09_0103), being development for the purposes of wind farms, which are the subject of a project application lodged pursuant to section 75E or 75M of the EP&A Act.

3.3 Controlled Action

The project has been declared to be a 'Controlled Action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC reference no. 2009/4905), which means that the project will also require approval from the Commonwealth Minister for Environment Protection, Heritage and the Arts. The EPBC Act Part 3, Division 1 controlling provisions are sections 18 and 18A (listed threatened species and communities), including potential impacts to the *Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory* endangered ecological community and Grassland Earless Dragon (*Tympanocryptis pinguicolla*) endangered species.

On 15 September 2009, DEWHA confirmed that the project would be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* through an accredited assessment process under section 87 of the EPBC Act. This means that the environmental assessment process under Part 3A of the EP&A Act would stand for the purposes of the EPBC Act in relation to the project.

To enable the assessment of controlling actions under the EPBC Act, the Director-General's requirements issued for the project on 1 June 2009 were supplemented pursuant to section 75F(3) of the EP&A Act with additional requirements relating to EPBC matters on 18 September 2009.

3.4 Permissibility

The Proponent has identified that the wind farm would be located on land zoned 1(a) Rural under the *Cooma-Monaro Local Environmental Plan 1999 (Rural)* and the *Bombala Local Environmental Plan 1990*. The project is permissible with consent under both these zonings.

The permissibility of the new 132 kilovolt transmission line connection to the existing grid will need to be considered as part of its assessment under Part 5 of the EP&A Act. However it is noted that Division 5, Clause 41 of *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), subject to some restriction on land reserved under the *National Parks and Wildlife Act 1974*, provides that "development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land". As none of the transmission line corridors investigated are proposed to traverse National Parks land and as the transmission line is being developed by or on behalf of a public authority (i.e. Country Energy), it is considered that the provisions of the Infrastructure SEPP would apply to the new transmission line connection and that the proposal would be classified as works permissible without consent.

3.5 Environmental Planning Instruments

There are no State environmental planning policies that substantially govern the carrying out of the project.

3.6 Exhibition and Notification

The Proponent submitted an Environmental Assessment with the Director-General in October 2009. Pursuant to Section 75H and 75I(2)(g) of the EP&A Act, the Director-General was satisfied that the Environmental Assessment had addressed the environmental assessment requirements specified in Director-General's requirements issued for the project on 1 June 2009 and supplementary requirements issued on 18 September 2009. A copy of the Environmental Assessment is attached (see Appendix D).

The Environmental Assessment was placed on public exhibition for an extended period from 9 December 2009 until 3 February 2010 and submissions invited in accordance with Section 75H of the EP&A Act. The exhibition meets the minimum statutory period for exhibition (i.e. 30 days) required by the EP&A and EPBC Acts. Exhibition of the Environmental Assessment was also advertised in locally and nationally circulating newspapers in accordance with the requirements of the EP&A and EPBC Acts. The Environmental Assessment was also made publicly available on the Department's website. Following the exhibition period, the Director-General directed the Proponent to respond to the issues raised in submissions. The Response to Submissions and Preferred Project Report (see Appendix C) including final Statement of Commitments (see Appendix B), prepared by the Proponent was subsequently made publicly available on the Department's website.

3.7 Objects of the *Environmental Planning and Assessment Act 1979*

Section 5 of the EP&A Act details the objects of the legislation. The objects of the EP&A Act are:

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment;*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land;*
 - (iii) *the protection, provision and co-ordination of communication and utility services;*
 - (iv) *the provision of land for public purposes;*
 - (v) *the provision and co-ordination of community services and facilities;*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats;*
 - (vii) *ecologically sustainable development;*
 - (viii) *the provision and maintenance of affordable housing; and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State; and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Of particular relevance to the environmental impact assessment and eventual determination of the subject project application by the Minister, are those objects stipulated under section 5(a). Relevantly, the objects stipulated under (i), (ii), (vi) and (vii) are significant factors informing determination of the application (noting that the proposal does not raise significant issues relating to communication and utility services, land for public purposes, community services and facilities or affordable housing). With respect to ecologically sustainable development, the EP&A Act adopts the definition in the *Protection of the Environment Administration Act 1991*, including the precautionary principle (i.e. if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation), the principle of inter-generational equity, the principle of conservation of biological diversity and ecological integrity, and the principle of improved valuation, pricing and incentive mechanisms.

It is important to recognise that while the EP&A Act requires that the principles of ecologically sustainable development be encouraged, it provides other objects that must be equally included in the decision-making process for the subject proposal. The Department's assessment has given due consideration to the objects of the Act in its assessment including:

- the need to encourage the principles of ecologically sustainable development:
 - the Department's assessment of the need for the project (section 2.3) has considered the renewable energy and greenhouse gas benefits of the project, which are consistent with the principle of inter-generational equity; and

- the Department's assessment of the ecological impacts of the project (section 5.1) is based on a conservative and rigorous assessment of the likely extent of ecological impacts and of likely offset requirements to ensure that appropriate and adequate measures are put in place to prevent the threats of serious or irreversible environmental damage consistent with the precautionary principle and the principle of conservation of biological diversity and ecological integrity. The Department's ecological assessment (section 5.1) also considers the use of BioBanking mechanisms to secure biodiversity offsets for the project, which comprises a market based mechanism for appropriately pricing and valuing biodiversity values at potential offset sites, consistent with the principle of improved valuation, pricing and incentive mechanisms;
- the proper management, development and conservation of natural and artificial resources (such as agricultural land, natural areas, and towns) for the purpose of promoting the social and economic welfare of the community and a better environment, which has been considered in section 5.2 (in relation to ecological impacts to natural areas) and in sections 5.2 and 5.3 (in relation to landuse and amenity impacts on surrounding agricultural areas and the township of Nimmibabel);
- the orderly development of land, which has been considered in section 5.1 and 5.2 of the Department's assessment in relation to the potential impacts of the project on existing receptors, landuse and potential future landuse and development potential; and
- the protection of the environment including threatened species, which has been considered in section 5.1 of the Department's assessment.

In addition to the above, the agency and community consultation undertaken as part of the assessment process (see Sections 3 and 4 of this report), address objects 5(b) and (c) of the Act.

3.8 Minister's Approval Power

The Department has met all its legal obligations so that the Minister can make a determination on the project.

4. CONSULTATION AND ISSUES RAISED

4.1 Public Submissions

A total of nine public submissions were received on the project. Of these four (44%) objected to the project. The remainder did not state a specific position, however, they identified concerns or comments for consideration by the Department. The issues raised in public submissions are presented in Figure 5. The graph indicates the relevant frequency of a particular issue against all issues raised, rather than as a percentage of submissions raising that issue.

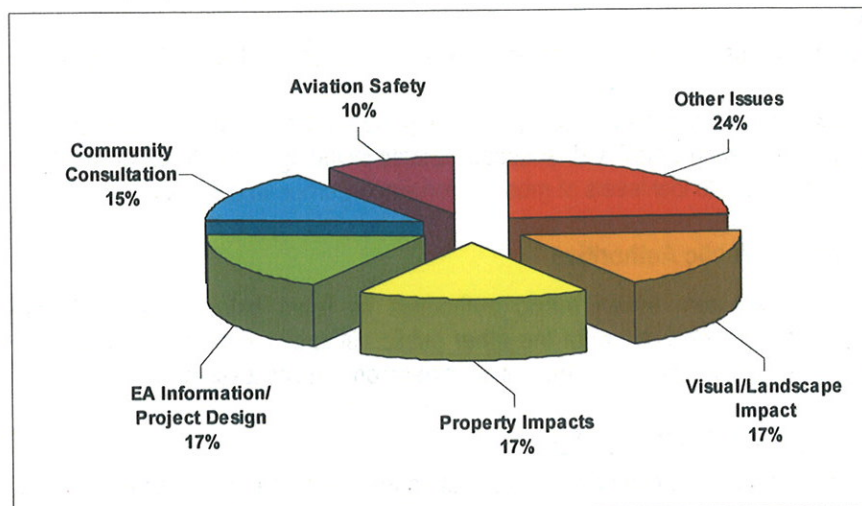


Figure 5: Issues Raised in Public Submissions

The main issues raised in public submissions in order of magnitude were:

- **Visual/ Landscape Impacts** – concern regarding the visibility of turbines from properties (including number, and height or turbines and night lighting); request that turbines be located at least one kilometre from neighbouring non-associated landowner boundary to reduce visual prominence; concern that the Proponent has assessed the visual impacts of turbines on agricultural parts of neighbouring properties to be low, although landowners will be working in these areas and therefore exposed to visual impacts; cumulative visual impact from turbines and transmission line; identification of Monaro as a unique landscape of State and National significance due to it forming part of the Great Dividing Range, its proximity to the Snowy Mountains, its low level of development and its “naturally treeless” character; concern that the turbines would negatively impact on the character of the Monaro landscape including obscuring views of the Snowy Mountains and impacting on vistas along tourist drives; and concern regarding the large visual catchment of the project (i.e. visibility from a wide area);
- **Property Impacts** – concern that the proximity to turbines would affect the future development potential of current undeveloped land and affect the property values of both developed and undeveloped land; and request for compensation for reduced land value resulting from noise and visual impacts. A single submission noted that the Proponent's assessment in general had not taken into account impacts on an existing uninhabited building located within a neighbouring property, which had the potential to be upgraded in the future to a habitable dwelling;
- **EA Information and Project Description** – considered the Proponent's visual impact assessment to be deficient (particularly in identifying the character and significance of landscape values) and questioned the expertise of the assessors; concern regarding uncertainties associated with the project design and therefore project impacts (i.e. two turbine layouts and micro-siting requirements); concern regarding uncertainties associated with the separate transmission line project; concerns regarding the escalation of the scale of the project over time; and concerns regarding surety for project decommissioning;
- **Community Consultation** – questioned the adequacy of consultation undertaken by the Proponent with neighbouring properties and level of notification on the project; questioned the validity of public surveys into wind farms reported in the Environmental Assessment; and support for increased exhibition period;
- **Aviation Safety** – concern regarding impacts of the turbines on the operating costs of private landing strips for aerial agricultural spraying and request for compensation for any increased operational costs; and

- **Other** issues raised less frequently included:
 - Planning matters – request for recommendations of the Upper House Inquiry into Rural Wind Farms to be considered in the Department's assessment;
 - Project justification – economic and greenhouse gas benefits of the project questioned;
 - Noise – query on responsibility for noise monitoring and compliance;
 - Flora & fauna – significance of native grassland communities in the Monaro and uncertainties regarding offsets proposed of the project;
 - Bushfire management – queries in relation to responsibility for management and interactions with the NSW Rural Fire Services;
 - Electromagnetic radiation – electromagnetic radiation impacts on animals particularly from transmission lines; and
 - Water resource management – risks to groundwater resources and spring-fed dams.

Three additional public submissions were received following the exhibition period: one in support of the proposal and the remaining two, reiterating visual and landscape issues including characterising the Monaro landscape as "naturally treeless" and subject to low levels of modification since European occupation.

