



The Hon Malcolm Turnbull MP

MINISTER FOR COMMUNICATIONS

Dr Dennis Jensen MP
Chair
Standing Committee on Petitions
Parliament House
CANBERRA ACT 2600

11 MAR 2014

Response to Petition reference 845/1312

Dear Dr Jensen,

Thank you for your letter dated 2 January 2014, concerning a petition lodged with the Standing Committee on Petitions regarding the rollout of NBN Co's radio network in the Yarras, Clear Creek and Glanmire areas of New South Wales (NSW).

In order to address the concerns of the petitioners, I have sought to deal with each point raised in the petition below separately. It should also be noted that NBN Co was consulted on the matters raised in the petition. The information provided by NBN Co has been reflected in my response.

Failure to consult the local community

Approvals for the installation of freestanding towers, such as the proposed monopole at 968 Limekilns Road, Yarras NSW, are subject to state and territory government planning laws. In NSW, new freestanding towers of this kind generally fall under the State Environment Planning Policy (Infrastructure) 2007 (SEPP1). As such, NBN Co is required to follow the processes for community and local government consultations set out in the planning scheme.

NBN Co has advised that consultation regarding this site complied with these requirements and went beyond them. In particular this involved contacting properties, whose boundaries are within 500 metres of the proposed facility, not just those adjoining the site. On 30 July 2013, 14 households were notified in writing of the proposal. In addition, a sign was placed on the proposed site. On 2 August 2013, a public notice was published in the *Western Advocate*. Only one objection was received during the consultation process. In light of the objection, the original closing date for consultation was extended from 14 August 2013 to 30 August 2013.

The proposed site is under flight paths to Bathurst Airport

NBN Co has notified Bathurst City Council, as owner and operator of the airport, of the proposed fixed wireless tower in this area. Bathurst City Council has passed on the details to both the Civil Aviation Safety Authority and Air Services Australia. NBN Co will comply with any recommendations or findings that the Civil Aviation Safety Authority or Air Services Australia may make.

Provide for a reasonable response period

As stated above, NBN Co went beyond the community and local government consultations requirements set out in the planning scheme. In light of an objection made during the consultation period, NBN Co extended the consultation period by two weeks—taking it to a total of five weeks. In addition to this, NBN Co has advised that it has continued to respond to concerns raised by the person who made the objection well after the consultation period had closed.

A formal complaints process, including the appointment of a neutral body

As the installation is subject to state planning law, complaint processes are a matter for that regime. If petitioners have concerns about the NSW planning regime, those concerns are best raised with the NSW Government.

Investigation of alternative sites greater than one kilometre from any home

Site selection is an operational matter for carriers, including NBN Co. In selecting a site for a tower, a range of factors need to be considered including the area to be covered, its geography and the availability of suitable sites. NBN Co has advised that it selected the proposed site as the location is elevated and provides the potential for coverage to extend over a number of communities. Other sites did not satisfy NBN Co's coverage objectives or construction requirements. The facilities need to be located close to the community they are servicing.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), within the Health portfolio, is the government agency responsible for advising about electromagnetic energy (EME) emissions. ARPANSA sets public health standards for exposure to EME. All facilities need to operate below the EME exposure standards (see below), so there is no need for a buffer zone for this reason. Placement of facilities is otherwise a matter for planning laws.

Co-location with existing wireless as an alternative

Under Commonwealth law, carriers are encouraged to co-locate their facilities where this is an option. However, the ability to do so is dependent on operational considerations including the availability of space on the tower, coverage needs and available spectrum. In some instances, these considerations may mean that co-location is not technically possible. NBN Co has advised that in this case, there were no suitable existing facilities that could meet its coverage objectives.

Impacts on environment and ambiance

NBN Co seeks to strike a balance between providing valuable communications services and minimising any visual impact on the community and local environment. NBN Co fixed wireless towers need to be located in, or near, the area for which they are designed to provide service coverage. While radio antennas need to be elevated above their surroundings to provide reliable, unbroken, communications, NBN Co proposes and designs its facilities to the minimum height necessary to provide good service to the local community. Subject to operational needs, NBN Co also seeks to maximise the distance of its proposed facility from the nearest adjoining landowners, so as to reduce any visual intrusion. NBN Co also seeks to take advantage of any screening that can be provided by mature vegetation. NBN Co has advised that the proposed facility is approximately 650 metres from the nearest residence. Ultimately, concerns in this area need to be considered during planning processes.

