



Crookwell 3 Wind Farm

*State Significant
Development
(SSD 6695)*



April 2019

© Crown Copyright, State of NSW through its Department of Planning and Environment 2018

Cover photo

Source: <https://images.planning.nsw.gov.au/>

Disclaimer

While every reasonable effort has been made to ensure this document is correct at time of printing, the State of NSW, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance or upon the whole or any part of this document.

Copyright notice

In keeping with the NSW Government's commitment to encourage the availability of information, you are welcome to reproduce the material that appears in the Crookwell 3 Wind Farm Assessment Report. This material is licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0). You are required to comply with the terms of CC BY 4.0 and the requirements of the Department of Planning and Environment. More information can be found at: <http://www.planning.nsw.gov.au/Copyright-and-Disclaimer>.



Executive Summary

Crookwell Development Pty Ltd (CDPL), a wholly owned subsidiary of Global Power Generation Australia Pty Ltd (GPG), proposes to develop the Crookwell 3 Wind Farm (the project), located near Crookwell and Goulburn in the Southern Tablelands of NSW. CDPL also owns and operates the adjacent Crookwell 2 Wind Farm (see Figure ES1).

The original application for the project was lodged in February 2010 seeking approval for 30 turbines. The Environmental Impact Statement (EIS) for the project was put on public exhibition in November 2012, and a response to submissions was provided in February 2014 proposing 29 turbines.

The Department completed its assessment of the merits of the project in February 2015 and referred the application to the then Planning Assessment Commission for a final decision as there were more than 25 public objections to the project. In its assessment the Department acknowledged that the project could have significant visual impacts on up to 8 residences near the turbines, but recommended approval due to the renewable energy benefits of the project. The Department's recommended conditions included granting voluntary acquisition rights to the owners of the 8 residences, which would allow them to be bought out by CDPL if the project goes ahead.

During its review of the application, the Commission visited the site and held a public meeting in March 2015. Following this, the Commission questioned several of the conclusions in the Department's assessment report and referred the application back to the Department for further assessment.

The Commission's concerns included the proximity of turbines to non-associated private residences, the visual and noise impacts on the amenity of several nearby residents, the lack of certainty regarding the proposed negotiated agreements with affected landowners, road maintenance, access to the site and the decommissioning of the wind farm.

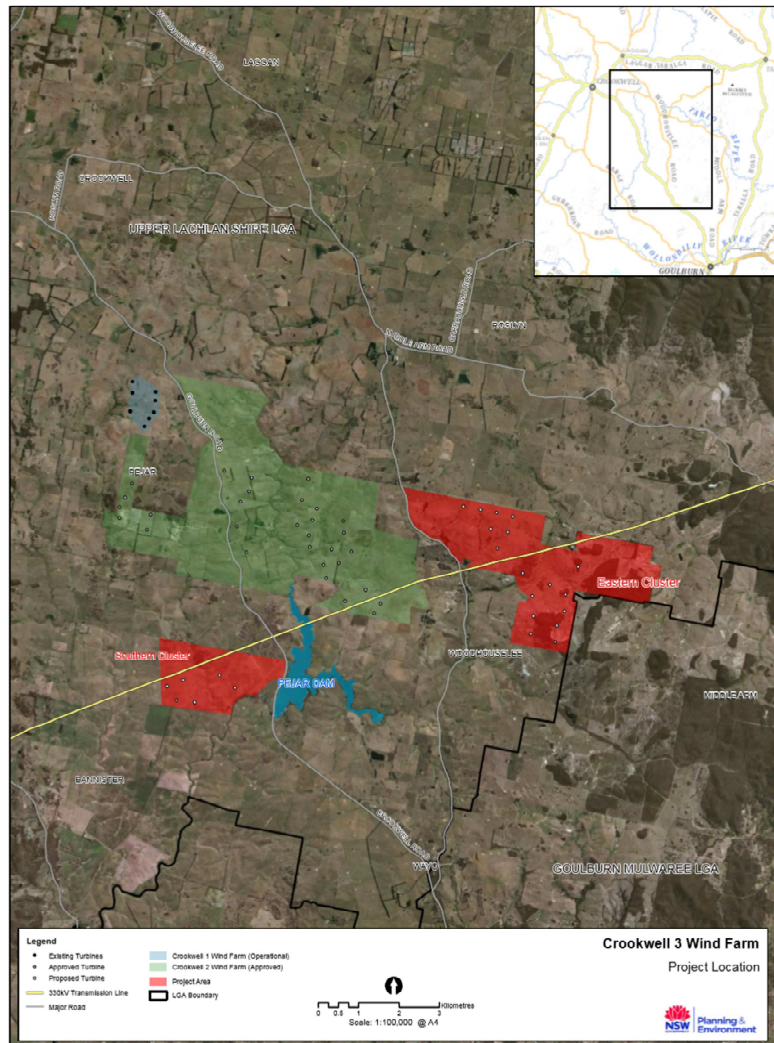


Figure ES1 | Project Location

The Department asked CDPL to provide a written response to the issues raised by the Commission, which triggered a review of the design of the project.

Following this review, CDPL amended the application in September 2016 and submitted an Addendum to the EIS assessing the impacts of the amended application.

The proposed project now involves the installation, operation, maintenance and decommissioning of a wind farm of **up to 23 turbines up to 157 metres in height**, and associated infrastructure. The turbines would be developed in two clusters either side of the Crookwell 2 Wind Farm which has recently been constructed by CDPL, with the eastern cluster comprising 17 turbines and the southern cluster comprising 6 turbines (see Figure ES1).

The project is classified as State Significant Development (SSD) under Section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Under Section 4.5 (a) of the EP&A Act and Clause 8A of the *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011* the Independent Planning Commission (the Commission) is the consent authority for the development as there were more than 25 public submissions by way of objection.

Engagement

The Department publicly exhibited the original EIS from 1 November 2012 to 6 February 2013, and exhibited the Addendum EIS from 11 October 2016 to 14 November 2016.

The Department received a total of 107 submissions during these exhibition periods including 12 from government agencies, 14 from special interest groups and 81 from the general public.

While none of the government agencies object to the project, several of these agencies have residual concerns about the project.

The Upper Lachlan Shire Council remains concerned about the visual impacts of turbines within 2 km of non-associated private residences, the potential impacts on the road network during construction, and the potential for the project to interfere with television services in Crookwell; the Office of Environment and Heritage has concerns about the biodiversity impacts of the project, principally due to its potential impacts on birds and bats; and WaterNSW has concerns about the water quality impacts of the development, saying CDPL has failed to demonstrate that the project could satisfy the “neutral and beneficial” test required for all development in the Sydney drinking water catchment.

The majority of public submissions supporting the project (70%) came from residents more than 15 km from the project site. These submissions pointed to the broader economic, social and environmental benefits of developing renewable energy projects in the region.

Of the 18 submissions within 5 km of the project, 15 objected to the project and 3 supported (including 2 host landowners). The overwhelming concern raised in local submissions related to visual impacts, including proximity of turbines to residences, landscape impacts and cumulative impacts from other wind farms in the area.

During the assessment process, the Department visited the site and surrounds on several occasions, held a community information session, and consulted extensively with local residents, community groups, Councils, key government agencies and CDPL.

Additional Assessment

Since the original assessment report was prepared in 2015, the Department has given detailed consideration to the matters raised by the Commission and has undertaken further assessment of the the amended project, in accordance with the requirements of the EP&A Act.

This has included consideration of:

- the issues raised by the Commission following the public meeting in 2015;
- the issues raised in submissions on the Addendum EIS;
- advice from an independent visual expert (Mr Terry O'Hanlon of O'Hanlon Design) engaged by the Department to provide advice on the impacts of the project on the landscape and the amenity of nearby residents;
- the consistency of the project against the land use objectives under the *Upper Lachlan Local Environmental Plan 2010* and the *Upper Lachlan Development Control Plan 2010*, which were draft planning instruments at the time of the original application;
- cumulative impacts with other wind farms in the vicinity, including the recently constructed Crookwell 2 Wind Farm;
- the principles set out in the *NSW Wind Energy Framework* which was published in December 2016, particularly the *Visual Assessment Bulletin*; and
- the need for the project in the context of the significant growth in the renewable energy industry in NSW over recent years.

The Department has also undertaken additional consultation with key stakeholders, including Upper Lachlan Shire Council, Goulburn Mulwaree Council and the Office of Environment and Heritage.

After very carefully examining all these additional matters, the Department now considers that the environmental impacts of the project outweigh its benefits and that the site is unsuitable for a large-scale wind farm. Consequently, the findings and conclusions in this final assessment report, which incorporate consideration of these additional matters, supersede and replace the Department's initial assessment report referred to the Commission in February 2015.

On balance, the Department now considers that the potential benefits of the project are outweighed by its predicted impacts. The key reasons for this conclusion are set out below.

Evaluation

Landscape Impacts

Despite the changes to the project, and based on the advice of O'Hanlon Design (OHD), the Department considers that the project would have an unacceptable impact on the broader landscape due to cumulative impacts with other wind farms and impacts on key landscape features in the immediate vicinity of the wind farm. The Department also considers that the existing landscape has limited capacity to absorb further change from additional turbines and there are limited opportunities to make further changes to the project that would effectively mitigate these impacts to acceptable levels.

In particular, the project involves installation of turbines in two clusters on elevated ridges on both sides of the Crookwell 2 Wind Farm and the main road into Crookwell from Goulburn. Combined with Crookwell 2, this would result in turbines covering an arc extending more than 10 km along the main ridgeline on the approaches to Crookwell. There are also a number of other wind farms visible from the site and surrounds, including the Crookwell 1, Gullen Range and Gunning Wind Farms.

If the project proceeds, it would be possible for local residents and visitors to view at least 5 wind farms in the local area, with a number of these residences located directly between the Crookwell 2 and Crookwell 3 Wind Farms. In addition, the southern cluster is located in close proximity to Pejar Dam (around 1 km), which is an important local public recreation/picnic area including a boat ramp and other facilities.

Overall, the Department considers the local landscape already has limited capacity to absorb further change from wind farm projects, and the particular location and layout of the project would result in material impacts on local landscape values and features.

Visual Impacts on Residences

The *NSW Wind Energy Framework* recommends that turbines of 157 m in height should not be located within 2.1 km of private residences unless there is clear justification to do so. This is similar to the *Upper Lachlan Development Control Plan 2010*, which specifies that turbines should be located more than 2 km from non-associated residences.

The proposed Crookwell 3 turbines are located in close proximity to residential dwellings with 17 of the 23 proposed turbines (representing 74%) located within 2.1 km of non-associated residences. The local topography and the proximity of the project to the Crookwell 2 Wind Farm also contributes to visual dominance and cumulative visual impacts on nearby residences.

This is supported by the nature of submissions within the local area (all submissions within 3 km of the project except for host landowners, and 90% within 5 km), objecting to the project and raising visual impacts as the principal reasons for their opposition.

Upper Lachlan Council also has residual concerns about the project, including objecting to the turbines located within 2 km of non-associated residences (representing 16 of the 23 turbines).

The Department recognises that the changes to the project made by CDPL since the original application in 2010 have reduced the impacts of the project at some receivers, including the removal of 7 turbines. CDPL has also reached agreement with 9 landowners in the vicinity of the wind farm who are willing to accept the impacts of the project.

Previously, the nearest turbine was approximately 0.9 km from the nearest non-associated residence. However, even with the changes in the turbine layout, the nearest turbine is still located less than 1.1 km from a non-associated residence.

While the Department acknowledges the changes made by CDPL, it does not consider that these changes have materially changed the nature and extent of the visual impacts of the project on the landscape and residences around the wind farm.

Even with the additional agreements in place, and based on the advice of OHD, the Department considers that there would be at least 27 non-associated residences that would experience moderate/high or high visual impacts as a result of the project (see Figure ES2).

The relatively short setback of residences from project turbines (1.1 km to 3.4 km) is a significant contributing factor to the moderate-high and high impact ratings for 19 of these residences. While the other 8 residences are further from the proposed turbines they would be subject to significant cumulative impacts, with turbines affecting up to 180° of the viewshed from these residences.

Given the close proximity of the majority of turbines to non-associated residences, the resultant magnitude and significant direct visual impacts predicted, together with the predicted significant cumulative impacts, adequately mitigating the residual visual impacts of the project would require removing the vast majority of proposed turbines.

As can be seen on Figure ES2, there are highly affected residences in key locations adjacent to both clusters where CDPL has not been able to reach agreement with the landowners. The only exception is a number of turbines in the eastern part of the eastern cluster where agreements have been reached with the most affected landowners.

However, it is not the role of the Department to design the wind farm for the proponent, and the consent authority is required to assess the application as proposed. Further, the removal of the majority of turbines to address visual

impacts would materially reduce the 'benefits' of the project as a whole and hence diminish the justification for approving the project.

The Department has also considered whether it is reasonable or appropriate to afford voluntary acquisition rights to the owners of highly affected residences to address the residual visual impacts of the project. The Department's 2015 assessment report recommended the acquisition of 8 residences, and CDPL has since reached agreement with the owners of 5 of these residences. However, based on further assessment and the advice of the OHD, up to 14 non-associated residences are still predicted to experience high visual impacts.

While the Department acknowledges that the significance of these impacts may not warrant acquisition in all cases, acquisition should only be considered where the broader benefits of the project are so significant or important that they outweigh the potential impacts on local residents. In this case, the Department considers that the benefits associated with developing a maximum of only 23 turbines are not so significant from a public interest perspective that the provision of voluntary acquisition rights to landowners would be justified.

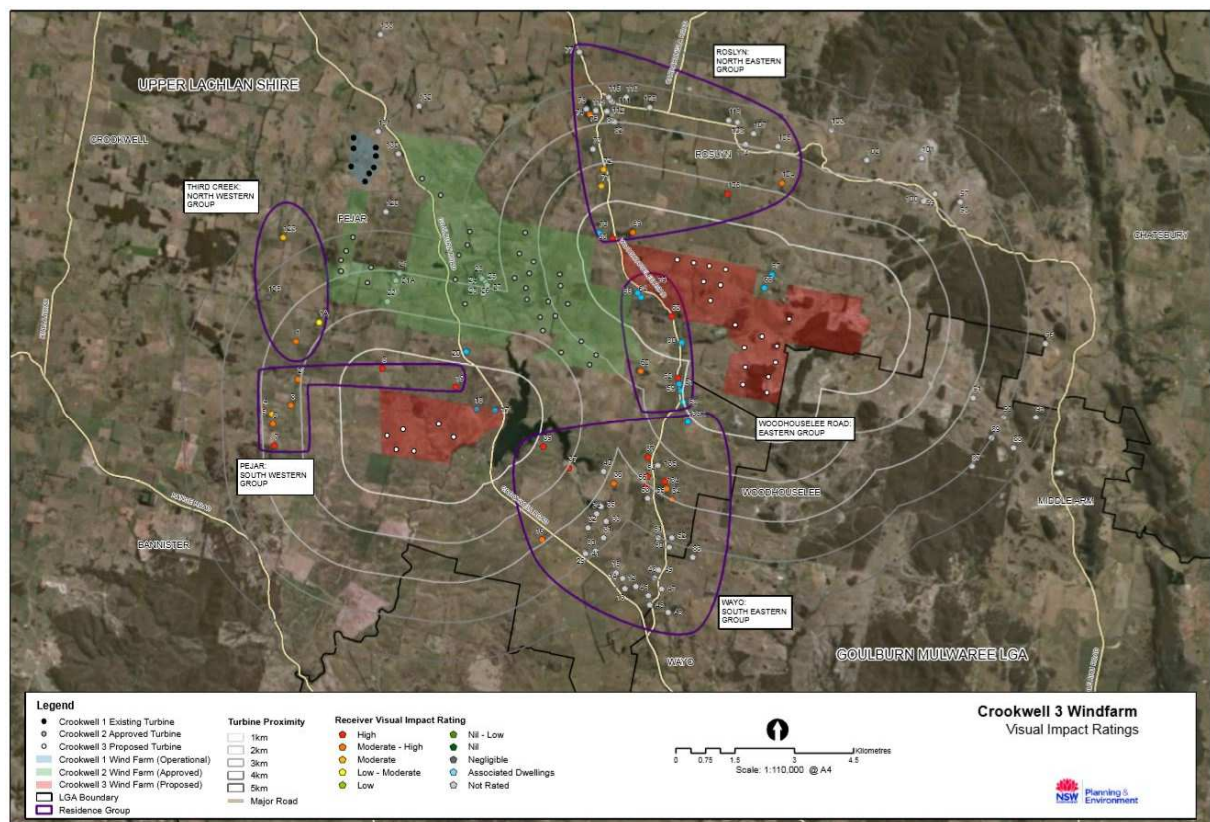


Figure ES2 | Visual Impacts at Residences

Land Use Zoning

The Department notes that 70% of the turbines (all of the eastern cluster) are prohibited under the current Local Environmental Plan as they are located in an E3 Environmental Management Zone. While it is still open to the Commission to grant consent, the Department does not consider that the project is consistent with the objectives of the E3 - Environmental Management zone or that the benefits of the project are so significant or essential to the State that the consent authority should override the current strategic planning intentions for this portion of the site.

The Department also notes that the *State Environmental Planning Policy (Infrastructure) 2007* only makes electricity generating works permissible with consent in prescribed rural, industrial or special use zones, and does not override local planning controls within environmental zones.

Residual Issues

In addition to the above matters, the Department has considered the full range of potential impacts associated with the project. The Department considers that the majority of these matters could be managed or conditioned should the project be approved. However, should the Commission decide to approve the project, there are a number of residual matters that would need to be addressed, either through further assessment or the imposition of conditions, including the matters raised by Council, the Office of Environment and Heritage and WaterNSW.

Summary

The Department acknowledges that the Crookwell 3 Wind Farm would generate a range of economic benefits in the local area and more broadly for NSW, including generating up to 96 MW of renewable energy, attracting up to \$120 million in capital investment, and creating up to 40 jobs during construction and up to 6 jobs during operations.

However, following its assessment of the project, the Department now considers that the environmental impacts of the project outweigh its benefits and it is not appropriate to allow further development of wind energy projects in such close proximity to existing wind farms in this area or in such close proximity to a relatively high number of non-associated residences.

The Department notes that it has provided formal feedback to CDPL on several occasions since the Commission raised concerns with the project in 2015, particularly regarding concerns about the visual impacts of the project, and the need to avoid these impacts where possible and/or provide additional mitigation to reduce these impacts to acceptable levels. The Department acknowledges the agreements secured by CDPL, however there are still 17 non-associated residences within 3.1 km with high or moderate-high visual impacts that CDPL has not secured agreements with despite having had several years to do so.

