



Tchelery Wind Farm Project

Stage 1 Scoping Report

Preliminary Landscape and Visual Impact Assessment



June 2023

Contents

1. Introduction	1
2. Methodology	1
3. Site context and setting	2
4. Community engagement	4
5. Preliminary assessment tool – Visual magnitude	4
6. Preliminary assessment tool – Multiple wind turbines	7
7. Preliminary cumulative assessment	14
8. Next Steps	14
Attachment A – Site location plan	15
Attachment B – Zone of visual influence	16
Attachment C – Wind resource	17
Attachment D – Cumulative projects	18

1. Introduction

1.1.Introduction

NEOEN (the Proponent) propose to construct and operate the Tchelery Wind Farm (the Project), a renewable energy development near Keri Keri in the Riverina Murray region of NSW. Fully constructed, the project would comprise up to 120 wind turbines (subject to design refinement) providing a total capacity of approximately 800 megawatts (MW).

The Project would be located within the Edward River Council Local Government Area (LGA), about halfway between the townships of Balranald and Hay, south of the Sturt Highway, around the locality of Tchelery.

The Project would be located within the proposed South-West Renewable Energy Zone (REZ), in New South Wales. It would include a substation that may connect to the existing 220kV electricity transmission line or the Project EnergyConnect electricity transmission line.

This Preliminary Landscape and Visual Assessment (LVIA) report provides information on the Project and its potential impacts on landscape character and visual amenity. It forms part of the Project Scoping Report and is intended to support a request for Secretary's Environmental Assessment Requirements (SEARs).

The report will further support the preparation of an Environmental Impact Statement (EIS) which will be lodged to the Department of Planning and Environment (DPE) for assessment and to seek approval from the Minister for Planning.

1.2.Project overview

The Project would include:

- Up to 120 WTGs to maximum tip height of 285 metres
- Permanent ancillary infrastructure, including operation and maintenance facility, internal roads, hardstands, underground and overhead cabling, wind monitoring masts.

Temporary construction facilities including site/construction compounds (site offices, car parking, amenities for construction personnel), laydown areas, stockpiles, temporary storage areas, gravel borrow pit(s) and mobile concrete batch plant, temporary roads and temporary monitoring masts.

There would be provision for a future Battery Energy Storage System (BESS), however, this is not a part of this application.

2. Methodology

The *NSW Wind Energy: Visual Assessment Bulletin* (NSW DPE, 2016) breaks the visual assessment process in to two stages, which are:

- Stage 1 Preliminary Environmental Assessment (PEA), and
- Stage 2 Assessment and Determination.

This **Preliminary Landscape and Visual Impact Assessment (LVIA)** has been prepared to address the requirements of the Stage 1 PEA, which has been submitted together with the Scoping Report.

Stage 1 comprises three steps which include:

- Undertake **community consultation** on likely areas of development and establish key landscape features, areas of scenic quality and key viewpoints valued by the community
- Apply the **Preliminary Assessment Tools** to the preliminary turbine layout (including the Magnitude Tool assessment and the Multiple Wind Turbine Tool), and
- Prepare a **Preliminary Environmental Assessment**.

Where these requirements have been addressed in this Preliminary **LVIA**, is shown in the following table.

TABLE 1-1: NSW WIND ENERGY: VISUAL ASSESSMENT BULLETIN STAGE 1 REQUIREMENTS

Stage 1 requirement	Where addressed in this report
Preliminary assessment of the likely visual impacts including:	
<ul style="list-style-type: none">• “production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints and an overlay of the wind resource”	Refer to section 3
<ul style="list-style-type: none">• “undertaking community consultation to establish key landscape features	Refer to section 4

valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area"	
<ul style="list-style-type: none"> "results of the application of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters." 	Refer to sections 5 and 6

[Source: Visual Bulletin, Stage 1: Preliminary Environmental Assessment, Page 7].

3. Site context and setting

3.1.Planning context

Although the Project would be located within the Edward River Council LGA, all land uses within the former Conargo and Wakool Shire Council LGAs, including the Project site, are still regulated by the *Conargo Local Environmental Plan 2013* and *Wakool Local Environmental Plan 2013*.

The Project area is zoned RU1 – Primary Production. An objective of this zone under both LEPs is to... *"allow for the development of non-agricultural land uses that are compatible with the character of the zone"* (Part 2, Land Use Table, Zone RU1).

While electricity generating works are not identified as a permissible land use under the LEPs, they are permissible with development consent under Section 2.36(1) of the State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021, which prevail to the extent of any inconsistency with any Local Environment Plan (Section 2.7 of the SEPP (Transport and Infrastructure) 2021). The Project is, as such, permissible in areas zoned rural with development consent from the NSW State Government.

3.2. Study area

In accordance with the Visual Bulletin, the study area for the Preliminary LVIA has been defined as an eight kilometre offset from the WTGs for the application of the Preliminary Assessment tools. A summary of these assessments is provided in the sections below. A description of the site is provided in the following section.

3.3.Site description

The study area generally consists of open, flat rural plains associated with the Murrumbidgee River and its tributaries.

The Project site surrounds the junction at Maude Road and Booroorban-Tchelery Road. It is a flat site with little to no tree cover, predominantly used for agricultural purposes including livestock grazing pastures (refer to **Figure 3-1**). There is a small area of arable farmland at the northern part of the site, east of Maude Road. As a generally flat and treeless rural landscape, the visibility extends to the horizon.

There is existing power infrastructure within this area including the Balranald to Darlington Point 220kV transmission lines, which traverse through the Project site. The surrounding landscape has a rural character, containing various large agricultural structures including cotton gins, machinery sheds and grain receival points including silos. There are several roads which support local and regional transport, including Maude and Booroorban-Tchelery Road, both sealed roads used mainly by local residents and visitors to this part of the Riverina region.

It is a sparsely settled, rural landscape. The closest town is Moulamein, which has a population of about 300 people, and is over 20 kilometres away from the nearest WTG. There is one associated dwelling and a woolshed and five non associated dwellings located within eight kilometres of the WTGs (refer to Attachment A – Site location plan). Two of these non-associated dwellings are currently unoccupied.

Due to the flat landform, little tree cover and few buildings within the site and surrounding area, the visual catchment of the Project is broad, covering the majority of the eight kilometre study area (refer to Attachment B – Zone of visual influence).

3.4.Key landscape features

The site and surrounding landscape is vast and sparsely settled. The character is dominated by open, flat rural plains. There were no specific landscape features identified during preliminary community engagement. However, the vegetated creeks and dry lakes, which are seasonally filled, are likely to be valued as they contrast with the otherwise vast treeless plains. The nearest creeks and dry lakes are outside the study area of this project.



FIGURE 3-1 VIEWS ACROSS PROPOSAL SITE SHOWING FLAT TREELESS RURAL LANDSCAPE AND EXISTING 220 kV TRANSMISSION LINES

4. Community engagement

A Community Consultation Strategy has been prepared for the Project. The Visual Assessment Bulletin describes the purpose of early communications in Stage 1 is to:

- *“establish the key landscape features, areas of scenic quality and key public viewpoints valued by that community;*
- *allow the community to have input into the ranking of those features and scenic quality into high, moderate or low visual significance;*
- *inform landholders about the proposed project area, likely corridors for development, preliminary turbine layouts and access routes; and*
- *inform the community about the proposed project, listen to the community’s concerns and suggestions for alternative siting and location designs, and discuss potential visual impacts”. (Stage 1: Preliminary Environmental Assessment, page 7)*

In 2022, the Proponent commenced community and stakeholder consultation regarding their plans to develop a wind farm. Following an open invite Community Information Session, the community was invited to provide comments and feedback on the project via the project’s SurveyMonkey feedback form, which was also shared on the project website. One of the questions asked was: “What do you value most about the local area?” and included “rural landscape and scenery” as one of the options for answers. At this stage the response has been generally positive, and no major social risk or negative responses have been identified in relation to the project.

