





The Proponent has identified that approximately 646.7 hectares of the White Box Yellow Box Blakely's Red Gum Woodland EEC will be retained within the site and stated that the impact of the proposal on this community is not expected to impact on the status, viability or habitat of the community within the local area or region. The Proponent has identified that a vegetation offset strategy will be prepared to compensate the 2.3 hectares of EEC proposed to be removed on site. The EEC would be offset at a 2:1 ratio (i.e. at least two hectares of EEC would be provided for every hectare removed) with the vegetation conserved in perpetuity. The Proponent has identified that the large area of existing vegetation at Middlebrook and Mountain Station sites offered adequate offsetting opportunities.

With respect to fauna impacts, the Proponent's assessment identified that seven threatened species listed under the *Threatened Species Conservation Act 1995* (one of which, the Grey-headed Flying-fox, is also listed under the *Environment Protection and Biodiversity Conservation Act 1999*) were recorded on site:

- Glossy Black-cockatoo;
- Speckled Warbler;
- Grey-crowned Babbler;
- Grey-headed Flying-fox;
- Yellow-bellied Sheath-tail-bat;
- Common Bentwing-bat; and
- Eastern Cave Bat.

No listed ground dwelling species were identified as being present on the subject site. Given the proposal would generally be undertaken on cleared land, the Environmental Assessment concluded that it would not have a significant impact on threatened species in the locality.

Specific assessment, however, was given to flight capable species to determine the potential impact of the operation of the wind farm on bird and bat species. The Proponent's assessment identified that bat species may be attracted to wind turbines as a result of noise (audible and inaudible), rotor movement and from night lighting. The assessment identified that bats species may be impacted by turbines through rapid air pressure changes during turbine rotation which may cause internal injuries or death. However, the main risk posed was identified as rotor collision. Based on flight behaviour, available habitat and foraging patterns, the assessment concluded that the White-striped Freetail-bat and the Yellow-bellied Sheath-tail-bat were likely to be at most risk from rotor collision on site.

The main risk to bird species from the operation of the wind turbines was considered to be collision with the rotor blades. The Proponent's bird impact assessment focused on species listed under the *Threatened Species Conservation Act 1995* and *Environment Protection and Biodiversity Conservation Act 1999* (including migratory species) and species that exhibited flight behaviours that are likely to place them at risk from rotor operation. The assessment identified six 'species of concern' which were known to fly regularly within the elevation of a turbine rotor sweep area (i.e. 60 metres to 150 metres) and have been observed on site and in the local area during site surveys: Wedge-tailed Eagle, Nankeen Kestrel, Australian Hobby, Galah and White-throated Needletail. Of these only the White-throated Needletail comprises a listed species (migratory species under the *Environment Protection and Biodiversity Conservation Act 1999*). Based on the incidence of the species being recorded on site and in the local area, the Proponent identified that of these species, the Wedge-tailed Eagle (of which a resident breeding pair have been identified on site) and the Nankeen Kestrel are likely to be of most risk of rotor collision and would require further management during the pre-operational and operational phases of the project.

To reduce the potential impacts of the proposal on birds and bats, the Proponent has committed to undertaking a range of adaptive management measures as part of a Bird and Bat Adaptive Management Plan. Measures proposed at the pre-operational phase includes population viability and residual risk assessments of identified species of concern to inform detailed design of the turbines and consultation with aviation authorities regarding night lighting requirements to minimise risks to fauna as far as practicable. At the operational phase several measures are proposed to minimise bird/ bat activity near the turbines including undertaking any grain feeding as part of farming operations well away from the turbines, preventing any visitors to the site from feeding birds, and control of vermin such as rabbits and any road kill within internal access roads to reduce attractiveness to birds of prey. The operational adaptive management process will also include monitoring of the number of rotor related

deaths to determine whether turbine operations need to be adjusted during specific time periods or seasons to minimise and/ or avoid impacts.

#### *Transmission Line Corridors*

The project would also require the installation of transmission lines to connect the proposed electricity generating facility to the existing electricity network. The Proponent has identified two preferred transmission line route options: 132 kilovolt option to Muswellbrook substation (light blue option) or 66 kilovolt option to Scone substation (dashed dark blue option) (refer Figure 2). The large majority of these routes occur along road reserves and existing power line easements which would result in minimal clearing of vegetation. The Environmental Assessment also identified that small areas of the White Box Yellow Box Blakely's Red Gum Woodland EEC may also require removal for the construction of the proposed transmission line, however, that this was considered to be negligible as the proposed routes would follow the road reserve from Mountain Station to Scone with only a small number of isolated trees potentially requiring removal from the northern end of Mountain Station and the southern end of Middlebrook Station to the road reserve.