While the NSW Government remains strongly in favour of the development of renewable energy in NSW, over the last 10 years the industry has matured significantly. There are now a large number of wind and solar farms operating, approved or proposed in NSW, and while the approval of additional renewable energy projects remains desirable (subject to detailed assessment), there are a range of suitable alternatives that would deliver similar or greater benefits than the Crookwell 3 Wind Farm without the significant adverse impacts that are involved with developing this project.

Ultimately, the Department considers that the environmental impacts of the project outweigh its benefits, and that the site is unsuitable for a large-scale wind farm on the following grounds:

- the project would result in unacceptable impacts on the landscape character and significant landscape features;
- the project would result in unacceptable direct and cumulative visual impacts on residences, public viewpoints and the surrounding landscape;
- the majority of submissions from residences in the local area object to the project and Upper Lachlan Shire Council maintains residual concerns about the impacts of the project; and
- the project is not consistent with the current land use zoning provisions.

Consequently, the Department considers that on balance the Crookwell 3 Wind Farm is not in the public interest, and should not be approved.



Contents

Executive Summary	3
1. Introduction	11
1.1 Project Background	12
1.2 Additional Assessment	13
2. Project	13
3. Strategic Context	16
3.1 Renewable Energy	16
3.2 Regional and Local Context	19
3.3 Local Populations	19
4. Statutory Context	21
4.1 State Significant Development	21
4.2 Permissibility	21
4.3 Integrated and Other NSW Approvals	22
4.4 Mandatory Matters for Consideration	23
5. Engagement	24
5.1 Department's Engagement	24
5.2 Submissions and Response to Submissions	24
5.4 Key Issues – Government Agencies	26
5.5 Key Issues - Community	27
5.6 Key Issues - Special Interest Groups	29
6. Assessment	31
6.1 Unacceptable Impacts on the Landscape	32
6.2 Unacceptable Visual Impacts on Residences	35
6.3 Community Submissions	48
6.4 Environmental Planning Instruments	49
6.5 Public Interest	50
6.6 Consideration of Residual Matters	51
8. Recommendation	54
Appendices	55
Appendix A – List of Documents	56
Appendix B – Environmental Impact Statement	57
Appendix C – Response to Submissions	58
Appendix D – Addendum Environmental Impact Statement	59
Appendix E – Addendum Response to Submissions	60

Appendix F – Submissions	61
Appendix G – Independent Peer Review: Landscape and Visual	62
Appendix H – Agency comments on Addendum RTS	63
Appendix I – Draft Instrument of Refusal	64



1. Introduction

Crookwell Development Pty Ltd (CDPL), a wholly owned subsidiary of Global Power Generation Australia Pty Ltd (GPG), proposes to develop the Crookwell 3 Wind Farm (the project), located approximately 17 kilometres (km) south-east of Crookwell and 25 km north-west of Goulburn, within the Upper Lachlan Shire local government area (see **Figure 1**).

The project is located adjacent to GPG's approved Crookwell 2 Wind Farm (32 turbines, up to 160 m in height), which is currently under construction. The operational Crookwell 1 Wind Farm (8 turbines, up to 45 m in height) and Gullen Range Wind Farm (73 turbines, up to 135 m in height) are located approximately 5 km north-west and 10 km west of the project respectively.

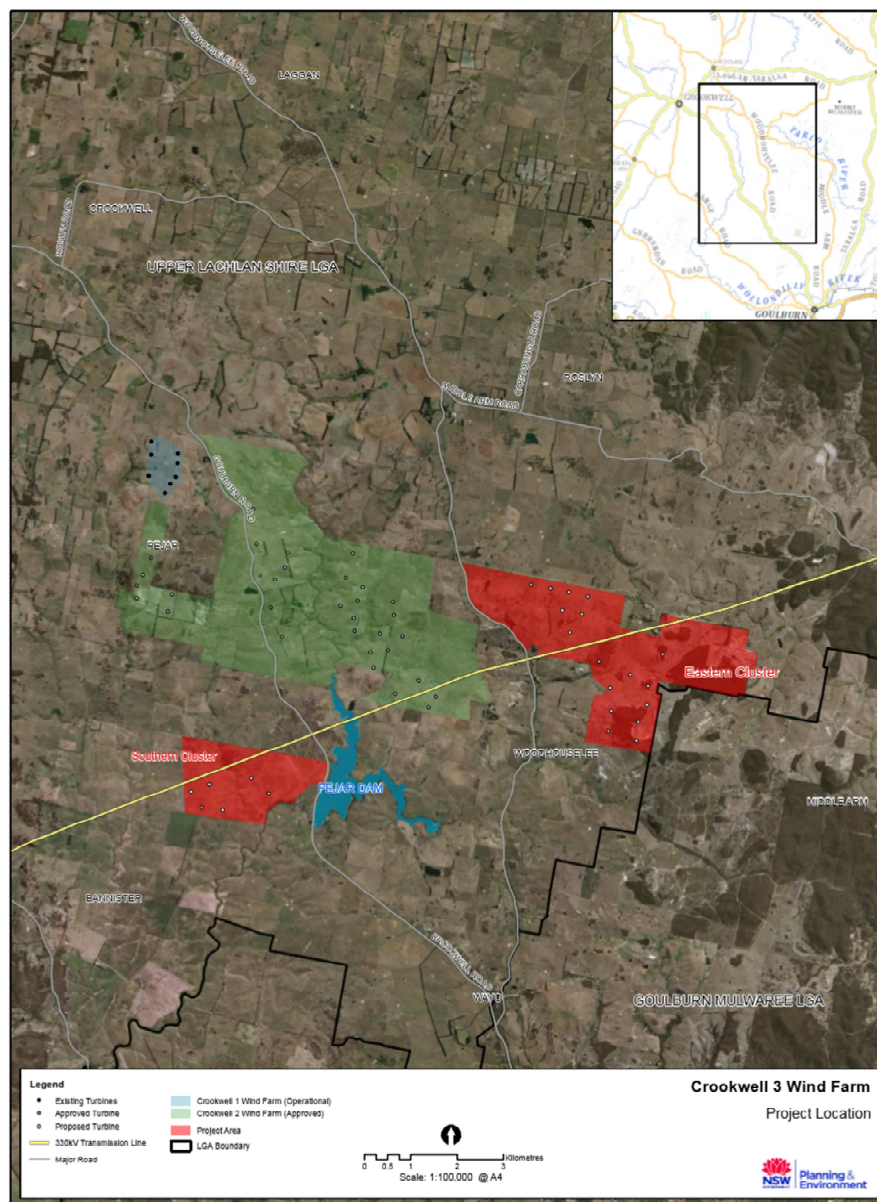


Figure 1 | Project Location

1.1 Project Background

The application for the Crookwell 3 Wind Farm was first lodged with the Department in February 2010. The original application involved the construction and operation of 30 turbines.

The Department exhibited the application from November 2012 to February 2013. Following exhibition, the applicant submitted its response to submissions report (RTS) in February 2014, which also reduced the total number of proposed turbines to 29.

As more than 25 public objections were made during the exhibition period, the application was referred to the then Planning Assessment Commission (now the Independent Planning Commission of NSW) (the Commission) for determination.

The Department completed its assessment of the merits of the project in February 2015 and referred the application to the then Planning Assessment Commission for a final decision.

During its review of the application, the Commission held a public meeting with the community on 17 March 2015. Following the public meeting and its consideration of the application, the Commission raised several concerns regarding the project, and referred these matters back to the Department.

The Commission raised concerns regarding several matters, including visual amenity, roads and access, noise, decommissioning, firefighting, avifauna and television reception.

The Department subsequently requested further clarification from the applicant on these matters.

The application was put on hold at the applicant's request, in order for it to consider the matters raised and to review and revise the proposed project.

The applicant then submitted an Addendum Environmental Impact Statement (EIS) to the Department in September 2016, reducing the total number of turbines from 29 to 23 and increasing the maximum turbine envelope, including increasing the tip height from 152 m to 157 m and the rotor diameter from 104 m to 130 m. The Department exhibited the Addendum EIS in October and November 2016.

The applicant submitted its Addendum RTS in February 2018 (i.e. more than a year after the exhibition of the EIS). No changes were proposed to the project apart from that outlined in the Addendum EIS.

A comparison of the key project changes since the original application is provided in **Table 2**.

Table 2 | Amendments to the project during the assessment process

Detail	EIS (March 2011)	RTS (February 2014)	Addendum EIS (September 2016) & Addendum RTS (February 2018)
Project area (ha)	1,500	1,500	1,500
Total number of wind turbines	30	29	23
Eastern cluster turbines	22	21	17
Southern cluster turbines	8	8	6
Maximum tip height	152	150	157
Maximum rotor diameter	104	104	130
Maximum hub height	105	98	95

1.2 Additional Assessment

Since the original assessment report was prepared in 2015, the Department has given detailed consideration to the matters raised by the Commission and has undertaken further assessment of the the amended project, in accordance with the requirements of the EP&A Act.

This has included consideration of:

- the issues raised by the Commission following the public meeting in 2015;
- the issues raised in submissions on the Addendum EIS;
- advice from an independent visual expert (Mr Terry O'Hanlon of O'Hanlon Design) engaged by the Department to provide advice on the impacts of the project on the landscape and the amenity of nearby residents;
- the consistency of the project against the land use objectives under the *Upper Lachlan Local Environmental Plan 2010* and the *Upper Lachlan Development Control Plan 2010*, which were draft planning instruments at the time of the original application;
- cumulative impacts with other wind farms in the vicinity, including the recently constructed Crookwell 2 Wind Farm;
- the principles set out in the *NSW Wind Energy Framework* which was published in December 2016, particularly the *Visual Assessment Bulletin*; and
- the need for the project in the context of the significant growth in the renewable energy industry in NSW over recent years.

The Department has also undertaken additional consultation with key stakeholders, including Upper Lachlan Shire Council, Goulburn Mulwaree Council and the Office of Environment and Heritage.

The consideration of the additional additional matters outlined above has materially altered the Department's overall assessment of the merits of the project. Consequently, the findings and conclusions in this final assessment report, which incorporate consideration of these additional matters, supersede and replace the Department's initial assessment report referred to the Commission in February 2015.



2. Project

The project now involves the installation, operation, maintenance and decommissioning of a wind farm of up to 23 turbines, with a tip height of up to 157 metres (m) and hub height of up to 95 m.

The project has two precincts or clusters of turbines approximately 7 km apart:

- Crookwell 3 eastern cluster:
 - o comprising 17 turbines;
 - o 1100 hectare (ha) site;
 - o located east of Woodhouselee Road and the Crookwell 2 site; and
- Crookwell 3 southern cluster:
 - o comprising 6 turbines;
 - o 400 ha site; and
 - o located west of Crookwell Road and south of the Crookwell 2 site.

The project also involves the development of associated ancillary infrastructure including construction compounds, concrete batching plant, permanent access tracks, an operation and maintenance facility, site offices and electrical cabling connecting to the substation approved as part of the Crookwell 2 Wind Farm.

The major components of the project are summarised in Table 1 and shown on **Figure 2**.

The project would generate around 96 MW, with the generating capacity of each turbine being up to 4.2 MW. If all 23 of the proposed turbines are constructed, the project would generate up to 275 gigawatt hours (GWh) of electricity annually, which is enough to power approximately 59,000 homes.

The project is described in full in the EIS (see Appendix B), as amended by the RTS (see Appendix C), the Addendum EIS (see Appendix D) and Addendum RTS (see Appendix E).

Table 1 | Main Components of the Project

Aspect	Description
Project summary	Development of a wind farm including: • up to 23 turbines and associated infrastructure; and • temporary and permanent ancillary infrastructure on site to facilitate the construction and operation of the turbines.
Project area	1,500 ha (with 29.2 ha site disturbance area or 2% of the site)
Wind turbines	• 23 turbines and crane hard stand areas • Maximum height (to blade tip) - 157 m • Tower hub heights – up to 95 m • Blade lengths – up to 64 m • Rotor diameter – up to 130 m • Capacity of up to 4.2 MW each
On-site ancillary infrastructure	• Electrical infrastructure, including 33 kV underground or above ground power lines • 2 temporary construction compounds and 1 concrete batching plant • Internal access tracks • One permanent operation and maintenance facility • Up to 3 permanent meteorological masts (up to 100 m in height) • 4 potential access points (1 for the southern cluster and 3 options for the eastern cluster)
Over-dimensional and heavy vehicle transport routes	Crookwell Road and Woodhouselee Road
Road Upgrades	• Minor modifications to accommodate the swept path requirements of the over-dimensional / over-mass vehicles with potential road upgrades to heavy vehicle route.
Employment	• Construction - up to 40 people • Operations - up to 6 people
Capital investment value	\$120 million

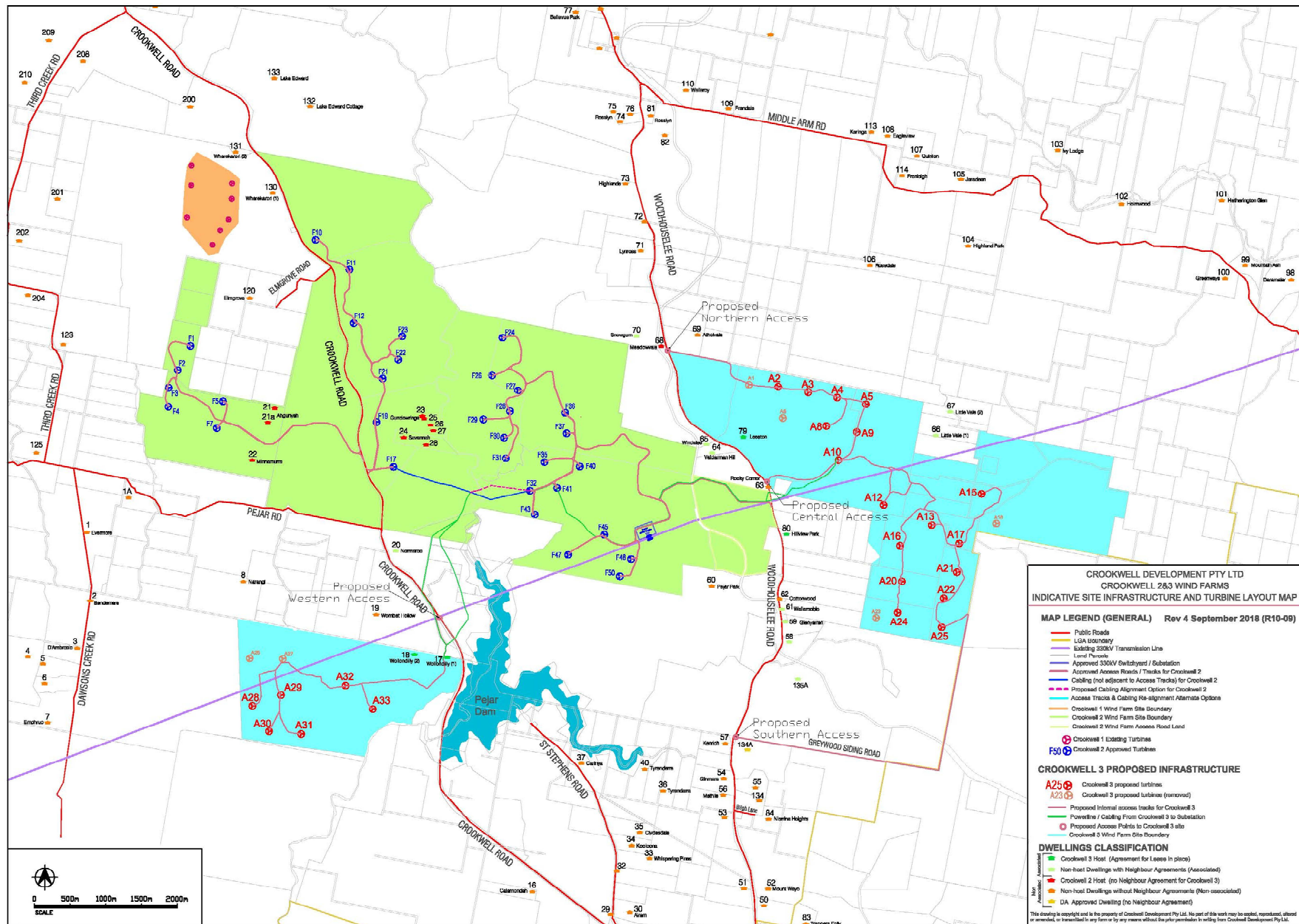


Figure 2 | Project Layout



3. Strategic Context

3.1 Renewable Energy

Renewable Energy Policies

In 2017, the vast majority of energy in NSW was derived from fossil fuels, including 84.1% from coal and gas, with only 15.8% derived from renewable energy sources. However, there are currently no approvals allowing for the development of new coal fired power stations in NSW, and the development of renewable energy sources, such as wind and solar, is experiencing rapid growth.

This is highlighted in the recently released *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 renewable energy with lower emissions. It notes that Australia is heading towards zero emissions in the second half of the century.

The *United Nations Framework Convention on Climate Change* (UNFCCC) has adopted the Paris Agreement, which aims to limit global warming to well below 2°C, with an aspirational goal of 1.5°C. Australia's contribution towards this target is a commitment to reduce greenhouse gas emissions by between 26% to 28% below 2005 levels by 2030.

One of the key initiatives to deliver on this commitment is the Commonwealth Government's *Renewable Energy Target* (RET). Under this target, more than 23.5% 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 RET.

The NSW *Climate Change Policy Framework*, released in November 2016, sets an aspirational objective for NSW to achieve net zero emissions by 2050. The NSW Government also has a *Renewable Energy Action Plan*, which promotes the development of renewable energy in NSW.

With a capacity to generate up to 275 GWh of electricity annually, the project would contribute to the Commonwealth's RET and NSW's *Renewable Energy Action Plan*.

However, the *NSW Renewable Energy Action Plan* recognises the need for engaging with affected communities early and effectively and ensuring that the planning system appropriately balances the concerns of local residents with the need for renewable energy in NSW. It also points to the development of the wind energy planning framework (which has since been finalised) to guide land use planning and decision-making, as discussed further below.

Renewable Energy Projects in NSW

The best wind resources in NSW are generally located along the Great Dividing Range and the Western Slopes, including the Southern and Central Tablelands. The site for the Crookwell 3 Wind Farm falls within this area and the EIS indicates the site has high average wind speeds.

