



Wallaby Creek Wind Farm

Telecommunications Impact Assessment



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In arriving at the report conclusions, a number of assumptions have been made where input information is either not available, cannot be relied upon, or is subject to change. Should these assumptions prove to be incorrect based on new relevant information coming to light, it is likely the findings of this report may also need to change. The client should validate these assumptions prior to implementation of the conclusions or recommendations found in this report.

Executive Summary

Middleton Group Engineering (MGE) has been engaged by Environmental Resources Management (ERM) on behalf of Acciona Energia to undertake a Telecommunication Impact Assessment (TIA) desktop study for the Wallaby Creek Wind Farm Project (the Project), located approximately 10 km south of Narromine in Orana Region of NSW.

The proposed project would comprise a 236-megawatt (MW) wind farm with up to 38 wind turbines and a 200 MW / 400 MWh battery. It is proposed that the Project would connect to Narromine grid.

Methodology

The study has been undertaken to address the telecommunications element of the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) for the Project (SSD-60247211), specifically to:

Identify possible effects on telecommunications systems, assess impacts and mitigation measures including undertaking a detailed assessment to examine the potential impacts as well as analysis and agreement on the implementation of suitable options to avoid potential disruptions to radio communication services, which may include the installation and maintenance of alternative sites;

Further, this study has been completed with due regard to the NSW Wind Energy Guidelines [1] and Clean Energy Council Best Practice Guidelines [2], to assess potential impacts of the Project on existing telecommunications and ensure the level of service is maintained.

This study assesses the impact of Wallaby Creek Wind Farm on the following telecommunication services:

- Point-to-point microwave links;
- Meteorological radar;
- Mobile voice-based communications;
- Wireless and satellite internet services;
- Broadcast and digital radio;
- Broadcast, digital and satellite television;
- Trigonometry stations; and
- Global Positioning System (GPS).

MGE conducted an initial review the Australian Communications and Media Authority (ACMA) database for point-to-point links within a 150 km radius of the Project Area, in September 2024. Four links and one site were identified within 2 km of the proposed wind turbine generators (WTGs).

Assessment Overview

The potential electromagnetic interference impact of the Project has been assessed. Based on desktop analysis by MGE, the Project design has avoided, minimised and mitigated electromagnetic interference that could disrupt the existing television, radar, and radio transmission and reception systems.

The Project may have some impact on wireless and satellite services to a relatively small number of residences.

Key stakeholders have been contacted regarding potential electromagnetic interference impact on their service. Stakeholder responses have been collated and incorporated into Appendix B of this report.

Recommendations

Recommendations and further actions are as follows:

1. The proponent needs to engage BOM for a comprehensive technical assessment of the potential impacts and possible mitigation measures for the proposed project with regard to weather radar systems.
2. Consult further with the NSW Telecommunications Authority during construction, particularly regarding turbines WTG_68 and WTG_71.
3. We recommend that the Proponent comes to an agreement with owners of the twelve residences within 2 km of wind turbines regarding mitigation of any disruptions to their wireless and satellite services that arise.

To safeguard against potential future impacts, consultation with key stakeholders should occur, and this study should be revised, if any design changes occur that have the potential to generate electromagnetic interference issues or telecommunications impacts.

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1 Abbreviations/ Definitions

Table 1: Abbreviations

Abbreviation	Explanation
ACMA	Australian Communications and Media Authority
AM	Amplitude Modulation
BSL	Broadband Service Locator
BOM	Bureau of Meteorology
C/I	Carrier-to-interference ratio
D_a	Diameter of antenna physical aperture (m)
D_{nf}	Near-field clearance distance
DTV	Digital Television
DPHI	Department of Planning, Housing and Infrastructure
EDM	Electronic Distance Measurement
EMI	Electro-Magnetic Interference
EIS	Environmental Impact Statement
f	Frequency (GHz)
FM	Frequency Modulation
F_n	<i>n</i> th Fresnel Zone; also, F ₁ , F ₂ , etc.
G	Maximum (boresight) antenna gain (dBi)
GHz	Giga-Hertz – 10 ⁹ Hertz
GIS	Geographic Information System
GNSS	Global Navigation Satellite System Networks
MGE	Middleton Group Engineering
MHz	Mega-Hertz – 10 ⁶ Hertz
NSW	New South Wales
MNES	Matters of National Environmental Significance
REZ	Renewable Energy Zone
SSD	State Significant Development
The Project	Wallaby Creek Wind Farm
TIA	Telecommunications Impact Assessment
WMO	World Meteorological Organization
WTG	Wind Turbine Generator

2 Introduction

ACCIONA Energy Australia Global Pty Ltd (ACCIONA Energia) is proposing to construct and operate the Wallaby Creek Wind Farm (the project), which is in Orana Region of New South Wales (NSW). The proposed wind farm is in the Narromine Shire Council local government areas, close to Narromine and Tomingley. The project site is over 43 lots across 13 landholdings.

The project would consist of up to 38 wind turbine generators (WTG) and supporting infrastructure and would connect to grid in Narromine. The project would supply up to approximately 236 megawatts of electricity into the National Electricity Market (NEM).

The capital investment value of the project is valued at over \$30 million, and the project is considered State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *State Environmental Planning Policy (Planning Systems 2021)* (Planning Systems SEPP).

The project has also been referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for potential impacts to Matters of National Environmental Significance (MNES) protected by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). DCCEEW have determined that the project is a controlled action under Section 75 of the EPBC Act, the project would require assessment and approval under the EPBC Act.

The potential impacts to MNES will be assessed in accordance with the NSW Assessment Bilateral Agreement, which allows the NSW Department of Planning, Housing and Infrastructure (DPHI) to manage the assessment of the project on behalf of the Commonwealth.

2.1 Project Description Overview

The project is a proposed wind farm that would include up to 38 WTGs, with an estimated capacity of up to approximately 236 megawatts. The type of wind turbines to be used is subject to further design and the procurement process, however a maximum height of up to 271.5 metres (m) and a rotor diameter of up to 183 m would be expected.

In addition, the project would include the following infrastructure:

- wind turbine hardstands approximately 25580 m²
- electrical infrastructure including:
 - one substation
 - underground electrical reticulation connecting the wind farm elements
 - a Battery Energy Storage System (BESS) facility with a capacity of up to 200 megawatts, and storage of up to 400 megawatt hours
 - a transmission line route corridor approximately 24 kilometres long and 40 metres wide
- other permanent onsite ancillary infrastructure including:
 - an operations and maintenance facility
 - up to three permanent meteorological monitoring masts up to 200 m high
 - internal access tracks
 - security fencing and landscaping
- temporary construction ancillary infrastructure including:
 - one construction compound
 - one carpark
 - one accommodation camp
 - up to three laydown areas
 - one concrete batching plant
 - one internal borrow pit

- up to two security huts
- up to nine washdown facilities

The project is expected to require up to 150 full-time employees during peak construction and approximately 5 full-time employees would be required during operation and ongoing maintenance of the wind farm.

The wind farm site would be accessed from the south-east directly via the Newell Highway, and via Tantitha Road off the Newell Highway from the south. The Tantitha Road/Newell Highway intersection would need to be upgraded to accommodate over size over mass (OSOM) vehicle movements during construction and the delivery of large components such as turbine blades and tower components.

Some other upgrades would be required for public roads to facilitate construction traffic. These would be confirmed during the EIS, but it is expected that these would include Tantitha Road, Newell Highway and Pinedean Road.

Ongoing refinement of the proposed layout and technology would continue throughout the EIS process in response to engineering design refinements, landholder negotiations and outcomes of environmental and social assessments, to minimise potential impacts where possible.

The operational lifespan of the project would be around 30 years, unless the facility is re-powered at the end of its operational life. At the end of its practical life, the wind farm would be decommissioned and the site rehabilitated in consultation with the affected landholders.

3 Scope

This TIA Study is a desktop study, mapping the WTG locations along with telecommunication services and evaluating the impact of the wind turbines on these services.

The study has been undertaken to address the telecommunications element of the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) for the Project, specifically to:

Identify possible effects on telecommunications systems, assess impacts and mitigation measures including undertaking a detailed assessment to examine the potential impacts as well as analysis and agreement on the implementation of suitable options to avoid potential disruptions to radio communication services, which may include the installation and maintenance of alternative sites;

This TIA supports the overall EIS for the Project that has been prepared to address all matters discussed in the SEARs for the Project (SSD-50505215).

The study is confined to the analysis of publicly available information and consultation with key stakeholders.

This study assesses the impact of Wallaby Creek Wind Farm on the following telecommunication services:

- Point-to-point microwave links;
- Meteorological radar;
- Mobile voice-based communications;
- Wireless and satellite internet services;
- Broadcast and digital radio;
- Broadcast, digital and satellite television;
- Trigonometry stations; and
- Global Positioning System (GPS)

3.1 Other Requirements

3.1.1 NSW Wind Energy Guidelines

The former NSW Department of Planning & Environment's Wind Energy Guideline [1] offers guidance to the community, industry and regulators on the planning framework for the assessment of large-scale wind energy development proposals, classed as State significant developments (SSDs). The guideline provides a brief overview of the considerations to be included in a telecommunication impact assessment, as follows:

"the consent authority will give consideration to the risk of electromagnetic interference with telecommunication services in the area, and the adequacy of the measures proposed to ensure the level of service is maintained"

This outline has been considered in the methodology for this report.

3.1.2 Draft National Wind Farm Development Guidelines

The Draft National Wind Farm Development Guidelines [2] developed by Environmental Protection and Heritage Council offers guidance to the community, industry and regulators on the planning framework for the assessment of large-scale wind energy development proposals, classed as SSDs. The guideline includes recommended methodology to conduct an electromagnetic interference assessment. This outline has been considered in the methodology for this report.

3.1.3 Clean Energy Council Best Practice Guidelines

The Clean Energy Council's Best Practice Guidelines [3] are designed to assist wind farm proponents, owners and operators in the planning, approval and operational phases of onshore wind farm projects. The Clean Energy Council provides an outline for the ideal scope, methodology and stakeholders for an EMI report.

"An assessment of the potential for communication and/or radar interference should be completed and should include discussion with communication system providers."

The Clean Energy Council defines the methodology of an EMI assessment as follows:

1. Identify all stakeholders potentially affected by the wind farm
2. Assess the potential EMI impacts
3. Consult with the relevant stakeholders
4. Mitigate against any potential EMI effects.

The scope of potential impacts of unmitigated electromagnetic interference from a wind farm are summarised as:

- The wind turbine tower may obstruct, reflect or refract the electromagnetic waves used in a range of communications systems for transmission.
- The rotating blades may have similar effects, on a time variable basis. In some cases, ghosting of TV receivers close to the wind farm may occur where metal blades (or those with metallic cores or metal components such as the lightning protection system) act as an aerial to on-transmit the communication signal.
- The wind turbine's electrical generator can produce electromagnetic interference, which may need to be suppressed by shielding design and maintenance of wind turbines (although in practice, a generator is little different from a typical electrical motor, and it is quite rare for a WTG to present such a problem).

As such the Clean Energy Council has established the following guidelines to determine whether a stakeholder is affected by the wind farm:

- A wind turbine is within 2 km of a radiocommunications transmission site; or within 2 km of a radiocommunications receiver and in line with the transmission site.
- A wind turbine is within the maximum second Fresnel Zone of a point-to-point radio link.
- Aviation or meteorological radar operation can be affected by wind turbines. Even wind farms within 100 km of a radar installation may impact on its operation and this can depend on a number of factors including the type of radar used, distance from the radar installation, terrain, layout of the wind turbines and the size of the turbines. The owners of radar installations (e.g. the Bureau of Meteorology and Airservices) can generally assist in the assessment of the potential impact if required.

This report utilises these guidelines to analyse of the impact of the Project on the stakeholders and through similar methodology, assesses impacts (incorporating feedback from relevant stakeholders) and recommends mitigation where potential impacts to telecommunication services are identified.

3.1.4 NSW Renewable Energy Planning Framework

The Renewable Energy Planning Framework has been developed to help NSW transition to renewable energy. It includes guidelines for wind and solar energy generation and transmission infrastructure. It will support the industry by providing more investment certainty and will also make sure that communities benefit from the renewable energy projects they're hosting.