4.2 Submissions from Public Authorities

Submissions were received from seven public authorities as listed below. Cooma-Monaro Shire Council expressed support for the proposal. None of the other public authorities expressed support or objection to the project, however raised issues for the Department's consideration in its assessment.

Commonwealth Air Services Australia (ASA)

- ASA indicated that it had no comment on the project as the design had not changed from the layout referred to and assessed by ASA to be acceptable during the preparation of the Environmental Assessment.

NSW Department of Environment, Climate Change and Water (DECCW)

- DECCW considered that the Proponent's Aboriginal Heritage Assessment (including level of consultation) to be acceptable and prepared in accordance with relevant guidelines. DECCW recommended conditions with respect to salvage, archaeological investigation and analysis prior to construction and the preparation of a cultural heritage management protocol to document measures to be followed to avoid or mitigate impacts.
- DECCW considered that the Proponent had not demonstrated the principles of avoid, mitigate and as a last resort offset, in increasing the scale of the project from that identified originally (i.e. as part of the original application for the project which has since been withdrawn and replaced by the current application) and in locating turbines within Grassland Earless Dragon habitat (i.e. five turbines within the Springfield Cluster).
- DECCW considered that due to the difficult growing season in the Monaro which made revegetation difficult, all clearing associated with the project should be considered as a "permanent" loss and offsets based on worst case clearing levels (i.e. based on the 12 metre width access road clearing scenario).
- DECCW noted that it does not support any translocation strategy for the Grassland Earless Dragon as part of an offset strategy as this is not recommended by the National Recovery Plan for these species. Should a translocation strategy be pursued for this species, DECCW considered that further information on the details of the strategy including tracking and monitoring detail were required.
- DECCW required that impacts to Striped Legless Lizard habitat be included in offset calculations for the project and made recommendations on appropriate pre-clearance survey methodology (i.e. pitfall traps, drift fences, placing of tiles and funnel traps) for this species.
- In its original submission on the project, DECCW noted that as a result of an error in the current version of Biobanking methodology, the offset calculations for the Grassland Earless Dragons (i.e. approximately 232 hectares in total under worst case) have been underestimated and if corrected would amount to approximately 1500 hectares. In a subsequent submission (dated 8 March 2010) DECCW clarified that an offset of approximately 750 hectares would be considered acceptable as long as it was demonstrated that the land included habitat for the Grassland Earless Dragon, Striped Legless Lizard and Little Whip Snake.
- DECCW supported the securing of the offset sites via bio-banking, as long as landowners understood their obligations to manage the land for conservation. DECCW required that the land be managed in a manner sympathetic to the Grassland Earless Dragon, Striped Legless Lizard, Little Whip Snake and the Natural Temperate Grassland community.

NSW Office of Water (NOW) as part of the NSW Department of Environment, Climate Change and Water

- NOW raised no objection to the project and recommended that the following issues be incorporated into any recommended conditions of approval:
 - requirement for relevant water licences to be obtained prior to the commencement of construction to enable the use of water from existing farm dams for a different purpose (i.e. construction) than allowed in the existing farm dam licence and in the case of any groundwater extraction;
 - the design of any waterway crossings to be submitted for the review of NOW as part of a "surface water management plan" prior to construction to ensure consistency with NSW Government policy and guidelines; and
 - in the case of blasting activities, the investigation of any risks to groundwater prior to the commencement of construction in consultation with NOW (including risks to other groundwater licence holders and/ or groundwater dependent ecosystems), and implementation of suitable management, mitigation and contingency measures during construction.

Industry and Investment NSW (DII)

- DII (Fisheries) noted that a number of waterways were present within the development area (including the McLaughlin River) which had the potential to be impacted by the project. DII supported the mitigation measures outlined the Proponent's assessment to minimise and mitigate impacts to surrounding waterways including the commitment to upgrade the existing causeway road crossing of the McLaughlin River with box culverts to improve fish passage. DII recommended that all identified mitigation measures be incorporated into the construction environmental management plan for the project at construction stage and that the design and construction of waterway crossings be undertaken consistent with published DII (NSW Fisheries) guidelines.
- DII (Minerals) supported the consultation undertaken to date by the Proponent with the two titleholders of mineral exploration licences which cover land within the development area and supported continued liaison with these titleholders with the aim of minimising ongoing landuse conflict with mineral exploration (including consultation during decommissioning to discuss retention of access roads within project area). DII further supported the sourcing of sand and gravel during construction from local operators and required that the location and siting of the final turbine layouts be provided to DII once they become available at detailed design.
- DII (Agriculture) required that measures for the management of weeds from construction disturbance (turbine infrastructure, cable trenching and access roads) be incorporated into the Proponent's assessment.

NSW Roads and Traffic Authority (RTA)

- The RTA considered that the peak construction traffic volumes identified for the project had the potential to disrupt the surrounding road network and requested further clarification of the likely traffic movements associated with the project (including peak volumes) at the following junctions so as to assess the likely impact: Monaro Highway and Springfield Road, Monaro Highway and Snowy River Way; Snowy River Way and Avon Lake Road and any access along the Snowy River Way. The RTA also recommended identification of any treatment or upgrade likely to be required at the above intersections to ensure the safe and efficient functioning of the road network.
- The RTA recommended that any access from the Snowy River Way be designed to provide safe intersection sight distance (SISD) from both directions consistent with the RTA *Road Design Guide* and noted that any works on classified roads would require the RTA's concurrence under Section 138 of the *Roads Act 1993* prior to the commencement of the works.

Bombala Council (BC)

- BC recommended that the height of turbines should be reduced to 125 metres (as indicated in the Proponent's preliminary assessment accompanying its major project application) and that the turbines be located at least one kilometre from either side of the Snowy River Way, which is a "designated tourist route".
- In its original submission dated 3 February 2010, BC also recommended that turbines should not be located within one kilometre of the property boundary of a non-associated landowner. However, Council provided an additional submission to the Department dated 30 March 2010 withdrawing this part of its original submission.
- BC recommended that Boco Road be upgraded to a bitumen sealed road standard at no cost to Council should it be used for the project or a condition of approval imposed restricting the use of the road by the

project. BC has also recommended that any damage caused to the Snowy River Way (currently being upgraded by Council) by project related traffic be restored back to its pre-construction standard at no cost to Council.

- BC raised concerns regarding potential Crown roads used by the project noting that Council would not accept maintenance responsibility for any new Crown road reserves associated with the project.
- BC considered that the community contributions proposed by the Proponent (i.e. \$2,500 per turbine) were insufficient and recommended that a contribution of \$5,000 per turbine be levied (indexed annually to CPI) to offset impacts to the "unspoilt, unique nature" of the area which acts as a "gateway to the alpine wilderness". BC also recommended an additional road maintenance levy of 10 cents per tonne per kilometre in relation to operational traffic associated with the project.
- BC raised concerns regarding surety for the decommissioning of the project in the case that the development company went out of business.
- In its original submission dated 3 February 2010, BC raised concerns that the project would affect the development potential of currently undeveloped land which retain a dwelling entitlement and recommended compensation to all non-associated landowners within 10 kilometres of the turbines on the basis that the land value of any allotment within sight of turbines would be affected by the project. However, Council provided an additional submission to the Department dated 9 March 2010 withdrawing this part of its original submission.
- BC noted that Council's approval would be required under section 68 of the *Local Government Act* for any sanitary drainage works or demountable buildings (in the case of temporary worker accommodation) and under Section 138 of the *Roads Act* for any works within Council controlled roads.

Cooma-Monaro Shire Council (CMSC)

- CMSC expressed support for the project and raised the following issues for the Department's consideration:
 - recommend that all Council roads proposed to be used during the construction of the project are maintained to all weather standards for the duration of construction (including sealing of Springfield Road to past the intersection with Avon Lake Road, sealing of Avon Lake Road between Springfield Road and Snowy River Way, upgrade of parts of existing sealed road from Nimmitabel and intersection and property access upgrades) to ensure that these roads can cope with the volume and load of construction traffic associated with the project;
 - concern that any improvements to Crown roads will require dedication to Council for long-term maintenance. In this case Council recommended that the roads be constructed to Council standard prior to dedication and that road maintenance costs be levied over the life of the project;
 - recommended that appropriate conditions be imposed to control environmental management at temporary construction sites including batching plants (including effluent disposal, waste management and disposal, and sediment control);
 - recommended that appropriate conditions be imposed regarding surety for decommissioning; and
 - considered that a higher level of community contributions should be imposed than proposed by the Proponent to take into account the unique characteristics of the Monaro environment and the visual prominence of the project and noted that the contributions should be indexed annually against the CPI.

4.3 Response to Submissions

Upon review of the submissions received the Department directed the Proponent to prepare a response to submissions. The Proponent submitted a Response to Submissions and Preferred Project Report (dated April 2010) identifying changes made to the project as summarised in Section 2.2 and incorporating a final Statement of Commitments. Subsequent to the report being made public on the Department's website, the Department required clarification on the minimum level of offsets to be provided given that the Response to Submissions and Preferred Project Report (dated April 2010) identified maximum available habitat within the proposed offset properties rather than the minimum level of offsets to be provided. The Department therefore required the Proponent to lodge a revised report clearly outlining its final position on biodiversity offsets. A revised Response to Submissions and Preferred Project Report (dated May 2010) was subsequently lodged and made publicly available on the Department's website. No other changes were made to the revised report apart from details of the biodiversity offset strategy. All references in this report to the Proponent's Preferred Project Report refers to the revised Response to Submissions and Preferred Project Report lodged in May 2010.

Several agencies provided an additional submission in response to the Preferred Project Report. The NSW Office of Water stated that it was satisfied that the Preferred Project Report has adequately responded to its issues and

raised no further concerns. The NSW Roads and Traffic Authority reiterated its concerns regarding the potential requirement for intersection and/ or site access upgrades. DECCW's additional submission indicated preference for the offset package to comprise wholly of Natural Temperate Grasslands rather than any woodland or Montane Lake components and recommended various conditions of approval in relation to construction related flora and fauna management. DECCW also clarified that construction batching plant(s) for the project would not require licensing under the *Protection of the Environment Operations (General) Regulation 2009*.

In addition to the above, the Department received correspondence on the project from the Land and Property Management Authority (LPMA) who had not made an original submission during the exhibition of the Environmental Assessment. The LPMA submission identified the Crown land provisions applying to the project site and associated permit changes required to enable the project to operate. LPMA expressed support for the transfer of Crown road reserves to private ownership where possible, however identified situation where this may not be possible. LPMA identified that parts of the project may be located on land subject to an Aboriginal land claim.

4.4 Department's Consideration

The Department's consideration of issues raised in submissions is summarised in Table 2 below.