As a consequence of the region's superior wind resources and proximity to major electricity transmission lines, there are 8 operational and approved wind farms within approximately 30 km of the site (see Table 3 and **Figure 3**). The closest is the Crookwell 2 Wind Farm which is currently under construction and located adjacent to the site, with the Crookwell 3 site essentially forming an extension of Crookwell 2.

Table 3 | Other Wind Farms in the Region

Wind Farm	Approx. distance from project (km)	Status	Number of turbines	Tip height
Crookwell 2	Adjacent	Under construction	32	160 m
Crookwell 1	5	Operational	8	67 m
Gullen Range	7.5	Operational	73	135 m
Biala	15	Approved	31	185 m
Gunning	17	Operational	31	121 m
Taralga	18	Operational	51	132 m
Cullerin	26	Operational	15	126 m
Collector	30	Approved	55	150 m
Rye Park	48	Approved	92	157m
Woodlawn	52	Operational	23	124 m
Capital 1	53	Operational	67	124 m
Capital 2	53	Approved	41	157 m
Bango	60	Approved	46	200 m
Conroy's Gap	78	Approved	15	126 m
Yass Valley	85	Approved	75	171 m

In addition to wind energy projects, there has been a significant increase in solar energy with over 50 operational, approved and proposed large-scale solar farms in NSW.

In total, if all projects are developed, there would be up to 16,600 MW of renewable generation capacity from large-scale projects in the NSW energy system in the next 5 to 10 years (with around 7,000 MW of wind energy and 9,600 MW of solar energy).

The Department recognises that there is a competitive market for offtake agreements into the National Electricity Market, and there are emerging constraints on the electricity transmission network and many of these projects may not proceed. It is also recognised that it is not up to the Department to interfere in the market by determining which projects should proceed at the expense of others.

However, the Department considers that there is considerable depth in the renewable energy market and that, from a strategic perspective, there are a broad range of potential alternatives which would enable the NSW and Commonwealth Governments to achieve their short and longer term renewable energy and greenhouse emission objectives if the Crookwell 3 Wind Farm does not proceed.

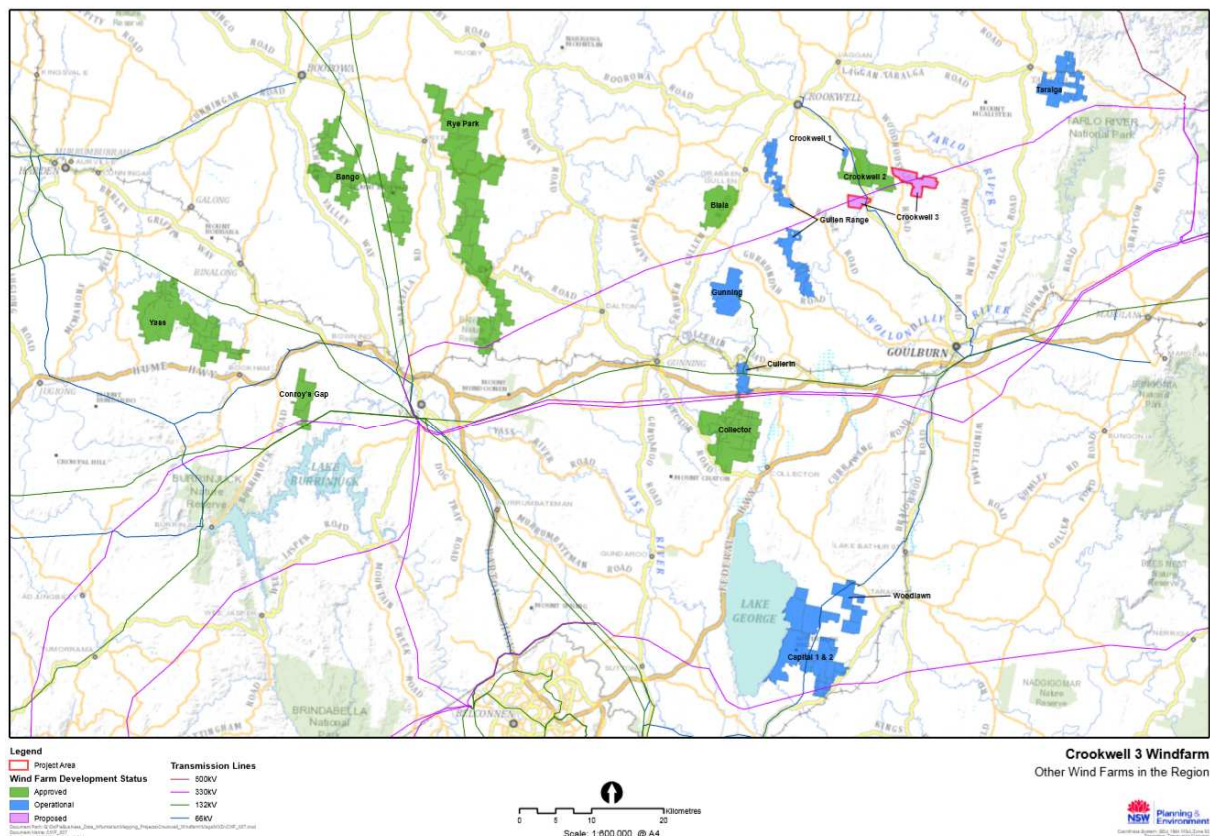


Figure 3 | Other Wind Farms in the Region

NSW Wind Energy Framework

The number of operational, approved and proposed wind farms in NSW has given rise to growing community concerns about the cumulative impacts of wind energy development, and in particular, the visual impacts of these projects on the broader landscape in the Southern Tablelands and South West Slopes.

In December 2016, the Department released the new *Wind Energy Framework* (the Framework).

The Framework 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)*.

However, the Framework only applies to new large-scale wind energy projects where environmental assessment requirements have been issued after the date the Framework was published (i.e. December 2016). As the assessment requirements for the Crookwell 3 Wind Farm were originally issued in 2010 (and revised in 2011), the Framework does not strictly apply.

Nonetheless, while the Applicant was not required to consider the principles of the Framework in its EIS, the Framework is relevant to the assessment of wind farm applications in NSW. Importantly, the Framework provides relevant guidance to decision-makers about the NSW Government's current policy position for assessing key impacts of wind energy developments, including in regard to visual and noise impacts on local communities.

3.2 Regional and Local Context

The project's two turbine clusters would be located either side of Crookwell 2 Wind Farm (up to 32 turbines currently under construction) and northwest of the operational Crookwell 1 Wind Farm (8 turbines). Gullen Range Wind Farm (73 turbines) is located 10 km west of the project.

The surrounding locality comprises undulating hills with some steeper slopes around valleys. The area is largely surrounded by pastoral land used primarily for grazing, undeveloped rural lands and larger patches of remnant vegetation to the east and south of the project's eastern cluster.

There are also a number of important landscape features in the vicinity, including Pejar Dam located directly east of the southern cluster with an associated recreation/picnic area. The Dam is used for recreational boating, canoeing and fishing and includes an associated public recreation area, boat ramp and facilities such as barbecues, picnic shelters and public conveniences. The Dam provides drinking water for the city of Goulburn.

A State heritage item, St Stephens Church, is located 2.3 km to the east of the southern cluster near Pejar Dam (see **Figure 1**).

The project site covers approximately 1,500 ha and is located on a system of ridges and low hills that are separated by the Wollondilly River and Goulburn-Crookwell Road corridor (see **Figure 2**).

The site itself is mostly cleared agricultural land used for stock grazing, a small amount of cropping, scattered paddock trees and patches of remnant vegetation.

The site is situated in the Upper Wollondilly River sub-catchment and is part of the overall Sydney water catchment.

Several drainage lines and waterways run through the site, including Steeves Creek which runs through the eastern cluster and First Creek through the southern cluster. There are several additional smaller unnamed drainage lines which run through the site.

Crookwell is the main township in the area and has a population of 2,500 people. The town is located approximately 17 km northwest of the project, and Goulburn is located approximately 25 km to the southeast.

Major transport links in the region include the Hume Highway and Goulburn Bypass. Crookwell Road is a State road that is the main transport route from Goulburn to the township of Crookwell. The project's southern cluster would be accessed via Crookwell Road, and the eastern cluster accessed from Woodhouselee Road (local road).

3.3 Local Populations

There are approximately 90 residences within 5 km of the site.

Associated Landowners

The project has 3 host or 'associated' landowners (representing 4 residences), who own land on the project site. They have entered into commercial agreements with CDPL to facilitate the development of the project, including accepting the impacts of the project.

In addition to the host landowners, 9 nearby landowners (representing 10 residences) have entered into negotiated agreements with CDPL, and agreed to accept the potential impacts of the project.

For the purposes of its assessment, the Department has considered these residences to be 'associated' with the project.

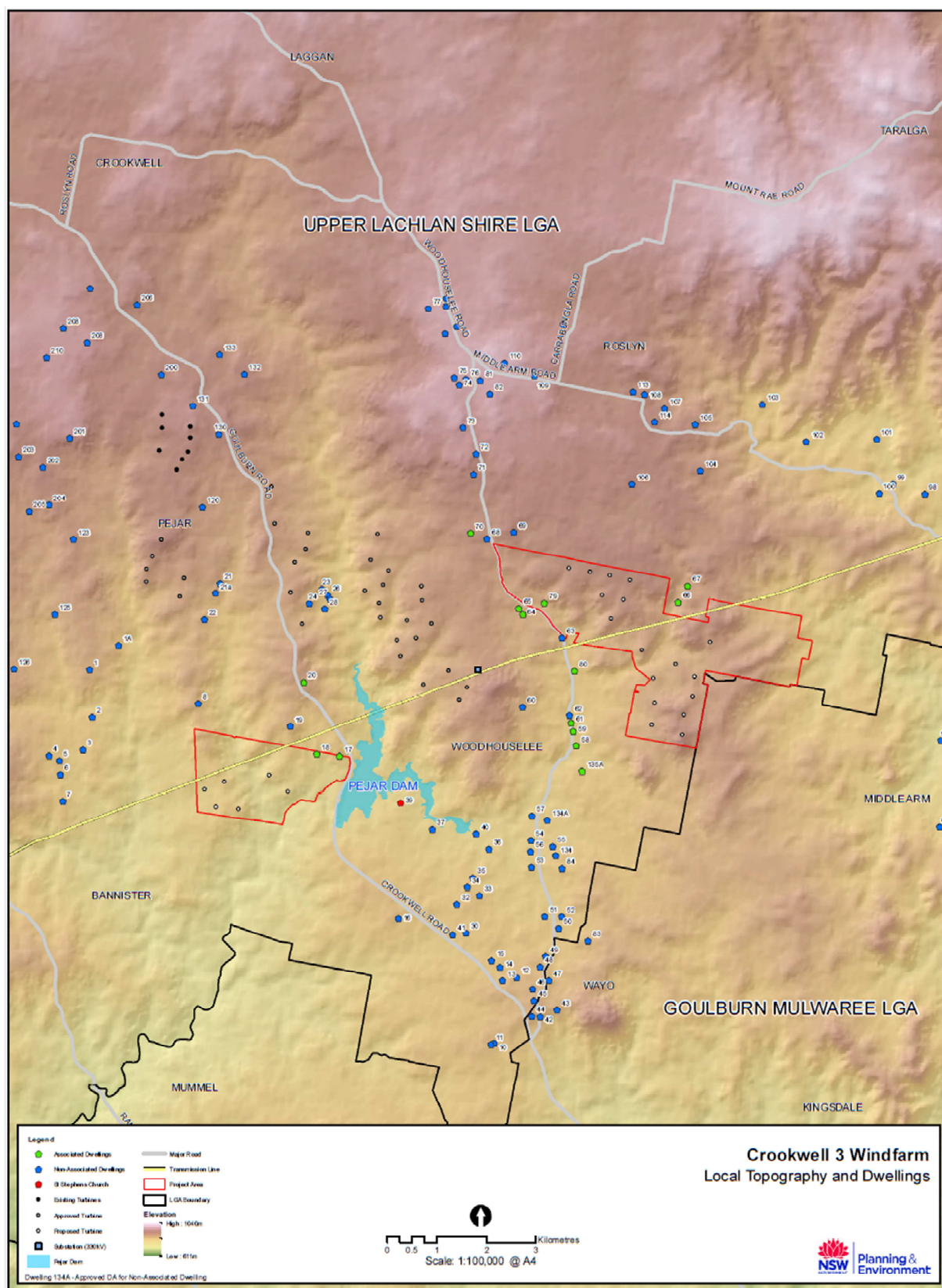


Figure 4 | Local Topography and Location of Residences

Non-Associated Landowners

There are 76 non-associated residences within 5 km of the site including (see **Figure 4**):

- 28 residences within 3 km;
- 31 residences between 3 km and 4 km; and
- 17 residences between 4 km and 5 km.

These residences can generally be grouped into 4 locations, being:

- Roslyn (north-eastern group)
 - o located north of the eastern cluster, along Woodhouselee Road and Middle Arm Road
- Woodhouselee Road
 - o located along Woodhouselee Road, between the Crookwell 3 eastern cluster and Crookwell 2 Wind Farm site;
- Pejar (south western group)
 - o located along Pejar Road and Dawsons Creek Road near the Crookwell 3 southern cluster; and
- Wayo (south-eastern group)
 - o located between Crookwell Road and Woodhouselee Road to the south of the project.

Many of these residences have the potential to experience significant direct and cumulative visual impacts given they are located between, or with extensive views of, the Crookwell 3 turbine clusters and the Crookwell 2 Wind Farm.



4. Statutory Context

4.1 State Significant Development

The project is classified as State Significant Development (SSD) under Section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as it triggers the criteria in Clause 20 of Schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011*, being development for the purpose of electricity generating works using wind power that has a capital investment value of more than \$30 million.

Under section 4.5 (a) of the EP&A Act and clause 8A of the *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011* the Independent Planning Commission is the consent authority for the development as there were more than 25 public submissions by way of objection.

4.2 Permissibility

The project is located in the Upper Lachlan Shire LGA.

When the application was lodged in March 2010, the local environmental plans (LEP) which applied were the *Crookwell Local Environmental Plan 1994* (Crookwell LEP 1994) and *Mulwaree Local Environmental Plan 1995* (Mulwaree LEP 1995).

The development site, including the electricity connection options linking the development with the Crookwell 2 Wind Farm substation, was zoned 1(a) General Rural under both the Crookwell LEP 1994 and the Mulwaree LEP 1995.

Since then, the *Upper Lachlan Local Environmental Plan 2010* (Upper Lachlan LEP 2010) has replaced both LEPs.

Under the Upper Lachlan LEP 2010, the eastern cluster of the project is located on land zoned E3 – Environmental Management and the southern cluster on land zoned RU2 – Rural Landscape.

Although the project is prohibited in the E3 zone and permissible with development consent in the RU2 zone, neither of these zones apply to the project under the transitional arrangements of the Upper Lachlan LEP 2010. These arrangements require a development application that was lodged but not determined before the making of the LEP to be determined as if the LEP had never been made.

Consequently, the Crookwell LEP 1994 and the Mulwaree LEP 1995 are the key instruments to consider in any assessment of the merits of the project.

However, under Section 4.15(1)(a)(ii) of the EP&A Act a consent authority is required to consider the relevant provisions of any environmental planning instruments, including draft instruments, when determining a development application.

Given the draft Upper Lachlan LEP 2010 was exhibited prior to CDPL lodging the application for the project in March 2010, the draft version of the LEP remains a relevant consideration for the application.

The zoning in the draft LEP matches that in the final LEP, making Council's strategic intention to prohibit wind farms on the ridges to the east of Crookwell clear. Although the Upper Lachlan LEP 2010 expressly references the Infrastructure SEPP as the key instrument for determining the permissibility of wind farms in the area, it should be noted that the Infrastructure SEPP does not make wind farms permissible with development consent on land zoned E3.

So while there is no doubt that the project is wholly permissible under the relevant LEPs in this instance, the Department considers Council's strategic intention to prohibit wind farms on land zoned E3 is an important factor to consider in weighing up the merits of the project, and is supported by the detailed assessment of the merits of the project which has found that it would result in significant visual impacts on several residents living in close proximity to the eastern cluster of the project, which is located wholly on land zoned E3.

Consequently, under the Upper Lachlan LEP 2010 the project would be permissible with consent on land zoned RU2 but would be prohibited within the land zoned E3 – Environmental Management.

As such, while the project is permissible under Crookwell LEP 1994 and the Mulwaree LEP 1995, the consent authority must also take into consideration the draft LEP (which prohibits most of the turbines) in determining the merits of the project. This is discussed further in **Section 6.4** below.

4.3 Integrated and Other NSW Approvals

Under Section 4.41 of the EP&A Act, a number of other approvals are integrated into the SSD approval process, and consequently are not required to be separately obtained for the project. These include:

- various approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and *Heritage Act 1997*; and
- certain water approvals under the *Water Management Act 2000*.

Under Section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the project. These include:

- an Environment Protection Licence under the *Protection of the Environment Operations Act 1997*; and
- approvals for various road upgrades under the *Roads Act 1993*.

The Department has consulted with the relevant government authorities responsible for these integrated approvals (see **section 5**) and considered their advice in its assessment of the merits of the project (see **section 6**).

