



Flyers Creek Wind Farm

*State Significant
Development
Modification Assessment
(SSD 08_252 MOD 4)*



June 2019

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Glossary

Abbreviation	Definition
Approval	Project Approval
BC Act	<i>Biodiversity Conservation Act 2016</i>
CIV	Capital Investment Value
Department	Department of Planning and Environment
DoI – L & W	Department of Industry – Lands and Water
EA	Environmental Assessment
EEC	Endangered Ecological Community
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
ha	hectare
GWh	Gigawatt hours
km	kilometre
LEP	Local Environmental Plan
m	metre
Minister	Minister for Planning and Public Spaces
OEH	Office of Environment and Heritage
RMS	Roads and Maritime Services
RTS	Response to Submissions
Secretary	Secretary of the Department of Planning and Environment
SEPP	State Environmental Planning Policy
SSD	State Significant Development
The Commission	Independent Planning Commission of NSW



Executive Summary

Flyers Creek Wind Farm Pty Ltd, a wholly owned subsidiary of Infigen Energy (Infigen), has approval to develop the Flyers Creek Wind Farm 15 kilometres (km) west of Blayney.

The approval (as modified) allows Infigen to install up to 38 wind turbines at the wind farm with a maximum tip height of 150 m and connect these turbines to a new substation at the wind farm. While the approval of the wind farm originally included a 132 kV transmission line connecting the wind farm to the existing Cadia North to Orange transmission line to the north of the wind farm, this transmission line was subsequently removed from the approved project because Infigen could not secure the necessary access agreements with the relevant landowners.

Proposed Modification

Infigen is seeking further modifications to the project approval to facilitate the development of the wind farm.

These modifications involve changing the dimensions of the wind turbines, raising the maximum tip height to 160 metres (m), reinstating the 132 kV transmission line on a different alignment, raising the height of the approved wind monitoring masts to up to 92 m, and updating several conditions.

The modification would substantially increase the electricity generated by the wind farm and enable this electricity to be supplied to the National Electricity Market.

Engagement

The Department publicly exhibited the modification application and its Environmental Assessment from 16 August 2018 until 29 August 2018. The Department received 74 submissions, including 15 from government agencies, 4 from special interest groups and 55 from the public. The majority of public and special interest group submissions objected to the proposed modification.

Approximately one third of submissions received in objection were from landowners or special interest groups located within 5 km of the project, while most of the remaining objections were from members of the public located more than 100 km from the project.

Approximately one third of submissions received in objection raised concerns about the broader impacts of the project as approved, as well as the ongoing uncertainty about the development of the project.

The key issues raised in community submissions objecting to the modification related to potential biodiversity and visual impacts.

None of the government agencies objected to the proposed modification however some sought additional information or clarification and recommended changes to the existing conditions.

Assessment

In assessing the merits of the modification application, and particularly the potential impacts on the local community, the Department carefully considered the potential visual and biodiversity impacts of the proposal. Specifically, the Department considered the potential visual impacts of the modified turbines and the biodiversity impacts associated with the clearing required for the transmission line.

While the Department acknowledges the continuing concerns that some members of the wider community have about the project as a whole, many of these issues were considered during the assessment of the original project and previous modifications, and are not directly relevant to the assessment of the current modification.

Notwithstanding, the Department has considered the issues raised in submissions and has sought to strengthen and contemporise the existing conditions of approval to address some of the community's concerns about visual, noise and biodiversity impacts, as well as compliance measures. This has included updating the conditions to

reflect comments from Blayney Shire Council and other government agencies. In particular, the Office of Environment and Heritage and the Environment Protection Authority support the revised biodiversity and noise conditions respectively.

The Department's assessment considered the incremental change between the approved and modified turbines, and the potential impacts on non-associated residences with views of the turbines, as well as an assessment of the proposed transmission line.

Modified Turbines

While some residences would see more of the turbine blades, the Department considers that no non-associated residence would have a higher visual impact rating given the modest increase in turbine dimensions. In this regard, it is considered that the residual impacts of the increased turbine envelope would not be significant and would be adequately mitigated through the existing visual impact mitigation measures available to residences in the conditions of approval.

Biodiversity Impacts

While the modification would allow for an additional 5.6 ha of native vegetation to be cleared within the transmission line corridor, the additional disturbance is not expected to result in any significant impact to threatened species or endangered ecological communities (EEC).

The Department has also recommended a new condition requiring Infigen to remove no more than 16 hollow bearing trees for the transmission line infrastructure.

In addition, as part of the existing conditions of approval, Infigen would be required to prepare and implement an updated Construction Flora and Fauna Management Plan and Bird and Bat Adaptive Management Plan BBAMP (in consultation with OEH) for the modified project and prepare and implement an updated biodiversity offset package in consultation with OEH.

Subject to these conditions, OEH has no residual concerns with the impact of the modification on biodiversity.

Evaluation

On balance, the Department considers that the proposed modification has merit, and is in the public interest.

In this regard, the proposed modification would allow the benefits of the project to be realised, particularly as it would allow the project to connect to the electricity grid. The project would deliver a range of economic benefits, including up to 100 full time construction jobs and 10 full time operational jobs, with a capital investment of up to \$300 million. Additionally, Infigen would contribute at least \$107,000 a year through a voluntary planning agreement with Blayney Shire Council, of which \$55,000 would contribute to a community enhancement fund.

It would also increase the electricity produced by the wind farm and is consistent with the Commonwealth's *Renewable Energy Target* and the NSW *Climate Change Policy Framework* as it would generate approximately 445 GWh of renewable energy per year over its operating life, equivalent to 75,500 homes annually, with estimated emissions savings in the order of 428,000 tonnes CO₂-e per year.

On balance, the Department considers that the proposed modification has merit, and is in the public interest.

Consequently, the Department considers that the proposed modification is approvable, subject to the recommended amendments to the existing conditions.



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1. Introduction

Flyers Creek Wind Farm Pty Ltd, a wholly owned subsidiary of Infigen Energy (Infigen), has approval to construct and operate the Flyers Creek Wind Farm (the project). The project is located approximately 15 km west of Blayney, primarily in the Blayney Shire local government area with a small section of the proposed transmission line in the Cabonne local government area (see **Figure 1**).

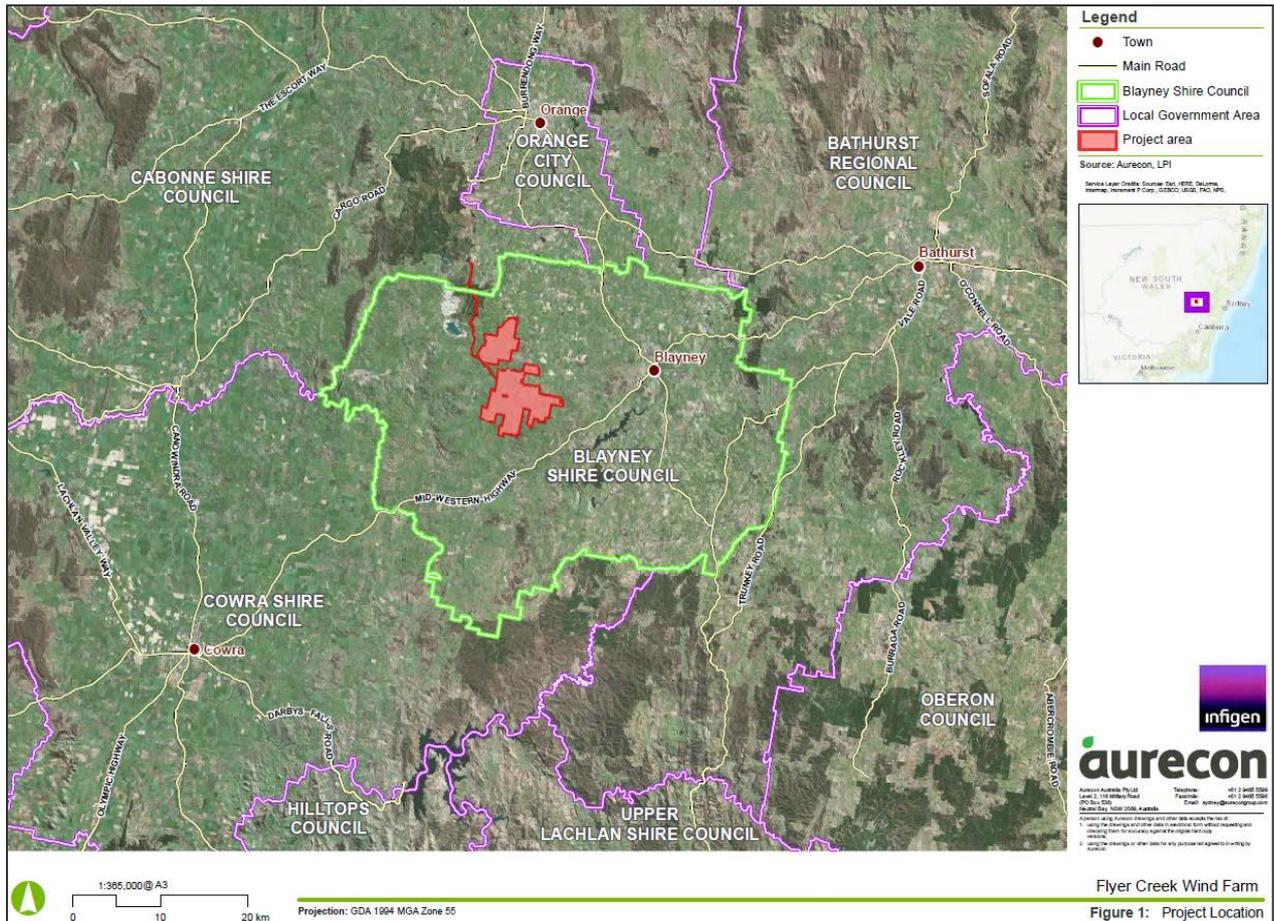


Figure 1 | Regional Context Map

The project was originally approved by the NSW Planning Assessment Commission (the Commission)¹ in 2014.

This approval included the development of up to 42 turbines and ancillary infrastructure, including a 132kV transmission line connecting the wind farm with the electricity grid. The transmission line was located largely on private land to the west of the project (see **Figure 2**) and wrapped around the western side of the Cadia Gold/Copper Mine before linking to the existing Cadia North to Orange transmission line.