Table 2: Department's Consideration of Issues raised in Public and Agency Submissions

Issue	Department's Consideration
Flora and fauna	Section 5.1
Visual and landscape impacts	Section 5.2
Noise and vibration	Section 5.3
Project justification	Section 2.3
Property impacts	Sections 5.2 and 5.3
Community contribution fund	Section 5.2
Exhibition period	Section 3
EA information /project design	The Department is satisfied that the information presented in the Proponent's Environmental Assessment and Preferred Project Report is sufficient to enable the assessment of the project including representative and worst case impacts of the two turbine layouts, turbine heights and the 100 metre micro-siting allowance.
Historical changes to project	The Department notes that a previous major project application (MP 08_0188) was lodged by the Proponent for the Boco Rock Wind Farm project involving a layout of 73 turbines to the south of the McLaughlin River and further to the east of its current location. That application has since been withdrawn and replaced by the current application (MP 09_0103). The reasons for the evolution of the project (including additional landowners expressing interest in hosting turbines, movement of the project to the west to reduce proximity to neighbouring non-associated landowners to the east and additional turbines to compensate for the moving turbines away from higher yielding areas) are identified in the Proponent's Environmental Assessment and Preferred Project Report. The Department has assessed the current project on its merits rather than in comparison to the historical application.
Transmission line	<p>The Department notes that the transmission line connection of the project to the existing grid is fundamental to the operability and viability of the project. Consequently, although the transmission line component is subject to separate assessment under Part 5 of the EP&A Act, the Department considers that the Proponent must demonstrate as part of its current assessment that there are no unreasonable constraints that would preclude the development of the transmission line, such as would affect the feasibility of or pose a restriction to the development of the wind farm project.</p> <p>In this regard, Wind Prospect (CWP) Pty Ltd (the parent company of Boco Rock Wind Farm Pty Ltd) has provided the Department with a copy of the route selection study undertaken for the transmission line connection to the grid. Based on the information provided in this report the Department is satisfied that whilst each of the route options would pose some constraints there appears to be no unreasonable restrictions that would preclude the development of a transmission line from the project to the existing grid, such as would affect the viability of the wind farm project. Country Energy as the determining authority under Part 5 of the EP&A Act has responsibility for considering the environmental effects of the project and the Department understands that a separate environmental impact assessment (i.e. "Review of Environmental Effects") is currently under preparation for the proposal. Consequently, the specific environmental impacts of the transmission line proposal have not been considered further in the Department's assessment.</p>

	<p>Whilst the transmission line proposal is currently being progressed under Part 5 of the EP&A Act, the Department notes that Country Energy is also required under Part 5 to consider whether an Environmental Impact Statement (EIS) would be required for the proposal. Should Country Energy determine that the proposal would require an EIS, the new transmission line would cease to be subject to Part 5 of the EP&A Act and require the Minister's for Planning's approval under Part 3A of the EP&A Act, as part of a new major project application.</p>
Traffic and transport (including development contributions for heavy vehicles and maintenance of Crown roads)	<p>Both Councils have requested that key roads proposed to be traversed by construction traffic associated with the project (including Boco Road, Snowy River Way, Springfield Road and Avon Lake Road) be sealed to accommodate predicted traffic volumes (approximately 240 vehicles per day during peak construction) under all weather conditions. The RTA has also raised concern that construction traffic associated with the project may affect the efficient functioning of the road network and noted that the project's site access and specific road intersections may require upgrade to allow for the safe accommodation of project traffic and efficient road functioning. The Department agrees that the Proponent should be required to investigate the existing condition of all public roads proposed to be used for construction and upgrade these to a standard considered necessary to accommodate the traffic volumes associated with the project as well as over-mass or over-dimensional traffic that would be required for turbine transport. In this regard, the Department has recommended conditions of approval requiring the Proponent to commission an independent expert to undertake pre-construction road dilapidation surveys in consultation with Councils and the RTA to determine upgrade requirements including for road surfaces (and associated culvert, bridge and drainage design), intersection treatments, vehicle turning requirements and property access taking into account finalised traffic volumes following detailed design.</p> <p>The Department considers that this process would provide a robust basis for determining the need for and extent of upgrade works required. The consultation requirements with the RTA and Councils will also ensure that relevant design standards of these road authorities are taken into account in this assessment. The Department has further recommended conditions of approval requiring all the upgrade works identified by the assessment be implemented prior to the commencement of construction and for post-construction dilapidation surveys to be undertaken so as to identify any damage caused during the construction period, and requirements to restore any such damage prior to the commencement of operation. To ensure appropriate traffic management during the construction period, without undue disruption to the local road network, the Department has also recommended that the Proponent be required to prepare a Traffic Management Plan in consultation with road authorities prior to the commencement of construction.</p> <p>Bombala Council has requested that a road maintenance levy of 10 cents per tonne per kilometre be imposed in relation to operational traffic associated with the project. Operational traffic would be limited to periodic maintenance and inspection crews, which would not place significant or sustained additional burden on public road infrastructure such as to warrant ongoing development contribution for road maintenance for the life of the project. The Department has nevertheless recommended conditions of approval requiring the periodic monitoring of road conditions particularly following maintenance activities involving oversize vehicles (which are proposed to occur on an in-frequent basis for the life of the project) and restore any damage attributable to the project.</p>
Crown Land	<p>The Department notes that the Proponent's Environmental Assessment already identifies that the project has been relocated so as to not affect land subject to the identified Aboriginal land claim. With respect to Crown road reserves, the Department notes that the Proponent has proposed to apply to LPMA to close out and transfer the ownership of any affected road reserves to adjoining landowners. However, Councils have identified that any works undertaken on Crown road reserves prior to their full transfer into private ownership would trigger the requirement for Councils to take on maintenance responsibility for the road until the ownership is transferred (which could taken 2-3 years). Further, LPMA have identified that Crown road reserves which provide access to other properties or Crown land may not be able to be closed out and transferred to private ownership, and any works on these road reserves would also trigger the requirement for Councils to take on maintenance responsibility for the road. The Department considers that in either case it would be reasonable for the Proponent be responsible for the maintenance of the roads or otherwise provide maintenance funds to Council. The Department has recommended conditions of approval, requiring the Proponent to reach an agreement with the Councils to fund the maintenance of any Crown road reserves which are triggered into Council responsibility as a result of the project. The Department has also recommended conditions of approval requiring the Proponent to consult with and meet the requirements of LPMA in relation to other permit changes that may be required in relation to existing Crown titles to enable the use of Crown land for the project.</p>

Upper House inquiry	The Legislative Council inquiry into rural wind farms conducted by General Purpose Standing Committee No. 5 released its final report on 16 December 2009. A whole of Government response to the matters identified in the report was publicly released by the NSW Government on 16 June 2010. This process is independent of and separate to the planning process for major project applications such as the current project.
Other approvals	An approval under Part 3A of the EP&A Act would not preclude the Proponent's obligation to obtain all other necessary approvals and licences (including water licences and approvals under the Roads Act) prior the commencement of construction or other relevant works.
Other (aviation safety, decommissioning, aboriginal heritage, bushfire management water/ groundwater/ waterways, weed management, ancillary infrastructure, consultation, mineral titleholders and electromagnetic fields)	The Department has recommended conditions of approval incorporating the following issues: compensation for increased costs associated with aerial spraying; project decommissioning; aboriginal heritage management; bush fire management and liaison with the NSW Rural Fire Service; surface and groundwater management and design of waterway crossings; weed management; and the location and management of temporary construction facilities including compound sites and batching plants. The Department is satisfied that all other matters have been adequately addressed in the Proponent's Preferred Project Report and / or final Statement of Commitments.

5. ASSESSMENT OF ENVIRONMENTAL IMPACTS

After consideration of the Environmental Assessment, submissions, the Proponent's Preferred Project Report and final Statement of Commitments, the Department has identified the following key environmental issues associated with the proposal:

- Flora and Fauna;
- Visual Amenity; and
- Noise and Vibration.

All other issues are considered to be adequately addressed by the Proponent's Preferred Project Report and/or final Statement of Commitments.

5.1 Flora and Fauna

Issue

Vegetation Disturbance

The Proponent's Environmental Assessment included an ecological assessment of the site based on original turbine numbers (i.e. 107 and 125). The Proponent's assessment identified five vegetation communities on site, each exhibiting varying degrees of modification as a result of historic and existing agricultural/ grazing landuse including weed invasion, pasture improvement (through sowing and spray seeding), soil disturbance and evidence of low recruitment and senescence of trees. The vegetation communities were classified in accordance with the nomenclature of *BioBanking Assessment Methodology* (DECCW, 2008):

- Ribbon Gum-Snow Gum grassy open forest (RGSG) on flats and undulating hills of the eastern tablelands South Eastern Highlands;
- Snow Gum-Candle Bark Woodland (SGCB) on broad valley flats of the tablelands and slopes, South Eastern Highlands;
- Kangaroo Grass-Snowgrass Tussock grasslands on slopes and ridges of the tablelands, South Eastern Highlands;
- River Tussock-Tall Sedge-Kangaroo Grass moist grasslands of the Eastern Highlands; and
- Speargrass grassland of the South Eastern Highlands.

The grassland communities mapped as Kangaroo Grass-Snowgrass Tussock, River Tussock-Tall Sedge-Kangaroo Grass and Speargrass grassland were identified to meet the definition of *Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory* (NTG) endangered ecological community listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Proponent's assessment also identified areas of ephemeral wetlands within the site (exhibiting varying degrees of weed infestation), however noted that no direct impacts are proposed to these areas.

The Proponent estimated the maximum extent of vegetation clearing likely to be required for the project based on the worst case scenario of 125 turbines, considering two development scenarios. The first scenario included six metre wide access roads with intermittent 12 metre wide passing bays. The bays would be rehabilitated to a six metre width following construction. The second scenario included 12 metre wide access roads of which six metres would be rehabilitated following construction. The percentage of vegetation that would be cleared but rehabilitated following construction was deemed a "temporary" impact whilst the remainder was deemed a "permanent" impact. The extent of native vegetation clearance predicted on this basis is summarised in Table 3 for each vegetation community. As shown in Table 3, the total extent of project impacts to the Snow Gum-Candle Bark Woodland community type and to a large portion of the Ribbon Gum-Snow Gum grassy open forest community type would be limited to their derived grasslands only (that being areas which are dominated by the understorey/ grassland components and which no longer supports the woodland components of these communities due to historical disturbance).

