

31 August 2018

Department of Planning and Environment
GPO Box 39,
SYDNEY, NSW 2001

Attention: Natasha Homsey

Dear Sir / Madam

Flyers Creek Wind Farm – Modification 4 Submission

Cadia Holdings Pty Limited and Newcrest Mining Limited (together, **Cadia**) make the following submission regarding Modification 4 for the Flyers Creek Wind Farm (**Modification Application**). The proposed modification will have several impacts on the Cadia Valley Operations as approved pursuant to the current Cadia East Project Approval (06_0295) and in relation to potential further development of the mine in the future.

A summary of impacts that will be expanded on in this submission include:

- Location of the 132 kV line with respect to Cadia's approved Project;
- Induced pipeline corrosion and safety hazards;
- Switching Station location;
- Design capability of current electrical systems Cadia assets
- Energy supply reliability;
- Options for future large scale renewable energy projects on site;
- Telecommunications impacts;
- Noise impacts (including traffic noise impacts);
- Options for land for biodiversity offsets; and
- Local traffic impacts.

Having now reviewed the information provided in the Modification Application in conjunction with previously disclosed details, Cadia objects to this proposal.

Location of 132kV line

The proposed route of the Infigen proposed 132kV powerline as indicated in Appendix B, Figure 2 of the Modification Application is within a 45m wide corridor located to the east of Cadia Road. The proposed route conflicts with the existing approved mining footprint for

Cadia Valley Operations which includes the future footprint of the Cadia East subsidence zone.

Cadia also has concerns regarding the location of this powerline on company owned land which may conflict with future infrastructure requirements and the development of mineral resources.

Cadia funded the acquisition of easements and the construction of the existing and new 132kV Essential Energy powerlines and has, pursuant to its Connection Agreement with Essential Energy, an option to acquire these 132 kV powerlines.

Induced Pipeline Corrosion and Safety Hazards

The Cadia concentrate pipeline is installed on the eastern side of the Cadia Road and is the sole means of exporting the final product of the mining and processing operations to the dewatering facility at Blayney. The Flyers Creek windfarm 132kV powerline is proposed to run parallel with the Cadia copper concentrate pipeline to the east of Cadia Road. The risk of induced voltages in the pipeline from the 132kV powerline due to electric and magnetic fields have not been addressed within the Modification Application. Induced voltages can result in accelerated corrosion of the pipeline and introduce high voltage hazards to pipeline maintenance personnel.

Switching Station Location

It is difficult to accurately determine the layout and location of the switching station from the Modification Application. The proposed location appears to be somewhere within property owned by Cadia. The detail of the switching station is lacking and as such it is difficult to determine the impact of this on Cadia land and mining leases.

Design Capability of Current Cadia Electrical System Assets

The radial 132kV Essential Energy powerlines installed between Orange and Cadia are connected to a common bus within the Cadia main substation. The proposed 159 MW connection of the Flyers Creek Wind Farm will impact the power flows and metering facility within the Cadia substation. Due to the dual line configuration, between 30 to 100% of the energy output from the Flyers Creek Wind Farm may flow through the Cadia substation when the plant load is reduced during plant shutdowns or through the loss of one of the Transgrid feeder circuits. This is not a scenario that has been considered or accounted for within the protection and metering system at Cadia. Modelling and system upgrades would be required to mitigate the negative impact of this event.

The Cadia connection agreement with Essential Energy and Transgrid has specific electrical protection requirements based on a 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 consists of a dual redundant communication link between the Transgrid and Cadia switchyards. The communication path includes a fibre

optic network and a microwave connection with specific leases between Cadia and third-party providers. Introduction of a tee off to the wind farm would require a new protection scheme to be developed which would require additional equipment and associated power outages to install. This would introduce additional risks to power supply availability for Cadia.

Infigen should be responsible for any adjustments to additional protection systems required as a result of the Wind Farm.

The Cadia processing plant high voltage variable speed drives associated with the Cadia SAG mill and various cyclone feed pumps are highly 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 Cadia site resulting in spurious tripping of the SAG mill or high voltage variable speed drives. The Modification Application doesn't include details of the modelling of the electrical system, especially the generation capacity ramp up and ramp down rates, to ensure this concern is addressed.