¹ Now the Independent Planning Commission

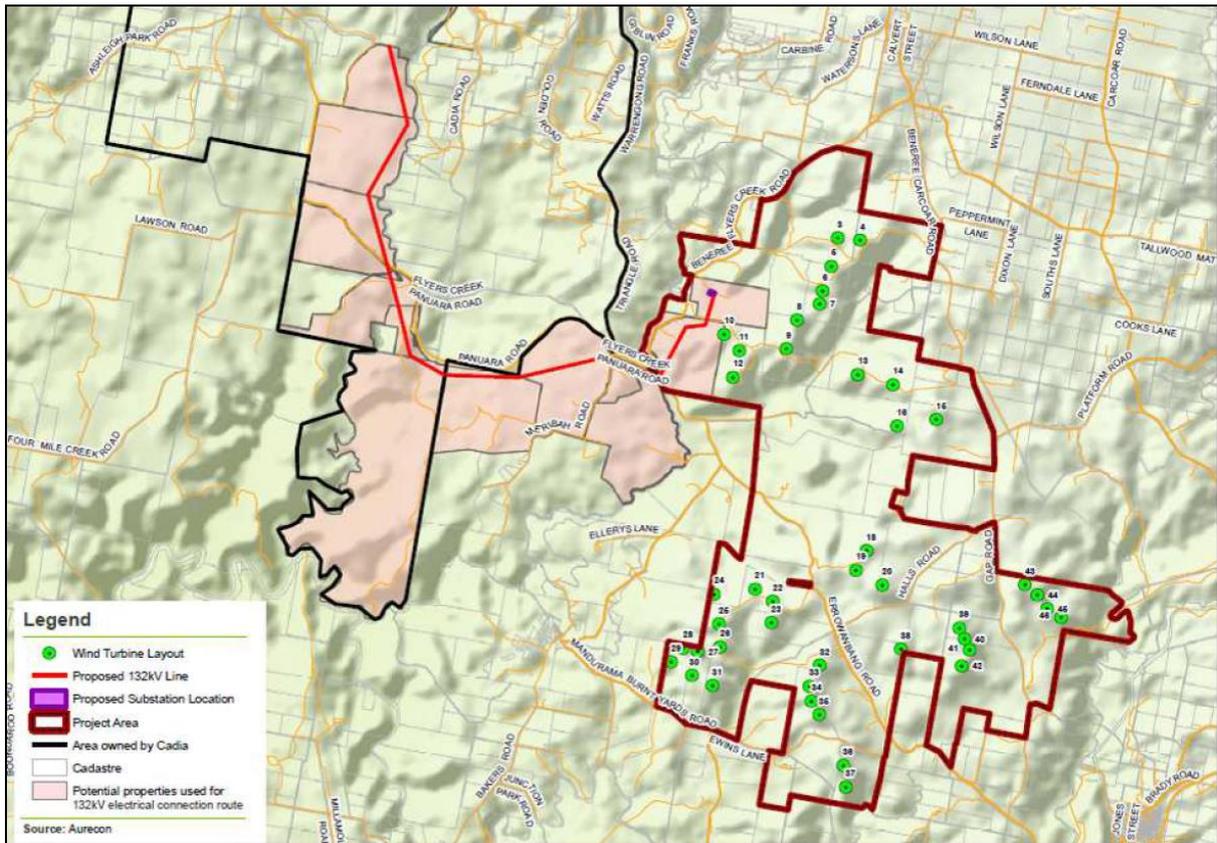


Figure 2 | Original 132 kV transmission line alignment

The approval has subsequently been modified three times. These modifications resulted in two major changes to the project (see **Figure 3**).

First, the 132 kV transmission line was removed from the project because Infigen could not secure the necessary access agreements with the relevant landowners. However, it was always envisaged that Infigen would reapply for approval to construct the transmission line on a different alignment at some stage in the future as it is an essential component of the project.

Second, three properties were removed from the wind farm. This had the effect of splitting the wind farm into two clusters and reducing the number of turbines from 42 to 38, with the northern cluster having one array of 8 turbines and a substation and the southern cluster having two arrays of 15 turbines. It also involved connecting the turbines in the southern cluster to the substation in the northern cluster via a 33 kV transmission line along Errowanbang Road.

In February 2019, Infigen commenced the construction of the wind farm under the approval. This involved carrying out some pre-construction minor works, including undertaking geotechnical surveys and the establishment of a temporary laydown area and site office, and means the approval is no longer subject to the lapsing requirements in condition C5 of the project approval.

Following further design work and consultation with landowners, Infigen is now seeking approval for slightly larger turbines at the wind farm and the reinstatement of the 132 kV transmission line on a different alignment which would wrap around the eastern side of the Cadia Gold/Copper Mine to connect to the existing Orange North to Cadia transmission line.

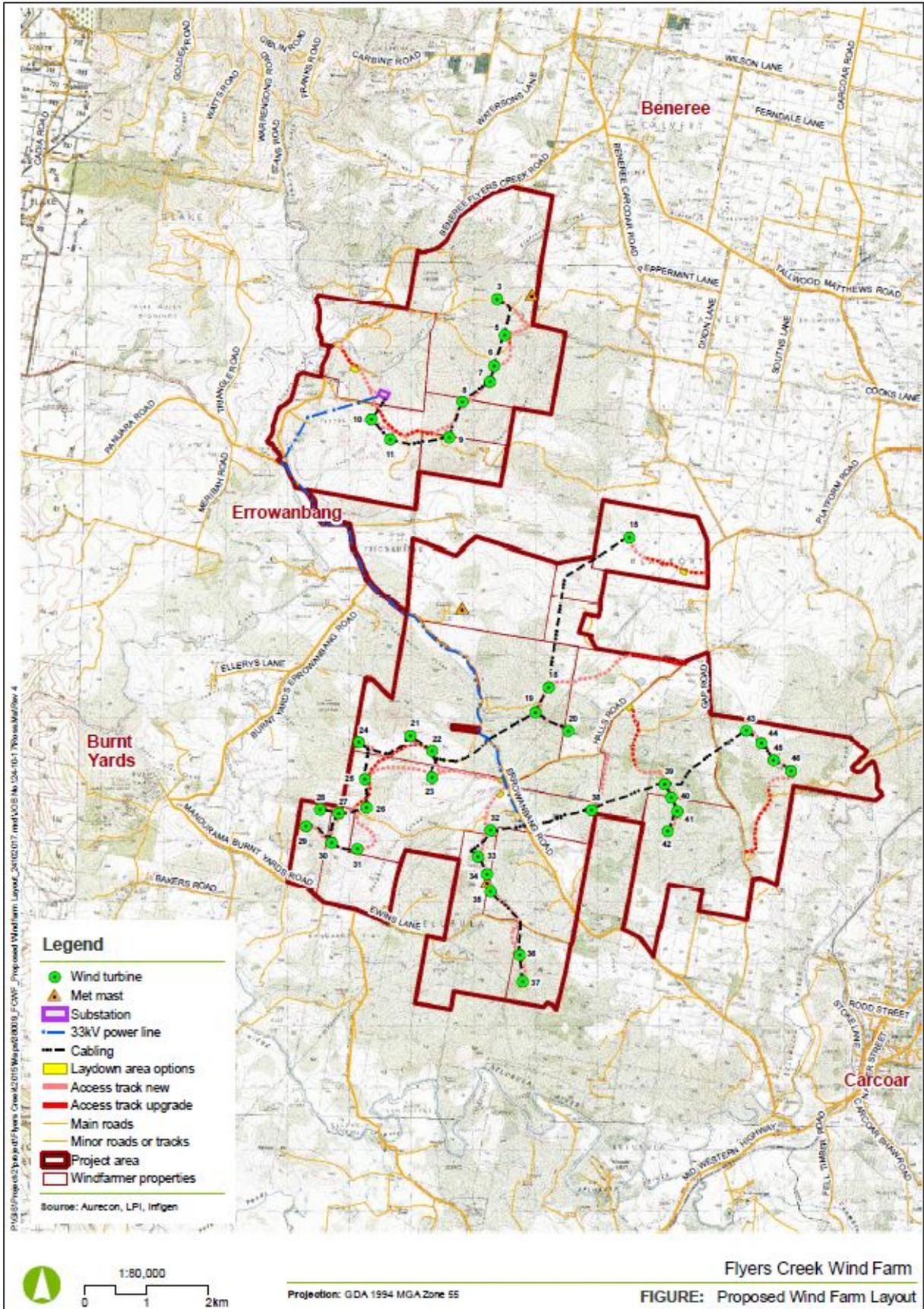


Figure 3 | Approved Project Layout



2. Proposed Modification

Infigen is seeking further modifications to the project approval to facilitate the development of the wind farm.

These modifications are described in detail in the Environmental Assessment (EA) (see **Appendix B**), the Response to Submissions (RTS) (see **Appendix D**) and additional information that was submitted by Infigen in support of the application (see **Appendix E**).

The modifications involve changing the dimensions of the wind turbines, reinstating the 132 kV transmission line to connect the wind farm to the electricity grid, varying the height of the approved wind monitoring masts and updating several conditions.

These modifications are summarised in more detail below and depicted in **Figure 4**.

Turbine Dimensions

To increase the efficiency of the wind farm and produce more electricity from the same number of turbines, Infigen is seeking a slight increase to the dimensions of the approved turbines. The changes to the dimensions of the turbines are summarised in **Table 1** below, and essentially involve increasing the length of the blades from 56 to 70 m while only increasing the maximum tip height of the turbines from 150 to 160 metres.

The changes to the dimensions of the turbines also require changes to the footings and hardstand areas of each turbine.

The footings of each turbine would increase from 144 m² to up to 361 m² and the hardstand areas from 2,000m² to 2,090 m², resulting in just over one hectare of additional disturbance in total.

No changes to the approved locations or number of wind turbines are proposed as part of this modification application.