Effect on land values

The rollout of better broadband services is designed to improve services in a community and therefore improve social amenity. This may improve property values. In all instances, however, I expect any impacts on property land values would be considered under state and territory planning processes.

Health concerns

Further to the comment above, ARPANSA, within the Health portfolio, is the Government agency responsible for advising about EME emissions. ARPANSA sets public health standards for exposure to EME. The relevant ARPANSA standard is the *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3kHz to 300GHz (2002)* (the ARPANSA Standard).

The Australian Communications and Media Authority (ACMA) radiocommunications licensing regime obligates licensees of radio transmitters to ensure that the operation of their facilities do not exceed the general public exposure limits of the ARPANSA Standard at places accessible to the general public. All fixed wireless base stations in Australia must comply with ARPANSA exposure limits.

The ARPANSA exposure limits are set well below the level at which adverse health effects are known to occur. The ARPANSA Standard is based upon international best practice and is consistent with guidelines published by the International Commission for Non-Ionizing Radiation Protection (ICNIRP) which have been adopted by many countries.

Fixed wireless base stations produce low EME levels in the everyday environment. Sample measurements of typical transmitter sites show that the signal levels on the ground near towers are a very low percentage of the general public limits of the ARPANSA Standard. ARPANSA advises that the standards are applicable for all types of radio transmission within the stated frequency limits, including wireless broadband technologies, and do not need to be revised when new technologies are introduced.

Before wireless base stations are built, carriers produce a report that shows the predicted maximum levels of EME at ground level around the new facility. The Radio Frequency National Site Archive website at www.rfnsa.com.au contains an internet archive of fixed wireless base stations and radiocommunication facilities in Australia. The predicted maximum level of exposure from the proposed facility has been calculated at 0.012 per cent of that allowed under the ARPANSA Standard. A copy of the report is attached for the information of the Committee. It should be noted that predicted EME levels are for a base station operating at its highest capacity and assumes that all transmitters are working at full rated power. In reality, base stations typically operate below full rated power levels.

ARPANSA has produced a factsheet on NBN wireless base stations and the health effects of these base stations. A copy of the factsheet is also attached for the Committee's information and is otherwise available to download at www.arpansa.gov.au/RadiationProtection/Factsheets/is_nbn.cfm.

ARPANSA maintains continual oversight of emerging research into the potential health effects of EME emissions in order to provide accurate and up-to-date advice to the government and the Australian people. It has been conducting a review of relevant research literature. Its report is expected shortly. Should scientific evidence indicate that the current ARPANSA Standard does not adequately protect the health of Australians, the Government would take immediate action to rectify the situation.

Further information about EME is available on www.acma.gov.au/theACMA/electromagnetic-radiation, which is a site managed by the ACMA. If the Committee or petitioners would like to contact ARPANSA, its website is www.arpansa.gov.au or phone on 1800 022 333.

Conclusion—petitioners request to the House of Representatives

In conclusion, I would like to respond to the petitioners request that the House extend the consultation time associated with the construction of this fixed wireless facility, identify alternative sites which are greater than 1,000 metres from any home, and appoint a neutral body to collate and assess objections.

While I recognise the petitioners concerns regarding the construction of this facility, I suggest that the House does not consider these matters requested by the petitioners further. These matters are primarily concerns with the NSW planning regime and the consultation process under it. NBN Co has followed these closely and gone beyond them. It has also considered the feasibility of alternative sites. The proposed facility will also operate well below EME exposure standards. Should petitioners concerns regarding planning processes continue, they should be raised with the NSW Government.

Thank you for bringing the concerns of the petitioners from the Yarras, Clear Creek and Glanmire areas of NSW to my attention. I trust this information will be of assistance.

