



**Kyoto** energypark

20. Safety and  
Environmental Risk



## 20.0 SAFETY AND ENVIRONMENTAL RISK

### 20.1 Health and Safety Risks

In relation to the implementation of development projects, "Safety" relates to potentials to adversely impact on the wellbeing of individual humans. Main "Safety" issues that were identified over the construction and operation phases of the project.

Safety aspects during the decommissioning or replacement stage would be mainly limited to the dismantling of wind turbines and transportation from site similar to activities identified during construction.

#### 20.1.1 Construction Safety

The main safety risks have been identified during the construction phase of the project include:

1. Transportation of large elements and traffic safety;
2. Handling, heavy lifting and erection of wind turbine components, including excavations and turbine assembly / working at heights;
3. Bushfire Risk during construction activities.

#### Transportation of wind turbine components

Potential traffic safety risks were identified in Section 17.0 and *Appendix J-Traffic and Transportation Impact Assessment*. These risks are summarised as follows:

Traffic regime disturbance and increased potential for traffic incidents as a result  
Transportation of oversize/overmass components

- The preferred transportation route is via heavy vehicle routes. Some minor works will be required on local roads in the vicinity of the Kyoto Energy Park site.
- Site access points have utilised the exiting access point on Middlebrook Station which has adequate site distance and is safe for ingress and egress of heavy vehicles. The current site access point has been relocated on Mountain Station to provide adequate site distance for approaching vehicles and safety
- An experienced haulage contractor would be used under a contractual arrangement with the main contractor. The main construction contractor shall be responsible for overall management of the Haulage contractor in accordance with the CEMP and sub management plans.
- A Traffic Management Plan (as part of the CEMP) shall be adopted for management of traffic during construction and operation of the Kyoto Energy Park.
- Access tracks will be designed to be safe, all weather accessible, maintained with appropriate construction and erosion and sedimentation controls.

#### Handling and Heavy Lifting activities

The operation of a Wind farm is a relatively safe technology. In over 20 years of electricity generation with more than 100,000 machines installed worldwide, no member of the public has ever been injured in the operation of a wind farm. Since the early 1970's the wind energy industry has experienced 14 worker fatalities worldwide, directly or indirectly during wind farm construction or related accidents. All of these deaths could have been prevented if today's safe work practices had been adopted (AusWEA 2004).

According to the Construction, Forestry, Mining and Energy Union (CFMEU), mining is the most dangerous occupation in Australia. Coal miners for example have a 1 in 28 chance of being killed over their 40 year working life. Figures obtained from the International Labour Organisation (ILO) show that miners account for 1 per cent of the global workforce yet contribute seven per cent of global work fatalities (Westwick-Farrow Pty Ltd 2006).

Construction of wind turbines can potentially be a safety hazard and the risk needs to be controlled and managed. Potential site safety issues include:

- Transportation, operation of heavy machinery on site
- Transportation, handling and erection of heavy components at Port and on site.
- Erection and Maintenance of wind turbine structures at height.

l risks associated with construction and operation of oversize and overmass components including operational risks at height will be comprehensively addressed in a Site Health and Safety Plan.

### **Bushfire Risk**

A Bushfire Risk Assessment was undertaken by Conacher Environmental Group for the Kyoto Energy Park project (*Appendix C*) and summarised in Section 18.0 of this report. Bushfire risk controls shall be introduced into a Bushfire Risk Management Plan (BRMP) for the site prior to construction commencing. Bushfire risk from operations will be required to be managed to prevent incidental ignitions and allow for emergency procedures.

#### **20.1.2 Operations Safety**

The main safety risks have been identified during the operations phase of the project include:

1. Impacts on aircraft safety;
2. Electrical Safety;
3. Bushfire Risk associated with operations;
4. Electro-magnetic fields (EMF);

While there are other potential impacts resulting from the proposed development, none of those poses a threat to individual safety.

### **Impacts on Safety of Aircraft**

The specialist Aviation report completed by Garrad Hassan Pty Ltd (*see Appendix E*) identified potential hazards for aircraft using the local Scone aerodrome. The assessment concluded that no impacts to aircraft was identified from the Mountain Station site.

Two (2) wind monitoring masts are located on Mountain Station. CASA has been advised of the dimensions and locations of these existing facilities in accordance with their recommendations.

A total of eleven (11) wind turbines are proposed for the Middlebrook Station site. Currently seven (7) of these turbines are encroaching flight airspace. Final layout of wind turbines on Middlebrook Station has not been resolved. Final design and layouts are being investigated for these turbines. Final design and layout will need to be assessed and approved by CASA and Air Services Australia prior to construction of offending turbines.

Some private airstrips were observed on rural properties surrounding the sites. Some of these are abandoned and some are used on an infrequent basis, mainly from aircraft originating from Scone aerodrome. As wind turbine structures would be visible additional hazards are expected to be low.

Full details including locations, heights and dimensions of structures will be provided to CASA and the Upper Hunter Council (operators of Scone aerodrome) during construction and upon completion of the Kyoto Energy Park project.

Lighting of wind turbine structures will be in accordance with CASA guidelines.

### **Electrical Safety**

Electrical works for the site would be designed in accordance with relevant standards for design, operation and protection. Final design of electrical systems shall be undertaken subject to receipt of approval for the project.

### **Bushfire Risk associated with operations**

Consideration of ignition of bushfire from operational risks has been considered in this assessment and summarised in Section 18.4.2 of this report. The potential for ignition of bushfires from on site generators is considered low for this development if correct procedures and management practices are put in place and followed. These relate mainly to procurement of new efficient turbines, correct design standards, implementation of proper specialised maintenance on site, environmental management and emergency fire backups. Measures to reduce Bushfire Risk associated with the operations are committed to in the Draft Statement of Commitments provided in Section 20.6.3.

### Electro-magnetic fields (EMFs)

The potential for health risks associated with EMFs has been assessed for transmission lines options as discussed in Section 19.4.8 of this report. Line route and configurations have been designed in accordance with regulations and standards related to line configuration and EMF to eliminate potential for EMF related risks from overhead electricity lines associated with the project.

## 20.2 Environmental Risk Analysis

An Environmental Risk Analysis is an assessment of the impacts likely to affect the environment of a particular project (including human) and involves estimating the effects of a proposed change and the risk of proceeding with it. Assessment of the Environmental Risk can be considered as a series of simple questions:

- What might happen?
- How might it happen?
- Will it be serious if it happens?
- What is the risk?

### Methodology

For ease of evaluation, such analyses are usually presented in tabular form to identify the issues raised and provide a comparative analysis of all identified risks. The table below identifies all risks according to timeframe of assessed risks and proposed responses. It is guided by the application of the standard “Quantitative Risk Assessment Matrix” and the “Consequences” terminologies and methodologies set out below.

Answering these questions involves hazard identification, a process that identifies sources of potential harm (what?) and the causal pathway through which that harm may eventuate (how?). This is followed by a consideration of the seriousness of the harm being realised (consequence) and the chance or probability (likelihood) that harm will occur.

Hazard identification, consequence and likelihood assessments together lead to an appraisal of whether the hazard will result in a risk and to make a qualitative estimate of the level of that risk. It is helpful to use terminology that clearly distinguishes between the likelihood assessment, consequences assessment and the risk estimate. Therefore, four different descriptors have been selected for each component that are designed to convey incremental levels of importance.