Preliminary consultation via has been undertaken with neighbours, including in-person meetings, email and phone calls. Neighbours consulted include Thalaka, Everslee, St Pauls and Keri East (refer to Attachment A and B for the location of these dwellings). Visual impact was one of the themes discussed with nearby landowners. Most of the close neighbours are involved with other renewable energy projects, and the response to this project has generally been favourable and collaborative.

Community consultation to date has not identified any particular landscape features and vantage points that are valued by the local community in the study area.

Key landscape features within and surrounding the project site have been described in section 3. A preliminary landscape analysis identified one landscape character unit within and surrounding the site, including the Murrumbidgee River plain rural landscape, which consists generally of open, flat rural plains associated with the Murrumbidgee River and its tributaries.

The Visual Assessment Bulletin also notes that... *“where a regional survey or study of landscape values has been undertaken, it must be considered”* (Stage 1, page 7). No regional surveys or study of landscape values within or surrounding the Project area have been found. This will be confirmed with DPE prior to the commencement of the detailed assessment prepared for the EIS.

Consultation will be ongoing during the EIS Assessment and Determination process.

5. Preliminary assessment tool – Visual magnitude

The Visual Bulletin states that... *“By mapping the dwellings, key public viewpoints and proposed turbines at scale, the potential visual magnitude of a turbine relative to that dwelling or public viewpoint can be established. This is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints”* shown in the graph at **Figure 5-1** (The Visual Bulletin, page 9).

The black line depicted in the graph at **Figure 5-1** provides an indication of where detailed consideration should be given to the visual impacts on dwellings or key public viewpoints from turbines located below the black line.

For the purpose of this Preliminary LVIA, the proposed wind turbines are nominated at a 285 metre tip height (from base of tower to tip of blade at vertical position). In accordance with the Visual Bulletin, the black line intersects at a distance of about 3.8 kilometres for a tip height of 285 metres.

This Preliminary LVIA also illustrates dwellings located at eight kilometres from the wind turbines which coincides with the threshold for multiple wind turbine tool analysis as indicated on the blue line in **Figure 5-1**. Dwellings located between 3.8 kilometres and 5.7 kilometres have been identified and illustrated to

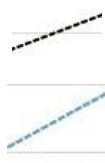
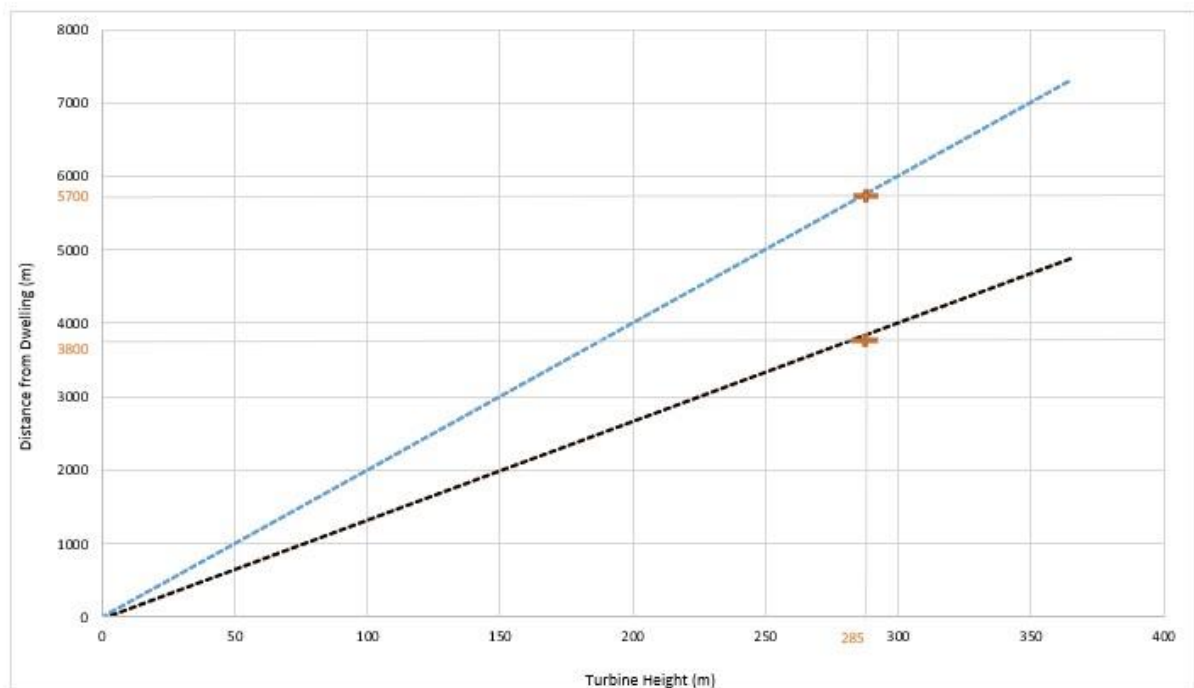
provide a greater degree of context regarding the location and number of dwellings surrounding the proposed wind farm. The Stage 2 visual assessment would undertake an assessment and justification for the placement of wind turbines in sensitive areas, including those located within and between the 3.8 kilometres and 5.7 kilometres thresholds from the wind turbine locations. Non-associated dwellings located below the black line, as well as residential dwellings between the black and blue lines and those extending out to eight kilometres from the wind turbines, are illustrated in **Figure 3-3**.

The only public viewing locations within eight kilometres of the WTGs are local roads, which provide access to dwellings, rural buildings and nearby towns including Moulamein.

The Stuart Highway is located about nine kilometres north of the site, beyond the eight kilometre study area for the Project. There are also no designated rest stops, recreational areas or lookouts are located within eight kilometres of the Project.

Further consideration of public view locations will be undertaken in the Stage 2 assessment as part of an EIS, including but not limited to:

- Surrounding roads and highways including the Sturt Highway
- Local rural roads including Maude Road
- Moulamein township.



Visual magnitude – areas below this line provides an indication of where proponents should give detailed consideration to the visual impacts on dwellings or key public viewpoints from turbines

Threshold distance line – areas below this line identifies potentially high visual magnitude impacts.

FIGURE 5-1 PRELIMINARY ASSESSMENT TOOL 1 INDICATING POTENTIAL VISUAL IMPACTS FOR FURTHER DETAILED CONSIDERATION (BLACK LINE) AND VISUAL MAGNITUDE THRESHOLDS FOR VISUAL ASSESSMENT (BLUE LINE)

6. Preliminary assessment tool – Multiple wind turbines

The Visual Bulletin states that the Multiple Wind Turbine Tool... *“will provide a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint”* (The Visual Bulletin, Stage 2 Assessment, page 9).

This Preliminary LVIA has identified six individual dwellings (and one woolshed) and two key public viewpoints (Maude and Booroorban-Tchelery Road) within eight kilometres of the Project which contain single or multiple view sectors (refer to **Attachment A and B** for locations). The multiple wind turbine analysis of these dwellings and key public viewpoints is presented in **Figure 6-1** to **Figure 6-6**. Although the Sturt Highway has been considered, it is located over eight kilometres from the nearest WTG.

Table 6-1 summarises the results of the multiple wind turbine tool analysis undertaken as part of this Preliminary LVIA. The results include the identification of associated and non-associated dwellings and key public viewpoints within eight kilometres of the wind turbines, the distance to the closest wind turbine (and wind turbine ID), the number of 60° sectors the wind turbines occur within to eight kilometres from the view location, and the number of wind turbines visible within three or more 60° sectors to eight kilometres from the view location.

