Australian Government | acma Australian Communications and Media Authority

Expiring spectrum licences, stage 4

Preferred views on ESL frequency bands and licensing arrangements, and response to submissions

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Executive summary

We have finalised our preferred views on the future of licences that underpin a connected and productive Australia, now and into the future

Wireless communications services keep Australian consumers, businesses and governments connected. Texts and calls to family and friends, browsing social media, streaming video and music on the move, conducting business and making transactions over mobile and other wireless devices, like fixed wireless broadband in the regions—all are made possible by spectrum, the invisible radio waves that carry these communications to and from our devices,

Nearly all of us (97%) used a mobile phone to access the internet in 2025,[1] [2] and all of Australia's 34 million mobile phone services rely on networks operated by Australia's 3 public mobile network operators (MNOs): Telstra, Optus and TPG. MNOs access spectrum through licences which the ACMA issues. The ACMA manages this resource on behalf of all Australians.

The majority of licences underpinning mobile networks, as well as licences for NBN Co to provide the wireless component of the nbn, are reaching the end of their life, and will expire between 2028 and 2032. Included in these expiring spectrum licences (ESL) are licences used to support metropolitan rail networks and television production.

What happens to these licences will have a significant impact on the communications services that Australian consumers rely on into the next two decades.

Consultation, iteration, evidence and transparency have been key to forming views

Between May 2023 and November 2025, we undertook 5 public consultation processes across 3 stages and released 13 papers. These papers sought views and provided analysis on the Australian telecommunications market, current and future demand for spectrum from alternative users and use-cases, and technology and regulatory policy trends. They also included advice to government and independent analysis on licensing conditions, and our detailed economic modelling and methodology for spectrum pricing.

We have received a total of 90 public submissions from stakeholders, including licensees, alternative users of ESL spectrum, equipment suppliers, industry and peak bodies, and government agencies.[3]

Our process has taken us from consultation on high-level design, through an extensive information gathering exercise, to a consultation on preliminary views on outcomes and prices for spectrum, and now to our preferred views.

The long-term public interest is best served by the renewal of ESLs used for mobile services and the nbn at a fair market price

We have undertaken a rigorous public process to evaluate what should happen to ESLs, guided by the aim of the *Radiocommunications Act 1992* (the Act) to manage spectrum in a

[1] ACMA, unpublished research: ACMA annual consumer survey, June 2025. 97% of Australian adults used a mobile phone service to access the internet in the 6 months to June 2025. Mobile services are used for a wide range of online activities including to access news, government services, and telehealth services, and online marketplaces. Even more adults (99%) used a mobile phone in the 6 months to June 2025.
[2] 34 million mobile services as at December 2023, ACMA Trends and Developments in Telecommunications 2023–24. Mobile connections are incredibly important for First Nations Australians, with 25% of First Nations Australians relying on mobile as their only option for internet connectivity (compared to 9% for other Australians.) See Measuring Digital Inclusion for First Nations Australians, Counting on Connectivity 2025, p. 22.
[3] These submissions are available on our website.

manner that promotes the long-term public interest. Under the Act, licensees are legally entitled to apply for renewal of their licences.

We used 5 public interest criteria to help us consider how each option under the Act – renewal, partial renewal, refusal – promoted the long-term public interest for each band of spectrum. We assessed whether these options would facilitate efficiency, promote investment and innovation, enhance competition, balance public benefit and impact, and support relevant government policy objectives.

The criteria also incorporate Commonwealth Government communications policy objectives specified in the ministerial policy statement (MPS) to which we have had regard to throughout this process.[4] The MPS requires us to have regard to supporting service continuity – that is, uninterrupted access to existing wireless services – for end users, particularly where no alternative service is available; facilitating opportunities for new entrants and use cases, including for low earth orbit satellites (LEOsats); connectivity and investment in regional and remote areas to deliver improved services to end users; promoting competition; and capacity for sustained investment and innovation.

Based on this analysis, our preferred view is that renewal of the ESLs used for mobile services and the nbn is in the public interest.[5] We step through how our preferred view, if implemented through licence renewal, will promote each of the 5 public interest criteria and the policy objectives of the MPS in the following sections.