Table 3: Vegetation Clearance Levels for the 125 Turbine Layout (Modified from Wind Prospect Pty Ltd, November 2009)

Vegetation Type	BioBanking condition	Site condition	12 metre Road Scenario			6 metre Road Scenario		
			Permanent	Temporary	Total	Permanent	Temporary	Total
Kangaroo Grass	Medium/ Good	Grazed	1	1.4	2.4	0.6	1.6	2.2
		Heavily Grazed	4.5	4.9	9.4	2.5	4.3	6.8
River Tussock	Medium/ Good	Grazed	0.9	0.7	1.6	0.6	0.6	1.2
Spear Grass	Medium/ Good	Grazed	36.6	23.2	59.8	24	24	48
		Heavily Grazed	3.1	1.3	4.4	2.1	1.5	3.6
<i>Natural Temperate Grassland (sub total)</i>	<i>All</i>	<i>All</i>	46.1	31.5	77.6	29.8	32	61.8
SGCB (Derived Grasslands)	Medium/ Good	Grazed	1.7	1	2.7	1.1	1	2.1
RGSG	Low	Weedy	8.6	8.8	17.4	5.4	9.2	14.6
	Medium/ Good	Heavily Grazed	20.9	25.4	46.3	13	25.4	38.4
	Medium/ Good	Weedy	2.5	2.7	5.2	1.5	2.8	4.3
RGSG (Derived Grassland)	Medium/ Good	Grazed	14.4	13.4	27.8	9.5	13.2	22.7
TOTAL			94.2	82.8	177	60.3	83.6	143.9

The Proponent's Environmental Assessment also identified that the project site is likely to provide suitable habitat for up to 32 species listed under the Commonwealth EPBC Act and/ or the NSW *Threatened Species Conservation Act 1995* (TSC Act) (seven species listed under both the EPBC and TSC Acts, nine migratory species listed under the EPBC Act only and 16 species listed under the TSC Act only). Of these, the following species were recorded on or directly adjacent to the project site during site surveys:

- Grassland Earless Dragon (GED) (EPBC and TSC Acts);
- Striped Legless Lizard (EPBC and TSC Acts);
- White-Bellied Sea Eagle (migratory species listed under the EPBC Act);
- Little Whip Snake (TSC Act);
- Diamond Firetail (TSC Act);
- Eastern False Pipistrelle (TSC Act);
- Eastern Bentwing Bat (TSC Act); and
- Squirrel Glider (TSC Act).

Under the worst case layout of 125 turbines and considering total losses from both 'temporary' and 'permanent' impacts, the Proponent's assessment identified that the project would impact on between 84 and 103.6 hectares of potential habitat for the Grassland Earless Dragon and between 95.49 and 119.89 hectares of potential habitat for the Striped Legless Lizard, for the 6 metre versus 12 metre scenario, respectively. With respect to the area of Grassland Earless Dragon habitat identified to be impacted, the Proponent's Environmental Assessment clarified that only 4.7 to 5.6 hectares of this habitat comprises "known habitat" (i.e. areas of confirmed habitat where individual dragons have been identified), with the remaining habitat comprising areas mapped as either good or lower quality potential habitat.

The extent of Little Whip Snake habitat predicted to be impacted by the project under the 125 turbine layout was estimated at between 159.36 and 198.7 hectares (6 metre versus 12 metre scenario). However following query by the Department, the Proponent clarified that this is likely to represent an overestimation of impact, which

erroneously took into account already cleared areas of the project's development footprint (noting that the total habitat impact predicted for this species is greater than the total area of native vegetation clearance estimated for the project, although suitable habitat for the Little Whip Snake is identified to be areas of native vegetation with suitable ground cover). Nevertheless, on the assumption that all of the vegetation to be cleared for the project comprises suitable habitat for this species, this would result in a maximum habitat loss of between 143.9 and 177 hectares for this species (depending on the 6 metre versus 12 metre scenario). On this basis, 177 hectares also represent the worst case habitat loss that would result from the project in relation to the remaining listed species considered in the assessment, but for which habitat was not specifically estimated or mapped.

With respect to the Blue Billed Duck (TSC Act listed species), the Proponent's assessment identified that whilst habitat for this species is not located within the direct development area of the project, the project may require water to be sourced (amongst other supply sources) from a farm dam on site, which has been identified as providing suitable habitat for the species and therefore may lead to indirect impacts on this species. The proposal will also involve work adjacent to and across the McLaughlin River which has the potential to impact on riparian habitat values on this waterway.

In addition to direct vegetation and habitat impacts, the Proponent's assessment also considered the likely risks of the project to bird and bat species from turbine rotor collisions. Based on flight characteristics, roost and foraging behaviours, available habitat and recorded incidence of species within the study area, the Proponent's assessment identified that the following bat species and bird species were at most risk of collisions: White Striped Freetail Bat (unlisted), Gould's Wattled Bat (unlisted), Eastern False Pipistrelle (TSC Act), Eastern Bentwing Bat (TSC Act), Yellow Bellied Sheath-tail Bat (TSC Act), White Bellied Sea Eagle (EPBC Act, Migratory), Brown Falcon (unlisted), Wedge-Tailed Eagle (unlisted) and Nankeen Kestrel (unlisted).

Mitigation & Offset

As part of its Environmental Assessment, the Proponent described measures already undertaken and measures proposed in the future to avoid, minimise and/ or offset ecological impacts. With respect to impact avoidance, the Proponent identified that the project design shown in the Environmental Assessment already included design changes made to avoid impacts to Grassland Earless Dragon habitat, including the removal of two turbines from areas of known habitat on the western part of the project site and road design layout to traverse already disturbed areas or the boundaries of known Grassland Earless Dragon habitat so as to minimise habitat fragmentation for this species. The Proponent also indicated that turbines had been placed at least 30 metres away from hollow bearing trees where possible to minimise rotor collision risks to bat/ bird species, which utilised such hollows for roosting and nesting. To further avoid impacts, the Proponent committed to further design refinement where possible during micro-siting and construction with consideration to surrounding good quality vegetation or habitat. This includes constructing access roads around isolated trees and locating temporary construction sites in already disturbed areas.

The Environmental Assessment also listed measures that would be implemented during construction to mitigate or manage biodiversity impacts. This included:

- avoiding construction at the Springfield and Sherwins clusters (the areas considered most likely to support Grassland Earless Dragon habitat) during the breeding season of the Grassland Earless Dragon;
- pre-construction surveys for the Grassland Earless Dragon and other species to identify their presence within the construction footprint prior to disturbance;
- implementing a relocation strategy for the Grassland Earless Dragon to adjacent habitat should the species be found during construction (including monitoring of their survival);
- construction of the Springfield and Sheriwns clusters separately so that any lessons learnt from the Grassland Earless Dragon relocation strategy implemented at the first cluster could be implemented during the construction of the second cluster;
- retention of water volumes at the farm dam (from which water would be sourced for the project) at levels suitable for the Blue Billed Duck;
- ensure that works adjacent to waterways are undertaken to minimise impacts to aquatic riparian vegetation as far as practicable; and
- the upgrade of the existing causeway road crossing of the McLaughlin River with box culverts to improve fish passage.

To offset the residual ecological impacts of the project, the Proponent has calculated required offsets for the project in accordance with the *BioBanking Assessment Methodology* (DECCW, 2008). Based on the calculations, the Proponent's Environmental Assessment identified that the total worst case offset requirement for the project would be between 579 and 828 hectares based on the condition of the offset site (i.e. with less land being required if the offset site is of lower quality and therefore has greater capacity for improvement with management), including at least 232.7 hectares of Grassland Earless Dragon habitat.

To meet the offset requirements for the project, the Proponent outlined three offset options in its Environmental Assessment, which could be implemented either independently or in some combination:

- Option 1 - secure adjacent landowner land through BioBanking mechanisms comprising 160 to 250 hectares of Natural Temperate Grasslands (including the Grassland Earless Dragon habitat component), 225-285 hectares of Ribbon Gum-Snow Gum grassy open forest and up to 10 hectares of Snow Gum-Candle Bark Woodland;
- Option 2 - secure adjacent landowner land through BioBanking mechanisms comprising 500 hectares of Natural Temperate Grasslands (including the Grassland Earless Dragon habitat component); and/ or
- Option 3 - provide funding for research into Grassland Earless Dragon by the University of Canberra.

Submissions

Public submissions highlighted the ecological significance of native grassland communities in the Monaro; characterised the grassland communities as being subject to low levels of modification since European occupation; and considered the security of offset options for the project to be uncertain. Of the public authorities, the Department of Industry and Investment (I&I NSW) supported the mitigation measures outlined in the Proponent's assessment to minimise and mitigate impacts to surrounding waterways. This included the commitment to upgrade the existing causeway road crossing of the McLaughlin River with box culverts, to improve fish passage. It recommended conditions requiring that the waterway crossings be designed and constructed consistent with published I&I NSW (NSW Fisheries) guidelines.

DECCW raised significant concern regarding the flora and fauna impacts of the project identified in the Environmental Assessment including: concern that the project design had not demonstrated adequate avoidance of impacts to Grassland Earless Dragon habitat (particularly at the Springfield Cluster, where five turbines were proposed within an area of "known" Grassland Earless Dragon habitat); concern that Grassland Earless Dragon habitat identified at the Springfield Cluster was of such good condition as to be unable to be offset if impacted; concern regarding the classification of vegetation loss on the basis of "temporary" versus "permanent" impacts given difficult growing conditions in the Monaro which make native vegetation reinstatement difficult and therefore "temporary" impacts likely to be in reality "permanent"; concern that the strategy for the relocation of Grassland Earless Dragon during construction is not consistent with the National Recovery Plan for this species; and concern that species level credits had not been calculated for the Striped Legless Lizard as required under BioBanking methodology.

In its original submission on the project, DECCW also noted that as a result of an error in the current version of BioBanking methodology, the offset calculations for the Grassland Earless Dragons (i.e. approximately 232.7 hectares in total under worst case) have been underestimated and if corrected would amount to approximately 1500 hectares. In a subsequent submission, DECCW clarified that a total vegetation offset of approximately 750 hectares would be considered acceptable as long as it was demonstrated that the land included habitat for the Grassland Earless Dragon, Striped Legless Lizard and the Little Whip Snake. DECCW supported the securing of the offset sites via BioBanking, as long as landowners were clear on their obligation with respect to managing the land for conservation. DECCW required that the land be managed in a manner sympathetic to the Grassland Earless Dragon, Striped Legless Lizard, Little Whip Snake and the Natural Temperate Grassland community.

