

4 March 2014

Anna Timbrell
Department of Planning and Infrastructure
23 - 33 Bridge St
Sydney NSW 2000

Dear Anna,

Re: Crudine Ridge Wind Farm Preferred Project Report Submissions.

Thank you for providing us with the public and agency submissions that were made regarding the Crudine Ridge Wind Farm Preferred Project Report (CRWF PPR). The CRWF PPR was placed on exhibition from 29th November to 20th December 2013, and was made available in both hard and electronic form to agencies and the local community for review. The submissions that were received (Table 1) have been reviewed and considered, and a response is provided in appendices to this letter.

Table 1 Summary of submissions received in response to the CRWF PPR

Submission	Position	Number of Submissions
Public	Support	9
	Object	25
	Comment	1
Agency	Comment	3
Total		38

In addition to the above submissions, Mid-Western Regional Council (MWRC) attached to their own agency submission 120 form letters. These form letters, objecting to the project, were sent to residents by MWRC in October 2013, with a request they be signed and returned. These have also been reviewed and considered.

Additionally, there were a number of matters raised in the public submissions that the Proponent considers have been robustly addressed in the CRWF PPR. However to provide further clarity, Table 2 lists the issues that have previously been raised and the sections within the CRWF PPR where they are addressed. I would refer both respondents and the Department of Planning and Infrastructure (the Department) to the CRWF PPR in this regard, which is available via the Project website (www.crudineridgewindfarm.com.au) or on the Department's website (www.majorprojects.planning.nsw.gov.au).

Table 2 Matters previously addressed in the CRWF PPR

Issue Raised	Section of the PPR addressed	Page
Responsibility for undertaking dilapidation surveys and for costs of upgrades and repairs to roads.	6.9.2 Construction	132
Measures that will be implemented during transport to promote and ensure safety on roads in the Mudgee urban area and on rural roads.	6.9.2 Construction	131 - 132
Impacts on Ulan Road associated with Project related traffic.	6.4.3 Alternative Routes Considered	117
Impact on schools in the Mudgee urban area.	6.4.3 Route through Mudgee - Route Option 2	112
Noise impacts from traffic in the Mudgee urban area.	6.8.2 Consultation - Residents in the Mudgee urban area	128
General impacts on businesses in the Mudgee urban area, including loss of earnings.	6.8.2 Consultation - Residents in the Mudgee urban area	126
Structural suitability of roads on Route Option 2.	6.8.2 Consultation - Residents in the Mudgee urban area	127
Delays experienced as a result of Project related traffic.	6.8.2 Consultation - Residents in the Mudgee urban area	126 - 128
Dust suppression along Aarons Pass Road.	6.4.3 Aarons Pass Road - Dust suppression measures	116
Water usage for the Project.	6.4.4 Transport of construction materials - water	119

Where additional information has been sought, or new issues raised, however, these were considered and a full response to these concerns is provided in the appendices to this letter.

If you would like any further information, or would like to discuss this response, please do not hesitate to contact me on (02) 4013 4640.

Yours Sincerely,



Ed Mounsey
Head of Development

CWP Renewables is the new company name for Wind Prospect CWP; a joint-venture between two leading renewable energy developers: Continental Wind Partners and Wind Prospect Group.

Appendix 1

Concern / Query	Response
Public	
Concern regarding repositioning of powerlines, telephone cables and other infrastructure for passage of over-dimensional vehicles.	There may be instances where powerlines sag enough to be an obstruction to over-dimensional vehicles. It is common practice in this situation for powerlines to be propped up while vehicles pass underneath them. If required, this will occur during the over-dimensional vehicles transportation period in consultation with the appropriate body (e.g. Essential Energy). Consultation with relevant authorities and works of this manner are a routine component of heavy haulage planning and preparation and will be undertaken by the licensed haulage company delivering the wind turbine components. Where overhead line sag is substantial, lines can be tensioned. The requirement to do so will result from the above consultation processes with the appropriate authorities. All overhead cables that pose an obstruction would be dealt with in this manner. Other infrastructure that may be required to move include traffic sign posts and guard rails.
Concern regarding use of airbrakes in residential areas.	Noted. Restrictions will be placed on use of airbrakes in residential areas. An example of a sign used for this purpose during construction of the CWP Renewables developed Boco Rock Wind Farm near Cooma is provided in Appendix 2, Figure 1.
Concern regarding preserving the integrity of sandstone edges / kerbs on roads in Mudgee.	Rex J Andrews have advised it is unlikely vehicles will come into contact with roadside kerbs. The closest a vehicle would come to a kerb would be at the Short Street / Lawson Street intersection, where the median may need to be reduced, and reinstated at a later date. In this instance the kerb is of concrete construction. Temporary protection measures could be implemented to protect the integrity of kerbs where required. Typical measures include use of sandbags and/or timber chocks over which over-dimensional vehicles can travel. If these measures are to be deployed they would be in place during over-dimensional vehicle transport periods. Details of protection measures, if required, will be finalised within a Traffic Management Plan prior to over-dimensional road haulage commencing.
Impacts on Country Link coach services.	Where there is the potential that impacts on bus and / or coach routes will occur, consultation will be undertaken with the service operator prior to construction to ensure