Yours sincerely

Malcolm Turnbull

Summary of Estimated RF EME Levels around the Proposed Wireless Base Station at Glanmire 968 Limekilns Road, YARRAS NSW 2795

Introduction:

Date 22/10/2012

NSA Site No (2795045)

This report summarises the estimated maximum cumulative radiofrequency (RF) electromagnetic energy (EME) levels at ground level emitted from the existing wireless base station antennas at Glanmire 968 Limekilns Road YARRAS NSW 2795 . Maximum EME levels are estimated in 360° circular bands out to 500m from the base station. The procedures for making the estimates have been developed by the Australian Radiation Protection And Nuclear Safety Agency (ARPANSA)¹. These are documented in the ARPANSA Technical Report; "Radio Frequency EME Exposure Levels - Prediction Methodologies" which is available at <http://www.arpansa.gov.au>

EME Health Standard

ARPANSA, an Australian Government agency in the Health and Ageing portfolio has established a Radiation Protection Standard² specifying limits for continuous exposure of the general public to RF transmissions at frequencies used by wireless base stations. Further information can be gained from the ARPANSA web site.

The Australian Communications and Media Authority (ACMA)³ mandates exposure limits for continuous exposure of the general public to RF EME from wireless base stations. Further information can be found at the ACMA website <http://emr.acma.gov.au>

Existing Site Radio Systems **There are currently no existing radio systems for this site.**

Proposed Site Radio Systems

NBN Co / LTE2300 (proposed)			
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Table of Predicted EME Levels – Proposed

Distance from the antennas at Glanmire 968 Limekilns Road in 360° circular bands	Maximum Cumulative EME Level – All carriers at this site (% of ARPANSA exposure limits ²) Public exposure limit = 100%
0m to 50m	0.0029%
50m to 100m	0.0025%
100m to 200m	0.0018%
200m to 300m	0.0097%
300m to 400m	0.012%
400m to 500m	0.011%
Maximum EME level 372.13 m, from the antennas at Glanmire 968 Limekilns Road	0.012%

Note: Estimation for the maximum level of RF EME at 1.5m above the ground from the existing and proposed antennas assuming level ground. The estimated levels have been calculated on the maximum mobile phone call and data capacity anticipated for this site. This estimation does not include possible radio signal attenuation due to buildings and the general environment. The actual EME levels will generally be significantly less than predicted due to path losses and the base station automatically minimising transmitter power to only serve established phone calls and data transmissions⁵. Where applicable, particular locations of interest in the area surrounding the base station, including topographical variations, are assessed in Appendix A "Other areas of Interest" table on the last page.

Summary – Proposed Radio Systems

RF EME levels have been estimated from the existing and proposed antennas at **Glanmire 968 Limekilns Road YARRAS NSW 2795** . The maximum cumulative EME level at 1.5 m above ground level is estimated to be **0.012 %** of the ARPANSA public exposure limits.

Reference Notes:

1. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a Federal Government agency incorporated under the Health and Ageing portfolio. ARPANSA is charged with responsibility for protecting the health and safety of people, and the environment, from the harmful effects of radiation (ionising and non-ionising).
2. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), 2002, 'Radiation Protection Standard: Maximum Exposure Levels to Radiofrequency Fields — 3 kHz to 300 GHz', Radiation Protection Series Publication No. 3, ARPANSA, Yallambie Australia. [Printed version: ISBN 0-642-79400-6 ISSN 1445-9760] [Web version: ISBN 0-642-79402-2 ISSN 1445-9760]
3. The Australian Communications and Media Authority (ACMA) is responsible for the regulation of broadcasting, radiocommunications, telecommunications and online content. Information on EME is available at <http://emr.acma.gov.au/>
4. The EME predictions in this report assume a near worst-case scenario including:
 - wireless base station transmitters for mobile and broadband data operating at maximum power (no automatic power reduction)
 - simultaneous telephone calls and data transmission.
 - an unobstructed line of sight view to the antennas.In practice a worst-case scenario is rarely the case. There are often trees and buildings in the immediate vicinity, and cellular networks automatically adjust transmit power to suit the actual user traffic. The level of EME may also be affected where significant landscape features are present and predicted EME levels might not be the absolute maximum at all locations.
5. Further explanation of this report may be found in "Understanding the ARPANSA Environmental EME Report" and other documents on the ARPANSA web site, <http://www.arpansa.gov.au>

