



13 December 2019

White Rock Wind Farm (10_0160 MOD 6)

1. INTRODUCTION

1. On 23 August 2019, the NSW Independent Planning Commission (**Commission**) received from the Department of Planning, Industry and Environment (**Department**) a modification application (**Application**) from Goldwind Australia on behalf of White Rock Wind Farm Pty Ltd (**Proponent**). The Application seeks to modify the existing project approval (**Project Approval**) for the White Rock Wind Farm (**WRWF**) (the **Project**) under section 75W of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**).
2. As the Application was submitted before 1 March 2018, and the Secretary of the Department has not notified the Proponent that the modifications will not be dealt with under section 75W, the provisions of clause 3 of Schedule 2 to the *Environmental Planning & Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (**ST&OP Regulation**) apply. Further discussion on the powers to modify under section 75W is provided in **section 1.4** of this Statement of Reasons.
3. The Commission is a delegate of the Minister for Planning (the **Minister**) in respect of transitional Part 3A projects in accordance with the Minister's delegation dated 14 September 2011. Under the Minister's delegation, the Commission is required to determine the Application because the Department received more than 25 submissions from the public objecting to the Application.
4. Professor Mary O'Kane AC, Chair of the Commission, nominated Peter Cochrane (Chair), Wendy Lewin, and Adrian Pilton to constitute the Commission determining the Application.

1.1 Site and locality

5. The Department's report titled *White Rock Wind Farm Modification Assessment Report (10_0160 MOD 6)* (**Department's Assessment Report**), dated August 2019, states that the Project is located approximately 20 kilometres (**km**) west of Glen Innes in the New England region of NSW (Figure 1). The Project site is located within the Glen Innes Severn and Inverell local government areas.
6. The Department's Assessment Report states that the Project is located within the Great Dividing Range of NSW and has elevations up to 1,500 metres (**m**) above sea level. The land on which the Project is located (**Site**) includes cleared agricultural land and woodlands and the total approved project area is approximately 13,176 hectares.
7. The Proponent's Environmental Assessment (**EA**) states that the "*modified Stage 2 infrastructure would extend through a rural landscape of pastoral grazing land with interspersed areas of cultivated arable crops and patches of remnant woodland vegetation. The landform is undulating to gently sloping with steeper hillside sections falling away from the wind farm site.*"
8. The Department's Assessment Report states that there are "*49 rural residences located within 4 km of the proposed Stage 2 turbines*", the majority of which (78%) are host or 'associated' landowners who have commercial agreements with the Proponent. The

Department's Assessment Report also states that "eleven non-associated residences are located within 4 km of a proposed stage 2 turbine."



Figure 1: Project location and surrounding regional context

(Source: Department's Assessment Report)

1.2 Background to the Modification Application

9. The Department's Assessment Report states that the Project Approval was originally approved by the Deputy Director General of the Department of Planning and Infrastructure on 10 July 2012. The Project Approval originally approved 119 wind turbines up to 150 m in height and ancillary infrastructure.
10. The Project Approval is separated into two stages:
 - Stage 1 included 70 turbines with a maximum tip height of 150 m and associated ancillary infrastructure. Construction of Stage 1 commenced in 2017 and is now operational. Stage 1 turbines have the capacity to generate 175 megawatts (**MW**) of electricity.
 - Stage 2 is approved for 49 turbines with a capacity to generate 122.5 MW of electricity. A modification to that part of the Project Approval relating to Stage 2 is the subject of this Application.
11. The Project Approval has since been modified four times as set out in Table 1.

Table 1 - Modification history of the Project Approval

Modification	Description	Determination
Modification 1	Withdrawn	N/A
Modification 2	Administrative changes to conditions C1 and F6 to F18. This modified clearing and operational noise criteria	Approved 24 July 2015
Modification 3	Confirmed the permissibility of minor variations to the Stage 1 layout	Approved 1 April 2016
Modification 4	Permitted the construction of a new 132 kilovolt (kV) electricity transmission line and grid connection infrastructure. This enabled the Project to connect to the Armidale – Dumaresq transmission line	Approved 31 May 2017
Modification 5	Approved the subdivision of two lots to form separate lots for the 132kV and 330kV substations	Approved 11 October 2017

(Source: Department's Assessment Report)

1.3 Summary of Modification Application

12. The Application before the Commission for determination proposes modifications to the approved Stage 2 of the Project Approval to reconfigure the layout of the Stage 2 Project footprint and increase the wind turbine envelope to accommodate newer turbine models. The Application seeks approval to modify aspects of the Project Approval including:
- dimensions of the wind turbines (raising the maximum tip height from 150 m to 200 m and rotor diameter from 121 m to either 140 m or 170 m);
 - layout of turbines and ancillary infrastructure;
 - number of turbines (to be reduced from 49 to 48);
 - increasing the capacity of the existing substation to accommodate Stage 2 and potentially cater for additional energy projects in the locality;
 - project area (an increase from 13,176 ha to 15,053 ha) and
 - vegetation clearing (increasing by 169 ha).
13. The Department's Assessment Report compares the approved and proposed Stage 2 turbine specifications, shown in Table 2.

Table 2 – Comparison of approved and proposed Stage 2 turbine specifications

Component	Approved Stage 2 Turbines	Modified Stage 2 Turbines	Change
Number of turbines	49	48	1 less turbine
Maximum blade tip height	150 m	200 m	33%
Minimum blade tip height	29 m	30 m	3%
Hub height	89.5 m	115 m to 130 m	28.5% to 45%
Rotor Diameter	121 m	Up to 170 m	40%
Blade length	55 m	Up to 85 m	55%
Swept area per turbine	11,499 m ²	Up to 22,698 m ²	97%
Nominal power per turbine	2.5 MW	Up to 3.57 MW	43%
Total generation capacity	122.5 MW	Up to 171 MW	40%

(Source: Department's Assessment Report)

14. The proposed modified Project area is provided in Figure 2.

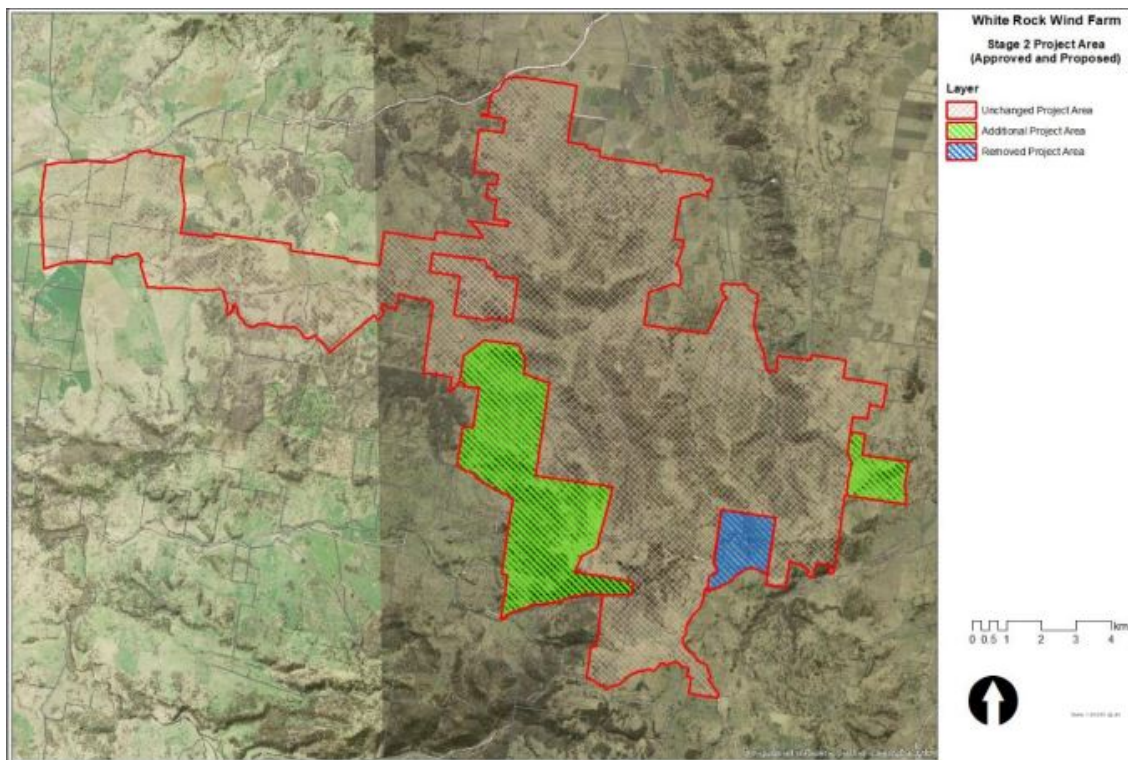


Figure 2: Project Area (Source: Department's Assessment Report)

1.4 Stated need for the Application

15. The Proponent's report titled *White Rock Wind Farm Modification Application No. 6 Environmental Assessment Report* dated January 2018 (**Proponent's EA**) states that the Application would have the following benefits:
 - *“enable increased renewable energy generation at this location and almost double the output of the project due to the higher generation capacity of the selected turbine model. The approved Mod 4 Alternative Grid Connection infrastructure enables Stage 2 connection and its potential use for both Stage 1 and 2 will reduce the total project electrical losses associated with the grid connection providing for a more efficient project.*
 - *allow further greenhouse gas emissions savings increasing from an indicative 554,411 to 1,097,290 tonnes of carbon dioxide equivalent (CO₂e) per annum.*
 - *Based on average consumption per home, the number of homes served increases from 95,550 to 189,110.”*
16. The Department's Assessment Report states:

“The proposed Stage 2 modification would deliver a range of economic benefits including up to 200 full time construction jobs and 2 full time operational jobs, with a capital investment value of up to \$300 million.