TABLE 6-1: MULTIPLE WIND TURBINE ANALYSIS RESULTS

Location	Distance from dwelling to closest wind turbine (and turbine ID)	Number of 60° sectors with wind turbines up to 8km from dwelling	Number of visible wind turbines within 3 or more 60° sectors up to 8km from dwelling
Dwellings			
1: Tchelery homestead*	1.7 kilometres (WTG020)	5	49
2: Tchelery woolshed*	600 metres (WTG279)	4	62
3: Everslee	2.3 kilometres (WTG092)	3	40
4: Thalaka	2.3 kilometres (WTG092)	1	N/A
5: Keri East^	3 kilometres (WTG312)	2	18
6: St Pauls	5.5 kilometres (WTG224)	1	N/A
7: Baldon^	6.9 kilometres (WTG194)	1	N/A
Key public viewpoints			
Sturt Highway	8.9 kilometres (WTG224)	N/A	N/A
Maude Road	200 metres (WTG338)	Varies between 1-6, depending on location	Varies, depending on location
Booroorban-Tchelery Road	140 metres (WTG279)	Varies between 1-6, depending on location	Varies, depending on location

* Associated Tchelery property

^ Abandoned / currently unoccupied

Of the six dwelling locations:

- Two dwellings (Everslee and Tchelery, including the homestead and woolshed) are located below the black line (<3.8 kilometres) and predicted to have views towards wind turbines within three or more 60° sectors, with over 40 turbines potentially visible
- One dwelling (Keri East) is located below the black line and predicted to have views towards wind turbines within two 60° sectors, including 18 turbines potentially visible, however this dwelling is currently listed as abandoned / unoccupied
- Two dwellings are located between the black line (<3.8 kilometres) and blue line (<5.7 kilometres), and are predicted to have views toward wind turbines in one 60° sector (Thalaka and St Pauls)
- One dwelling is located between the blue line (<5.7 kilometres) and eight kilometre study area, predicted to have views toward wind turbines in one 60° sector, however this dwelling is currently listed as abandoned / currently unoccupied (Baldon).

The only key public viewing locations within eight kilometres of the Project are Maude Road and Booroorban-Tchelery Road. Both roads extend through the Project area, and would have views to multiple WTGs, at varying distances, including close-range views, with more than three 60° sectors, for example, at the junction of these roads. To the north, south and east of the Project, the number of 60° sectors would reduce to 2-3, as the Project is viewed at greater distances, as shown in **Figure 6-9** and **Figure 6-10**.

Where wind turbines are visible within the horizontal views of the dwelling or key public viewpoints in three or more 60° sectors, the proponents must identify the turbines, relative dwelling and key public viewpoint, along with the relative distance and submit these to the Department as part of the request for SEARs (refer to **Table 6-1**). These locations will become a focus for the Stage 2 assessment in the EIS.

