

SPECTRUM COMMITTEE

Meeting date: 22 November

Agenda number: 2a

[REDACTED] [REDACTED] [REDACTED]

DRAFT CONSULTATION PAPERS: EXPIRING SPECTRUM LICENCES STAGE 3 PRELIMINARY VIEWS

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- | Question | Percentage of 'Yes' Answers |
|---|-----------------------------|
| 1. Are you a member of a religious organization? | 95% |
| 2. Do you believe in God? | 98% |
| 3. Do you believe in the Bible? | 95% |
| 4. Do you believe in the resurrection of Jesus? | 95% |
| 5. Do you believe in the virgin birth of Jesus? | 95% |
| 6. Do you believe in the divinity of Jesus? | 95% |
| 7. Do you believe in the Trinity? | 95% |
| 8. Do you believe in the authority of the Bible? | 95% |
| 9. Do you believe in the infallibility of the Bible? | 95% |
| 10. Do you believe in the inspiration of the Bible? | 95% |
| 11. Do you believe in the inerrancy of the Bible? | 95% |
| 12. Do you believe in the deity of Jesus? | 95% |
| 13. Do you believe in the resurrection of Jesus? | 95% |
| 14. Do you believe in the virgin birth of Jesus? | 95% |
| 15. Do you believe in the divinity of Jesus? | 95% |
| 16. Do you believe in the Trinity? | 95% |
| 17. Do you believe in the authority of the Bible? | 95% |
| 18. Do you believe in the infallibility of the Bible? | 95% |
| 19. Do you believe in the inspiration of the Bible? | 95% |
| 20. Do you believe in the inerrancy of the Bible? | 95% |

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Demand for spectrum

34. All groups of incumbent licensees have broadly indicated interest in having their licences renewed and argued that ongoing access to the spectrum is necessary for the continued provision of existing and future services.
35. Our stage 2 consultation paper and associated communications material emphasised our interest in identifying demand for ESL spectrum (alternative uses, use-cases and users, including complementary uses that can co-exist with incumbents). Overall, the process did not identify considerable alternative demand for ESL spectrum, and many expressions of demand were often very broad (i.e. an interest in almost any and all ESL spectrum) or were very focussed on particular bands but with limited supporting information about how the use case would work operationally.
36. Alternative demand expressed for the spectrum is largely limited to four general use-cases: localised private and public networks (e.g. mining, agriculture and community connectivity solutions/wireless internet service providers), public safety mobile broadband, remotely piloted aircraft systems (RPAS; i.e. drones), and Defence. We also note there is likely greater alternative demand in the market, for low-band spectrum and also likely for widely supported LTE and 5G bands (e.g. 1800 MHz). While we did not receive submissions to this process expressing those alternative demands we are otherwise aware of them through the recent area-wide licence allocations and submissions to previous processes.

Allocation and licensing considerations for alternative demand users/uses

37. Allocative and licensing settings that are likely to facilitate efficient use of the spectrum in the WA WBB use-case are different to those that are likely to facilitate efficient use of the spectrum in localised private and public networks use-case, owing to their different demand profiles and business-cases. This creates a tension wherein, to facilitate efficient use of the spectrum by alternative users, there would likely need to be intervention in how parts of some bands are licensed and allocated compared to existing arrangements for ESLs, which may make the spectrum less suited to enabling wide area networks and may overall still result in areas of unused or underutilised spectrum.
38. Historically, the spectrum that is suited for WA WBB (that is, spectrum that is identified at the ITU level for WBB and which is supported by standards and an equipment ecosystem that supports economies of scale) has not been especially attractive for localised solutions. Private networks are something of a departure, in that they use WBB technology for localised services.
39. Allocation and licensing arrangements for WA WBB are apt for the demand serviced by MNOs: large licences across contiguous bandwidths and geographies are a good match for a general public seeking mobile services, as well as for many enterprise use cases located in metro and urban areas. While MNO's may acquire spectrum for future optionality, they have demonstrated that they generally put the spectrum to use across a considerable part of the licence area. This is because MNOs have a comparatively constant demand for the spectrum stemming from existing customer bases and a known addressable consumer mobiles market in areas where end-users exist and are not as dependent upon prospective users approaching them to seek services. This approach is not perfect: it does result in areas of under- or non-use; but it likely results in utilisation over a much greater area overall compared to using similar arrangements to facilitate localised use-cases.
40. Alternative users who provide services to end-users, like Pivotel and Connected Farms, seek to cater to demand for localised private and public networks in

downstream markets. However, this demand is typically concentrated in localised areas of economic activity and/or population. Demand for spectrum from Pivotal and Connected Farms is therefore not consistent across Australia or over time (as opposed to the reasonably consistent demand for public mobile services). As such, some of these parties have expressed a preference that spectrum be always available on an ad hoc basis (e.g. an over the counter administrative allocation) on a more granular basis to cater to demand as it arises.