Furthermore, Goldwind would contribute up to \$295,000 per year for the operational life of the project, towards community enhancement and various projects within the local community.

The project is also consistent with the Commonwealth's Renewable Energy Target and the NSW Climate Change Policy Framework as it would generate approximately 995,000 megawatt hours of renewable energy per year, equivalent to 169,000 homes annually with estimated emissions savings in the order of 955,000 tonnes CO₂-e per year.”
17. The Department's Assessment Report states that the Department is *“satisfied that the proposed modification is within the scope of Section 75W as no additional turbines are proposed as part of the modification, and the environmental impacts of the modification would not substantially increase the impacts of the approved project.”*
18. Based on the provisions set out in paragraph 2 and the Department's conclusion in paragraph 17, the Commission is satisfied that the modification request falls within the scope of section 75W of the EP&A Act and can be determined under section 75W, in accordance with Schedule 2 of the ST&OP Regulation.

2. THE DEPARTMENT'S CONSIDERATION OF THE APPLICATION

2.1 Key steps in Department's consideration of the Development Application

19. On 24 January 2018, the Proponent submitted its Application to modify the Project Approval for Stage 2 of the White Rock Wind Farm.
20. The Department placed the Application on exhibition from 13 February 2018 until 6 March 2018. The Department's Assessment Report states that it *“notified Glen Innes Severn Council, Inverell Shire Council, other relevant government agencies and landowners adjoining the project boundary. Previous submitters were also notified of the modification application and invited to make a submission.”*

21. According to the Department's Assessment Report, the Department received 60 submissions during the exhibition period. These comprised:
 - 12 from government agencies;
 - 1 from a special interest group; and
 - 47 from the general public.

22. The Department's Assessment Report notes that most public submissions objected to the Application and only six of these submissions were made by landowners within 50 km of the Project. The Department states in the Department's Assessment Report that "[m]ost submitters objecting to the proposal reside in the Southern Tablelands region of NSW, located more than 700 km south of the project site." Key issues for the public included visual, biodiversity and noise impacts, with one nearby landowner also raising concerns about erosion and sediment control.

An overview of the submissions is provided in Table 3 below.

Table 3 - Summary of submissions

Submitters	Total	Object	Comments
< 5 km	3	3	0
5 – 50 km	3	3	0
> 50 km	41	39	2
Total	47	45	2

(Source: Department's Assessment Report)

23. On 24 September 2018, the Proponent provided a response to the submissions in a report titled *White Rock Wind Farm MP10_160 - Stage 2 Modification Application No. 6 Response to Submissions Report* dated 24 September 2018 (**Proponent's RtS**) to the Department.
24. On 23 January 2019, the Proponent wrote to the Department to provide additional information about the ecological surveys and impact assessment and analysis of the proposed transport route.
25. On 18 February 2019, the Proponent wrote to the Department to clarify information and respond to the Department's requests concerning land parcels affected by construction and vegetation clearing.
26. On 26 July 2019, the Proponent wrote to the Department seeking to amend the layout of the substation upgrade between the approved location in Modification 4 and that proposed as part of the Application.
27. On 23 August 2019, the Department finalised the Department's Assessment Report and referred the Application and recommended conditions of approval to the Commission for determination.

2.2 The Department's Assessment Report

28. The Department's Assessment Report states that *"in assessing the merits of the modification application, the Department has considered the:*
- *existing conditions of approval;*
 - *previous documentation associated with the original application for the project;*
 - *the EA, submissions, RTS and additional information for the proposed modification;*
 - *advice from the independent visual expert commissioned by the Department;*
 - *community views obtained during the Department's consultation activities;*
 - *relevant environmental planning instruments, policies and guidelines; and*
 - *relevant provisions of the EP&A Act, including the objects of the Act."*
29. The Department's Assessment Report identified the following key impacts associated with the modification of the Project:
- visual impacts;
 - biodiversity impacts; and
 - noise impacts.
30. In relation to visual impacts, the Department's Assessment Report concluded that the proposed modification *"would not significantly change the broader landscape, particularly with the strategic relocation of several turbines. It notes Goldwind has obtained landowner agreements with the majority of residences located in proximity to the proposed Stage 2 turbines."*
31. In relation to biodiversity impacts, the Department's Assessment Report concluded that the *"modified project could be undertaken in a manner that maintains the biodiversity values of the locality over the medium to long term, with the implementation of appropriate mitigation and offsetting measures as supported by OEH."*
32. In relation to noise impacts, the Department's Assessment Report concluded that the proposed modification *"would not significantly increase the noise impacts of the project."*
33. The Department's Assessment Report states that *"the Department is satisfied that the modified project achieves a reasonable balance between maximising the efficiency of the wind resource development and minimising the potential impacts on the local community and environment."*
34. The Department's Assessment Report concluded that overall the proposed modification *"has merit and is in the public interest"* and that *"the proposed modification is approvable, subject to the amended conditions of approval."*

3. THE COMMISSION'S MEETINGS AND SITE VISIT

35. As part of its determination of the Application, the Commission met with various stakeholders as set out below. Transcripts of all meetings and the Site inspection notes were made available on the Commission's website.

3.1 Meeting with the Department

36. On 23 September 2019, the Commission met with the Department to discuss the Application and to be briefed on the key impacts. The transcript of this meeting was made available on the Commission's website on 28 September 2019.

3.2 Meeting with the Proponent

37. On 23 September 2019, the Commission met with the Proponent and was given a Project overview. The Proponent gave a presentation covering the Project background, reason for the Application, key impacts and how it plans to address them. The transcript of this meeting was made available on the Commission's website on 28 September 2019.

3.3 Site inspection

38. On 10 October 2019, the Commission met with the Proponent and inspected the Project Site.
39. The inspection involved viewing the site of an approved turbine in Stage 2 and several approved and already constructed turbines. The Commission asked questions regarding bushfire emergencies and helicopter access. Matters raised included the ecological surveys for the proposed cable route, aviation lighting, height increase and the community consultative committee (**CCC**) established for Stage 1. The Site inspection notes were made available on the Commission's website on 18 October 2019.

3.4 Meeting with Inverell Shire Council

40. On 10 October 2019, the Commission met with the Inverell Shire Council (**Inverell Council**). Issues raised by Inverell Council included cumulative visual impacts and modifications to the aviation lighting installed at the nearby Sapphire Wind Farm. A copy of the meeting transcript was made available on the Commission's website on 15 October 2019.

3.5 Meeting with Glen Innes Severn Council

41. On 10 October 2019, the Commission met with the Glen Innes Severn Council (**GIS Council**). GIS Council raised concerns about lighting, traffic, biodiversity, noise impacts and waste management. Moreover, GIS Council discussed community views and similarities with the Sapphire Wind Farm. GIS Council also discussed the distribution of community contributions provided by the Proponent. A copy of the meeting transcript was made available on the Commission's website on 15 October 2019.

3.6 Public meeting

42. The Commission held a public meeting on 11 October 2019 at the Glen Innes Town Hall. The Proponent was the only registered speaker, however the Commission allowed two other people to speak. A copy of the public meeting transcript was made available on the Commission's website on 16 October 2019.

3.7 Public Comments

43. An opportunity to lodge written comments was afforded until seven days following the public meeting. The Commission received a total of seven written comments about the Application. Issues raised in these submissions included noise impacts, visual impacts (including from aviation lighting), associated resources required to install turbines, the assessment by the Department of the proposed Glen Innes Wind Farm and comments about an unrelated project. Two submissions expressed support for the Application.