No clear recommendations have been given in this framework in relation to EMI/Telecommunications impacts from Wind Farms, however the general framework advice has been considered in the development of this report.

4 Inputs

This assessment is based on stakeholder infrastructure specified in Table 2 and Table 3.

Table 2: Study Inputs – Project Infrastructure

Project Detail	Value
Wind turbine coordinates	Wind turbine layout received from ERM on 12.12.24
Wind turbine dimensions	Tip Height: Up to 271.5 m Hub Height: Up to 180 m Turbine Rotor Diameter: Up to 183 m

Table 3: Study Inputs – Stakeholder Infrastructure

Input	Source	Date Provided/Accessed
Dwellings coordinates	The Proponent	20.09.24
Point-to -point microwave links, mobile voice-based communication, and internet services	ACMA Site Location Map RFNSA Website	31.08.24
AM, FM, Digital Radio, Digital TV broadcasters	List of transmitters with a licence to broadcast	01.06.23
Meteorological Radar	NSW Radar Information	21.09.23

Input	Source	Date Provided/Accessed
Survey Marks	NSW SCIMS	05.09.24
Trigonometrical Station and GPS	GNSS Network Map	21.08.24

4.1 Assumptions

This study has been developed on the following basis:

- The study is desktop only. No site visit or on-site ground-truthing has been conducted.
- Information, including the spatial location of items, antenna heights, emission frequencies and the like, as sourced from ACMA are correct. While MGE checked information against satellite imagery, MGE has developed the report on the basis that information supplied by/through ACMA is correct, except where a stakeholder provides updated specifications.

5 Analysis

5.1 Site Overview

An overview of the location of the Project and relevant telecommunication services is shown in Figure 1.

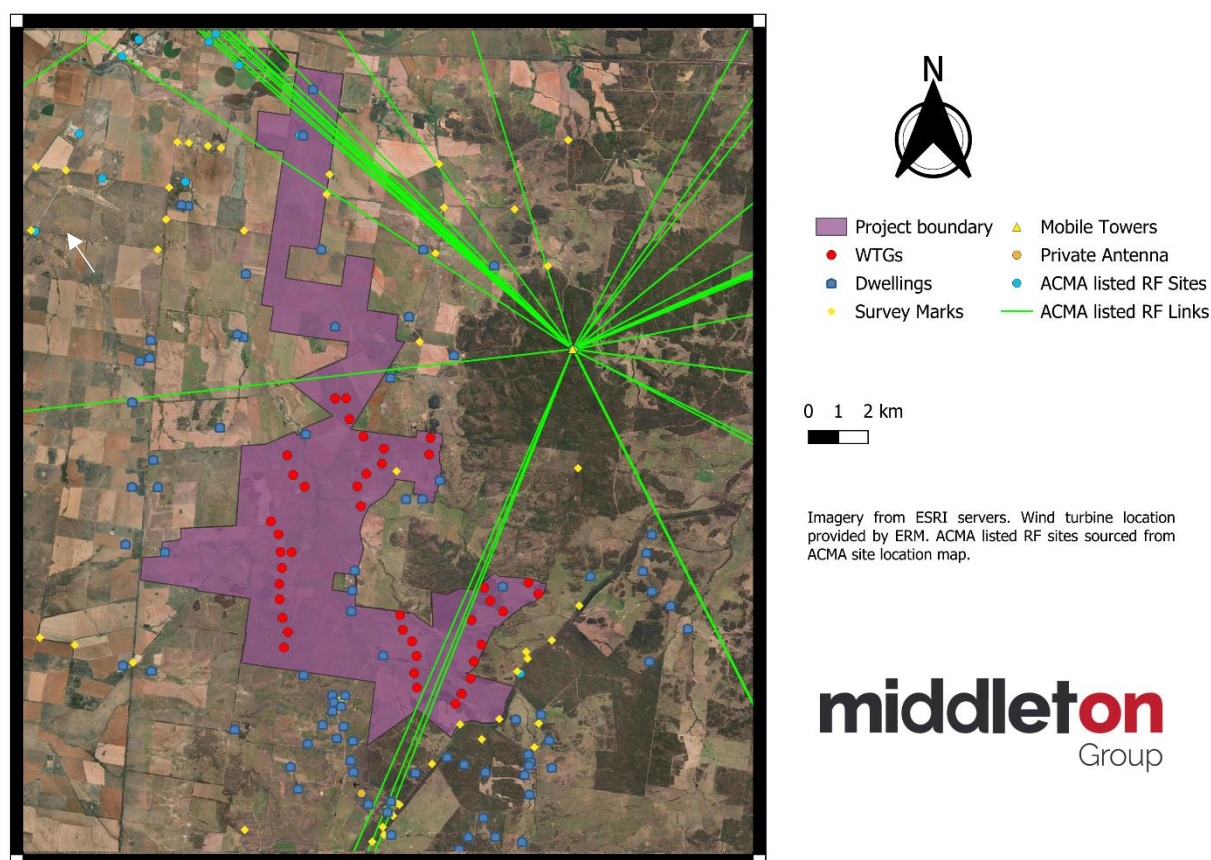


Figure 1: Site Overview

5.2 Point-to-Point Links

WTGs have the potential to impact on point-to-point communication links through three mechanisms [4]:

1. Near field effects;
2. Diffraction; and
3. Reflection or scattering effects.

As seen in Figure 2 , there are four ACMA-listed communication links and one ACMA-listed RF site (Site1) located within a 2 km buffer around the WTGs. Additionally, one ACMA-listed RF site (Site2) is situated within the project boundary but outside the 2 km buffer. Detailed information of the links and sites are outlined in Table 4 and Table 5. In depth analysis of the link will be presented in the following subsections.

Discussion of near-field and reflection/scattering effects are presented in section 5.2.1 and section 5.2.2 respectively, with diffraction effects assessed in section 5.2.3 of this report.

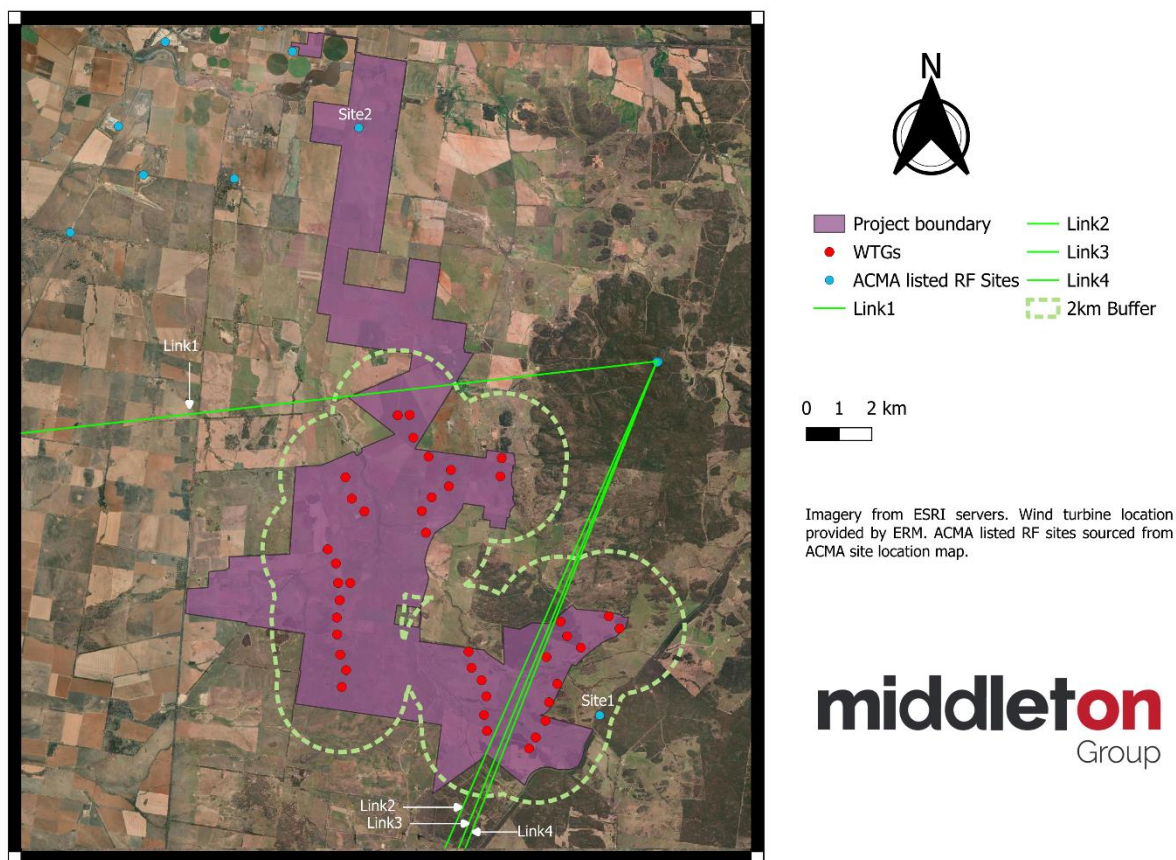


Figure 2: ACMA-listed point-to-point links and sites within a 2 km radius

Table 4: Point-to-point link details.

Point-to-Point link number	BSL / Licence No	Site 1	Site 2	Length (km)	Frequency (MHz)	Owner		
1	1425623/1	Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792	Country Energy Site YELLOW MTN ID: 11391	147	451.08	Essential Energy		
2	1566934/1	Optus Site Glen-Isla South 265 Tomingley Cemetery Rd TOMINGLEY ID: 204437	Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792	28	7732.88	Optus Limited	Mobile	Pty
	1803634/1				7940.43			
	1803633/1				7910.78			
3	10419746/1	NSWPF 40m Lattice Tower Council Water Reserve, off Mingelo St PEAK HILL ID: 10009027	Sappa Bulga Trig off Newell Hwy YARRABA ID:10792	45.2	7435	NSW Police Force		
4	1806335/2	Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792	Wilga Downs Warrigal Rd PEAK HILL ID:204302	46.2	6078.63	New South Wales Government Telecommunication Authority		
	1806336/2				6137.93			
	1954730/1				7866.3			

Multiple licences may be assigned to one link. This assessment highlights the licence with the lowest frequency when calculating Fresnel Zones, as lower frequencies produce broader Fresnel Zones.

Table 5: ACMA Site Information

Site No	ACMA Site ID	ACMA Site name	Distance to nearest WTG (km)	Number of Linked Assignments	Assessment Required
1	9912387	Mobile Spectrum Licensing Site	1.60	0	No
2	10026527	1210 Dappo Rd	8.89	2	No

Site 1 does not require an assessment as it is inactive, meaning it has no linked assignments. Sites 2 do not require assessment, as it is located beyond 2 km buffer and is unlikely to be impacted by the proposed WTG layout.

5.2.1 Near-field effects

Near-field effects occur in the vicinity of the transmitter and receiver, typically being impacted by objects with inductive fields up to several hundred metres from the transmitter/receiver – though the precise impact is difficult to calculate.

As per Bacon [4] the near-field clearance distance, D_{nf} (m) can be calculated as follows:

For a dish or horn type of antenna:

$$D_{nf} = 10 \times \eta \times D_a^2 \times f$$

For any other type of antenna:

$$D_{nf} = 0.1 \times 10^{0.1G} / f$$

Where:

η = antenna efficiency

D_a = diameter of antenna physical aperture (m)

f = frequency (GHz)

G = maximum (boresight) antenna gain (dBi)

No WTGs are proposed or close to an active ACMA listed transmission site towers at this time that could result in near-field effects.

5.2.2 Reflection/scattering effects

Reflection and scattering relate to the interference by an object that reflects the signal from the transmitter to the receiver. This process creates a longer path between the transmitter and receiver, which can cause undesirable temporal modulation. However, where the carrier to interference ratio, which is the ratio of the strength of the intended signal to the interference signal is sufficiently high, the performance will be unaffected. This threshold varies from site to site. Generally, impacts on signal will be negligible beyond 2 km from a transmitter/receiver.

No active ACMA site is found within the 2 km of project site boundary. Therefore, it is unlikely that the Project will cause any reflection and scattering effects on a communication site.

5.2.3 Diffraction effects

Diffraction is where an object modifies a wave, by obstructing its path of travel. Fresnel Zones define an envelope of influence along the length of the ray line, whereby a rotating wind turbine could adversely impact the signal.