Consideration

In relation to issues raised in community submissions regarding the ecological significance and level of modification to grassland communities, the Department is satisfied that the Proponent has undertaken a technically rigorous and robust ecological assessment which adequately identifies the characteristics and ecological significance of biodiversity values on site. The characteristics of existing grassland communities identified on this basis are summarised in the preceding sections of this report. In relation to potential riparian

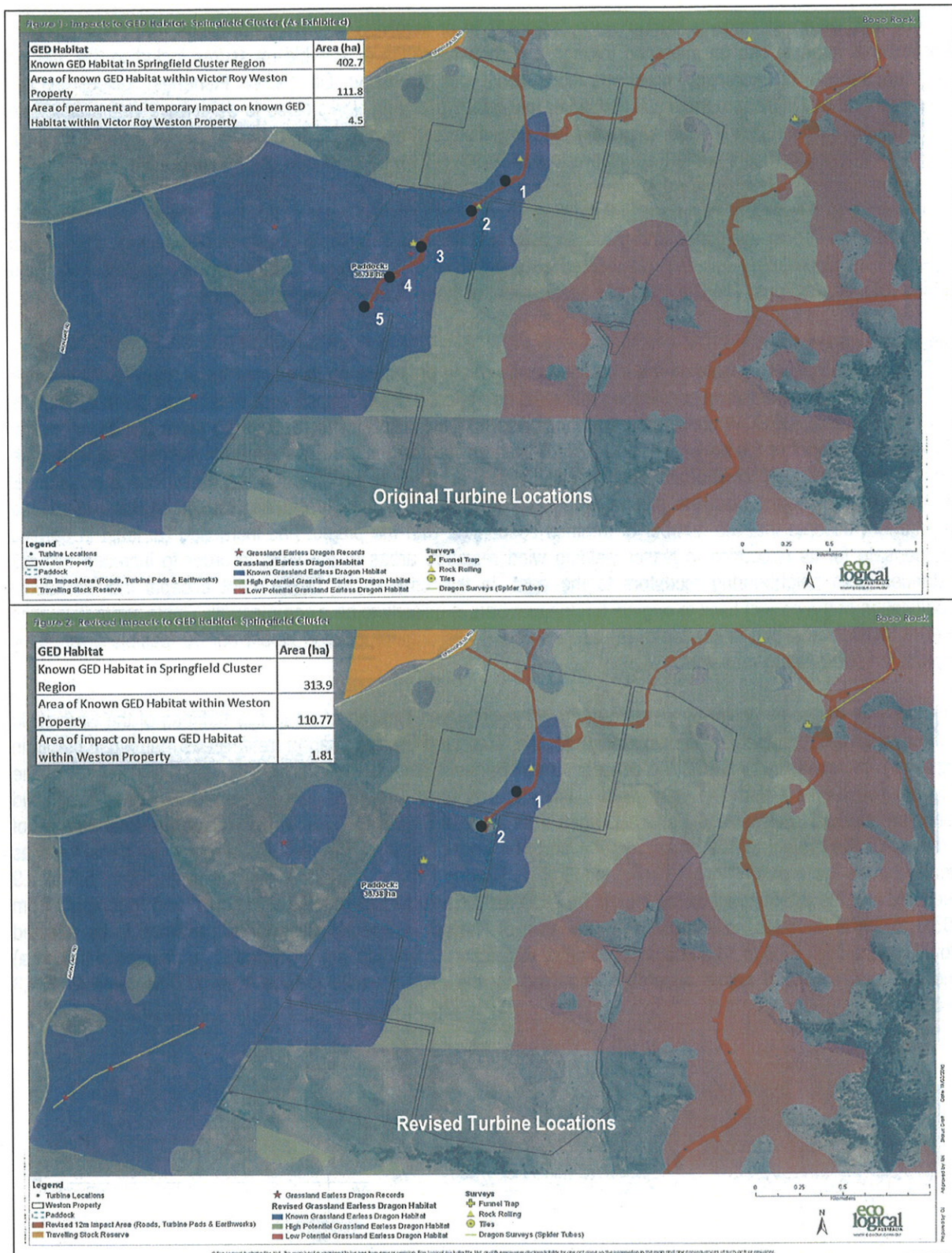
corridor and waterway impacts during works adjacent to or involving waterway crossings, the Department is satisfied that impacts can be managed through the implementation of suitable measures including the design and construction of waterway crossings consistent with published DII (NSW Fisheries) guidelines (as recommended by DII), appropriate soil and water management during works close to waterways, and appropriate rehabilitation of riparian zones and waterways following disturbance to a standard equal to or better than existing. The Department has recommended conditions in this regard in its recommended conditions of approval.

With respect to direct vegetation and habitat loss associated with the project, the Department has focused its assessment on impact avoidance and the availability and security of suitable offsets to compensate for residual impacts. The Department has also considered potential risks of the project to bird and bat species from wind turbine rotor interactions. The Department's assessment of these matters is provided below.

Impact Avoidance

DECCW raised concern regarding the increased scale of the project since its original application for 73 turbines (MP 08_0188, now withdrawn) considering that it did not reflect a design principle of avoiding biodiversity impacts as far as possible. DECCW considered that there was no justification for increasing the scale and therefore the biodiversity footprint of the project to up to 125 turbines as identified in the Environmental Assessment, when the project was previously considered economically viable at 73 turbines. Section 4.4 describes the historical evolution of the project from the original withdrawn application to the current application. In this regard, the Department accepts that the number of turbines associated with the project has increased (at least in part) to compensate for its relocation to lesser yielding wind resource areas to the west in order to increase setback distances from neighbouring receptors to the east. In this context the Department accepts that wholesale modification of the project back to original turbine numbers is unlikely to be a commercially viable alternative at its current location and that relocation of the project back to its original location would not be feasible given likely impacts on surrounding receptors.

DECCW has raised particular concerns regarding the proposed location of up to five turbines of the Springfield cluster within land mapped as "known" habitat for the Grassland Earless Dragon (refer areas mapped in purple in Figure 6). In response to DECCW's concern, the Proponent amended the project to remove three out of the relevant five turbines from the Springfield cluster as part of its Preferred Project Report to further avoid and minimise impacts to Grassland Earless Dragon habitat (refer Figure 6). This would reduce the total number of turbines for the project to 122 under layout 1 and 104 under layout 2. The removal of these additional turbines would reduce the area of "known Grassland Earless Dragon habitat" impacted from the project from 5.6 to 2.9 hectares and the total impact of the project on Grassland Earless Dragon habitat ("known" and "potential") from 103.6 to 100.9 hectares. In addition, the total area of Natural Temperate Grasslands predicted to be affected would reduce from 77.6 to 74.9 hectares (no other vegetation community are predicted to be affected in this area) and the total extent of native vegetation impacted by the project would reduce from 177 hectares to 174.3 hectares.



The Proponent has proposed the retention of the remaining two turbines ("1" and "2") at this location on the basis of changes to habitat that have occurred in the area from agricultural activity since the original field surveys for the project. Site inspections of the property since the exhibition stage have indicated that the north-east corner of the property (where turbine "2" is proposed to be located) has changed from good quality Grassland Earless Dragon habitat to an area dominated by exotic mallow weeds. Similar changes have occurred to the land area to the west of the property such that neither of these areas can now be classified as Grassland Earless Dragon

habitat (refer Figure 6). As a result of habitat changes at this location, the extent of the project site mapped as "known Grassland Earless Dragon habitat" in the Environmental Assessment has reduced by 88 hectares (from 402 to 314 hectares). On the basis of the above changes to habitat within and surrounding the proposed location of turbines "1" and "2", the Proponent has proposed the retention of the remaining two turbines at the location to maximise project profitability. To compensate for financial losses arising from the removal of the three turbines, the Proponent has also sought to amend the proposed construction scheduling of the Springfield and Sherwins clusters to gain cost savings from their concurrent rather than separate construction (which was previously proposed, to allow for lessons learnt with respect to Grassland Earless Dragon management during construction). In addition to the above, the Proponent has also proposed a minor change to the alignment of the access track for the Yandra cluster to minimise impacts to hollow bearing trees in the area (refer Figure 4 of Section 2.2).

The Department is satisfied that the changes to project design at the Springfield cluster would result in a net improvement to biodiversity outcomes to the Grassland Earless Dragon. In relation to the two turbines proposed to be retained, the Department notes that:

- turbine "2" would be located on land no longer classified as Grassland Earless Dragon habitat and therefore impacts from this turbine on Grassland Earless Dragon habitat would be limited to the construction of associated access roads along areas mapped as "known" Grassland Earless Dragon habitat (although the quality of this habitat is debatable, refer below); and
- turbine "1", although itself located on land still conservatively mapped as "known" Grassland Earless Dragon habitat, is actually surrounded by land mapped at a lower habitat classification (i.e. either "potential habitat" or no habitat at all), which reflects the overall lower potential for Grassland Earless Dragon habitat (and therefore lower potential for Grassland Earless Dragon impacts) at the northern end of the property where this turbine would be located compared to the southern end from which turbines have been removed (which are still mapped as a contiguous area of "known" and therefore high quality Grassland Earless Dragon habitat).

To further avoid intrusion into those areas of better quality habitat mapped in the southern part of the property, the Proponent has proposed to only access the two turbines proposed to be retained on site from land to the north of the turbines (which are mapped as lower quality habitat). In relation to the location of the two remaining turbines, the Department notes that despite the conservative mapping of the area as Grassland Earless Dragon habitat, the area is subject to ongoing agricultural land use and (as has already occurred) is likely to be subject to continued modification from agricultural pressure notwithstanding the development of the project. In consideration of the above, the Department is satisfied that the extent and quality of habitat on which the remaining two turbines are proposed to be retained is not of such outstanding value, such that biodiversity values would not be able to be offset should development occur. In this context, the Department is satisfied that the removal of an additional two turbines from this location over and above the three turbines already removed is unlikely to result in any significant additional benefits to Grassland Earless Dragon habitat, which would outweigh the potential greenhouse gas cost of their removal, and considers the retention of these remaining two turbines within the Springfield cluster to be acceptable on this basis. With respect to changed construction scheduling, the Department considers it unlikely that separate construction of the Springfield and Sherwins clusters (to allow for lessons learnt between the two sites) would lead to any significantly different outcomes or benefits with respect to Grassland Earless Dragon management in comparison to the concurrent construction of the clusters given that construction related mitigation measures applying to the entire project site would be subject to best practice ecological practice developed and implemented in consultation with DECCW (refer sections below). On this basis, the Department has no objection to the construction of both clusters simultaneously as proposed as long as construction at both sites is undertaken at times which are outside of the breeding season for the Grassland Earless Dragon as committed to by the Proponent.

In summary, in consideration of the changes made to project design as part of the Preferred Project Report (i.e. removal of the three turbines from the Springfield cluster and realignment of access road at the Yandra cluster) as well as changes already made prior to exhibition to minimise biodiversity impacts (including removal of two turbines from areas of known Grassland Earless Dragon habitat on the western part of the project site and road design layout to prevent fragmentation of Grassland Earless Dragon habitat), the Department is satisfied that the Proponent has given due consideration to avoiding biodiversity impacts, where reasonable and feasible in developing the project design.

Offset Measures Consistent with Principles of Improve and Maintain

Whilst the Department is satisfied that the Proponent has given due consideration to avoiding impacts where possible, the Department accepts that some biodiversity impacts would be unavoidable as a result of the final development footprint of the project (including vegetation and habitat loss, potential direct injury to fauna during construction and reductions to local flora and fauna populations through the loss and disturbance of habitat including roosting, foraging and breeding resources). To ensure that the project does not result in a permanent net loss of biodiversity values in the area, the Department considers that the project must be subject to a suitable offset strategy which ensures that biodiversity values of the area are maintained or improved in the medium to long-term. This would normally comprise the setting aside of land, which would otherwise be open to development, for conservation purposes, secured in perpetuity through a mechanism such as BioBanking, such that the impacts of the project are offset by areas of similar biodiversity values which would provide secure habitat for the long-term survival of species and populations in the local area.

Based on modifications to the project, the Proponent has provided updated estimates of the total area of native vegetation, Natural Temperate Grassland and associated species habitat predicted to be impacted by the project in its Preferred Project Report (refer Table 4). No change in impact is expected to any other vegetation community identified in the Environmental Assessment. In response to concerns raised by DECCW in relation to the classification of vegetation loss as "temporary" versus "permanent", the Proponent has confirmed that the total vegetation impacts identified in its Preferred Project Report represents the total loss associated with the revised turbine layouts, considering both permanent and temporary losses as well as the higher impact 12 metre road scenario. The Department is satisfied that the total vegetation impact identified on this basis represents the worst case development footprint for the project under construction, operation or decommissioning and should be the impact on which offset requirements for the project are based. This would set the worst case biodiversity footprint for the project such that any refinements to project design or location during detailed design or micro-siting can only occur should it result in less impact than the worst case identified.

