



## CADIA VALLEY OPERATIONS

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Director General  
Department of Planning & Infrastructure  
23-33 Bridge Street  
Sydney NSW 2000

Attention: Toby Philp

### **Submission on Major Project Application MP08\_0252 Flyers Creek Wind Farm**

Dear Mr Philp

Thank you for the opportunity to make comments on the proposed Flyers Creek Wind Farm major project application and associated Environmental Assessment (EA) prepared by Aurecon.

Cadia Valley Operations (CVO) wishes to make comments specifically in respect of concerns over potential impacts on its ongoing operations. Primarily this submission addresses issues affecting CVO according to the revised Director General requirements dated 19 January 2009 as specifically relating to the key assessment themes of "Strategic Justification" (land use conflicts), "Noise Impacts" and "Traffic and Transport."

#### ***Strategic Justification – Land Use conflicts***

##### ***1. Grid Connection –location of 132kV line through mining lease***

Representatives for the proponent have variously communicated with CVO and Newcrest personnel over the project.

CVO has continued to express concerns over likely impacts of a grid connection potentially sterilising land within the mining lease preventing future expansion or development. CVO advised in a letter dated 17 March 2011 to Infigen as follows:

*At our meeting you presented Infigen's perceived benefits in proceeding with a project application at this time and for connecting to the 94G line within CVO land, while we raised concerns over the potential that a 132kV line route through the mine lease area may have on future development options for mining and associated infrastructure. CVO's position remains unchanged.*

*Therefore I wish to advise that CVO is not in a position to formally agree to the connection of the wind farm to the 94G line within CVO lands at this time due to uncertainties regarding potential benefits and limitations to CVO. We will consider reviewing this following the public consultation phase of the project assessment process and further consideration of CVO future development options.*

Despite the above advice, the proposal indicates that the preferred grid connection for the wind farm is through the CVO Mining Lease area (P3-11). The EA justifies this as the closest point for connecting to the existing 132kV line and as having much lower environmental and neighbouring amenity impact compared to alternative routes considered. The EA further states that this route does not pass near residences. The EA also considers that by proposing to follow existing internal reticulation lines within the CVO site (11 and 33kV lines) that it would minimise amenity and logistical impacts.

The EA however provides little detail on alternatives considered for the grid connection. The location of an additional 132kV line through the mine lease has the potential to impose constraints on mine operations. CVO has safety standards applicable to operations within or near power line corridors. The Mine lease also imposes safety obligations upon CVO. CVO has procedures for working in the vicinity of power lines. These procedures will need to be effected in the vicinity of an additional external power line through the site, imposing additional limitations on operations. CVO remains concerned over accountability for maintenance and electrical incidents from a regulatory perspective on the mining lease.

Whilst CVO accepts that future plans could require relocation of internal power lines, which occurs from time to time with mine expansion, the location of a third party power line within the operations has the potential to further limit future options for mine expansion. Relocation of a 132kV line which could impact on power supply from the Flyers Creek Wind Farm could impose significant costs on CVO unless Infigen took full responsibility for any required relocation. The location of a power line within CVO mining lease is not CVO's preferred option. The EA provides little commentary on alternatives to the grid connection locations (as required by the DGRs) so it is not possible to consider these.

Any location of a 132kV power line must consider CVO concerns and must be subject to relocation at the full cost of the proponent where the line affects future options for mining within the mining lease. CVO will require relocation of the line within 12 months of approval for subsequent mine expansions.

## *2. Grid Connection – Switching station location and potential to impact on CVO power supply*

It is difficult to accurately determine the switching station location from the supplied wind farm drawings, but the most southern area that could possibly be conceived for a switching station would be somewhere above the Ridgeway South Portal. The EA states that the grid connection is proposed "at a point about 500 metres west of the Cadia Mine substation." It is envisaged that the Flyers Creek Wind Farm would require 24 hour access to the switching station site and line corridor as they are critical pieces of infrastructure in their system. This imposes additional access and safety obligations upon CVO.

The Flyers Creek Wind Farm is a 132MW generator facility. Introducing a generator facility this close to the CVO site will increase the site fault level. This would change the existing system parameters that the CVO electrical system is designed to. If the increase in fault level created by the wind farm is substantial, it could require major equipment upgrades within the CVO system and impact on mine production. This can only be determined through extensive electrical modelling.