The Environmental Assessment indicated the overhead transmission lines options have the potential to impact on the Grey-headed Flying-fox as this species is known to fly into electrical wires and suffer electrocution. The Environmental Assessment, however, stated that there were no camps of this species known within the vicinity of the subject site with observations during surveys consisting of two individuals flying over the Middlebrook Station site. The Environmental Assessment outlined measures that could be implemented to decrease the incidence of birds and bats striking electricity wires such as making the wires more visible using colour or other measures to increase visibility such as devices which could be hung from wires, swivel in the wind or glow in the dark to act as a deterrent.

#### **Submissions**

Seven per cent of all submissions received provided a range of comments and concerns associated with flora and fauna issues associated with the proposal. Most of the issues raised in relation to flora and fauna were specifically directed at the wind farm component of the project. Issues raised included the level of vegetation clearing, impacts endangered ecological communities, impacts to wildlife corridors, potential impact to the adjacent Towarri National Park and potential fatalities of birds and aerial fauna from wind turbine strike, particularly to the Wedge-tailed Eagle. The Hunter-Central Rivers CMA also raised concerns regarding potential impacts to biodiversity corridors along the Glen Range. The DECCW raised concerns regarding potential impacts on the project on the adjacent National Park estate (Towarri National Park) and along with the CMA required that the vegetation impacts of the project be offset consistent with improve or maintain principles.

#### **Consideration**

The Department has reviewed the Proponent's Environmental Assessment and Response to Submissions and notes that the removal of eight turbines from the original proposal has substantially reduced the biodiversity impacts associated with the project. The extent of vegetation removal at the Middlebrook Station as a result of the modified proposal would be reduced by 93% when compared to the original proposal with the final vegetation loss at this site limited to 0.6 hectares. The impact of the project as a whole on vegetation disturbance has reduced from 21.05 hectares to 13.15 hectares (a reduction of 38%) with the major benefit from the Proponent's modification being the reduced impact on EEC disturbance from 5.9 hectares to 2.3 hectares (or a 61% reduction).

Whilst the project would still result in some vegetation disturbance, the Department is satisfied that this impact would not be significant given that the majority of clearing would be limited to already disturbed areas including existing internal access tracks and scattered vegetation within grazing land at the energy park site and existing maintained infrastructure corridors for the transmission line routes. The majority of impacts to EEC are also expected to be limited to already modified and isolated stands rather than to contiguous undisturbed tracts of vegetation. On this basis and with consideration to the large areas of high quality vegetation and habitat that is proposed to be retained on site, the Department is also satisfied that the project is unlikely to significantly impact on habitat resources on site for threatened and other fauna species. Construction methods including transmission line stringing across waterways (rather than direct disturbance of waterways) would further minimise potential impacts to habitat resources on site. To offset any residual impacts to the ECC, the Proponent has committed to

offsetting any EEC disturbance at a 2:1 ratio. The Department supports this commitment, however considers that all native vegetation impacts associated with the project should be appropriately offset and consequently recommended as part of its conditions of approval that this offset ratio apply to all native vegetation loss associated with the project. Given the existence of large areas of high quality habitat and vegetation on site the Department is satisfied that this ratio of offset can be easily achieved through the protection of vegetated areas on site on a like for like basis and secured through a mechanism such as a voluntary conservation agreement or through dedication to the National Park which adjoins the site. The Department is satisfied that with the incorporation of this requirement, the vegetation and habitat impacts of the project would be appropriately offset consistent with the principles of maintain or improve.

A number of submissions raised concerns regarding the potential impact of the project on wildlife corridors along the Glen Range. The Proponent has identified that the project is located outside of and would not impact on the Great Eastern Range Wildlife Corridor as identified by the Commonwealth Government which extends between Atherton and the Alps. Notwithstanding, the Proponent's assessment identified that Middlebrook Station forms part of an area of continuous vegetation which extends north to Towarri National Park. The Department is satisfied that the Proponent's modified project, which has removed eight turbines from Middlebrook Station (originally located close to these areas of contiguous vegetation), has significantly reduced potential risks to fauna in this area from direct habitat disturbance and collisions risks. On this basis, the Department is satisfied that the modified project is unlikely to result in any significant residual impacts to wildlife movement patterns and / or habitat around the Towarri National Park.