Renewal of ESLs use for mobile services will support future competition in the mobile market

Through our extensive consultation processes and analysis of local and international markets, no alternative competitor to the three incumbent MNOs has emerged.

Australia's unique combination of a small population and a vast landmass make building a competitive terrestrial network at scale practically and economically challenging. These challenges are more pronounced when using terrestrial infrastructure to connect parts of the population in regional, rural and remote areas outside of the metropolitan cities. A new market entrant would need to build a mobile network at considerable cost and over many years while competing against established incumbents with established networks and customer-bases. Recent attempts to enter the market have ultimately resulted in consolidation of both networks and spectrum into the 3 current MNOs. Our plan to have all renewed ESLs expire at the same time as continuing spectrum licences (i.e. those licences that are outside this ESL process) in 2044 will allow for a future assessment of the likelihood of a new infrastructure competitor.

Existing allocations of spectrum allow the 3 MNOs to compete on service coverage and quality. The MNOs provide wholesale access to their networks, fostering competition in downstream retail markets by enabling consumers to choose between 3 networks and over 40 mobile service brands. Existing allocations have also supported the recently activated Optus and TPG shared network in regional areas, and enable emerging developments like

[4] Radiocommunications (Ministerial Policy Statement – Expiring Spectrum Licences) Instrument 2024. The MPS is expressed to only apply to licences used for wireless broadband and held by the MNOs and NBN Co and not to licences used for rail or television production. We also note the Radiocommunications (Ministerial Policy Statement – 3.4–4.0 GHz) Instrument 2022, which the previous minister has indicated an intention to repeal once our allocation processes in that band are complete. Our preliminary and preferred views were also formed with reference to the 2024 Statement of Expectations, which outlines the Australian Government's expectations for the ACMA.

[5] Note that in we have deferred offering a preferred view on certain 2.3 GHz spectrum until July 2027.

LEOsat direct-to-device (D2D) services, which have the capacity to further enhance competition and coverage in regional, rural and remote areas.

In these circumstances, renewal of the ESLs used for wireless broadband services is most likely to maintain existing competitive tension in the mobile market. The ACCC agrees with our view that renewing ESLs will likely promote competition in the mobile services market.[6]

Other opportunities to support new entrants and services have also informed our preferred views.

The ACMA's preferred view will sustain a competitive mobile market in Australia. It will ensure that MNOs continue to have access to sufficient spectrum to maintain existing services and coverage, and to provide innovative services, like LEOsat D2D services, which have the capacity to enhance competition, particularly in regional, rural and remote areas.

Renewal of ESLs will continue to ensure that consumers have access to mobile and fixed wireless services

ESL spectrum is used to provide 4G and 5G mobile services across Australia.[7] Access to these services supports economic outcomes, as well as social connections and cohesion, and an informed and entertained society.

Each MNO builds and configures its network using its existing spectrum holdings, including ESLs, to deliver a mix of capacity (how much data is carried) and coverage (where services are available). Holdings and network configurations typically reflect each MNO's commercial strategy. All available spectrum is generally provisioned to provide services where there is supporting network infrastructure.

Renewal of ESLs supports service continuity for consumers using these networks, and also supports consumer choice between established networks and brands. Due to Australia's vast size and the challenges of providing regional coverage, there are parts of Australia where consumers may be reliant on a single provider. Where consumer choices are limited in this way, renewal will ensure consumers stay connected.

Renewal of ESLs will also support the fixed wireless component of the nbn, which around 5% of nbn users rely on. The $750 million fixed wireless upgrade program, completed in February 2025, has provided over 800,000 homes and businesses access to faster internet speeds over NBN Co's fixed wireless network.[8] This may be the primary or only form of connectivity for some Australians living in regional, remote and rural areas, with renewal ensuring these users continue to receive connectivity over the nbn.[9]

The ACMA's preferred view will ensure consumers will be able to seamlessly continue to access mobile services. Consumers will maintain access to their existing telco provider and service, while being able to move to other known and established providers in the market.