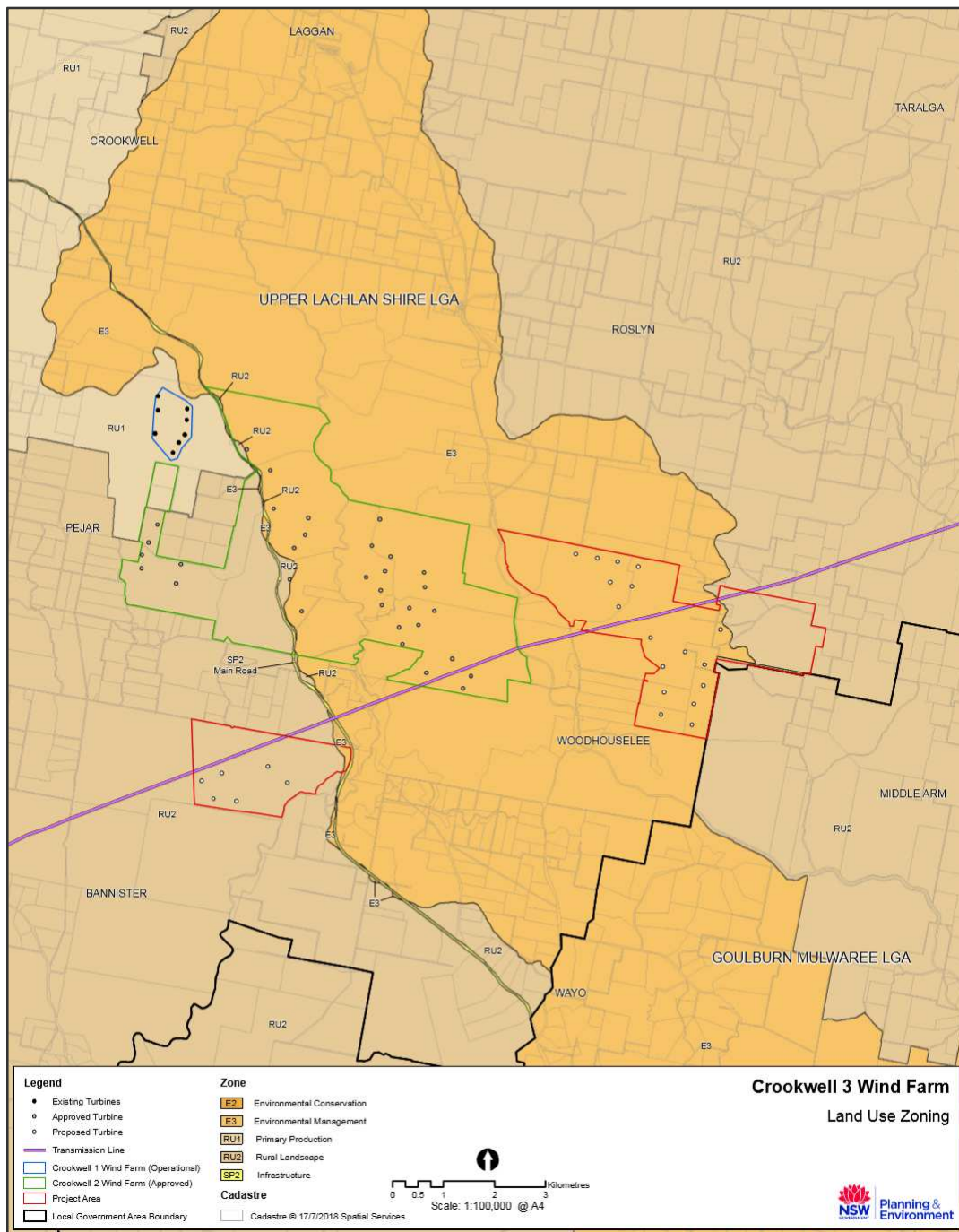


Figure 5 | Land Use Zoning - Upper Lachlan LEP 2010

CDPL considers that the project is unlikely to result in a significant impact on any matters of national environmental significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. Consequently, it has not referred the project to the Commonwealth Department of Environment and Energy.

4.4 Mandatory Matters for Consideration

Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters could be summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, and the EP&A Regulations;
- the environmental, social and economic impacts of the development;

- the suitability of the site;
- any submissions; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

The Department has considered all these matters in its assessment of the project, as well as the Applicant's consideration of environmental planning instruments in its EIS, as summarised in **section 6** of this report.



5. Engagement

5.1 Department's Engagement

During the assessment process, the Department visited the site and surrounds on several occasions, held a community information session, and consulted with local residents, community groups, Councils, key government agencies and CDPL.

The Department visited properties around the site to get an appreciation of the potential impacts of the project and further understand the concerns of individual landowners. These site visits were undertaken with the Department's independent visual expert, as discussed further in **section 6.1** below. The Department also met with host landowners accompanied by CDPL.

The Department has also met with and written to CDPL on a number of occasions raising concerns about the lack of mitigation measures to address the visual impacts of the project on local residences, including the absence of agreements with the most affected landowners. This included giving CDPL additional time following the submission of the Addendum RTS to try and secure additional agreements.

The Department:

- publicly exhibited the original EIS for the project in accordance with Section 75H(3) of the EP&A Act from 1 November 2012 to 6 February 2013 (98 days in total);
- publicly exhibited the Addendum EIS in accordance with the then Section 89F of the EP&A Act from 11 October 2016 to 14 November 2016; and
- advertised the above exhibitions in newspapers and notified affected and nearby landholders, relevant State government authorities and local Councils.

5.2 Submissions and Response to Submissions

During the exhibition period of the EIS and Addendum EIS the Department received 107 submissions on the project. This included:

- advice from 12 government agencies;
- 35 objections - 32 from the general public and 3 from special interest groups; and
- 60 submissions of support - 49 from the general public and 11 from special interest groups.

In addition, the Department received a petition containing 169 signatures objecting to the project.

A summary of submissions is provided in **Table 4**, and a full copy of the submissions is attached in Appendix F.

In February 2018, CDPL provided a detailed response to the issues raised in submissions on the Addendum EIS (see Appendix D), and subsequently supplemented this with a range of additional information to address matters raised by the Department and other agencies during the assessment process.

The Addendum RTS was made publicly available on the Department's website, and provided to key government agencies for comment.

Since the Addendum RTS was submitted, the Department has consulted further with CDPL and key public authorities, including the Councils and OEH, to inform the assessment of the merits of the project.

Table 4 | Summary of submissions

Submitters	Number	Position
Government Agency	12	
- Goulburn Mulwaree Council - Office of Environment and Heritage - Division of Resources and Energy, Department of Industry (now Division of Resources and Geosciences, Department of Planning and Environment) - Environment Protection Authority - Roads and Maritime Services - Department of Primary Industries & Department of Industry (DOI) - WaterNSW (Formally Sydney Catchment Authority) - Civil Aviation Safety Authority - Upper Lachlan Shire Council - Department of Defence - Air Services Australia - Crown Lands		Comment
Special Interest Group	14	
- Australian Wind Alliance - Best Western Goulburn - Clean Energy Council - Community Energy for Goulburn - Greens NSW - Industry Capability Network NSW Ltd - Ryde Gladesville Climate Change Action Group - Ryde Hunters Hill Flora and Fauna Preservation Society - Crookwell District Landscape Guardians - The Goulburn Group Inc - Clean Energy Council		Support (11)
- Parkesbourne-Mummel Landscape Guardians Inc - Crookwell District Landscape Guardians - NSW Landscape Guardians		Object (3)
Community	81	Object (32) Support (49)
< 5 km	14	Object
	3	Support
	2	Object

• 5 – 10 km	3	Support
• 10 – 15 km	2	Object
	1	Support
• > 15 km	14	Object
	42	Support
TOTAL	107	

5.4 Key Issues – Government Agencies

Upper Lachlan Shire Council

Upper Lachlan Shire Council raised several concerns with the project, including:

- impacts of turbines within 2 km of a non-associated residence and recommended those turbines be deleted;
- potential impacts on the local road network during construction of the project including the need for significant road upgrades prior to commencement of any heavy vehicle haulage, particularly on Woodhouselee Road;
- number of access points proposed for the eastern cluster and recommendation that there should be only one access point;
- number of cable crossings for Crookwell Road and recommendation that there should be only one cable crossing; and
- potential for the proposed turbines to interfere with television services in Crookwell, impacting up to 850 residences.

Goulburn Mulwaree Council

Goulburn Mulwaree Council initially raised concerns about the level of information provided regarding the heavy vehicle transport routes through Goulburn and the impacts of construction traffic on local roads. Council also requested that the applicant be required to make good any impacts to local roads caused by construction traffic. Following further consultation, Council advised it was satisfied with the proposed heavy vehicle and over-dimensional transport routes through Goulburn, but requested that road upgrades should be undertaken on the local heavy vehicle transport routes.

Office of Environment and Heritage (OEH)

OEH originally recommended removal of 3 turbines (turbines A12, A18 and A19) due to unacceptable risks to biodiversity, particularly given their location within remnant patches of woodland or forest. CDPL subsequently deleted turbines A18 and A19 from the project, however turbine A12 remains. In its advice on the final layout, OEH maintained its original concerns regarding turbine A12 to avoid / reduce impacts on biodiversity, particularly the risk of blade strike on birds and bats, including 2 threatened bat species and 3 threatened bird species. In addition, OEH continues to have concerns regarding turbine setback distances from woodland remnants, biodiversity offset arrangements and Aboriginal cultural heritage, including additional areas requiring survey and the Aboriginal consultation process.

Division of Resources and Geoscience

DRG advised it has no resource sterilisation concerns with the project.

Environment Protection Authority (EPA)

The EPA provided recommended conditions relating to noise and blasting (if the project is approved), including specific noise criteria for residences surrounding the project.

Roads and Maritime Services (RMS)

RMS recommended a number of standard conditions should the project be approved, to ensure that any proposed roadworks are undertaken in accordance with RMS and Council requirements.

Department of Primary Industries (DPI) and Department of Industry (Dol)

DPI and Dol raised concerns about the project water demands and entitlements, and provided recommended conditions should the project be approved, relating to erosion and sediment control, waterway crossings, groundwater and surface water management. Concern was also raised regarding several encroachments over Crown road reserves and air space, however CDPL has since confirmed all encroachments would be subject of a road closure and purchase, easement or licence. Dol is satisfied with this response.

WaterNSW

WaterNSW (formerly Sydney Catchment Authority):

- advised that the project would need to ensure a 'neutral or beneficial' effect on water quality, in accordance with SEPP (Sydney Drinking Water Catchment);
- recommended that its current recommended practices regarding stormwater, on-site sewage management and construction of roads and access be utilised for the project;
- advised that existing erosion control works on the property would need to be protected, particularly given the soils on the property can have high salinity and be highly sodic; and
- requested that any conditions of consent refer to the contemporary stormwater management documents (the Blue Book).

It is noted that a consent authority is not required to consider SEPP (Sydney Drinking Water Catchment) 2011 as the application was made before the commencement of the SEPP (in this case on 1 March 2011).

The *Drinking Water Catchments Regional Environmental Plan No 1* which the SEPP (Sydney Drinking Water Catchment) replaced, applies to the development and has similar provisions in regard to consideration of whether a development would have a neutral or beneficial effect on water quality.

Civil Aviation Safety Authority (CASA)

CASA advised that the wind turbines would need to be lit with steady red medium lighting at night and referred to the *National Airports Safeguarding Framework* - Guideline D which provides advice on lighting requirements.

Department of Defence

The Department of Defence advised that there are no concerns regarding the safety of military aircraft or potential interference to defence communications or surveillance radars.

Airservices Australia

Airservices Australia advised that the proposal will not affect any sector or circling altitude, any instrument approach or departure procedure at Goulburn Aerodrome, or the performance of any of its communications, navigation and surveillance facilities.

5.5 Key Issues - Community

Of the 81 submissions from the general public received, 32 objected to the project and 49 supported the project.

The majority of submissions supporting the project (70%) came from residents beyond 15 km of the project site.

Of the 18 submissions within 5 km of the project, 15 objected to the project and 3 supported (including 2 host landowners) (as shown in **Figure 6**).

The key matters raised in submissions supporting the project included:

- support for renewable energy;
- local employment;
- community and landowner benefits (including the farming industry);
- benefits to the local economy.

While a broad range of issues were raised in submissions, the key concerns related to:

- loss of visual amenity;
- impacts on health and property values;
- noise impacts;
- bushfire risk; and
- traffic and transport.

These matters are addressed in **section 6.1**, **6.2** and **6.4** of this report.

A breakdown and summary of the key issues raised by the general public and special interest groups is provided in **Figure 7** and summarised in **Table 7**.

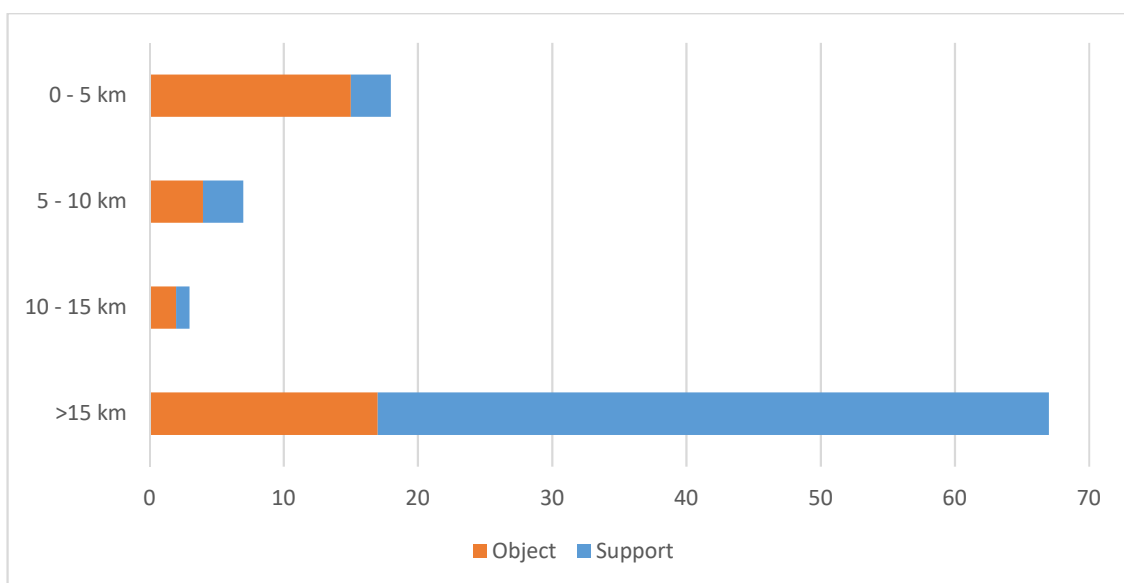


Figure 6 | Summary of Community Submissions (distance from the project boundary)

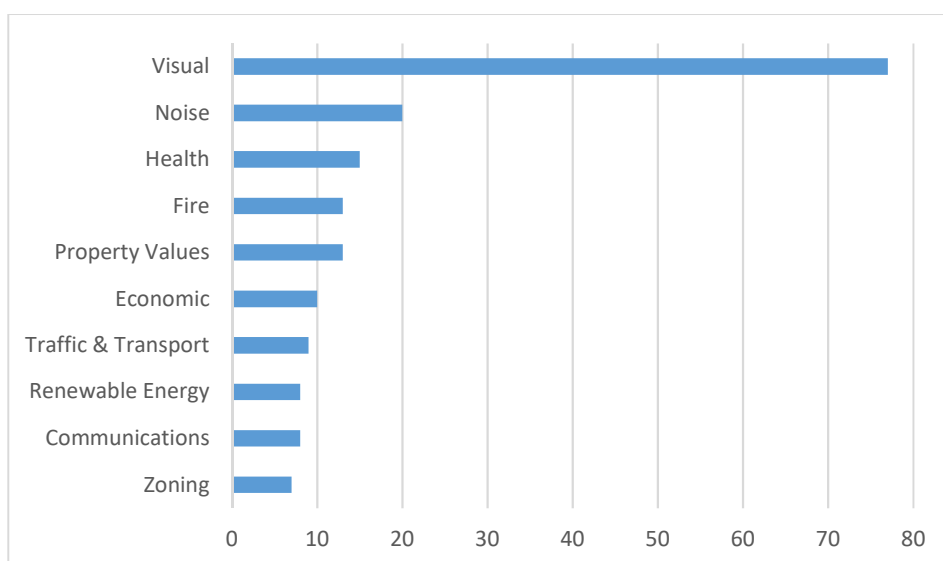


Figure 7 | Key Issues Raised in Submissions

Table 7 | Summary of community and special interest group issues

Issue	Description
Visual	• Loss of scenic value and rural landscape • Cumulative impacts from wind farms in the area • Proximity of turbines to residences • Impacts of industrial structures within a rural setting • Height and number of turbines • Adequacy of the visual impact assessment, including misleading photomontages
Traffic and Transport	• Impact on roads / increased traffic and transport during construction stages
Biodiversity	• Impacts on local flora and fauna in particular avifauna
Agriculture	• Effect on local livestock • Interference with agricultural aviation activities
Bushfires	• Impacts on aerial firefighting • Potential increased fire risk
Communications	• Impacts on television, phone reception and communication systems
Property	• Depreciation of property values and impact on property sales
Noise and Health	• Health impacts from sound, vibrations and electromagnetic fields
Other	• LEP and permissibility • Inflated job creation numbers and benefits to the local community • Uncertainty created by micro-siting • Lack of consultation with local residents and landowners • Reliability of wind energy and energy security

5.6 Key Issues - Special Interest Groups

Of the 14 submissions from special interest groups, 3 objected to the project and 11 supported the project.

The 3 objections came from the **Crookwell District Landscape Guardians, Parkesbourne-Mummel Landscape Guardians Inc and NSW Landscape Guardians**.

These groups raised concerns regarding visual impacts, the proposed rotor diameter increase from the original proposal, and cumulative impacts from the nearby Crookwell 1, Crookwell 2, Gullen Range, Taralga, Cullerin and Collector wind farms, interference with aerial firefighting operations, inadequate community consultation, noise impacts and impacts on telecommunications, property devaluation, the rural landscape, fauna and health.

The 11 special interest groups supporting the project referred to the project meeting renewable energy targets, reducing carbon emissions and economic benefits, including job creation, neighbour agreements, community enhancement fund and additional income stream for host landowners, farmers and local suppliers.