	continued functioning of bus and coach services.
Delivery timeframes quoted for turbine components are not achievable.	The relevant submissions refer to a “peak estimated construction period” in the CRWF PPR Transport Assessment (Appendix 3 of the PPR, Section 4.2.4) which is described as a four month period. This is the period during which it is assumed that multiple construction activities will occur simultaneously and not the extent of wind turbine component deliver to site. Time frame for delivery of turbine components will depend on both the model and final number of turbines to be constructed. However, based on the worst case figures outlined in the CRWF PPR Transport Assessment, the delivery period could be up to approximately nine months (Appendix 3, Section 4.2.1 - CRWF PPR Transport Assessment).
Concerns regarding the impact of over-dimensional vehicles on the integrity of heritage buildings, including the impact of vibrations.	International research: Concerns regarding vibrational impacts of traffic on buildings around the world have resulted in a number of detailed studies. These studies have investigated the nature of vibration and sound propagation, and have either modelled or tested the potential for structural damage to both modern and heritage buildings. Of note is that these studies have primarily investigated impacts associated with major highways and other roads (and railway lines) with a combination of continuous high traffic volumes and high vehicles speeds. Results identified that both ground-borne and air-borne vibration had the potential to be felt inside residences in extreme circumstances, but that there was no evidence to suggest that vibrations even at these levels could produce significant damage to buildings (Hajek et al. 2006; Watts, 1990). One study noted that “vibration levels induced by buses in houses at complaint sites were found to be significantly lower than the most stringent guide value” for building structural damage (Hunaidi, 2000). A study of heritage buildings in the UK found that ground borne (rather than air-borne) was the most significant form of vibration produced by heavy traffic. The study demonstrated, however, that “other activities such as slamming doors, jumping on upper floors and playing a church organ could all produce similar or greater levels of vibration” (Watts, 1990). Traffic impact research has shown that truck weight and speed are both identified as contributing factors to vibration propagation. Given the type and volume of loads, and the speeds being proposed, these factors have been sufficiently mitigated for this Project, as discussed below. Mudgee urban area: Every day hundreds of vehicles, including standard heavy

	and over-dimensional vehicles, pass through Mudgee with no known impacts to the integrity of heritage buildings. Route Option 1 is an RMS road which is designed to accommodate higher traffic volumes and heavier loads. The RMS route through Mudgee is generally wide enough and of suitable surfacing to safely and efficiently accommodate Project related traffic. Moreover, the wind turbine components proposed to travel this route will be transported on modern vehicles travelling at lesser speeds through urban areas than standard trucks and vehicles. Route Option 2 comprises a number of MWRC operated roads. Wind turbine blades are the only components proposed to travel this route. Vehicles carrying these generally have gross weights of between 6.5 and 8.5 tonnes per axle and again, will be transported on modern vehicles travelling at lesser speeds through urban areas than standard trucks and vehicles. As detailed in Section 6.4.5 CRWF PPR, the potential impacts on Route Option 2 have been misrepresented causing community concern. Only over-length vehicles carrying wind turbine blades are proposed to travel along Route Option 2. That is, three vehicles per wind turbine, with components for up to three wind turbines being delivered to site per week. As such, it is expected that impacts associated with over-length vehicles on Route Option 2 will be minimal, and existing traffic volumes are unlikely to significantly increase. It was estimated that the addition of Project related traffic along Route Option 2 would result in less than a 1 % increase in traffic flows along those roads (CRWF PPR, Appendix 3). As a consequence there will be no greater vibration attributable to the transportation of Project related vehicles than that of current traffic type and volume.
Concerns regarding the safety of the local community, including children, during the haulage period. Particular reference was made to the Lawson Park area.	Road safety is always a top priority, especially in urban areas, and construction periods are no different. Maintaining safety throughout the construction period, not just the haulage period is of the utmost importance, and is considered in both the route design and mitigation measures for the Project. A high standard of safety will be maintained on-site and on public roads throughout construction through implementation of the Project Traffic Management Plan, which will be drafted in consultation with NSW Roads and Maritime (RMS) and local Councils pre-construction. Ultimately, however, all Project related traffic on public roads will also be required to adhere to strict regulations, designed to promote safety, through the RMS. The Proponent acknowledges the concerns raised regarding safety near Lawson Park with respect to haulage of over-dimensional vehicles during the transportation period. In

response to this point the Proponent would like to reiterate the following management measures outlined in the Statement of Commitments.