The radius of the n-th Fresnel Zone, F_n , of a point-to-point link of length D , at a distance d_1 from the transmitter (or receiver) is given by the following equation:

$$F_n = \sqrt{\frac{n\lambda d_1(D - d_1)}{D}}$$

The wavelength of the transmittal signal, λ , is calculated as c/f , where c is the speed of light in air and f is the frequency of the transmittal signal.

Obstacles within the 1st Fresnel Zone will adversely impact the signal, whereas, beyond the 1st Fresnel Zone the impact is reduced but may still occur [4]. If multiple turbines encroach on the path of the same link, cumulative impacts may arise.

In calculating the paths of the links and the relative impact of obstacles, it is important to account for the curvature of the earth and the height of any antennae, as available.

Whilst a clearance threshold of 60% of the 1st Fresnel Zone Radius is often referred to in relation to geographical obstacles [5], this is not necessarily applicable to wind turbines. A more conservative approach for wind turbines is preferred – that is, maintaining a clearance of the full 1st Fresnel Zone, or even, as recommended by Bacon [4], clearance of the full 2nd Fresnel Zone. The latter is required for microwave (>1GHz) links and may also be required for UHF links.

For UHF (<1GHz) links, the impact of a wind turbine on the link will be a function of the carrier to interference ratio, C/I . The carrier to interference ratio compares the strength of the desired signal to the level of unwanted noise. In some instances, the presence of a wind turbine penetrating the 2nd Fresnel Zone will have no material impact on the performance of a non-microwave link; in other instances, there may be an impact.

The maximum radii of the 1st and 2nd Fresnel Zones of the communication link is summarised in Table 6 for the links that passes through the proposed site.

Table 6: Fresnel Zone for the point-to-point links.

Point to Point Link number	BSL / Licence No	F ₁ Max (m)	F ₂ Max (m)
1	1425623/1	156.26	220.99
2	1566934/1	16.48	23.3
3	10419746/1	21.35	30.19
4	1806335/2	23.87	33.75

5.2.3.1 Link 1

Essential Energy manages licence 1425623/1 which connects Site 1 (Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792) to Site 2 (Country Energy Site YELLOW MTN ID: 11391). The lowest frequency signal, 451.075 MHz, has been applied in this analysis.

Figure 3 shows Link 1 passing through the 2 km buffer. No WTG contacts the link's maximum second Fresnel Zone, with the closest turbine, WTG20_T, being 531 metres from the maximum 2nd Fresnel Zone.

Consequently, this assessment finds that the proposed WTGs are unlikely to cause telecommunication interference with Link 1.

Consultation with Essential Energy will be conducted to confirm this analysis.

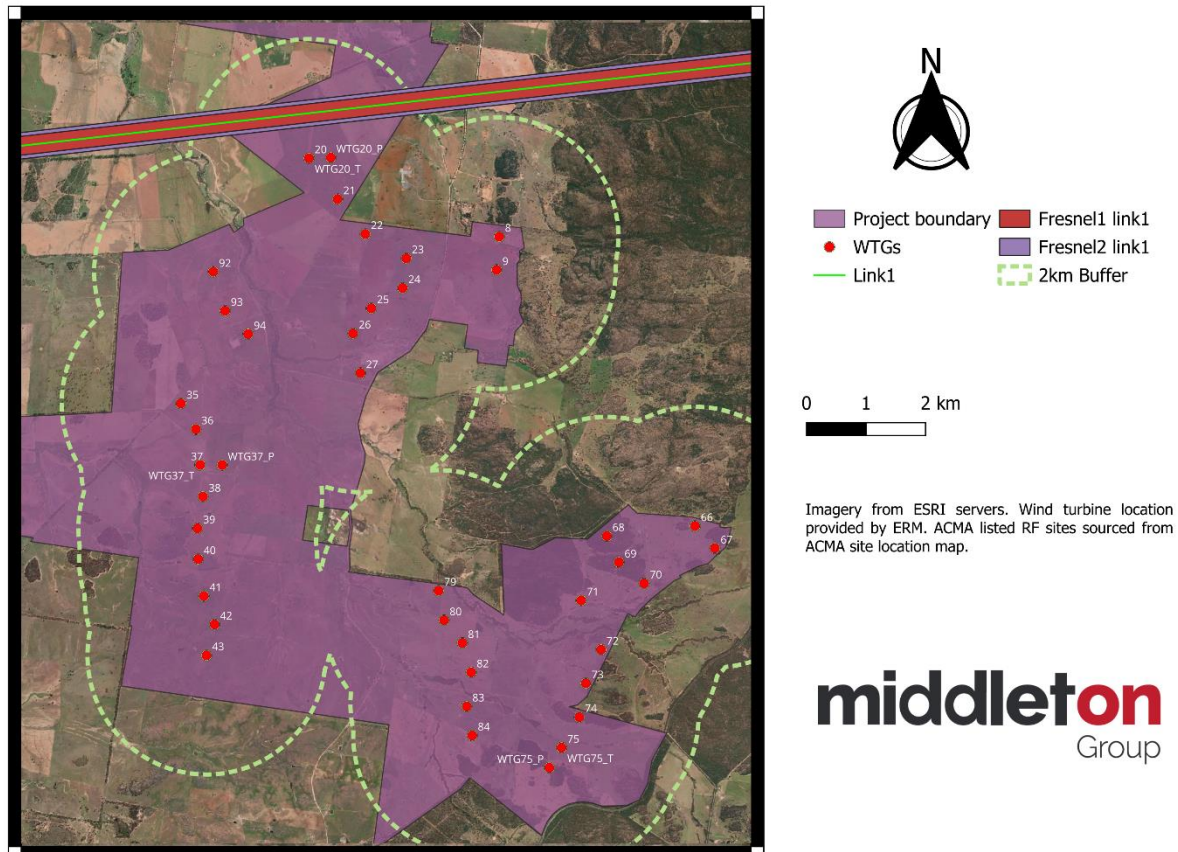


Figure 3: Link 1 passing through the project area

5.2.3.2 Link 2

Optus Mobile Pty Limited manages licence 1566934/1 which connects Site 1 (Optus Site Glen-Isla South 265 Tomingley Cemetery Rd TOMINGLEY ID: 204437) to Site 2 (Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792). The lowest frequency signal, 7.732 GHz, has been applied in this analysis.

Figure 4 shows Link 2 passing through the 2 km buffer. No WTG contacts the link's maximum second Fresnel Zone, with the closest turbine, 84, being 231 m from the maximum 2nd Fresnel Zone.

Consequently, this assessment finds that the proposed WTGs are unlikely to cause telecommunication interference with Link 2.

Consultation with Optus will be conducted to confirm this analysis.

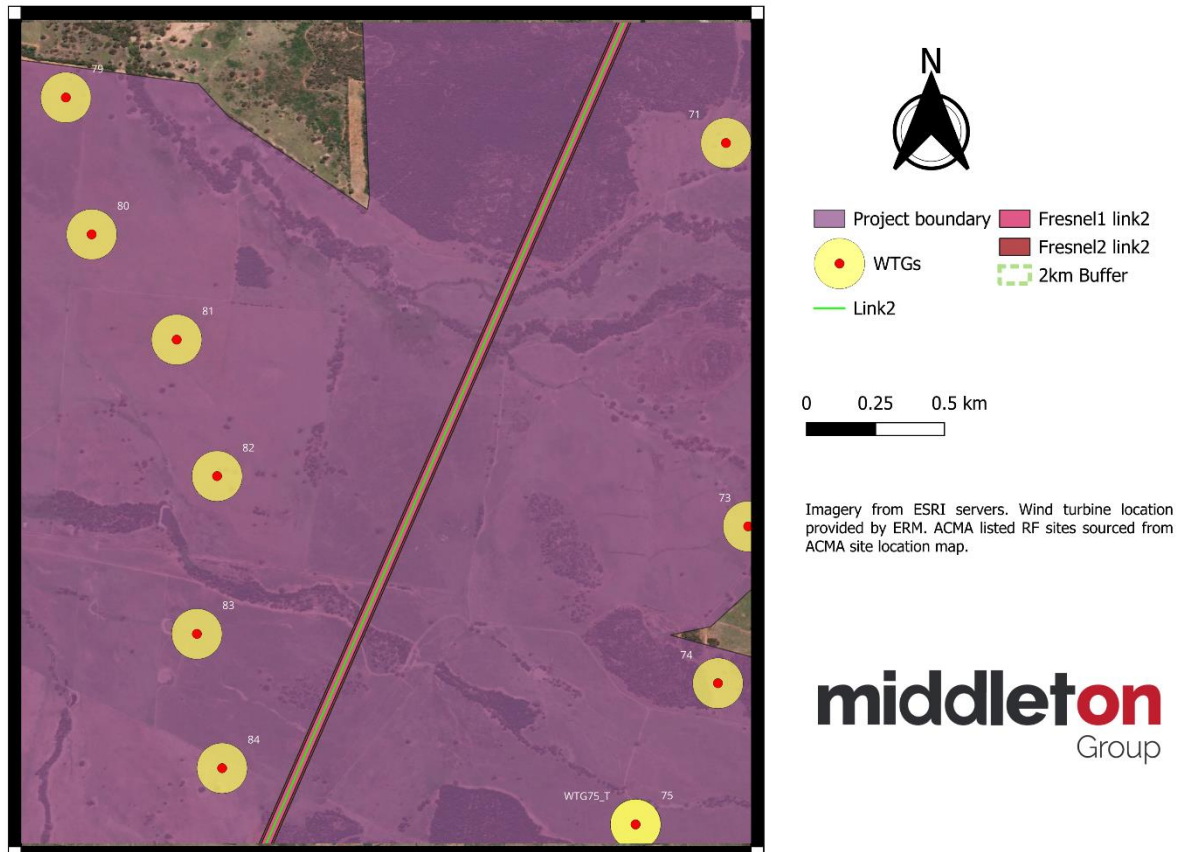


Figure 4: Link 2 passing through the project area

5.2.3.3 Link 3

NSW Police Force manages licence 10419746/1 which connects Site 1 (NSWPF 40m Lattice Tower Council Water Reserve, off Mingelo St PEAK HILL ID: 10009027) to Site 2 (Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792). The lowest frequency signal, 7.435 GHz, has been applied in this analysis.

Figure 5 shows Link 3 passing through the 2 km buffer. No turbine contacts the link's maximum 2nd Fresnel Zone, with the closest WTG, 71, being 254 metres from the maximum 2nd Fresnel Zone.

Consequently, this assessment finds that the proposed WTGs are unlikely to cause telecommunication interference with Link 3.

Consultation with the NSW Police Force will be conducted to confirm this analysis.