4. ADDITIONAL INFORMATION

44. On 24 September 2019, the Department wrote to the Commission forwarding correspondence it received from the Proponent requesting to amend the Application. The letter from the Proponent, also dated 24 September 2019, states that the amendment was required to permit “*an increased clearing limit to address installation of Stage 2 underground cabling within the area of the constructed Stage 1 footprint*” and indicated that further biodiversity surveys would be carried out to assess the extent of clearing required.
45. On 9 October 2019, the Proponent provided the Commission with a letter from NGH Environmental Pty Ltd (**NGH**) dated 8 October 2019 that summarises the results of initial biodiversity surveys undertaken during the week commencing 30 September 2019.
46. On 22 October 2019, the Proponent provided an updated Biodiversity Assessment Report prepared by NGH and dated 14 October 2019 (**Updated BAR**) that incorporated the results of ecological surveys undertaken during the two weeks commencing 30 September 2019.
47. On 25 October 2019, the Commission forwarded the information to the Department and sought the Department’s advice on the impacts of the proposed clearing and any additional offset requirements.
48. On 22 November 2019, the Department wrote to the Commission to provide its assessment of the Proponent’s Updated BAR and amended draft recommended conditions (**Department’s Supplementary Assessment**). The Department advised that based on its consideration of the additional information it “*retains its position that on balance the proposed modification is in the public interest and approvable, subject to the recommended updated conditions.*”
49. The information described in paragraphs 46, 47 and 48 was made publicly available on 26 November 2019, with the public given the opportunity to comment by 3 December 2019.
50. The Commission received no further public comments during this period.

5. THE COMMISSION’S CONSIDERATION

5.1 Material considered by the Commission

51. In this determination, the Commission has carefully considered the following material (**Material**):
 - the Application;
 - previous modifications approved as set out in paragraph 11;
 - the Proponent’s EA and its accompanying appendices;
 - Proponent’s RtS dated 24 September 2018 and its accompanying appendices;
 - the Department’s Assessment Report dated August 2019;
 - material provided by the Department following the meeting with the Commission on 23 September 2019;
 - material provided by the Department on 24 September 2019 including the Proponent’s letter dated 24 September requesting an amendment to the Application;
 - additional material provided by the Department on 30 September 2019;
 - speakers’ comments made to the Commission at the public meeting held on 11 October 2019;

- all written comments received by the Commission after the public meeting on 11 October 2019;
- material provided by the Proponent on 9 and 22 October 2019; and
- the Department's Supplementary Assessment dated 22 November 2019.

5.2 Additional considerations

52. The Commission has taken into consideration the following Environmental Planning Instruments (**EPIs**):
- *State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)*;
 - *State Environmental Planning Policy (Rural Lands) 2008 (Rural Lands SEPP)*;
 - *State Environmental Planning Policy 44 (Koala Habitat Protection) (SEPP 44)*;
 - *Inverell Local Environmental Plan 2012 (Inverell LEP 2012)*; and
 - *Glen Innes Severn Local Environmental Plan 2012 (Glen Innes Severn LEP 2012)*.
53. In determining the Application, the Commission has also considered:
- *NSW Wind Energy Guideline 2016 (Wind Energy Guideline)*;
 - *NSW Wind Energy: Noise Assessment Bulletin 2016 (Noise Bulletin)*;
 - *NSW Wind Energy: Visual Assessment Bulletin 2016 (Visual Bulletin)*; and
 - *NSW Biodiversity Offset Scheme*.

5.3 Visual amenity

Public and Council comments

54. The Commission heard concerns from Inverell Council and GIS Council and received written comments regarding the visual impacts of the Application on non-associated residences and the wider landscape. These concerns primarily related to the impacts of aviation lighting and requests to install an aircraft detection system so that lights would illuminate only when an aircraft was in proximity to the turbines.
55. Inverell Council noted that although the Department's Assessment Report recommends the installation of an aircraft detection lighting system, Inverell Council considers that the Department's recommended conditions were not definitive and included the requirement to "ensure any aviation hazard lighting installed utilises an aircraft detection lighting system unless otherwise agreed by the Civil Aviation Safety Authority."

Proponent's consideration

56. A Visual Impact Assessment (**VIA**) prepared by Green Bean Design Pty Ltd, dated November 2017, was submitted with the Application. The VIA concluded that the:

"modified WRWF Stage 2 would not introduce elements that are any more prominent or out of character with the approved WRWF Project, and the potential for the modified Stage 2 wind turbines to result in any additional significant cumulative visual effects is considered to be low. The proposed WRWF Stage 2 would result in an overall low-level change in visibility and a largely unchanged visual impact rating in accordance with the White Rock Wind Farm Project Approval."

57. The Proponent's EA includes consideration of the need for aviation lighting, noting the Civil Aviation Safety Authority's (**CASA's**) recommendation to install lighting on the 200 m high turbines and advice from its consultant, Aviation Projects, that night lighting is not required. The Proponent's EA states:

"Use of night lighting would increase the visual impact of the proposed Stage 2 turbines within the local area and would also need to be considered in relation to Stage 1, whose turbines are 150 m to tip height and therefore do not require night lighting. Even shielded

lights may create a visual 'glow' some distance from the turbines, but not to the extent that it creates a significant impact. Further consultation will be undertaken with CASA prior to the start of construction to determine the need for night lighting."

58. The Proponent's RtS notes the Proponent would be prepared to consider installing an aircraft detection lighting system and would seek a consistent approach with other windfarms in the region. The Proponent's RtS states that *"as per condition C29 of the Approval Conditions, the Proponent will consult with CASA on the need for lighting prior to the start of construction."*
59. The Proponent's EA includes a shadow flicker assessment of the proposed 170 m diameter turbines, which concluded that *"six residences have worst case estimates for shadow flicker greater than 30 hours/year ... After application of factors that reduce the period of shadow flicker effect, all have estimated shadow flicker effect of less than 30 hours/year and are compliant with requirements of Condition C27 that applies for non-associated residences."*
60. In relation to the visual impacts of ancillary infrastructure to support the Project, including the amended substation design and 33 kV transmission line, the Proponent's EA states:
- "The substation location is concealed from much of the surrounding country and there will be limited views to the substation and minor visual impact from the substation expansion."*
- "Internal overhead 33 kV transmission lines generally span valleys within the area of the project layout and will have limited or no views from areas surrounding the project area."*
61. The Proponent's EA concluded that the:
- "magnitude of visual effect associated with the modified WRWF Stage 2 wind turbines is summarised as Low to Medium. A small number of non-associated dwelling would experience some increase in magnitude where relocated WRWF Stage 2 wind turbines would result in closer view distances; however, the relocation of wind turbines would also reduce the magnitude of visual effect on a greater number of non-associated dwellings."*

Department's consideration

62. The Department's Assessment report assessed the visual impacts of the proposal against the Wind Energy Guideline which includes the Visual Bulletin. The Department's Assessment Report notes *"In accordance with the Bulletin's threshold distance for visual magnitude, the Department has assessed potential visual magnitude impacts for residences located within 4 km of [a] proposed turbine."*
63. The Department commissioned O'Hanlon Design Pty Ltd (**OHD**) to prepare the report titled *Independent Review – White Rock Wind Farm Proposal*, dated 17 July 2019 (the **Independent Visual Impacts Review**) to inform the Department's Assessment.
64. The Department's Assessment Report notes the Proponent has landowner agreements with 38 of the 49 (78%) residences within 4 km of a Stage 2 turbine. Consequently, the Department states in the Department's Assessment Report that it *"has focused on visual impacts for the eleven non-associated residences identified within 4 km of a Stage 2 turbine, including 6 non-associated residences located within 2.7 km. These residences are all located southeast or east of the project area."*
65. A summary of the Department's assessment of visual impacts on these residences is provided in Table 4.

Table 4 - Summary of visual impact assessment on non-associated properties within 4 km

Residence	Visual Influence Zone	Distance to closest turbine (km)	Closest turbine	Turbine hubs visible	Turbine tips visible	Proponent's assessed impact		Independent visual expert's assessed impact
						Approved project	Modified project (MOD 6)	
L200	1	1.6	120	8 (-6)	24 (+7)	Moderate	Moderate	Moderate
L220	1	1.4	139	2 (-1)	9 (+5)	-	-	Moderate - High
L230	2	2.4	139	4 (+1)	6	Low	Low	Moderate
N180	1	1.6	95	40 (+1)	54 (+1)	High	High	High
N190	1	1.7	95	18 (-5)	34 (-1)	High	High	High
N230	2	3.8	138	29 (+4)	48 (+3)	Moderate	Moderate	Moderate
P190	2	3	95	0 (-6)	7 (-2)	Moderate	Low	Low
Q170	2	3.7	105	-	-	-	-	Low
Q191	2	3.4	135	-	-	-	-	Low - Moderate
S160	1	1.9	136	0	1 (-3)	Negligible	Negligible	Negligible - Low
S180	2	3.2	135	5	6 (-3)	Low	Low	Low

(Source: Department's Assessment Report)