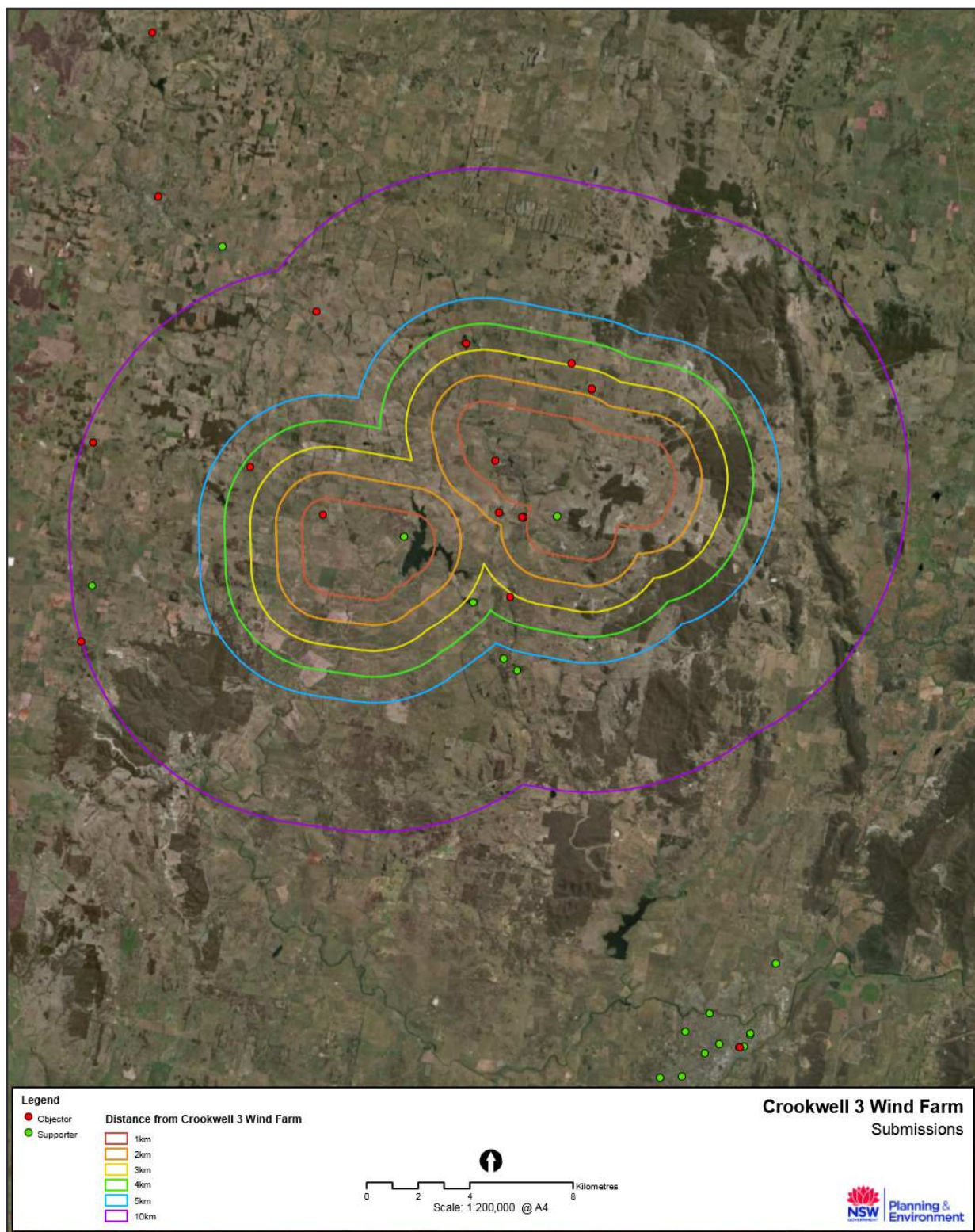


Figure 8 | Location of Submissions to the project (where property address provided)



6. Assessment

The Department has undertaken a comprehensive assessment of the merits of the project including the mandatory considerations under Section 4.15 of the EP&A Act. The Department has also considered the full range of potential impacts associated with the project. A list of the key documents that informed the Department's assessment is provided in **Appendix A**.

The Department acknowledges that the Crookwell 3 Wind Farm would generate a range of economic benefits in the local area and more broadly for NSW, including generating up to 96 MW of renewable energy, attracting up to \$120 million in capital investment, and creating up to 40 jobs during construction and up to 6 jobs during operations.

The project would also contribute to the Commonwealth Government's *Renewable Energy Target* and is broadly consistent with the NSW Government's *Renewable Energy Action Plan* and *Climate Change Policy Framework*.

While these policy settings are designed to promote the development of renewable energy in NSW and reduce greenhouse emissions, each project must be assessed on its merits on a case by case basis having regard to the matters for consideration under Section 4.15 of the EP&A Act.

In this case, the Department considers that the project would have an unacceptable impact on the broader landscape due to cumulative impact with other wind farms and impact on key landscape features. The existing landscape has limited capacity to absorb further change and the project would have unacceptable impacts on significant landscapes and heritage features, such as Pejar Dam and State Heritage listed St Stephens Church. The Department considers that it is not possible to effectively mitigate these impacts to acceptable levels.

At a local level, the Department recognises that the changes to the project made by CDPL have reduced the impacts of the project at some receivers to a certain extent, including the removal of 5 turbines in the eastern cluster and 2 turbines in the southern cluster.

CDPL has also reached agreement with 9 landowners in the vicinity of the wind farm to accept the impacts of the project, and with the exception of visual, the impacts of the project (e.g. noise, traffic, telecommunications, water resources, biodiversity, heritage, aviation, etc.) do not significantly differ from other wind farms in the region and are likely to be able to be managed, mitigated and/or offset to achieve an acceptable level of environmental performance, subject to minor amendments to the project and/or suitable conditions of consent.

However, the Department considers that even with the proposed changes and the negotiated agreements, the project would result in significant and unacceptable visual impacts on residences and receivers in the vicinity of the project. This is supported by the nature of submissions within the local area (all submissions within 3 km of the project except for host landowners, and 90% within 5 km), objecting to the project and raising visual impacts as the principal reasons for their opposition.

The Department also notes that 70% of the turbines (all of the eastern cluster) are prohibited under the current LEP. While a consent authority may grant consent for the project as it is permissible under the previous LEPs, it must also consider the compatibility of the proposed development with the draft LEP that was proposed (but not in force) at the time of lodgement of the application.

The Department does not consider that the project is consistent with the objectives of the E3 - Environmental Management zone, or that the benefits of the project are so significant or essential to the State that the consent authority should override the strategic planning intentions for this portion of the site.

The Department also notes that the *Infrastructure SEPP* only makes electricity generating works permissible with consent in prescribed rural, industrial or special use zones, and does not override local planning controls within environmental zones.

Upper Lachlan Council also has residual concerns about the project, including objecting to turbines located within 2 km of non-associated residences (representing 16 of the 23 turbines).

Finally, the Department notes that it has provided formal feedback to CDPL on several occasions since the Commission raised concerns with the project in 2015, particularly regarding concerns about the visual impacts of the project, and the need to avoid these impacts where possible and/or provide additional mitigation to reduce these impacts to acceptable levels.

The Crookwell 3 Wind Farm has been under consideration for 8 years, and in the interest of not prolonging the uncertainty for all stakeholders, the Department considers that a timely decision should now be made on the project rather than deliberating further on alternative layouts or additional mitigation measures.

In summary, following its assessment of the project, the Department considers that the environmental impacts of the project outweigh its benefits and that the site is unsuitable for a large-scale wind farm on the following grounds:

- the project would result in unacceptable impacts on the landscape character and significant landscape features;
- the project would result in unacceptable direct and cumulative visual impacts on residences, public viewpoints and the surrounding landscape;
- the majority of submissions from residences in the local area object to the project and Upper Lachlan Shire Council maintains residual concerns about the impacts of the project; and
- the project is not consistent with the current land use zoning provisions.

Consequently, the Department considers that on balance the Crookwell 3 Wind Farm is not in the public interest, and should not be approved. The Department has prepared a draft instrument of refusal for the project (see Appendix I). The Department has also expanded on the grounds for refusal in more detail below.

6.1 Unacceptable Impacts on the Landscape

Approach to assessment

CDPL commissioned Green Bean Design Pty Ltd to prepare a Landscape Visual Impact Assessment (LVIA) for the project layout included in the EIS, RTS, Addendum EIS and Addendum RTS.

Given the importance of visual impacts for this project, the Department commissioned an independent visual expert, Mr Terry O'Hanlon of O'Hanlon Design (OHD), to review the documentation submitted by CDPL, visit the site and surrounds, inspect potentially affected residences, public viewpoints and landscape features, and provide independent advice to the Department about the landscape and visual impacts of the project (see Appendix G).

Based on this review, the OHD Report found that the LVIA incorporates all the key elements and methodologies of a standard visual assessment. However, the OHD Report identified several areas where the LVIA lacked detailed consideration in particular consideration of community and stakeholder values of the local and regional visual landscape and potential higher scenic value (including Pejar Dam recreation area) and cultural heritage sites (including St Stephens Church which is a State heritage item).

Avoidance Measures

Since the original application was lodged in 2010, CDPL has deleted 7 turbines, including removing 2 turbines from the southern cluster (A26 and A27) and 5 from the eastern cluster (A1, A6, A18, A19, A23) (see **Figure 2**).

Some of these were deleted for visual reasons and others to minimise biodiversity impacts. The deleted turbines were around the perimeter of each cluster. Previously, the nearest turbine was approximately 0.9 km from the nearest non-associated residence. However, even with the changes in the turbine layout, the nearest turbine is still located less than 1.1 km from a non-associated residence.

In addition, since the original application was lodged, CDPL has increased the turbine rotor diameter (by 25%) and the maximum turbine tip height has increased by 5 m. This has the effect of reducing, albeit minor, some of the benefits associated with deleting some of the turbines.

As a result, while the Department fully acknowledges the changes made by CDPL, it does not consider that the changes have materially changed the nature and extent of the visual impacts on the landscape and residences around the wind farm.

Landscape Impacts

The broader landscape character in the region can be generally characterised as “pastoral”. However, due to the presence of the existing approved Crookwell 1, Crookwell 2 and Gullen Range wind farms the Department considers that the local landscape character has been gradually transformed over the last few years towards a more “windfarm pastoral” landscape.

As a result of these changes, the advice of OHD is that the landscape now has limited capacity to absorb further change arising from the introduction of additional turbines without resulting in further transformation and industrialisation of the pastoral character of the landscape.

The value that local residents place on the existing pastoral landscape is supported by the nature of submissions opposing the project, with over 90% of the submissions from residents within 5 km of the site objecting to project and raising visual impacts as the principal reasons for their opposition.

The sensitivity of a landscape not only relates to its existing character but also to the presence of any areas of high scenic quality. In this case, the Department considers that Pejar Dam is a significant landscape feature and is an element of high scenic quality as it provides a visual focal point in the landscape. Pejar Dam is also a viewpoint in its own right, as it has an associated public recreation area and associated facilities, including a boat ramp.

The addition of the project, in particular the southern cluster, together with Crookwell 2 at the northern end of Pejar Dam, would extend wind turbines to the western and eastern sides of the dam over two 60° sectors of the viewshed around the dam, with the nearest southern cluster turbines located within 1.2 km of the Pejar Dam recreation area.

Another sensitive land use is the St Stephens Church which is listed on the State heritage register. The nearest turbines are 2.3 km from the church.

The LVIA in the EIS did not consider that Pejar Dam or St Stephens Church were locations of higher scenic value in the landscape. However, the OHD report considers that:

“The Pejar Dam area is a key landscape feature and impacts on this feature should be limited to maintain the existing landscape character”

The *Wind Energy: Visual Assessment Bulletin* has a system for identifying and limiting impacts on areas of high visual sensitivity. In accordance with the the Bulletin, proponents would be required to avoid or provide detailed justification for 157 m turbines located within 3.1 km of viewpoints located within Visual Influence Zone (VIZ) 1. VIZ 1 comprises an area with the highest level of visual significance and is based on a combination of viewer sensitivity, visibility distance and scenic quality class. Given their sensitivity, proximity to turbines and high scenic quality classification, both Pejar Dam and the Church can be identified as falling within VIZ 1.

The project would also impact people moving through the landscape along Crookwell Road which is the main transport route (around 10,000 vehicles per week predicted for 2010) from Goulburn to the township of Crookwell.

Motorists moving through the landscape would have views of turbines on both sides of Crookwell Road (Crookwell 3 south and Crookwell 2 to the east). In addition, the project would also extend views of turbines on both sides of Woodhouselee Road, albeit a local road with lower traffic flows.

The sensitivity of the landscape is also increased due to the proximity of turbines to residences. The Department has considered the provisions of the *Wind Energy: Visual Assessment Bulletin* in its assessment of visual impacts. To this end, in accordance with the Bulletin, 157 m turbines have the potential to result in high visual magnitude impacts on residences within 3.1 km and potentially significant visual impacts on residences within 2.1 km.

In accordance with the Bulletin’s visual performance objectives, proponents should avoid, provide detailed justification or manage impacts as far as practicable for 157 m turbines located within 3.1 km of residences located within VIZ 1 and VIZ 2 zones.

All proposed turbines have one or more residence within 3.1 km and over half of the turbines (16 of 23) have between 3 and 8 non-associated residences within 3.1 km (see **Figures 9 and 10**). In addition, 74% of turbines (17 of the 23) are located within 2.1 km of non-associated residences.

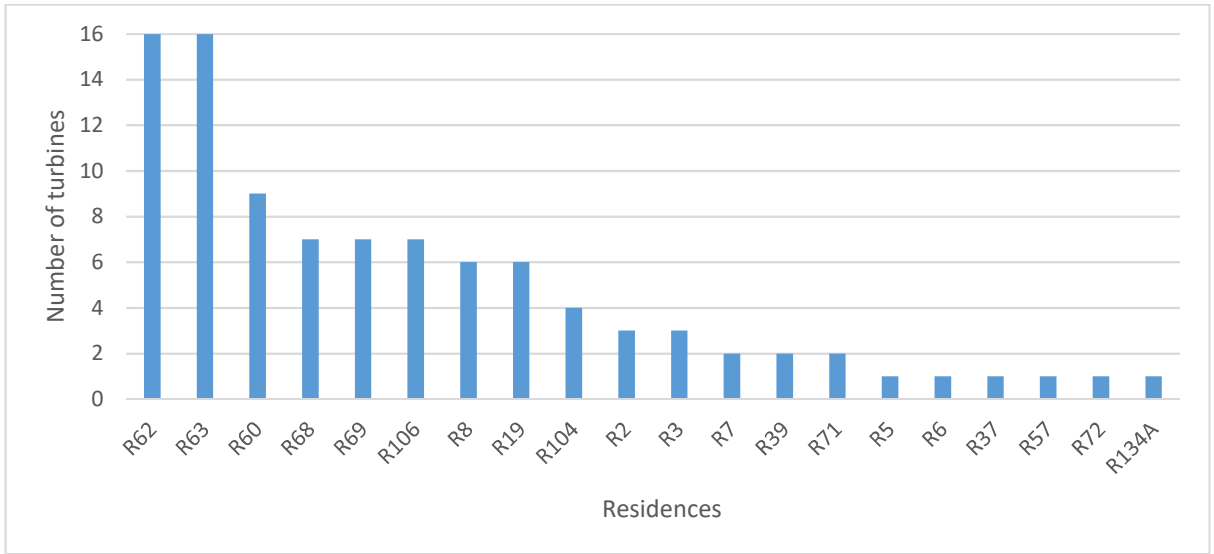


Figure 9 | Residences with turbines within 3.1 km

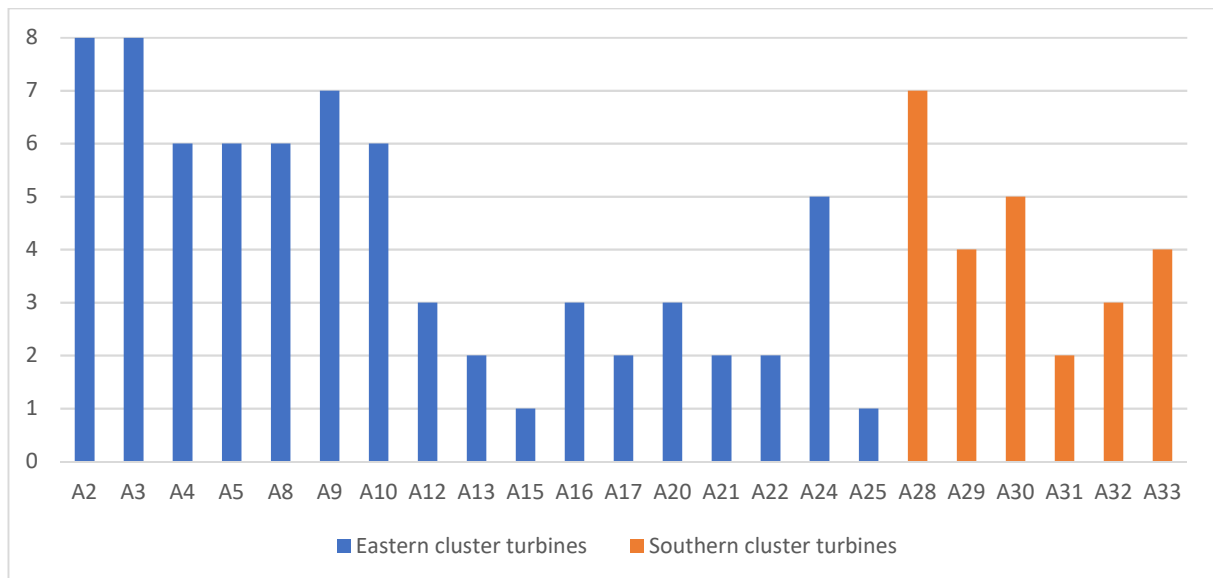


Figure 10 | Turbines with residences within 3.1 km

The Department also notes that the proximity to residences was raised as an area of concern by Upper Lachlan Shire Council. Its advice is consistent with its (now made) *Upper Lachlan Development Control Plan 2010* (DCP) specifying that turbines should be further than 2 km from non-associated residences. While the DCP is not binding, it is a relevant matter for the consent authority to consider under the EP&A Act.

Overall, the Department considers that the project is located in a landscape with relatively high scenic value that has limited capacity to absorb further change. The sensitivity of the landscape is also increased by the proximity of turbines to residences. The Department considers that from a community perspective, the project would have an undesirable impact on the landscape character and values, and would have unacceptable cumulative impacts on the broader landscape, public viewpoints and residences.

6.2 Unacceptable Visual Impacts on Residences

The OHD Report reviewed the visual impact ratings at residences provided in the LVIA. The OHD report found that there were several areas where the LVIA lacked detailed consideration, including:

- cumulative impacts on residences;
- night lighting impacts; and
- mitigation measures (including their feasibility, effectiveness and reliability).

With the advice of OHD and site visits attended by Departmental officers, the Department has provided an assessment of the impact at residences surrounding the project (see **Figure 11**).

The visual impact ratings of 34 residences surrounding the project can be summarised as follows (excluding those with landowner agreements):

- 14 residences – high impact;
- 13 residences – moderate/high impacts;
- 4 residences – moderate impacts;
- 2 residences – low/moderate impacts;
- 0 residences – low impact; and
- 1 residence – negligible impact.

Table 8 shows the impact ratings at residences that would have a high or moderate/high impact shown by residence cluster. Additional discussion of the impact on residence clusters is described below and tables of all residences (including those with lower visual impact ratings) are shown in Appendix G.

Of the 34 non-associated residences assessed, there are 27 residences that would have high or moderate-high visual impacts from the project (see **Figure 11**).

The Department considers that the impact of the project relates to both the magnitude and number of turbines in the viewshed of a residence but also the impact of multiple turbines (either from the project or in addition to other wind farms in the area) and the number of 60° sectors where turbines are visible from the residence.