The descriptors for likelihood are based on those in AS/NZS 4360:2004. The descriptors for consequence address the adverse consequences of events relating to both human health and safety and the environment. The risk estimate is derived from the combined consideration of both likelihood and consequence.

The individual descriptors can be and are incorporated into a Risk Estimate Matrix. The aim of the matrix is to provide a format for thinking about the relationship between the consequences and the likelihood of particular hazards. The level of uncertainty about either or both of these components will determine the estimated risk.

The matrix is designed to be used as a tool in arriving at an indication of likely risk. It is obvious that risks estimated as “High” or “Moderate” will require an appropriate management response.

The principal purpose of the following model analytical table is to provide an objective means of examining in greater depth, all those identified environmental impacts from the proposal which have the potential to cause danger to humans or to affect ecological balance.

Only those impacts previously identified as having potentially negative impacts are examined here. They include the potential risks to human safety, identified in the preceding section.

## 20.3 Quantitative Risk Assessment Matrix

The methodology reflected in the table is to:

- Highlight negative impacts and then rate those in terms of their “likelihood”, “consequence” and “risk”.

- Reflect the level of adverse impact in the scale and intensity of response recorded under “Proposed Control/Mitigation Measure”.
- Then indicate whether the above adequately addresses the risk and if not, indicate what “further assessments” are required to achieve an appropriate level of on-going management of the risk.
- Indicate whether, following analysis and identification of available mitigation measures, the identified hazard or risk, remains a “Key Issue”.

*Table 20.0 Quantitative Risk Assessment Matrix*

Likelihood or Frequency	Consequence Severity				
	Low (1)	Minor (2)	Moderate (3)	Major (4)	Critical (5)
E – Almost Certain	High	High	Extreme	Extreme	Extreme
D – Likely	Moderate	High	High	Extreme	Extreme
C – Possible	Low	Moderate	High	Extreme	Extreme
B – Unlikely	Low	Low	Moderate	High	Extreme
A – Rare	Low	Low	Moderate	High	High

*Table 20.1 Environmental Consequence Table*

Severity Level	Natural Environment	Social/Cultural Heritage	Community/Govt/ Reputation/Media
1	Limited damage to minimal area of low significance.	Low-level repairable damage to commonplace structures.	Public concern restricted to local complaints.
2	Minor effects on biological or physical environment.	Minor medium-term social impacts on local population. Minor damage to structures / items of some significance. Mostly repairable.	Minor, adverse local public or media attention and complaints.
3	Moderate, short-term effects but not affecting ecosystem function.	Ongoing social issues. Permanent damage to items of cultural significance.	Attention from media and/or heightened concern by local community. Criticism by NGOs.
4	Serious medium term environmental effects.	On-going serious social issues. Significant damage to structures/ items of cultural significance.	Significant adverse national media/public/NGO attention.
5	Very serious, long term environmental impairment of ecosystem function.	Very serious, widespread social impacts. Irreparable damage to highly valued items.	Serious public or media outcry (international coverage).

## ENVIRONMENTAL RISK ANALYSIS

The letters “L”, “C” and “R” in the final Risk Analysis Table respectively represent Likelihood, Consequence and Risk identified in the two reference tables.

Table 20.2 Kyoto Energy Park - Environmental Risk Analysis

Environmental / Other Risk	Potential Impact				Overall Risk Assessment			Proposed Control/ Mitigation Measure	Further Assessment Required – Ongoing Environmental Management	Key Issue
	Short Term		Long Term		L	C	R			
	Positive	Negative	Positive	Negative						
<b>1. Transportation, Handling and Erection of Turbine Components</b>	✓		✓		D	1	L	Local roads works to improve safety access to site Traffic Management on local roads Construction of turbines in terms of manufacturer’s guidelines and construction and safety management procedures.	Implementation of a Traffic and Transportation Management Plan as part of the CEMP and OEMP.	No
<b>2. Turbine Rotation</b>										
- Human Safety	✓			✓	B	0-1	L	None required. Blades above height of human activity	No	No
- Bird Strike Risk	✓			✓	A	1	L-M	Adaptive Management Plan as part of the Bird and Bat Monitoring Plan	No further assessment required for the Australian Hobby, Galah and white Throated Needletail. Adaptive Management Plan to be undertaken for Wedgetail Eagle and Nankeen Kestrel.	No No
<b>3. Aviation</b>										
- Aircraft Risk (a) CASA	✓			✓	A/B	0-1	L	Obstacle Lighting as per CASA guidelines	CASA to be approached for detailed lighting requirements when turbine design layout finalised	No

Environmental / Other Risk	Potential Impact				Overall Risk Assessment			Proposed Control/ Mitigation Measure	Further Assessment Required – Ongoing Environmental Management	Key Issue
	Short Term		Long Term		L	C	R			
	Positive	Negative	Positive	Negative						
(b) Airservices Australia	✓		✓		E	4	H	Issue of consent from Airservices Australia	Further detailed discussion in relation to potential impacts on airspace	Yes
- Blade Glint Risk	✓		✓		A/B	0-1	L	Matt finish painting of all turbine blades	No	No
- Shadow Flicker	✓		✓		A/B	0-1	L	None Required	No	No
<b>4. Noise</b>	✓		✓		D	1	L-M	Impacts fall within acceptable levels at all but one location. Noise exceedance at this location ( <i>Peakhill</i> ) will be managed to achieve compliance.	Ongoing monitoring as provided for in Environmental Management Plan	No
a) Construction	✓		✓		D	0-1	L	No control needed. Noise levels both on site and off-site fall within standard allowable maximum	Noise monitoring to ensure noise compliance with heavy vehicle operations on site.	No
(b) Operation	✓		✓		A/B	0-1	L	Sector management of wind turbines closest to ' <i>Peakhill</i> ' residence under adverse wind conditions, to be part of a Noise Management Plan for the site.  Bunding to be installed N-E edge of substation area as a precaution to shield Clifton Hills Estate. SCADA or similar software control package	Comprehensive testing in accordance with OEMP during operation.	No

Environmental / Other Risk	Potential Impact				Overall Risk Assessment			Proposed Control/ Mitigation Measure	Further Assessment Required – Ongoing Environmental Management	Key Issue
	Short Term		Long Term		L	C	R			
	Positive	Negative	Positive	Negative						
								to manage turbine settings		
<b>5. Greenhouse Gas Emissions</b>	✓		✓		B	O	L	Overall considerable positive greenhouse benefit No GHG emissions post construction	No	No
<b>6. Bushfire Risk</b>										
(a) Manager's Residence	✓		✓		D	4	M	Asset Protection Zone (APZ) required around entire location 10,000 litre water tank required.  Construction crews to carry fire suppression equipment.	Monitoring to be component of Environmental Management Plan.	No
(b) Visitor and Educational Centre	✓		✓		D	4	M			A Bushfire Incident and Evacuation Plan
(c) Construction Traffic	✓		✓		C	2	L			No
<b>7. Ecological - Risk from Construction Activity</b>		✓	✓		B/C	1	L	Sectioning off protected areas in vicinity of construction works.	Review of impacts post construction, to be allowed for in OEMP and CEMP	No
<b>8. Erosion and Sedimentation</b>		✓		✓	C	1-2	L	Potential hazards identified prior to construction. Management of erosion and sedimentation to be detailed in CEMP and OEMP.	Yes. EMP will allow for recurrent monitoring and review	Yes
<b>9. Visual Impact</b>		✓		✓	C/D	1	L	Screen planting at source in areas identified in Visual assessment where closest residences would otherwise be affected.	Review on basis of post-construction feedback, in accordance with Environmental Management Plan.	No
<b>10. Threatened Species</b>		✓		✓	B	1	L	Monitoring provisions to	Deemed not to be a	No

