

10 May 2016

**NSW Planning Assessment Commission Determination Report
State Significant Development Application
Crudine Ridge Wind Farm (SSD 6697)**

1. INTRODUCTION

Crudine Ridge Wind Farm Pty Ltd (the Applicant) has submitted an application to construct and operate a wind farm of up to 77 turbines and associated operating infrastructure 45 kilometres south of Mudgee and 45 kilometres north of Bathurst in the Central Tablelands of NSW. The proposed Crudine Ridge Wind Farm (the Project) is located within both the Mid-Western Regional Council (MWRC) and Bathurst Regional Council boundaries.

The Project area comprises 16 privately-owned properties covering an ‘associated’ land area of around 5,972 hectares. The area is predominantly used for grazing and broad acre cropping. Rural residences are primarily located along Sallys Flat Road to the west and Crudine Road to the east.

Figure 1 – Regional Location

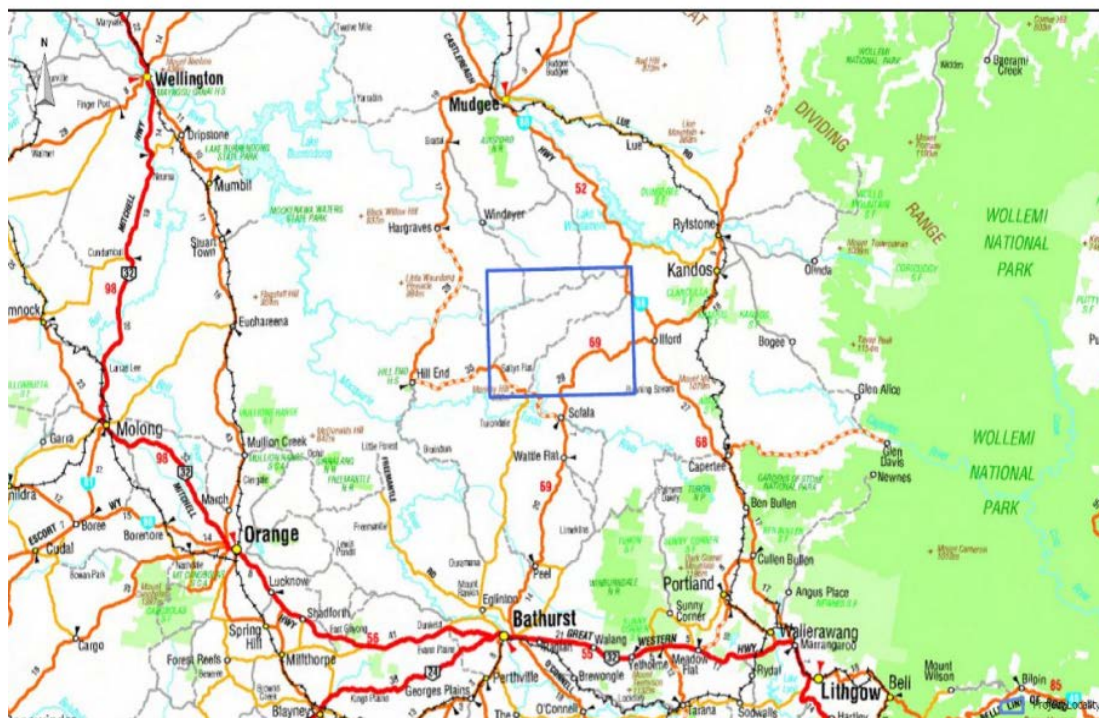
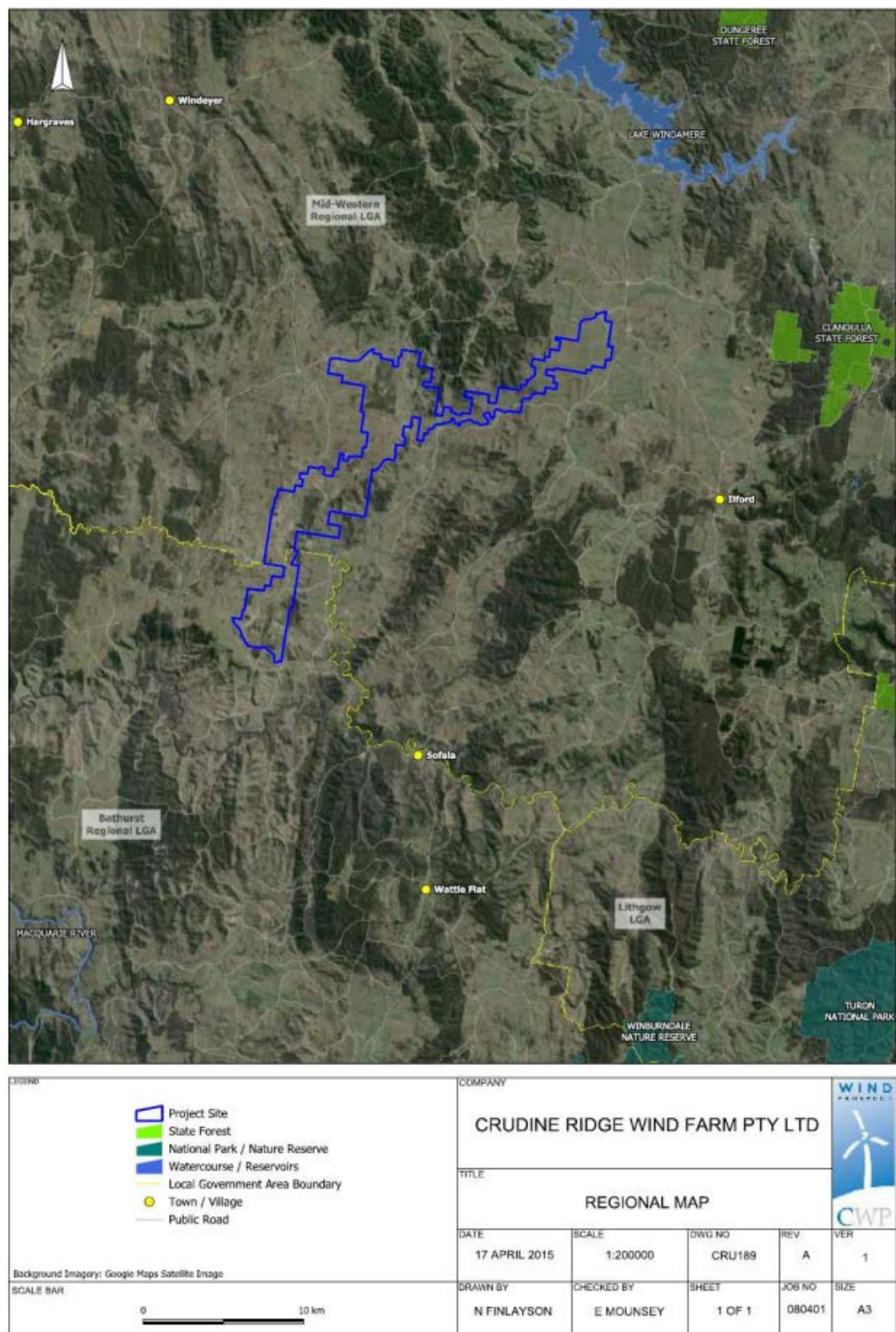


Figure 2 – Project Location



2. PROPOSAL

The original application was for the installation, operation and maintenance of a wind farm of up to 106 wind turbines and associated ancillary infrastructure. Following public exhibition the Applicant considered the issues raised and responded by reducing the number of turbines to a maximum of 77 and provided two refined siting layouts - Option A with up to 77 turbines and Option B for up to 60 turbines. The Applicant also amended the transport route for over-sized vehicles from the Port of Newcastle and identified a preferred transport route for standard heavy vehicle access to the southern end of the Project site.