66. Of the five residences within 2.7 km of a Stage 2 turbine and categorised as having high visual sensitivity (and therefore situated within Visual Influence Zone (VIZ) 1) (L200, L201, N180, N190 and S160), the Department's Assessment Report notes that two residences, N180 and N190, would experience an increase in visual magnitude impacts.
67. The Department's Assessment Report states that residences N180 and N190 "are owned by a single (previously associated) host landowner, who has since chosen to withdraw from the project" and that "irrespective of the modification (including the removal of turbines from the land proposed to be excised from the project), these residences would still have experienced high visual impacts from the approved Stage 2 turbines."
68. The Department's Assessment Report concluded:
- "the Department considers the proposed increase in the size of the turbines would materially increase the visual impacts at N180 and N190, whereby even if the modification is not approved, the residual visual impacts would remain high. There is also no agreement in place with Goldwind to accept the increased level of impact. Consequently, in this instance, the Department considers it appropriate for voluntary acquisition rights to be offered to the landowner of these residences for up to 3 years, should they wish to sell these properties as a result of the visual impacts of the project (as modified)."*
69. The Department's Assessment Report states the following in relation to the visual impacts on the remaining residences in VIZ 1:
- "The Department considers the proposed modification would result in negligible to low visual magnitude impacts and an overall improved visual impact outcome for S160.*
- The setback of 3 turbines in the Maybole cluster would remove these turbines from view and significantly reduce the visual magnitude impacts for both L200 and L220."*
70. In relation to the other residences, the Department's Assessment Report states that "apart from one residence (L230) that would experience a minor increase in impacts, 8 of the 11 remaining non-associated residences would experience either no change or reduced visual

magnitude impacts from the proposed modification. The Department considers that the existing visual mitigation conditions remain appropriate and that any minor residual visual impacts could be adequately managed through visual screening.”

Aviation lighting

71. The Department’s independent visual expert (OHD) notes in its advice that:

“By far the greatest additional impact of the Mod 6 proposal is the addition of navigational lighting.

As highlighted by the RtS and dependent on final design, the lighting potentially significantly changes the character of the night-time environment of the Study Area.

Of even greater concern, the associated cumulative impacts due to the inter-visibility of the lighting across a wide area, of conservatively 20km beyond the windfarms themselves, could have permanent and character changing impacts on the wider regional landscape character. The cumulative impact could effectively industrialise the night sky of this currently rural region.”

72. The Department’s Assessment Report states:

“Consistent with the independent expert advice, the Department acknowledges that the addition of aviation hazard lighting has the potential to significantly increase visual impacts at residences in close proximity to the Stage 2 turbines, particularly as there are limited existing light pollution sources in the vicinity and many landowners value the dark night sky as a feature of the area as noted in the concerns raised by Inverell Shire Council and residences about the impacts of lighting at the Sapphire Wind Farm.

To help mitigate these impacts, the Department has recommended a condition requiring Goldwind to ensure any aviation hazard lighting installed utilises an aircraft detection lighting system to minimise visual impacts, which is supported by CASA. Such a system would only activate the lights when an aircraft is detected in the near vicinity and deactivate the lighting once the aircraft has passed.

In addition, CASA has advised that the intensity of aviation hazard lighting to be installed could be reduced by 90% (from 2000 to 200 candelas), and that only around 60% of the turbines would need to be lit. The Department considers that this measure would significantly reduce the potential lighting impacts of the proposed modification, whilst maintaining safety standards for aviation operations.

Inverell Council advised it supports measures to reduce impacts of night lighting impacts on the local community.”

73. The Department’s Assessment Report concluded: *“The Department considers that with the recommended conditions and implementation of reduced-intensity lighting as per CASA’s recommendation, the lighting impacts associated with the Stage 2 turbines can be appropriately managed.”*

Commission’s consideration

74. The Commission agrees with the Department’s conclusions in paragraphs 65 to 70 in relation to the visual impacts of the modified Stage 2 turbines in that the existing visual mitigation conditions remain appropriate and that any minor residual visual impacts could be adequately managed through visual screening.

75. The Commission notes the concerns raised by Inverell Council in paragraph 55, which relate to condition 22 of the Department's recommended conditions:
- “22. At the end of condition C29 of Schedule C, insert the text ‘The Proponent shall ensure any aviation hazard lighting installed utilises an aircraft detection lighting system unless otherwise agreed by the Civil Aviation Safety Authority.’”*
76. The Commission has considered Inverell Council's request to amend recommended condition 22 to definitively require the Proponent to install an aircraft detection lighting system. The Commission notes that CASA is the appropriate regulatory authority for aviation safety and CASA should determine whether an aircraft detection lighting system will adequately manage the risk of aircraft safety around the Project, particularly during adverse weather conditions.
77. Therefore, the Commission also agrees with the Department's conclusions in paragraphs 72 and 73 that the recommended conditions will appropriately manage lighting impacts of the Project.
78. Following its review of the Project Approval, the Commission noted that the Department's recommended condition relating to Visual Appearance (condition C28 of Schedule C), which requires ancillary infrastructure *“to blend in as far as possible with the surrounding landscape”*, would be difficult to regulate. The Commission has instead required the Proponent to minimise visual impacts of the Project's ancillary infrastructure in condition C28 of Schedule C.

5.4 Biodiversity

Government Agency Comments

79. In its advice to the Department dated 22 March 2018, the NSW Office of Environment and Heritage (OEH) (now the Biodiversity and Conservation Division (BCD) within the Department) states that *“overall, the vegetation mapping adequately captures the extent and condition of endangered ecological communities (EECs) in accordance with the OEH advice provided to the proponent's consultants.”* However, the OEH identified aspects of the Proponent's original Biodiversity Assessment Report (Original BAR) and the Bird and Bat Impact Assessment (BBIA) that required further clarification.

Proponent's consideration

80. The Proponent's EA assessed the biodiversity impacts of the Project, which includes the following technical assessments:
- the Original BAR prepared by NGH, dated December 2017;
 - a review of the proposed biodiversity offset package for the Project prepared by Eco Logical Australia Pty Ltd (ELA) dated 15 December 2017; and
 - a BBIA prepared by Brett Lane & Associates Pty Ltd dated August 2017.
81. The Proponent's RtS includes revisions to the Original BAR and BBIA reports, both dated August 2018.
82. The Updated BAR was produced in October 2019 to include the results of surveys of the underground 33 kV electricity cable route for Stage 2 and seasonal surveys for the Small Snake Orchid (*Diuris pedunculata*).
83. The Proponent has noted that the biodiversity survey methodology and use of detailed engineering designs to estimate the Project disturbance footprint has resulted in a conservative estimate of the biodiversity impacts of the Project. The Proponent's RtS states:

“Through appropriate environmental management during construction, the overall extent of the final design footprint is expected to be less than is currently being assessed in the EA. Vegetation impacts shown in the report are considered to over-state the impact, particularly in relation to the conservative buffer applied for impact calculations. The proponent has taken a conservative approach to assessing impacts to ensure there is no under-representation of the Stage 2 footprint.”

84. In relation to the approved clearing of vegetation required for the Project, the Proponent's EA states:

“It is noted that Condition C1(b) requires that the Proponent not clear more than 28 hectares of the Ribbon Gum – Mountain Gum – Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion EEC [Ribbon Gum EEC] on site. As much of the 28 ha has been cleared for the Stage 1 development, an increase in the clearing limit is being sought for the Stage 2 project based on a more detailed civil design in conjunction with experience gained from the recent Stage 1 construction works.”

85. The Proponent's Original BAR dated August 2018 states:

“The proposal will impact upon 168.57 ha of vegetation which would result in the loss of approximate 4% of the native vegetation within the proposal site. This includes 64.60 ha (40%) of EEC vegetation. However, of the total native vegetation impacted, 94.88 ha (56%) is highly modified low condition and exotic dominated vegetation. This is in addition to the clearing impacts carried out during the construction of Stage 1.”

86. Following the supplementary ecological surveys carried out in September and October 2019, the Proponent's Updated BAR states:

“The proposal will impact upon 175.78 ha of vegetation which would result in the loss of approximate 4% of the native vegetation within the proposal site. This includes 75.04 ha (42%) of EEC vegetation. However, of the total native vegetation impacted, 88.05 ha (50%) is highly modified low condition and exotic dominated vegetation. This is in addition to the clearing impacts carried out during the construction of Stage 1.”

87. Table 1 of the NGH letter dated 8 October 2019 indicated that the total impact on Threatened Ecological Communities (TEC) would be 72.38 ha, reduced from the 73.06 ha predicted by the previous vegetation mapping. The NGH letter dated 8 October 2019 states:

“Taking into account the newly confirmed vegetation mapping from the extrapolated areas and updated Stage 2 cabling assessment within the Stage 1 footprint, there is an additional 7.22 hectares of impact. Overall however, the TEC impact is reduced by 0.68 ha (due to precautionary assumptions made in the previous assessment).”