41. There are also alternative localised users, such as mining companies, who typically seek to utilise the spectrum for their own needs, rather than catering to demand in downstream markets. This demand is also typically concentrated in areas of economic activity and/or population. These users generally also prefer spectrum be available through an over the counter administrative allocation when their business need arises.
42. There are multiple options for how spectrum could be licensed and allocated to facilitate localised use-cases, and these would need to be fully considered on a per-band basis. We make the high-level observation that there are likely to be areas of higher demand where there is higher population density and areas of higher economic activity, such as mine sites, agricultural areas and transport corridors. In such areas, prospective licensees may seek to acquire spectrum for future optionality, to guarantee available spectrum for when demand arises. This in turn may result in similar outcomes to national licences where some spectrum is ultimately unused or underutilised where spectrum is acquired for use-cases that do not materialise. However, as discussed below at paragraph 50, many of these areas would likely fall within areas where incumbent licensees are purportedly utilising the spectrum.
43. Stakeholders that are not themselves interested in being licensees (active and passive infrastructure providers, government bodies) conveyed views about the benefits of neutral hosting models. We would consider these to largely be different business models or approaches to deploying networks, rather than an alternative use cases, and ones that are already available to incumbents.

Subdivision of national low-band licences

44. Some of the alternative users, such as Pivotal and Connected Farms, have expressed interest in accessing low-band spectrum (i.e. 700 MHz and 850 MHz ESLs) where they claim it is unused by incumbent licensees; MNOs have broadly rejected claims that spectrum is unused in areas where there is likely to be demand and raised concerns that subdivision of national licences could result in inefficient spectrum usage.
45. At present, our primary option to facilitate opportunities for these users in so-called 'unused areas' would effectively be through partial renewal of national low-band licences. As discussed in connection with our views on 'use-it-or-lose-it' and 'use-it-or-share-it', our preference would instead be to facilitate opportunities to share unused spectrum through the LoCAL licensing model which could maintain the integrity of existing licences while providing localised licensing arrangements for place-based and localised use-cases.
46. We observe in the **Attachment A and B** that there are likely considerable complexities associated with the introduction of new licence boundaries into existing low-band licences while balancing continuity of services, potential for future services, and producing usable unencumbered spectrum.
47. In designing lots for allocation of the 850/900 MHz band in 2021, the ACMA's initial preference was for nation-wide lots due to the potential risks and inefficiencies licence boundaries can introduce. Regional and major population lots were ultimately selected

to balance both efficient use of the spectrum and demand for regional spectrum by some of the alternative users who have expressed demand in this process. Regional lots for the 850/900 MHz band were essentially Australia-wide, excluding major population areas (i.e. the eastern coastline from Cairns to Wollongong and then inland to Canberra to Melbourne, and the Hobart, Adelaide, Darwin and Perth metropolitan areas) and the Mid West Radio Quiet Zone (see **Figure 1 of Attachment D**). Importantly, these lots were considerably larger in scale than what would likely be available under partial renewal outcomes and had far fewer potential geographic boundaries where there may be an adjacent licensee and network infrastructure.