Renewal of ESLs will support regional and remote connectivity

[6] See submissions to our stage 3 preliminary views process.
[7] 52% of all Australian mobile services used 4G in 2024. This is expected to decrease to 14% by 2029 as consumers migrate to 5G. About 48% of all mobile services used 5G in 2024. This is expected to increase to around 86% by 2029. GlobalData, 'Australia Telecom Operators Country Intelligence Report' [report], *GlobalData*, 16 July 2025, accessed 14 October 2025 through subscription. This is broadly consistent with international trends for 4G and 5G. GlobalData, 'Tech Predictions 2026; [report], 21 November 2025.
[8] See "FWA use-case" in Preliminary views paper 1: Incumbent use-cases and the public interest.
[9] NBN Co, 'The technology that connects your premises' [website], NBN Co, n.d., accessed 24 September 2025.

Renewal of licences will mean consumers will continue to be able to receive 4G coverage across each network, which is the primary form of mobile connectivity in regional and remote Australia.[10] Renewal will also support measures that have the capacity to benefit consumers in regional and remote areas, like the ongoing rollout of 5G services, the recent regional network sharing agreement between Optus and TPG and the delivery of LEOsat D2D services.

Australia's flexible approach to licensing means that it is possible for LEOsat D2D services to be made available to Australians using ESL spectrum via an agreement with a licensee without additional regulatory approval. LEOsat D2D services could provide significant benefit to households and businesses in hard-to-connect parts of Australia, and has particular potential for regional, remote and very remote First Nations communities which are more digitally unconnected and under-connected than other Australians.[11] This is an emerging space, and renewal will maximise the ability of operators to facilitate, partner and compete with this new technology, consistent with the Government's policy priorities. LEOsat D2D services are expected to play an important role in the government's Universal Outdoor Mobile Obligation (UOMO) and eventually offer coverage and choice in hard-to-connect parts of the country.

As noted above, NBN Co uses its ESL spectrum to provide fixed wireless broadband services, primarily in regional, remote and rural areas. Where Australians in these areas can choose between nbn fixed wireless and an MNO offering, renewal will support this choice. In cases where the nbn is the main or only form of connectivity, renewal will safeguard that connection.

The ACMA's preferred view will support existing services that serve consumers in regional and remote Australia who often may have no alternative choices. It will also support industry in extending and deepening mobile coverage in regional and remote areas of Australia.

Renewal will support MNOs and NBN Co in continuing to invest and innovate in the spectrum

Renewal at a fair price will support MNOs and NBN Co to continue to invest and innovate in the use of the spectrum, benefiting consumers through improved service coverage and quality.

Our analysis shows that the MNOs and NBN Co have demonstrated a strong history of investment and innovation in the spectrum covered by ESL, repurposing the spectrum to deploy successive generations of communications technologies (for example, 3G, 4G and 5G).[12] Each generation of technology has brought about increased to speed and capacity, supporting consumers to access more data intensive services over mobile networks, increasing digital participation and economic productivity.[13]

[10] Telstra claims that 99.6% of Australians are covered by its 4G network, and it has the largest share of the mobile services market, including in the regions. Optus, the second largest provider by market share, claims to have up to 98.5% population coverage. TPG has substantially increased its regional reach through network sharing with Optus and is now able to provide services in regional areas with Optus coverage.
[11] Measuring Digital Inclusion for First Nations Australians, Counting on Connectivity 2025, p. 22.
[12] See discussion of investment and innovation under WA WBB and FWA use-cases in Preliminary views paper 1: Incumbent use-cases and the public interest.
[13] 2021 data indicated that average download speeds for 5G services in Australia were 5 times faster than those of 4G services. See Opensignal, '5G gives the Australian mobile experience a big boost, including 5.3 times faster speeds', Opensignal 16 March 2021. A range of factors can influence speed available over a network and that these figures are only intended to illustrate that upgrades between different generations of mobile technology have led to increases in data transmission speeds.

Unlike in some other countries which may specify how spectrum licences may be used, existing spectrum licensing arrangements in Australia are technology-flexible and can adapt to new technologies and services as they emerge. This allows licensees to change how the spectrum is used over time and to adopt new mobile technologies and services during the term of the licence, without requiring major changes to licences or licensees.

Renewal will also support longer-term innovations and developments in spectrum use and service delivery by providing licensees greater confidence to plan and invest in the long-term. This includes investment in more efficient technologies, like 6G, and emerging LEOsat D2D services.