88. In relation to the biodiversity impacts of a revised 330 kV substation site, the Proponent's RtS concluded:

“The revised substation site would make use of existing exotic pasture whilst reducing impacts on White Box, Yellow Box, Blakely's Red Gum DNG [Derived Native Grassland]. There is a potential impact on up to six trees representative of low condition remnant White Box, Yellow Box, Blakely's Red Gum woodland, and one potential heritage item (scar). Impacts on trees and heritage items will be avoided where possible.”

89. Based on the targeted surveys for the Small Snake Orchid during October 2019, the Proponent's Updated BAR states:

“Both optimal and marginal potential habitat for this species was recorded within the

proposal site however, considering the survey coverage and results it is now considered very unlikely that the species would occur at the proposal site or be impacted.”

90. In relation to impacts of the Project on bird and bat species the Proponent’s RtS concluded:

“The majority of bird species at WRWF are considered at minimal risk of turbine collision. Given that the proportion of total RSA [Rotor Swept Area] will increase above 60 m and 99 % of birds were flying under 50 m during BUS [Bird Utilisation Survey], then the impact of the modified turbines is expected to be minimal. Impacts to WTE [Wedge-tailed Eagle] are considered low due to the lack of WTE in the area and the low frequency of flights and, due to the ... non-threatened status of the species, the impact is considered acceptable.

The proposed modification involving larger and higher turbines, is unlikely to cause significant adverse impacts to bat populations in the local area, both threatened and non-threatened.”

91. In relation to impacts of the Project on Koala habitat, the Proponent’s RtS concluded:

“Although the project requires the removal of vegetation which forms potential koala habitat, the project is unlikely to significantly impact the Koala species due to the lack of evidence that a significant Koala population exists within or near the Project area and the linear nature of the clearing areas ... The proposed offset site submitted to the OEH consists of 470.10 hectares of habitat, of which approximately 81.2 % is considered suitable Koala habitat. The offset will therefore preserve in perpetuity a much higher proportion of suitable koala habitat than is being lost through construction of the wind farm.”

92. The Proponent’s EA states that the Proponent has:

“...identified adequate offset options for the modified Stage 2 project and the expanded BOP [Biodiversity Offset Package]. Subject to approval being gained for Mod 6, WRWFPL would arrange an update for the BOP and its re-submission to DPE and OEH by the 25 February 2018 to gain approval of the Package before seeking formal registration of the revised or additional Biobank options by OEH in compliance with requirements of Condition C7.”

93. In relation to the offsets required for the Application, the Proponent’s Updated BAR states:

“462 surplus credits from the existing offset package will be utilised to offset a portion of the required Stage 2 development. An additional offset area of approximately 452.5 ha will be required to generate the remaining 4,181 credits for Stage 2.”

Department’s consideration

94. The Department’s Assessment Report notes that clearing for Stage 2 of the Project would impact up to 168.57 ha of native vegetation. The Department’s Assessment Report states:

“Of the native vegetation to be impacted, around 83.5 ha (or approximately 50%) is highly modified, low condition and exotic dominated vegetation. Notwithstanding, the remaining vegetation to be impacted includes 73.06 ha of moderate/good condition EEC, including around 8.5 ha of Box Gum Woodland EEC and around 65 ha of Ribbon Gum Woodland EEC (comprising both PCT 554 and PCT 507).”

95. Based on the surveys of the revised underground electricity cable route in the Proponent’s Updated BAR, Table 1 of the Department’s Supplementary Assessment indicates that the Project would impact a total of 72.38 ha of EEC. The Department’s Supplementary

Assessment states:

“In summary, the revised BAR identified that there would be around 7.2 ha of additional native vegetation clearing required (an increase from 168.6 to 175.8 ha), comprising of similar vegetation community types to those identified for the Stage 2 BAR.

Of the threatened vegetation communities to be impacted, the revised cabling design would result in clearing of an additional 1.85 ha of Box Gum Woodland EEC (PCT 510). However, due to precautionary assumptions made in the previous BAR assessment, there would be a net reduction in clearing of Ribbon Gum Woodland EEC (comprising both PCT 554 and PCT 507) by around 2.6 ha.

Consequently, there would be a slight reduction of around 0.7 ha in overall impacts to threatened vegetation (EECs) from the modified project and would not change the Department’s assessment that the modified project would not result in any significant impacts on EECs, subject to being appropriately offset.”

96. The Department’s Assessment Report notes that the additional clearing estimates are based on a more detailed engineering design, which has resulted in a more conservative assessment of biodiversity impacts compared with the assessment for the original Project Approval. The Department’s Assessment Report states that:

“Only a relatively small proportion of the additional clearing stated is actually attributable to the larger turbine footings and layout changes proposed as part of the modification application ... This means that irrespective of the modification, if the more conservative and contemporary biodiversity assessment methodology was now applied to the approved Stage 2 project, together with the more detailed infrastructure design, it would identify that substantially more vegetation clearing would be required to construct the project as approved.”

97. The Department’s Assessment Report acknowledges that the Proponent has “sought to avoid and minimise the biodiversity impacts” of the Project by selecting mostly cleared agricultural land for turbine sites. It also notes that the predicted impacts may be further reduced through micro-siting of turbines and other management measures as documented in the Proponent’s Construction Flora and Fauna Management Plan.

98. The Department’s Assessment Report states: “Both the Department and OEH accept Goldwind’s justification for needing to increase its vegetation clearing limits for the project, subject to the impacts being appropriately offset.”

99. The Department’s Supplementary Assessment recommended updating the biodiversity conditions in the Project Approval (Condition C1 of Schedule C) to restrict the clearing of Ribbon Gum EEC to a maximum of 90 ha and the Box Gum Woodland EEC to a maximum of 10.4 ha.

100. In relation to the proposed alternate site of the 330 kV substation, the Department’s Assessment Report does not provide conclusions about the biodiversity impacts, however it has recommended a new condition B19 of the Project Approval:

“B19. Prior to the commencement of construction of the 330 kV substation, the Proponent shall notify the Department in writing of the preferred 330 kV substation site layout option. To avoid any doubt, the Proponent must only construct one of the approved layout options shown in the figure in Appendix 1.”

101. In relation to the impacts of the Project on the Small Snake Orchid, the Department’s Assessment Report states:

“OEH confirmed it had residual concerns about the presence of the Small Snake Orchid within the modified Stage 2 areas. To address these residual concerns, Goldwind has committed to undertaking targeted surveys to validate the presence of the orchid for the purposes of determining any offset liability. OEH has confirmed it is satisfied with this approach and the Department has recommended a condition to reflect this commitment.”

102. Following the targeted surveys for the Small Snake Orchid as described in the Proponent's Updated BAR, the Department's Supplementary Assessment states:

“Additional targeted surveys for the Small Snake Orchid were undertaken as part of the revised BAR but were not identified within the areas surveyed. However, the Department notes that Goldwind is not seeking to have this survey requirement removed from the conditions and that the results would be used for determining the final offset liability.”

103. In relation to the impacts of the Project on Koala habitat, the Department's Assessment Report states:

“Two Koala feed tree species listed under SEPP 44 were recorded within the study area, however, no Koala scats or any other evidence of Koala habitation were found during random field inspections of the site. Goldwind's assessment concluded that the proposal was unlikely to affect Koalas. Notwithstanding, the Department notes the proposed offset package ... contains significant feed species for Koala.”

104. Following its review of the Proponent's Updated BAR and the response from BCD in relation to Koala habitat, the Department's Supplementary Assessment states:

“Although acknowledging that any Koalas would likely be at low population densities (if present at all) within the revised cabling areas, the BCD recommended that a requirement for additional targeted surveys should be included in any conditions of approval in order to satisfy the requirements of the Framework for Biodiversity Assessment (FBA).

Accordingly, should the Commission wish to approve the modification, the Department has recommended a condition to this effect.

Should any additional credits be required following this assessment, Goldwind would be required to discharge this obligation in accordance with the NSW Biodiversity Offsets Scheme. However it is noted that over 80% of Goldwind's proposed offset site is considered suitable Koala habitat.”

105. In relation to bird and bat strike, the Department's Assessment Report states:

“Following provision of the additional assessment information, the Department and OEH consider that Goldwind has provided a suitably robust assessment of the potential risk of the modified project on bird and bat species from blade strike and recognises that adaptive management techniques would help reduce any impact.

The risk assessment acknowledged there would be an increased risk of collision by Wedge-tailed Eagles and other high-flying raptors, as they forage in open areas at high altitudes looking for prey. Although the upper RSA height would increase from 150 m to 200 m and therefore potentially impact on more raptors flying at this height, the assessment found that due to the low number of recorded wedge-tailed eagles flying in the area, and no known nests on the site, it was unlikely that the modification would significantly affect the greater population compared with that of the currently approved project envelope.”