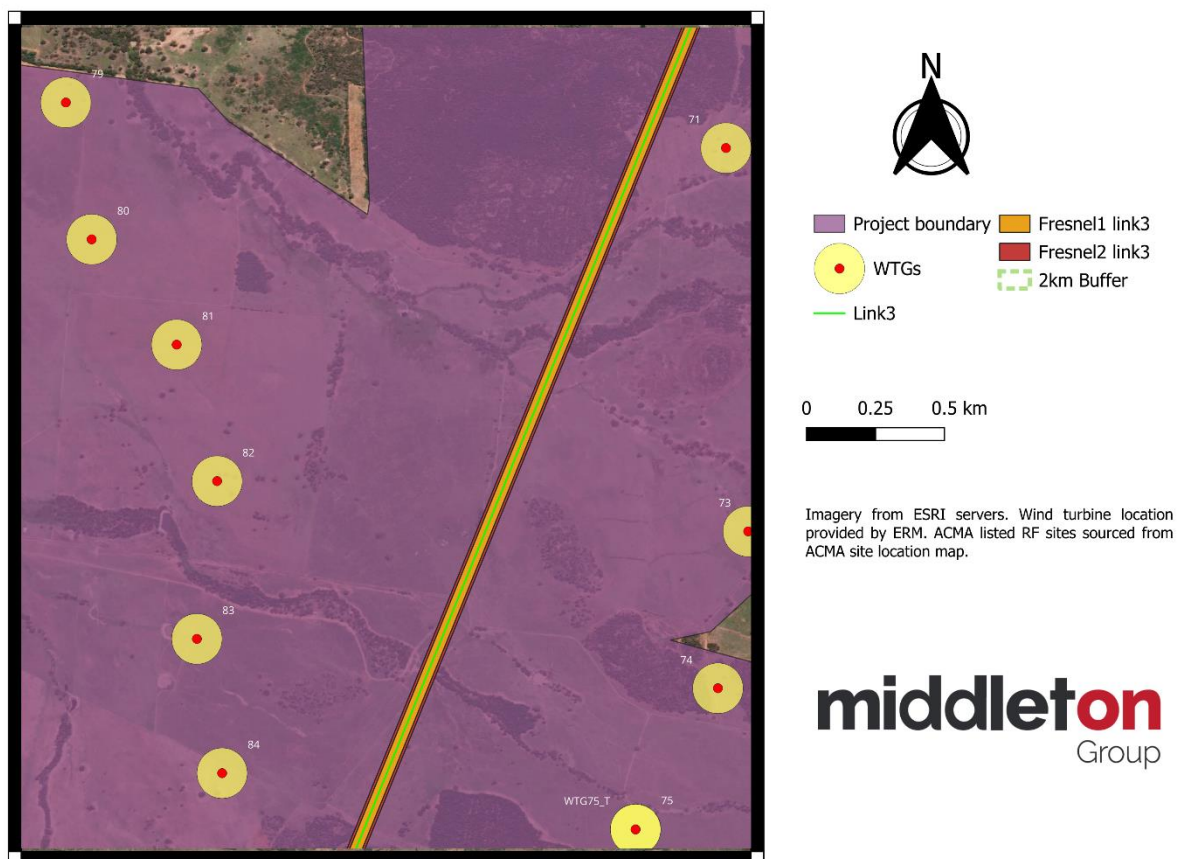


Figure 5: Link 3 passing through project area

5.2.3.4 Link 4

NSW Government Telecommunication Authority manages licence 1806335/2 which connects Site 1 (Sappa Bulga Trig off Newell Hwy YARRABA ID: 10792) to Site 2 (Wilga Downs Warrigal Rd PEAK HILL ID: 204302). The lowest frequency signal, 6.078 GHz, has been applied in this analysis.

Figure 6 shows Link 4 passing through the 2 km buffer. No WTG contacts the link's maximum second Fresnel Zone, with the closest turbine, 71, being 133 m from the maximum 2nd Fresnel Zone.

Consequently, this assessment finds that the proposed WTGs are unlikely to cause telecommunication interference with Link 4.

Consultation with NSW Government Telecommunication Authority will be conducted to confirm this analysis.

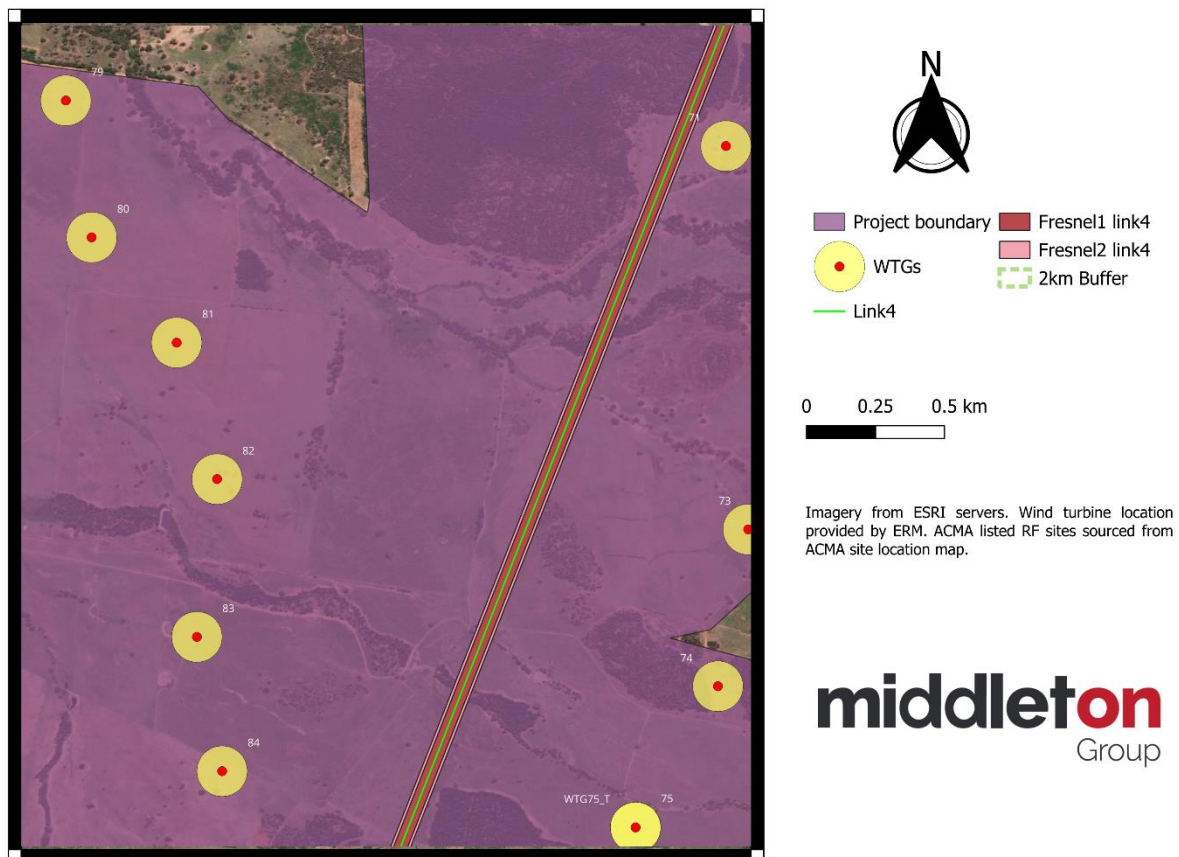


Figure 6: Link 4 passing through the project area

5.3 Meteorological Radar

Meteorological radars detect rain and thunderstorm events, as well as other phenomena such as flocks of birds, smoke, or ash, which cause echoes to be visible. The Bureau of Meteorology's (BoM's) radars typically detect rain between 2.5 km to 3.5 km above the ground within a radius of 250 km, and in some instances, beyond. Some wind farms are visible to meteorological radars, registering as static echoes.

Details of specific radars and corresponding coverage maps are available online from <http://www.bom.gov.au/australia/radar/index.shtml>.

The World Meteorological Organisation (WMO) recommends that wind turbines are sited, at a minimum, beyond five km from meteorological radars, and preferably beyond 20 km [6]. The Operational Programme for the Exchange of Weather Radar Information, the radar programme of European Meteorological Services Network state that no wind turbine should be deployed within five km radius of C-band radars and ten km radius of S-band radars. An impact study should be submitted if the wind turbines are sited within 20 km radius of C-band radars and 30 km radius of S-band radars [6]. Since the above guidance and advice was issued, wind turbine generators have become significantly larger. Developments in weather radar technology may also have increased sensitivity to wind turbine induced interference.

MGE recommends consultation with the Bureau of Meteorology (BoM) if any weather radar is within 250 km of a wind farm. MGE has project experience where a wind farm located 100 km from an S-band radar was predicted (by BoM) to impact an S-band radar.

Figure 7, demonstrates the location of the Meteorological radars in relation to the Project Area. The details of the two closest weather radars are outlined in Table 7.



Figure 7: Meteorological Radar

Table 7: Meteorological Radar Information

Weather Radar Name	Coordinate	Radar type	Distance to Project Area
Yeoval	32.74° S, 148.70° E	Meteor 735CDP	47 km
Namoi (Blackjack Mountain)	31.0240°S, 150.1915°E	DWSR 8520S 2° S-band	232km

The Project complies with WMO standards based on distance setbacks from the various meteorological radars in the region. Further, there is alternative coverage from two other radars within 250 km of the wind farm, giving good visibility of weather events in that region. As such, the presence of the Wind Farm is unlikely to cause adverse performance of the radars during extreme weather events.

Consultation with the Bureau of Meteorology will be conducted to confirm this result.

5.4 Mobile Voice-Based Communications

5.4.1 Mobile Coverage – Nearby Towers

There are no mobile phone base stations located within the 2 km buffer of the WTGs as shown in Figure 8. Typically, the signal will not be significantly impacted where the towers are located more than one km from WTGs.

It is unlikely that the Project will cause any significant impact on the operation of mobile phone base stations.

Consultation and engagement with Telstra, Optus, & Vodafone with respect to the impact on their mobile telemetry services is currently underway.

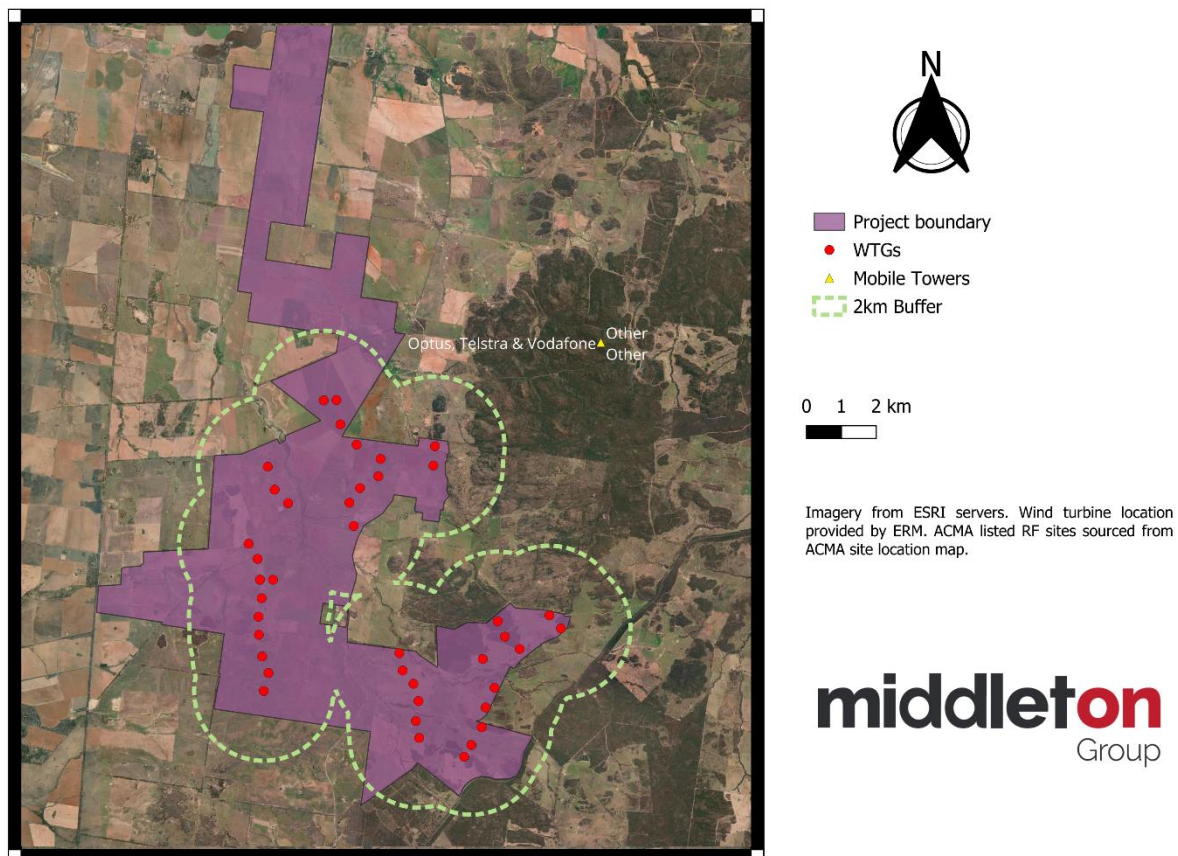


Figure 8: Proximity of Project to mobile phone base stations

5.4.2 Mobile Coverage – General

The mobile network coverage maps of Optus, Vodafone & Telstra within the region are shown in Figure 9, Figure 10, and Figure 11 respectively. There are some mobile network services provided by Telstra and Optus in the vicinity of the Project.

In the immediate vicinity of the WTGs, some reduction in signal may occur. However, this can be mitigated by relocating the mobile phone receiver in the order of tens of metres. Beyond the Project Area, there will not be any significant impact on the signal.