Development of a CEMP sub-plan, to include, but not be limited to:

- *Scheduling of deliveries, timing of transport, limiting the number of trips per day, and reducing traffic during school bus route hours, i.e., 7.00 to 9.00 am and 3.00 to 4.30 pm;*
- *Undertaking community consultation before and during all haulage activities and providing a dedicated telephone contact list to enable any issues to be rapidly identified and addressed;*
- *Letterbox drop along affected routes;*
- *Minimise disruption to local vehicles by ensuring average and maximum wait times due to Project related traffic along local roads are kept to a minimum;*
- *Managing the haulage process, including temporary, short term road closures, the erection of warning signs and / or advisory speed signs posted in advance of isolated curves, crests, narrow bridges and changes of road conditions;*
- *Placing of speed limits on all roads that would be used primarily by construction traffic to reduce the likelihood of any accidents and reduce maintenance costs;*
- *Designing and implementing temporary modifications to intersections and roadside furniture as appropriate;*
- *Producing a Transport Code of Conduct which would be made available to all contractors and staff detailing traffic routes, behavioural requirements and speed limits;*
- *Establishing procedures to monitor traffic impacts on public and internal access tracks during construction, including noise, dust nuisance and travel times, and to implement modified work methods to reduce such impacts where practicable;*
- *Reinstating pre-existing conditions after temporary modifications to the roads and pavements along the route, where applicable, in consultation with relevant authorities; and*

Where reconstruction or provision of a temporary crossing is required over a creek or drainage structure, the design of this structure will be discussed with the relevant authority. Further to this Statement of Commitment, signage regarding pedestrian safety targeted at both drivers and residents could be used during over-dimensional transport through the Mudgee urban area. This measure would be considered in consultation with the relevant authorities.

Consultation with the relevant authorities will take place during finalisation of the Traffic Management Plan.

NSW Police Force	
Transport is not to coincide with school bus routes.	Noted. A commitment to that effect is made in Statement of Commitment 022.
School zones are to be avoided where possible.	Noted. Route Option 2 was chosen in order to reduce delays in school zones in the Mudgee urban area.
Roads and Maritime Services	
An additional consideration included in response dated 18th December states: A basic right (BAR) turn treatment as shown in Figure 7.5 of the Austroads Guide to Road Design: Part 4A shall be provided in Castlereagh at the intersection of Bombandi Road and the Castlereagh Highway. The widening shoulder is to be sealed and built for a 100km/h speed environment to provide a reasonable level of safety for traffic turning into Bombandi Road and to allow following traffic an area to pass the right turning vehicle on the left hand side.	Noted.
Mid-Western Regional Council	
Concern was raised regarding the approximate length of time quoted for over-dimensional vehicles to travel through the Mudgee urban area.	Regarding travel time through the Mudgee urban area: - A travel time of 15 minutes was estimated for an approximate 3 km section of road through the Mudgee township (Route Option 2, from the Cox Street turn-off to re-entry onto State Highway B55). This time takes into consideration potential vehicle speeds, vehicle acceleration and turning, and is considered feasible for the vehicles and loads proposed. - If two or more vehicles travel through Mudgee at the same time, it would follow that while the travel time for the instance would increase slightly, the number of instances would decrease. - Travel times quoted are approximations only, used as a point of reference for discussion. However, they are the result of on-site route surveys undertaken by transport and construction staff highly experienced in transport of over-dimensional loads. - The Proponent notes that a variation on Route 2 (CRWF PPR) was used by MWRC as a heavy vehicle detour while the Market Street / Douro Street roundabout was upgraded. The Proponent understands that the heavy

	vehicle detour included Cox, Short and Lewis Streets for a period of nine weeks. The sign in Appendix 2, Figure 2, was located at the Market and Cox Street intersection.
Concerns raised regarding road pavement damage in the Mudgee urban area including fatigue.	Refer to Statement of Commitment 024 regarding dilapidation surveys. The statement details that dilapidation surveys would be undertaken prior to construction “in consultation with councils and road authorities”. A consistent commitment has also been made by the Proponent to bear the responsibility for repairing damage that arises as a result of Project related traffic.

References:

Hajek, J.J., Blaney, C.T. and Hein, D.K. 2006. Mitigation of Highway Traffic-Induced Vibration. Session of Quiet Pavements: Reducing Noise and Vibration. 2006 Annual Conference of the Transportation Association of Canada.

Hunaidi, O. 2000. Traffic Vibrations in Buildings. Construction Technology Update, National Research Council of Canada. Ottawa, Canada.

Watts, G.R. 1990. Traffic induced vibrations in buildings. Transport and Road Research Laboratory, Department of Transport. Berkshire, UK.

Appendix 2



Figure 1 Example of signs used to restrict use of airbrakes during construction of the CWP Renewables developed Boco Rock Wind Farm, south of Cooma.



Figure 2 Image of a heavy vehicle detour sign used during the upgrade of the Market Street / Douro Street roundabout. This signage directed heavy vehicles to detour along Cox, Short and Lewis Streets (image courtesy of Google maps).