

Draft Five-Year Spectrum Outlook 2024-2029 (FYSO)

Submission of NBN Co (nbn/the company)

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VERSION 1



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1 Introduction

Thank you for the opportunity to provide feedback on the draft FYSO. **nbn** appreciates the clarity provided by the publication of the draft FYSO and visibility it provides on the breadth of spectrum matters.

2 Commentary

nbn relies upon our 2.3, 3.4 and 28 GHz spectrum in addition to many, and various, point-to-point links to deliver our fixed wireless (**FW**) network in which we have made, and continue to make, significant investments. **nbn** continues to seek opportunities to improve the spectrum available for this network, particularly in the areas with less than 120 MHz bandwidth of mid-band spectrum allocated to **nbn**.

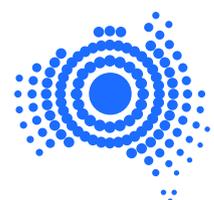
Network planning dictates that to provide the high-speed capabilities proposed as part of our \$750m FW and Satellite Upgrade Program using 4G and 5G technology, a minimum quantum of spectrum must be available to an end user to deliver committed peak speeds. As a result of the High Speed Tier product consultation that **nbn** concluded with its Retail Service Providers in February, 2024, **nbn** FW customers now require access to a minimum of 60MHz of mid-band spectrum to achieve the FW Home Fast peak download speeds of 200-250Mbps, and at least 80MHz of spectrum to achieve the uplifted FW Superfast peak of 400Mbps.

In order to maintain sufficient spectral efficiency to deliver on our product commitments, **nbn** utilises an N=2 frequency reuse scheme to avoid co-channel interference on adjacent beams, this means 160MHz is required to deliver our FW Superfast product in mid-band spectrum. Our design strategy also leverages with very narrow static beam sectorisation to maximise spectrum re-use, thereby meeting capacity requirements with limited available spectrum. Under the FW and Satellite Upgrade Program, **nbn** has deployed up to 36 sectors on some sites to achieve as much as 18 times frequency reuse of all its available mid-band spectrum, effectively exhausting the potential capacity of existing spectrum assets.

Given the extent of existing frequency reuse and high spectral efficiency required to be maintained, opportunities to identify additional spectrum that can be used to support customers long term growth in capacity demand are a keen area of interest to **nbn**, along with a desire to ensure that technology continues to develop to support 'in home' networks such as Wi-Fi evolving to effectively deliver Gbps and multi-Gbps services in the future.

▪ 6 GHz

nbn looks forward to the consultation and is interested in the feasibility of automated frequency coordination solutions. **nbn** highlights the need to ensure that incumbent use of the point-to-point links in this band are effectively protected and maintained.



Submission to Draft FYSO 2024-2029

▪ 3.4-4.0 GHz

There are some items that are not featured in the draft FYSO that are of importance to **nbn**.

- The (re-)opening of allocation for Remote 3.4-4.0 GHz area wide apparatus licences (AWLs).
- The process and timing by which 'unsold' lots in the 3.4/3.7 GHz auction will be made available.
- A review of the technical framework for the 3.4-3.8 GHz spectrum licences with respect to spurious emissions into the 3.8 GHz AWLs which present technical challenges if operating common radio and antenna equipment across both parts of the band.

▪ Expiring Spectrum Licenses (ESLs)

nbn supports the process ACMA is undertaking and will be submitting a full response to the open consultation on ESLs. As noted above, our current spectrum licences are relied upon to enable the FW network and underpin significant investments made to date and planned into the future.