The ACMA's preferred view will provide industry confidence to continue to invest and innovate in the use of the spectrum, benefiting consumers by enabling more data intensive applications, and harnessing opportunities brought by 6G and LEOsat D2D services.

Renewal of ESLs maximises efficient use of the spectrum for economic, technical and social outputs, including new LEOsat use cases

We have analysed how the wireless broadband market and the current 3 MNOs have used their spectrum to deliver outcomes underpinned by efficient use of the spectrum. Continuous deployment of the latest technologies is a major way that the incumbents have done this, with licensees recently refarming 3G spectrum for further 5G rollout.

The physical properties of spectrum are fixed, and its productive capacity greatly depends on technologies such as 4G and 5G to drive social and economic benefits. Consumers experience the benefits of efficient spectrum use with greater data allowances and speeds, and greater capacity that facilitates applications like video streaming on the move.

Licensees have also used secondary market mechanisms to defragment and trade spectrum holdings. This has seen underused or unused spectrum put to more productive and efficient use, which means that networks and services perform better.

Integrating new use cases is also a key feature of efficient and productive spectrum use. LEOsat D2D services currently rely on nationally licensed spectrum. LEOsat D2D services could represent a step-change in connectivity and coverage for Australian consumers, and in how operators use their networks, and are expected to play an important role in the government's UOMO and will eventually offer coverage and choice in hard-to-connect parts of the country.

The ACMA's preferred view will see consumers and businesses benefit from continued investment in and deployment of new generations of efficient and productive technology that integrates into and enhances social and economic life.

Auctions of in-use spectrum could disrupt services and weaken competition, and would likely stall investment

There has been public commentary stating that the ACMA should auction the ESL spectrum rather than renew licences as they begin to expire. We have carefully weighed the potential impacts of auctioning ESL spectrum. In the current Australian market, auctions are less likely than renewal to deliver the right mix of service continuity, competition, and technology investment and innovation that benefit Australian consumers. In fact, there is a real prospect that auctions might send consumers backwards in the short-term, with potential longer-term consequences for competition and continuity of service.

Auctions without a new entrant or a likely change in spectrum use are unlikely to deliver outcomes for consumers

The ACMA has made extensive use of auctions to allocate unused spectrum as they can be useful tools to initially allocate the spectrum. Auctions of in-use spectrum can also be good for consumers where the spectrum is not being used for the most innovative and productive use or to enable a new entrant into the market.

Our process has not uncovered any evidence of prospective new entrants or other interested users (for example, LEOsat D2D providers) with capacity to invest and innovate in the use on a similar scale to the MNOs or NBN Co. Our analysis of the previous 20 years of the Australian market indicates that the market has stabilised at a 3-player model, after multiple failed attempts to sustain a 4th operator, and that consumers would be unlikely to see benefits from retesting the current allocation at this time. Threat of credible new entry can be a key impetus for an auction, and the potential impacts on consumers of running an auction without one are explored below.

While there are other potential uses of ESL spectrum, our analysis suggested that these uses could not deliver the broad social and economic benefits of wireless broadband technology and can often by authorised using difference spectrum. ESL spectrum will likely be used to continue to deliver mobile services for the foreseeable future, because it is supported by international spectrum planning arrangements and global technology markets that have enabled consumers and operators to benefit from economies of scale. An alternative use that rivals the benefits of mobile connectivity is unlikely.

Auctions could see reductions in competition, choice and service quality for consumers, particularly those in regional, rural and remote Australia

With no potential new entrant at this time, only the MNOs and the NBN Co would likely bid for the spectrum across all of the frequency bands and geographies that would be up for auction.

An auction with adequate competition controls, like allocation limits[14] or set-asides, could manage potential risks to service continuity and competition posed by an incumbent losing spectrum, However, these controls lessen the competitive friction necessary for an effective auction. Without a new entrant, there is a real prospect that an auction using competition controls would result in licensees re-acquiring their existing holdings with no substantive changes to competition (that is, a similar outcome to renewal) and without providing any substantive benefit to consumers.

Without appropriate competition controls, incumbents may bid strategically to acquire spectrum used in their competitors' networks for coverage and capacity. This could have serious consequences for consumers and competition, as a loss of key spectrum by an incumbent would undermine its ability to service existing and future customers, reducing consumer choice and leading to poorer user experiences, resulting in slower data speeds, dropped calls or difficulty connecting, or reduced coverage and service availability.