Environmental / Other Risk	Potential Impact				Overall Risk Assessment			Proposed Control/ Mitigation Measure	Further Assessment Required – Ongoing Environmental Management	Key Issue
	Short Term		Long Term		L	C	R			
	Positive	Negative	Positive	Negative						
								be included in both CEMP and OEMP re: Threatened flora population; threatened fauna species and endangered ecological community	“Controlled Action” in accordance with DEWH. However, OEMP to include monitoring of impact on bird and bat species.	
<b>11. Biodiversity</b>	✓		✓		B	0-1	L	Possible regeneration of surplus cleared land as vegetation offset under an Environmental Management Plan. Replant areas of White Box – Yellow Box.	No	No
<b>12. Weed Generation</b>		✓	✓		C/D	1	L	Weed control programs to be included in both CEMP and (post-construction) OEMP.	No	No
<b>13. Construction and Connection of Power Line</b>										
(a) Ecological Risk		✓	✓		C	1	L	Vegetation offset plan to be included in CEMP to compensate for cleared areas.	No	No
(b) Safety Risk	✓		✓		B	1	L	Construction and connection safety procedures to be built into both CEMP and OEMP	No	No
<b>14. Power Supply Fault Levels</b>		✓		✓	D	0-1	L	Ongoing discussions with Energy Australia in terms of Environmental Management Plan.	More detailed power system studies required after Energy Australia’s Scone Substation fault level design determined. Planning consent needed for construction of	No

Environmental / Other Risk	Potential Impact				Overall Risk Assessment			Proposed Control/ Mitigation Measure	Further Assessment Required – Ongoing Environmental Management	Key Issue
	Short Term		Long Term		L	C	R			
	Positive	Negative	Positive	Negative						
									substation at wind farm site.	
<b>15. Local Economy</b>	✓		✓		A	0	0	N/A	No	No
<b>16. Land Values</b>		✓	✓		C	1	L	N/A	Review impacts of actions taken in relation to landscape screen management – which will be undertaken as component of EMP	No

## 20.4 Mitigation Measures to reduce Environmental Risk

The proposal represents an opportunity to reduce long-term environmental damage and risk, but identifies a small number of aspects of the proposal which will require mitigation measures to achieve that objective.

The value of the Hazards and Risks Analysis is that it highlights the capacity of the nominated mitigation measures, to reduce or eliminate the potential risk under examination.

In this instance, it is possible to develop construction-specific and operation-specific management plans which can include mitigation measures to overcome every risk other than those whose extent/scope cannot yet be fully defined. Mitigation measures have been assessed and included in the Statement of Commitments outlined in Section 20.6.3 of this report.

## 20.5 Residual Environmental Risks

The identified mitigation measures include further discussion and negotiation in relation to the following proposal aspects whose actual impacts cannot yet be accurately identified:

- Easement routes for transmission lines. The final transmission line route cannot be determined until the final capacity of the Kyoto Energy Park is known.
- Location of a maximum of seven wind turbines (Turbine Nos 36,37,38,39,40,41,42) proposed on Middlebrook Station which are penetrating aircraft navigation paths at Scone airport. Further consultation is required into mitigation measures to reduce the impact on aircraft from these turbines on Middlebrook Station. Mitigation measures would be subject to approval from the Civil Aviation Safety Authority.
- Impact on 'Species of Concern' identified in the Bird Impact Assessment. Anticipated possible small adverse impacts can only be tested – with ameliorative action taken adapted in the operational phase.

## 20.6 Ongoing Environmental Risk Management

The Statement of Commitments (Table 20.3) describes the scope of responsibilities to which Pamada Pty Ltd is committed for the life of the Kyoto Energy Park.

The Statement of Commitments identifies not only how a potential risk will be eliminated or managed, but auditing and management responsibilities for each action.

From the detailed hazards and risk analysis, it is clear that the construction and operation of the proposal can be achieved with close on-going management of only a few potential risk impacts and that even in relation to those, appropriate on-going management and control can be achieved. All potential risks will be identified in the Environmental Management Plan, with the objective to avoid compromising existing ecological/environmental balance by avoiding or appropriately containing and managing potential risks.

### 20.6.1 Environmental Management Plans (EMPs)

An Environmental Management Plan (EMP) is a document that sets out:

- how potential environmental hazards or impacts would be managed or mitigated (through specific objectives, actions and tasks);
- how all actions and tasks would be implemented (who is responsible, at what stage of the project, and at which locations);
- how implementation of all actions and tasks would be monitored and reviewed to ensure they are implemented and are achieving stated objectives.

Pamada would prepare both a Construction Environmental Management Plan (CEMP) and an Operation Environmental Management Plan (OEMP) following assessment and approval of the project. The CEMP and OEMP would be the primary mechanism Pamada would use to implement all mitigation measures contained in this Environmental Assessment.

Pamada would prepare a CEMP prior to the commencement of construction of the Kyoto Energy Park. The CEMP would form part of the tender documents for construction of the proposed wind farm and the successful tenderer would be required to implement the CEMP as part of their contractual requirements.

The Kyoto Energy Park Company would operate the wind farm and would be responsible for implementation of the OEMP. Both documents would be consistent with the requirements of ISO14001, the international standard for Environmental Management.

Consideration has been given to the industry “best practice” mitigation measures listed in the NSW Wind Energy Handbook (SEDA 2002) and these measures have been included in the project commitments.

### **20.6.2 EMP Objectives**

The objectives of the Kyoto Energy Park CEMP and OEMP would be:

- construction and operation activities are consistent with all statutory and policy requirements;
- all mitigation measures contained in this Environmental Assessment are implemented in these and sub management plans;
- any conditions of consent attached to development approval for the project are implemented and included in the CEMP and OEMP;
- employees engaged in construction and operation of the Kyoto Energy Park are fully informed of and comply with all requirements of each EMP;

provision of clear procedures for managing and mitigating environmental impacts; and provision of a clear management, monitoring and reporting framework to ensure compliance.

### **20.6.3 Draft Statement of Commitments**

A Draft Statement of Commitments has been prepared to detail the environmental management, mitigation and monitoring measures which will be implemented in conjunction with the development of the Kyoto Energy Park project in Scone. A range of ameliorative measures has been designed into the project to minimise any potential identified environmental impact. These measures will be adopted in an Environmental Management Plan (EMP) for the Kyoto Energy Park.