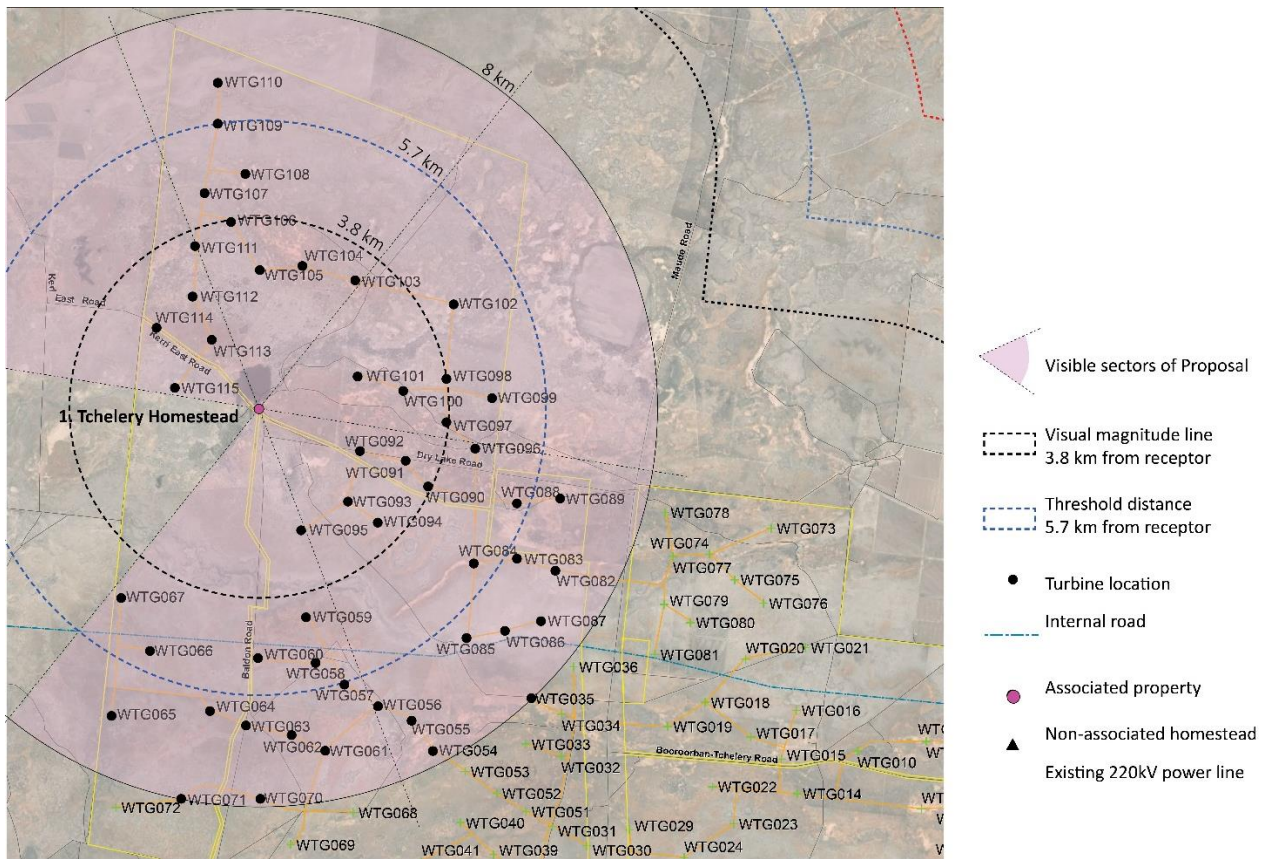


FIGURE 6-1 NUMBER OF 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLINGS 1. TCHELERY HOMESTEAD

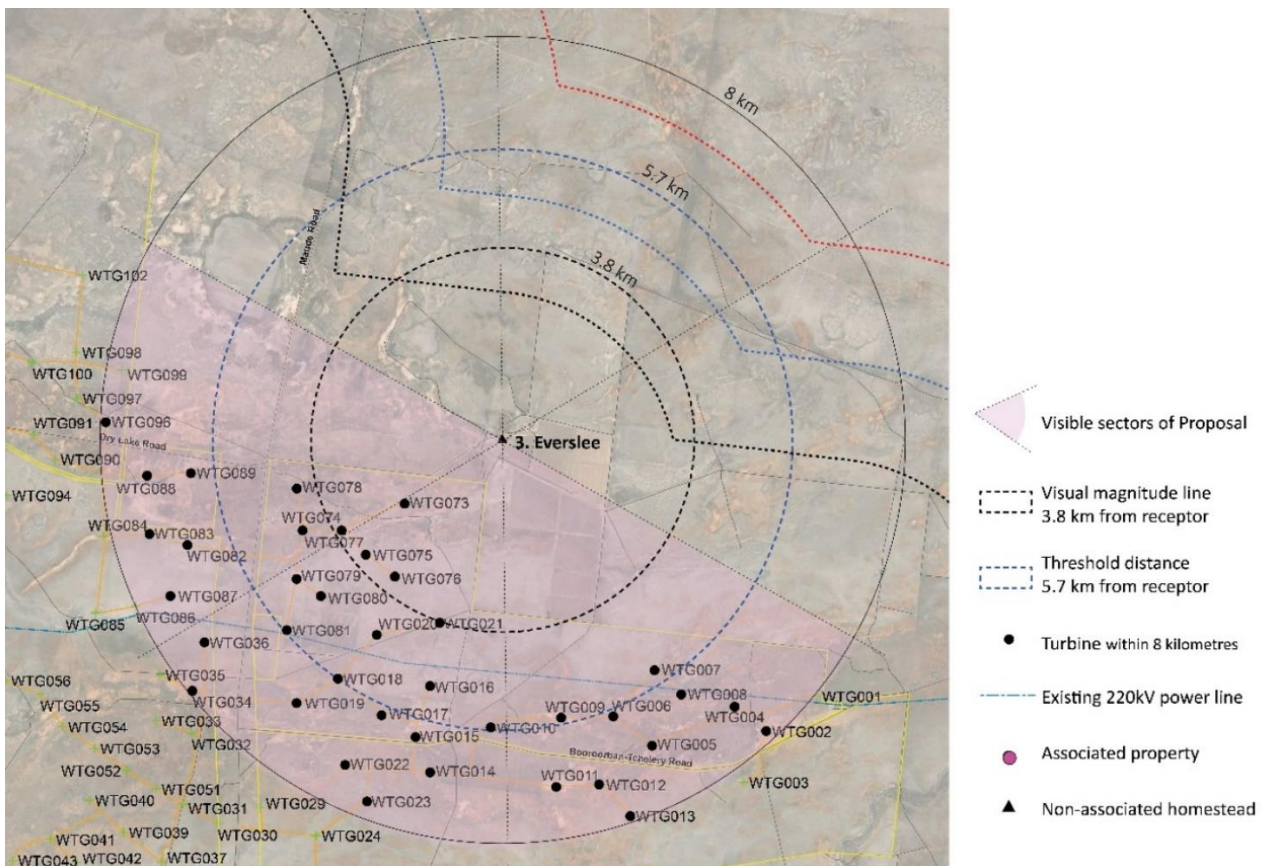


FIGURE 6-2 NUMBER OF 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLING 3. EVERSLEE

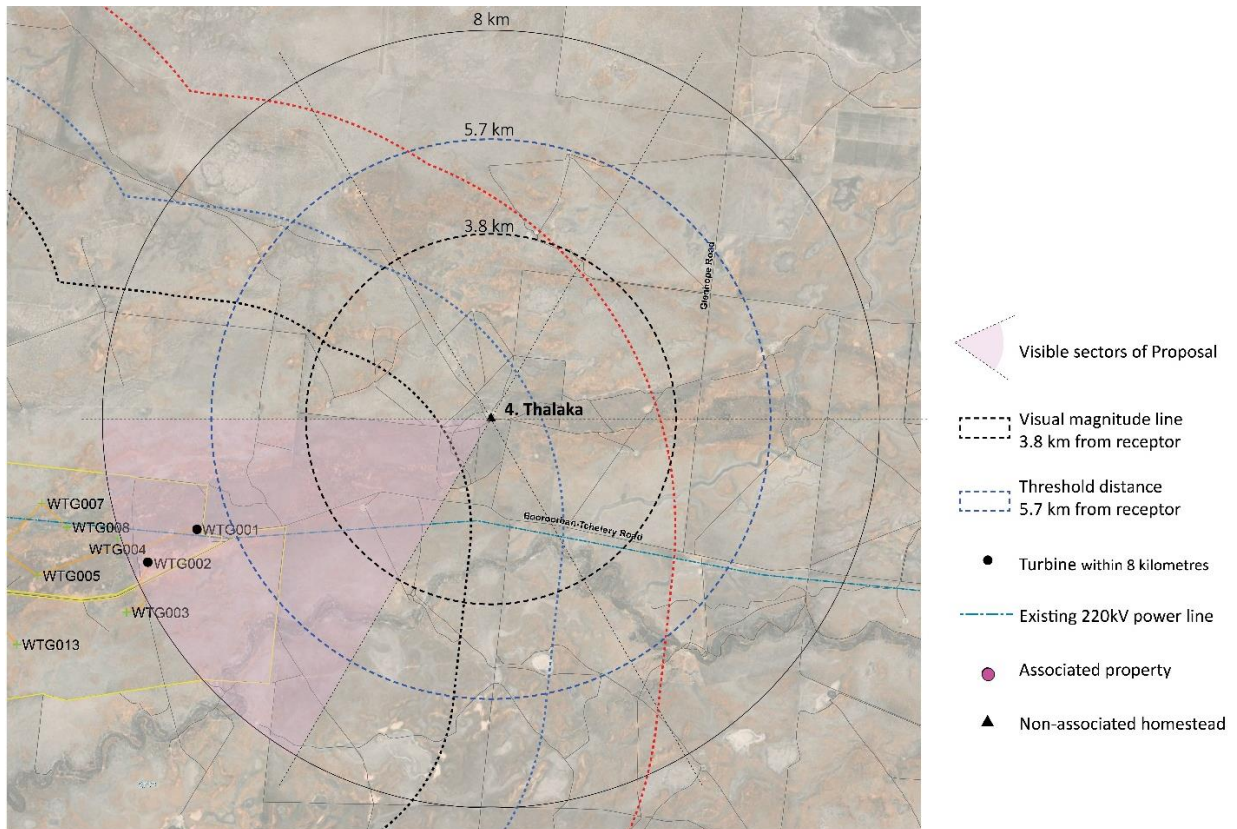


FIGURE 6-3 NUMBER OF 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLING 4. THALAKA

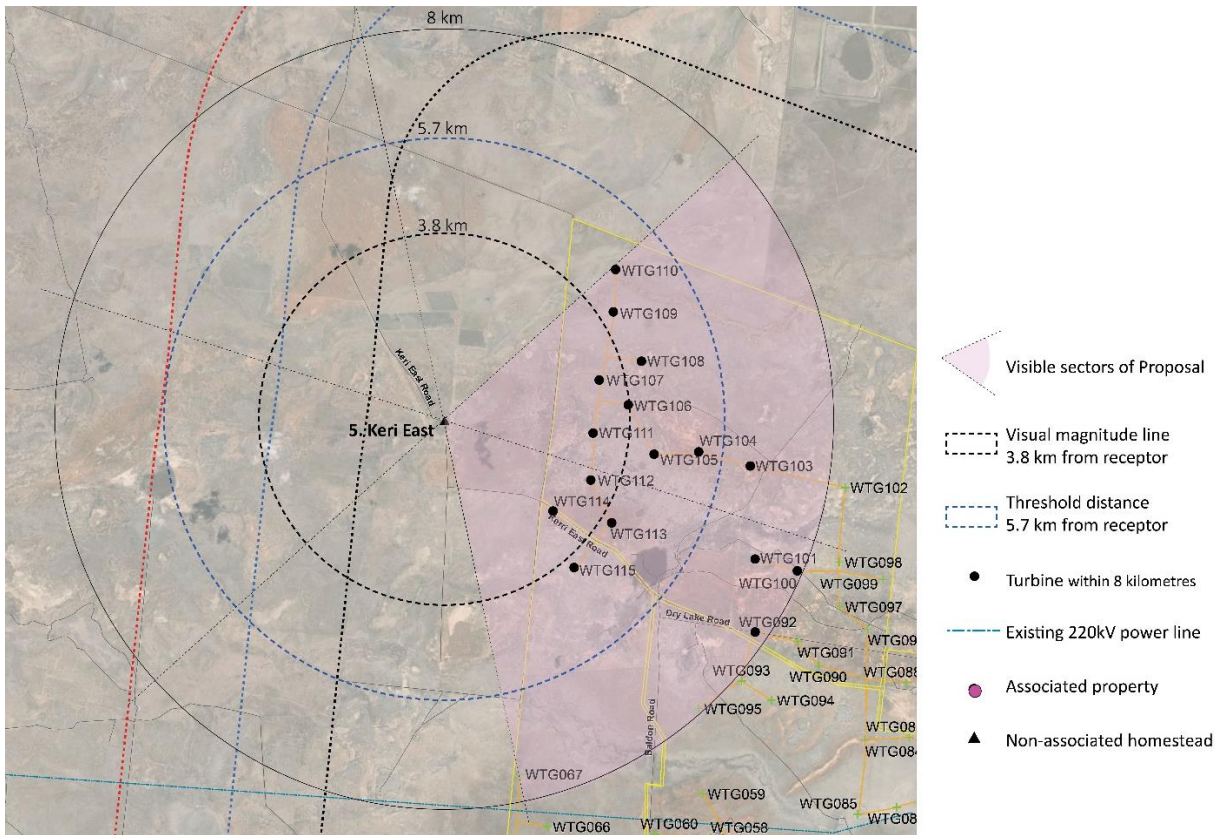


FIGURE 6-4 NUMBER OF 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLING 5. KERI EAST