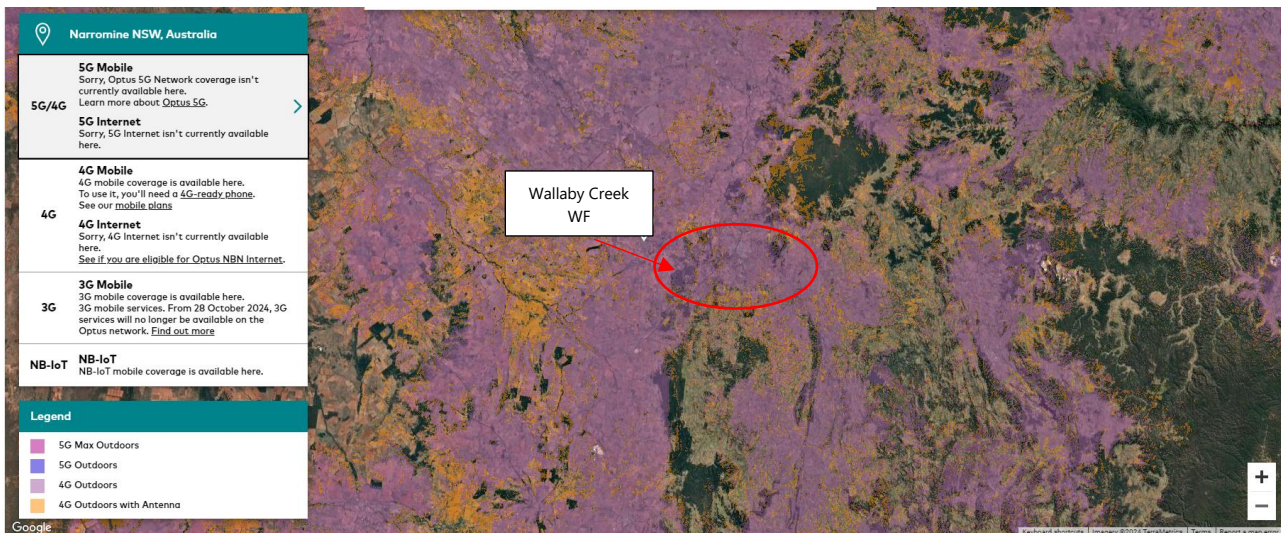


Figure 9: Optus Network Coverage Map

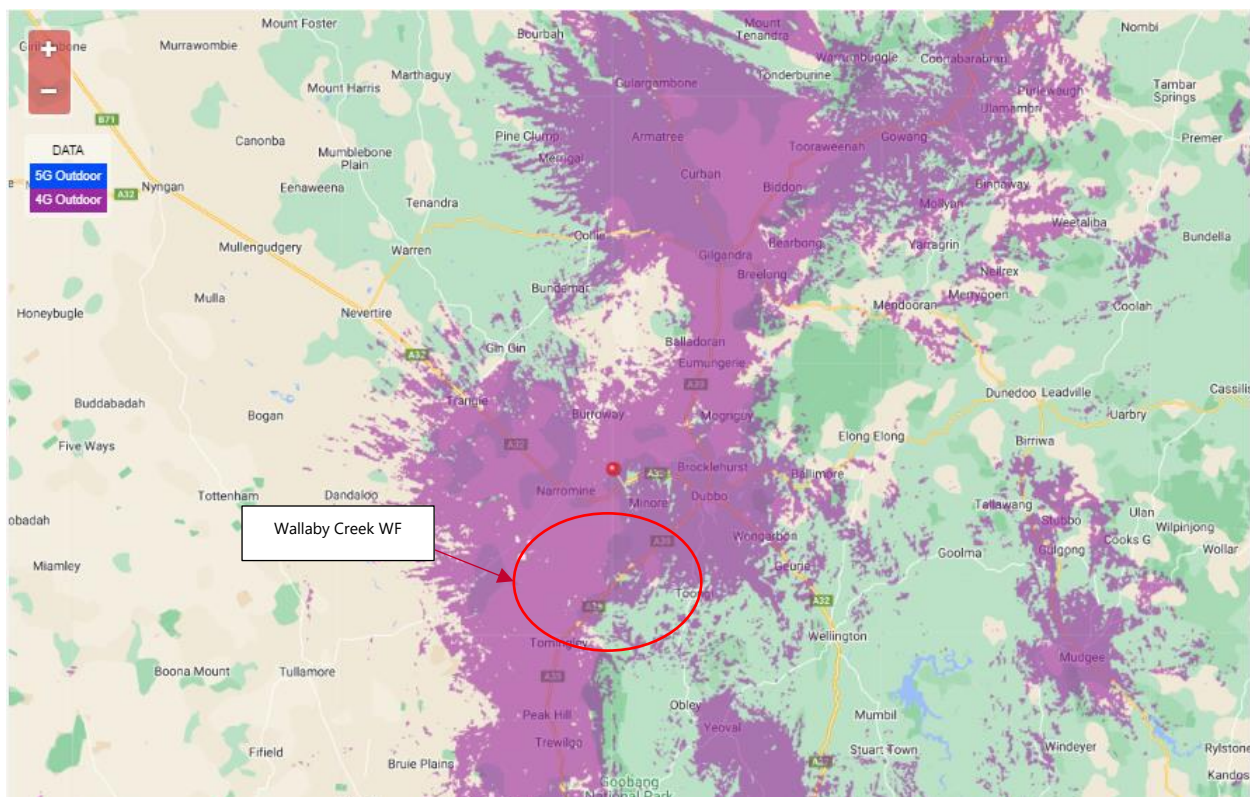


Figure 10: Vodafone Network Coverage Map

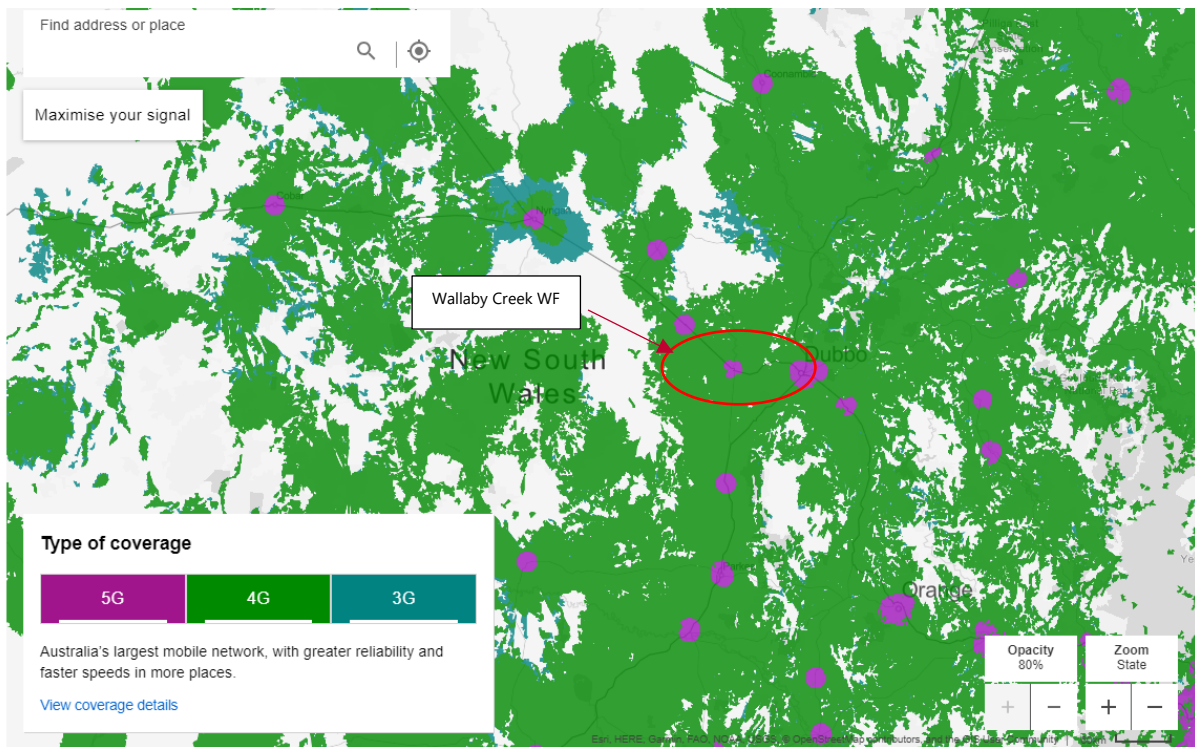


Figure 11: Telstra Network Coverage Map

5.5 Wireless and Satellite Services

Satellite services will only be impacted if receivers are sited very close to turbines, obstructing their line of sight to the sky. A conservative distance of 2 km is used as a screening criterion. These satellites typically provide pay-tv, wireless internet, and satellite phone coverage, as well as TV coverage where there is no terrestrial service available.

As shown in Figure 12, there are twelve dwellings within 2 km of the WTG. The closest dwelling (171) is approximately 0.6 km of the WTG68. The project may cause degradation to signal quality from satellite services to these associated dwellings.

MGE recommends the Proponent to site WTGs at least 2 km away from any dwelling. We also recommend that the Proponent comes to an agreement with owners of residences within 2 km of the wind farm regarding mitigation of any disruptions to their wireless and satellite services that arise.

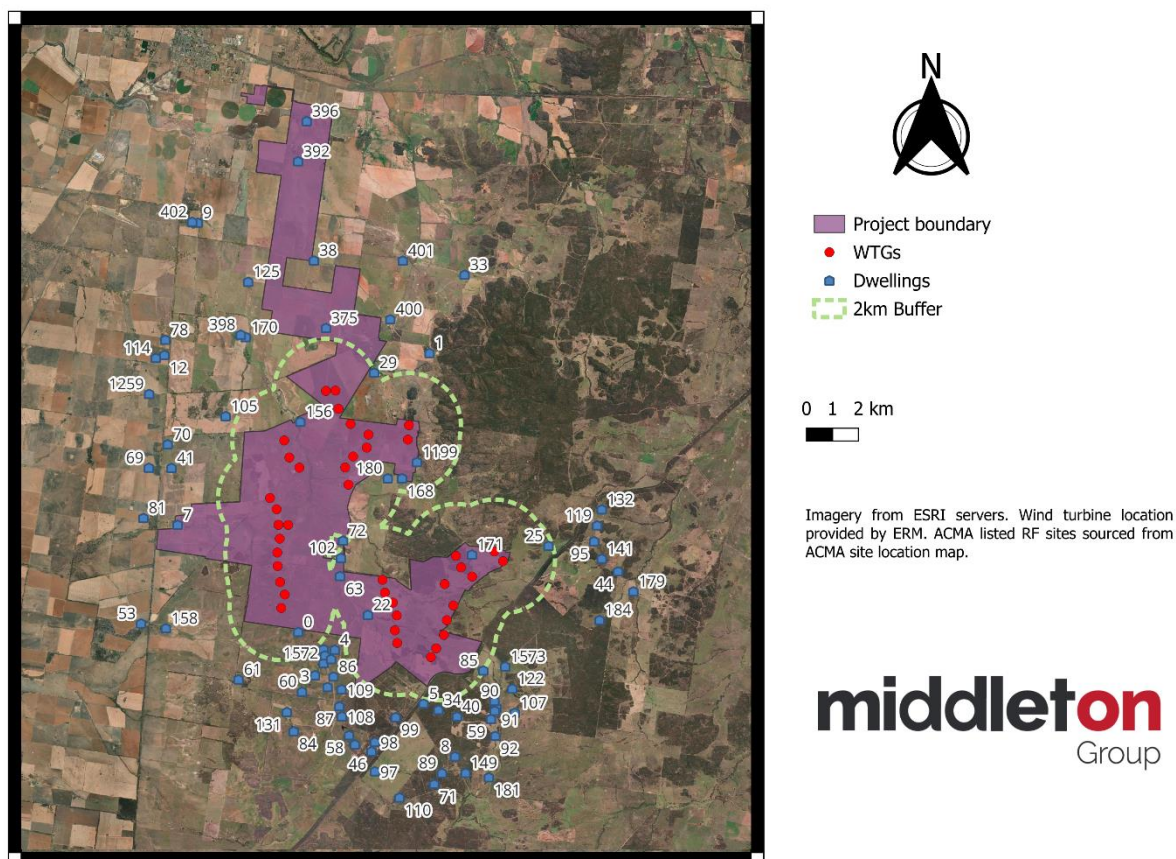


Figure 12: Dwellings located nearby the project

Table 8: Dwellings Summary

Dwelling ID	WTG ID	Distance (km)
171	68	0.61
1199	9	0.94
156	92	0.95

Dwelling ID	WTG ID	Distance (km)
22	81	1.08
180	27	1.43
168	9	1.50
63	79	1.63
29	20_P	1.64
102	79	1.81
25	67	1.84
72	37_P	2.19

5.6 Trigonometrical Stations and GPS

5.6.1 Survey Marks

Trigonometrical stations and survey marks are observation marks used for surveying or distance measuring purposes. GPS antennas and Electronic Distance Measuring (EDM) devices may be installed at some Trigonometrical stations.