Table 1 | Approved and proposed turbine specifications

Component	Approved Turbines	Modified Turbines	Change
Number of turbines	38	38	No change
Maximum blade tip height	150 m	160 m	6.7 %
Minimum blade tip height	30 m	20 m	33 %
Hub height	Up to 100 m	Up to 92 m	-8 %
Rotor diameter	112 m	140 m	25 %
Blade length	56 m	Up to 70 m	25 %
Swept area per turbine	9,847 m ²	15,386 m ²	56 %
Nominal power per turbine	3 MW	4.2 MW	40 %
Total generation capacity	130 MW	Up to 155 MW	15 – 20 %

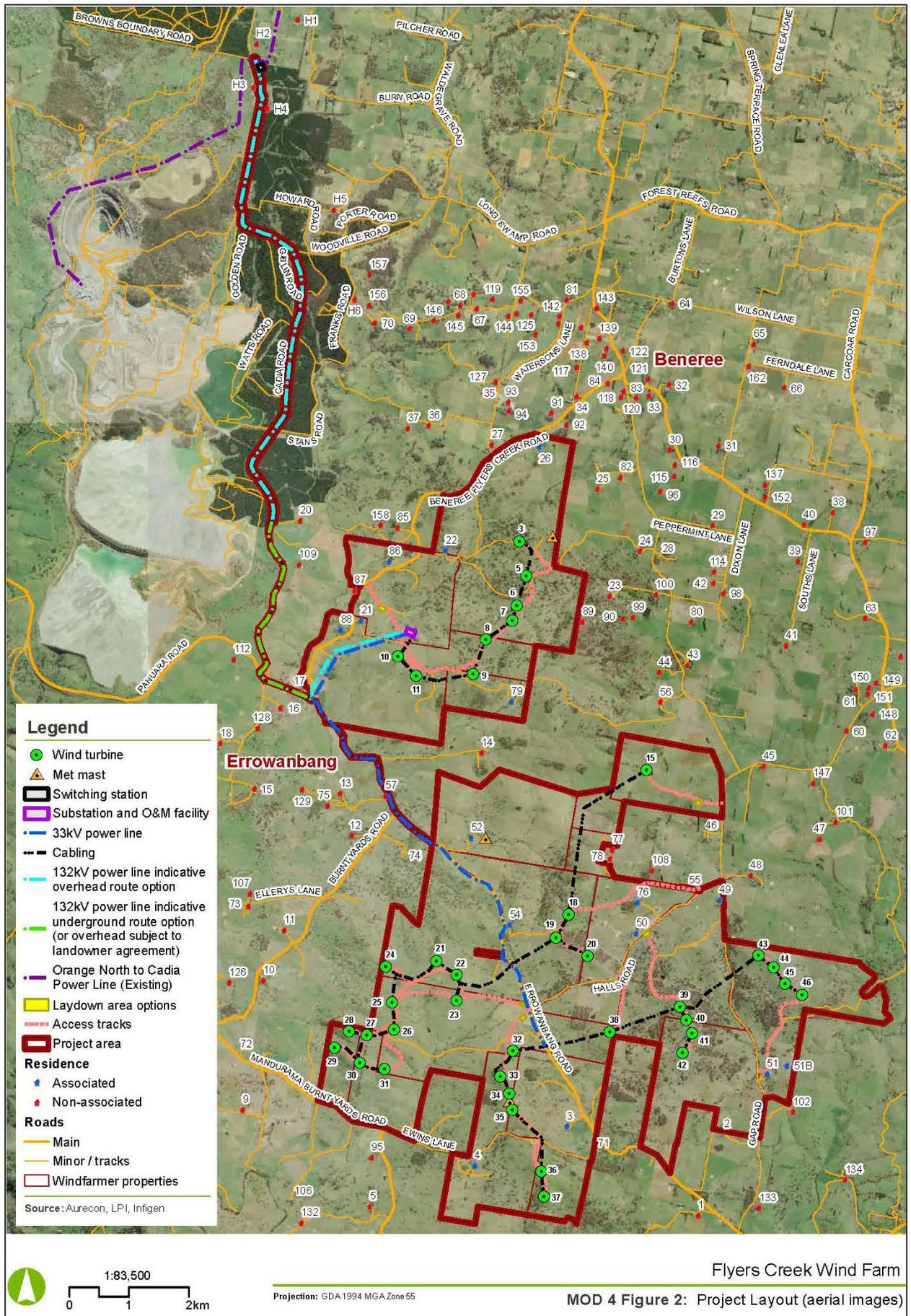


Figure 4 | Proposed Modification Layout

Transmission Line and Switching Station

To connect the wind farm to the electricity grid, Infigen is proposing to build a 132 kV transmission line from the substation in the northern cluster of the wind farm along the eastern side of the Cadia Gold/Copper Mine to the existing 132 kV Orange North to Cadia transmission line.

The new transmission line would be around 14 kilometres long and comprised of overhead and underground sections (see **Figure 4**).

The overhead sections would run from the substation to Errowanbang Road, and along the existing road network through the pine plantation to the north of the wind farm. These sections of the transmission line would be located on poles up to 30 m high within a cleared easement of around 45 m.

The underground section would run along the existing road network from Errowanbang Road to the pine plantation, and sit within an easement of around 6 m.

At the northern end of the transmission line, there would be a switching station covering an area of around one hectare. This switching station would be located in the pine plantation and largely shielded from surrounding residences by existing vegetation.

The transmission line and switching station would disturb an additional 5.6 hectares of land.

Wind Monitoring Masts

Under the existing project approval, Infigen may install additional wind monitoring masts at the wind farm with a height of up to 80 m.

Due to the proposed changes in the dimensions of the turbines, Infigen is now seeking approval to install wind monitoring masts of up to 92 m.

If approved, Infigen is likely to decommission the two existing wind monitoring masts and replace them with four slightly higher masts.

Changes to Conditions

To incorporate the proposed modifications, reflect several changes that have occurred since the original approval was granted, and clarify the application of certain conditions, Infigen is seeking to modify several conditions.

The proposed modifications to these conditions are summarised in **Table 2** below.

Table 2 | Condition Changes

Condition #	Description	Proposed Amendment
Definitions – project	Definition of the project	Update definition to include the 132 kV transmission line and switching station
Definitions – EA	Definition of the 'EA' Environmental Assessment	Update definition to include documents that form part of the modification application
D1(a)	Restrictions on clearing and habitat impacts, including no clearing of endangered ecological communities (EEC) and a requirement to minimise any clearing of native vegetation and fauna habitat within the approved disturbance footprint	Remove clearing limit for EEC and replace with requirement to ensure any clearing of EEC is limited to the extent reasonable and feasible subject to the outcomes of the updated baseline mapping required under Condition D5 (a)
D3	Limits clearing of hollow bearing trees to no more than 10 for the project	Remove clearing limit for hollow-bearing trees and replace with requirement to ensure any clearing of hollow bearing trees is limited to the extent reasonable and feasible subject to the outcomes of the updated baseline mapping required under Condition D5 (a)

Condition #	Description	Proposed Amendment
D11 (a)	Consult with aerodrome operators that have an aerodrome located within 30 km of the boundaries of the site, to determine any impact on Obstacle Limitation Surfaces at such aerodromes	Delete condition
D11 (b)	Consult with AirServices Australia about aviation hazards and obstacles	Delete condition
D12	Requirement to notify Royal Australian Air Force (RAAF) – Aeronautical Information Services about aviation hazards	Remove requirement to notify RAAF
D23	Shadow flicker limit of 30 hours / annum at any residence	Clarify that limit only applies to non-associated residences
D25	Requirement to consult with CASA about the need for aviation hazard lighting	Delete condition
D26	Preparation of Design and Landscaping Plan prior to commencement of construction	Amend condition to require the plan be prepared prior to operations
G6	Requirement to implement a revegetation and rehabilitation program for temporary disturbance areas	Delete condition
G7	Sets noise criteria for the project at residences	Update to reflect revised noise assessment criteria and clarify that criteria only apply to non-associated residences



3. Strategic Context

3.1 Renewable Energy

In 2017, NSW derived approximately 15.8% of its energy from renewable sources. The rest was derived from fossil fuels, including 79.3% from coal and 4.8% from gas. However, there are currently no plans for the development of new coal power stations in NSW, and the development of renewable energy sources, like wind and solar farms, is experiencing rapid growth.

This is highlighted in the 2017 *Independent Review into the Future Security of the National Electricity Market* (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional coal and gas fired power generation to generation with lower emissions.

A number of State and Commonwealth Government initiatives, including the *Renewable Energy Target*, *NSW Climate Change Policy Framework* and *Renewable Energy Action Plan* set targets and objectives for reducing greenhouse gas emissions and promoting the development of renewable energy. Under the *Renewable Energy Target*, more than 20% of Australia's electricity would come from renewable energy by 2020. It is estimated that an additional 5,400 MW of new renewable energy capacity will need to be built by 2020 to achieve the Renewable Energy Target.

Consequently, the development of renewable energy sources, like wind and solar farms, has experienced rapid growth throughout NSW.

3.2 NSW Wind Energy Framework

In December 2016, the Department released the new *NSW Wind Energy Framework* (the Framework). The Framework replaces the draft wind farm planning guidelines, which were exhibited in 2011, and seeks to provide greater clarity, consistency and transparency for industry and the community regarding both assessment and decision-making on wind energy projects.

The Framework provides a merit-based approach to the assessment of wind energy projects, which is focused on the issues unique to wind energy, particularly noise and visual impacts. The key documents comprising the Framework include the *Wind Energy Guideline*; *Visual Assessment Bulletin*; *Noise Assessment Bulletin*; and *Standard Secretary's Environmental Assessment Requirements* (SEARs).

Infigen prepared the EA for the modification application having regard to the relevant aspects of the Framework. This consideration is discussed further in **Section 6**.

While applicable to the proposed modification, the Department notes the Framework was developed after the assessment and approval of the original project.

3.3 Renewable Energy in NSW

A number of submissions raised concerns that the intermittent energy produced by wind farms could have an adverse impact on energy security in NSW.

The Department acknowledges and understands the broad concerns raised in these submissions, however any evaluation of these issues must have regard to the broader strategic context.

In the Department's view, the likelihood of the project having an adverse impact on network reliability in NSW is extremely low, given that it would add a maximum 155 MW of capacity to the National Electricity Market (NEM), which at this stage has a total generation capacity of over 54,000 MW.

