

Kyoto energypark

13. Electromagnetic Interference (EMI)



13.0 ELECTROMAGNETIC INTERFERENCE (EMI)

13.1 Introduction

Garrad Hassan Pty Ltd were engaged by Pamada to undertake the Electro Magnetic Interference (EMI) assessment for the Kyoto Energy Park at Scone. A copy of the EMI assessment is contained within *Appendix F - Garrad Hassan Assessment of Environmental Issues Electromagnetic Interference (19 May 2008)*.

Electromagnetic Interference from rotating wind turbine blades can potentially interfere with broadcast towers and transmission paths around the proposed Kyoto Energy Park sites. EMI can potentially occur between point to point signals (microwave signals), point to multipoint (radio communications towers) and point to area signals (analogue television). Other signals were also investigated including radio broadcasting, commercial and private mobile telephony.

In general VHF and UHF frequency band radio signals, and digital voice based technologies such as GSM and CDMA mobile, are essentially unaffected by a wind farm development. This includes land mobile repeaters, radio, the audio component of analogue television, and mobile phones.

13.2 Radio communications

The ACMA database identified a total of 91 radio-communication towers within a 50 km radius of the Kyoto Energy Park sites. Of these four (4) licenses were identified to the east of the sites at a distance of approximately 10km from the Kyoto Energy Park that potentially could be affected by the presence of wind turbines.

Two (2) of these licenses are owned by Telstra Corporation and the other two (2) owned by Energy Australia. Both of these owners were contacted by Garrad Hassan in writing and by email. Telstra confirmed that no impact to the licenses (including (CAN, IEN) radio systems, FRA system license, copper CAN cables, fibre IEN and Telstra mobile services in the region. No comments was received from Energy Australia despite many discussions.

Other radio communication licenses identified on the database and emergency service licenses will be contacted as part of the wider community consultation process, and essential and emergency service organisations be contacted, to minimise risks of conflict of the development with radio communications.

13.3 Microwave signals

Wind turbines can cause interference, or diffraction, of point to point signals. Microwave links (generally described as point to point) are used for line of sight connections for data, voice and video. However it is possible to design around this issue, as the path and interference zone of point to point signals can be calculated. The nearest transmission tower with fixed licences of Point to Point type is at least 1.7 km from proposed turbine locations.

The registered communications licences for each tower according to the ACMA database were analysed to determine the transmission paths of licences that may potentially experience interference from wind turbines. No links were found to pass over the Kyoto Energy Park sites with no associated impacts to microwave signals.

13.4 Television Interference

For analogue television broadcast signals (point to area) large scale interference can generally be avoided by placing the wind turbines at least 1 km from the broadcast tower. The nearest television broadcast tower is Rossgale Lookout and is located approximately 8.5 km to the south of Mountain Station.

Rossgale Lookout is a re-transmission source of both analogue and digital television signals that cover the Upper Hunter area. The regions where there may be the potential for television interference from the Rossgale Lookout transmission have been identified, and these are shown in Figure 13.0.

A preliminary assessment of residencies within the areas represented in Figure 13.0 would be undertaken prior to wind farm operation. As television interference from wind turbines is readily identifiable, appropriate mitigation measures (discussed below) can be readily taken if required. Should TV interference be observed after commissioning of the wind turbines, options for reinstatement of TV signals may include::

- Pointing the householders TV antenna directly towards their existing transmitter;
- The installation of more directional and/or higher gain antenna at the affected residences;
- Relocating the antenna to a less affected position;
- The installation of a digital set top box (and UHF antenna if required);
- The installation of cable/satellite TV at the affected residences;
- Installation of a TV relay station.

A review at the most appropriate broadcast site (Rossgale Lookout) indicates that 4 free to air digital TV channels are available. Digital TV signals are essentially not interfered with by wind turbines.