As part of their Assessment Report the Department provided the following table which outlines the major components of the amended Project.

Table 1 – Major Components of the Project

Aspect	Description
Project Summary	Development of a wind farm, involving: • up to 135 megawatts (MW) of installed electricity capacity; • up to 77 wind turbines and associated operating infrastructure including internal access roads, site compound and crane hardstand areas; • electrical infrastructure including main collector substation, secondary collector station, underground and overhead electricity transmission lines and switching station; • temporary construction facilities including mobile concrete batching plant and rock crushing facilities and site compound; • road upgrades along the project transport routes; and • progressive rehabilitation of disturbed areas.
Project Area	Approximately 1,664 ha ¹ .
Disturbance Area	Up to 106 ha ² .
Wind Turbine Components	• Construction and operation of up to 77 wind turbines, each with a maximum height (to blade tip) of 160 metres (m) and a nominal capacity of between 1.5 and 3.4 MW³. • Typical tower heights up to 101.5 m, and blade lengths between 40 and 63 m. • Wind turbines would be grouped in two clusters: ◦ Pyramul (northern cluster) – up to 48 turbines. ◦ Sallys Flat (southern cluster) – up to 29 turbines. • Up to 77 crane hardstand areas. • 6 permanent wind monitoring masts.
Electrical Infrastructure	On-site electrical infrastructure including: • Up to 77 wind turbine generator transformers. • One main collector substation with 132 kV step up transformers, circuit breakers and isolators. • Secondary collector substation. • Underground electrical interconnection lines. • Internal overhead electrical interconnection line (up to 132 kV). • Grid connection to TransGrid's existing 132 kV transmission line. • Switching station.
Road Works	• Construction of up to 50 km of new internal unsealed access roads, including northern access point connection to Aarons Pass Road and southern access point connection to Hill End Road. • Road upgrades on Aarons Pass Road and Bombandi Road.
Construction Road Transport	• Northern transport route from Port of Newcastle via Mudgee using Castlereagh Highway and Aarons Pass Road, using over-sized vehicles to transport wind

¹ Defined as a 200 m wide corridor within which the wind turbines and ancillary infrastructure would be located.

² The disturbance footprint is based on the project EA, which included up to 106 turbines and associated connecting infrastructure.

³ The project may utilise a mix of turbine models across the site to better utilise the on-site wind resource.

Aspect	Description
	- turbine components. - Southern transport routes using Hill End Road and the Ilford-Sofala Road or Sofala Road, to be used for standard heavy vehicle traffic only.
Capital Investment Value	\$200 million.
Operational Life	Typically 20 to 25 years, after which time there would be an option to either decommission the site or upgrade the equipment and extend the project's operational life.
Employment	Construction workforce of up to 75 (full-time equivalents) and an operational workforce of up to 15 people full-time.
Biodiversity Offsets and Rehabilitation	- Clearing of approximately 105 ha of native vegetation, including 6 ha of Box-Gum Woodland Endangered Ecological Community (EEC). - Offset property area of 674 ha, including 283 ha of Box-Gum Woodland EEC (including derived native grassland). - Progressive rehabilitation of disturbed areas post-construction.

3. DELEGATION TO THE COMMISSION

The application was referred to the Commission for determination under the terms of the Ministerial delegation dated 14 September 2011 as more than 25 public submissions in the nature of objections were received. The application was received by the Commission on 4 January 2016.

The Commission panel appointed to determine the application was comprised of Ms Annabelle Pegrum AM (chair), Dr Maurice Evans and Mr Andrew Hutton.

4. DEPARTMENT'S ASSESSMENT REPORT

The Department's Assessment Report identified the following issues:

- Visual;
- Noise;
- Traffic and Transport;
- Biodiversity; and
- Other Issues.

The Department's Assessment Report recommends approval subject to conditions. In summary, the Department was satisfied that the Applicant *has designed a project in a manner that achieves a reasonable balance between maximising the efficiency of the wind resource development and minimising the potential impacts on surrounding land users and the environment.*

5. MEETINGS & SITE VISIT

Department

The Commission received a briefing from the Department on 3 February 2016 (see **Appendix 1**). The Commission held additional meetings with the Department on 23 February 2016, 14 April 2016 and 29 April 2016.

Over the course of its determination the Commission requested and received additional information on a number of key issues from the Department as summarised below:

1. 24 March 2016 – Additional information was received regarding micro-siting; agency consultation; blasting hours; GPS coordinates; Rural Fire Services (RFS) guidance on wind farms; noise; landowner agreements; Applicant consultation process; visual assessment;

assessment of lots with development consent; noise monitoring equipment; construction material; dust mitigation; workforce numbers; landing strips; road maintenance; community benefit fund; soil landscapes; subdivision within vicinity of wind farm; and koalas.

2. 7 April 2016 – Additional information was received regarding visual assessment; additional comments from Office of Environment and Heritage (OEH); and revised conditions.
3. 22 April 2016 – Additional information was received regarding visual impacts to property known as SFR04 and SFR05; night time noise impacts at SFR05; and fire notification procedures.
4. 27 April 2016 – Additional information was received regarding the voluntary planning agreement (VPA); the definition of ‘associated’ pertaining to residences and revised conditions.
5. 2 May 2016 – Additional information was received regarding the visual assessment of SFR05.

Applicant

The Commission met with the Applicant on 3 February 2016. The Commission also conducted a site visit with a representative of the Applicant on 9 February 2016 (see **Appendix 1**).

Landholders

At their request, during the site visit the Commission met independently with three landholders to view their properties and provide an opportunity for them to outline their concerns.

Council

The Commission met with Mid-Western Regional Council (MWRC) on 9 February 2016 (see **Appendix 1**).

MWRC provided a formal written response on 15 February 2016. The response outlined concerns regarding traffic and transport; land valuations; noise; statement of commitments; visual impact; water; voluntary planning agreement (VPA); and controls relating to subdivision within 5km from a wind turbine.

Bathurst Regional Council declined the offer of a meeting and provided no further comments.

Public Meeting

At 9:00am on 10 February 2016 the Commission held a public meeting at the Pyramul Hall during which 23 submissions were presented to the Commission.

Speakers are listed in **Appendix 2**. Issues raised at the public meeting and the key points from the written submissions are summarised in **Appendix 3**.