Further, any incremental or cumulative impacts associated with the potential intermittency of renewable energy projects could be mitigated through the operation of the NEM.

3.4 Site and Surrounds

The project is located about 15 km west of Blayney in the Central West region of NSW and covers a large area spanning 11 km from north to south and 10 km from east to west.

The topography of the area is characterised by undulating rolling hills including steep, densely vegetated ranges and flat, cleared grazing lands. The elevation of the site ranges from above 900 m in the north to 700 m in the south.

The Cadia Gold/Copper mine is located about 8 km to the north west of the site and includes an underground mining operation and several large surface facilities (tailings dam, waste rock dumps and a processing plant).

Apart from the mine, the site and surrounds are predominantly rural, used mainly for sheep and cattle grazing, with moderately-sized properties.

Main roads in the region include Cadia Road and Panuara Road, and the site would be access via Errowanbang Road and Gap Road.

Essential Energy has a transmission line to the north of Cadia Gold/Copper Mine, which connects to the Orange substation and is currently used to supply electricity to the mine.

The Orange Aerodrome is located 13 km to the north of the nearest turbine.

3.5 Local Population

The project has 21 host landowners that would have turbines or associated infrastructure build on their land and benefit commercially from the wind farm (see **Figure 4**). These landowners are "associated" with the project and agree to accept any impacts (visual, noise, traffic) of the project.

There are several rural residences surrounding the site that are not associated with the project (see **Figure 4**), including 71 non-associated residences within 3.2 km of a turbine – the criteria used to require a detailed assessment of the magnitude of any visual impacts on residences in the Department’s Visual Assessment Bulletin. The village of Carcoar (4.5 km), Forest Reefs (5.4 km) are located close to the site, while the towns of Millthorpe (10km), Blayney (15 km) and Orange (20 km) are located further afield.



4. Statutory Context

4.1 State Significant Development

The project was approved under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Under Clause 6 of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (EP&A STOP Regulation), the Project was transitioned to State significant development (SSD) by order, which was published in the NSW Government Gazette on 6 July 2018.

4.2 Modifying a Project Approval

Infigen has applied to modify the approval under Section 4.55(2) of the EP&A Act.

The Department confirms that the application contains the relevant information required under Clause 115 of the EP&A STOP Regulation, including:

- a description of the proposed modification and its expected impacts; and
- the relevant fee.

Landowners consent is not required for the lodging of the Modification Application due to the transitional arrangement for former Part 3A projects that became SSD.

Under Section 4.55(2), an approval authority may modify an approval if:

- it is satisfied that the project as modified would be substantially the same development as approved;
- it has notified the application in accordance with the relevant requirements (see **Section 5**);
- it has considered any submissions made concerning the proposed modification (see below and **Sections 5 and 6**); and
- it has considered the relevant matters in Section 4.15 of the EP&A Act, including:
 - the provisions of any relevant environmental planning instrument, or planning agreement (see below and **Section 5**);
 - the likely impacts of the proposed modification, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality (see **Sections 6 and 7**);
 - the suitability of the site for the project (see **Section 6 and 7**);
 - the public interest, including any relevant objects of the EP&A Act (see **Section 7**); and
 - the reasons given by the approval authority for the grant of the original approval (see below and **Section 7**).

4.3 Approval Authority

The Independent Planning Commission (the Commission) is the consent authority for the application, because more than 25 public submissions by way of objection were received during the exhibition.

4.4 Substantially the Same Development

Under Clause 3BA (6) of Schedule 2 of the EP&A STOP Regulation, an approval authority must be satisfied that the project to which the approval as modified relates is substantially the same project as the project authorised by the approval when the project was transitioned from Part 3A to SSD.

The Department is satisfied that this would be the case in this instance, and that the proposal should be characterised as a modification as:

- there would be the same number of turbines;
- the layout of the turbines and associated infrastructure would be consistent with the approved layout;
- the changes to the dimensions of the turbines are modest (see **Table 1**);
- the addition of the transmission line and associated switching station is essential for the project to proceed, was included in a different form in the original approval, and represents a minor addition in relation to the development that is currently authorized by the approval;
- the changes to the length of the approved wind monitoring masts are minor; and
- the impacts of the development as modified would be similar to the impacts of the currently approved project (see **Section 6**).

4.5 Environmental Planning Instruments

Several environmental planning instruments are relevant to the proposed modification:

SEPP (Infrastructure) 2007

In accordance with the requirements in the Infrastructure SEPP, the Department referred the application to RMS and Essential Energy for comment.

RMS did not raise any concerns about the proposal and confirmed that the existing conditions would be sufficient to manage any traffic impacts of the project as modified.

Essential Energy indicated that it had been in discussions with Infigen for some time about the proposed transmission line and switching station, and had no objection to the line connecting to the existing Cadia North to Orange 132 kV transmission line.

SEPP No.44 – Koala Habitat Protection

The Department is satisfied that there is no core koala habitat on the site, including the new land that would be used for the transmission line and switching station, and consequently would have no adverse impacts on the conservation of the species.

SEPP No. 55 – Remediation of Land

Based on the fact that the new transmission line and switching station would be located largely in road easements and on land used for grazing and forestry, the Department is satisfied that the land is unlikely to be contaminated and is suitable for the proposed development.

4.6 Planning Agreement

Infigen entered into a VPA with Blayney Shire Council on 22 October 2015. Under this agreement, Infigen would contribute at least \$107,000 a year, including \$55,000 a year towards a community benefit fund.

The proposed modification would not increase any additional demand local infrastructure or services.

As noted in **Section 5**, in its submission, Blayney Shire Council requested that the VPA be renegotiated. However, by nature, the agreement is voluntary, and the Department has advised Blayney Shire Council that any renegotiation would need to be discussed directly with Infigen.

4.7 Reasons for Granting Original Approval

In determining the original application, the Commission considered the Department's detailed assessment of the merits of the project, visited the site and held a public meeting.

The Commission concluded the benefits of the project would outweigh any adverse impacts subject to the implementation of strict conditions.

These conditions included:

- Requiring Infigen to secure agreements for the use of all land on site prior to commencing construction;
- Deleting one of the proposed turbines to mitigate the visual impacts on residence 14; and
- Requiring the substation to be moved 800 m further away from the closest non-associated residence.

The Department has considered the proposal against the reasons the Commission gave for determining the project in its Determination Report, and is satisfied that none of the proposed modifications are contrary to any of the Commission’s findings on key issues or the conditions it added to the Department’s recommended conditions.

5. Engagement

5.1 Department’s Engagement

The Department notified the application in accordance with the relevant requirements in Division 12 of the EP&A Regulations. This included:

- publicly exhibiting the modification application from 16 August until 29 August 2018;
- publishing a notice of the application in the Blayney Chronicle and Bathurst Western Times; and
- notifying each person who made a submission on the original application and subsequent modifications, adjoining landowners, Blayney Shire Council, Cabonne Council, relevant government agencies and the Nature Conservation Council of NSW.

It also consulted with Essential Energy under the Infrastructure SEPP as the proposed modification would affect the local electricity transmission network. Essential Energy confirmed that Infigen has directly engaged with them and they had outlined the connection options and technical requirements and considerations for Infigen to progress to a connection application.

5.2 Summary of Submissions

The Department received 74 submissions, including 15 government agencies, 4 from special interest groups and 55 from the general public.

A summary of submissions is provided in **Table 3** and a full copy of the submissions is provided in **Appendix C**.

Table 3 | Summary of Submissions

Submitters	Number	Position
Government Agencies	15	
<ul style="list-style-type: none"> • Blayney Shire Council • Cabonne Council • Environment Protection Authority • Office of Environment and Heritage • Department of Industry – Land & Water • Division of Resources and Geoscience • Roads and Maritime Services • Airservices Australia 	<ul style="list-style-type: none"> • Civil Aviation Safety Authority • Federal Department of Defence • Forestry Corporation NSW • Fire & Rescue NSW • Rural Fire Service • Heritage Council of NSW • Essential Energy 	Comment

Submitters	Number	Position
Special Interest Groups	4	
<ul style="list-style-type: none"> Flyers Creek Wind Turbine Awareness Group (FCWTAG) Hills of Gold Preservation Inc Cadia Valley Operations Environmentally Concerned Citizens of Orange (ECCO) 	3	Object
	1	Support
Community	55	
	54	Object
	1	Support
TOTAL	74	

5.3 Key Issues – Government Agencies

Fifteen government agencies provided advice on the proposal.

While none of the agencies objected to the proposal, some sought additional information or clarification and recommended changes to the existing conditions.

The **Environment Protection Authority** (EPA) recommended changes to the approved noise limits to reflect the revised Noise Impact Assessment of the project, which has been incorporated into the proposed notice of modification.

The **Office of Environment and Heritage** (OEH) identified errors in the original biodiversity impact assessment and sought a range of additional information from Infigen but is now satisfied with the proposed mitigation measures, the findings of the biodiversity impact assessment and the proposed changes to the existing conditions to incorporate the proposal.

The Department has considered biodiversity matters further in **section 6.2**.

Blayney Shire Council supports the proposal but asked for the voluntary planning agreement to be revised to reflect the increased electricity generation of the project (see **Section 4**). It also asked for changes to strengthen the existing conditions relating to road dilapidation surveys, which have been included in the proposed notice of modification.

Roads and Maritime Services (RMS) is satisfied that the traffic impacts of the proposal can be managed under the existing conditions of consent but agreed with the Department's proposed changes to the existing conditions on the designated vehicle routes and road upgrade for the project to clarify Infigen's obligations.

Forestry Corporation NSW (FCNSW) requested that the section of the transmission line corridor route, which is within FCNSW jurisdiction, follow the plantation boundary, rather than cut through sections of plantation, to minimise impacts on the plantation and to reduce fire risks. Infigen revised the transmission line corridor accordingly and has committed to consulting with FCNSW during detailed design. FCNSW supports the revised transmission line corridor.

The **Rural Fire Service** (RFS) has no objection to the project, subject to the implementation of the existing conditions for responding to emergencies and dealing with any bushfire risks.

The **Division of Resources and Geoscience** (DRG) is satisfied the proposal is unlikely to sterilise any mineral resources and supports Infigen's commitment to consult with Newcrest Mining Limited, the owner of Cadia Gold/Copper Mine, during the detailed design of the transmission line and switching station to ensure they do not adversely affect the mine's operation.

