

## Attachment I: Approach to developing preliminary views

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### **Methodology**

9. We propose to consider several matters relating to each relevant band to identify the settings that are likely to best promote the long-term public interest for the
  - > High-level use that would likely best promote the long-term public interest<sup>6</sup>
  - > Use cases (as well as types of users) that would likely promote the long-term public interest
  - > Licensing framework (i.e. spectrum, apparatus or class) that best facilitates that use/use case
  - > Whether any band-specific issues exist that could be addressed through particular outcomes (e.g. fragmentation – assume these would broadly be allocative issues; other kinds of issues could be addressed through other mechanisms)
  - > Where appropriate, whether any broader market or environmental issues could be addressed through particular outcomes (e.g. lack of competition, etc)

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<sup>5</sup> Groups of licensees can be characterised by their use-case and scale, such as MNOs being characterised by wide area mobile broadband use-cases.

<sup>6</sup> Initial views were consulted on as part of stage 2.

10. There are several modules by which we are proposing to categorise information to support our consideration of the underlying matters listed above and long-term public interest. We anticipate that we will utilise the public interest criteria as an analytical framework where relevant (e.g. analysing how existing and proposed use of the spectrum fulfils the relevant public interest criteria).
11. Initial scoping of these modules of the preliminary views workstream is available at **Appendix A**. In summary, they include:
- > Expiring licences and incumbent holdings: summary of ESLs and current spectrum holdings
  - > Current and future markets and broader environment: analysis of current markets, including consumer trends, international benchmarking, and trends in spectrum management
  - > Current and future use of the spectrum: analysis of how incumbent licensees are currently using the spectrum and plan to use the spectrum
  - > Alternative demand: analysis of competing demand for spectrum, including nature of demand, availability of spectrum, viability, etc
  - > Analysis of secondary markets
  - > Future developments affecting spectrum usage and demand: analysis of emerging use cases and technologies, spectrum availability, and other environmental matters
  - > Band-specific considerations
12. A *high-level and hypothetical example* of how such analysis and supporting information may be presented to evaluate how different options could differently facilitate the long-term public interest is available at **Table 1** below.

**Table 1: Example of ESL options analysis**

<b>500 MHz band</b>	
In hypothetical scenario, the 500 MHz band is currently allocated to MNOs on a nation-wide basis and used primarily for wireless broadband (WBB) applications such as mobile voice and data. The allocation is one of several low-band allocations currently held by MNOs. All low-band allocations are subject to the ESL process. The licences will expire in 2032.	
	<b>Analysis</b>
<b>Uses and use-cases</b>	<ul style="list-style-type: none"> <li>&gt; Global harmonisation and available ecosystem indicates likely long-term support for mobile WBB applications</li> <li>&gt; Most jurisdictions have allocated for wide-area WBB and deployment of national mobile networks</li> <li>&gt; Access to low-band spectrum necessary for effective and efficient mobile network</li> <li>&gt; Some jurisdictions have also made parts available for other WBB applications and deployments including private networks in remote areas to support mining and agricultural industry</li> <li>&gt; Relatively high costs associated with equipment and site access posing barrier to entry, particularly in regional and remote areas</li> </ul>
<b>User(s) (i.e. demand)</b>	<ul style="list-style-type: none"> <li>&gt; Incumbent users currently use the spectrum, in connection with other bands, in provision of nation-wide mobile voice and data services</li> <li>&gt; Incumbent licensees have expended \$5 billion in CapEx and OpEx over previous decade in deployment and ongoing use of spectrum</li> <li>&gt; Incumbent licensees have access to considerable substitutable low-band spectrum, whereas alternative users do not</li> </ul>