6. COMMISSION'S CONSIDERATION

The following key issues were identified by the Commission for further consideration:

- Visual impact and assessment including the status/existence of some of the properties assessed, the use of photomontages and proposed mitigation measures;
- Noise, including during night hours, and alleged damage to monitoring equipment;
- Micro-siting including GPS co-ordinates and implications for visual and other impacts;

- Community Benefit Fund having regard to the management and allocation of funds;
- Biodiversity; and
- Other issues including for traffic and roads, rural fire services, development application considerations, landing strip information, Councils' approach to sub-division assessment having regard to turbine locations, geotechnical stability and the suitability of the wind farm with regard to the headwater to the Macquarie River, the status of landholder agreements, blasting hours, dust mitigation, potential impacts on koalas and the Small Purple Pea, and the accuracy of workforce numbers.

Additional advice was sought from the Department on these issues and considered by the Commission.

6.1 Visual impact and assessment

The potential visual impact of the Project was a key issue raised in submissions from non-associated landholders. The Commission undertook a site visit of the Project area in order to appreciate more fully the potential visual impact. At their request, the Commission also visited three individual properties and meet with the landholders to observe potential visual impacts.

Moderate and Low Visual Impact

In response to issues raised by residents regarding visual impact the Commission requested that the Department review its recommendations for residents classified as having a moderate and low visual impact. In response, the Department's independent visual expert indicated that there should be no change to the originally determined classification of residences.

Nevertheless, the Commission was concerned that these residents should be aware of their rights with regard to the mitigation measures available to them. The Department's recommended conditions have been amended accordingly to provide details of the mitigation measures as well as procedures for notifying landowners. The amended condition also prescribes that affected landowners may request mitigation measures for a period of five years from the commencement of construction. The Commission is satisfied that the amended condition will provide appropriate guidance for residents to be aware of and seek entitlements for visual mitigation measures.

High Visual Impact

The Department's assessment provided an overview of the potential visual impacts across the Project area. Six residences were identified as having potentially high visual impacts. The Department assessment recommended the following condition in order to mitigate the impact for these residents.

Visual Impact Agreements

- 1. The Applicant shall not construct the wind turbines referred to in Table 1 unless it has:*
 - (a) entered into an agreement with the landowner of the relevant residence to allow the visual impacts associated with the wind turbines; and*
 - (b) provided the Department with a summary of the terms of the agreement (excluding any commercial-in-confidence information).*

Table 1: Visual impact agreements

Residence	Applicable Wind Turbines
CR15, CR41	A23, A24
CR18	A34, A35
CR24	A38, A43
CR33, CR34	A83, A84

Note: To identify the residences and wind turbines referred to in Table 1, see the figures in Appendix 2.

The Commission requested clarification from the Department on the visual impact assessment and in particular the mitigation value to the six residences (in table 1 above) of the proposed condition with regard to the turbines nominated for potential removal. The Commission also referenced the proposed options for turbine numbers from 60 -77 and sought advice on the potential removal of turbines with regard to the visual impact on these residences.

The Department's supplementary advice explored opportunities to mitigate the impact for the six residences assessed as having a high visual impact. The Department accepted the advice of the independent visual expert advice *that the nature of the topography of the site means there is no way to effectively reduce the visual impact on the six highly affected residences without extensive removal of turbines*. The Department concluded that *while (it) is not in the position to determine how many turbines are necessary to make the project economically viable, it is reasonable to assume that the removal of 12 or more of the most productive turbines would materially affect the overall economics of the project and result in the wind farm not proceeding*.

The Department does not consider that the impacts of the Project are so significant that the Project should not proceed, having regard to the 1.9km - 2.9km distance of the potentially affected residences from the nearest turbine and that the *determination of 'high' visual impacts does not include the subjective views of the affected landowners, and that the acceptability of visual impacts will vary from individual to individual*.

The Applicant has also advised that whilst it has put forward a 60 turbine option it is not possible for them to simply delete 17 turbines from the proposed 77 layout and retain a viable project. The Applicant's two layout options have been designed having regard to site selection and turbine capacity. The Applicant noted they have also already reduced turbine numbers from the original proposal of 106 to a maximum of 77 turbines.

The Commission agrees with the Department that the removal of a significant number of turbines to mitigate the high visual impact residences would most likely place the Project at risk and in this case is not a viable solution. The Commission is mindful of advice that the Project has the potential to generate up to 420 gigawatt hours of electricity annually (enough to power up to 56,700 homes) and to contribute approximately 0.67% towards the national Renewable Energy Target.

However, the Commission is concerned that in this case where mitigation measures are limited, property owners with a potential high visual impact should be enabled to negotiate effective solutions with the Applicant to offset such impacts.

Accordingly, the Commission amended the conditions (with time limits) to afford the six potentially highly affected landholders with voluntary acquisition rights or to enter into separate agreements with the Applicant (which may include the removal of some turbines):

Acquisition Upon Request

1. For a period of 5 years from the commencement of construction of the applicable cluster, the owner(s) of the land listed in Table 1 may request the Applicant to acquire their land. Upon receiving a written request from these owner(s), the Applicant shall acquire the land in accordance with the procedures in conditions 2 and 3 of schedule 4.

However, this condition does not apply if the Applicant has an agreement with the owner(s) of the relevant land in regard to visual impacts associated with the development, and the Applicant has advised the Department in writing of the terms of this agreement.

Table 1: Land subject to acquisition upon request

Acquisition Basis	Land	Cluster
Visual Impact	CR33, CR34	Sallys Flat (Turbines A61 to A106)
Visual Impact	CR15, CR18, CR24, CR41	Pyramul (Turbines A1 to A58)

Note: To identify the land, clusters and wind turbines referred to in Table 1, see the figures in Appendix 2.

The Commission is satisfied that the amended conditions provide a fair and reasonable response to mitigate the potential visual impact from the Project.

The Commission has also included a definition for ‘shadow flicker’ to be added to support Schedule 3 Condition 5 which ensures that *shadow flicker from operational wind turbines does not exceed 30 hours per annum at any non-associated residence*.

The Visual Assessment of SFR04 and SFR05

The Commission sought additional advice on the visual assessment of residences SFR04 and SFR05 located in the Sallys Flat area following their site visit and submissions from the landholders. The Commission requested that the Department and their independent visual expert review their assessment having regard to the concerns of the landholders and in particular the finding that the potential impact at SFR04 is *at the high end of moderate*.

After further consideration the Department’s independent visual expert confirmed that residential dwellings SFR04 and SFR05 would be subject to a moderate level of visual impact. In particular, the visual expert advised that *whilst SFR04 was assessed and determined to be within an upper range of a moderate impact (due to the orientation of the dwelling relative to the wind farm), it is not considered to be a high impact. This is because when compared to residential dwellings determined to have a high impact (including those along Crudine Road), SFR04 and SFR05 are influenced to a lesser degree by:*

- *Elevation of wind turbines relative to dwellings* (noting that the elevation is not considered to result in an outcome whereby the wind turbines occupy a dominant situation in the landscape).
- *Field of view occupied by wind turbines from dwelling locations* (noting that the available field of view from SFR04 and SFR05 is contained by an undulating landform which extends to the north east and south east of the dwellings and is restricted to around 60 to 70 degrees - approximately one fifth of a potential 360° view).