The performance of the EDM devices depends on the type of wavelength bands used. The current EDM devices operate by using three different electromagnetic wavelengths: microwave, infrared, and the visible light spectrum. Microwave systems have a measurement range of up to 150 km and are not limited to line of sight or visibility. The infrared systems and light wave systems can measure a range of three to five km, but accuracy may be limited by the line of sight or visibility [7]. If a line-of-sight blockage occurs, moving laterally one to 2 metres will typically alleviate the line-of-sight blockage. In addition, the presence of WTGs will typically assist with sight navigation, providing fixed reference points.

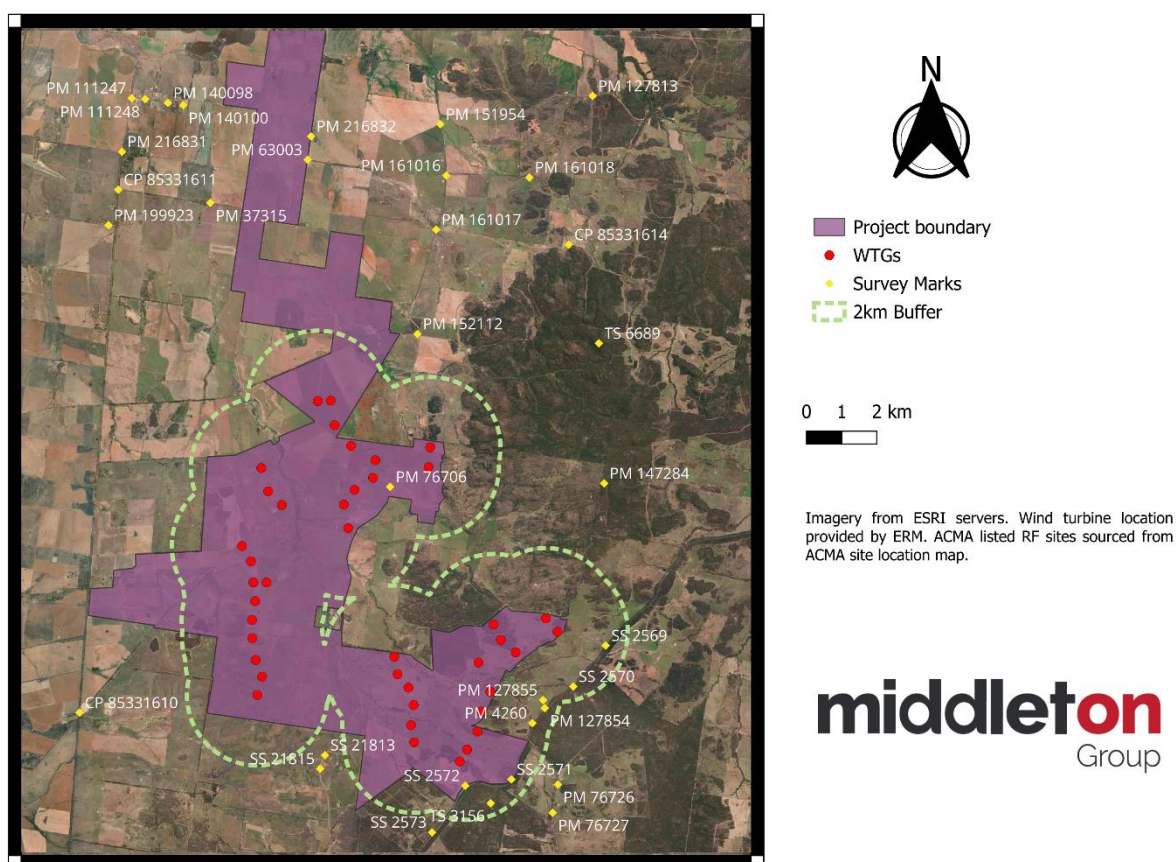


Figure 13: Survey Marks within project area

A review of the location of all survey marks has been completed, and the findings are summarised as follows:

- There is no proposed WTG location that shares the same location as a survey mark.
- There are 9 survey marks within 2 km buffer of proposed wind turbine location.
- The closest distance between a survey mark and the wind turbine (24) is approximately 0.55 km, as shown in Figure 13. Site works will need to be designed to avoid the survey mark, or, alternatively, seek assistance from a registered surveyor to move or remove the survey marks.

The summary of survey marks is listed in Table 9

Table 9: Proximity of Nearby Survey Marks and the Project Site

Survey Mark ID	WTD ID	Distance (km)
PM76706	24	0.55
SS2572	75_P	0.72
SS2569	67	1.44
TS3156	75_P	1.47
PM4260	72	1.49
PM127855	72	1.52
SS2571	75_P	1.58
SS2570	67	1.61
PM127854	72	1.62

Wind farm construction may physically impact these survey marks. If this is likely to occur, the project Proponent should consult with the New South Wales Government via the following website: <https://www.spatial.nsw.gov.au/surveying/scims> online. As previously stated, assistance from a registered surveyor may be required.

5.6.2 GNSS Stations

Global Navigation Satellite System (GNSS) networks are operated and maintained across the Australian region and the South Pacific. This includes the Australian Regional GNSS Network (ARGN), the South Pacific Regional GNSS Network (SPRGN) and the AuScope Network. GNSS networks provide the geodetic framework for the spatial data infrastructure in Australia and its territories. Data from the GNSS Network also contributes to the International GNSS Service (IGS).

Based on the GNSS network map provided by Geoscience Australia [8], the electromagnetic interference impact of the Project to the GNSS stations has been analysed. Figure 14, demonstrates that there is one GNSS station within 20 km of the proposed WTGs. The closest GNSS station, NRMN is 15 km away from the nearest wind turbine. The next closest GNSS station, DBBO is 29 km away from the nearest wind turbine, respectively.

As all GNSS stations are outside the 2 km buffer, it is highly unlikely that the Project will impact on the GNSS networks.

Consultation with Geoscience Australia will be undertaken to ensure no impact is expected on their services.



Figure 14: GNSS Stations locations relative to WTG layout

5.7 Broadcast, Digital Radio and Television

Amplitude Modulation (AM) signals are medium-wave radio signals. Operating WTGs can influence the radiating patterns, with the potential to result in reduced signal quality and strength, as well as causing interference at neighbouring frequencies. A 2 km radius consultation zone exists around AM transmitters. The field of influence from the receiver's perspective is in the order of tens of metres.

Frequency modulated (FM) signals tend to be more robust around obstructions such as buildings and wind farms. At the edge of their transmission range, where the signal to noise ratio is already quite low, wind turbines can have an adverse influence on the signal. A one km radius consultation zone exists around FM radio transmitters.

Digital signals tend to be more robust than analogue signals. A 2 km radius is generally desirable around transmitters – for both digital radio and Digital Television (DTV). Digital signals are more robust against ghosting, though wind turbine rotor pass can cause signal frequency variation.

As can be seen in Figure 15, no broadcast, radio, and television services transmitters are located within 5 km of a turbine.

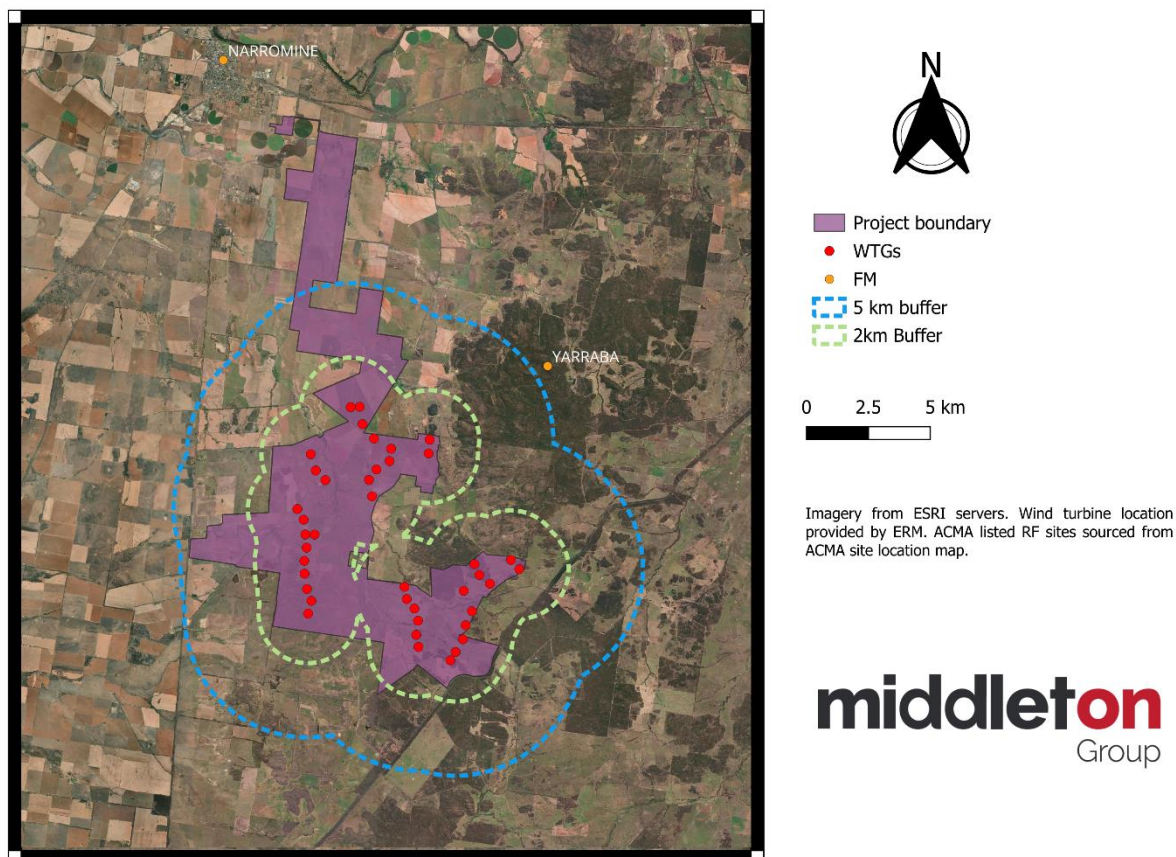


Figure 15: Location of broadcast transmitters relative to WTG layout

5.8 Private Antenna

A privately owned radio tower, located on Tantitha Rd, has been assessed regarding the impact of Wallaby Creek Wind Farm. This is a private tower that is used for Amateur Radio Service including during times of emergency (fires/storms) and as a means of communication when telephone reception is not available.

The GPS coordinates of the tower is -32.478782, 148.305235.