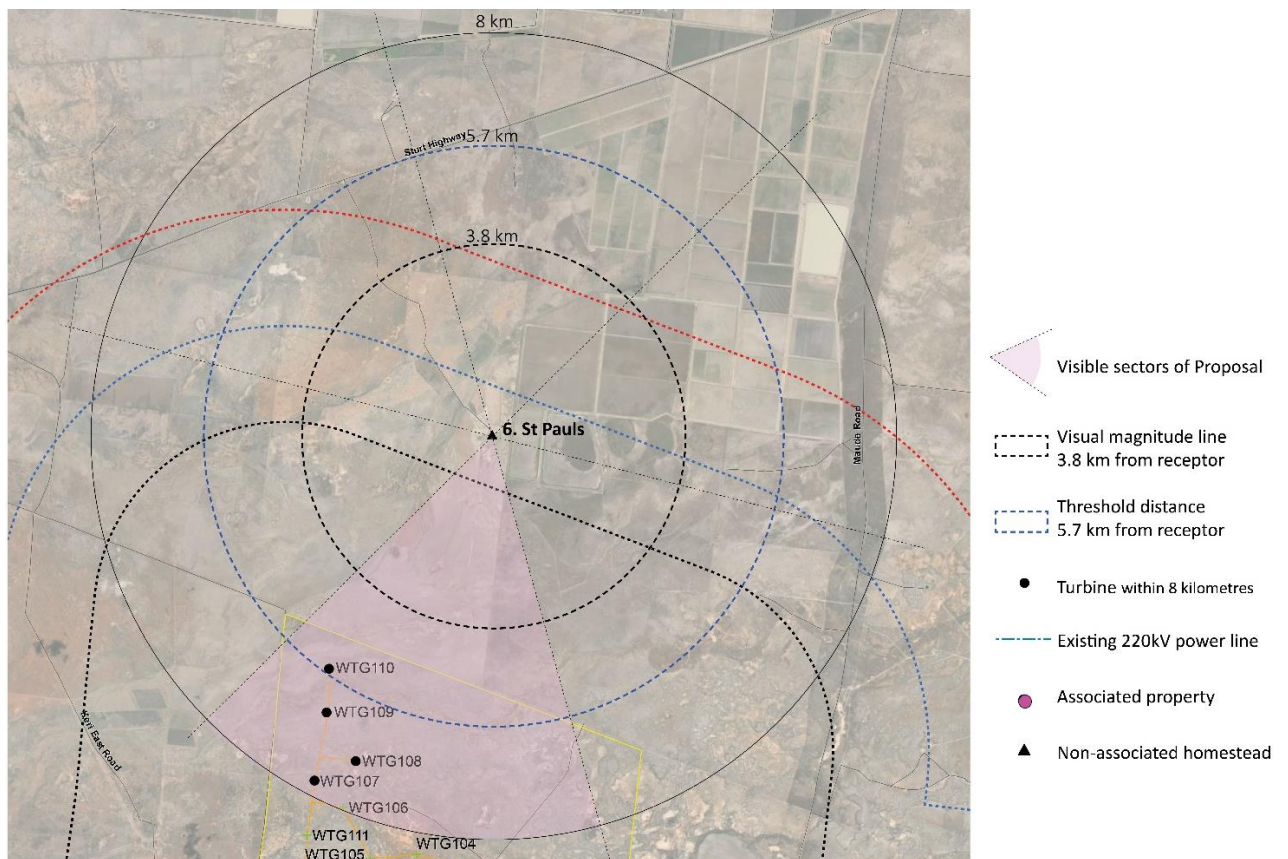


FIGURE 6-5: 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLING 6. ST PAULS

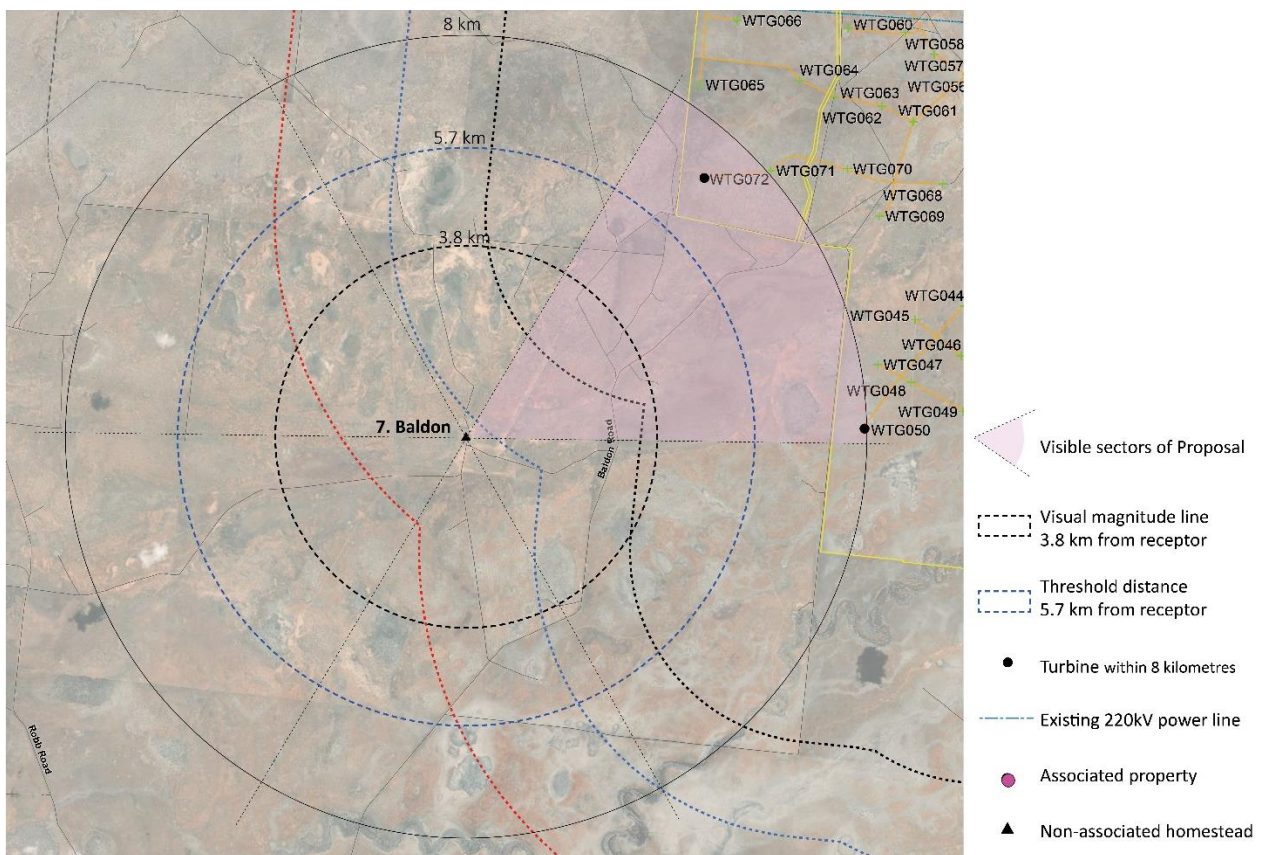


FIGURE 6-6: 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM DWELLING 7. BALDON