	<ul style="list-style-type: none"> <li>&gt; Incumbents indicate relatively intensive use of spectrum in metropolitan areas and major population centres, but lower utilisation in low population density areas</li> <li>&gt; Alternative demand largely from operators seeking to service mining, agriculture and transport industries in regional and remote areas</li> <li>&gt; At least one operator interested in providing neutral host services, although competing submissions indicate lack of viability, with MNOs voicing opposition to utilising neutral hosts to augment their own services</li> </ul>
<b>Environment/Market considerations</b>	<ul style="list-style-type: none"> <li>&gt; All available low-band spectrum for WBB applications has been allocated on a nation-wide basis under spectrum licensing and is currently held by MNOs, providing limited opportunities for new entrants and use-cases</li> <li>&gt; Unlikely that additional low band spectrum will become available for allocation for WBB over next 10 years</li> <li>&gt; Lack of infrastructure competition in regional and remote areas has led to monopolisation of service provision in these areas, providing consumers with limited options</li> <li>&gt; Some regional and remote areas, such as key transport routes and First Nations communities, do not have adequate coverage or service quality</li> <li>&gt; LEOsats providers have demonstrated effective provision of WBB services in remote and regional areas using spectrum licensed to MNOs under third party arrangements</li> </ul>
<b>Band-specific issues</b>	> N/A
<b>Options</b>	<p><b><u>Renewal</u></b></p> <p>(+) Existing use of spectrum by incumbents for mobile WBB consistent with uses and use-cases identified to promote long-term public interest</p> <p>(+) Nature of competing demand unlikely to provide better connectivity outcomes for consumers</p> <p>(+) Loss of spectrum would likely pose considerable impact to service provision to consumers</p> <p>(+) Emerging agreements with LEOsats using spectrum through arrangements with incumbents may better address regional/remote service availability and quality issues than allocating spectrum to alternative users</p> <p>(-) Lack of use in some key areas is an inefficient use of the spectrum with competing demand for spectrum</p> <p><b><u>Partial renewal</u></b></p> <p>(+) Lack of use in some key areas, and competing demand for spectrum in those areas, could mean that excising spectrum from renewal and subsequent allocation to competing users could provide more efficient use of the spectrum and other societal benefits</p> <p>(-) The viability of some competing use cases in long-term is unclear</p> <p>(-) Fragmenting the band geographically could result in considerable dead zones, impacting service delivery, but also foreclose on ability of incumbents to deploy equipment in those areas and frequencies in the future (although this is offset by availability of alternative spectrum).</p> <p><b><u>Non-renewal</u></b></p> <p>(+) Re-allocating spectrum through market based approach, while renewing licences in substitutable bands may enable re-testing of market and encouraging greater investment and/or competition in some areas</p> <p>(-) Announcing intention to re-allocate band now, noting nearly decade until expiry, may create uncertainty and disincentivise investment and innovation over that decade</p>

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## Appendix A: Proposed preliminary views workstream modules

Module	Sub-module	Description
Introduction	N/A	Summarise process to date, public interest criteria and MPS
Current and future market and environment	Mobile broadband	Provide overview of current domestic market for mobile broadband, including per operator revenues, subscribers, market share, competition, etc
Current and future market and environment	Fixed wireless broadband	Provide overview of current domestic market for mobile broadband, including per operator revenues, subscribers, market share, competition, etc
Current and future market and environment	International benchmarking and comparison	Provide benchmark of international WBB markets to compare domestic market against
Current and future market and environment	Consumer trends (data demand, etc)	Discussion of consumer trends, including data demand, demand for services, etc
Current and future market and environment	Current and future trends in spectrum management	Discussion of international and domestic trends in spectrum management and allocation (e.g. mixed licensing, etc)
Current and future market and environment	Market trends	Discussion of broader market trends, like revenue, investment, etc
Expiring licences and incumbent holdings	N/A	Provide overview of all expiring licences and incumbent holdings for relevant licensees (including relevant apparatus licensing where applicable (mostly PMTS and AWL)) as well as analysis of low band vs mid band, etc
Current and future use of the spectrum by incumbents	Optus	Summary of Optus current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS
Current and future use of the spectrum by incumbents	Telstra	Summary of Telstra current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS



Module	Sub-module	Description
Current and future use of the spectrum by incumbents	TPG	Summary of TPG current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS
Current and future use of the spectrum by incumbents	NBN	Summary of NBN Co current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS
Current and future use of the spectrum by incumbents	Rail	Summary of Rail industry current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS
Current and future use of the spectrum by incumbents	FTA TV Broadcasters	Summary of FTA TV broadcasters current and proposed future use of the spectrum, including how it promotes long-term public interest with reference to PIC and MPS
Alternative demand	N/A	Summary of alternative demand for spectrum, nature of demand, fulfilment of PIC, etc
Secondary markets	N/A	Summary of secondary markets for spectrum, including trading, third party authorisations and other market activity and how it has affected spectrum holdings as well as efficacy of providing alternative access to spectrum
Future developments affecting spectrum use and markets	600 MHz	Discussion of 600 MHz and potential impacts
Future developments affecting spectrum use and markets	Upper 6 GHz	Discussion of upper 6 GHz and potential impacts
Future developments affecting spectrum use and markets	4G	Discussion of expected 4G developments
Future developments affecting spectrum use and markets	5G	Discussion of expected 5G developments
Future developments affecting spectrum use and markets	6G	Discussion of expected 6G developments



Module	Sub-module	Description
Future developments affecting spectrum use and markets	wifi and RLANs	Discussion of wifi and RLAN developments
Future developments affecting spectrum use and markets	LEOsats (including D2D)	Discussion of expected LEOsat development
Future developments affecting spectrum use and markets	New TOB Technologies	Discussion of expected New TOB Technologies developments
Future developments affecting spectrum use and markets	FRMCS (rail)	Discussion of expected FRCMS development
Future developments affecting spectrum use and markets	Sharing	Discussion of potential sharing arrangements and impacts, including MOCN
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