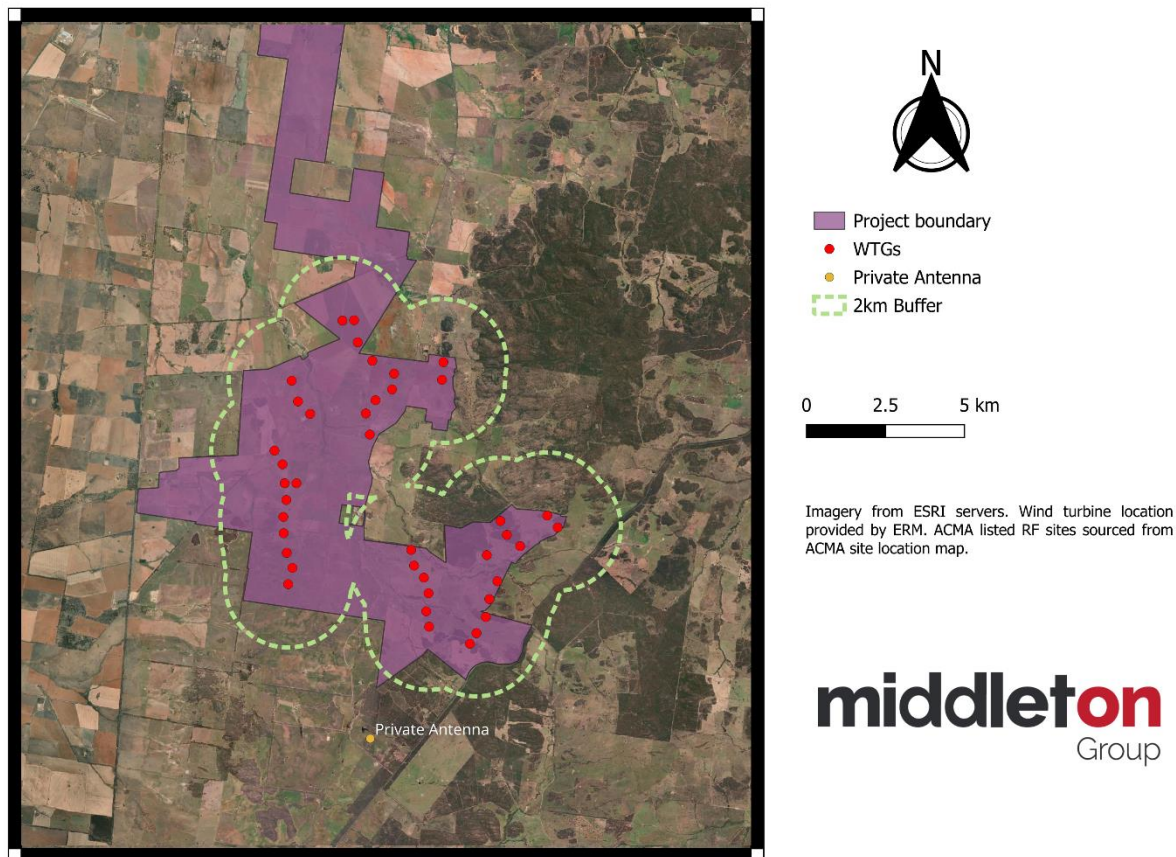


Figure 16: Private Antenna and Project Boundary

Figure 16 shows the private antenna location with reference to the Project. For the assessment of radio sites, MGE uses an industry-accepted screening criteria of a 2 km distance from any WTG, beyond which the risk of interference is considered sufficiently low as to not justify further analysis.

The rotor extent of the closest WTG to the site, WTG 84, is 3.9 km from the private antenna. As the private antenna tower falls outside this distance further assessment and consultation is not warranted.

6 Stakeholder Engagement

Consultation and engagement with stakeholders were initiated by MGE. A list of key stakeholders is presented in Table 10. Responses from these stakeholders have been provided in Appendix B.

Telstra have not provided a response.

A summary of the stakeholder engagement is listed in Table 10:

Table 10: List of stakeholder engagement

Stakeholder	Impact	Responses
Bureau of Meteorology	Meteorological radar operations	Impact To consult with developer
Geoscience Australia	Survey Marks, GNSS Towers and Trigonometrical infrastructure	No Impact
Telstra	Mobile service operation	No Response
Optus	ACMA link & Mobile service operation	No Impact
Vodafone	ACMA Link & Mobile service operation	No Impact
NSW Police Force	ACMA Link	No Impact
New South Wales Government Telecommunications Authority	ACMA Link	Impact To consult with developer
Essential Energy	ACMA Link	No Impact

7 Recommendations

Recommendations and further actions are as follows:

1. The proponent needs to engage BOM for a comprehensive technical assessment of the potential impacts and possible mitigation measures for the proposed project with regard to weather radar systems.
2. Consult further with the NSW Telecommunications Authority during construction, particularly regarding turbines WTG_68 and WTG_71.
3. We recommend that the Proponent comes to an agreement with owners of the twelve residences within 2 km of wind turbines regarding mitigation of any disruptions to their wireless and satellite services that arise.

To safeguard against potential impacts, consultation with key stakeholders should occur, and this study should be revised, if any design changes occur that have the potential to generate electromagnetic interference issues or telecommunications impacts.

8 Conclusion

The potential electromagnetic interference impact of the Project has been assessed in this report.

Based on analysis, the Project will have no material impact on:

- Point-to-point microwave links
- Meteorological radar
- Mobile voice-based communications
- Broadcast and digital radio
- Broadcast, digital and satellite television
- Trigonometry stations; and
- Global Positioning System (GPS).

Impacts on a small number of subscribers to the following services cannot be ruled out because their dwellings are within 2km of wind turbines. This cannot be analysed any further in a desktop study. If impacts occur the Proponent will need to come to an agreement with owners of affected residences:

- Wireless and satellite internet services.

Appendix A References

- [1] NSW Government : Planning and Environment, "Wind Energy Guideline," December 2016. [Online]. Available: https://www.energy.nsw.gov.au/sites/default/files/2022-08/2016_12_NSW_WindEnergyGuideline_StateSignificantWindEnergyDevelopment.pdf.
- [2] EPHC, "Draft National Wind Farm Development Guidelines," 2010 July 2. [Online]. Available: <https://www.nepc.gov.au/sites/default/files/2022-09/draft-national-wind-farm-development-guidelines-july-2010.pdf>.
- [3] Clean Energy Council, "Best Practice Guidelines," June 2018. [Online]. Available: <https://assets.cleanenergycouncil.org.au/documents/advocacy-initiatives/community-engagement/wind-best-practice-implementation-guidelines.pdf>.
- [4] D. Bacon, "Fixed-link wind-turbine exclusion zone method," Radiocommunications Agency UK, 2002.
- [5] G. Durgin, "The Practical Behavior of Various Edge-Diffraction Formulas," *IEEE Antennas and Propagation Magazine*, vol. 51, no. 3, pp. 24-35, 2009.
- [6] Commission for Instruments and Methods of Observation, "WMO Guidance Paper on Weather Radar/Wind Turbine Siting," World Meteorological Organisation, Helsinki, 2010.
- [7] Satheesh Gopi, R. Sathikumar, N. Madhu, "8.3 EDM Instrument Characteristics," in *Advanced Surveying: Total Station, Gis and Remote Sensing*, Pearson, 2006.
- [8] G. Australia, "GNSS Network Map," Geoscience Australia, [Online]. Available: <https://gnss.ga.gov.au/network>. [Accessed 25 05 2021].
- [10] O. Il, "Impact of Wind Turbines on Weather Radars," 2006.

Appendix B Stakeholder Correspondence

B.1 Bureau of Meteorology

In reply please quote: CAS-112898-T9V1P8

Date: 8/08/2025

Dear Harika,

Thank you for your continued patience.

Our assessment of the current Wallaby Creek wind farm proposal has determined that, under normal atmospheric conditions, it poses a significant risk to the Yeoval weather radar.

To proceed without objection, the Bureau requires a comprehensive technical assessment of potential impacts and possible mitigation measures for your development.

This service is charged at \$45,000.00 (excl. GST) per assessment and will cover the following components:

- Electromagnetic interference (EMI) and propagation modelling of the proposed development
- Evaluation of potential impacts on Bureau services
- Identification of mitigation options to restore services and maintain quality, proposed as development requirements rather than detailed designs.

The delivered summary findings will stand whilst the relevant technical details of the project remain the same (footprint, number of turbines, hub and tip height etc.). We aim to complete the assessment within 8 weeks from commissioning.

You may have this work undertaken by another consultant, but The Bureau will need to review it prior to any endorsement from us. We won't be providing advice regarding wind farm developments without a very clear understanding of the potential for impacts on our services.

Please let us know if you have any questions or to arrange an assessment.

Kind regards,

Stephanie Osborne (she/her)

Customer Specialist - Energy & Resources

Working days: Tuesday, Wednesday, Thursday, Friday (half-day)

energy@bom.gov.au | www.bom.gov.au



Hi Stephanie,

Please find the completed BOM form attached. I'm also reattaching all the necessary files for your reference.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | [middleton Group](#)

M: | **E:** harika.tatipakala@middletongroup.com.au



From: Stephanie Osborne <stephanie.osborne@bom.gov.au>

Sent: Tuesday, 15 July 2025 11:18 AM

To: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>

Cc: Wind Farm Enquiries <windfarmenquiries@bom.gov.au>

Subject: Wallaby Creek Wind Farm - BoM Radars regarding CAS-112898-T9V1P8 [SEC=OFFICIAL]
CRM:0399000284

In reply please quote: CAS-112898-T9V1P8

Date: 15/07/2025

Dear Harika,

Thank you for submitting the Wallaby Creek wind farm proposal for the Bureau of Meteorology's review.

The Bureau requires detailed information about the project to assess the possible impacts of the wind farm project on its radiocommunication assets, including weather radars.

Thank you for providing the CSV and KML files. Could you please also complete and return the attached technical details form to ensure we have all the necessary information?

We will then proceed with a preliminary assessment of the proposal and share the results back with you.

Kind regards,

Stephanie Osborne (she/her)

Customer Specialist - Energy & Resources

Working days: Tuesday, Wednesday, Thursday, Friday (half-day)

energy@bom.gov.au | www.bom.gov.au

----- Original Message -----

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>;
Received: Wed Jul 09 2025 11:06:49 GMT+1000 (Australian Eastern Standard Time)
To: Wind Farm Enquiries <windfarmenquiries@bom.gov.au>;
Subject: RE: Wallaby Creek Wind Farm - BoM Radars

'To whom it may concern',

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

As a result of our assessment, there are TWO sites have been identified that fall within 250 kilometres of the Wallaby Creek Wind Farm as per below:

Weather Radar Name	Coordinate	Radar type	Distance to Wallaby Creek Wind Farm Project Area
Yeoval	32.74° S, 148.70° E	Meteor 735CDP	46.53 km
Namoi Mountain)	(Blackjack 31.0240°S, 150.1915°E	DWSR 8520S 2° S- band	232.40 km

We request that you review the layout of the turbines and confirm that there will be no impact on your operations.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your services, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | [**middleton** Group](#)

M: | **E:** harika.tatipakala@middletongroup.com.au

The logo for Middleton Group, featuring the word "middleton" in a bold, black, sans-serif font, with the "on" part in red. Below it, the word "Group" is written in a smaller, grey, sans-serif font. A vertical line is positioned to the right of the text.

B.2 GeoScience Australia

Sent on: Wednesday, July 9, 2025 3:49:59 AM

To: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>

CC: Client Services <ClientServices@ga.gov.au>

Subject: RE: AMENDED CLIENT ENQUIRY: Wallaby Creek Windfarm - Survey marks, GNSS Towers and Trigonometrical infrastructure [SEC=OFFICIAL]

Hi Harika,

Thank you for providing this information. Geoscience Australia do not foresee any impacts to our GNSS infrastructure as a result of the proposed Wallaby Creek Windfarm.

Kind regards,

Positioning Operations and Support Centre

GNSS Infrastructure and Informatics Section | Positioning Australia Branch

Space Division

t +61 2 6249 9004 ga.gov.au

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>

Sent: Wednesday, 9 July 2025 11:07 AM

To: Client Services <ClientServices@ga.gov.au>

Subject: RE: Wallaby Creek Windfarm - Survey marks, GNSS Towers and Trigonometrical infrastructure

“To whom it may concern,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the **WALLABY CREEK** Wind Farm in **New South Wales**, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by **Environmental Resources Management Pty Limited (ERM)** and the applicant for the wind farm is **ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia)**.

The wind farm project is located approximately **10 kilometres south** of **Narromine in the Orana Region of NSW** and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

Our assessment shows that no wind turbine is directly located on any nearby survey mark and the nearest GNSS station is 15 km away from the closest WTG.

Document name: Wallaby Creek Wind Farm
Document no: 24115-H-RPT-000H
Revision no: H

Uncontrolled when printed

We request that you review the layout of the turbines and confirm that there will be no impact on your operations.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to **183 metres**, with a tip height of up to **271.5 metres**.

If you have any concerns relating to the development and any potential impacts on your services, please get in contact by return email or by calling us on the phone number listed below prior to **30/07/2025**.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | **middleton** Group

M: | **E:** harika.tatipakala@middletongroup.com.au



B.3 Telstra Correspondence

Thank you for submitting your proposed wind farm to Telstra for assessment.