These risks are pronounced within the current Australian market. Telstra has a dominant market share, with 41.8% of mobile services in operation, compared to Optus' 28.7% and

[14] The ACMA sets allocation limits after considering the advice of the ACCC.

TPG's 16.9% market shares.[15] There is a risk that this dominance could be deepened by a transfer of spectrum from one or more of the smaller players to the larger players.

This is further complicated by each MNO's overall spectrum holdings, particularly their low-band holdings.[16] Each of the MNOs currently holds low-band spectrum in two bands, with Telstra and Optus holding more low-band spectrum than TPG: TPG and Telstra both hold 700 MHz and 850 MHz spectrum, while Optus holds 700 MHz and 900 MHz spectrum.[17] Each MNO generally uses one band for 4G and the other for 5G.

Both Optus and Telstra have low-band holdings which expire in 2044 and cannot be auctioned at this time, while TPG does not. The risks posed by an auction to TPG, and to its role in promoting competition in the Australian market, may therefore be substantially higher. NBN Co faces similar risks with all the spectrum it relies upon to provide fixed wireless services within scope of a potential auction.[18]

Loss of low-band spectrum by the MNOs or 2.3 GHz and 3.4 GHz by NBN Co may be more acutely felt by consumers in regional, rural and remote areas. Low-band spectrum is used extensively in these areas to efficiently provide wide-area coverage, while NBN Co uses the 2.3 GHz and 3.4 GHz bands to provide fixed wireless services in some regional areas. Consumers in these areas often have limited choice between providers, and coverage, capacity and congestion issues are already a concern under existing allocations.[19]

Auctions could see Australians missing out on the full benefits of LEOsat D2D services

The technology and business models for LEOsat D2D services are taking shape. Deployment of these services is currently only possible in Australia using nationally configured licences that cover the whole of the Australian landmass, and partnerships between MNOs and LEOsat providers is the technology and commercial model that Australia is pursuing.

This means that deployment of these services will rely on a subset of spectrum licences, many of which are subject to the ESL process, and the specific bands in which they will be deployed is not yet certain. Auctions that resulted in a loss of access to these bands could diminish or preclude deployment of these services by the 3 MNOs. This could adversely affect competition and choice in relation to this emerging technology, and the impacts of this would likely be felt harder in regional, remote and rural areas, where LEOsat D2D services are likely to have the most benefit for consumers.

[15] ACCC, Internet activity report - December 2024, 2025. The remaining 12.6% of mobile services are provided by other brands using one of the MNO's networks.
[16] Low-band spectrum is often heavily relied upon to provide services in regional, rural and remote areas, being well-suited to overcome some of the challenges facing network deployment in these areas. An auction could result in a reduction in low-band spectrum across any network, reducing capacity and impacting consumers through greater congestion and reduced service availability.
[17] Low-band spectrum is a material input to an MNO's ability to provide services, deploy networks cost effectively, and its overall competitiveness. Low-band spectrum is more effective than higher frequencies at providing wide-area coverage and in-building penetration, reducing infrastructure requirements and costs.
[18] While this spectrum is currently used for fixed wireless services, it also has extensive support for mobile services and would likely be subject to demand from MNOs if auctioned.
[19] Regional Telecommunications Independent Review Committee, *2024 Regional Telecommunications Review*, 2024, pp. 3 – 4.

Auctions of in-use spectrum can stall investment in current networks and next generation services for consumers

Investment to maintain and improve mobile networks keeps MNOs competing for consumers and ensure that consumers get access to new services.

A broad policy to auction ESLs would generate uncertainty in the market about future access to spectrum. Typical responses to such uncertainty involve decreased or paused investment, because licensees are unlikely to invest heavily in spectrum to which they may lose access.[20] In the ESL context, this period of uncertainty would be likely to extend until at least 2032, which is when the last batch of licences in the process expire.

Where spectrum is not being put to its best use, or where investments are not delivering for consumers, auctions can be an appropriate mechanism to reallocate spectrum to a different use or users. In such cases, for example, an auction can switch use of the spectrum to a more efficient or productive technology, or introduce services that are more widely used and valued by the public.