Table 20.3 Kyoto Energy Park- Draft Statement of Commitments

Objective	Mitigation Measures	Responsibility
<b>Environmental Management Plans (EMPs)</b>		
Prepare Environmental Management Plans (EMPs)	<p><b>Environmental Management Plans (EMPs)</b> will be prepared and implemented by qualified environmental specialists for the construction and operation phases of the project to:</p> <ul style="list-style-type: none"> <li>• Confirm the intention to prevent, minimise, and/or offset adverse environmental impacts identified in this Environmental Assessment;</li> <li>• Establish minimum standards and performance measures and mechanisms to set such standards and performance measures for acceptable environmental performance;</li> <li>• Implement regular monitoring and reporting;</li> <li>• Provide for the overview for environmental management of the development.</li> </ul> <p>The Kyoto Energy Park EMPs shall consist of a <b>Construction Environmental Management Plan (CEMP)</b>, which shall be prepared prior to construction operations commencing on site, and an <b>Operational Environmental Management Plan (OEMP)</b>, which shall be prepared prior to operations commencing on site.</p>	EMPs (CEMP and OEMP) shall be prepared by suitably qualified consultants in accordance with the relevant guidelines and recommendations regarding mitigating measures.
<b>Sub-environmental Management Plans</b>		
Prepare sub- Environmental Management Plans	<p><b>CEMP sub plans</b> shall include:</p> <ul style="list-style-type: none"> <li>• Air Quality Management Plan</li> <li>• Flora and Fauna Management Plan;</li> <li>• Construction Noise Management Plan;</li> <li>• Erosion and Sedimentation Control Plan;</li> <li>• Bush Fire Management Plan including a Bushfire Incident and Evacuation Plan;</li> <li>• Spill Control Plan;</li> <li>• Waste Management Plan;</li> <li>• Near Neighbour Consultation Strategy;</li> <li>• Water Management Strategy;</li> <li>• Greenhouse Gas Strategy;</li> <li>• Traffic and Transportation Management Plan;</li> <li>• Line Construction Management Plan;</li> <li>• Site Health &amp; Safety plan, for Construction</li> <li>• Site Restoration</li> </ul> <p><b>OEMP sub plans</b> shall include:</p> <ul style="list-style-type: none"> <li>• Air Quality Management Plan</li> <li>• Flora and Fauna Management Plan; <ul style="list-style-type: none"> <li>▪ Bird and Bat Monitoring Plan (sub-operational and Operational)</li> </ul> </li> <li>• Vegetation Management Plan</li> <li>• Noise Management Plan;</li> </ul>	The CEMP and OEMP shall be prepared by suitably qualified consultants in accordance with the relevant guidelines and recommendations regarding mitigating measures.

Objective	Mitigation Measures	Responsibility
	<ul style="list-style-type: none"> <li>• Erosion and Sedimentation Control Plan;</li> <li>• Bush Fire Management Plan including a Bushfire Incident and Evacuation Plan;</li> <li>• Spill Control Plan;</li> <li>• Waste Management Plan;</li> <li>• Water Management Strategy;</li> <li>• Traffic Management Plan;</li> <li>• Site Health &amp; Safety plan;</li> </ul>	
<b>Monitoring and Auditing</b>		
Audit the implementation of the Statement of Commitments and Environmental Management Plans (EMPs)	An audit program will be developed as part of the environmental management plans. This will include regular auditing by qualified environmental consultants during construction and operation of the Kyoto Energy Park as well as internal auditing by contractors and Users.	The proponent commits to such audits as may be required for monitoring
<b>Statutory Planning</b>		
Implementation of Planning controls	<ul style="list-style-type: none"> <li>• If works are required within road reserves to allow for safe transportation of components to site will require consent under Section 138 of the Roads Act 1993.</li> <li>• A licence under the POEO Act will be required for operation of the temporary mobile Concrete Batching Plant at Mountain Station.</li> </ul>	The proponent commits to the implementation of these measures as detailed in the final design stage
<b>Project Management</b>		
Provide effective management during the Construction of the project	Prior to commencement of construction The proponent shall prepare a <b>Project Management Plan (PMP)</b> to control overall management of the all aspects of the construction phase and safe delivery of the project. The PMP shall include: <ul style="list-style-type: none"> <li>• Project details</li> <li>• Project Management Structure and sub management plans</li> <li>• Environmental Management</li> <li>• Health and Safety</li> <li>• Marketing and Communication</li> <li>• Project review and reporting</li> </ul>	The proponent commits to the implementation of these measures
<b>Air Quality</b>		
Minimise generation of dust and emissions	An <b>Air Quality Management Plan</b> will be prepared as part of the environmental management plan to minimise the generation of dust and atmospheric emissions during the construction and operation of the Kyoto Energy Park. Measures will include:	The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP

Objective	Mitigation Measures	Responsibility
	<ul style="list-style-type: none"> <li>• Install and maintain erosion and sedimentation control structures. Keep areas of open excavation to a minimum</li> <li>• Minimise stockpiling by coordinating excavation, spreading, regrading, compaction and importation activities</li> <li>• Apply water to active earthwork areas, stockpiles and loads of soil being transported to reduce dust.</li> <li>• Vegetate or cover stockpiles where material is to remain on site for a long period of time</li> <li>• Cease work if excess fugitive dust is observed, or phase down while the source is being actively investigated and suppression measures are implemented</li> <li>• Restrict traffic to defined roads and designated works areas to prevent damage to soils and erosion potential</li> <li>• Implement a speed limit on site and measures to control.</li> <li>• Remove soil adhering to the wheels and undercarriage of vehicles arriving and prior to departure from the site</li> <li>• Progressively landscape and revegetate areas as the construction activities proceed with locally grown species.</li> </ul>	and associated monitoring
<b>Community Participation</b>		
Proactive community participation and awareness for efficient management during construction phase	<ul style="list-style-type: none"> <li>• Develop a <b>Near Neighbour Consultation Strategy</b> for ongoing proactive engagement and communication with surrounding and adjoining residents. Within this strategy, develop and implement policies which aim to increase project knowledge, increase information and staff accessibility, develop community-staff relations, create proactive engagement with residents, and establish strong relations with residents, especially those surrounding residents who may further require impacts to be directly mitigated or may further be affected by electricity connective infrastructure (I.e. Line easements, power lines and connection upgrades).</li> <li>• Improve community knowledge and strategically relay project information to Scone residents. Develop a quarterly newsletter during construction to be distributed to surrounding residents, key community organisations and stakeholders, and that can be accessed via the Kyoto Energy Park website and be displayed on community noticeboards.</li> <li>• Inform near neighbours and residents, particularly those living on local traffic routes accessing the site roads to the site, of schedule plans, particularly when</li> </ul>	The proponent commits to the implementation of these measures as detailed in the CEMP