Please treat this email as confirmation of receipt of your wind farm submission.

Please Note: Depending on the size and complexity of your wind farm it may take up to 8 weeks for Telstra to provide a response.

Regards,

The Telstra Windfarm Assessment Team.

From: Harika Tatipakala

Sent: Wednesday, 9 July 2025 10:31 AM

To: 'windfarmassessmentrequests@team.telstra.com' <windfarmassessmentrequests@team.telstra.com>

Subject: Wallaby Creek Wind Farm – Mobile service Operation Correspondence

“To whom it may concern,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

We note that all installations on the wind farm will comply with the *Radiocommunications Act 1992* and associated notices.

If Telstra have any concerns relating to the development and any potential impacts on your services, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | [middleton Group](#)

M: | **E:** harika.tatipakala@middletongroup.com.au

Document name: Wallaby Creek Wind Farm

Document no: 24115-H-RPT-000H

Revision no: H

Uncontrolled when printed

B.4 Optus Correspondence

Hi Harika,

Thank you for providing this information. Geoscience Australia do not foresee any impacts to our GNSS infrastructure as a result of the proposed Wallaby Creek Windfarm.

Kind regards,

Positioning Operations and Support Centre

GNSS Infrastructure and Informatics Section | Positioning Australia Branch

Space Division

t +61 2 6249 9004 ga.gov.au

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>

Sent: Wednesday, 9 July 2025 11:07 AM

To: Client Services <ClientServices@ga.gov.au>

Subject: RE: Wallaby Creek Windfarm - Survey marks, GNSS Towers and Trigonometrical infrastructure

"To whom it may concern,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

Our assessment shows that no wind turbine is directly located on any nearby survey mark and the nearest GNSS station is 15 km away from the closest WTG.

We request that you review the layout of the turbines and confirm that there will be no impact on your operations.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your services, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | [middleton Group](#)

M: | **E:** harika.tatipakala@middletongroup.com.au

B.5 Vodafone Correspondence

Hi Harika,

TPG-T/Vodafone has assessed this advice in two parts:

- A. Near Field Impact to existing and near future Public Mobile Telephone Coverage, and
- B. Impact to existing or near future microwave point to point links (which may impact connection services to our Public Mobile Telephone Coverage sites).

Regarding Point A:

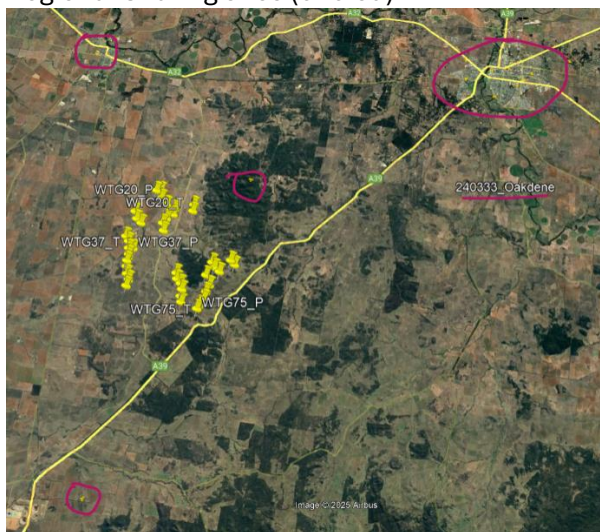
The nearest TPG/Vodafone existing, or near future Public Mobile Telephone Coverage site, is over 23km from the proposed locations of the wind farm turbines. As such, there is no prohibitive or significant near field impact to our Public Mobile Telephone coverage.

It is noted that Optus have sites located near the proposed windfarm boundary/turbines that are used by Vodafone customers as part of our Regional Sharing Agreement with Optus. It is expected that Optus will be consulted as part of the EMI assessment to determine whether their Mobile infrastructure assets are impacted.

Regarding Point B:

Purna, from our Transmission team has responded below and advised there is no impact to our existing transmission network.

The image below depicts the locations referencing TPG sites (Oakdene underlined) and various Optus Regional Sharing sites (circled).



Jamie Ferguson

National Wireless Design Manager

Mobile:

Email: jamie.ferguson@tpgtelecom.com.au

TPG Telecom (ASX: TPG)



From: PurnaChand Davuluri <purna.davuluri@tpgtelecom.com.au>
Sent: Monday, 21 July 2025 7:20 PM
To: Jamie Ferguson <jamie.ferguson@tpgtelecom.com.au>
Subject: Fw: Wallaby Creek Wind Farm – ACMA Link Correspondence

Hi Jamie,

No impact to Tx Network.

Thanks

Br//



Purnachand Davuluri (Purna)

Senior Architect – TX Solution &
Technical Planning

Mobile:

email:

Purna.davuluri@tpgtelecom.com.au



From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>
Sent: Thursday, July 10, 2025 10:34 AM
To: Vha, Smc (Nokia - Global) <smc.tpg@nokia.com>
Subject: Wallaby Creek Wind Farm – ACMA Link Correspondence

‘To whom it may concern’,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

We note that your company has one licensed communication link which passes through the proposed project boundary, license numbers 1954730/2.

Although this link does not intersect with any turbines, they do traverse the proposed project site. Our analysis indicates that, when viewed from above, the edge of the closest WTG (Turbine 71) will be within 133 m. The WTGs should not reduce the performance of the wireless link, as per typical industry standards.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your mobile services or on your communication links, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Thanks & Regards

Harika Tatipakala

Electrical Engineering Intern

M: | E: harika.tatipakala@middletongroup.com.au

[L13, 500 Collins Street Melbourne, VIC 3000](#) | W: www.middletongroup.com.au

B.6 NSW Police Force Correspondence

Hi Harika,

Thanks for the additional information.

As indicated in first reply, NSWPF already identified that wind turbine no. 68 is the closest one to the link path in concern. Using the Fresnel Zone calculator would give the corresponding clearance level of 160.52m (from the edge of the blade sweep). The distance from turbine no. 68 to the link path is about 275.65m measured on Google Earth.

With reference to the Fresnel Zone calculation for microwave link as quoted in your methodology document, NSWPF have calculated the clearance level and verified that those 11 turbines (68, 69, 71, 72, 73, 74, 75_T, 75_P, 84, 83, 82) have sufficient clearance level from the Fresnel Zone 2 radius.

Henceforth NSWPF have no further objection & comment in relation to the proposed Wallaby Creek Wind Farm.

PS - Further review will be conducted if there is additional change of turbine location(s) in the wind farm.

Kind Regards,

Britto Tam

Engineer | Engineering Services

Wireless Network Group | Technology & Communication Services Command

New South Wales Police Force

Level 4, 151-241 Goulburn Street, Surry Hills NSW 2010

Phone: 02 9265 4702 | Eaglenet: 54702 | Fax: 02 9285 3710

Email: tam1bri@police.nsw.gov.au

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>
Sent: Wednesday, July 9, 2025 12:18 PM
To: Britto Tam <tam1bri@police.nsw.gov.au>
Subject: Wallaby Creek Wind Farm – ACMA Link Correspondence

Hi Tam,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

We note that your company has one licensed communication link which passes through the proposed project boundary, license numbers 10419746/1.

Although this link does not intersect with any turbines, it does traverse the proposed project site. Our analysis indicates that, when viewed from above, the edge of the closest WTG (Turbine 71) will be within 254 m. The WTGs should not reduce the performance of the wireless link, as per typical industry standards.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your communication links, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Thanks & Regards

Harika Tatipakala

Electrical Engineering Intern

M: | **E:** harika.tatipakala@middletongroup.com.au

[L13, 500 Collins Street Melbourne, VIC 3000](https://www.middletongroup.com.au) | **W:** www.middletongroup.com.au

B.7 New South Wales Government Telecommunications Authority Correspondence

Hi Harika,

At this stage, based on the turbine locations provided, we'd like to raise a concern regarding the turbines 68 and 71. Both turbines may cause an adverse impact into our operational 2x Microwave Links between Sappa Bulga and Peak Hill, ACMA Licence: 1806335/2 and 1806336/2.

We do have plans to decommission both licenced links by Mid 2027. Whilst we have other construction dependencies to progress with the link decommission, we will try our best to expedite our project and therefore the the concern we have raised may not eventuate. Can the developer/constructor keep in touch with us as the project progresses? We are keen to know the construction schedule and progress particular for turbines 68 and 71. We would also like to have a contact whom we can advise once our links have been decommissioned.

Regards,

Shaunak Patel
Spectrum Engineer, Wireless

NSW Telco Authority | Department of Customer Service

p 02 8276 8757

e Shaunak.Patel@customerservice.nsw.gov.au | www.telco.nsw.gov.au

Level 10, McKell Building, 2-24 Rawson Place, Haymarket NSW 2000



**Telco
Authority**

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>
Sent: Thursday, 10 July 2025 10:33 AM
To: Telco Spectrum <telco.spectrum@customerservice.nsw.gov.au>
Subject: Wallaby Creek Wind Farm – ACMA Link Correspondence

'To whom it may concern',

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia) .

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

We note that your company has one licensed communication link which passes through the proposed project boundary, license numbers 1806335/2 & 1806336/2.

Although this link does not intersect with any turbines, they do traverse the proposed project site. Our analysis indicates that, when viewed from above, the edge of the closest WTG (Turbine 71) will be within 133 m. The WTGs should not reduce the performance of the wireless link, as per typical industry standards.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your mobile services or on your communication links, please get in contact by return email or by calling us on the phone number listed below prior to 30/07/2025.

Thanks & Regards

Harika Tatipakala

Electrical Engineering Intern

M: | **E:** harika.tatipakala@middletongroup.com.au

[L13, 500 Collins Street Melbourne, VIC 3000](https://www.middletongroup.com.au) | **W:** www.middletongroup.com.au

B.8 Essential Energy

Hi Harika

Many thanks for this information. I would agree with you that there will be minimum interruption caused by the identified wind turbine.

Good luck with the project.

Craig Salisbury

Telecommunications OT Manager



M:

E: craig.salisbury@essentialenergy.com.au

PO Box 5730, Port Macquarie NSW 2444

essentialenergy.com.au

General Enquiries: 13 23 91

Outages & Faults (24hrs): 13 20 80

From: Harika Tatipakala <Harika.tatipakala@middletongroup.com.au>

Sent: Wednesday, 9 July 2025 11:17 AM

To: Craig Salisbury <craig.salisbury@essentialenergy.com.au>

Subject: RE: Wallaby Creek Wind Farm – ACMA Link Correspondence

Hi Craig,

Middleton Group Engineering (MGE) are conducting early-stage consultation for the WALLABY CREEK Wind Farm in New South Wales, focusing on Electromagnetic Interference. An environmental impact statement is being prepared by Environmental Resources Management Pty Limited (ERM) and the applicant for the wind farm is ACCIONA ENERGY Australia Global Pty Ltd (ACCIONA Energia).

The wind farm project is located approximately 10 kilometres south of Narromine in the Orana Region of NSW and spans approximately 8,596 hectares. The proposed project would comprise a 236-megawatt wind farm with up to 41 wind turbine generators (WTGs) and a 200 MW / 400 MWh battery.

We note that your organisation has one licensed communication link which passes through the proposed project boundary, with the associated license number being 1425623/1.

Although this link does not intersect with any turbines, it does traverse the proposed project site. Our analysis indicates that, when viewed from above, the edge of the closest WTG (Turbine 20_T) will be within 531 m. The WTGs should not reduce the performance of the wireless link, as per typical industry standards.

We append the wind turbine co-ordinates for turbines in .csv and .kml format. Note that the rotor diameter of the turbines will be up to 183 metres, with a tip height of up to 271.5 metres.

If you have any concerns relating to the development and any potential impacts on your communication links, please contact us by return email or by calling us on the phone number listed below prior to 30/07/2025.

Kind regards,

Harika Tatipakala | Electrical Engineering Intern | [middleton Group](#)

M: | **E:** harika.tatipakala@middletongroup.com.au



middleton

Group

Melbourne

L13, 500 Collins Street
Melbourne VIC 3000

Sydney

Tower 2 Darling Park L20
201 Sussex Street, Sydney NSW 2000

www.middletongroup.com.au