The EA states that "preliminary grid connection studies have indicated that the existing 132 kV line has sufficient capacity to accept the output of the wind farm with minor modifications to the Orange substation." The EA further states that "a connection enquiry has been submitted to Country Energy (sic) in accordance with National Electricity Code requirements for connection and a number of associated technical studies are being carried out" and "the site for the switching station and grid connection arrangement together with any protection equipment will be developed in consultation with Country Energy and Cadia Valley Operations."

The introduction of the Flyers Creek wind farm circuit off the CVO 132kV line will however reduce the availability of the existing 132kV overhead power line.

The Flyers Creek Wind Farm connection into the 132kV line serving CVO will require an outage to enable the connection and potential outages for their ongoing maintenance. This could be mitigated with the construction of the second power line to CVO and co ordination of the works with a plant shutdown. The second power line was intended to provide additional capacity to CVO but also provides an opportunity to isolate each of the 132kV lines during site plant shutdowns to perform maintenance. This will be complicated with the introduction of the Flyers Creek Wind Farm connection unless it is connected into both power lines. The EA acknowledges that "works for connection of the Flyers Creek Wind Farm to the grid are considered here as an integral part of the development activities" yet CVO remains concerned on how the connection can be made within the mine lease without impacting on CVO through outages and supply security.

The connection agreement currently being negotiated with Essential Energy and Transgrid for CVO has identified specific electrical protection requirements based on the 132kV radial feed between Orange and Cadia. The protection relies on a differential current scheme to ensure that what goes in, comes out. This protection system requires CVO to install new protection equipment in the main 132kV switchyard which will require a total site power outage in July 2012. Introduction of a tee off to the wind farm would require a new protection scheme to be developed which may require additional equipment and associated power outages to install. Infigen should be responsible for any adjustments to additional protection systems required as a result of the Wind Farm.

The process plant high voltage variable speed drives associated with the CVO SAG mill and various cyclone feed pumps are sensitive to voltage fluctuations caused by network disturbance or significant load changes in the supply network. The Wind Farm would be a large cyclical load turning on and off depending on wind conditions. These load fluctuations may result in detrimental impacts within the CVO site resulting in spurious tripping of the SAG mill or high voltage variable speed drives. The Flyers Creek Wind Farm would need to carefully model their electrical system, especially the generation capacity ramp up and ramp down rates, to ensure this concern is addressed.

In summary, the installation of a large generation facility and the interconnection of this facility into the site 132kV power line will have electrical implications within the CVO electrical distribution system. These would need to be extensively modelled to determine to what extent these affect the internal system at CVO. Where the Wind Farm is unable to meet the nominated CVO design parameters to insulate or mitigate the site from these issues then equipment modifications may be necessary on-site at CVO.

The issues identified above would be minimised if the 132kV power line and switching structure were constructed off the mining lease. The electrical implications are magnified the closer the interconnection of the wind farm to CVO is. Ideally, the interconnection would be into a different portion of the 132kV network to maximise this electrical separation. The proponent needs to address these issues to the satisfaction of CVO prior to the determination of the project application since these are integral to the Wind Farm project's development activities and cannot be deferred to post approval.

### *Mineral Resources*

CVO believes that Infigen should be responsible for relocation of turbines where an economic deposit is identified in the location of one of the wind turbines, since prospective areas have been previously identified.

Appendix B of the Wind Farm EA indicates that in February 2009 that the Department of Primary Industries advised "that there are significant concerns with the proposal with regards to its potential impacts on mineral resources as it is sited upon highly prospective ground and has the potential to impact upon mineral exploration and any future mining within the area."

The Newcrest minerals exploration group has plans to continue drilling within the area and remains concerned about potential sterilisation of mineral resources within the area for at least 20 years.

### *Telecommunications*

It is noted that the potential impacts on radio communications have been identified in chapter 14 of the EA. The Statement of Commitments for Telecommunications in Chapter 19 of the EA states that "the design will ensure that these services are not disrupted or degraded. Where necessary, the relevant communication service operator will be contacted to confirm operational details. In particular, the siting of turbines will be undertaken with regard to the fixed path links passing through the wind farm site." CVO is wholly reliant upon effective communications. The proponent must be required to undertake appropriate measures post construction to ensure existing communications are not degraded as a result of the wind farm development within the locality.