The visual expert also advised that *as SFR04 is considered to be representative of the highest level of impact for Sallys Flat, no other residential dwelling in Sallys Flat was determined to be within an upper range of a moderate visual impact.*

The Department has also concluded that *the residual visual impacts of the wind farm on SFR04 and SFR05 would be noticeably lower than those residences to the east of the wind farm that have been included in the voluntary acquisition zone.* In so doing the Department noted that *SFR04 and SFR05 are located approximately 2.7 kilometres from the closest wind turbine (compared with highly affected residences to the east of the site, which except for one residence, are located less than 2.5 kilometres from the nearest turbine) ... and that (the Applicant) has already amended its proposal to reduce the visual impacts on SFR04 and SFR05 by removing the 12 closest turbines to these properties.*

Based on the above considerations, the Department has recommended that the owners of these residences are entitled to screening *which expert advice suggests should be effective in mitigating visual impacts over time.*

The Commission appreciates that assessment involves professional judgement based on several inter-related variables including distance, elevation, field of view and screening potential for mitigation. On balance the Commission accepts the visual expert advice and the assessment finding of moderate for SFR04 and SFR05.

SFR 20

A concern was raised that a property identified in the Applicant's visual assessment as SFR 20 was in fact not a residence but a shed. The Commission asked the Department to clarify the matter with the Applicant. The Commission was advised that this property had been identified from an aerial photo and that the Applicant had conservatively assumed that it may have comprised a habitable dwelling. The Applicant had chosen not to access the private property 'without consent'. The Department noted that *the shed identified as SFR 20 is approximately 5km from the nearest proposed wind turbine location....visual impacts were conservatively assessed as low.*

Photomontages

The Department has assured the Commission that the visual assessments were not based on the use of photomontages alone, but rather a combination of several site inspections, wireframe analysis and advice from an independent visual expert.

6.2 Noise

A number of concerns were raised in submissions regarding the potential impact on residents from turbine noise. The Commission requested further clarification from the Department regarding the advice from the Environment Protection Authority (EPA) and further details regarding low frequency noise.

Environment Protection Authority (EPA)

The Department advised that the EPA has no specific comments on the previous recommended draft conditions for the Project and noted that the Applicant would be required to obtain an Environment Protection Licence (EPL) for the Project which would include specific noise requirements.

The Commission is satisfied that the EPA has no outstanding concerns relating to noise in regards to this Project. The Commission acknowledges that the Applicant will be required to obtain an EPL which may provide further site specific noise conditions.

The Department and EPA are working collaboratively in the development of noise guidelines for wind farms in NSW and on standard 'conditions' which are reflected in those recommended for the Project. In the absence of final guidelines for NSW the 2009 South Australian EPA document *Wind farms – environmental noise guidelines* form the basis of noise impact assessment for wind farms.

Low Frequency Noise

In response to concerns raised in submissions the Commission requested further advice from the Department regarding low frequency noise. The Department's supplementary advice is that the noise assessment undertaken for this Project predicted the low frequency noise would be no greater than 55dB(C) and 50 dB(C) at all residence for Layout Options A and B, respectively.

The current *Draft NSW Planning Guidelines: Wind Farms (2011) (Guidelines)* advises *analysis of wind turbine spectra shows that low frequency noise is typically not a feature of modern wind turbine noise and is generally less than that of other industrial and environmental sources*. The Guidelines go on to advise if low frequency noise is *repeatedly greater than 65dB(C) during the daytime of 60dB(C) during the night-time a more detailed low frequency noise assessment should be undertaken*. The Department confirmed the predicted low frequency noise levels for the Project are projected below the frequency noise criteria as specified in the Guidelines.

The Department has recommended conditions requiring the Applicant to undertake compliance noise monitoring within three months of commencing operations, with a consequence of a 5dB(A) penalty if low frequency noise is observed to exceed permitted levels. The Commission is satisfied the noise conditions as drafted by the Department are acceptable in ensuring the management of low frequency noise and as such has adopted the conditions as recommended.

Night Time Noise

Concern was raised during the Commissions site visit that night time noise would be at such levels that sleep would be disturbed and that some residents would be required to shut their windows of a night time.

The Commission requested clarification on expected night time noise levels and the expectation that mitigation measures would be required.

The Department advised that the potential of sleep disturbance was addressed in the Sonus peer review report which noted that:

The SA Guidelines establish a base noise level of 35 dB(A). The base noise level generally applies during low wind speed and background noise conditions. The base noise level is significantly more onerous than the criterion established by the World Health Organisation (WHO) Guidelines for Community Noise¹ (the WHO Guidelines) of 45 dB(A) to protect against the potential onset of sleep disturbance. The WHO Guidelines criterion is based on bedroom windows being open.

The Department advised that *even at wind speeds of 8m/s (considered worst-case), noise levels were not predicted to exceed the applicable criteria at any non-associated receivers (including SFR05).*

The Commission is satisfied that the proposed night time noise levels would be below the levels considered to disturb sleep. The Commission has adopted the Department's recommended condition which requires the Applicant to undertake noise monitoring within three months of the commencement of operations.

Noise Equipment

Residents raised a concern with the Commission that some of the equipment used to monitor background noise was damaged by livestock. The Commission requested the Department investigate this claim. The Department advised that the noise consultant was unaware of any damage to the noise logger but noted (in the Environmental Assessment) that a weather station was damaged by livestock during the monitoring period. It was also noted that supplementary data *from the Bureau of Meteorology was used for the purposes of excluding data affected by wind and rain (and hence not able to be used for background monitoring)*.

During the Department's assessment an independent noise consultant was commissioned to undertake background measurements in the noise catchment of the Project. In addition, the Department's noise specialist reviewed data collected by both the Applicant and the independent consultant and was satisfied *with the quality and quantity of the data presented in the Noise Impact Assessment*.

Sub-stations

The Commission also notes that the noise generated by the proposed substations is assessed as being less than 15dB(A) at the nearest non-associated residences which *would most likely be inaudible*.

In summary, the Commission considers that the noise assessment has been peer reviewed diligently and that the recommended conditions for noise monitoring, and for best practice management during construction and for traffic to minimise noise are appropriate.

6.3 Micro-siting

The Commission considers that micro-siting within an already assessed Project corridor affords a rational and controlled level of flexibility necessary for the final siting of wind turbines. However, the Commission appreciates issues raised at the public meeting regarding the potential impact of moving turbines up to 100m closer to non-associated residences.

In particular, the Commission was concerned for those non-associated residences currently assessed as being under 2km from a turbine and with the potential to experience high visual impacts. The Commission requested additional information from the Department accordingly. The Department responded with the table illustrated below that summarises the distance of the nearest turbine from surrounding non-associated residences. The Department is of the view that *at a distance of around 2km or greater, a movement of 100m is unlikely to materially increase the visual or noise impacts of the turbines*.