48. **Figures 1 - 3 of Attachment D** illustrate the geographic extent of the major population and regional 850/900 MHz lots compared to the potential maximum geographic extent of parts of Telstra's 700 MHz licence where Telstra does not currently report coverage and that potentially could be re-allocated under a partial renewal scenario. Were the ACMA to partially renew national licences on the basis of 'non-use', it would introduce considerable geographic fragmentation, and numerous licence boundaries that may greatly complicate interference management and reduce the utility of spectrum close to the boundaries.⁴
49. We note that the 700 MHz area is illustrative only and was identified on the basis of Telstra's predicted outdoor 4G coverage. Any consideration of partial renewal would also need to consider a range of other factors including external antenna coverage, Telstra's IoT network coverage area, appropriate geographic guard zones to minimise potential interference from any adjacent services, as well as likely or proposed expansion of coverage. The area that could likely actually be re-allocated without impeding current or planned usage would therefore be a further subset of the identified area.
50. **Figures 4 and 5 of Attachment D** illustrate some of the likely sources for higher levels of demand for spectrum, including mine sites, agricultural usage areas, rail corridors and ports. We observe that many of these locations fall within areas where Telstra has claimed that it provides coverage using 700 MHz spectrum which may prevent the re-allocation of 700 MHz spectrum without causing some impact to existing services.⁵ While these identified locations represent some of the likely sources of demand, it is not exhaustive, and there are likely to be other locations within the no coverage area where there could be some demand for low-band spectrum.
51. **Figure 6 of Attachment D** illustrates First Nations communities and locations compared to the areas where Telstra claims mobile coverage using 700 MHz spectrum. We observe that there are locations within the no coverage area that may also inform demand or may otherwise be benefited from facilitating localised access to low-band spectrum, such as to enable place-based solutions to connectivity gaps.

TPG's use of the spectrum

52. TPG's intended future use of the spectrum outside of metropolitan areas is generally to authorise other users to use the spectrum, enabling those users to provide WBB services that TPG would then on-sell to end-users or on a wholesale basis. This

⁴ For avoidance of doubt, reported coverage serves as a proxy for spectrum utilisation over a given geography and has numerous limitations when assessing spectrum usage.

⁵ Many of these areas of likely higher demand also fall within areas where Optus claims it provides 4G coverage using 700 MHz, as well as the MOCN area where Optus plans to utilise TPG's 700 MHz spectrum.

includes authorising Optus to use the spectrum in the regional MOCN and LEOsat providers in DTM services.

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54. We will need to give this and similar matters deeper consideration when we consider individual applications for renewal [REDACTED]

[REDACTED] However, it is not appropriate in our stage 3 paper to single out specific licensees or licences in this way, as it may be seen as prejudicing the administrative decision-making process. We also note the above discussion about the complexities associated with subdivision of low-band licences.

55. To strike the right balance between merits-based, case-by-case decision on licenses and providing confidence for stakeholders, our approach to is to indicate that our preliminary and subsequently preferred views on outcomes (renewal, partial renewal, refusal) and the long-term public interest will favour where a licence within a band is used for the identified purpose. For example, our policy may be that licences within the 850 MHz band should be renewed where they are used for WA WBB, as this likely best promotes the long-term public interest; but when deciding to renew a licence, if there is no evidence that a licence is used for that purpose, then it may not be renewed.

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64. Analysis with respect to ESLs held by the MNOs involves consideration of both LEOsat DTM services and the Optus/TPG multi-operator core network (MOCN) and related spectrum sharing agreements. At this time, both are emerging developments, and the long-term implications for spectrum usage and the public interest are not yet fully able to be understood. Where possible, we have sought to recognise this uncertainty, but we have generally also developed preliminary views with the broad assumption that, at least for the MOCN, they will eventuate.⁷
65. TPG and Optus are likely highly incentivised to implement the MOCN and LEOsat DTM services to realise the potential benefits to both capacity and coverage in regional areas, as well as monetise existing assets, potentially facilitating increased investment and greater competition with Telstra. That is, TPG monetising spectrum assets that are currently underutilised, Optus monetising its regional network and accelerating its 5G deployment, and both potentially expanding coverage into areas where they do not currently provide services.
66. While the successful implementation of both the MOCN and LEOsat DTM services are subject to externalities not fully within the control of Optus and TPG, we consider that there are less uncertainties about the MOCN than for DTM services. For example, the long-term viability and impact of DTM services are unproven; many of the prospective LEOsat providers do not currently have the constellations likely necessary to provide a meaningful retail mobile service, and business models are yet to be realised. By comparison, the MOCN broadly relies on proven technology and augmenting existing infrastructure, although is still subject to some long-term uncertainty due to the length of agreements (i.e. 11 year initial term with option for 5 year extension).
67. While we can account for these changes where they emerge prior to release of the stage 3 or stage 4 papers, longer-term the ACMA will likely need to consider whether any developments are likely to affect views regarding ESLs on an ongoing basis, noting that stage 4 views will be published in 2025 and the last set of licences are due to expire in October 2032. We also note that the *Radiocommunications Act 1992* requires the ACMA to consider whether to renew licences on a per licence basis in response to a renewal application, taking into consideration all matters it deems relevant.

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