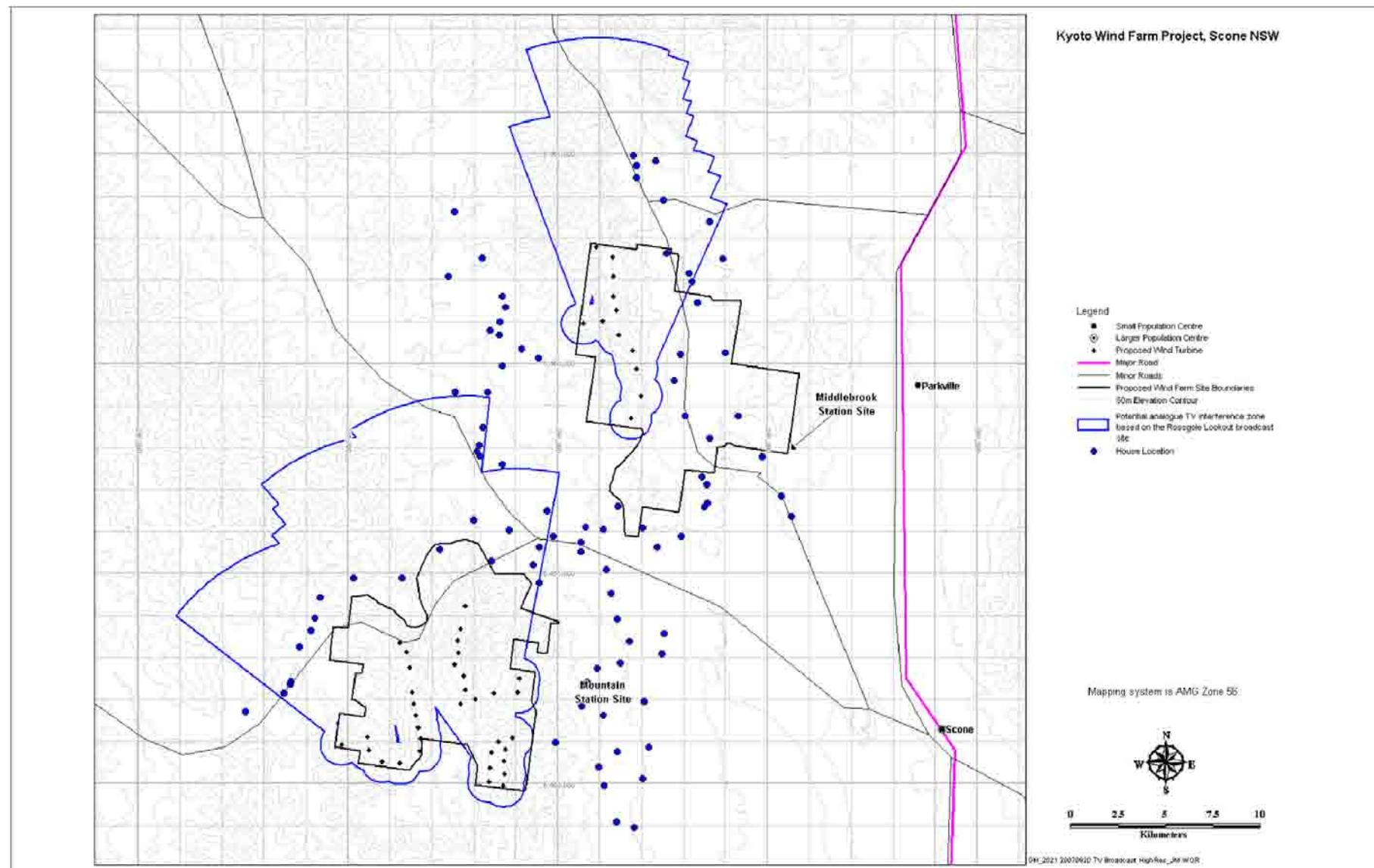


Figure 13.0 Potential TV interference zones surrounding the Kyoto Energy Park

13.5 Mobile telephones

A review of the ACMA database for other licences including radio broadcasting, commercial and private mobile telephony. These licences are generally not affected by the presence of wind turbines any more than other effects such as terrain, vegetation and other forms of signal obstruction. Should reception difficulty be encountered, the amelioration method consists of the user simply moving to receive a clearer signal.

13.6 Aviation and Defence Communications

The Department of Defence assessed the proposal for impacts upon the safety of military aircraft operations, associated defence communications and airfield surveillance radars. The Department advised that the Kyoto Energy Park proposal would have no impact on defence communication or radar installations.

Airservices Australia otherwise confirmed that the proposed Kyoto Energy Park wind turbines will not impact on Precision/Non-Precision Nav Aids, HF/VHF Communications, Cables, ASMGCS, Radar or Satellite/Links used in conjunction with the Scone local airport.

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The funding of this proposal and report is 100% Australian.
An Australian Project



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