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**NBN Limited**

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**NBN Submission to Project Application MP07 0036**

The proposed Wind Farm by GIWP Pty Ltd located at Waterloo Range, West of Glenn Innes poses potential problems for commercial broadcasters (NBN Television, PRIME Television, and Southern Cross Broadcasting) to digital television signal reception in and around the town of Glenn Innes or to anyone who receives their television from the local transmission site based at Carpenters Hill (located North West of Glenn Innes).

The previous information in the submission (DA MP07\_0036, Volume 1, 08\_10\_GIWF\_ea\_chapter11\_telecommunications.pdf) discusses the potential impact to television broadcasts in the area; however the conclusions are based on analogue television reception and not digital television reception. Analogue television broadcasting has ceased in this area with all broadcasts now being digital. The quoted ITU-R BT.805 is no longer relevant. A new recommendation for digital television is now current (ITU-R BT.1893 (05/2011)).

The interference to television signals could manifest in two different ways:-

1. Direct impairment caused by backscatter from the turbine blades. The multipath signals generated by the blades can cause problems for homes close to the wind farm, depending on which transmission site the home is receiving.
2. The commercial broadcasters at the Carpenters Hill site use the signal from Mt. Dowe (Mt. Kaputar) as an input for the translators. Current predictions show that the proposed Waterloo Range wind farm is in a direct line between Mt. Dowe and Carpenters Hill and would block the signal path between these two sites. These two sites are not in direct line of sight, with the signal diffracting over the ridge where the wind farm would be located. The construction of the wind farm could adversely affect the signal input to the Carpenters Hill transmission site and any interference caused would be rebroadcast. All viewers of the Carpenters Hill site would be affected. ITU-R BT.1893 concludes that there may be DVB-T reception problems, "especially in the case of reception in non-line-of-sight to the transmitter, but in line of sight to the wind farm". This is the situation that would be presented if the Wind Farm goes ahead in its current location.

In addition to this the Federal Government is currently under taking a project to reclaim spectrum from the UHF television band. This project is 'restacking' the UHF band and altering transmission frequencies of all broadcasters in the area. The project is estimated to be finalised by the end of 2014. The changing of the broadcaster frequencies might have an effect on local reception as reception might not be affected by the wind farm on the frequencies used now, however after the restack frequency changes the new channels may be affected. This is also relevant to the input signals used at the Carpenters Hill

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transmission site. Not only will there be frequency changes at the input to the site, but there will also be Band changes for some broadcasters (VHF to UHF).

The Commercial Broadcasters would need an undertaking from GIWP Pty Ltd that all unacceptable interference issues caused by both direct and indirect impacts by the wind farm be addressed in a timely manner so that television services in the Glenn Innes area are not affected and there will be no detrimental viewer impact.

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NBN Television.