Due to the relatively minor change in overall vegetation/ habitat impacts (approximately three less hectares affected), the Proponent did not recalculate credit requirements under BioBanking based on the revised impact area but conservatively assumed the same offset requirements as identified for the 125 turbine layout in its Environmental Assessment (refer Table 4). Notwithstanding, in response to DECCW's comments, the Proponent carried out additional species-level credit calculations for the Striped Legless Lizard under BioBanking to identify specific habitat offset requirements for this species (also conservatively based on the 125 turbines layout). As illustrated in Table 4, the species credit calculations indicate that any offsets secured for the project would need to include at least 499.5 hectares of Striped Legless Lizard habitat, to ensure that impacts to this species are suitably offset.

Following extensive discussions with DECCW and surrounding landowners since the exhibition period, the Proponent identified a single revised offset strategy comprising solely of land based options involving BioBanking (rather than the option for research funding) to offset the biodiversity impacts of the project. The Proponent has identified the availability of three properties from which the offset requirements of the project could be achieved. The Proponent has identified that the revised offset package would comprise a minimum of 750 hectares of native vegetation including a minimum of 700 hectares of Natural Temperate Grasslands, up to 50 hectares of Ribbon Gum-Snow Gum Open Forest and up to 4.4 hectares of Montane Lake. The Proponent has identified that the minimum 700 hectares of Natural Temperate Grasslands proposed as part of the offset strategy would:

- include at least 150 hectares of confirmed habitat and 550 hectares of high potential habitat for the Grassland Earless Dragon;
- provide at least 700 hectares of potential habitat for the Striped Legless Lizard including a minimum of 150 hectares of confirmed habitat; and
- provide at least 700 hectares of potential habitat for the Little Whip Snake including a minimum of 300 hectares of confirmed habitat.

Table 4: Revised Area of Impact and Offsets Proposed

	125 Turbine Layout and 12 metre Road Scenario (Temporary + Permanent Impact)			122 Turbine Layout and 12 metre Road Scenario (Temporary + Permanent Impact)		
Vegetation Communities (Ecosystem Credits)	Area of Impact (hectares)	Offset Requirement (hectares)	Maximum Offset in EA (hectares)	Area of Impact (hectares)	Offset Requirement* (hectares)	Current Proposed Offsets (hectares)
Natural Temperate Grassland	77.6	296.4	250 (Option 1) or 500 (Option 2)	74.9	296.4	700
Ribbon Gum-Snow Gum grassy open forest	96.7	404.3	285 (Option 1)	96.7	404.3	Up to 50
Snow Gum-Candle Bark Woodland	2.7	12.3	10 (Option 1)	2.7	12.3	0
Montane Lake	0	0	0	0	0	Up to 4.4
TOTAL	177	713	Option 1 = 545ha (NTG + RGSG + SGCB) Option 2 = 500ha (NTG only)	174.3	579-828 (depending on offset site condition)	750
Grassland Earless Dragon (Species Credits)	103.6	232.7	250 - 500	100.9	232.7	700
Striped Legless Lizard (Species Credits)	119.89	499.5	250 - 500	117.19	499.5	700

* offset requirements conservatively assumed to be the same as original calculations based on 125 turbines

The Proponent's commitment for a minimum 750 hectare offset package including a minimum 700 hectares of Natural Temperate Grassland means that the final 50 hectares would need to be made up by either additional hectares of Natural Temperate Grassland and/ or some level of Ribbon Gum-Snow Gum grassy open forest community (up to a maximum of 50 hectares) and Montane Lake (up to a maximum of 4.4 hectares). This means that there is a possibility of the final package not including any woodland components and being made up entirely of Natural Temperate Grassland, which is not consistent with the offset requirements calculated under the BioBanking Methodology. Following discussion with DECCW, the Proponent focused its revised offset strategy on securing larger areas of Natural Temperate Grassland (rather than like for like vegetation communities) on the basis that this community has a greater conservation value than any of the other vegetation communities affected by the project (which are not listed as threatened) and because this grassland community correlates strongly with suitable habitat for key listed threatened species predicted to be impacted by the project including Grassland Earless Dragon, Striped Legless Lizard and Little Whip Snake. DECCW has specifically identified in its submission on the Preferred Project Report that it has no fixed view on the offset containing any woodland community or wetland, but rather supported the entire offset area (i.e. 750 hectares) comprising of Natural Temperate Grassland.

The Department notes that the offset requirements identified under BioBanking methodology for the Ribbon Gum-Snow Gum grassy open forest and Snow Gum-Candle Bark Woodland communities represent highly conservative requirements, which do not fully account for the degraded nature of the sections of these communities proposed to be impacted by the project. In this regard the Department notes that much of the areas proposed to be impacted, whilst classified as Ribbon Gum-Snow Gum grassy open forest and Snow Gum-Candle Bark Woodland under BioBanking methodology (and therefore assigned full ecosystem values and associated offset requirements), actually comprises derived grasslands with the upper storey and shrub layers (i.e. woodland component) being absent due to historical agricultural activities. This is the case with all of the areas of Snow Gum-Candle Bark Woodland and up to 27.8 hectares of Ribbon Gum-Snow Gum grassy open forest proposed to be impacted by the project. Even in areas of Ribbon Gum-Snow Gum grassy open forest where the upper storey persists, these mainly comprise isolated scattered trees, which the Proponent has identified can in most cases be easily avoided due to the inherent flexibility of project development (i.e. through the slight alteration of access routes or slight micro-siting of turbine locations etc). Consequently, whilst the BioBanking methodology assigns full woodland community based ecosystem values onto the areas mapped as these communities, in reality, the project's impacts within these areas are likely to be largely confined to the understorey (i.e. grassland)

components and associated ecosystem values. Consequently, the Department is satisfied that the offset proposed for the project, which is largely comprised of grassland communities, would in effect provide suitable offset for the native vegetation and associated habitat that is likely to be impacted by the project, which would in the most part be limited to understorey grassland and derived grassland components, with some isolated and scattered trees. In consideration of the above, the Department is satisfied that whilst not providing a direct like for like outcome based on the offset calculations (with respect to the woodland communities), the offset strategy is acceptable as it would:

- provide the opportunity for conserving a large area of the Natural Temperate Grasslands vegetation community, which due to its nationally threatened status has greater conservation value than the remaining vegetation communities affected by the project (which are not listed communities); and
- provide a like for like outcome with respect to the ecosystem attributes and habitat values (i.e. understorey/grassland components) which are most likely to be impacted by the project.

Based on the above, the Department considers that the offset package would be acceptable even if it was to comprise entirely of Natural Temperate Grasslands (i.e. all 750 hectares), as preferred by DECCW. In this regard, given the available area of Natural Temperate Grasslands identified within the three offset properties (i.e. a total of 788.85 hectares), the Department considers that it would be feasible for the entire offset package to be made up of this community, if required. In this regard, the Department understands that all areas classified as Natural Temperate Grassland within the project area (including impact sites and offset sites) are grassland areas which meet the definition of Natural Temperate Grassland under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and which are in a "moderate to good condition". Consequently, the Department is satisfied that the areas of Natural Temperate Grassland proposed to be impacted by the project can be offset by Natural Temperate Grasslands of a similar quality and that there is sufficient areas of Natural Temperate Grasslands of commensurate quality to make up the entire offset package (of 750 hectares), if required. On this basis, the Department has recommended a condition of approval requiring the minimum 750 hectares of offset to comprise entirely of Natural Temperate Grasslands as this is consistent with the preferences of DECCW and would provide an acceptable biodiversity outcome as discussed above. Under this requirement, the area of Natural Temperate Grassland predicted to be impacted by the project (74.9 hectares) would be offset at a ratio of 10 hectares to each hectare lost. Overall the strategy would also offset the total native vegetation cleared as a result of the project under worst case (174.3 hectares) at a ratio of approximately 4.3 hectares to each hectare lost.

With respect to habitat for the Grassland Earless Dragon, DECCW's original submission on the Environmental Assessment suggested that an appropriate offset area for this species would be around 1500 hectares. However, in subsequent correspondence, following further consideration of the nature of the impacts and the available offsets, DECCW clarified that an offset area of approximately 750 hectares would be considered acceptable. The Department is satisfied that the level of offsets that would be provided for the Grassland Earless Dragon (i.e. at least 750 hectares of Natural Temperate Grasslands) would adequately offset the predicted impacts to this species habitat, noting that the project's impact on confirmed habitat (i.e. areas where the species has actually been recorded) would be minimal, limited to some 2.9 hectares only. Overall the package would offset the total impacts of the project on Grassland Earless Dragon habitat (i.e. 100.9 hectares including potential and confirmed habitat) at a ratio of 7.43 hectares to each hectare lost. Specifically, impacts to confirmed habitat would be offset at a ratio of 51.72 hectare to each hectare impacted as the area of Natural Temperate Grasslands to be provided is proposed to include at least 150 hectares of confirmed habitat for this species. The Department is satisfied that the offset land would provide habitat for this species of a comparable or better quality to that predicted to be impacted by the project (which comprises 2.9 hectares of confirmed, 67 hectares of high potential and 31 hectares of low potential habitat), noting that vegetation mapping for the project indicates a strong correlation between areas of Natural Temperate Grasslands and good quality Grassland Earless Dragon habitat (i.e. "confirmed" or "high potential"). This means that all of the 750 hectares of Natural Temperate Grasslands to be provided as offset is likely to comprise either "high potential" or better quality habitat, including at least 150 hectares of confirmed habitat.

The Department is also satisfied that the proposed offset strategy would suitably offset impacts to the Striped Legless Lizard. Project impacts to this species (i.e. 117.19 hectares) are confined solely to areas of potential habitat rather than confirmed habitat as no individuals of this species were recorded on site. Nevertheless, the offset package would comprise a minimum of 750 hectares of suitable habitat including at least 150 hectares of

confirmed habitat. This equates to an offset ratio of 6.4 hectares to each hectare disturbed. The level of confirmed habitat provided means, that each hectare of potential habitat impacted would in effect be offset by a higher quality area of confirmed habitat (at a ratio of 1.28 to 1). Whilst BioBanking methodology does not require species-specific offset calculations for the Little Whip Snake, the Department notes that the offset package would nevertheless offset the habitat impacts for this species (i.e. 174.3 hectares – the total native vegetation loss associated with the project), through the provision of at least 750 hectares of potential habitat at a ratio of 4.3:1 (including a minimum of 300 hectares of confirmed habitat at a ratio of 1.72:1).