The distance of residences from project turbines (1.1 km to 3.4 km) is a significant contributing factor to the moderate-high and high impact ratings for 19 residences.

While the other 8 residences would not have significant direct impacts from the project, they would be subject to significant cumulative impacts associated with other wind farms in the area, with turbines visible in 3 or more sectors (i.e. up to 180° views of turbines).

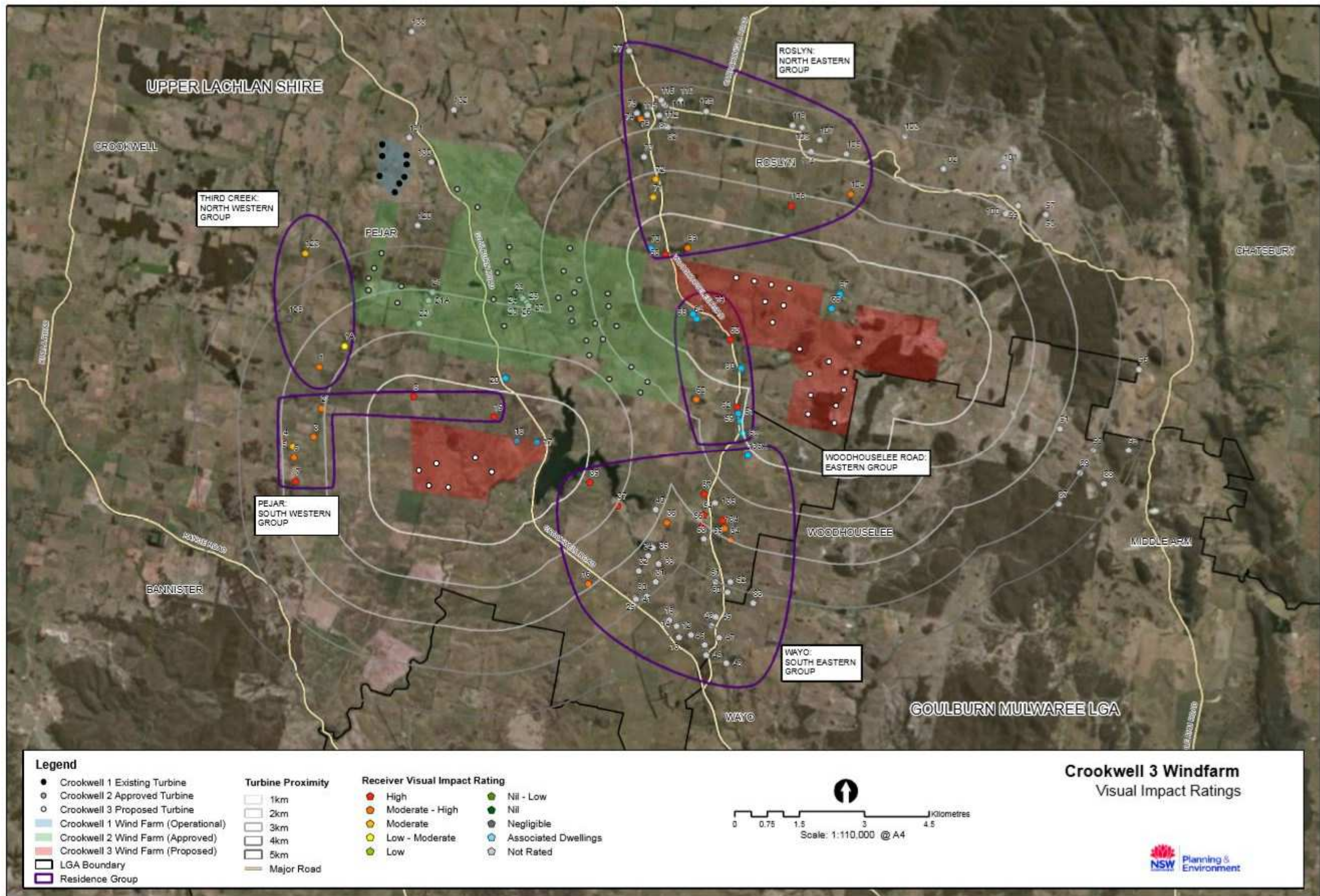


Figure 11 | Visual Impact Ratings

Table 8 | Residences with high or moderate-high visual impacts

Receiver	LVIA Rating	OHD Report Direct Visual Impact	OHD Report Cumulative Impact rating	Overall Visual Impact	Horizontal view (60° sectors)	Distance to nearest turbine (km)	C3 turbines within 3.1 km
Roslyn: North-eastern group							
R68 Meadowvale	High	Mod-High	High	High	>3	1.7	7
R69 Atholvale	Mod-High	Mod-High	Mod	Mod-High	>2	1.3	7
R74 Roslyn	Nil	Low-Mod	Mod-High	Mod-High	>2	4.3	-
104 Highland Park	Low	Nil-Low	Mod-High	Mod-High	>2	2.6	4
106 Rosedale	Low	High	Mod-High	High	>2	1.9	7
Woodhouselee Road: Eastern group							
R60 Pejar Park	Mod	Mod-High	Mod-High	Mod-High	>3	2.5	9
R62 Cottonwood	Mod-High	Mod-High	High	High	>3	1.7	16
R63 Rocky Corner	High	High	High	High	>5	1.1	16
Pejar: South-western group							
R2 Bendemere	Mod-High	Mod-High	Low	Mod-High	2	2.7	3
R3 D'Ambrosio	Mod-High	Mod-High	Low-Mod	Mod-High	4	2.6	3
R4	Mod-High	Mod-High	Low	Mod-High	2	3.2	-
R6	Mod-High	Mod-High	Low	Mod-High	-	2.9	1
R7 Emohruo	Mod-High	High	Low	High	-	2.9	2
R8 Narangi	High	High	High	High	>4	1.7	6
R19 Wombat Hollow	High	High	High	High	>4	1.1	6
Third Creek: North-western group							
1 Evermore	Mod-High	Mod	Mod-High	Mod-High	4	3.3	-
Wayo: South-eastern group							
R16 Calamonda	Mod	Mod-High	Low	Mod-High	-	3.4	-
R36 Tyrendarra	Low	Mod	Mod-High	Mod-High	>3	4.1	-
R37 Carinya	Low-Mod	Mod	High	High	>3	3	1

Receiver	LVIA Rating	OHD Report Direct Visual Impact	OHD Report Cumulative Impact rating	Overall Visual Impact	Horizontal view (60° sectors)	Distance to nearest turbine (km)	C3 turbines within 3.1 km
R39 St Stephens Church	Low	Mod-High	High	High	>3	2.3	2
R54 Ginmara	High	Mod-High	High	High	>3	3.4	-
R55	High	Mod	High	High	>3	3.2	-
R56	High	Mod	High	High	>3	3.5	-
R57 Kenrick	High	Mod	High	High	>3	3	1
R84 Nierrina Heights	High	Mod-High	Mod-High	Mod-High	>2	3.4	-
R134	Not rated	Mod-High	Mod-High	Mod-High	>2	3.3	-
R134A (DA Approved Dwelling)	Not rated	High	High	High	>3	3	1

Roslyn: North-eastern group

There are 8 residences in this cluster located north of the eastern cluster along the northern end of Woodhouselee Road. Many are in elevated locations with significant views of turbines to the south and to the west.

Of these, 5 residences (R68, R69, R74, 104 and 106) are predicted to have high or moderate-high visual impacts. This includes 3 of these residences (R68, R69, and R106) which would have multiple turbines at close proximity impacted by the magnitude of turbines (1.3 km to 1.9 km from the nearest turbine) and all with 7 of the 17 eastern cluster turbines located within 3.1 km.

In particular, R68 and R69 would be impacted by the 4 closest turbines (A2, A3, A4, A5) and R106 would have extensive views of 7 turbines (A2, A3, A4, A5, A8, A9 and A10). Residence R68 would also have views of turbines in 3 sectors (i.e. 180° views of turbines) (See **Figure 16** for a wireframe from R69 Atholvale and **Figure 17** for a wireframe from R106 Rosedale).

There are 2 residences (R74 and R104) that are located further from turbines (4.3 km and 2.6 km respectively) and would have low to moderate impacts from Crookwell 3, but would experience moderate-high impacts due to cumulative impacts.

Woodhouselee Road

There are 3 residences in this cluster along Woodhouselee Road and all are located between Crookwell 2 and Crookwell 3 eastern cluster of turbines.

All 3 residences (R60, R62 and R63) would have high or moderate-high impacts. All residences would have views of all 17 turbines in the eastern cluster. In addition, the residences have between 9 and 16 turbines within 3.1 km, with the closest turbines 1.1 km to 2.5 km from the residences, and residences R62 and R63 have between 4 and 9 turbines within 2.1 km.

R60 would have extensive views of all 17 turbines in the eastern cluster (hub and full blade length). R62 would be particularly impacted by 9 turbines (A12, A16, A13, A17, A20, A21, A22 and A25 and A24). R63 would be particularly impacted by a largely different set of 9 turbines (A2, A3, A4, A5, A8, A9, A10, A12 and A16) (see **Figure 13** for a wireframe from R60 Pejar Park, **Figure 14** for a wireframe from R62 Cottonwood and **Figure 15** for a wireframe from R63 Rocky Corner).

The residences would also have turbines visible in 3 to 5 sectors (i.e. 180 to 300° views of turbines).

Pejar: South-western group

This cluster has 8 residences and is predominantly located along Pejar Road and Dawsons Creek Road around the southern turbine cluster with most viewpoints at elevated locations. Almost all residences (7) have a moderate-high to high impact (R2, R3, R4, R6, R7, R8 and R19). The residences have the nearest turbines between 1.1 km and 3.2 km.

In particular, R8 and R19 to the north of the southern cluster would have a high visual impact with the closest turbines located 1.7 km and 1.1 km from these residences respectively, and all 6 turbines in the southern cluster (A28, A29, A30, A31, A32 and A33) located within 3.1 km. In addition, these residences would have impacts from Crookwell 3, Crookwell 2 and Gullen Range wind farms, resulting in wind turbines being visible within the horizontal view in more than 4 sectors (i.e. over 240° views of turbines) (see **Figures 10** and **11** for photomontages from R8 and R19).

Residence R7 would have views to all Crookwell 2 and Crookwell 3 turbines (total of 55 turbines) in two sectors (approximately 180° views of turbines) (see **Figure 8** for a wireframe from R7 Emohruo).

Third Creek: North-western group

There are 4 residences within this cluster located north-west of the southern turbines around Dawsons Creek Road and Pejar Road. The residences have views south and east toward the southern cluster in the foreground and beyond to Crookwell Road ridge. Of these, 1 residence (R1) has a moderate-high visual impact. Residence R1 would be impacted by view of multiple turbines in 4 sectors (i.e. 240° views of turbines) and to a lesser extent the magnitude of the turbines in the project with the closest turbine at 3.3 km from a turbine.

Wayo: South-eastern group

This cluster has 35 residences and is located to the south of the project and Pejar Dam, between St Stephens Road and Woodhouselee Road. Of these, 11 have a high or moderate-high impact (R16, R36, R37, R39, R54, R55, R56, R57, R84, R134 and R134A). The nearest turbines are located between 2.3 km and 4.1 km from these residences.

These residences (except R16) would be impacted by multiple turbines and Crookwell 3 would extend the views of turbines to the east and west beyond Crookwell 2 with turbines visible in over 3 sectors (i.e. 180° views of turbines).

Heritage listed St Stephens Church (R39) is located south-east of the southern cluster and would have a high visual impact with views of all southern cluster turbines, turbines visible in 3 sectors (i.e. 180° views of turbines), 2 turbines within 3.1 km and the nearest turbine at 2.3 km (see **Figure 9** for a wireframe from the church).

Pejar Dam recreation / picnic area is located at the southern end of Pejar Dam. The recreation area has views to the north-east and north-west and would be 1.2 km south-east from the nearest turbine with all 6 turbines in the southern cluster within 3.1 km (see **Figure 12** for a wireframe from the picnic area).

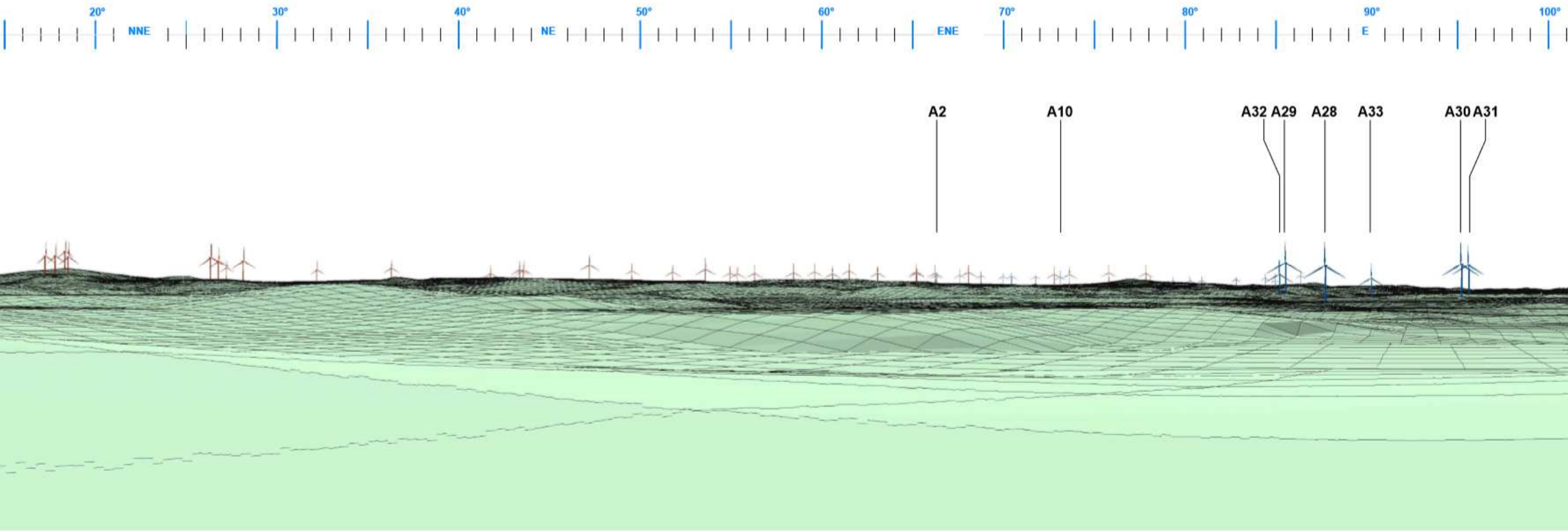


Figure 8 | Wireframe of view looking east from residence **R7 Emohruo** (OHD Report rating: High. Distance to nearest turbine (A28): 2.9km)

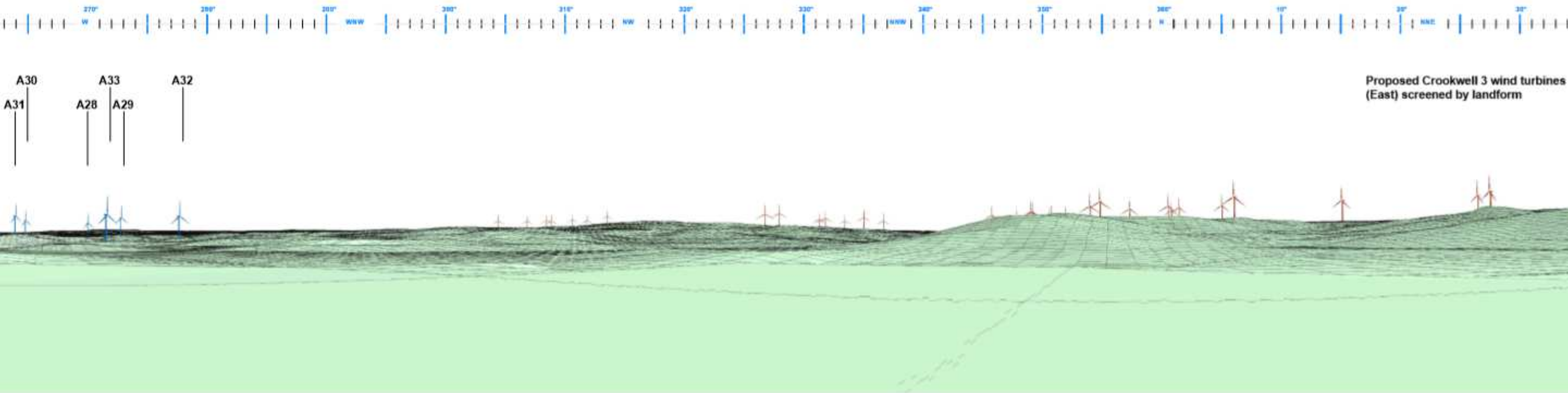


Figure 9 | Wireframe of view looking north-north-east from **R39 St Stephens Church** (OHD Report rating: Mod-High. Distance to nearest turbine (A33): 2.3km)

Note: In all wireframes the Crookwell 3 Wind Farm turbines are delineated in blue and the Crookwell 2 Wind Farm turbines in red.