Cabonne Council, Essential Energy and the other agencies did not raise any concerns about the proposed modification.

5.4 Key Issues – Community/Special Interest Groups

Of the 55 submissions from the public, 54 objected to the modification and 1 supported (see **Table 4** below). Approximately 63% of community submissions were from members of the public residing more than 100 km from the project.

Table 4 | Community Submissions

Submitters	Total	Object	Support
< 5 km	17	17	0
5 – 100 km	4	3	1
> 100 km	34	34	0
TOTAL	55	54	1

The Department has summarised the key issues raised in public submissions in **Figure 5** and **Table 5** below.

Many of these submissions reiterated their objections to the original project, saying it should not proceed, and objected to the additional impacts of the proposed modifications, principally the increase in visual, noise and biodiversity impacts.

The Department has considered these issues further in **Section 6** to the extent that they relate to the proposed modification, noting that the Commission approved the wind farm following a detailed assessment process where the community’s objects were fully considered.

There were several submission from residents living close to the site and in the nearby villages of Forest Reefs and Carcoar, including the Flyers Creek Wind Turbine Awareness Group.

These residents were particularly concerned about the visual impacts of the proposal, saying they would industrialise the rural landscape and spoil the outlook from the villages and certain non-associated residence in close proximity to the turbines and the overhead sections of the 132 kV transmission line from the substation to Errowanbang Road.

They were also worried about the potential noise impacts of the larger turbines, saying they would annoy the local community and result in adverse health impacts.

Finally, these residents were concerned about the further vegetation clearing proposed and the increased risk of bird and bat strike due to the large increase in the rotor swept area of each turbine.

Cadia Valley Operations (CVO) initially objected to the proposal principally due to the proximity of the transmission line corridor to the approved subsidence zone of the Cadia East underground mining operations.

Infigen amended the application to move the transmission line corridor outside the subsidence zone, and CVO has advised that it is satisfied with the revised corridor. CVO also raised concern about the potential for the connection to the Cadia North to Orange transmission line to disrupt the power supply to its mining operations. However, the Department is satisfied that the issue will be dealt with by Essential Energy, Infigen and CVO during the detailed design of the connection.

The submissions from further afield raised a wide range of issues ranging from the problems of wind farms in general, to the Department’s approach to assessing the impacts of wind farms. They were also very critical of the visual impact assessment submitted with the application, saying its methodology was flawed and it had not been carried out in accordance with the Department’s Visual Assessment Bulletin.

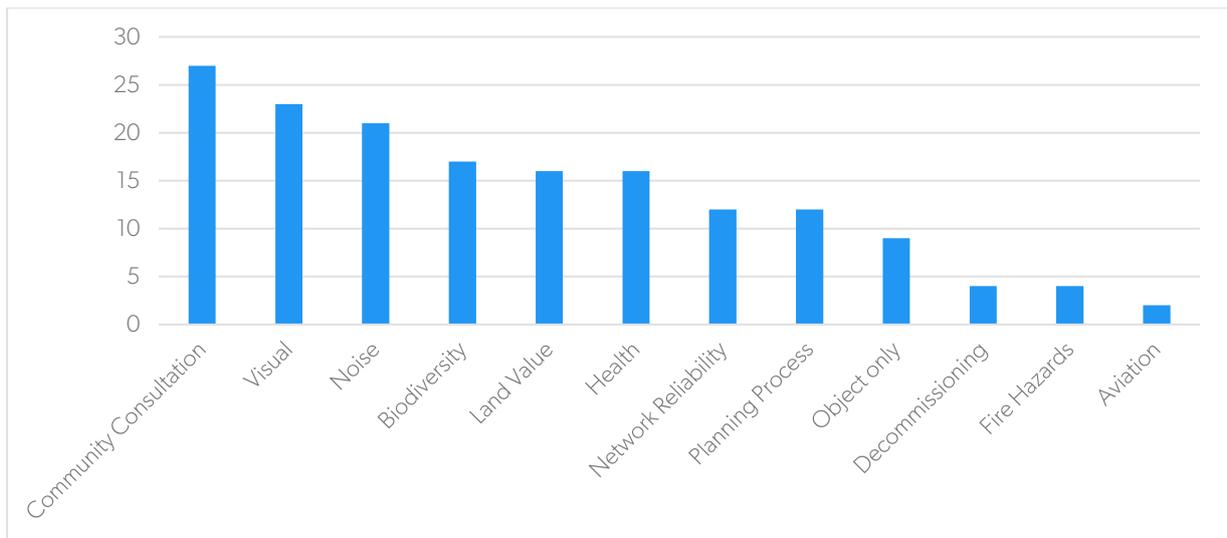


Figure 5 | Key issues raised in public submissions

Table 5 | Summary of issues raised in submissions

Issue	
Visual	<ul style="list-style-type: none"> • increase in visual impacts from larger turbines • adequacy of the wireframes and photomontages • visual assessment methodology • change in landscape character • adverse effects of shadow flicker
Biodiversity	<ul style="list-style-type: none"> • increased risk of bird/bat strike due to larger rotor swept area • increased clearing of native vegetation
Noise	<ul style="list-style-type: none"> • increase in noise from larger turbines, including low frequency noise and infrasound • health impacts associated with infrasound from larger turbines
Community Consultation	<ul style="list-style-type: none"> • lack of adequate consultation with the surrounding land owners and local community about the wind farm
Other	<ul style="list-style-type: none"> • depreciation of land values • lack of reliability due to intermittent energy supply provided from renewable energy • the assessment process • the scale of changes too significant to be a modification • responsibility for decommissioning • increased risk of bushfires, and interference with aerial fire-fighting operations

5.5 Response to Submissions

Infigen provided a response to all matters raised in submissions (see **Appendix D**), as well as additional information during the Department’s assessment (see **Appendix E**). The additional information provided confirmation of the proposed transmission line route, a revised biodiversity assessment report and the visual impact assessment.



6. Assessment

In assessing the merits of the modification application, the Department has considered the:

- existing conditions of approval;
- previous documentation associated with the original application for the project;
- the EA, submissions, RTS, Addendum RTS and additional information for the proposed modification;
- relevant environmental planning instruments, policies and guidelines; and
- relevant provisions of the EP&A Act, including the objects of the Act.

A list of the key documents that informed the Department's assessment is provided in **Appendix A**. The following is a summary of the findings of the Department's assessment.

6.1 Visual

Concerns about visual impacts were raised in 23 of the 54 public objections received during the public exhibition period, with two special interest groups (FCWTAG and Hills of Gold Preservation Inc) raising similar concerns.

Of these, 13 objections came from residents located within 5 km of the project site (comprising 8 residences) objecting on visual impact grounds, including R14 - Willow Park, R17 - Triangle Park, R18 - Meribah, R44 - Willow Dale, R70 - Rooma Gila, R125 - Rose Park, R134 - Highfield and R155 (see **Figure 6**).

Conversely, of the remaining 10 objections relating to visual impacts, one objector is located 23 km from the project and the other nine are located over 120 km from the project.

Several submissions considered the Visual Impact Assessment (VIA) prepared by Green Bean Design in July 2018 was inconsistent with the requirements specified in the *Wind Energy: Visual Assessment Bulletin* (the Bulletin).

Infigen's VIA concluded that the modified turbines would not significantly increase the visual impacts or magnitude of the approved project, and that the visual impact ratings for affected residents would remain largely consistent with the ratings identified in the Modification 3 visual assessment. The VIA summarised that the overall visual impact of the modification would be low to negligible.

Assessment

While the Bulletin was not in effect at the time of the original project approval, the current modification must be assessed using the Bulletin.

The Department notes that Infigen's VIA did not re-assess impact ratings for the already approved project to establish a baseline, nor did it provide a consideration of community values (which informs scenic quality and Visual Influence Zone) or provide a robust assessment of the cumulative impacts of the proposed modification.

The Department's assessment of the potential visual impacts has focused on the incremental change between the approved project and the proposed modified project only, and whether the turbines as modified would materially change the visual impacts of the approved wind farm.

In this regard, the Department has considered the potential visual impacts associated with the:

- increased turbine envelope; and
- proposed 132 kV transmission line and switching station.