Biodiversity Offset

106. The Department's Assessment Report states that:

"The Department notes Goldwind has entered a Biobanking Agreement for a 475 ha offset site (the 'Tangari' property), which would generate 6,505 ecosystem credits, more than the currently calculated 5,816 credits required for the modified project."

107. The Department's Assessment Report states that:

"It is acknowledged that subject to the final clearing calculations and surveys to determine the presence of the Small Snake Orchid, Goldwind may need to adjust its credit liability calculations. Should any additional credits be required, Goldwind proposes to either enter into an agreement or agreements to discharge any additional credit obligations required to fully comply with the Stage 2 offset requirements from either an alternative land-based offset ... or via payment into the offset fund."

As such, the Department has recommended updating the biodiversity offset conditions to require Goldwind to either demonstrate that the Tangari BioBanking site provides sufficient credits for the Stage 2 disturbance areas or to prepare an updated Biodiversity Offset Package prior to the commencement of construction of Stage 2 detailing how the proposed final offset credit obligation would be discharged.

Goldwind would be required to discharge any additional offset obligation in accordance with the NSW Biodiversity Offsets Scheme."

108. The Department's Supplementary Assessment considered the Proponent's proposed offset following the updated surveys as described in the Proponent's Updated BAR. The Department's Supplementary Assessment states:

"In total, 4,642 ecosystem credits would be required to offset the impacts arising from the proposed modification, an increase of 95 credits."

The Department notes that the total revised credit requirements for the modified project (ie. 5,911 credits) are still expected to be less than the credits generated from the Tangari BioBanking site, which is expected to generate around 6,505 ecosystem credits."

"Notwithstanding, there would be no change to the current recommended conditions that require Goldwind to either demonstrate that the Tangari BioBanking site provides sufficient credits for the Stage 2 disturbance areas or to prepare an updated Biodiversity Offset Package prior to the commencement of construction of Stage 2 detailing how the proposed final offset credit obligation would be discharged."

Conclusions

109. The Department's Assessment Report concluded that:

"Overall, the Department considers that the modified project could be undertaken in a manner that maintains the biodiversity values of the locality over the medium to long term, with the implementation of appropriate mitigation and offsetting measures as supported by OEH."

To ensure this occurs, the Department has recommended that Goldwind be required to:

- adhere to revised operating conditions including strict vegetation clearing limits for EECs;*
- undertake surveys for the Small Snake Orchid to confirm it is not present within the*

- proposed Stage 2 disturbance areas;*
- *prepare and implement an updated Construction Flora and Fauna Management Plan and BBAMP [Bird and Bat Adaptive Management Plan] in consultation with OEH; and*
- *satisfy its offset obligations to the satisfaction of the Secretary and in consultation with OEH.”*

110. The Department’s Supplementary Assessment concluded that:

“Overall, while the proposed amendment to the application would result in clearing of an additional 7 hectares (ha) of native vegetation, there would be a slight reduction of around 0.7 ha in overall impacts to threatened vegetation for the modified project. Importantly, the revised credit requirements for the modified project are still expected to be less than the credits generated from Goldwind’s proposed offset site.

Accordingly, the Department remains satisfied that the modified project can be undertaken in a manner that maintains the biodiversity values of the locality over the medium to long term, with the implementation of the recommended mitigation and offsetting measures as supported by the BCD.”

Commission’s consideration

111. The Commission notes that of the estimated 175.8 ha of native vegetation to be cleared for the Project, approximately 72.38 ha consists of EEC, as referenced in paragraph 95.
112. The Commission agrees with the Department’s conclusions in paragraph 96 that the predicted increase in biodiversity impacts due to the Project is attributable to a more detailed survey and design methodology. The Commission acknowledges that this is a conservative estimate and the clearing is necessary for the carrying out of the Project.
113. The Commission also agrees with the Department’s conclusion in paragraph 97 that the predicted impacts may be reduced by micro-siting of the turbines and implementation of other management measures during detailed design and construction of the Project.
114. The Commission therefore agrees with the Department’s and OEH’s (now BCD) conclusion as set out in paragraph 98 that the increased clearing requirements of the Project are justified subject to an appropriate biodiversity offset.
115. The Commission agrees with the Department’s conclusions in paragraph 105 that the impacts of the modified Project on birds and bats would be suitably managed through the implementation of a BBAMP and that impacts on the WTE are unlikely to be greater than the existing approved Project.
116. The Commission acknowledges that the final offset requirements will be determined following final clearing surveys for the Koala (paragraphs 103 and 104) and Small Snake Orchid as referenced in paragraphs 101 and 102.
117. The Commission also notes that the proposed offset site includes Koala habitat (paragraph 103) and may provide for sufficient biobanking credits to offset the biodiversity impacts of the Project, as referenced in paragraph 107.
118. The Commission therefore agrees with the conclusions reached by the Department and BCD, as set out in paragraphs 109 and 110, that the Project would maintain the biodiversity values of the locality over the medium to long term.

5.5 Noise impacts

Public and Council comments

119. The Commission heard comments from GIS Council that community members had raised concerns around noise generation from Stage 1 of the Project and acknowledged that the Proponent had implemented noise reduction measures. GIS Council requested that the Proponent should adopt available technology to reduce noise from the new turbines.
120. The Commission also received written comments from members of the local community raising concerns about sleep disturbance due to noise from the turbines in Stage 1 of the Project.

Government agency comments

121. The NSW Environment Protection Authority (**EPA**) in its submission to the Department during exhibition, dated 26 February 2018, notes that the Proponent had not committed to the specific noise mitigation measures being implemented for the Project and requested that the preferred option for noise mitigation be identified if noise criteria are likely to be exceeded.

Proponent's consideration

122. The Proponent's EA includes a noise impact assessment by Sonus Pty Ltd (**Sonus**) and notes that:

"The predicted noise levels at residences where background noise logging was conducted achieved the criteria for the available wind speed data ranges at these residences. The noise associated with the operation of the wind farm was also predicted at all non-associated residential locations located within 5 km. The combined Stage 1 and Stage 2 wind farm would potentially be marginally noncompliant at residences I221, N180 and N190."

123. The Proponent's EA states that the adoption of a range of mitigation options would achieve compliance with the relevant noise criteria and that *"[n]oise compliance for Stage 2 would be demonstrated prior to the start of construction in conjunction with updated reporting in respect of Condition F6. Sonus have confirmed the project noise criteria are consistent with the NSW Wind Energy: Noise Assessment Bulletin for State significant wind energy development (December 2016)."*
124. The Proponent's RtS states the potential noise mitigation options include:
 - *"Using a wind turbine model which meets the approved noise limits without any constraint;*
 - *Enter into Noise Agreements with the respective landowners;*
 - *Applying serrations to the blade edges on one or more turbines;*
 - *Operating one or more wind turbines in low noise mode;*
 - *Replace some of the wind turbines with smaller, quieter wind turbines;*
 - *Implement a sector management strategy depending on prevailing wind direction; and*
 - *Removal of those wind turbines predicted to cause or causing exceedances."*
125. In relation to the selection of the preferred mitigation measures requested by the EPA, the Proponent states in its RtS that it *"commits to updating the predicted noise impact assessment once the turbine model has been selected as required by Condition F6, thereby determining whether the layout complies and any noise mitigation measures required."*

Department's consideration

126. The Department's Assessment Report states that *"[b]oth the Department and the Environment Protection Authority (EPA) are satisfied that the noise impact assessment has*

been carried out in accordance with the Bulletin.”

127. The Department’s Assessment Report states that:

“Using conservative input conditions, the noise assessment demonstrated that the modified project would be able to comply with the relevant noise criteria at all non-associated residences, except for residences I221, N180 and N190. The noise levels at these residences were predicted to marginally exceed the criterion by 1 - 2 dB(A).

While Goldwind has proposed several noise mitigation options to meet the noise criterion (such as sector management, replacement of some turbines with lower sound power levels or the addition of blade serrations to some turbines), the Department notes I221 is an associated residence, and N180 and N190 have been recommended for voluntary acquisition rights due to visual impacts.

Notwithstanding, Goldwind has committed to updating the Operational Environmental Management Plan for the project to address noise compliance monitoring and identify the need for any operational noise reduction measures.”

128. The Department’s Assessment Report concluded:

“Both the EPA and the Department are satisfied that with the implementation of Goldwind’s proposed mitigation options, the maximum noise generated by the modified project would be able to comply with the applicable noise criteria at all non-associated residences.”

129. The Department has recommended a condition of approval to amend the Operation Environmental Management Plan (**OEMP**) to require the Proponent to include details of the noise mitigation measures that have been adopted for the Project.