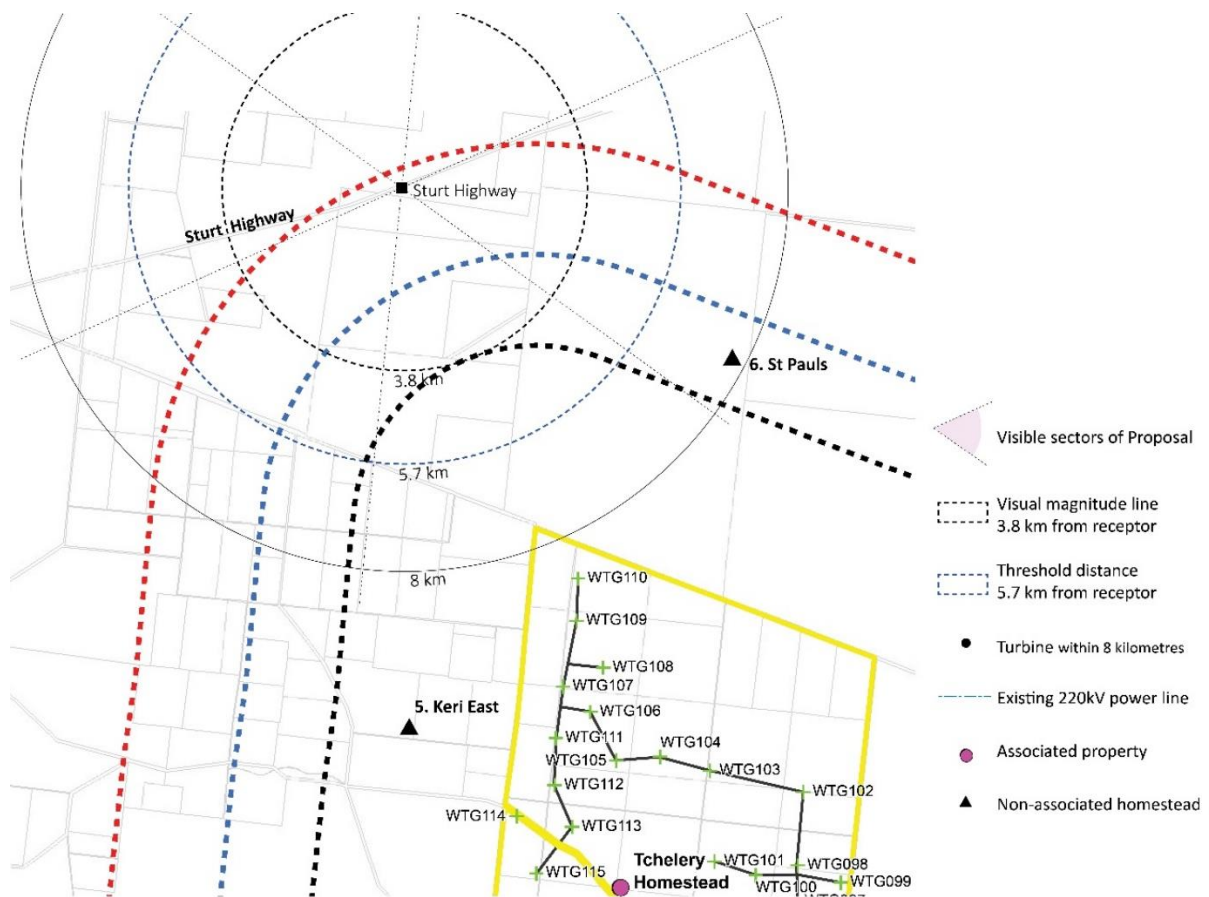


FIGURE 6-7: 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM REPRESENTATIVE PUBLIC VIEW FROM STURT HIGHWAY

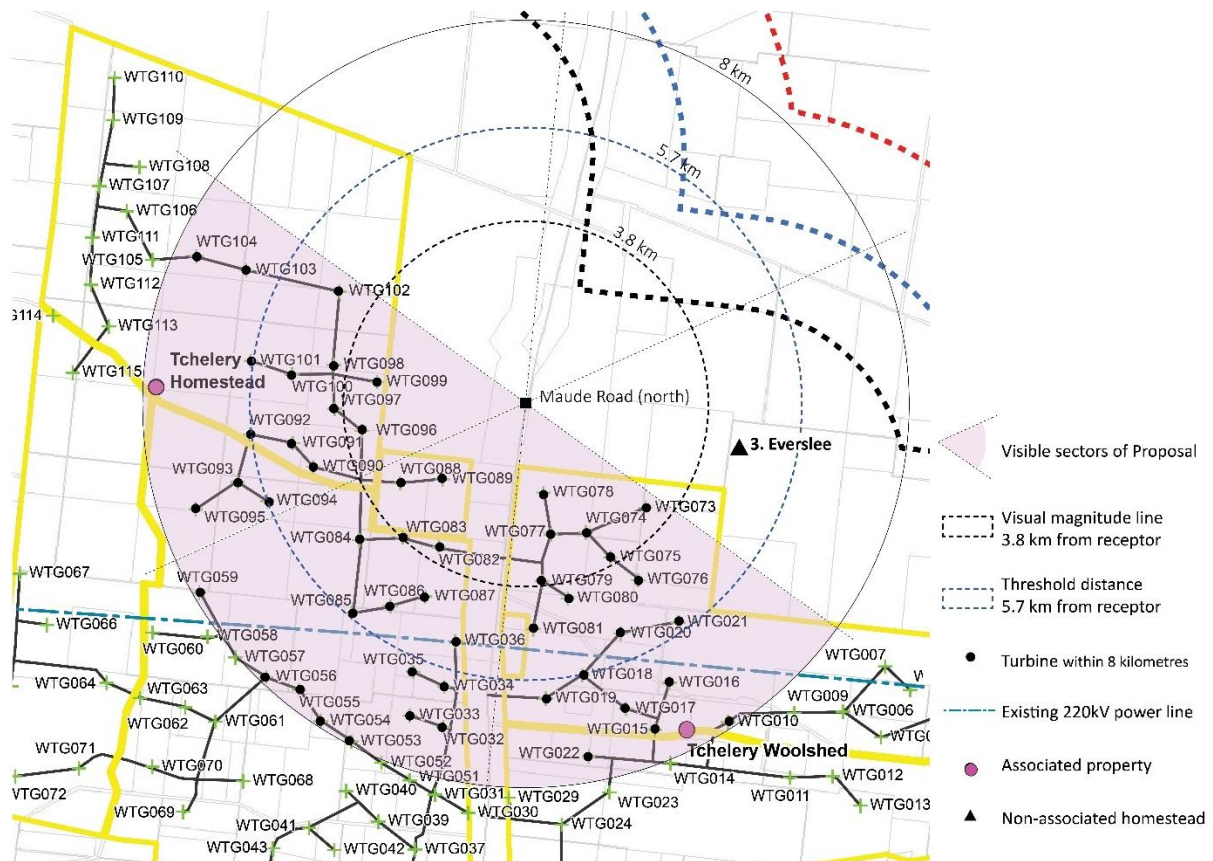


FIGURE 6-8: 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM REPRESENTATIVE PUBLIC VIEW ON MAUDE ROAD (NORTH)