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 Cadia electrical distribution system. These would need to be extensively modelled to determine to what extent these affect the internal system at Cadia. Where the Wind Farm is unable to meet the nominated Cadia design parameters to insulate or mitigate the site from these issues then equipment modifications may be necessary on-site at Cadia which may have significant cost implications. The electrical implications are magnified the closer the interconnection of the wind farm to Cadia 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 Cadia 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.

Energy Supply Reliability

Introduction of a 159MW generator close to the Cadia site will increase the site fault level. This would change the existing system parameters that the Cadia 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 Cadia system. The Modification Application doesn't include detail on this modelling.

The introduction of the Flyers Creek wind farm circuit off the 132kV line between Cadia and Orange will however reduce the availability of the existing 132kV overhead power line. Cadia has invested significant capital to construct and install a dual redundant powerline with redundant capacity to mitigate the risk of outages, to provide capacity for future expansion and to facilitate the future construction of an onsite renewable energy generation source.

The Flyers Creek Wind Farm connection into the 132kV line serving Cadia will require an outage to enable the connection and potential outages for their ongoing maintenance. The dual 132kV circuit configuration to Cadia provides additional capacity to Cadia 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 Modification Application lacks detail on the connection and Cadia remains concerned on how the connection can be made without impacting on Cadia through outages and supply security.

Options for Future Large Scale Renewable Energy Projects

Cadia is an energy intensive operation that has been impacted by the recent increase in energy pricing experienced within the national Electricity Market. To mitigate the business risk of the increased costs, Newcrest is actively engaging the market to explore options of a large scale renewable generation project within or near to the Cadia mining lease. The Flyers Creek Wind farm is a 160 MW generator which is the equivalent of the full rating of one of the dual circuits supplying Cadia. The Flyers Creek Wind Farm connection into the Cadia 132kv circuit will absorb the entire capacity of one of these circuits and would significantly reduce the ability for Cadia to install a large scale renewable generation project.

Telecommunications

It is noted that the potential impacts on radio communications have been identified in Appendix H of the Modification Application. Cadia is wholly reliant upon effective communications for safe surface and underground mining operations. The proponent must be required to undertake appropriate measures post construction to ensure existing communications are not degraded because of the wind farm development within the locality.

Noise

The noise assessment (Appendix F) doesn't include reference to conducting cumulative noise impact assessment based on the information from the Cadia East Environmental Assessment. This concern has been raised in previous assessments for the Flyers Creek Wind Farm in 2011. Appendix F lists several properties which have been used in the assessment, however there is no map indicating where these residences are located.

Traffic noise impacts have not been clearly referenced in the noise assessment.

Biodiversity Offsets

The Environmental Assessment for the Modification Application (EA) has indicated that Biodiversity Offsets will need to be calculated prior to commencement of construction. There are no details on proposed location or quantity of land required for biodiversity offsets.

Cadia have an interest in having knowledge of proposed biodiversity offset areas as this may impact on the sites long term biodiversity offset strategies that are associated with future activities at Cadia.

Traffic

The EA should reference the commitment to conducting a road dilapidation survey prior to construction and at the end of construction to appropriately determine "damage caused to roads during construction" of the project.

Cadia would like to ensure that this report reflects damage incurred as a result of Infigen's activities to eliminate the risk of this damage being associated with the Cadia operations.

SUMMARY

The Flyers Creek Wind Farm has the potential to significantly impact on the current approved and potential future operations at Cadia.

In summary our main concerns and objections include:

- Proposed powerline route encroaches on existing approved area of influence for Cadia East subsidence zone;
- Potential impacts on our existing pipeline infrastructure between the Cadia site and Blayney including safety risks for personnel conducting maintenance activities within this area if the 132kV powerline is constructed parallel with the Blayney Concentrate line;
- Potential impacts on stability of power supply for Cadia;
- Potential impacts on sensitive Cadia equipment due to faults;
- Potential for increased traffic noise impacts (above Cadia Project approval conditions) which do not appear to have been adequately assessed in the noise assessment;
- Potential impacts on Cadia communications equipment which is essential for safe operation of the mine; and
- Assumptions have been made that Cadia will agree to access Newcrest owned land for the construction of the 132kV switching station.

Should you have any further queries regarding this matter, please do not hesitate to contact Jane Chung on 0467 600 622.

Yours sincerely,



Michael Dewar

for Peter Sharpe

General Manager (Acting)