Objective	Mitigation Measures	Responsibility
	<p>increased levels of traffic or noise are expected to cause a disturbance during construction periods.</p> <ul style="list-style-type: none"> <li>Establish and maintain an experienced 'Community Liaison/Relations Officer' position throughout the application, construction and operational phases of the development. This will ensure the community has an ongoing and reliable 'point of contact' with on site Contractors and representatives of the proponent, allowing concerns and questions to be relayed from the community directly to the proponent.</li> <li>The proponent will continue to operate the website which will be used to publicise information during construction and operational phases. A local number would be advertised in local newspapers and on the website during construction which would have access to site construction management for resolution of issues. Ongoing communication with all community stakeholders to ensure delivery on commitments resulting from the Environmental Assessment.</li> <li>During the operation of the Kyoto Energy Park, the proponent would facilitate the formation of the <b>Moobi Foundation</b> managed by non politically-aligned community representatives selected from the Kyoto Energy Park Company, Upper Hunter Council, Scone Chamber of Commerce, Country Women's Association and others as nominated. Through the Moobi Foundation it is proposed The Kyoto Energy Park Company would provide seed funding for on-going community and education programs. The allocation for funding and relevant programs would be decided by the members of the Moobi Foundation.</li> </ul>	
<b>Social and Economic considerations</b>		
<p>Utilise local and regional resources for economic benefits</p>	<ul style="list-style-type: none"> <li>Promote Scone and the Upper Hunter region through the proposed Kyoto Energy Park and its associated activities, including tourism and education.</li> <li>Utilise local and regional industries, businesses, resources and materials during both construction and operation, wherever possible, to enhance the local and regional economy.</li> <li>Use local materials such as road base, concrete products etc where possible and feasible.</li> <li>Promote local heritage, history and communities (Indigenous and non-Indigenous) through the on-site Visitors and Education Centre.</li> <li>Minimise the impact of visiting groups, tourists and schools on local residents by restricting open hours of the Visitors and Education Centre.</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p>

Objective	Mitigation Measures	Responsibility
<b>Greenhouse gas emissions</b>		
<p>Reducing overall GHG production during the construction and operation periods</p>	<p>A <b>Greenhouse Gas Strategy</b> shall be prepared to</p> <ul style="list-style-type: none"> <li>• Review site greenhouse generating activities</li> <li>• Minimise potential greenhouse gas generation from construction and operational activities</li> <li>• Investigate management procedures for site energy efficiency</li> <li>• Outline management procedures for on-site recycling and material reuse</li> </ul> <p>The GHGS shall include the following considerations:</p> <ul style="list-style-type: none"> <li>• Work scheduling and methods that minimise equipment idle time and double handling of material</li> <li>• Switching off the engines of trucks while they are waiting to access the site and while they are being loaded or unloaded. Throttle down or switch off idle construction equipment</li> <li>• Ensure equipment is of a proper standard and not defective and maintained to ensure efficient energy consumption. Regularly maintain equipment to ensure it remains in good condition</li> <li>• Switch off site office equipment and lights after hours and using minimal lighting intensity for security purposes</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p> <p>Comply with mitigation measures in GHGS</p>
<b>Flora &amp; Fauna</b>		
	<p>Subject to receipt of approval for the project The proponent will engage a suitably qualified consultant to prepare a <b>Flora and Fauna Management Plan (FFMP)</b>. The FFMP shall include measures to protect and enhance flora and fauna during construction and operational phases of the project. The FFMP shall also include a separate:</p> <ul style="list-style-type: none"> <li>• Bird and Bat Monitoring Plan</li> <li>• Vegetation Management Plan</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p>
<b>A. Bird and Bat Monitoring Plan</b>		
	<p>Commence an <b>Adaptive Bird and Bat Monitoring program</b> in two parts:</p> <ul style="list-style-type: none"> <li>• pre-operational</li> <li>• operational</li> </ul> <p>Bird and Bat Monitoring procedures are to be included in the EMP in relation to threatened fauna species (<i>Glossy Black-Cockatoo, Grey-crowned Babbler, Spectacled</i></p>	<p>The proponent commits to the implementation of these measures as detailed in the OEMP</p>

Objective	Mitigation Measures	Responsibility
	<p><i>Warbler, Grey-headed Flying-fox, Yellow-bellied Sheath tail-bat, Eastern Bentwing-bat and Eastern Cave Bat.</i></p> <p>The Bird and Bat Monitoring will also target 'species of concern' and particularly will be completed to include information as per Level 3 investigations for impacts on Wedge-tailed Eagle and Nankeen Kestrel. This will include population assessments and viability analysis in analysing risks and management for identified 'Species of Concern' under Auswind guidelines.</p> <p>Other measures shall include:</p> <ul style="list-style-type: none"> <li>• Reduction of bird activity near turbines through the following measures:</li> <li>• Removing road kill resulting from construction work which would otherwise attack birds of prey</li> <li>• Stopping visitors to the site feeding birds.</li> <li>• Any grain feeding of stock to be well away from turbines</li> <li>• Control vermin (e.g. rabbits) on site to reduce attractiveness to birds of prey,</li> <li>• During lambing remove any dead lambs from the vicinity of the wind turbine structures as a precaution</li> <li>• Where possible add bird averters to overhead wires in the vicinity of the site</li> <li>• Minimise external lighting of buildings or structures required for aviation safety (in accordance with CASA). Exterior lighting to the Managers residence and Visitors and Education Centre to be motion-activated.</li> <li>• Monitor research and mitigation at other wind farms to introduce effective measures to mitigate</li> <li>• impacts on avifauna</li> <li>• Limit the operation of turbines which are causing unacceptable impacts. Implement a control measure to be able to turn off offending turbine during peak bird strike times, based on adaptive monitoring.</li> </ul>	<p>Address via monitoring during operational phase, in terms of EMP Monitoring as per the Bird and Bat Monitoring Program recommendation and amelioration measures.</p>
<b>B. Vegetation Management Plan</b>		
<p>Protect and retain existing vegetation</p>	<p>Components of the <b>Vegetation Management Plan</b> shall include:</p> <ul style="list-style-type: none"> <li>• Monitoring procedures are to be included in the EMP in relation to threatened flora population (<i>Cymbidium canaliculatum</i>), and endangered ecological community EEC (<i>White Box - Yellow Box - Blakely's Red Gum Woodland</i>).</li> <li>• Areas of the EEC shall be protected and retained during construction and operation phases of the</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p> <p>EMP to include monitoring</p>

Objective	Mitigation Measures	Responsibility
	<p>project. Existing vegetation extents of the EEC will be protected from localises site works during construction operations. New fencing must allow for movement of mammals such as wombats and echidnas across the ridge and between vegetation stands on the lower foothills and gullies either side of the ridge. Fencing should not prohibit current access to water sources.</p> <ul style="list-style-type: none"> <li>• Any screening works or landscaping in close proximity to the turbines are not to include specific habitat of birds identified in the Bird Impact Assessment</li> <li>• Existing access tracks are to be utilised at all times as part of the site design in accordance with minimising vegetation removal impacts. Only areas designated in the Environmental Assessment are to be used for works areas.</li> <li>• Existing access tracks are to be upgraded and shall be used to minimise vegetation removal.</li> <li>• A weed control program will be implemented at both sites, particularly within and adjacent to areas disturbed as part of the proposal.</li> <li>• Avoid prolonged exposure or earth through adequate timing and scheduling of construction activities.</li> <li>• Revegetate exposed areas as a priority and use appropriately sized local native species.</li> <li>• Minimise footprint of turbine sites, access roads and buildings, avoid sensitive areas, minimise soil disturbance and erosion.</li> <li>• Restoration and rehabilitation of all works areas including stabilisation replanting and regrassing:               <ul style="list-style-type: none"> <li>- Crane hardstand areas</li> <li>- Site works areas and construction facilities</li> <li>- Vegetation screening identified in visual assessment</li> <li>- Revegetation will use plants and grasses grown from seed collected locally in plantings</li> <li>- A vegetation offset strategy will be developed to compensate for the selective removal of the EEC (<i>White Box - Yellow Box - Blakely's Red Gum Woodland vegetation community</i>). This will include vegetation management planning strategies within offset areas and adjacent to site facilities and focus on retaining and restoring areas of the EEC for regrowth. This may include excluding stock to allow for regrowth, restocking and other measures that are deemed suitable. These areas shall be identified by a suitably qualified consultant to determine areas of the EEC to retain.</li> </ul> </li> </ul>	<p>procedures in relation to threatened flora population; threatened fauna species and; endangered ecological community.</p>