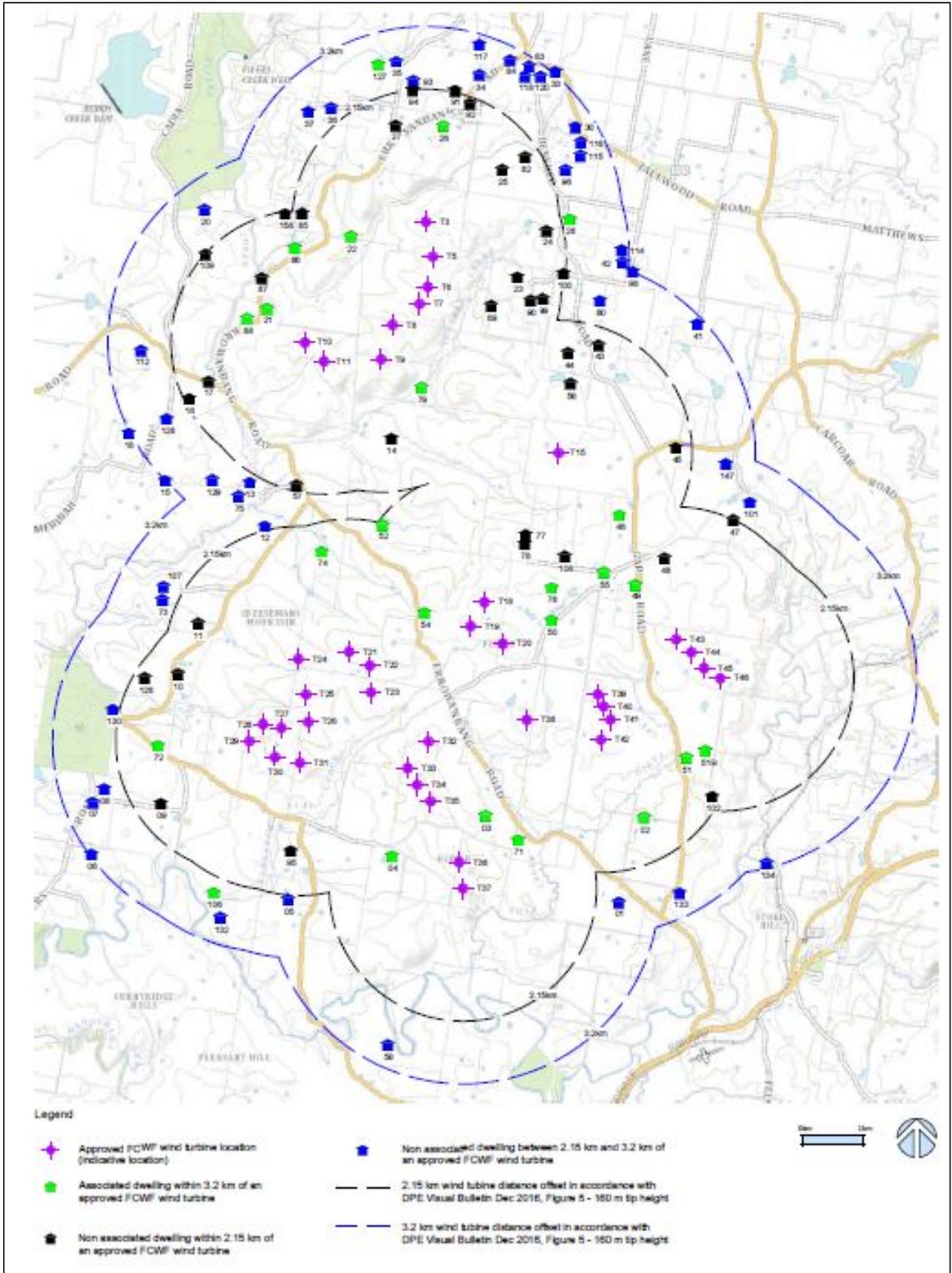


Figure 6 | Surrounding Residences

Visual Magnitude

In line with the Bulletin, the Department's assessment focused on the 71 non-associated residences located within 3.2 km of a turbine, with 26 of these dwellings located within 2.1 km of a turbine.

As a matter for comparison, the approved turbine height of 150 m would have involved detailed consideration of the 64 non-associated residences located within 3 km of a turbine, with 21 of these residences located within 2 km of a turbine.

Accordingly, while the Department acknowledges the 160 m turbines would be visible at distances greater than 3.2 km, it considers that the incremental change in impact as a result of the increased turbine dimensions at these residences would be negligible.

In addition, although some of the non-associated residences within 3.2 km would be more likely to see more blade tips of the modified project, the Department considers that no residence would experience a significant increase in visual impacts from the approved project.

This is a result of a combination of factors, including the modest increase in height and a decrease in the turbine hub heights, meaning that in some instances the increased height would be offset by receivers viewing turbine blades only, and not the nacelle and tower. It is also noted that the location of the turbines has not changed (subject to micro-siting limits) and no additional turbines are proposed.

The Department considers that any minor additional impacts from the proposed modification could be sufficiently mitigated through the provision of visual impact mitigation measures (such as landscaping and visual screening), which could enhance the existing vegetation screening and is available for all residences within 4 km of a proposed turbine under the existing project approval.

Other Visual Performance Objectives

The Department's consideration of the other visual performance objectives identified in the Bulletin are summarised in **Table 6** below.

Table 6 | Other Visual Performance Objectives

Objective	Assessment
Landscape Scenic Integrity	<ul style="list-style-type: none">• The regional landscape setting is not characterised by areas identified as having high scenic value in the Bulletin or that have been zoned for tourism, environmental management or conservation. However, submissions from the local community place great importance on the rural character of the area.• Beyond the 71 non-associated residences located within 3.2 km of a turbine, rural villages in the vicinity of the project include Carcoar (4 km south east), Mandurama (5 km south), Forest Reefs (5 km north), Millthorpe (11 km north east) and the town of Blayney (11 km east).• The Department acknowledges that the project as approved would become a major element in the local landscape.• Due to the separation distance between these town centres and the nearest turbine, the Department considers the incremental change in turbine heights, with no alteration to the turbine layout would not materially increase the impact to the landscape beyond what has been approved.
Key Feature Disruption	<ul style="list-style-type: none">• There are no key features in the vicinity of the site that warrant special consideration.

Objective	Assessment
Multiple Wind Turbine Effects	<ul style="list-style-type: none"> The Bulletin classifies rural dwellings as a Level 2 (moderate sensitivity) viewpoint, and recommends the location of proposed turbines should avoid, where possible, views to turbines of one or more wind energy projects, within the effective horizontal views of three or more 60° sectors. 52 non-associated dwellings would have turbines located in three or more 60° sectors based on Flyers Creek wind turbines alone and 7 non-associated dwellings and the village of Carcoar Given the proposal does not involve relocating any of the approved wind turbines and there would be minimal increase in the visibility of these turbines from surrounding non-associated residences, the Department has concluded that the multiple wind turbine effects of the proposal would be negligible.
Shadow Flicker and Blade Glint	<ul style="list-style-type: none"> Shadow flicker modelling predicted that all non-associated landowners would experience less than 30 hours of shadow flicker per annum. Infigen must comply with the existing conditions where: <ul style="list-style-type: none"> shadow flicker from the project must not exceed 30 hours per annum at any non-associated residence; and wind turbines are finished with a surface treatment that minimises the potential for glare and reflection.
Aviation Hazard Lighting	<ul style="list-style-type: none"> CASA has confirmed that no hazard lighting is required for the larger turbines.

Transmission Line and Switching Station

There are 11 non-associated residences located within 1 km of the proposed transmission line (see **Figure 7**), the majority of which are located between Errowanbang Road and the pine plantation to the north. Of these, the owner of one residence (R17) raised concerns regarding the visual impact of the transmission line.

However, as noted in Section 2, Infigen has since committed to locating the transmission line underground between Errowanbang Road and the forestry plantation, minimising visual impacts on nearby residences (including southerly views from residence R17).

The overhead sections would be located on poles up to 30 m high and would be visible to road users and a small number of residences. The overhead section between Errowanbang Road and the proposed substation would initially run parallel to an existing, albeit smaller transmission line up the hill and in parallel with the approved 33 kV transmission line.

By following an existing transmission line easement, R17 would experience minor incremental visual impacts associated with the 132 kV transmission line which would also be partially screened by the existing riparian vegetation along Flyers Creek.

Views of the overhead section through the forestry plantation would mostly be screened from nearby residences by the pine trees and/or existing roadside vegetation. A switching station would be located at the northern end of the transmission line to connect the project to the grid. Four residences are located within 1 km of the station.

Infigen's Visual Impact Assessment Report (VIA) found that views toward the switching station from these residences would be partially screened by existing vegetation. However, it recommended that landscape planting could further mitigate visual impacts of the switching station on residences.

The Department has therefore recommended a condition requiring Infigen to submit a copy of the final layout plan for the switching station to the Secretary for approval, prior to constructing the switching station. This plan must outline the proposed measures to minimise the visual impacts of the switching station on any non-associated residences near the switching station, including retaining existing vegetation buffers in and adjoining the plantation to screen views of the switching station or planting additional screening around the switching station.

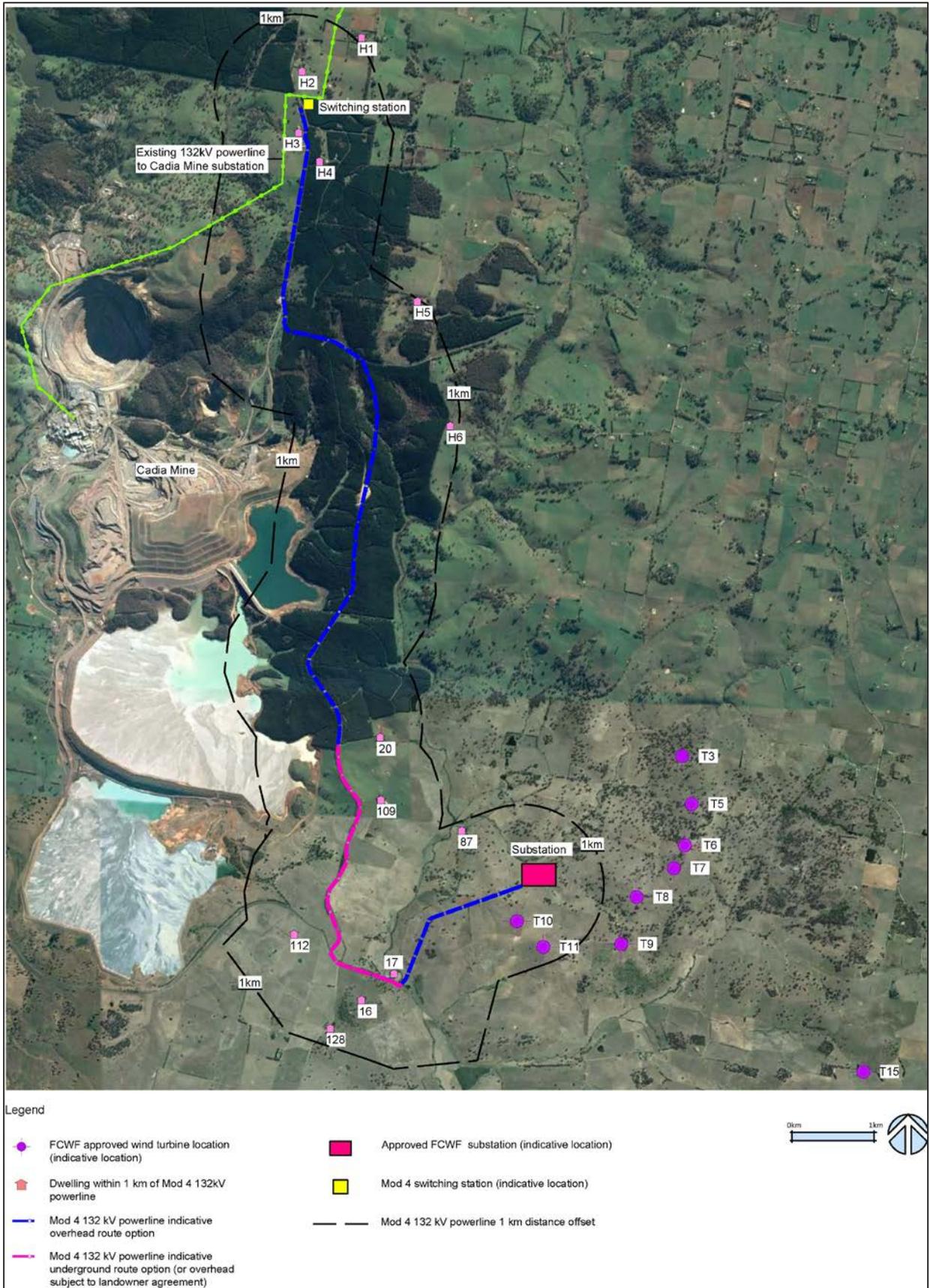


Figure 7 | Transmission line infrastructure and non-associated residences

Conclusion

The Department acknowledges there are concerns about the incremental change in visual impacts from some local landowners and special interest groups.