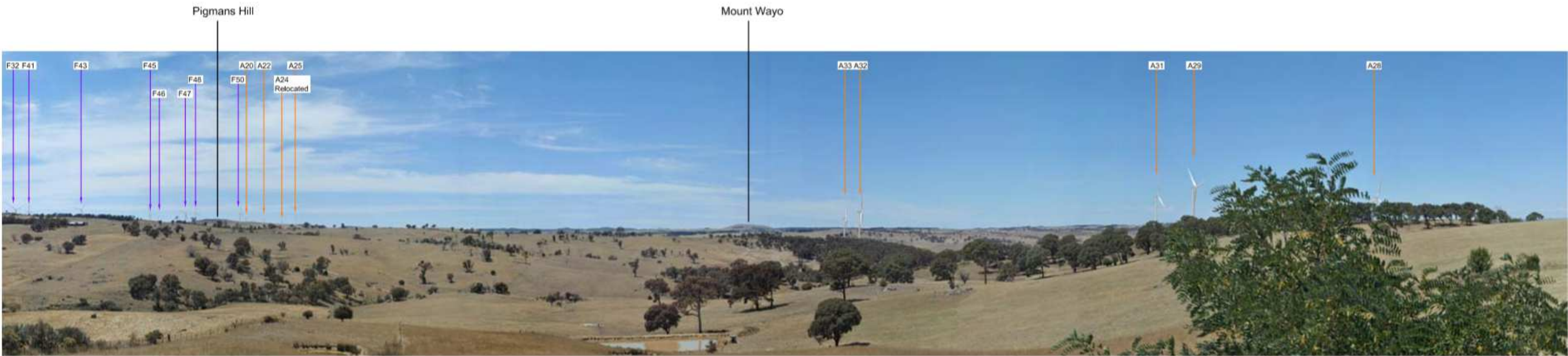


Figure 10 | Photomontage of view looking east-north-east from residence **R8 Narangi** (OHD Report rating: High. Distance to nearest turbine (A29): 1.7km) (noting that turbine A29 appears missing or hidden by foreground foliage)



Figure 11 | Photomontage of view looking west-south-west from residence **R19 Wombat Hollow** (OHD Report rating: High. Distance to nearest turbine (A32): 1.1km)

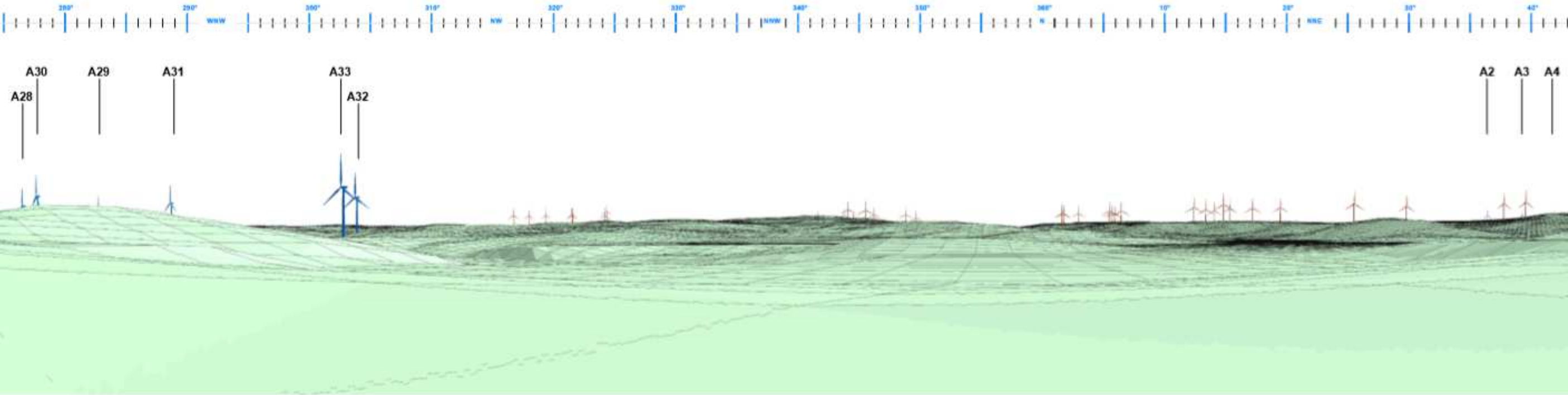


Figure 12 | Wireframe of view looking north-east from **Pejar Dam picnic area** (Distance to nearest turbine (A33): 1.2km)

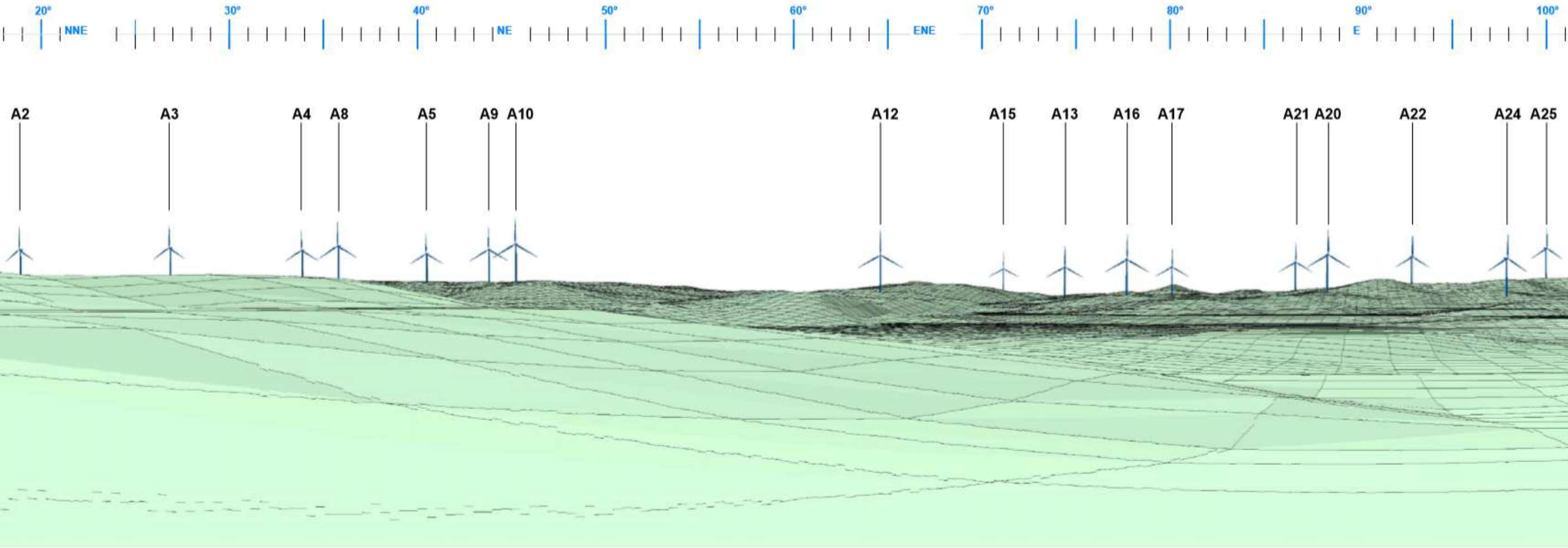


Figure 13 | Wireframe of view looking east-south-east from residence **R60 Pejar Park** (OHD Report rating: Mod-High. Distance to nearest turbine (A10): 2.5km)

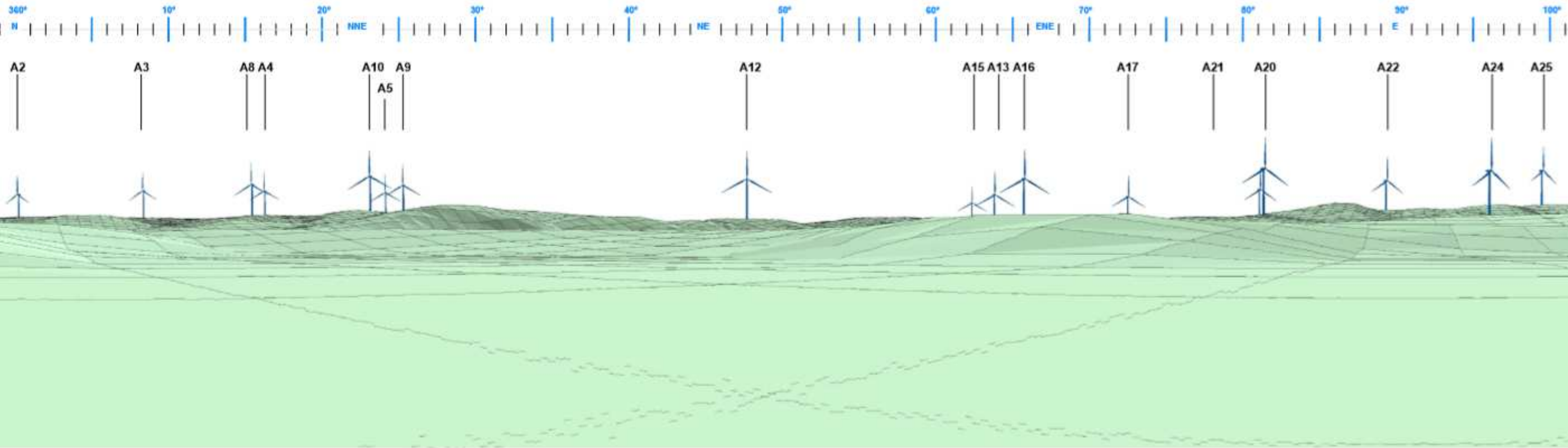


Figure 14 | Wireframe of view looking east-south-east from residence **R62 Cottonwood** (OHD Report rating: Mod-High. Distance to nearest turbine (A24): 1.7km)

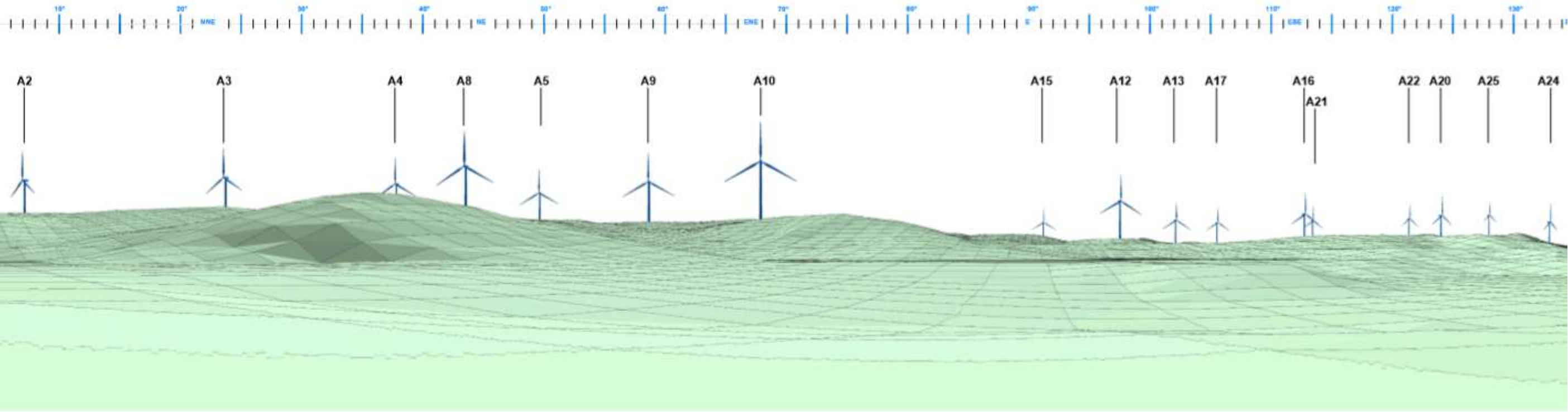


Figure 15 | Wireframe of view looking east-south-east from residence **R63 Rocky Corner** (OHD Report rating: High. Distance to nearest turbine (A10): 1.1km)

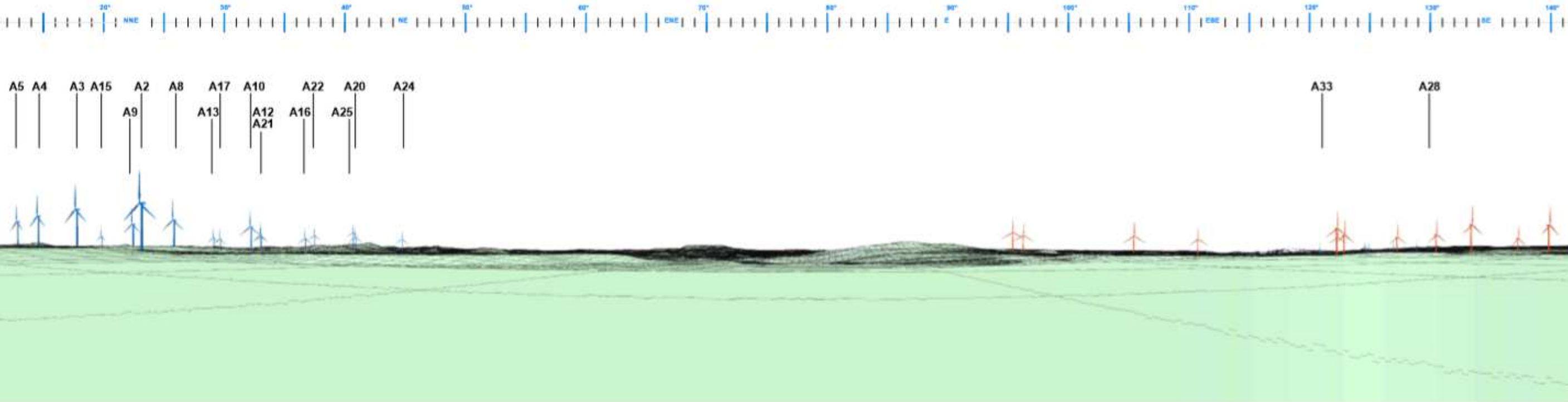


Figure 16 | Wireframe of view looking south-east from residence **R69 Atholvale** (OHD Report rating: Mod-High. Distance to nearest turbine (A2): 1.3km)

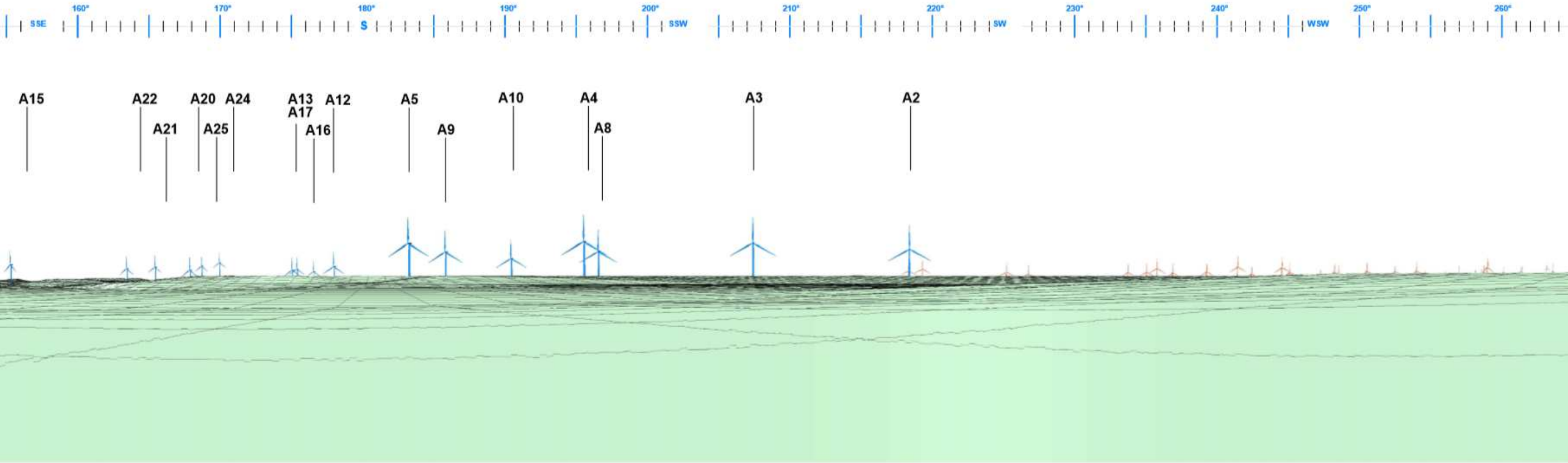


Figure 17 | Wireframe of view looking west-north-west from residence **R106 Rosedale** (OHD Report rating: Mod-High. Distance to nearest turbine (A4): 1.9km)

Night lighting

CASA has advised the Department that the project should be lit to minimise the risks to aviation safety in the region. While the Department acknowledges the visual impacts of this lighting could be mitigated to some degree by using low intensity lighting or radar-activated lighting, it notes that at least 12 of the 23 turbines are likely to require lighting (9 in the eastern cluster and 3 in the southern cluster). The Department also notes that it received complaints from the local community about the visual impacts of the lighting that was recently installed on turbines at the Crookwell 2 wind farm, and that it has been asked by the Crookwell 2 Community Consultative Committee to investigate, along with CASA, whether any further measures could be implemented to reduce these impacts.

The Department considers that night lighting would further contribute to the visual impacts of the project, particularly given the location of turbines close to residences and the limited existing light pollution sources in the vicinity. In this regard, there would be noticeable visual impacts during the night, impacting on residences enjoyment of dark night skies as a feature in the landscape, which would add to the overall visual impacts of the project. The OHD report notes that the LVIA did not provide detailed assessment of the potential impact of night lighting measures.

Mitigation Measures

The Department acknowledges that CDPL has considered vegetation screening and landowner agreements to mitigate the visual impacts of the project. However, the Department does not consider that these mitigation measures would effectively reduce the visual impacts of this project to acceptable levels.

Visual Screening

Vegetation screening can be effective in some circumstances depending on the visual context, and the nature and extent of the impact and number of residences involved.

However, the Department considers that there are significant limitations for vegetation screening in this case due to the large numbers of non-associated residences with significant direct and cumulative visual impacts (27 residences), the varying elevations of many of these residences in comparison to the turbines, the proximity of the turbines to dwellings, and, in particular, the extensive horizontal views experienced by many receivers. Of the 35 non-associated receivers assessed, 18 would have turbines visible in more than 3 sectors (i.e. over 180° views of turbines).

Properties with extensive horizontal views of turbines, or located between two clusters of turbines would need significant vegetation screening (or other screening) to effectively screen views of the turbines. The level of screening required would essentially result in many dwellings being enclosed by screening. Given that many of the residences are oriented towards the wind farm, any effective screening of the turbines is also likely to block the vistas and views from affected residences.

In addition, the vegetation screening would need to be located immediately adjacent to residences and require mature planting to be effective, particularly where turbines are located in close proximity to residences.

Given the above, the Department considers that in most cases visual screening would not provide a practical or effective option for mitigating the visual impacts of the project.

Landowner Agreements

Of the 31 residences within 3.1 km of the site (27 with high or moderate-high visual impact), CDPL has secured agreements with the owners of 10 residences (with 9 landowners) in the vicinity of the wind farm.

The Department acknowledges the agreements secured by CDPL, however there are still 17 non-associated residences within 3.1 km with high or moderate-high visual impacts that CDPL has not secured agreements with despite having had several years to do so.

Removal of Turbines

In many cases, where the Department has recommended approval of a proposed wind farm, it has done so with a recommendation that a number of turbines be removed to address the most significant residual visual impacts on residences. In some cases, it has also recommended that the landowners of significantly visually impacted residences be afforded voluntary acquisition rights.

In this regard, the Department notes that these recommendations have generally only been made where there are a limited number of residences potentially affected, and that the visual impacts are not so significant or widespread to warrant the refusal of the entire project.

A similar approach was adopted by the NSW Land and Environment Court in *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd [2007]*. However, the context for the Court decision in favour of the Taralga Wind Farm is significantly different to the Crookwell 3 Wind Farm.