130. In relation to the concerns (in public submissions on the Proponent’s EA) about the health impacts of infrasound and low-frequency noise, the Department’s Assessment refers to the advice of the National Health and Medical Research Council (**NHMRC**) set out in the Wind Energy Guideline. The Department’s Assessment Report states that the NHMRC has concluded that *“there is currently no consistent evidence that wind farms cause adverse health outcomes in humans.”* The Department’s Assessment Report concluded that *“the Department does not consider that the proposed modification (or the project as a whole) would result in any adverse health outcomes for the local community.”*

131. The Department’s Assessment Report states that the Department has *“recommended contemporary conditions requiring Goldwind to monitor the low frequency noise of the project in accordance with the Wind Energy: Noise Assessment Bulletin (2016), that discusses the penalties that must be applied in the unlikely event that excessive low frequency noise is detected.”*

Commission’s consideration

132. The Commission agrees with the conclusions of the Department and EPA, as set out in paragraph 32 and paragraph 128, that the Project could comply with the applicable noise criteria at non-associated residences with the implementation of appropriate noise mitigation measures.

133. Following its consideration of the comments made by GIS Council about noise mitigation, set out in paragraph 119, the Commission notes that the existing condition F9(a) of the Project Approval requires the Proponent to *“implement best management practice to minimise the construction, operational, decommissioning and road traffic noise and vibration of the Project.”*

134. The Commission accepts that the existing condition F9(a) of the Project Approval would address the request of GIS Council and agrees with the Department's recommended condition requiring the Proponent to describe the noise mitigation measures it has implemented in the OEMP, as set out in paragraph 129.
135. The Commission acknowledges the NHMRC's conclusion that there is no consistent evidence that wind farms cause adverse health outcomes in humans. The Commission agrees with the Department's conclusion as set out in paragraph 124, that the Project would not result in any adverse health outcomes for the community because any increase in noise output will be incremental and any potential exceedance of the Noise Criteria can be mitigated as set out in paragraph 131.

5.6 Traffic and Transport

136. The Commission heard concerns from GIS Council about the limited time available to review road upgrade designs before the commencement of the road upgrades to facilitate the transport of wind turbine components and access by other construction vehicles. GIS Council also raised concerns about the ongoing maintenance of roads that were upgraded for the construction of Stage 1 of the Project and the need to ensure roads are maintained in a suitable condition for the life of the Project. GIS Council particularly noted issues where the roads used by heavy vehicles for maintenance activities were not of suitable standard to accommodate the heavy vehicles.
137. The Proponent states in its RtS that "*Road upgrades for the transportation of oversize and over dimension loads will be assessed prior to the start of construction. Alternatively, transport vehicles that may avoid some physical upgrades for roads are also under consideration.*"
138. In relation to the upgrading of local roads to accommodate heavy vehicles and vehicles transporting the larger turbine blades, the Department's Assessment Report states:

"The Department acknowledges that in order to transport the larger blades, Goldwind would need to complete the required upgrades works in consultation with RMS and relevant Councils, and that any works would be subject to the relevant approvals and permits.

[T]he Department has recommended a new condition consistent with other recent wind farm modifications requiring Goldwind to review the transport route in consultation with the relevant road authorities and to provide a report to the Department outlining the final proposed road upgrades to be implemented prior to the commencement of the Stage 2 haulage.

The Department is satisfied that this condition, together with the existing conditions that include a requirement to update and implement the project's CTAMP and CEMP, would suitably manage road safety and traffic impacts associated with the modification."

139. In relation to the maintenance of local roads and impact, the Proponent states in its RtS:

"The proponent will work with affected local councils and RMS prior to the start of construction to determine the most appropriate process for calculating the impact of construction traffic on local roads. Lessons learnt from the construction of Stage 1 will be implemented and applied, where relevant."
140. To address the concerns raised by GIS Council about the review of road upgrade designs, the Commission has amended the Department's recommended condition E17B to require the Proponent to provide the 'relevant roads authority', which includes GIS Council, with at

least one month to review detailed transport route designs and associated public road upgrades before commencement of construction.

141. The Commission has amended condition E17B to include the following requirements:

“In developing the proposed transport route and public road works to be undertaken, the Proponent shall provide details of the proposed upgrades to the relevant road authority and allow at least one month for a review by the relevant road authority before submitting the report to the Department.

The report submitted to the Department must include a description of the comments received from the relevant road authority and any changes made in response to those comments, or justification for not implementing the full extent of recommendations of the relevant road authority.”

142. The Commission finds it reasonable that the Proponent should ensure the roads to be used for ongoing maintenance and repairs of the Project are maintained in a serviceable condition for the life of the Project. Therefore, the Commission has imposed condition E17(d) requiring the regular inspection and maintenance of upgraded roads and bridges to ensure they are suitable for project operation, maintenance and decommissioning activities for the duration of the Project.

5.7 Waste Management

143. The Commission heard concerns from GIS Council about the generation of waste during construction of the Project. The Department’s Assessment report also notes that GIS Council *“raised concerns regarding the management and recycling of waste and local landfill capacity and lifespan.”*

144. The Proponent states in its RtS that it would consult with both Inverell Council and GIS Council to determine appropriate requirements for waste disposal and update the construction environmental management plan (**CEMP**) to incorporate lessons learned about waste management during construction of Stage 1. The Proponent’s RtS states:

“Potential solutions include:

- minimising the generation of waste by reducing packaging;*
- maximising the use of recyclable materials;*
- ensuring the correct separation and reusability of recyclable materials; and*
- the transportation of waste to more appropriate disposal sites outside the local area.”*

145. The Department’s Assessment Report states that the Department has:

“recommended updating the existing conditions to:

- reflect contemporary waste classification guidelines and*
- require Goldwind to address and detail how waste will be minimised and managed to reflect EPA’s Waste Hierarchy, in accordance Waste Avoidance and Resource Recovery Act 2001, in the CEMP and [Decommissioning] EMP.”*

146. The Department’s Assessment Report concluded that it *“is satisfied that the existing and recommended conditions would ensure waste associated with the modification is appropriately managed.”*

147. The Commission agrees with the Department’s conclusions as set out in paragraph 139 and is satisfied that the commitments made by the Proponent to consult with GIS Council and updated conditions adequately addresses GIS Council’s concerns.

148. The Commission has also modified condition C21 of the Project Approval to ensure that no waste is burned on site, rather than only specifying that green waste must not be burned on site.

5.8 Construction resource management

149. The Commission heard concerns from GIS Council about the Proponent's purported lack of planning for obtaining sufficient water, sand and gravel resources for construction of Stage 1 of the Project.
150. The Project Approval currently includes a condition (Condition E16) which requires the Proponent to source water from recycled or other water sources in preference over potable sources. No conditions currently exist in the Project Approval regarding plans to obtain water or construction materials.
151. The Commission has considered the requirement for the Proponent to demonstrate that it has access to sufficient water, sand and gravel supplies for the construction of Stage 2.
152. The Commission considers that the acquisition of resources for construction of the Project is a commercial risk for the Proponent. It would therefore be unreasonable to impose a condition specifying the locations or quantities of resources to be obtained. However, in order to address concerns about the potential impacts of sourcing water, sand and gravel locally, the Commission has imposed condition E16A requiring the Proponent to provide a report to the Councils outlining where it will source these materials from, prior to the commencement of construction.

5.9 Bushfire management

153. Concerns were raised in submissions about the potential for the higher turbines to impede or restrict the use of helicopters involved in fighting bushfires.
154. In response to these concerns, the Proponent's RtS states:
- "In the case of a bushfire within or nearby to the windfarm, the wind turbines can be turned off to allow aerial firefighting to safely occur. The protocols for this will be developed in consultation with the RFS [Rural Fire Service] and form part of the risk assessment through construction and into operations."*
155. The Department's Assessment Report states that the existing conditions of the Project Approval require the Proponent to:
- *"design all project components to minimise bushfire hazard risk;*
 - *facilitate appropriate emergency management;*
 - *consult regularly with the RFS; and*
 - *implement a Construction Environmental Management Plan that includes measures to address bushfire risk."*
156. The Department's Assessment Report states that the Proponent *"has prepared a Bushfire Risk Management Plan for the project and has committed to updating this plan to reflect the proposed modification, in consultation with RFS ... The Department and RFS consider that bushfire risk can be appropriately managed by the existing approval conditions."*
157. The Commission agrees with the Department's and RFS's conclusions that the Project can be appropriately operated during bushfires to ensure firefighting helicopters are able to safely navigate around the turbines. However, to ensure there is clarity about the requirement to stop turbines to allow safe operation of helicopters and aircraft to control

bushfires, the Commission has amended condition C15 to reflect this requirement.

5.10 Other relevant issues

158. Section 6.4, Table 6 of the Department's Assessment Report identified the following 'other issues' relevant to the Application:
- heritage;
 - bushfire risk
 - decommissioning and rehabilitation;
 - waste;
 - erosion;
 - traffic and transport;
 - aviation;
 - subdivision;
 - communications; and
 - depreciation of land value.
159. Subject to the further considerations as described in **sections 5.5, 5.6, 5.7 and 5.8** above, the Commission is satisfied with the Department's assessment of other issues as set out in section 6.4 of its Assessment Report, because it considers the identified issues can be mitigated and/or managed to an acceptable level through the recommended conditions of consent.