### **Noise Impacts**

Section 17.4 of the Wind Farm EA states that "as the activities of the mine and the wind farm are so different, it is considered that the Flyers Creek project has a negligible cumulative impact in conjunction with Cadia Mine's activities." This statement is disputed in relation to potential cumulative noise and traffic impacts (see below) as reflected in the Cadia east Project Approval.

CHPL notes that a number of receivers relevant to the Flyers Creek Wind farm proposal are coincident with receivers identified as part of the Cadia East Environmental Assessment (EA). From a review of the Flyers Creek Wind farm EA, it is understood that the wind turbines have a sound power level of up to approximately 105 dBA and the proposed substation a sound power level of some 97 dBA.

In view of the above, CHPL requests that a cumulative noise assessment is undertaken in accordance with the Office of Environment and Heritage's Industrial Noise Policy's amenity criteria with other industrial noise sources, including the approved Cadia East Project prior to determination of the Flyers Creek Wind Farm project. This assessment would confirm whether there is any potential for cumulative noise issues between the proposed Wind Farm and the approved Cadia East Project (DoPI ref: 06\_0295). CHPL's potential noise contributions are detailed in the Cadia East Project EA (Appendix D – Wilkinson Murray [2009]).

Condition 4 of Schedule 3 to the Cadia East Project Approval imposes requirements upon CVO as follows:

*"The Proponent shall implement all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines and industries does not exceed the amenity criteria in Table 4 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, to the satisfaction of the Director-General."*

The affects of the Flyers Creek Wind Farm on the ability for CVO to meet this requirement must be assessed prior to determining the Wind Farm proposal and appropriate measures initiated where required.

### ***Traffic and Transport***

Chapter 13 of the Wind Farm EA proposes alternative access options for the wind farm project. Figure 13.2 identifies Cadia Road, Woodville Road and Long Swamp Road as possible alternate route (5) – "Cadia to Forest Reefs".

Condition 5 of Schedule 3 to the Cadia East Project Approval imposes requirements upon CVO in regard to traffic noise criteria as follows:

*"The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project does not exceed the traffic noise impact assessment criteria in Table 5."*

The use of Cadia Road (and Forest Road from Orange) together with Woodville Road has the potential to affect the obligations of CVO in regard to meeting traffic noise criteria with associated mitigation obligations (refer condition 7, schedule 3 of Cadia East Project Approval).

CVO requests that DoPI addresses the potential implications of traffic to the wind farm particularly during the construction period on the ability of CVO to satisfy its project approval conditions.


## SUMMARY

The Flyers Creek Wind Farm has the potential to significantly impact on the ongoing operations of CVO. CVO expects that the matters of concern raised in this submission are given full consideration and specifically requires that the following matters are addressed prior to the determination of the Project Application for the Flyers Creek Wind Farm:

- Alternatives to the route of the 132kV grid connection line and switching station within the CVO mining lease areas being reviewed by Infigen and DoPI and referred to CVO for comment
- Where the 132kV line is still deemed to be the preferred route, its location shall be subject to agreement by CVO to the route, access, safety arrangements and Infigen agreeing to take responsibility for future relocation to the satisfaction of CVO
- Electrical modelling undertaken to determine if CVO upgrades are required and an undertaking by the proponent that it will be responsible for all measures required to protect CVO from reductions in security of its power supply.
- CVO being satisfied with Infigen's proposed protection measures as approved by Essential Energy to ensure ongoing 132kV supply reliability to the Cadia mines
- a cumulative noise assessment undertaken in accordance with the Office of Environment and Heritage's Industrial Noise Policy's amenity criteria with other industrial noise sources, including the approved Cadia East Project with specific consideration of condition 4, schedule 3 of the Cadia East project Approval
- Consideration of the impact on the Flyers Creek Wind Farm on the ongoing ability of CVO to meet its traffic noise obligations under conditions 5 and 7, Schedule 3 of the Cadia East Project Approval in relation to traffic noise.

I would be happy to discuss any of the matters raised in this submission and can be contacted on 63666320 or 0437001823.

Yours faithfully,



Andrew Wannan  
**Environment Manager**