Table 2: Distances from turbines to non-associated residents

CR15	2.08 km
CR16	2.31 km
CR18	2.36 km
CR19	2.35 km
CR24	2.93 km
CR26	2.28km
CR27	2.49 km
CR28	1.98 km
CR33	2.44 km
CR34	1.99 km
CR35	2.48 km
CR36	2.33 km
CR37	2.79 km
CR39	2.54 km
CR40	2.32 km
CR41	1.91 km
HER03	2.04 km
HER07	1.99 km
HER15	2.08 km
HER16	2.42 km
SFR04	2.73 km
SFR05	2.75 km
SFR06	2.85 km
SFR07	3.29 km
SFR08	3.57 km
SFR09	3.36 km
SFR12	3.84 km
SFR13	5.21 km
SFR14	5.93 km

Note: yellow indicates residents predicted to have high visual impact and green indicates residents predicted to have moderate visual impact

However, the Commission considers that turbines should not be moved closer to a non-associated residence that is already scheduled to be less than the 2km of a proposed turbine. As such the Commission's has amended the micro-siting condition (Schedule 2 Condition 7) such that *no wind turbine is moved closer to residence CR28, CR34, CR41 or HER07 from the GIS locations.*

GIS coordinates have also been added to the Conditions of Consent.

The Commission is satisfied that with the adoption of the amended micro-siting condition and the provision of GPS co-ordinates in the conditions, the movement of turbines through micro-siting will not result in additional adverse impact.

6.4 Community Benefit Fund

The Applicant has agreed to make a contribution to a community benefit fund under a Voluntary Planning Agreement (VPA). The Applicant has agreed to make contributions to both Mid-Western Regional Council and Bathurst Regional Council. Concerns were raised at the public meeting that any funds provided by the Applicant to the community benefit fund may not be allocated to the communities most likely to be affected by the wind farm.

The Commission requested the Department investigate opportunities to encourage the expenditure of funds within the locally affected area. The Department advised the Commission that during the assessment process care was taken to ensure both Councils were satisfied with the VPA offer. In

addition the Department detailed the process in which the funds would be distributed including the *formation of a Section 255 committee which would include representatives from Council, from the Applicant and from the local community.*

The Commission is satisfied that best endeavours will be undertaken by the Council to ensure funds are spent within the local community, through the Section 255 committee process which requires the inclusion of the local community in the fund allocation process.

6.5 Biodiversity

The Commission noted that the submission from the Office Environment & Heritage (OEH) had outstanding concerns relating to bat and bird strikes. The Commission requested that the Department liaise with OEH and provide additional advice on the matter.

The Department confirmed that the Commonwealth Department of the Environment (DoE) has accredited the State Significant Development approval process for the Project under the applicable Bilateral Agreement with NSW. Under the agreement, the NSW Government is responsible for assessing the application, but the Commonwealth Minister will still be required to determine the Project.

The first recommendation from OEH stipulated that the Applicant was to provide the results of the bat and bird monitoring program to the Secretary, annually for the first three years of operation. Based on the monitoring results provided, the Secretary would then be able to determine if further reporting would be required. The Department has recommended a condition reflecting this process and the Commission supports its inclusion.

The second recommendation from OEH is for a requirement for micro-site turbines to be located at least 50m from any existing hollow-bearing tree. The Department does not agree to the 50m setback. The Department states it has *assessed the risk of bat and bird strikes as comparatively low due to the limited vegetation on site* and that the recommended conditions identify a substantial offset to compensate for biodiversity impacts. The Department is also concerned that if the previously adopted setback of 30m was increased to 50m this could have the unintended consequence of additional clearing of trees.

On balance, the Commission is of the view that any potential for the further removal of trees to comply with the 50m setback would not be appropriate. The Commission has adopted the Department's amended condition, which requires a minimum 30m setback and where it is found to be reasonable and feasible, an increase in the setback to 50m from hollow-bearing trees.

6.5 Other

The Commission requested the Department provide responses on a number of other concerns raised at the public meeting and in written submissions.

Traffic and roads

During the construction of the Project a large number of vehicles would be required to access the site. Concern has been raised regarding potential traffic impacts and the adequacy of road maintenance through both public submissions and from Mid-Western Regional Council (MWRC).

One of the main concerns addressed in the Department's assessment relates to the route for trucks transporting the turbines. Options were explored with both MWRC and Bathurst Regional Council who confirmed a preferred route. MWRC also required that safety road measures be implemented and that the Applicant be required to repair any damages as a result of construction traffic.

Subsequent to consultations between the Department and MWRC, the Commission received an additional submission from MWRC which included commentary regarding traffic movements. MWRC raised further concerns regarding the transport route, the number of over-length vehicle movements, maintenance of roads after construction and availability of passing bays.

The Commission is satisfied that MWRC concerns are able to be addressed under the conditions recommend by the Department and has adopted these accordingly.

The Commission requested clarification from the Department on two points raised by Roads and Maritime Services (RMS) relating to traffic management and road upgrades, and a review of the associated conditions of consent. The Department subsequently amended the conditions to include a requirement for the Applicant to upgrade the Bombandi Road/Castlereagh Highway intersection to the satisfaction of RMS.

The Commission is satisfied that traffic impacts and potential impacts to existing roads are able to be addressed appropriately through the amended conditions.

Access for Rural Fire Services (RFS)

The Commission heard concerns that the presence of wind farms may prevent the NSW RFS from fighting fires. The Commission requested information from the Department on this issue and was subsequently provided with two RFS position papers related to wind farms and bushfires.

The RFS position papers state that *the presence of a wind farm will not stop the NSW RFS from fighting a fire at that location*. In addition the RFS indicated that aerial firefighting can be managed in much the same manner as other potential hazards including powerlines and transmission towers.

RFS also notes that turbines are capable of malfunction which in turn can start fires within the unit. However, RFS states *the risk from such fires is less than that of many other activities expected in these rural environments*. The Department advises that the applicant has committed to *preparing a Bushfire Emergency and Evaluation Plan* in consultation with the RFS and NSW Fire Brigade.

The Commission accepts the advice of the Department and RFS that the presence of wind farm turbines would not prevent the access of NSW RFS on ground and for aerial operations during bushfire emergencies. The Commission has adopted conditions requiring the Applicant to develop procedures to manage potential fires on site.

Properties with Development Assessment (DA) Approvals

Concerns were raised at the public meeting regarding properties which had DA approval for new residences under consideration at the time of the impact assessments having access to mitigation entitlements. In response to the Commission's request for clarity on this issue the Department amended the recommended conditions, by adding a definition for "residence" to include any dwelling that is either the *subject of development consent or a development application that was lodged but not yet determined at the date of this consent once construction of the dwelling is complete*.

The Commission is comfortable that the change in the definition addresses concerns regarding DA approved residences.

Landing Strips

Crudine Ridge Environment Protection Group expressed concern regarding the proximity of landing strips to wind turbines and their view that there were differences in information on this matter between the EIS and the SEAR. Subsequently the Department clarified this apparent difference as

being due to the fact that the Department's report concentrated on landing strips on non-associated properties whereas the EIS identified all landing strips including those of associated landholders.

The Commission is satisfied that there are no landing strips located on non-associated landowner properties within 1.3km of the site.

The Commission has also adopted the Department recommended condition which requires the Applicant to provide details of the turbines to the CASA, Airservices Australia and RAAF.