Notwithstanding, the Department considers that the impacts of the modified project are not significant, and do not warrant additional mitigation at any non-associated residences over and above the visual screening required by the existing project approval for all residences located within 4 km of a turbine.

However, the Department has recommended a condition requiring Infigen to mitigate any visual impacts on surrounding non-associated residences prior to constructing the switching station.

6.2 Biodiversity

Introduction

Eighteen submissions raised concerns about potential biodiversity impacts of the proposed modification, including increased vegetation clearing and potential bird and bat strike.

The main impacts of the modification on native vegetation would be associated with the clearing required for the construction of the transmission line. Additionally, the rotor swept area (RSA) would increase by 56% which would increase the risk of bird and bat strike.

Additional Vegetation Clearing – Transmission Line

The biodiversity impacts of the proposed transmission line were considered in detail in the revised Biodiversity Development Assessment Report (BDAR) submitted with the Response to Submissions.

Avoidance and Mitigation

Infigen has sought to minimise these impacts by locating the transmission line infrastructure on land that has mostly been cleared of native vegetation, with a significant portion of the transmission line corridor in the pine plantation to the north of the site.

Much of the 45 m wide transmission line easement would not require any native vegetation clearing. Further, the proposed underground section along Panuara Road and Cadia Road would minimise any impacts to roadside vegetation. Infigen also proposes to mitigate impacts through design flexibility within the 100 m wide assessed corridor.

Flora Impacts

The BDAR identified that the transmission line would result in clearing up to 53 ha of vegetation, including 5.6 ha of native vegetation and 47.8 ha of exotic vegetation (pasture and pine plantation). Of the native vegetation, around 3.7 ha consists of EEC, comprising 1.5 ha of moderate-quality Blakely's Red Gum – Yellow Box woodland, and 1.38 ha moderate-quality and 0.83 ha moderate-good quality Yellow Box – Blakely's Red Gum grassy woodland. Consequently, the Department has updated the existing conditions of approval to restrict the clearing of EEC for the project to 3.7 ha.

Of the 5.6 ha of native vegetation to be impacted, around 1.35 ha (or approximately 25%) of PCT 1330 is in poor condition and therefore carries no offset credit liability.

Table 7 provides a summary of the estimated native vegetation impacts for the transmission line based on the estimated 'worst-case' scenario.

The Department acknowledges that Infigen's assessment represents a worst-case amount of clearing required for the modification and the final design would result in a reduced impact.

Table 7 | Vegetation Community Impacts for the Transmission Line

Native Vegetation Community/PCT	Conservation Significant	Condition Class	Impact Area	Credit Liability
Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion [PCT #277]	EEC	Moderate	1.5 ha	15
	Paddock Tree	Planted Vegetation	1 tree	1
Long-leaved Box – Red Box – Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion [PCT #287]	Not EEC but considered threatened species habitat	Good	0.54	16
Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion [PCT #1330]	EEC	Moderate-Good	0.83	20
	EEC	Moderate	1.38	16
	Not EEC	Poor	1.35	0
TOTAL			5.61	68

Fauna Impacts

One threatened fauna species, the Squirrel Glider (listed as vulnerable under BC Act), was recorded during the field surveys for the transmission line. The proposed transmission line would affect up to 0.94 ha of PCT 1330 and PCT 287 habitat for the Squirrel Glider, and Infigen would be required to retire 24 species credits for this species. Further, one threatened fauna species, the Gang-gang Cockatoo, was assumed to be present on the site as surveys were unable to be undertaken during the appropriate survey period. The proposed transmission line would impact up to 0.34 ha of potential woodland habitat for the Gang-gang Cockatoo, and Infigen would be required to retire 3 species credits for this species.

In regard to fauna habitat, up to 16 hollow bearing trees would be removed for the transmission line infrastructure. Consequently, the Department has updated the existing conditions of approval to restrict the clearing of hollow bearing trees for the project from 10 to 26, noting however that Infigen would still be required to minimise this clearing as required under the existing conditions of approval.

Biodiversity Offsets

The offset requirements for the likely impacts on native vegetation communities is summarised in **Table 7**. The Department and OEH consider that the offset credit requirements have been correctly calculated for the modification using the BAM.

In total, up to 68 ecosystem credits and 27 species credits would be required to offset the impacts arising from the proposed modification. Notwithstanding the above credit requirements, Infigen would be required to calculate the biodiversity offset credit liabilities for the project as part of detailed design and to retire these credits as part of the offset package required by the existing conditions of approval.

Additional Disturbance – Wind Farm

The proposal involves changes to the turbine footings and hardstand areas, which would result in the further disturbance of another hectare.

The biodiversity values of the site are generally low with a few scattered trees and very little native grassland. While the vegetation on the site is dominated by improved pasture, there are patches of EEC across the site with low floristic quality.

Under the existing conditions, Infigen is required to micro-site the turbines and associated infrastructure to avoid EECs and cannot clear any EECs on the site without the approval of the Secretary.

While Infigen sought to modify these conditions to limit the clearing of EECs to the minimum extent reasonable and feasible within the approved disturbance footprint, the Department does not support the watering down of

the existing conditions. The Department considers that Infigen should be required to avoid any clearing of EECs even with the larger turbines, and if this is not possible, then seek the Secretary's approval for any unavoidable clearing.

The Department has no objection to the additional disturbance associated with the larger turbines, given the low conservation value of the site in general and provided that the impacts of the additional clearing are offset along with the other impacts of the wind farm in accordance with the existing conditions.

The recommended notice of modification includes updated offset conditions requiring the biodiversity impacts of the whole project to be offset in accordance with the requirements under the NSW Biodiversity Offset Scheme.

Bird and Bat Strike

Infigen commissioned Brett Lane & Associates to undertake a collision risk assessment of the proposed modification to identify if any bird and bat species would be at a higher risk of strike from the changes to the turbine dimensions and RSA.

As the majority of the turbines are located on ridges predominantly void of tree cover, the collision risk assessment concluded that the potential impacts of the proposed modified turbines on birds and bats are not significant, including potential impacts to the Superb Parrot.

The Department and OEH consider that Infigen has provided a suitably robust assessment of the potential risk of the modified project on bird and bat species from blade strike. However, Infigen would be expected to monitor the activities of the Superb Parrot on the site through the implementation of the Bird and Bat Adaptive Management Plan (BBAMP), which is an existing requirement in the project approval. The Department has however updated the timing for preparation of the BBAMP in the updated conditions to be prior to the commencement of operations (not construction) in line with other contemporary wind farm approvals.

Conclusion

Overall, the Department considers that the proposed modification would not significantly increase the biodiversity impacts of the project, subject to the implementation of the proposed management and mitigation measures, the recommended revised conditions limiting clearing of EEC and hollow bearing trees and the requirement for Infigen offset the impacts of the project.

The Department notes that the residual biodiversity impacts would be further minimised through detailed design and refinement of the transmission line route, as well as the wind farm design, and through a range of mitigation and adaptive management measures.

In addition, the Department notes that as part of the existing conditions of approval, Infigen would be required to prepare and implement an updated Construction Flora and Fauna Management Plan and BBAMP (in consultation with OEH) for the modified project.

With these measures in place, the Department and OEH consider that the proposed modification would not significantly increase the biodiversity impacts of the project.

6.3 Other Considerations

While the community has raised concerns in submissions about a number of other matters, including the broader impacts of the project as approved, the Department considers that all other issues associated with the proposed modification are minor and/or would be adequately managed through the existing conditions of approval.

Further details on the Department’s consideration of concerns raised in community submissions are included in **Table 8** below.

Table 8 | Summary of other considerations and recommended conditions, where applicable

Issue	Consideration	Recommended Conditions
Noise	<ul style="list-style-type: none"> • A number of community submissions raised concerns about the increase in operational noise resulting from the larger turbines. • Using conservative assumptions, Infigen’s noise assessment demonstrates that the modified project would comply with the relevant noise criteria at all non-associated residences, except for R077 and R078. The noise levels at these residences were predicted to exceed the criterion by less than 1 dB at wind speeds of between 8 m to 12 m per second at the hub height. • Given the conservative assumptions used in the noise modelling, both the Department and the EPA are confident that this exceedance is unlikely to occur and that the project would be able to comply with the applicable noise criteria at all associated residences. • Further, Infigen would be able to avoid any potential exceedances at these residences with sector management, which includes turning off or running turbines at lower power levels during certain wind conditions. • The EPA has confirmed the updated noise criteria for the project, which includes some minor amendments attributable to the changes in hub height, rounding of modelling results and inclusion of updated background noise monitoring results for two residences (R078 and R089). • The proposed 132kV overhead transmission line is located over 50 m from any non-associated residences and as a result corona discharge noise or Aeolian noise is unlikely. An assessment of the switching station also concluded that it is unlikely to have any significant noise impact on the nearest receivers. The existing conditions of approval require that any noise generated by the operation of ancillary infrastructure including the switching station must not exceed the applicable noise criteria of 35 dB(A) at all non-associated residences, including the closest non-associated residence H2 that would be located approximately 300 m away. 	<ul style="list-style-type: none"> • The Department has recommended updating the operating noise conditions to incorporate the revised operational noise criteria for the modified project into the conditions of approval, consistent with the EPA’s recommendation.