With respect to impacts to aerial fauna species (birds/ bats) from the operation of the wind turbines, the Department considers that the modified project is likely to have significantly reduced the potential for collision risks by removing turbines from areas of contiguous vegetation at Middlebrook Station, which is likely to provide habitat for a considerable number of potentially affected species and is likely to be the focus of fauna movement patterns associated with the adjacent Towarri National Park. The Department considers that the residual risk of collision impact is unlikely to be significant noting that the location of the project does not interfere with any known significant bird or bat migration corridors or form an obstacle to any significant habitat type (such as a water body) which would be a strong attractant to avifauna. The Department notes that whilst some level of mortality is likely to be unavoidable (both as a result of collisions risks from the turbine and through transmission line interactions), the Department is satisfied that with the implementation of the adaptive measures outlined by the Proponent including specific measures to reduce the attraction of birds and bat species to the site and to transmission lines, the impacts to aerial fauna can be managed to achieve acceptable outcomes. The Department has incorporated stringent conditions of approval to reinforce the Proponent's commitments in relation to adaptive bird and bat management.

## 6. CONCLUSIONS AND RECOMMENDATIONS

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The Kyoto Energy Park project comprises the construction and operation of multiple renewable generating facilities (wind, solar and mini hydro) and associated infrastructure at two sites west of the township of Scone in the Upper Hunter local government area (LGA). The project also includes two options for transmission line connection to the existing electricity grid (66 kilovolt option to a substation at Scone or 132 kilovolt option to a substation at Muswellbrook) in the Upper Hunter and Muswellbrook LGAs, of which only one option is proposed to be built depending on the final capacity of the project. The Department accepts the need for the project with respect to helping to address the State's electricity requirements as well as addressing local electricity demand and considers that the project would entail significant greenhouse gas benefits by resulting in no net greenhouse gas emissions during operation. In this regard, the Department considers the project to be entirely consistent with priorities E2 (*a reliable electricity supply with increased use of renewable energy*) and E3 (*cleaner air with progress on greenhouse gas reductions*) of the NSW State Plan.

The key environmental issues associated with the project largely related to the wind turbine generators, which comprise the major components of the project. In this regard, key issues identified were potential noise impacts (including low frequency and infra sound impacts), visual impacts (including shadow flicker and blade glint) and flora and fauna impacts (including impacts to bird and bat species from rotor collisions). Submissions on the project mainly reflected these issues, however also raised concerns regarding potential aviation hazard impacts, electro-magnetic interference, traffic and transport, landuse and amenity concerns.

The Department assessed the Proponent's Environmental Assessment, Response to Submissions and Statement of Commitments and submissions received by public agencies and the community on the project. Based on its assessment, the Department is satisfied that the Proponent has undertaken an appropriate and conservative level of assessment for all components. The Department's assessment indicates that significant residual noise impacts are likely at a single residence, which warrants special consideration and has recommended conditions of approval granting acquisition rights to this resident on the grounds of noise impact.

The Department's assessment also indicates that some residual amenity impacts may occur at surrounding residences from visual intrusion, even after the implementation of all reasonable and feasible mitigation measures such as screen planting. However, the Department does not consider the residual impact to be sufficient enough to outweigh the strategic benefits of the project such as to warrant project refusal. To offset residual amenity impacts, the Department has recommended conditions of approval requiring the Proponent to provide an annual contribution (approximately \$86,000) to fund local community enhancement initiatives. With respect to flora and fauna impacts, the Department is satisfied that impacts in relation to potential rotor collisions can be effectively managed through the implementation of an appropriate adaptive bird and bat management plan. In relation to direct impacts on native vegetation and habitat, the Department has recommended conditions of approval requiring the provision of an offset package at a ratio of at least 2:1, to ensure that vegetation impacts are appropriately offset consistent with "maintain and improve" principles. With respect to the transmission line options, the Department considers that either option can be developed in a manner that does not lead to unacceptable environmental or amenity impacts.

On the above basis, the Department has recommended full project approval (i.e. approval to construct) for all components of the project. Whilst only one transmission line connection to the existing grid network will be required for the project, the Department has recommended full project approval for both preferred options (on the condition that only one would be developed) to provide maximum flexibility for the Proponent in determining a final option based on project capacity, network constraints and easement negotiations.

The Department has formulated stringent recommended conditions of approval in relation to noise, visual, flora and fauna, aviation hazard, traffic and transport, and community contributions to protect public amenity, ensure that the project achieves acceptable environmental standards and offset residual impacts.

On balance, the Department considers the project to be justified and in the public's interest and should be approved subject to the Department's recommended conditions of approval and the Proponent's Statement of Commitments.



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