Subdivision Restrictions

Concerns were raised regarding alleged advice provided by Council which suggested that a subdivision application might not be supported if a boundary was within 2km of a wind turbine. The Commission requested clarification from both Bathurst Regional and Mid-Western Regional Council (MWRC) regarding this issue.

Bathurst Regional Council confirmed they had no controls limiting subdivision in regards to wind farm turbines. MWRC advised their current Development Control Plan 2013 (DCP) includes provisions *that a wind turbine shall not be erected within 5km of a dwelling not associated with the development and 2km of a non-related property boundary* however, *there are no controls specific to subdivision adjacent to wind farms or the erection of new dwellings on non-related properties.*

The Commission sought clarification from the Department regarding MWRC DCP wind turbine provisions. The Department considered the objectives of the MWRC DCP and concluded that *there are no impacts that would preclude any future subdivision as a result of proximity to wind turbines.*

The Commission notes any future decision on subdivision would ultimately rest with MWRC.

Geotechnical Stability and the Suitability of the Wind Farm with regard to the Headwater to the Macquarie River

The Department advised that *it is not aware of any geotechnical constraints to the siting of wind turbines in the project area and notes it is in (the Applicant's) commercial interest to site turbines only in areas that are geotechnical stable. This would be confirmed during detailed pre-construction geotechnical surveys.*

In response to queries about the possibility of erosion of the soil landscape, the Department confirmed that the Applicant is required to manage its construction activities in accordance with standard sediment and erosion control guidelines. The Commission notes that it would be an offence under the *Protection of the Environment Operations Act 1997* to pollute waters, and that water quality matters would be regulated under the EPL by the EPA. The Department also advised that *the Macquarie River is more than 30 km from the site, and is therefore highly unlikely to be impacted by any incident on the site.*

Landowner agreements

The Department has confirmed that the Applicant had Licence Agreements in place with all associated landowners at the time of the Project application. One Licence Agreement with a landowner (the name of whom is subject to privacy) had lapsed but is likely to be renewed in the near future.

The Department advised that the Project *was considered to be 'Critical Infrastructure' at the time the application was lodged with the Department. As a result, and in accordance with Clause 8F of the Environmental Planning and Assessment Regulation 2000, the Applicant was obliged to notify all landowners, upon which the proposed development may occur or impact, of the Major Project*

Application within fourteen (14) days of lodging the submission. This obligation is in lieu of landowner's consent for the lodgment and determination of the application.

On this basis the Commission is able to determine the Project regardless of whether the agreement is in place. It should be noted however, that the Applicant will not be able to carry out any development on any of the associated landowners' properties without their consent or agreement.

Dust mitigation

The Commission has amended conditions for blasting hours to be consistent with construction hours (specifically for Saturdays). Furthermore, the Commission has adopted the Department's recommended conditions which require the Applicant to *implement all reasonable and feasible measures to minimise the off-site dust and fume emissions of the development.*

Koala habitat

The Commission notes that the Department's assessment report (Appendix E) includes consideration of *State Environmental Planning Policy No.44 – Koala Habitat Protection* (SEPP 44) and that *the project site does not contain any areas of core Koala habitat, and that the project is generally consistent with the aims, objectives, and requirements of SEPP 44.*

Small Purple Pea

The Commission is advised that ecological assessments identified one threatened flora species in the study area being the Small Purple Pea with most found in the proposed external electricity transmission line easement. The Applicant has committed to avoiding known plant locations in the micro-siting of the overhead transmission line poles. The plant locations have been included as part of the constraints mapping for the Project. The Commission notes that the Department's recommended conditions also require the Applicant to avoid impacts on threatened species as far as practicable during detailed design of the Project.

Workforce numbers calculations

The Commission was advised that workforce numbers provided by the Applicant had not been revised when the turbine numbers were reduced from 106 to the maximum of 77. The Department has advised that *direct employment during operations may be less than 15*. On balance the Commission considers the reduction in turbine numbers and the socio-economic benefits of the Project far outweigh this reduction in operational employment.

7 COMMISSION'S DETERMINATION

The Commission has carefully considered all the information available to it including the Secretary's Environmental Assessment Report and associated documents, the Department's responses to Commission questions, agency and public submissions, and issues raised at public meeting and site visits.

After careful deliberation, the Commission is satisfied that the proposed wind farm would have an acceptable visual impact for non-associated landholders, an outcome achieved through the inclusion of amended and additional conditions relating to voluntary acquisition and visual mitigation installation.

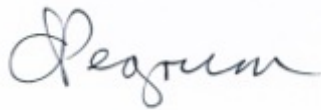
The Commission acknowledges that some noise will be generated by wind turbines. However, in reaching its determination the Commission is satisfied that the noise assessment provided by the Department is robust and appropriate conditions are in place for noise monitoring.

The Commission accepts that micro-siting is an important flexibility required for the siting of wind turbines. The Commission is satisfied that with the adoption of the amended micro-siting condition the potential for any increase of adverse impact on non-associated residences is obviated.

The Commission is satisfied that any concerns relating to bat and bird strikes are able to be addressed through the bat and bird strike monitoring program.

The Commission has added conditions related to transport with the inclusion of an upgrade of the Bombandi Road/Castlereagh Highway, and for staged construction; and an additional requirement for on-site fire procedures. The Commission has also added a definition for shadow flicker and revised the definition of residence to include DA approved residences.

The Commission has considered the merits of this application and has approved the application subject to the conditions set out in the instrument of approval.



Annabelle Pegrum AM
Commission Member (Chair)



Andrew Hutton
Commission Member



Dr Maurice Evans
Commission Member

Appendix 1 Meeting Notes

Department Briefing

This meeting is part of the determination process		
Meeting note taken by Johanna McGarry	Date: Wednesday, 3 February 2016	Time: 10:30am
Project: Crudine Ridge Wind Farm		
Meeting place: PAC Offices		
Attendees: PAC Members: Annabelle Pegrum, Maurice Evans and Andrew Hutton PAC Secretariat: Clay Preshaw and Johanna McGarry Department: David Kitto (Executive Director), Mike Young (Director), Phillipa Duncan (Senior Planner) and Andrew Homeword (Visual Expert, Green Bean Design)		
<u>The Department outlined their approach to the project assessment and responded to issues raised by the Commission. The Department noted the following:</u>		
<u>Policy</u> - There has been a considerable amount of work undertaken towards a new wind farm 'policy'. The intention is to take the policy to Government during the year. - The Crudine project recommended Conditions of Consent have been framed to reflect that policy work including the refinement of the micro-siting corridor.		
<u>Agency Comments</u> - Consultation with agencies has been ongoing during the course of the Department's assessment. - The Department are not aware of any residual concerns by agencies.		
<u>Community Consultative Committee (CCC)</u> - The existing CCC had been established by the Applicant. - The last meeting was held in March 2015. - New guidelines are being developed by the Department for CCCs.		
<u>Micro-siting</u> - GPS co-ordinates of the locations would be provided in the Conditions of Consent. - Micro-siting provides an assessed corridor within which movement of turbines can occur.		
<u>Rehabilitation</u> There is no scope currently to apply bonds or similar measures to decommissioning and rehabilitation. Such an approach would likely require legislative change.		