Based on the matters discussed above, the Department is satisfied that the overall offset strategy is sufficient to offset the biodiversity impacts of the project under worst case in relation to ecosystem values, the single engendered ecological community identified (Natural Temperate Grasslands), as well as the specific threatened species for which species credits are required under BioBanking Methodology (Grassland Earless Dragon and Striped Legless Lizard). The Department is satisfied that the offset package for the project would be consistent with the principles of "maintain or improve" as the offset sites are not at benchmark condition and have the capacity to improve through management measures and would fit within the range of offset requirements (i.e. 579-828 hectares) calculated for the project under BioBanking methodology. The Department has recommended conditions of approval requiring offsets to be achieved at the quantum identified (i.e. at 750 hectares), which would mean that offset requirements based on worst case impact are secured even if subsequent project design (through micro-siting or the development of layout 2 involving 104 turbines) results in reduced biodiversity impacts than the worst case predicted.

Management and Mitigation Measures

In addition to the offset strategy formulated to account for the worst case impacts of the project, the Proponent clarified and / or re-confirmed as part of its Preferred Project Report the range of additional measures it proposed to undertake during detailed design or construction to further minimise and mitigate biodiversity impacts. This included commitments to:

- revegetate areas of "temporary" clearance as far as possible;
- undertake pre-clearance surveys;
- avoid construction in the Springfield and Sherwins clusters during the breeding season of the Grassland Earless Dragon and Striped Legless Lizard; and
- relocate any Grassland Earless Dragons identified during construction to adjacent suitable habitat.

DECCW raised concern that the translocation of Grassland Earless Dragon species is not consistent with the National Recovery Plan for this species. The Proponent clarified that the relocation strategy was proposed as a harm minimisation strategy only (i.e. to avoid death or injury during construction) rather than as an offset/ research strategy aimed at increasing the survival rate (and therefore the conservation) of this species. As the offset strategy proposed had been specifically formulated to account for worst-case impacts to this species (including potential unavoidable construction impacts to individuals such as direct injury, displacement from "home range" through relocation and associated mortality), the Proponent considered that further monitoring to determine the survival rate of relocated species as originally proposed in the Environmental Assessment was not necessary and amended its Statement of Commitments in this regard. The Proponent has also committed to a similar relocation approach for the Striped Legless Lizards if found on site. On the basis of offset measures already proposed to account for worst case impact for both the Grassland Earless Dragon and Striped Legless Lizard, which means that the survival or otherwise of relocated individuals for either of these species would not change the level of impact or required offsets for the project, the Department considered the approach proposed by the Proponent to be acceptable.

Notwithstanding the change to commitment in relation to the Grassland Earless Dragon relocation strategy, the Department is satisfied that the additional mitigation measures proposed by the Proponent (over and above its offset strategy) would as a whole equate to positive on the ground biodiversity outcomes beyond those already likely to be achieved by the offset measures. On this basis, the Department has recommended conditions of approval reinforcing these commitments including the requirement for revegetation of temporary construction areas, construction outside of Grassland Earless Dragon and Striped Legless Lizard breeding seasons, Grassland Earless Dragon/ Striped Legless Lizard relocation strategy and pre-construction surveys. DECCW has made specific recommendations in relation to applicable methodology for pre-construction surveys and the fauna relocation strategies and the Department has recommended conditions of approval requiring these measures to

be developed and implemented in consultation with DECCW. DECCW has also made recommendations in relation to various other construction related biodiversity measures including: the monitoring of trenches for trapped fauna; the use of appropriate barriers (such as dampcourse) to deter small or fossorial reptiles from entering the construction site; and ensuring that no green-waste is burnt on site. The Department has reflected these comments in its recommended conditions of approval.

Security of Offsets

The Proponent has proposed that the offset strategy would be secured in perpetuity through BioBanking mechanisms. This would entail negotiating with the landowners to have their land registered under BioBanking so that the associated "biodiversity credits" can be bought and retired by the Proponent to offset the impacts of the project. To provide a reasonable level of certainty regarding whether the landowners would be willing to register their land under BioBanking, DECCW required further demonstration that the landowners were aware of their land management obligations (for the purposes of conservation rather than other land use) and associated opportunity cost with respect to other development opportunities on their land, should they register their properties under BioBanking. The Department concurs with DECCW that in order to demonstrate with reasonable certainty that the offsets identified can be secured in perpetuity, the Proponent would need to demonstrate that all parties are willing to participate in BioBanking. This is particularly important given that the Proponent has not identified any suitable alternative land, should any of the landowners of the three properties identified to date no longer wish to participate in BioBanking. Given the ecological significance of the habitat and vegetation to be impacted and the lack of alternative offset sites identified to date, the Department considers that the Proponent should be required to demonstrate with a reasonable degree of certainty that the offsets identified to date can be secured in perpetuity.

To ensure that landowners were aware of land management obligations under BioBanking and were still willing to participate in BioBanking under these terms, the Proponent organised meetings between the landowners and DECCW to discuss and agree on the likely land management practices that the landowner would be required to carry out if their land was BioBanked, to maintain the conservation values of the site in perpetuity. These measures include: the requirement for pest control; rotational "time controlled" grazing rather than set stocking (in the context that some level of grazing is recognised to be required to maintain the biodiversity value of grassland communities in the area); ensuring minimum biomass and ground cover levels within grassland areas; removal of stock if these thresholds are not achieved including during drought periods; and the requirement for monitoring and annual reporting so that the health of the communities can be monitored and management practices improved where required. (Note: the detailed management requirements for each property would be set out in the site-specific BioBanking agreement for each property upon registration of the land). On the basis of these discussions and agreed management measures, all three landowners indicated in writing to the Proponent their willingness to continue with BioBanking in relation to their properties. On this basis, the Department is satisfied that the Proponent has demonstrated with reasonable certainty that the offsets identified for the project can be secured in perpetuity through BioBanking mechanisms on the basis of landowner willingness to BioBank their properties for offset purposes. In this regard, the recommended conditions of approval require that the biodiversity offset strategy be secured prior to the commencement of construction.

The Proponent has also identified that the entirety of offset lands contained within the three properties is covered by three mineral exploration leases held by two companies, Volcan Australia and AGL Energy Ltd. As the leaseholders already hold rights over the subject land, BioBanking agreements cannot be finalised for the properties until the consent of these interested parties has been gained agreeing that activities which are not consistent with conservation purposes would not be carried out on site. However, as some of the activities allowed under the minerals exploration lease may not be consistent with management for conservation purposes, this places the requirements of the lease in direct conflict with any BioBanking requirements proposed to be registered on title (should the leaseholder not agree to give up his/her rights to the said activities within the land). This would essentially mean that a BioBanking agreement could not be set up for the properties, again raising the question of certainty in relation to the securing of offsets in perpetuity.

To resolve this matter, the Proponent initiated discussions with the two companies who hold the exploration leases. On the basis that the three offset properties as a whole would only encompass a minor fraction of the total area covered by both companies' exploration leases (i.e. 0.7% of the lease area for Volcan Australia and 0.5% for AGL Energy Ltd), both companies agreed, following discussion, to excise their leaseholder rights in relation to the

subject land and advised the Proponent of this in writing. On this basis, the Department is satisfied that the exploration lease holdings currently covering the offset sites would not pose an ultimate impediment to BioBanking agreements being set up in relation to the properties and that the Proponent has demonstrated with reasonable certainty that the offsets identified for the project can be secured in perpetuity through BioBanking mechanisms.

To reflect the Proponent's commitments, the Department has recommended conditions of approval requiring that offsets for the project are secured at the levels proposed and in perpetuity through BioBanking mechanisms prior to the commencement of construction of the project.

Bird and Bat Impacts

The Department is satisfied that the Proponent has provided a suitably robust assessment of the potential risks of the project on bird and bat species from rotor interaction (including direct collision or "barotrauma" – where internal injury may result to bat species from changes to atmospheric pressure as the turbine blades rotate downwards). The Department accepts that some level of mortality to individual bird and bats is likely to be unavoidable as a result of interaction with wind turbines just as some level of faunal mortality is likely to occur through collision with vehicles on rural and regional roads. Notwithstanding, the Department considers that the project should be designed to avoid risks of collision wherever possible. In this regard the Department notes the risk of bird and bat rotor interactions are generally known to be greater where wind farm development is located in proximity to wetlands (which are known congregation points for large flocks of birds), along known migratory paths, in proximity to forested areas (which provides preferred habitat for many bird and bat species) and along forested ridgelines (which may correspond to both the flight elevation and preferred habitat of species). Turbine lighting (as this may attract insects which are a food source for nocturnal bat species) as well as turbine spacing close together and in linear patterns (particularly where this also correspond with migratory paths) is also generally correlated with higher rates of rotor interaction.

The Proponent's assessment has indicated that due to its location in close proximity to several wetlands in the area (including Cooper's Lake, Boundary Lake, Dukes Lake and Avon Lake), the project has the potential to pose an increased risk of collision to wetland bird species, including those migrating inland from the coast to access wetlands located directly to the west of the site. Given the ephemeral nature of wetlands in the area which are subject to long periods of dry weather, the Department considers that the overall risk of collision to wetland bird species over the life of the project is likely to be low, with specific wetter seasons likely to pose higher risk. The Proponent's assessment has also identified that the flight path of most migratory bird species tends to be well above the height of the turbines. With respect to bat species, the Proponent's assessment has identified that given the general open nature of the landscape with limited connection to surrounding contiguous areas of woodland vegetation (with the exception of the southernmost turbine of the Sherwins Range which adjoins an area of increasing forestation to the south, which eventually connects with Merriangaah National Park), the identification of obvious fly-paths on a local scale is difficult, with species likely to forage across the site. Notwithstanding, the Department considers that the generally widely spaced and non-linear clustering of the turbines, would reduce the risk of the project posing a significant collision/ interaction hazard to migrating species (bird or bat) from any particular direction. In relation to available habitat, the Department notes that the majority of the project would be located within grassland and degraded woodland characterised by scattered/ isolated trees, which would provide fewer roosting and nesting opportunities for bird and bat species compared to well forested areas. This is reflected in the Proponent's assessment which identified low levels of bat activity, despite targeted surveys, particularly in grassland areas. Notwithstanding, to minimise the risk of rotor interaction for roosting species which forage at or above canopy height, the Proponent has identified that turbines would be sited at least 30 metres from hollow bearing trees (potential roost sites) wherever possible.

In summary, the Department considers that the project would not pose an overall significant or unacceptable level of risk to bird and bat species from rotor interaction. To ensure that potential risks are minimised as far as practicable, the Department has recommended conditions of approval reinforcing the Proponent's commitment to site turbines away from hollow bearing trees and ensure that night lighting requirements for the project are minimised as far as possible unless specifically required by the Civil Aviation Safety Authority for aviation hazard purposes. In addition, the Department has recommended conditions of approval requiring the implementation of an adaptive bird and bat monitoring program to determine the incidence of mortality at different parts of the site (such as between the ridgelines and lower elevation areas of the site and the grassland to more wooded areas of

the site) and at different seasons (including wetter seasons when bird activity may increase around wetlands). The adaptive management plan would be required to specifically identify measures for minimising impacts where identified such as minimising the availability of raptor perches, swift carcass removal, pest control including rabbits, use of deterrents and sector management including switching off turbines that are identified to or have had an unacceptable impact on bird/ bat mortality at certain times. The Department is satisfied that with the implementation of the above measures, the bird and bat impacts of the project can be appropriately managed so as to not result in significant residual impacts. The Department is satisfied that the overhead transmission line component of the project would not pose a significant risk of collision or mortality to bird/ bat species beyond that posed by similar infrastructure already existing in the area.