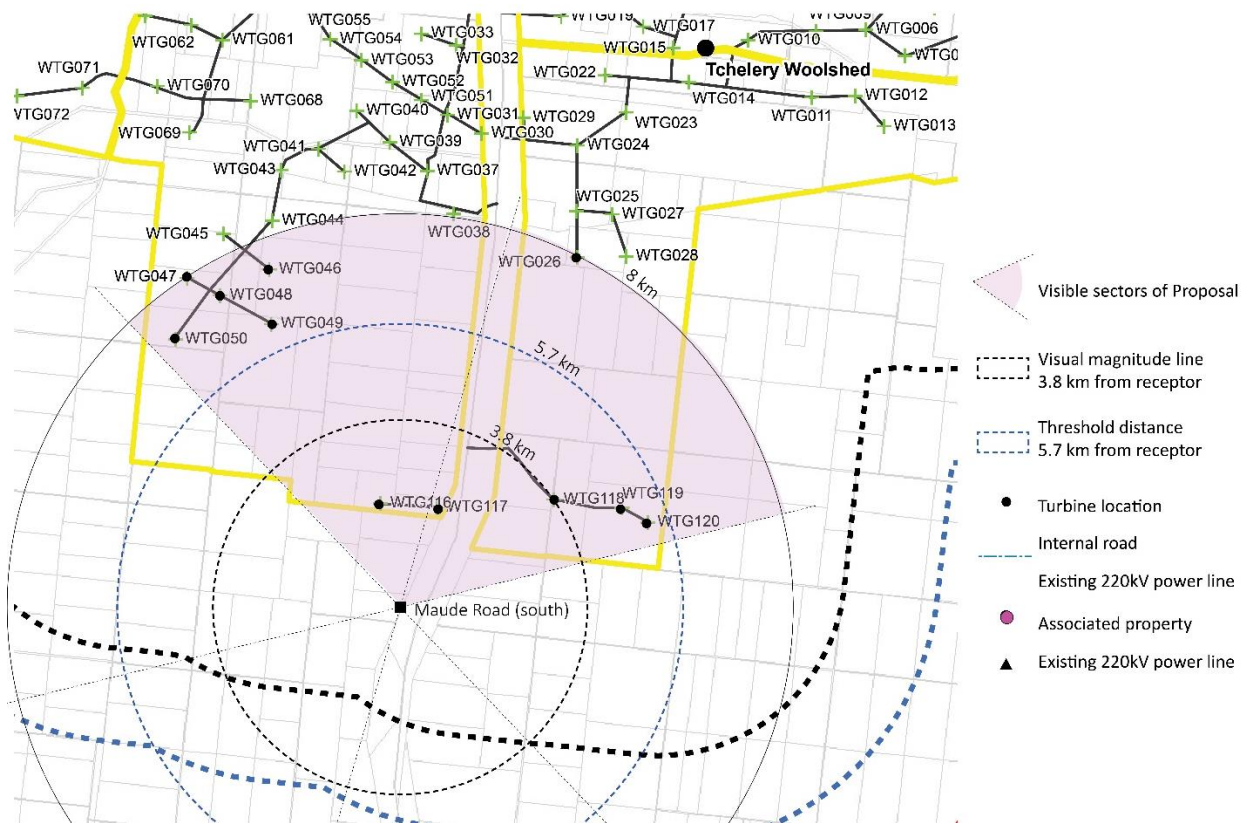


FIGURE 6-9: 60°SECTORS WITH WIND TURBINES UP TO 8KM FROM REPRESENTATIVE PUBLIC VIEW ON MAUDE ROAD (SOUTH)

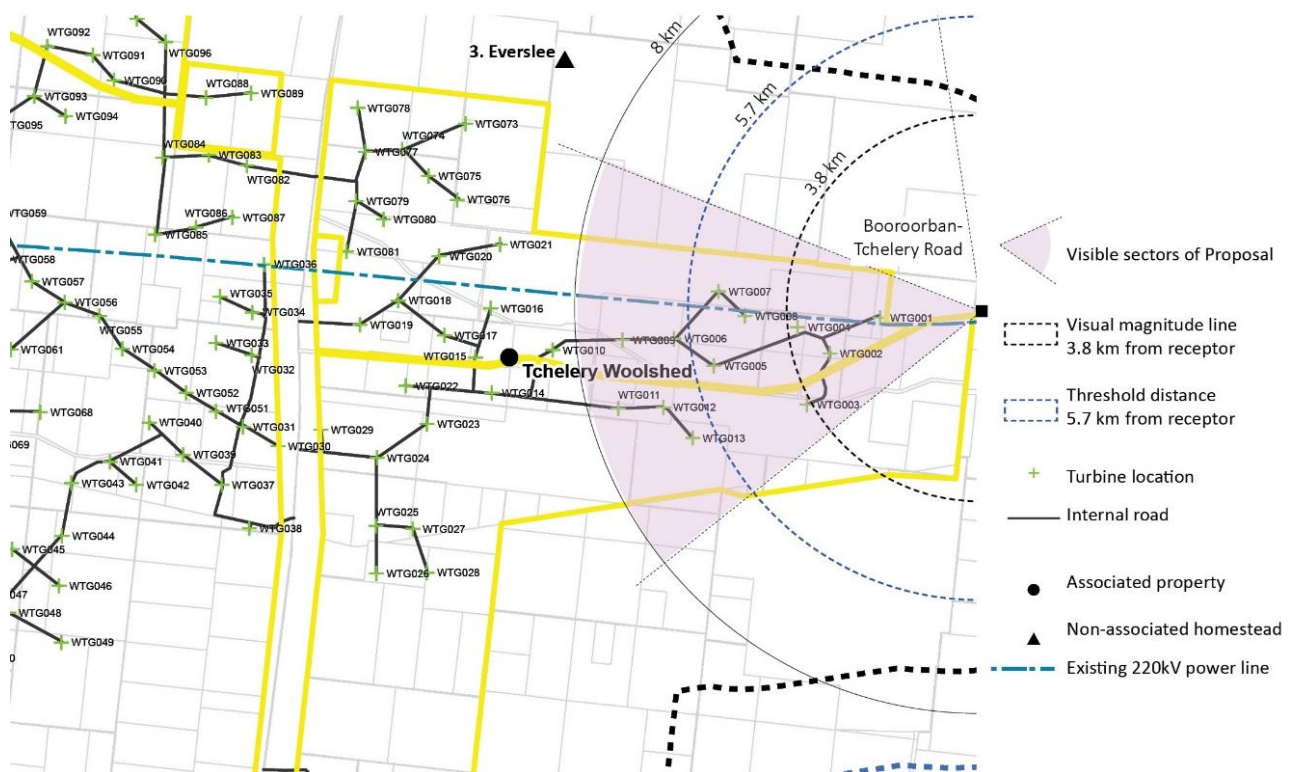


FIGURE 6-10: 60°SECTORS WITH TURBINES UP TO 8KM FROM REPRESENTATIVE VIEW ON BOOROORBAN-TCHELERY ROAD

7. Preliminary cumulative assessment

The EnergyConnect (NSW – Eastern Section) transmission lines are proposed in the centre of the Project site, extending in an east-west direction north of Booroorban-Tchelery Road.

A search of DPE's online major projects database was carried out in March 2023 to identify State Significant Development (SSD) and State Significant Infrastructure (SSI) projects. Several renewable energy developments are proposed within 100 kilometres of the Project, and are in early planning phases. These include:

- Keri Keri Wind Farm
- Keri Keri Solar Farm
- Baldon Wind Farm
- Hay Solar Farm
- Limondale Solar Farm
- Sunraysia Solar Farm
- Burrawong Wind Farm
- The Plains Wind Farm
- Bullawah Wind Farm
- Currawarra Solar Farm
- Southdown Solar Farm
- The Plains Solar Farm
- Wilan Wind Farm
- Pottinger Wind Farm
- Pottinger Solar Farm.

Refer to Attachment D for the location of these projects in relation to Tchelery Wind Farm.