Objective	Mitigation Measures	Responsibility
<b>Indigenous Heritage Issues</b>		
Protection of existing Indigenous Heritage cultural significance of sites	<p>Final design stages of the project will need to consider the following:</p> <ul style="list-style-type: none"> <li>• If Aboriginal Objects are discovered during ground disturbance works, then all work shall cease and appropriate mitigation strategies for the area shall be developed in consultation with the Aboriginal Stakeholders.</li> <li>• The proponent shall enter into a binding agreement with the registered Aboriginal communities prior to construction regarding Aboriginal Cultural heritage and enhancement of Aboriginal Cultural value in the area.</li> </ul>	The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP
<b>European Heritage Issues</b>		
Protection of existing European Heritage cultural significance along transmission line routes.	<p>Final design stages of the project will need to consider the following:</p> <ul style="list-style-type: none"> <li>• There are no items of heritage significance located on the Middlebrook and Mountain Station properties. All impacts to existing buildings, shearing shed and impacts to the stockyards on site will be avoided during construction and operation.</li> <li>• The preferred route for connection of the Kyoto Energy Park to the grid has not been decided. If the line routes identified in the report change then further assessment will be required to ensure there is no impact on “known items” of heritage.</li> <li>• If Option 2 (transmission line route) is selected then protection and avoidance of the petrified stump along the road edge of Moobi road will be required. Final design of the pole locations are to ensure the maximum distance possible from the stump.</li> </ul>	The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP
<b>Noise Issues</b>		
Comply with noise criteria, and minimise noise during construction and operation phases.	<p>Development of a <b>Operational Noise Management Plan</b> to include:</p> <ul style="list-style-type: none"> <li>• A four (4) metre high grassed earth bund wall shall be constructed around the north east corner of site substation to ensure noise compliance.</li> <li>• Sector Management of Wind turbines 27,28,29,30 and 31 in adverse wind conditions to maintain noise levels at “Peakhill” property to within noise levels. Sector management would involve programming the turbines to “ramp down” under offending wind conditions.</li> <li>• Mini hydro plant to be limited to a SWL noise emission at source to below 120dB(A).</li> <li>• Noise monitoring at sensitive locations to be</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p> <p>Address in terms of Construction Noise Management Plan</p> <p>Actions controlled by environmental</p>

Objective	Mitigation Measures	Responsibility
	<p>determined in the vicinity of the sites.</p> <ul style="list-style-type: none"> <li>• Wind Turbine Generators selected to have a maximum Sound Power Level (SPL) &lt; or equal to 104.3 dB(A).</li> <li>• Monitoring of noise at the Managers Residence to in accordance with the Site OH&amp;S Plan.</li> </ul> <p>Development of a <b>Construction Noise Management Plan</b> to include:</p> <ul style="list-style-type: none"> <li>• Construction noise expected to comply with DECC criteria.</li> <li>• onsite construction activities</li> <li>• construction of overhead lines/poles external to the site within 200m residencies</li> <li>• Community information during construction. Including scheduled activities involving potential noise exceedances.</li> <li>• Ensure equipment noise emissions are in accordance with those criteria modelled in the noise assessment by Wilkinson Murray.</li> <li>• Educate staff and contractors about noise and quiet work practices.</li> </ul>	<p>officer/acoustic consultant during construction activities</p>
<b>Visual Issues</b>	<p>Visual treatments implemented on site will include:</p> <p><b>Wind Turbines</b></p> <ul style="list-style-type: none"> <li>• Consider options for use of colour to reduce visual contrast between turbine structures and background, e.g. use of off white or soft light greys or soft green greys are preferred colours for wind turbines.</li> <li>• Use of matt finish on blades and towers minimising impacts from reflected sunlight.</li> </ul> <p><b>Mt Moobi Solar PV Farm</b></p> <ul style="list-style-type: none"> <li>• Screen planting shall be undertaken on the eastern escarpment of Mt Moobi to provide a visual buffer to the Mt Moobi Solar PV Farm. Such planting should consist of a minimum of 5 rows of indigenous trees and tall shrubs with species dependent on overall height of final structure. If the concentrated solar dish type structure is used a setback of 50m from the escarpment shall be implemented.</li> <li>• Locate solar panels away from the escarpment to minimise views to them from valley areas to the east.</li> </ul> <p><b>Mini-hydro plant (Closed-loop)</b></p> <ul style="list-style-type: none"> <li>• The mini hydro plant is well integrated and screened</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>

Objective	Mitigation Measures	Responsibility
	<p>from external view. However header tanks and associated facilities should be coloured olive green to minimise colour contrast.</p> <ul style="list-style-type: none"> <li>Minimise clearing of overtopping trees when constructing the water pipe lines down the hill.</li> <li>Screen planting to header tanks and upper sections of water race pipelines shall be undertaken.</li> </ul> <p><b>Access Tracks</b></p> <ul style="list-style-type: none"> <li>Minimise tree clearing on new sections of road to utilise tree canopy for screening purposes</li> <li>Minimise cut and fill for site tracks, install effective drainage and revegetate disturbed soils as soon as possible after construction to avoid erosion.</li> <li>Roads and construction tracks have been located where possible to correspond with existing trails.</li> <li>New trails and roadways should avoid tree clearing to maintain tree canopy for screening purposes.</li> <li>Minimise straight alignments and follow contour of land.</li> <li>Re-use surplus excavated fill material on site to minimise colour contrast.</li> <li>Maintain revegetation on disturbed areas to reduce visual impact.</li> </ul> <p><b>Buildings (Manager’s residence, Visitor’s and Education Centre, Maintenance shed)</b></p> <ul style="list-style-type: none"> <li>Design of site building facilities shall fit in with rural nature of locality. Final design of facilities should include materials selection, general form and profile.</li> <li>Managers residence and Visitors and Education Centre to have a maximum height of 8m above ground level</li> <li>Building roof to create overhang to create shadow effect on external walls</li> <li>Design and colouring of building elements to achieve minimum contrast with existing colours of receiving landscape</li> <li>Painting with environmentally compatible colours with variety to assist in visually modulating building</li> <li>Supplementary planting to provide integration elements both in front of and behind built form elements</li> </ul> <p>Visual treatments implemented external to the site will include:</p> <p><b>External Transmission Lines for Connection to the Grid</b></p>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>