5.2 Visual Amenity

Issue

The Proponent has undertaken a visual impact assessment focusing on the wind turbines (which pose the greatest potential for impacts) and to a lesser extent on ancillary infrastructure associated with the project (including the substation and up to four kilometres of internal overhead transmission lines), which pose a lesser potential for impact due to their smaller scale. The Proponent's visual assessment of the turbines has considered potential impacts to surrounding dwellings (considering blade glint, shadow flicker and night lighting impacts) as well as to existing landscape values.

Wind Turbines – Impacts to Surrounding Receptors and Landscape

The Proponent has prepared "zone of visual influence" (ZVI) maps considering the potential maximum distance at which turbines would be visible taking into account both layout options and the original number of turbines (as exhibited) (refer Figure 7). Potential visibility has been conservatively mapped without consideration to any screening effects from intervening structures or vegetation. Further for comparison purposes, potential visibility of the full rotor face compared to only parts of the rotor blade (such as the tip of blades above ridgelines) has been mapped. Based on the ZVI maps, the Proponent's assessment has concluded that the theoretical visibility of the project could extend to isolated pockets of land beyond 15 kilometres (particularly when considering visibility up to the tip of the turbines rather than the full rotor face), however that the visual influence of turbines at individual receptors is likely to reduce significantly at distances greater than 10 kilometres away, with the turbines forming less distinct elements in the landscape.

Based on ZVI mapping, the Proponent has focused its assessment of visual impacts to dwellings within 10 kilometres of the project. In this regard, the Proponent's assessment has identified 94 individual receptors within a 10 kilometres radius of the project, excluding the associated uninhabited dwelling of Kelton Plains due to its dilapidated and "ruin" status and including the township of Nimmitabel (considered as a single discrete receptor for assessment purposes). In addition to this, 25 locations considered to be representative of key public viewpoints within a 10 kilometre radius of the project have been identified. This includes views from key roads such as the Monaro Highway, Snowy Mountains Highway, Snowy River Way, Springfield Road and Avon Lake Road as well as views from the township of Nimmitabel and a single public lookout (the Peak lookout). The location of identified dwellings and public viewpoints is shown in Figure 8.

The Proponent has assessed the significance of visual impacts to identified receptors and viewpoints based on a combination of factors including: the visibility of turbines (the number and extent of visible turbines based on ZVI maps); the degree of visual contrast between the turbines and surrounding landscape including the capability of the landscape to visually accommodate the turbines; the nature of the receptors viewpoint (i.e. permanent as from a dwelling or transitory as from a moving vehicle); the distance between the receptor and turbines; the potential number of receptors from a viewpoint; the duration of time that a receptor may view the turbines; and the landuse sensitivity of the receptor (i.e. from increasing to decreasing sensitivity being: residential, recreational use, rural employment/ farming, motorist, commercial/ business and industrial landuse).

Based on its assessment of the above factors, the Proponent has concluded that:

- 12 out of the 94 residential receptors (all "associated" dwellings) and none of the 25 public viewpoints are likely to experience a **high** visual impact; 11 out of the 94 residential receptors and seven out of the 25 public viewpoints (including certain views from the Snowy River Way, Avon Lake Road and Springfield Road) are likely to experience a **moderate** visual impact; and

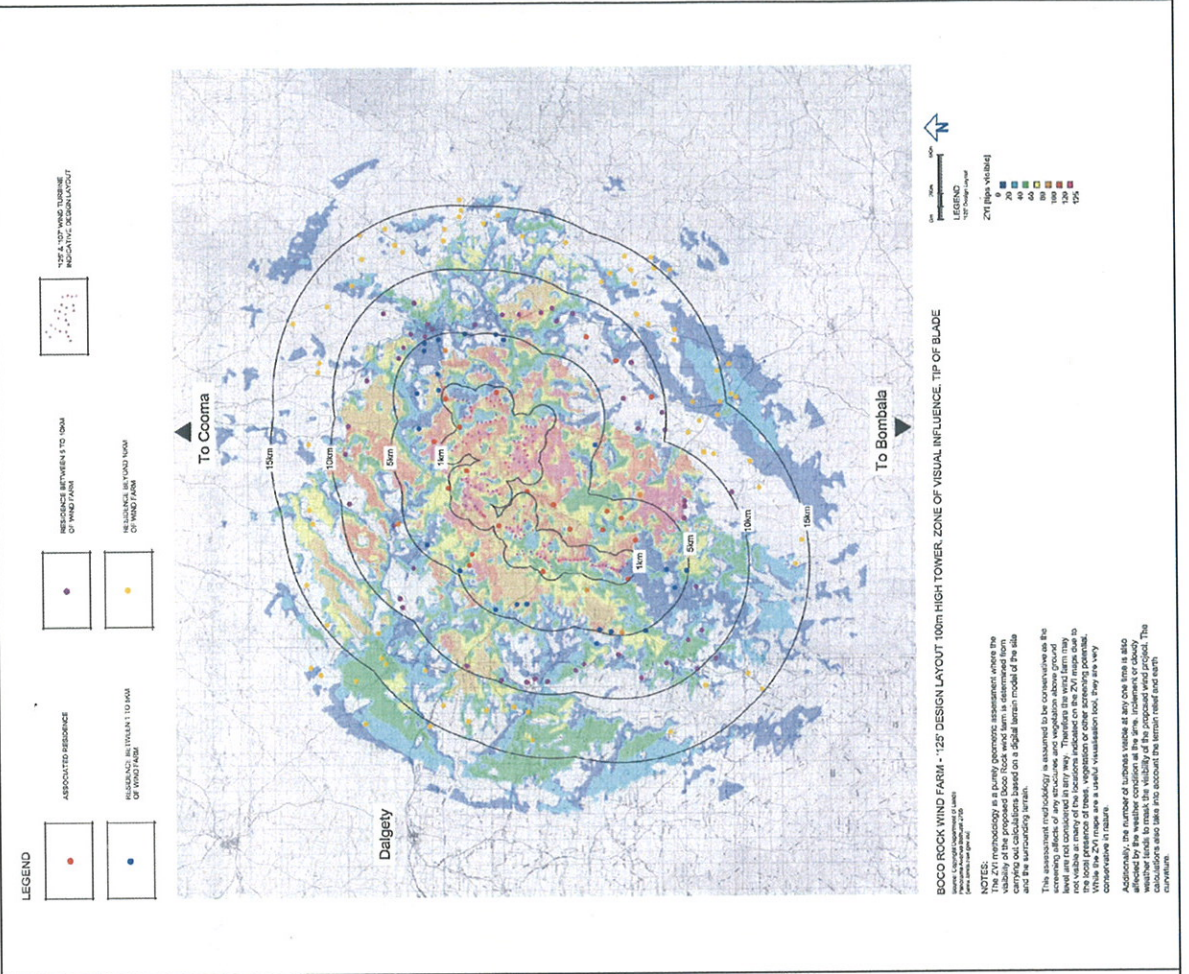
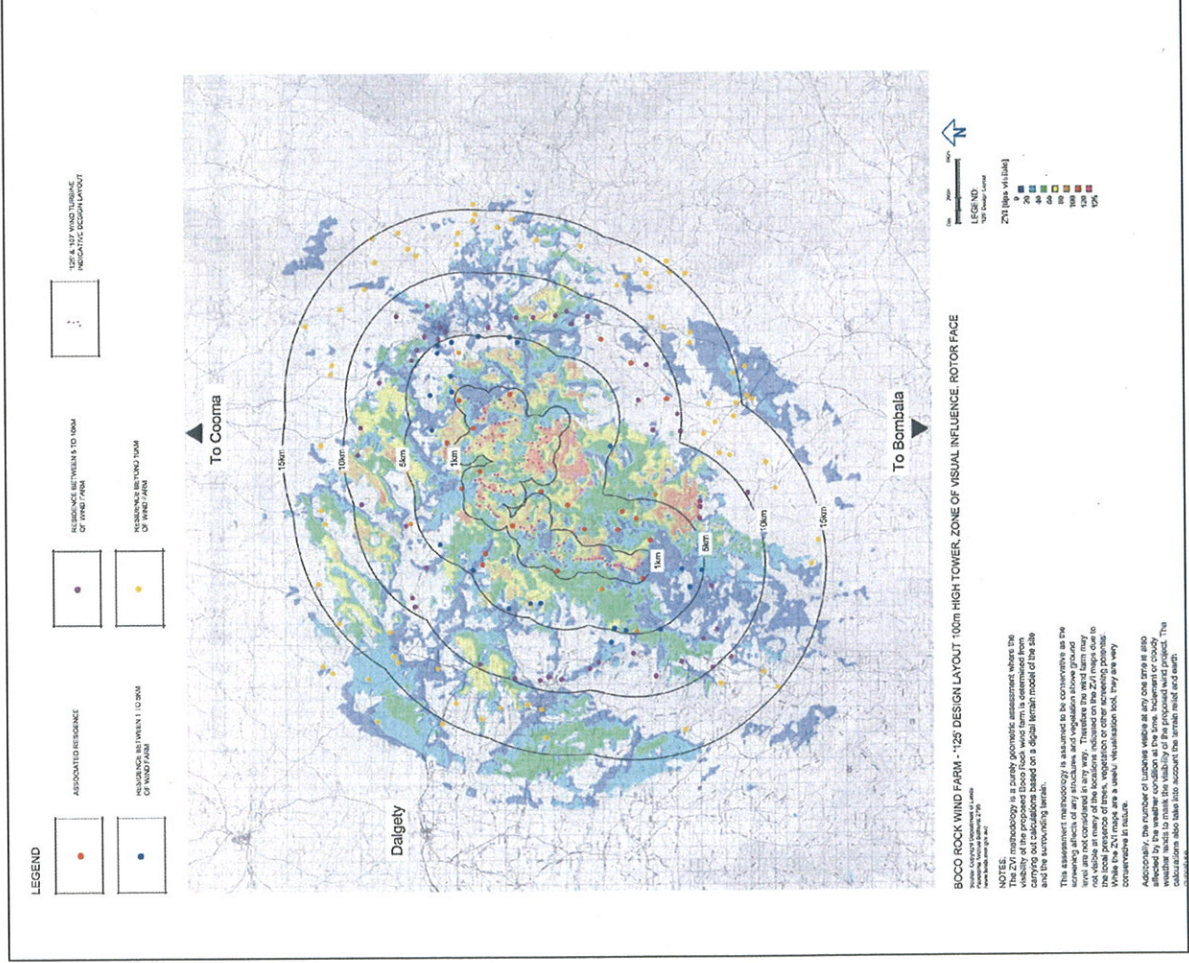


Figure 7: Zone of Visual Influence Maps for Layout 1: Full Rotor Face Vs Tip of Blade (Wind Prospect Pty Ltd, November 2009)
Note: original number of turbines shown (as exhibited)