Appendix A

Table of Other Areas of Interest

Additional Locations	Height / Scan relative to location ground level	Maximum Cumulative EME Level All Carriers at this site (% of ARPANSA exposure limits?) Public exposure limit = 100%
n/a	n/a	n/a

Note: Estimation for the maximum EME levels at selected areas of interest over a height range relative to the specific ground level at the area of interest. This table includes any existing and proposed radio systems.

Estimation Notes / Assumptions – Other Areas of Interest

Variable ground topography has been included in the assessment of the "Other Areas of Interest" as per ARPANSA methodology
Insert other data / notes as required



National Broadband Network Fixed Wireless Base Stations and Health

National Broadband Network (NBN) base stations use electromagnetic radiation to provide high speed broadband services to the community. The highest values of the radiofrequency electromagnetic energy (RF EME) that the public would be exposed to from the NBN base stations that are currently planned are less than 1/100 of the Australian public exposure limit. This means that the highest exposures are well below the levels at which any harmful effects are known to occur.

The NBN makes use of *fixed wireless* communications links to provide high-speed broadband in areas beyond the reach of the fibre network. Typically, this is where residential blocks are large and widely spaced.

The fixed wireless links use RF electromagnetic radiation (EMR), also called electromagnetic energy (EME), in the 2.3 GHz band to communicate between *NBN base stations* and small rooftop installations on residences and business premises.

Wireless base stations used for communications purposes, such as the NBN fixed wireless systems, are regulated by the Australian Communications and Media Authority (ACMA). The base stations must be operated in accordance with the ACMA Radiocommunications Licence Conditions (Apparatus Licence) Determination 2003. These licence conditions make mandatory the limits in the ARPANSA RF Standard which sets limits for human exposure to RF fields from all sources, including mobile phone and NBN base stations.

The ARPANSA RF Standard is based on scientific research that shows the levels at which harmful effects occur and it sets limits, based on international guidelines, well below these harmful levels. It is the assessment of ARPANSA and other national and international health authorities, including the World Health Organization (WHO), that there are no established adverse health effects below current exposure limits. The standard is intended to protect people of all ages and health status.

The maximum levels of exposure of RF EME from the NBN base stations may be calculated from details of the equipment installed. These calculations are made available in the ARPANSA EME reports provided by the telecommunications companies on the Radio Frequency National Site Archive (RFNSA) website, www.rfnsa.com.au. The NBN sites may be located by searching by postcode or town.

For typical 30-40 m high NBN base stations, the highest exposure levels at ground level in the surrounding area are approximately within 0.001 – 0.01 watt/m² (0.1 – 1.0 µW/cm²) or less than 1/1,000 of the ARPANSA public exposure limit.

Where NBN base station antennas are mounted on the same structure as mobile phone base station antennas, the ARPANSA EME reports provide the overall exposures from the different technologies combined. For more information on mobile phone base station antennas please see **Useful Links** following.

Summary

NBN base stations use electromagnetic radiation to provide high speed broadband services to the community. The base stations use similar technology to 4G mobile phones and produce very low exposures to EMR (or EME) in the surrounding area, even very close to the installation. There are no established health effects from these very low levels of RF EMR.

Useful Links

- ARPANSA Factsheets on RF EMR and EME
www.arpansa.gov.au/radiationprotection/FactSheets/is_antenna.cfm
- ARPANSA EME Reports
www.arpansa.gov.au/emereports/index.cfm
- ARPANSA RF Exposure Standard
www.arpansa.gov.au/publications/Codes/rps3.cfm
- NBN Co Limited
www.nbnco.com.au
- Radio Frequency National Site Archive
www.rfnsa.com.au
- World Health Organization Factsheet on Wireless Technologies
www.who.int/mediacentre/factsheets/fs304/en/index.html

More information is from the ARPANSA website www.arpansa.gov.au.