Noise

- The Department have been working collaboratively with the Environment Protection Agency (EPA) towards the development of noise guidelines for wind farms.
- Compliance auditing for noise is undertaken in accordance with the *Protection of the Environment Operations Act 1997*.
- The wind farm would be required to obtain an Environment Protection Licence.
- Low frequency noise is generally not an issue for wind farms.

Telecommunications

- Taragla is the only case of which the Department is aware where there has been a telecommunications issue associated with a wind farm. There were a number of contributing factors including proximity to transmitters and concurrence with the switch over from analogue to digital.

Visual

- There are a number of ways in which visual assessments are undertaken but all require an appraisal of inter-related considerations. (The process for the Crudine assessment was outlined by the expert consultant).
- A matrix of considerations has been used to assess the visual impact.
- The Department have recommended a condition that requires landholders to sign an agreement or the Applicant would have to remove two turbines. In their view this provides an incentive for the Applicant to resolve view impact issues with affected landholders.
- Visual wireframe analysis has been used widely in the UK. It is a good tool that shows all of the turbines not only the ones seen from certain vantage points.
- A hard limit condition has been included such that the height for all the turbines is restricted to a maximum of 160m (to the blade tip).
- The transmission line will have a very modest visual impact.
- The substation can be seen from Pyramul but will be obscured.
- Planting and screening is available to mitigate visual impact for non-associated landholders with residences within 4km of any wind farm.

Construction

- Construction would require a management plan for each stage of development.
- The Applicant will require RMS approval to bring their vehicles through town.
- Concrete batching is proposed to be off site. The EPA is the regulator under the Environment Protection License.

Bushfire/ Aerial spraying

- Additional access tracks may improve the ability for ground based firefighting.
- The spraying of properties is mainly restricted for associated residences.

Documents : Nil

Outcomes/Agreed Actions: The Department was asked to provide additional information on micro-siting, noise and bushfire management.

Meeting closed at 12:00pm

Applicant Meeting

This meeting is part of the determination process

Meeting note taken by Johanna McGarry

Date: Wednesday, 3 February 2016

Time: 12:00pm

Project: Crudine Ridge Wind Farm

Meeting place: PAC Offices

Attendees:

PAC Members: Annabelle Pegrum, Maurice Evans and Andrew Hutton

PAC Secretariat: Clay Preshaw and Johanna McGarry

Applicant: Ed Mounsey (Chief Operating Officer) and Siobhan Isherwood (Development Manager)

The purpose of the meeting: Meeting with the Applicant

The Applicant briefed the Commission on the Project and outlined their general response to the Project assessment and recommended Conditions of Consent. The Applicant noted the following:

Negotiations

- The Crudine wind farm proposal pre-dated the draft 2011 Wind Farm Guidelines.
- In 2011 they were aware of what was happening in associated Victorian policy including references to a 2km buffer from turbines.
- The Department had advised them of the condition relating to non-associated landholder agreement and which turbines might need to be removed as part of any negotiations in December 2015. They have not had an opportunity negotiate on this matter.
- Consultation has been undertaken throughout the Project including through newsletters, their website, meetings with landholders, and two open days prior to the assessment.
- First CCC was held in mid-2011 and there have been some 4 - 6 meetings since that time. Outside of these meetings the Applicant has provided email updates on the Project.
- All agreements are in place for associated landholders.
- Three agreements are in place with non-associated landholders.

Design

- The Option A and Option B layouts were a result of refined design based on variable rotor blade lengths and turbine locations. They are aware of the maximum height restriction in the recommended conditions.
- They have significantly reduced the number of turbines from the original Project of 106 to a maximum of 77 turbines.

<u>Staging</u> - Staging of the wind farm development would be based on demand. - Higher yielding sites are in the north part of the development.
<u>Bond</u> They are not proposing an upfront bond. The Applicants Environment Impact Assessment has detailed how financing would be put aside.
Documents tabled at the meeting:
Outcomes/Agreed Actions:
Meeting closed at 1:00pm

Applicant Meeting

This meeting is part of the determination process		
Meeting note taken by Johanna McGarry	Date: Tuesday, 9 February 2016	Time: 12:00pm
Project: Crudine Ridge Wind Farm		
Meeting place: Project site visit		
Attendees: PAC Members: Annabelle Pegrum, Maurice Evans and Andrew Hutton PAC Secretariat: Clay Preshaw and Johanna McGarry Applicant: Siobhan Isherwood (Development Manager) and Ben Kronenberg (Development Officer)		
The purpose of the meeting: Meeting with the Applicant		
<u>The Commissioners met with the Applicant on site and drove around the Project area stopping at various vantage points to inspect the proposed location of wind turbines and associated infrastructure.</u> During the site visit the Commissioners stopped and met (at their request) three landholders: Owain and Judy Rowland-Jones; Penny and Andrew Hundy; and Heather and Roy George. The Applicant did not attend any of these meetings or visits to the landholder's properties. <u>Project Site Visit</u> <u>The Applicant pointed out:</u> - Turbine locations - Where some trees would need to be removed along roads - Where some roads may require gravel (or similar) to be laid to the edges and culverts - Substation location - That onsite dams may be required for water subject to landholder agreement. Owain and Judy <u>Rowland-Jones</u> <u>The landholders:</u>		

- Showed the Commission those parts of the property where wind turbines would be visible
- Outlined their concerns regarding the visual assessment and the associated photomontage/s
- Advised that the SFR13 reference is incorrect as there is no residence at that location
- Noted that further information would be provided to the Commissioners at the public meeting regarding the Project application and associated processes.

Penny and Andrew Hundy

The landholders:

- Gave a brief background of their family's long-term commitment to fine wool farming in the area
- Showed the Commission what they considered to be the visual impact of the proposed turbines including from their the kitchen window
- Said that they considered the photomontages misleading, that the wireframe analysis had not been prepared from their new residence (recently completed) and did not agree the assessment of 'moderate' impact
- Expressed concern regarding noise noting that when the wind blows from the east the noise would most likely increase
- Questioned the background noise monitoring. They noted that they did not consider normal country life background sounds as noise
- Advised that they had been told (by the noise monitoring agent) that noise levels at night could be managed by closing their bedroom windows and that they did not consider this an acceptable solution
- Wanted to be able to continue to enjoy their country life and were concerned about impacts on their children's health
- Expressed concern for the impact of the wind farm on their sheep and associated productivity.

Heather and Roy Georges

The landholders:

- Showed the Commission the parts of their property that they felt would be most impacted by the views to the proposed turbines
- Advised that in their view the images used in photomontage/s are incorrect
- Expressed concern about the erosion/subsidence of the hillside (below the turbines) because of the wind farm construction
- Advised that the Council had told them that they would not get approval for a sub-division if the wind farm was within 2km of the sub-division application
- Do not agree with the Applicants description of the land in the area as sterile
- Were concerned that turbine noise would echo along the valley and could be as high as 65dB (A).