Issue	Consideration	Recommended Conditions
Heritage	<ul style="list-style-type: none"> • A cultural heritage assessment was undertaken by NSW Archaeology Pty Ltd, and concluded there are no known Aboriginal sites in the proposed modification area, with a low probability of any objects due to the nature of the landscape and extent of previous impacts/disturbance. • The existing conditions of approval require Infigen to prepare and implement a construction Heritage Management Plan for the project and to ensure the project does not impact on any heritage items outside of the approved disturbance area. • The Department considers that the proposed modification would not increase the heritage impacts of the project or require any changes to existing approved heritage management regime, and OEH raised no concerns. 	<ul style="list-style-type: none"> • Comply with the existing conditions of approval
Traffic	<ul style="list-style-type: none"> • The proposed modification would not result in additional traffic movements, although there would be an increase in the length of the largest trailer accessing the site in order to transport the 10 m longer blades. • Neither the RMS or Blayney Shire Council raised any concerns regarding traffic related matters including the transport of longer blades. • The Department notes that unlike contemporary wind farm approvals which require an assessment of the transport routes up-front, Infigen is only required to identify the required road upgrades on the transport route as a condition of approval prior to the commencement of construction. • In consultation with Blayney Shire Council and the RMS, the Department has updated the existing traffic conditions to reflect contemporary wind farm approvals, including a new requirement for Infigen to identify the proposed final transport route in consultation with the relevant road authorities prior to the commencement of construction. • The Department has also corrected the drafting of the current conditions relating to the timing for the assessment and completion of any required road upgrades so that they reflect the practical staging of when the upgrades are likely to be required. For instance, any upgrades required for construction-related heavy vehicle traffic should be completed prior to the commencement of construction however any upgrades required for over-dimensional transport only need to be implemented prior to the commencement of over-dimensional vehicle transport. • Both Council and the RMS have agreed to the proposed re-drafting of the conditions. 	<ul style="list-style-type: none"> • The Department has recommended updating the traffic and transport conditions (specifically Condition F15) to: <ul style="list-style-type: none"> - include a requirement for Infigen to formally commission an independent, qualified person(s) to identify the proposed transport routes for all heavy and over-dimensional vehicle access to and from the site and agree on these routes in writing with the relevant road authority, prior to the commencement of construction; and - clarify the timing around the requirement for road upgrades reflective of the proposed timings for heavy vehicle and over-dimensional transport.
Soil and Erosion	<ul style="list-style-type: none"> • The modified turbine dimensions would increase the disturbance footprint by approximately 1 ha overall. • The existing conditions of approval require Infigen to prepare and implement a construction Soil and Water Quality Management Plan, including erosion and sediment control measures. • The Department considers that the proposal would not increase the soil and erosion impacts of the project or require any changes to the existing soil and erosion management conditions, and DoI – L&W raised no concerns. 	<ul style="list-style-type: none"> • Comply with the existing conditions of approval

Issue	Consideration	Recommended Conditions
Bushfire Safety	<ul style="list-style-type: none"> As part of its assessment, the Department consulted with Fire & Rescue, Rural Fire Service and Forestry Corporation of NSW, none of which objected to the proposed modification. As a section of proposed transmission line and switching station would be located in the pine plantation, the Department has recommended an additional requirement for Infigen to develop the Bushfire Management Plan in consultation with Forestry Corporation NSW. The Department considers that the proposed modification would not significantly impact bushfire safety subject to the existing project approval conditions. 	<ul style="list-style-type: none"> Comply with the existing conditions of approval with the added requirement to develop the Bushfire Management Plan in consultation with Forestry Corporation NSW.
Telecommunications	<ul style="list-style-type: none"> The Department considers the magnitude of change in the turbine dimensions would result in negligible impacts on television, radio and telephone/internet transmission. Similarly, the transmission line is unlikely to introduce any additional impacts that would not be mitigated by the existing conditions of approval. 	<ul style="list-style-type: none"> Comply with the existing conditions of approval
Aviation Safety	<ul style="list-style-type: none"> The Department consulted with Airservices Australia, CASA and the Federal Department of Defence regarding the proposed modification, none of which objected to the proposed modification subject the inclusion of standard conditions. CASA has also confirmed that no aviation lighting would be required despite the increase in the maximum tip height of the turbines. While the project is unlikely to cause any adverse impacts on the Orange Aerodrome, particularly now that the non-directional beacon approach procedure that would have required redesign to accommodate the project has been decommissioned, the Department believes Infigen should still be obliged to consult with the relevant aviation authorities prior to constructing the wind farm in accordance with the existing condition D11. This is because there could be further delays in the construction of the wind farm and the operational requirements of the aerodrome may change during this period. Consequently, the Department does not agree with Infigen's proposal to delete the condition. 	<ul style="list-style-type: none"> Comply with the existing conditions of approval with the added requirement to confirm compliance with any Obstacle Limitation Surface (OLS), and within 30 days provide confirmation to authorities that the information provided prior to construction of any wind turbines and wind monitoring masts remains accurate.
Infrasound	<ul style="list-style-type: none"> The Department acknowledges the concerns of some members of the community about the health impacts of infrasound and low frequency noise associated with wind turbines. The Department's Wind Energy Guideline (2016) refers to the advice of the National Health and Medical Research Council (NHMRC) regarding this matter. The NHMRC has concluded that, <i>"there is no consistent evidence that wind farm cause adverse health outcomes in humans"</i>, and that any further health-related studies should be limited to areas within close proximity of wind turbines. The Department will continue to monitor contemporary scientific research outcomes to ensure its position reflects robust evidence on any health effects, including any advice released from the National Wind Farm Commissioner and the Independent Scientific Committee on Wind Turbines. Based on the above, the Department does not consider that the proposed modification (or the project as a whole) would result in any adverse health outcomes for the local community. 	<ul style="list-style-type: none"> No recommended conditions



7. Evaluation

The Department has assessed the merits of the modification in accordance with the relevant requirements of the EP&A Act.

In modifying the project approval, the Department has taken the opportunity to update and strengthen the existing conditions to better reflect contemporary conditions applying to other wind farms in NSW.

With the implementation of the amended conditions, the Department considers that the modified project achieves a reasonable balance between maximising the efficiency of the wind resource and minimising the potential impacts on the local community and environment.

Notwithstanding, the Department acknowledges the concerns of some members of the local community about the impacts of the project as a whole, and the potential increase in impacts associated with the larger turbines and the proposed transmission line infrastructure.

Although the modification would increase the visual impacts of the turbines, these impacts would not be significant and would be adequately mitigated through the visual impact mitigation measures available to residences in the existing conditions of approval.

Similarly, while the modification would allow for an additional 5.6 ha of native vegetation to be cleared within the transmission line corridor, the additional disturbance is not expected to result in any significant impact to threatened species or EECs. In accordance with the revised conditions, Infigen would be required to continue to minimise the actual vegetation clearance through detailed design and siting of infrastructure during construction and offset any biodiversity impacts of the project in accordance with the NSW Biodiversity Offset Scheme.

The proposed modification would allow the benefits of the project to be realised, particularly as it would allow the project to connect to the electricity grid. In this regard, the project would deliver a range of economic benefits, including up to 100 full time construction jobs and 10 full time operational jobs, with a capital investment of up to \$300 million. Additionally, Infigen would contribute at least \$107,000 a year through a voluntary planning agreement with Blayney Shire Council, of which \$55,000 would contribute to a community enhancement fund.

It would also increase the electricity produced by the wind farm and is consistent with the Commonwealth's *Renewable Energy Target* and the NSW *Climate Change Policy Framework* as it would generate approximately 445 GWh of renewable energy per year over its operating life, equivalent to 75,500 homes annually, with estimated emissions savings in the order of 428,000 tonnes CO₂-e per year.

On balance, the Department considers that the proposed modification has merit, and is in the public interest.

Consequently, the Department considers that the proposed modification is approvable, subject to the recommended amendments to the existing conditions (outlined in **Appendix F**).

Recommended by:

Phillipa Duncan

Team Leader

Resource and Energy Assessments

Recommended by:

David Kitto

Executive Director

Resource Assessments and Business Systems



Appendices

Appendix A – List of Documents

Flyers Creek Wind Farm Modification 4 – Environmental Assessment, Infigen, 2018.

Flyers Creek Wind Farm Modification 4 – Response to Submissions Report, Infigen, 2018.

Flyers Creek Wind Farm Modification 4 – Response to Submissions - clarifications, Infigen, 2018

Appendix B – Environmental Assessment

Appendix C – Submissions

Appendix D – Response to Submissions

Appendix E – Supplementary Information (RTS Addendum)

Appendix F – Consolidated Consent

Appendix G – Notice of Modification

Appendices B-G- See the Department’s Major Projects Website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/12141>

Appendix H – Summary of Changes to Conditions

Condition Number	Condition	Reason for changes
Definitions	Definitions	Including contemporary definitions for wind farm project approvals and changing agency names. Update definition of ‘EA’ to reflect documents provided in support of the application. Update definition of project to include 132 kV transmission line infrastructure
Schedule D: condition D12-D12A	Aviation Obstacles and Hazards	Conditions updated to reflect contemporary wind farm project approvals
Schedule D: condition D23	Shadow flicker	Condition updated to clarify limits apply to non-associated residences only
Schedule D: condition D25	Night-lighting	Condition updated to reflect contemporary wind farm project approvals, specifically the requirement to ensure any lighting installed utilises an aircraft detection lighting system
Schedule E: conditions E6-E7	Incident and Non-Compliance Notification obligations	Conditions updated to reflect contemporary wind farm project approvals

Schedule C: condition C10	Independent Environmental Audit obligations	Condition updated to reflect contemporary wind farm project approvals
Schedule F: condition F3	Construction Hours	Condition updated to reflect contemporary wind farm project approvals
Schedule F: condition F16	Road Dilapidation Report	Condition updated to include a requirement that the report is undertaken using a method agreed to by the relevant road authority
Schedule G: condition G5 and G6	Rehabilitation and revegetation	Deleted conditions to avoid duplication
Schedule G: condition G7	Operational Noise Criteria	Condition updated to reflect revised noise criteria and clarify that criteria applies only to non-associated residences
Appendix 1	Schedule of Land and Project Layout	Updated to reflect new land schedule and project layout