In the case of Taralga:

- there were a small number of significantly visually impacted rural residences (up to 3 instead of up to 27);
- the turbines were significantly smaller (110 m instead of 157 m);
- the judgment was over 10 years ago at a time when there were very few renewable energy projects in NSW, and no other wind farms in the immediate vicinity of the project; and
- there were strong public interest arguments that the Court considered outweighed the potential visual impacts on nearby residences.

Given the close proximity of the majority of turbines to non-associated residences, the resultant magnitude and significant direct visual impacts predicted, together with the predicted significant cumulative impacts, adequately addressing the residual visual impacts of the project would involve removing the vast majority of proposed turbines.

While wind farms can often incorporate linear turbine layouts, the clustered nature of the proposed Crookwell 3 turbines has resulted in all turbines being in close proximity to residential dwellings.

In particular, 17 of the 23 proposed turbines for Crookwell 3 (representing 74%) are located within 2.1 km of non-associated residences.

In the eastern cluster, 12 of the 17 turbines are located within 2.1 km of non-associated dwellings (being turbines A2, A3, A4, A5, A8, A9, A10, A12, A15, A16, A20 and A24). In particular, 11 of the 17 turbines have at least 3, and as many as 8, non-associated dwellings within 3.1 km.

In the southern cluster, 5 of the 6 turbines in the southern cluster are located within 2.1 km of a non-associated dwelling. In particular, all turbines have between 2 and 7 non-associated dwellings within 3.1 km.

While the Department acknowledges the changes already made to the project (i.e. the deletion of 7 turbines since the original application in 2010), the removal of turbines would also materially reduce the 'benefits' of the project as a whole and hence diminish the justification for approving the project despite its adverse impacts on the landscape and the local community.

Similarly, the Department considers that the 'benefits' of the project are not so significant from a public interest perspective that the provision of voluntary acquisition rights to landowners would be justified.

While the NSW Government remains strongly in favour of the development of renewable energy in NSW, over the last 10 years the industry has matured significantly. There are now a large number of wind and solar farms operating, approved or proposed in NSW, and while the approval of additional renewable energy projects remains desirable (subject to detailed assessment), there are a range of suitable alternatives that would deliver similar benefits to the Crookwell 3 Wind Farm without the significant adverse impacts that developing this project entails.

In this regard, the Department has approved 3,900 MW of renewable energy projects in NSW in the past 12 months alone. Ultimately, the project is a relatively small wind farm compared to other projects in the State with relatively significant adverse impacts.

Finally, the Department notes that it has provided formal feedback to CDPL on several occasions since the Commission raised concerns with the project in 2015, particularly regarding concerns about the visual impacts of the project, and the need to avoid these impacts where possible and/or provide additional mitigation to reduce these impacts to acceptable levels.

Ultimately, it is not the Department's role to design an 'acceptable' layout for the proponent.

The Crookwell 3 Wind Farm has been under consideration for 8 years, and in the interest of not prolonging the uncertainty for all stakeholders, the Department considers that a timely decision should now be made on the project rather than deliberating further on alternative layouts.

6.3 Community Submissions

Number and Location of Submissions

The nature and extent of submissions are a mandatory consideration under Section 4.15 of the EP&A Act.

The Department recognises that of the 81 submissions from the general public 49 supported the project, representing approximately 60% of submissions.

The majority of the supporting submissions identified the positive benefits of the project as a source of renewable energy as the key reason for their support.

However, the majority of submissions in support of the project came from residents beyond 15 km of the project site (as shown in **Figure 6**).

In this regard, approximately 80% of submissions within 15 km objected to the project, while 90% objected within 5 km and all submissions within 3 km objected (with the exception of 2 submissions in support from host landowners for the project).

The Department also received a petition with 169 signatures objecting to the project, with many of these individuals residing in the local area including some in the immediate vicinity of the project.

Key Issues Raised in Submissions

Approximately 80% of objections raised visual impacts as a key issue.

In particular, concerns were raised in regard to the visual impact on surrounding residences; cumulative visual impacts from the presence of several wind farms in the area; loss of scenic value; impacts of industrial structures in a rural landscape; proximity of turbines to dwellings; the height and number of turbines; impacts associated with night lighting and shadow flicker; misleading photomontages and the validity of the methodology used to determine visual impacts.

In addition, Upper Lachlan Council has advised that it objects to the Crookwell 3 turbines located within 2 km of non-associated residences (representing 16 turbines), in line with the *Upper Lachlan Development Control Plan 2010*.

Based on this analysis, the Department considers that while there is broader community support for the social and economic benefits of the project and renewable energy in general, there is significant concern among the local community about the visual and landscape impacts of the project and the cumulative impacts of wind farms in the region.

6.4 Environmental Planning Instruments

Under the applicable LEPs, the project is zoned 1(a) General Rural and is permissible with development consent.

While the Commission has the power to grant consent, it must carefully assess the merits of such a decision in accordance with Section 4.15 of the EP&A Act. As the Upper Lachlan LEP 2010 was in draft form when the application was lodged, the evaluation must consider the (now made) draft LEP in making its decision.

Under the current *Upper Lachlan LEP 2010*, the eastern cluster is largely zoned E3 – Environmental Management. Development for the purposes of electricity generation (including wind farms) are prohibited in this zone. All 17 turbines in the eastern cluster, over 70% of the project's proposed turbines, would now be prohibited if a similar application was lodged today.

Infrastructure SEPP

The *Infrastructure SEPP* is the key planning policy that regulates infrastructure in NSW, including energy generation facilities (like wind farms).

The aim of the policy is to:

"...facilitate the effective delivery of infrastructure across the State by:

(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and

(b) providing greater flexibility in the location of infrastructure and service facilities..."

One of the primary mechanisms for achieving this aim is making certain types of infrastructure development permissible with consent on certain land despite the zoning provisions in LEPs.

However, in the case of electricity generating works, the policy has limited these powers to apply only to land where there is likely to be a lower impact and a greater compatibility and integration of these types of development with existing land uses (i.e. rural, industrial, and special use zones).

The policy has specifically not included other zones where electricity generating works have the potential to result in unacceptable impacts with existing land uses (e.g. residential, recreation, environmental, etc).

In this context, the Department considers that it would not be an appropriate planning outcome to allow a significant proportion of a large-scale wind farm to be developed on land where a State planning policy, designed to facilitate these types of developments, does not support development in these areas.

This is particularly the case where the impacts are significant, and there is limited justification from a broader public interest perspective for overriding the local planning controls, which the Department considers is the case for the Crookwell 3 Wind Farm.

Overall, the Department does not consider that the project is consistent with the objectives of the E3 - Environmental Management zone, or that the benefits of the project are so significant or essential to the State that the consent authority should override the strategic planning intentions for this portion of the site which have now been in place since July 2010.

Local Environmental Plan

At the local level, the Department considers that it is the clear objective of the Upper Lachlan LEP 2010, or the draft LEP as it was when the application was lodged in March 2010, to only allow a limited range of development within the E3 zone that does not have an adverse effect on the ecological, scientific, cultural or aesthetic values of the area. In the regard, the objectives of the E3 zone are to:

- protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- provide for a limited range of development that does not have an adverse effect on those values.
- facilitate the management of environmentally sensitive land and areas of high environmental value to the local government area.

The Department acknowledges that the land within this zoning relates to its location within the catchment of the Pejar Dam which is a drinking water catchment dam. While it may be possible that management and mitigation measures for the project would maintain a neutral or beneficial effect of water quality, WaterNSW considered that CDPL had not adequately demonstrated this in its assessment.

The development is also not consistent with the objectives of the LEP that provides for only a limited range of development that would not have an adverse effect on the land's cultural and aesthetic values.

Upper Lachlan Council has also made its position clear and objects to turbines located within 2 km of non-associated residences (representing 11 of 17 turbines of the eastern cluster). This position reflects Council's *Upper Lachlan Development Control Plan 2010* (DCP) (although not in force at the time of lodgement) which includes a requirement that no turbine is located closer than 2 km from a non-associated residence. While the (now made) DCP does not apply to the determination of the project, it supports Council's concerns about the project.

In summary, while the Department acknowledges that the planning regime that applies to the site allows the project to be granted consent under the EP&A Act, the Department considers that the consent authority should not grant consent to the project in this case as:

- 70% of the turbines are located in an area that has been zoned E3 since July 2010;
- the project is inconsistent with the objectives of this zone in the (now made) LEP;
- based on its assessment, there is no compelling social or economic benefit to the State that would justify the consent authority overriding the intentions of Council in its local planning controls.

6.5 Public Interest

Renewable Energy

The Department acknowledges that the project would contribute to:

- the development of the renewable energy industry in NSW, and implementation of the state's Renewable Energy Action Plan, making efficient use of the region's significant wind resources;
- generate approximately 275 GWh of electricity a year, or enough power for 59,000 homes, and assisting Australia to meet its renewable energy target by 2020; and
- reduce the greenhouse gas emissions associated with electricity production in NSW.

However, the Department notes that these benefits are relatively low compared to other renewable energy projects in the State. In addition, although there are associated benefits from this renewable energy generation, the Department considers that these moderate renewable energy benefits cannot be realised without adverse impacts on the environment and the local community, particularly in regard to visual impacts.

Economic Benefits

The Department also acknowledges that the project would result in a range of social and economic benefits for the wider community, including:

- making a positive contribution to the local economy by creating jobs, and providing income to for the associated landowners; and
- providing ongoing funding for community enhancement projects in the local area.

The project would also benefit from its proximity to existing infrastructure, including that the connection to the electricity network via the existing substation located on the adjacent Crookwell 2 Wind Farm site.

However, the Department considers that these social and economic benefits cannot be realised without adverse impacts on the environment and the local community, particularly in regard to visual impacts.

Alternatives

While the NSW Government supports the development of a sustainable wind energy industry in NSW, the EP&A Act provides a merit-based approach to consider the impacts of projects against applicable statutory and policy requirements.

The Department acknowledges the contribution that the project would make to renewable energy generation in NSW, however, there are a number of renewable projects (including both wind and solar) either approved and not constructed or currently in the assessment process that also have the capacity to provide additional renewable energy in NSW. The number of approved and operational wind farms in the region (shown in **Figure 3**) demonstrates that there are wind farm sites in the region that can provide renewable energy, making efficient use of the region's substantial wind resources without significant adverse impacts to the local community.

Consequently, the Department considers that this project is not critical to NSW meeting its renewable energy target, and other renewable energy projects in NSW could similarly contribute to the renewable energy industry in NSW and implementation of the *NSW Renewable Energy Action Plan* without the impacts of the project outweighing the benefits to renewable energy generation and social and economic benefits.

This is supported by the NSW Government's *Wind Energy Framework* which clearly recognises the need to balance attracting investment in renewable energy in NSW and providing sufficient protection to the community.

On balance, the Department considers that the Crookwell 3 Wind Farm is a project where the impacts of the project on the local community significantly outweigh its potential benefits to the broader community of NSW.

6.6 Consideration of Residual Matters

In addition to the above matters, the Department has considered the full range of potential impacts associated with the project. Some of these matters remain outstanding, as outlined in **Table 9**. However, the Department considers that the majority of these matters could be managed or conditioned should the project be approved.

In summary, should the project be approved, the residual matters that would need to be addressed in the assessment process include:

- OEH concerns regarding biodiversity impacts of turbine A12;
- a single access point to the Crookwell 3 eastern cluster would need to be identified;
- ULSC concerns regarding impacts on TV signal caused by turbines A32 and A33;
- a single route for the electrical cables to connect the southern and eastern clusters to the substation located on the Crookwell 2 Wind Farm site would need to be confirmed;
- detailed consideration of whether the project would have a neutral or beneficial effect on water quality; and
- an agreement between CDPL and Council would be required regarding road upgrades.

Table 9 | Residual matters

Issue	Assessment	Summary
Biodiversity	<u>Turbine A12</u> • OEH does not support turbines being located within remnant woodland or forest suitable as habitat for threatened species and has maintained this position in its advice on all Crookwell 3 project layouts since the original EIS was submitted in 2011. • In its submissions, OEH has recommended the removal of turbines A12, A18 and A19 due to their location within remnant woodland. • In response to these concerns, CDPL removed turbines A18 and A19 from the project layout in the Amended EIS. However, turbine A12 remains part of the project. • In its advice on the CDPL's final proposed layout, OEH has reiterated its concerns regarding the location of turbine A12 due to its location in the middle of remnant woodland. In this regard, OEH notes that the applicant's Supplementary Ecology Report (2013) supports the sensitivity of the area surrounding this turbine, including the presence of: - o 2 threatened bat species; - o 3 threatened bird species; - o 9 hollow-bearing trees (HBT) within 100 m of the turbine, providing potential habitat for threatened species; - o 30 hollows in 12 HBTs near A12; and - o good condition open woodland providing potential habitat for several other threatened species. <u>Proximity of turbines to woodland habitat</u> • OEH has raised concerns about turbines located immediately adjacent to woodland remnants that present a risk to birds and bats, particularly if the woodland is at a higher elevation than the turbines where fauna would fly out of the canopy at a similar elevation to the turbine rotor-swept area (RSA). • In this regard, OEH recommends that the edge of the RSA should be at least 50 m from the edge of the habitat. • OEH has calculated the distance required between the edge of habitat and the turbines and advises that the risk to fauna would be minimised by ensuring a buffer distance of at least 82.6 m between turbines and remnant woodland. • OEH recommends that 6 turbines (A15, A17, A20, A22, A24 and A25) should be micro-sited further from vegetation and adhere to the recommended buffer distances.	• OEH has significant concerns regarding the potential impact of turbine A12 on birds and bats. • OEH recommends that 6 turbines (A15, A17, A20, A22, A24 and A25) should be micro-sited further from vegetation to minimise the risk to birds and bats.
TV signal	• Upper Lachlan Shire Council raised concern regarding the potential for the proposed turbines to interfere with television services in Crookwell, with the potential for up to 850 residences to be affected. • In this regard, Council advised that 2 turbines (A32 and A33) appear to have the potential to interfere with the television signal between Mt Gray and Wades Hill transmission facilities. • Council has requested that, should the project be approved, CDPL should identify a solution, to be approved by Council, prior to turbine construction. This may include: - o an additional transmitter to allow television signal to bypass the turbines; or - o deletion of the turbines causing interference.	• Suitable mitigation measures would need to be identified and conditioned.

Traffic and Transport	<u>Site access points</u> - The application includes 3 potential access points to the Crookwell 3 eastern cluster from Woodhouselee Road. - Upper Lachlan Shire Council has recommended the provision of only one access point to the eastern cluster. Council's preferred access point would be the southernmost access (i.e. Greywood Siding Road) - CDPL has confirmed that only 1 access road is required but that 3 options are included in the EIS to provide flexibility, as commercial negotiations are still ongoing with landowners. CDPL's preferred access point is the central access (i.e. near residence R63 Rocky Corner). - It is the Department's understanding that commercial agreements with landowners of the potential access roads are yet to be secured to provide access to the site. - In addition, the CDPL has been unable to confirm land ownership details for the access roads, particularly regarding potential third party easements over the land. <u>Road upgrades</u> - Upper Lachlan Shire Council raised concerns regarding the potential impacts on the local road network during construction of the project and advised that significant road upgrades would be required prior to commencement of any heavy vehicle haulage, particularly on Woodhouselee Road.	- A single access point to the Crookwell 3 eastern cluster would need to be identified. - An agreement between CDPL and Council regarding road upgrades would be required.
Electricity cable crossings	- The Crookwell 3 eastern and southern clusters would be connected to the electricity network via the substation located on the Crookwell 2 Wind Farm site, requiring an electrical cable to connect each cluster to the substation. - CDPL has confirmed that only 1 cable crossing from each cluster is required, however the application includes 2 cable route options for each cluster. - CDPL has advised that 2 options are required to provide flexibility as commercial negotiations are still ongoing with landowners. - It is the Department's understanding that no commercial agreements with landowners of the potential cable routes have been secured to connect both clusters to the substation.	A single route for the electrical cables to connect the southern and eastern clusters to the substation located on the Crookwell 2 Wind Farm site would need to be confirmed.
Water quality	- The <i>Drinking Water Regional Environmental Plan No. 1</i> applied at the time of lodgment of the application. - The Department acknowledges that the SEPP (Sydney Drinking Water Catchments) does not apply to the project. - CDPL concluded that with the implementation of best practice measures, the construction and operation of the wind farm was expected to have a neutral effect on water quality. - However, WaterNSW considered that CDPL had not demonstrated that the project would have a neutral or beneficial effect on water quality.	Further work would need to be undertaken to demonstrate that the project would have a neutral or beneficial effect on water quality.
Aboriginal Cultural Heritage	- OEH continues to have concerns regarding Aboriginal cultural heritage, including additional areas requiring survey and the Aboriginal consultation process. - In this regard, OEH: - noted that additional surveys need to be undertaken for the track between turbines A27 and A28, and the second access track to turbine A27, as they were added after the archaeological survey was completed; - recommended landform mapping to help identify areas requiring test excavation based on the monitoring and excavation activities at Crookwell 2 identifying significantly more artefacts than were predicted; and - advised that site cards for Aboriginal sites be re-submitted to AHIMS as a matter of urgency, as they have not yet been received.	Additional archaeological surveys and mapping may need to be completed.



8. Recommendation

It is recommended that the Independent Planning Commission for NSW, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report, noting that the Department considers that the application should be **refused**; and
- if the Commission determines to refuse to grant consent to the application, **signs** the attached Instrument of Refusal (Appendix I).

Recommended by:

18 April 2019

Iwan Davies

A/Team Leader

Resource and Energy Assessments

Recommended by:

18 April 2019

Nicole Brewer

A/Director

Resource and Energy Assessments



Appendices

Appendix A – List of Documents

Crookwell 3 Wind Farm Environmental Impact Statement, Union Fenosa, July 2012.

Crookwell 3 Wind Farm Response to Submissions, Union Fenosa, March 2014.

Crookwell 3 Wind Farm Addendum Environmental Impact Statement, Union Fenosa, September 2016.

Crookwell 3 Wind Farm Addendum Response to Submissions, Union Fenosa, February 2018.

Independent Peer Review – Landscape and Visual, O’Hanlon Design Pty Ltd, July 2018.

Note: all documents are available on the Department’s website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix B – Environmental Impact Statement

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix C – Response to Submissions

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix D – Addendum Environmental Impact Statement

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix E – Addendum Response to Submissions

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix F – Submissions

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix G – Independent Peer Review: Landscape and Visual

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix H – Agency comments on Addendum RTS

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695

Appendix I – Draft Instrument of Refusal

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6695