The cumulative impact of these projects will be considered in the detailed phase of the Landscape and Visual Impact Assessment for Tchelery Wind Farm. However, there is the potential for:

- a cumulative impact on the character of the Hay plains, as large areas are occupied by wind farm development
- a cumulative visual impact due to multiple wind farm developments being seen from dwellings surrounding this project, including 5 (Keri East), 6 (St Pauls) and 7 (Baldon)
- a cumulative visual impact due to multiple wind farms being seen in the background of views from the Sturt Highway.

8. Next Steps

The next steps would be the preparation of a detailed Landscape and Visual Impact Assessment report to address the Stage 2 EIS visual assessment requirements in the Visual Bulletin.

Attachment A – Site location plan

Tchelery Wind Farm

Attachment A
Site Location Plan

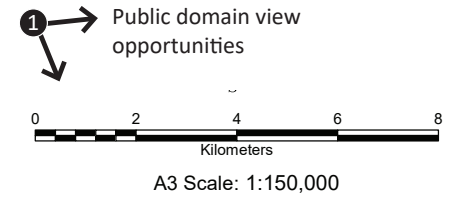


iris



- Subject Site
- Study area - 8 km
- Threshold distance - 3.8 km
- Visual magnitude line - 5.7 km
- Existing 220kV Power line
- Turbines (285m blade tip height)
- Internal road
- Associated dwelling/building
- Non-associated dwelling

- Dwellings:**
- | | |
|-----------------------|--------------|
| 1. Tchelery Homestead | 5. Keri East |
| 2. Tchelery Woolshed | 6. St Pauls |
| 3. Everslee | 7. Baldon |
| 4. Thalaka | |



File:TcheleryWindFarm-Fig1-SiteLocation-230616 Date: 16/06/2023

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Attachment B – Zone of visual influence

Attachment B
Zone of visual influence



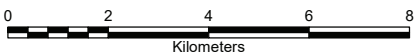
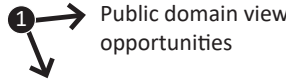
- Subject Site
- Study area - 8 km
- Threshold distance - 3.8 km
- Visual magnitude line - 5.7 km

- Turbines (285m blade tip height)
- Internal road
- Existing 220kV Power line

- Dwellings
- Associated dwelling/building
 - Non-associated dwelling

- Visibility
- Visible from 185m Hub
 - Visible from 285m Blade Tip

- Dwellings:
- | | |
|-----------------------|--------------|
| 1. Tchelery Homestead | 5. Keri East |
| 2. Tchelery Woolshed | 6. St Pauls |
| 3. Everslee | 7. Baldon |
| 4. Thalaka | |



A3 Scale: 1:150,000

File:TcheleryWindFarm-Fig2-ZVI-230616 Date: 16/06/2023

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Attachment C – Wind resource

Attachment C

Wind Resource

Legend

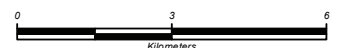
- Associated Residences
- Non Associated residences
- Wind Turbines
- Existing 220kV Transmission Line
- Connection to Project EnergyConnect
- Project EnergyConnect – Eastern Section
- Internal roads and access tracks
- Roads
- Substation and Site Compound
- Project Site
- Wind Turbines 3.8km Buffer
- Wind Turbines 5.7km Buffer
- Wind Turbines 8.0km Buffer

Wind Speed 150m (m/s) (Global Wind Atlas)

Value

High : 8.50708
Low : 7.20251

Public domain view opportunities

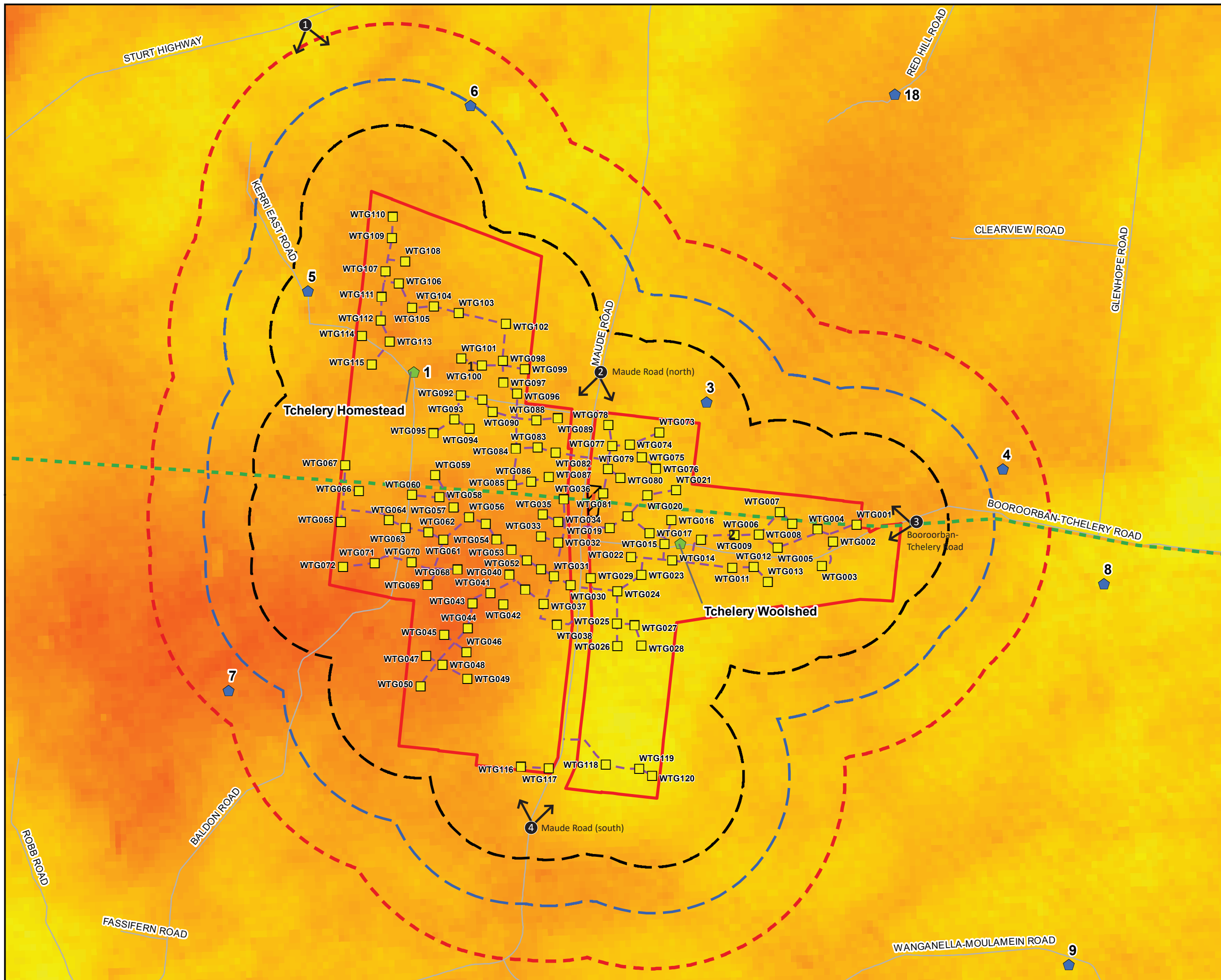


Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:210,000 Date: 13/06/2023

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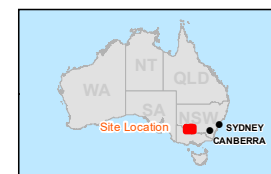


Attachment D – Cumulative projects

Attachment D Cumulative Projects

Legend

- Nearby Projects (approximate)
- ◆ Associated Residences
- ◆ Non Associated residences
- Existing 220kV Transmission Line
- Project EnergyConnect – Eastern Section
- Road
- Project Site



0 10 20
Kilometers



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:752,175

Date: 19/06/2023

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