5.11 Amendments to Department's proposed conditions of approval

160. The Commission has imposed conditions of consent that are consistent with the Department's recommended conditions of approval, subject to some amendments. These amendments include:
- amending the definitions of BCD and the Proponent;
 - requiring the Proponent to notify the community prior to commencing staged construction, in addition to notifying the Department (condition B16 of Schedule B);
 - requiring the implementation of aircraft navigation measures as agreed by the relevant aviation authorities listed in the condition (condition C29 of Schedule C);
 - deleted condition C31 of Schedule C
 - specifying the requirement for the Proponent to stop the operation of turbines if requested by the RFS to ensure safe aviation during bushfire control (condition C15 of Schedule C);
 - ensuring no waste material can be burned on site (condition C21 of Schedule C);
 - removing the requirement to ensure ancillary infrastructure blends in with the surrounding environment and requiring the Proponent to minimise the visual impacts of the project, including ancillary infrastructure (condition C28 of Schedule C);
 - requiring the preparation of an Operation, Maintenance and Decommissioning Road Dilapidation Report to identify measures to repair roads damaged by the project (condition E17 of Schedule E);
 - requiring the Proponent to provide Councils and the RMS with details of proposed road upgrades at least one month prior to commencing construction (condition E17B of Schedule E); and
 - correction of typographical and grammatical issues identified by the Commission during its review of the Project Approval.

5.12 Objects of the EP&A Act and public interest

Proponent's consideration

161. The Proponent's EA states that the *"modified WRWF Stage 2 allows an optimised and more efficient development of WRWF enabling increased renewable energy output, increased greenhouse gas emissions savings, reduced electrical losses, increased landowner involvement in the project and the opportunity for lower priced electricity into the grid."*
162. The benefits of the Project as stated in the Proponent's EA include:
- *"Directly increases the potential renewable energy capacity at the location by up to 172 MW, more than doubling the WRWF generation capacity;"*
 - *"A majority of the relocated Stage 2 turbine sites are further from non-associated residence locations;"*
 - *"With full development, generation output would almost double from 610,050 MWh of electricity per year for Stage 1 to 1,207,410 MWh per year for Stage 1 and 2;"*
 - *"Based on average consumption per home, the number of homes served increases from 95,550 to 189,110;"*
 - *"Improves the security of NSW electricity supply through diversification of NSW generation locations;"* and
 - *"It would allow further greenhouse gas emissions savings increasing from an indicative 554,411 to 1,097,290 tonnes of carbon dioxide equivalent (CO₂e) per annum."*

Department's consideration

163. As noted in paragraph 16, the Department's Assessment Report considers public interest and acknowledges that that Project would include the following benefits:
- *"up to 200 full time construction jobs and 2 full time operational jobs, with a capital investment value of up to \$300 million;"*
 - *"Goldwind would contribute up to \$295,000 per year for the operational life of the project, towards community enhancement and various projects within the local community;"* and
 - *"generate approximately 995,000 megawatt hours of renewable energy per year, equivalent to 169,000 homes annually with estimated emissions savings in the order of 955,000 tonnes CO₂-e per year."*
164. The Department's Assessment Report concludes: *"On balance, the Department considers that the proposed modification has merit, and is in the public interest."*

Commission's consideration

165. In considering the public interest merits of the Application, the Commission has had regard to the objects of the EP&A Act.
166. Under section 1.3 of the EP&A Act, the relevant objects applicable to the Project are:
- a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
 - b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
 - c) to promote the orderly and economic use and development of the land,*
 - e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats*
 - f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),*
 - g) to promote good design and amenity of the built environment,*

- h) *to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,*
- i) *to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,*
- j) *to provide increased opportunity for community participation in environmental planning and assessment*

167. A key relevant object of the EP&A Act to the Application, as outlined in paragraph 166, is the facilitation of Ecologically Sustainable Development (**ESD**). The Commission notes that section 6(2) of the *Protection of the Environment Administration Act 1991* states that ESD requires the effective integration of social, economic and environmental considerations in its decision-making, and that ESD can be achieved through the implementation of:

- a) *the precautionary principle;*
- b) *inter-generational equity;*
- c) *conservation of biological diversity and ecological integrity; and*
- d) *improved valuation, pricing and incentive mechanisms.*

168. The Commission has considered representations, advice and comments provided by government agencies, Inverell Council, GIS Council and the community. The Commission finds that the Application is generally consistent with ESD principles, the objects of the EP&A Act and agreeing with the Department's statement in paragraph 163 is in the public interest because it:

- will assist in reducing GHG emissions and climate change, see paragraphs 15, 16, 161 and 162;
- will promote the social and economic welfare of the community, see paragraphs 16, 162 and 163;
- will not result in a significant impact on the biodiversity values of the land, see paragraphs 111 to 118; and
- achieves a reasonable balance between maximising the use of the wind resource and managing potential impacts on the environment and surrounding landowners, based on the conclusions in **sections 5.3 to 5.8** of this Statement of Reasons.

6. HOW THE COMMISSION TOOK COMMUNITY VIEWS INTO ACCOUNT IN MAKING DECISION

170. The views of the community were expressed through public submissions and comments received during exhibition of the EIS and as part of the Commission's determination process as discussed and summarised in paragraphs 22 and 43 and as noted throughout **section 5** of this Statement of Reasons.

171. The Commission carefully considered all of these views as part of its decision-making process. The way in which these concerns were taken into account by the Commission is set out in **section 5** of this Statement of Reasons above.

7. CONCLUSION: THE COMMISSION'S FINDINGS AND DETERMINATION

172. The Commission has carefully considered the Material before it, including the community's views. The Commission has determined to grant consent to the Application, subject to conditions of consent for the following reasons set out above and summarised in part below at paragraphs 171 to 177 below.
173. The Commission agrees with Department's conclusions in paragraphs 65 to 70 in relation to the visual impacts of the modified Stage 2 turbines in that the existing visual mitigation conditions remain appropriate and that any minor residual visual impacts could be adequately managed through visual screening. The Commission finds that the visual impacts of the aviation hazard lighting can be adequately managed through the use of an aircraft detection lighting system subject to the requirements of CASA, because the illumination of the hazard lighting can be restricted to circumstances only when essential for aviation safety (see paragraphs 74 to 77).
174. The Commission has considered the potential biodiversity impacts of the Project. As noted in paragraph 112, the Commission accepts that the estimated disturbance area for the Project is greater than the original assessment due to a more detailed design and survey and is a conservative estimate. The Commission notes that the Proponent can reduce impacts by micro-siting the turbines and implementing other management measures during detailed design and construction of the Project (see paragraph 113). Therefore, the Commission agrees with the Department's and BCD conclusions that the clearing for the Project is justified, subject to an appropriate biodiversity offset (paragraph 114).
175. The Commission is of the view that the impacts on birds and bats can be suitably managed through a BBAMP to be developed for the Project (paragraph 115). Although no evidence of Koala habitation was found during random field inspections of the Site, two Koala feed tree species were identified. Subject to additional surveys and final confirmation of clearing requirements for the Project, the Commission is of the view that the Project biobanking site would adequately offset the biodiversity impacts of the Project, including to suitable Koala habitat.
176. The Commission finds that the Project would maintain the biodiversity values of the locality in the medium to long term (paragraph 118).
177. The Commission finds that noise impacts can be mitigated with the implementation of best management practice noise mitigation measures to be described in an updated OEMP for the Project (see paragraph 134).
178. The Commission acknowledges the NHMRC's conclusion that there is no consistent evidence that wind farms cause adverse health outcomes in humans. The Commission is of the view that the Project would not result in any adverse health outcomes for the local community (see paragraph 135).
179. The Commission agrees with the Department's finding in paragraph 164 that on balance the proposed modification has merit, and is in the public interest as it would contribute 995,000 megawatt hours per annum of renewable energy to the National Electricity Market and assist in reducing GHG emissions (approximately 955,000 tonnes per year) (see paragraphs 161 and 162).
180. The Commission finds that the Project, carried out subject to the imposed conditions, achieves a reasonable balance between maximising the use of the wind resource and managing potential impacts on the environment and surrounding landowners.

181. The Commission supports the existing conditions and the conditions recommended by the Department, subject to the amendments made by the Commission, as they have been designed to prevent, minimise and/or offset adverse impacts on the environment and the community.
182. The reasons for the Decision are given in this Statement of Reasons for Decision, dated 13 December 2019.



Peter Cochrane (Chair)

Member of the Commission



Wendy Lewin

Member of the Commission



Adrian Pilton

Member of the Commission