Objective	Mitigation Measures	Responsibility
	<p>Treatments to increase visual integration and decrease visibility to sensitive viewing locations include:</p> <ul style="list-style-type: none"> <li>• Replacement of old timber poles with new timber or new concrete poles as determined in final line and pole configuration design.</li> <li>• Existing distribution circuits are to be placed on the new transmission line poles</li> <li>• At viewer locations integration planting should be undertaken as needed in areas such as highly affected rural homesteads,</li> <li>• Supplementary planting to occur along alignments within town settings and approaches to achieve visual integration of the transmission line structures.</li> </ul> <p><b>Visual treatments at residencies</b></p> <ul style="list-style-type: none"> <li>• Integration and or screen planting at homesteads that have a primary view impacted and that experience high visual impact will be provided. Within 6 months of commencement of operations a preliminary assessment of homesteads will be undertaken by a specialist visual consultant to determine if visual treatments such as screen planting and integration is warranted. Areas for consideration are: <ul style="list-style-type: none"> <li>• residencies in the Thompson’s Creek Rd, Lower Sparkes Creek Rd, Dart Brook Rd and Middlebrook Rd and;</li> <li>• and to a lesser extent areas affected in vicinity of Moobi Rds and areas east of Mountain Station.</li> </ul> <p>These areas are within highly impacted areas as defined by <i>Figure 8.1 Visual Impact Map Appendix B(i) Integral Visual Assessment Study Volume 2.</i></p> </li> <li>• Technical assistance through workshops may be required with planting assistance in highly impacted properties. Compensatory landscape treatments will be provided for households that are for worst affected generally in Thompson’s Creek Rd, Lower Sparkes Creek Rd, Dart Brook Rd and Middlebrook Rd, and Moobi (and adjacent) Rds, within highly impacted areas as defined by <i>Figure 8.1 Visual Impact Map Appendix B(i) Integral Visual Assessment Study Volume 2.</i></li> </ul>	
<b>Aviation Issues</b>		
<p>Manage aviation risks in accordance with requirements from CASA and Air Services Australia.</p>	<p>The following issues shall be resolved prior to construction:</p> <ul style="list-style-type: none"> <li>• Approval for final layout of wind turbine Nos 36,37,38,39,40,41,42 proposed on Middlebrook Station would be subject to approval from the Civil Aviation Safety Authority.</li> <li>• Subject to approval notification of final turbine design and layout , and construction program are to be</li> </ul>	<p>The proponent to comply with CASA directions regulations and recommendations.</p>

Objective	Mitigation Measures	Responsibility
	<p>supplied to CASA to update aeronautical charts</p> <ul style="list-style-type: none"> <li>Prepare an Obstacle Lighting Plan in accordance with CASA Advisory Circular AC 139-18(0) titled "Obstacle Marking and Lighting of Wind Farms". The Obstacle Lighting Plan must be approved by CASA prior to commencement of construction.</li> </ul>	
<b>Electromagnetic Interference (EMI)</b>		
	<ul style="list-style-type: none"> <li>The proponent will conduct a final assessment of 'potentially affected residencies' during operational period within 1 year of full operation of wind turbine generators of the Kyoto Energy Park.</li> <li>Radio communication licenses identified in the ACMA database will not be impacted however will be contacted as part of the wider community consultation process during operation of the Kyoto Energy Park.</li> <li>Low frequency radio links associated with emergency service organisations will not be impacted upon however will be contacted as part of the wider consultation process.</li> <li>These Emergency service licenses for the following:               <ul style="list-style-type: none"> <li>Fire service</li> <li>Ambulance service</li> <li>Police service</li> <li>SES – State emergency services</li> </ul> </li> <li>A preliminary assessment of residencies within the areas represented in Figure 6 of the Garrad Hassan EMI report will be undertaken prior to wind farm operation. As television interference from wind turbines is readily identifiable, appropriate mitigation measures (discussed below) can be readily taken if required. Should household TV interference be observed in potentially affected areas (Figure 6) after 1 year of commissioning of wind turbines, options for reinstatement of TV signals will be assessed by a suitably qualified person. Rectification may include:               <ul style="list-style-type: none"> <li>Pointing the householders TV antenna directly towards their existing transmitter;</li> <li>The installation of more directional and/or higher gain antenna at the affected residences;</li> <li>Relocating the antenna to a less affected position;</li> <li>The installation of a digital set top box (and UHF antenna if required);</li> <li>The installation of cable/satellite TV at the affected</li> </ul> </li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>

Objective	Mitigation Measures	Responsibility
	<p>residences;</p> <ul style="list-style-type: none"> <li>Installation of a TV relay station.</li> </ul>	
<b>Geology and Soils</b>		
	<p>An <b>Erosion and Sedimentation Control Plan</b> will be prepared prior for construction and operation stages of the Kyoto Energy Park. Erosion and sedimentation control measures will include the following specific requirements for the Mountain and Middlebrook Station sites:</p> <ul style="list-style-type: none"> <li>Access tracks are to have sufficient cross-fall gradient to allow runoff into the swale drains designated as stormwater controls.</li> <li>Site substation design to allow for rainfall collection from control facility to provide internal supplies. Overflow from the water supply tank to be directed to avoid scouring. A concrete bund will be designed around the substation as a risk control measure to prevent leaks and spill entering drainage lines.</li> <li>Preparation and implementation of a <b>Water Management Strategy</b> to ensure water is conserved and recycled wherever possible during both construction and operation and that water quantity impacts are contained within the site.</li> <li>Install temporary diversion drains to divert potentially hazardous surface waters from the development site of sedimentation basins. Diversion drains shall be placed on the immediate downside of any construction works, on one or both sides of the ridge as necessary, following natural slopes.</li> <li>Energy dissipaters should be placed at appropriate intervals along the length of these drains to minimise erosion.</li> <li>Construct temporary sedimentation basins in low-lying areas along the length of the construction sites at the location of each turbine and at all other construction sites. The basins serve as points of discharge into natural drainage paths during operation, and should be cleaned out and modified as appropriate following the completion of construction.</li> <li>The basins would collect excess surface runoff from all developed areas including the proposed roadway along the ridgeline. Sedimentation basins should be constructed to a size relative to the catchment area.</li> <li>Construct sediment fences below the construction site and access roads and temporary drainage system on one or both sides of the ridge as necessary, for the length of the site.</li> <li>Limit vegetation removal and remove vegetation</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>

Objective	Mitigation Measures	Responsibility
	<p>progressively to limit the area and duration that soils are exposed.</p> <ul style="list-style-type: none"> <li>• Progressively rehabilitate or stabilise disturbed areas to prevent erosion.</li> <li>• Minimise use of surplus stockpiles. Upgrading of access tracks are to be scheduled to reduce transportation of fill around site and minimise stockpiling of material. Excavation works are to be staged with fill works outside of the fenced construction compound.</li> <li>• Install silt fencing around stockpiles outside of the fenced site compound to contain sediment.</li> <li>• Cover or vegetate stockpiles where material is required for long periods.</li> <li>• Place stockpiles clear of drainage lines, natural watercourses, road surfaces and established trees.</li> <li>• Remove stockpiles as soon as possible. Regularly inspect all erosion and sedimentation control devices during construction period to ensure their continued effectiveness.</li> <li>• A bunded designated refuelling area shall be located adjacent to the site office compound located at no greater than 100 m from the nearest drainage line.</li> <li>• Provide spill kits on site during construction. Wherever possible construction water for dust suppression and firefighting will be obtained from on site farm dams on Middlebrook and Mountain Stations. If no water is available from dams or stormwater structures water will be obtained from an external water body or from an external water supplier.</li> <li>• Ensure portable toilet facilities are located more than 100 m from drainage lines.</li> <li>• Use licensed supply and disposal contractor to manage and dispose of all wastewater from portable toilet facilities.</li> <li>• Provide facilities to temporarily store and infiltrate collected surface runoff from all impervious and developed areas through the use of vegetated swale drains. The placement of these swale drains shall be below the Kyoto Energy Park site on either side of the ridgeline, as necessary. The system will take advantage of natural landforms and levels developed in the construction of the wind turbines and access road.</li> <li>• Revegetate swales with native species with a preference to species that are known to have good pollutant uptake facilities and some low pH tolerance.</li> <li>• Direct excess flow from grassy swales into low-lying</li> </ul>	