Documents tabled at the meeting:

Outcomes/Agreed Actions:

Meeting closed at 3:30pm

Council Meeting

This meeting is part of the determination process		
Meeting note taken by Johanna McGarry	Date: Tuesday, 9 February 2016	Time: 4:15pm
Project: Crudine Ridge Wind Farm		
Meeting place: Mid-Western Regional Council Offices		
Attendees: PAC Members: Annabelle Pegrum, Maurice Evans and Andrew Hutton PAC Secretariat: Clay Preshaw and Johanna McGarry Mid-Western Council: Liz Densley (Acting Director Development)		
The purpose of the meeting to determine any outstanding concerns of Council		
<u>The Council representative advised that at this time Council did not have a formal position on the wind farm application (as it is currently framed) because the Chief Executive was on leave and Council would not be meeting until 17 February. The Commission agreed that it would accept a formal response from Council if it could be provided by 19 February.</u> <u>The Council representative noted that:</u> <u>Subdivision</u> • The land in the Project area is zoned as 'Primary Production Land' and has a minimum lot size of 100ha. • Council would provide further detail about subdivision related to wind the wind farm. <u>Roads</u> • It was acknowledged that trucks would need to travel through Mudgee. A number of associated issues previously raised by Council had now been addressed. • Details regarding such things as weight limits on culverts were yet to be addressed. • For roads that are a local asset Council would want to retain responsibility for maintenance. <u>Consultation</u> • Council would appreciate prior notice and expect consultation from the Applicant for each stage of the wind farm development.		
Documents tabled at the meeting:		
Outcomes/Agreed Actions: Council to provide further information regarding sub-division applications near wind farms. The Commission granted an extension for Council to make a late submission post the February Council meeting.		
Meeting closed at 5:00pm		

Appendix 2

List of Speakers at the Public Meeting

Date & Time: Wednesday, 10th February 2016 at 9:00am

Place: Pyramul Hall, 1329 Pyramul Road Pyramul NSW 2850

Meeting Schedule	
9 am	Opening Statement from the Chair – Annabelle Pegrum AM
Registered Speakers:	1. Dave Robinson (Concerned Country Citizens)
	2. Steve Lowe
	3. David Groves
	4. Alicia Hawkins
	5. Brenden Cole
	6. Suezanne Lane
	7. Ingrid Saywell
	8. Alison Cashen
	9. Ellwyn Croake
	10. Ralph Price
	11. Max Price
	12. Laureen Price
	13. Ian Price
	14. Penny Hundy
	15. Andrew Hundy
	16. David White
	17. Buzz Anderson (Rylstone District Environment Society)
	18. Judith Rowland-Jones
	19. Owain Rowland-Jones (Crudine Ridge Environment Protection Group)
	20. Garry Gibbons (<i>did not speak on the day</i>)
	21. Rita Gibbons (<i>did not speak on the day</i>)
	22. Tim Rowland-Jones
	23. Chontelle Rowland-Jones
	24. Percy Thompson
	25. Murray Price
	END

Appendix 3

Summary of Comments provided at the Public Meeting and in written submissions (in no particular order):

Decommissioning

- Risk that the company will not have the money to remove the wind farms at end of the Project leaving remnant assets in at the area
- Bond should be required to ensure appropriate de-commissioning

Noise

- Concern regarding the impact of infrasound on livestock
- Concern that the noise assessment does not take into account local topography
- Noise assessment was compromised as livestock chewed monitoring equipment
- Concern regarding the impact of low frequency noise
- Background sounds at present are pleasant and part of country life – not considered to be ‘noise’

Road

- Potential to cause dangerous conditions on local roads
- Dust impacts have not been adequately addressed
- Impact of road improvements has not been assessed for residents using the roads on a routine basis
- Not clear who would be responsible for ongoing road maintenance and upgrades
- Concerned that the community would be required to ‘foot the bill’ for road repairs
- More detail is needed about passing areas and culvert upgrades.

Energy

- Wind farms are not ‘farming’ but ‘industrial uses’
- Wind farms will not make energy any cheaper for the people in the Project area
- Wind is not a reliable energy source
- The carbon footprint of wind farms is likely to be significant
- Wind farms still need to be augmented with gas-fired energy
- Wind farms will aid in reduction of greenhouse gases
- Wind farms have positive energy returns with fewer environmental effects than hydro or coal power

Jobs

- Job creation would be mainly in specialised areas most likely sourced from outside the region
- Many parts are not made in Australia and support international not Australian jobs/industries
- The job creation numbers are not reliable and have been overstated by the Applicant
- Jobs would be generated by associated landholders who will now how many to pay for help

Property Values

- Property values would be adversely affected
- What is the compensation if it can be shown that property values have declined because of the wind farm

- Council has advised once wind farms are in place they would impact negatively on subdivision potential

Health

- Ambiguity in potential health impacts
- Impacts on the health of young children needs to be properly investigated
- Noise will lead to sleep deprivation and associated health problems
- Wind farms have been around overseas for many years and are proven technology with no known health effects

Visual

- Many of the images used for the visual assessment are inaccurate
- Moderate visual impacts are no more acceptable than high visual impacts
- Properties that do not exist have been used in the visual assessment with resultant loss of confidence in the whole assessment
- Visual assessment has not taken into account residences that have been the subject of recent Development Assessment approval
- Visual assessment is subjective and cannot be relied upon
- What is the process to be used by residents in negotiating with the Applicant for mitigation, people need to be aware of their rights

Economic Benefit

- Financial benefit of being associated landholder allows more money to be invested in to individual properties and in the area
- Contractors will stay in surrounding accommodation
- Pyramul would benefit from the added investment
- Pyramul needs new farming opportunities like the wind farm to survive

Community Benefit Fund

- Funds are much needed for the area
- Funds could be used for Crudine Public School to set it up as a meeting place
- People should have a say in how and where the funds are spent

Bushfire

- Turbines will limit the ability to fight bushfires in the area
- Turbines can start fires
- Water borne aircrafts cannot be used in turbine areas

Senate Enquiry

- Experience of people as presented to the Senate inquiry on wind farms is of concern
- Gaps in understanding on the impacts to health

Conditions

- Allowing 100m movement of turbines could result in turbines moving closer to non-associated properties
- Time limits should be added to the consent

Flora/Fauna

- Number of koalas in the area have not been considered
- Concern a rare species of flora has not been considered

- Impacts on birds and bats have not been fully addressed. Turbines should be shut down if fauna are affected

Applicant Status

- Query on the ownership of the company and their financial interest
- Concerned that the Applicant would add additional turbines through modification applications
- Reduction of turbines has reduced potential income for associated landholders

Soil and Water

- Soil and water concerns raised by the Catchment Management Authority have not been resolved including for the headwater of the Macquarie River
- Soils in the area are fragile and subject to erosion
- Concerns about use of water bores and the potential to impact on surrounding farmers

Perceptions of the Area:

- Many of the residents in the area have held and farmed the land for generations
- Representation of the Project Area in the Assessment Report as being of *limited conservation value* and *relatively sparsely populated* with a regional setting not *having a high scenic value* are inaccurate and offensive

Other

- Some associated agreements are not in place making any Commission determination legally invalid
- Data on distance from aviation landing strips is incorrect
- Consultation by the Applicant has been limited
- Aboriginal heritage impact should be more fully addressed
- Blade throw and safety is a concern