Objective	Mitigation Measures	Responsibility
	<p>areas and through energy dissipation devices before being directed into natural drainage courses.</p> <ul style="list-style-type: none"> <li>Remove the existing topsoil layer from infiltration areas (if required) and replace with a sandy organic topsoil mix (0.5m maximum thickness) to increase infiltration and promote vegetation growth.</li> </ul>	
<b>Traffic and Transportation Issues</b>		
	<p>Appointment of experienced haulage contractor, responsible for all aspects of equipment transportation to site.</p> <p>Preparation of a <b>Traffic and Transportation Management Plan</b> including:</p> <ul style="list-style-type: none"> <li>Design and construction of site tracks to ensure safe and stable activities</li> <li>Community consultation program to be undertaken throughout transport activities, to ensure residents are informed on program, timing and management</li> <li>Implementation of controls in TMP to manage traffic on and off-site to minimise impacts on local traffic flows, and impacts on site, eg through designated routes, speed limits, scheduling, maintenance etc.</li> <li>Handling as per manufacturer’s instructions and port requirements.</li> <li>Special permits are required for all oversize and overmass components prior to transportation.</li> <li>Handling and road movement in conformity with RTA licences/permits and NSW Police for oversize and overmass items, which may include surveys, inspections and dilapidation surveys.</li> <li>Construction and safety management procedures during construction</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>
<b>Bushfire Risk Management Issues</b>		
<p>Design measures to reduce bushfire risk.</p> <p>On-going management to prevent build up of combustible fuel.</p> <p>Safe and effective Emergency</p>	<p>A <b>Bush Fire Management Plan</b> including a <b>Bushfire Incident and Evacuation Plan</b> shall be prepared prior to construction and operational stages as applicable</p> <p>Measures adopted shall include:</p> <ul style="list-style-type: none"> <li>Asset protection zones (APZs) are to be provided and maintained for the Managers Residence and the Visitors and Education Centre. APZs shall take the form of Inner Protection Areas, measured from the exposed wall of the any dwellings. The APZs shall be as nominated in Tables 1 &amp; 2 of the Bushfire Protection Assessment (Conacher Environmental Group August</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the CEMP and OEMP</p> <p>Actions recorded and monitored in terms of CEMP at</p>

Objective	Mitigation Measures	Responsibility
procedures	<p>2007).</p> <ul style="list-style-type: none"> <li>• Fuel management within the asset protection zones will be maintained by regular maintenance of the landscaped areas / mowing of lawns in accordance with the guidelines provided in Appendix 1, and or as generally advised by Rural Fire Service in their publications.</li> <li>• Construction standards as per Australian Standard AS3959 'Construction of Buildings in Bushfire Prone Areas', in accordance with Part 2.3.4 of the 'Building Code of Australia', will apply to all proximate dwellings to the APZs.</li> <li>• Roof gutters and valleys to all dwellings proximate to the asset protection zones should be leaf proofed by the installation of an external gutter protection shroud or a gutter system that denies all leaves from entering the gutter and building up on that gutter. Any material used in such a system should have a flammability index of no greater than 5 (as measured against AS 1530.2).</li> <li>• A minimum 10,000 litre water tank will be required for the:               <ul style="list-style-type: none"> <li>a) Managers residence and;</li> <li>b) Visitors and Education Centre</li> </ul> <p>used solely for the purposes of bush fire fighting. The tank is to be constructed of concrete or metal and if on a stand they is to be protected. A suitable connection for fire fighting purposes is required. A 65mm Storz outlet with a Gate or Ball valve must be provided. All pipes are to be metal and pumps are to be protected.</p> </li> <li>• On-going vegetation and fuel management in consultation with the NSW Rural Fire Service</li> <li>• Compliance with relevant standards for equipment design and construction</li> <li>• Compliance with relevant standards for electrical safety and electromagnetic emissions for equipment design, installation and maintenance</li> <li>• The BEP will provide a procedure in the event of fires threatening the development complex, thus allowing the managers of the site to provide an orderly and well-trained approach to the use of fire protection equipment and the evacuation of the residents / visitors.</li> <li>• The management of all 'hot work' activities</li> </ul>	commissioning.
<b>Transmission Line Connection to Electricity Grid</b>		

Objective	Mitigation Measures	Responsibility
<p>Compliance with environmental criteria and effective management of these criteria during construction of line works external to the sites.</p>	<p>Once the preferred line route has been determined final design of the line and configuration shall be undertaken with the following considerations:</p> <ul style="list-style-type: none"> <li>• A detailed network system design for electrical connection considerations in accordance with Energy Australia requirements</li> <li>• easements for line routes over private land to bypass built up areas and improve safety;</li> <li>• line design configuration generally in accordance with specifications and diagrams in the Vemtec report Overhead Power Line Route Review dated April 2008 and this Environmental Assessment .</li> <li>• line design considerations in accordance with Energy Australia design parameters and this Environmental Assessment</li> </ul> <p>A <b>Line Construction Management Plan</b> shall be prepared prior to commencement of transmission line construction works. The LCMP will be implemented for line construction works to minimise the impacts from line construction operations on the local community, surrounding properties and effected landowners. The LCMP will take into consideration the following issues:</p> <ul style="list-style-type: none"> <li>• any seasonal or other land access restrictions likely to influence construction activities;</li> <li>• logistics and materials storage considerations;</li> <li>• line construction over private land easements;</li> <li>• minimising both the number and duration of disruptions to the power supplies of customers affected by the construction works;</li> <li>• During the line construction affected land owners and the broader community will be informed of key project planning and construction activities, by periodic correspondence and/or local media announcements.</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design of the line route in accordance with Energy Australia design specifications.</p> <p>Actions recorded and monitored in terms of CEMP at commissioning.</p>
<b>Safety and Risk</b>		
	<ul style="list-style-type: none"> <li>• Development and implementation of a <b>Site Health &amp; Safety Plan</b>, for construction and operation activities</li> <li>• Handling of all components including oversize and overmass components as per manufacturer's instructions and port requirements.</li> <li>• Handling and road movement in conformity with RTA licences/permits for oversize and overmass items.</li> <li>• Construction and safety management procedures during construction</li> </ul>	<p>The proponent commits to the implementation of these measures as detailed in the final design stage CEMP and OEMP</p>



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