Our analysis and multiple rounds of consultation highlight that mobile and fixed wireless broadband is the best use of ESL bands held by the MNOs and NBN Co.[21] Looking ahead, our analysis also strongly suggests that mobile and fixed wireless broadband are likely to remain the primary uses of ESL spectrum. Together, this means that an auction would be highly unlikely to see a change in use of the spectrum for a different technology or service. If there were a change, it is unlikely that a different technology or service could rival the wide range of social and economic benefits produced by wireless broadband.

The uncertainty generated by an auction could set consumers back, because it would see investment paused or forgone over a period where 5G deployment is ongoing, and where 6G and LEOsat D2D services are emerging.

A benchmarked evidence-based price for spectrum access reflects the market value, provides a fair return to Australians and promotes competition, choice, investment and continuity of service

Spectrum is a public resource, and Australians expect the ACMA to ensure that licensees pay a fair price to access it.

The ACMA considers that benchmarking against relevant auction results from comparable countries and Australia represents the best approach to determining market prices for renewal of ESLs. Benchmarking is a widely accepted practice for valuing spectrum and is intended to determine an objective market price.[22] The updated prices in the accompanying consultation paper are based on 205 benchmarks from 47 countries.

[20] This issue is handled in various ways in other jurisdictions but generally involves providing clarity about future arrangements ahead of licence expiry. As we observed in our preliminary views, many countries have automatic or high expectations of renewal, others have default auctions. In Australia, there is no presumed outcome for expiring licences, but licensees are given the legal right to seek renewal, and the ACMA must consider any renewal application it receives.
[21] See our *Preliminary views paper 1: Incumbent licensee use-cases and the long-term public interest*.
[22] For example, Ofcom (the UK spectrum regulator) has generally used benchmarking to set annual licence fees for spectrum licences after their initial 20-year licence term has expired.

The ACMA's preferred view is that renewal of mobile and NBN Co licences using prices derived from benchmarking is the best option to promote the long-term public interest, including competition and choice, investment, and service continuity. There is a real risk that other approaches, including non-renewal and auctions of the spectrum, would undermine these outcomes.

We are consulting on refinements to our benchmarking methodology and single $/MHz/pop prices payable by the MNOs and NBN Co. Based on this refined methodology, our updated preliminary view is that the total nominal renewal cost for these licences would be $7.34 billion. This is higher than the preliminary $5.0–6.2 billion price range we identified in our preliminary views. This increase is driven by refinements to the benchmarking methodology, which has resulted in updated single prices that are generally near or above the top of the previous preliminary price ranges.

Updates to the benchmarking methodology and preliminary prices are based on feedback from stakeholders and a peer review of our methodology. We engaged DotEcon, a UK-based economic consultancy with recognised expertise in spectrum valuation, to conduct the peer review of our preliminary pricing methodology and preliminary price ranges, as well as stakeholder submissions received to our preliminary views. The peer review provides an independent perspective on our approach, identifying opportunities to simplify and strengthen the methodology, helping ensure a robust and accurate approach to identifying an objective market value for the spectrum.

There has been some dialogue that our preliminary prices involve a 'discount' to the value of the spectrum. This is incorrect. Our preliminary prices are lower than the previous total nominal value of $8.2 billion paid for these licences through a mixture of various auctions, renewals and conversions conducted throughout the 2010s.

However, our valuation of the spectrum is consistent with global trends, including in countries comparable to Australia, which indicate that values have trended downwards in some high-value bands since these prices were paid. We consider this downward trend is largely the result of an overall increase in spectrum supply and changing expectations on the profits derived from mobile services from spectrum use. We also note that the value of some bands has increased in this time, particularly where the spectrum has been used to support 5G services.

Rail and broadcasting services have certainty under apparatus licences, and a pathway for future technologies

Spectrum licences authorising rail communications in 5 Australian capital cities, and those facilitating breaking news coverage and other out-of-studio broadcasts, are also expiring. State governments, free-to-air commercial television broadcasters and the ABC have invested in these services to the benefit of Australians.

Broadcasters agree with us that a transition to apparatus licensing will ensure that their services can continue to operate, with licensing and pricing arrangements that suit them better. We will investigate how the spectrum they currently occupy should be optimally used and allocated into the future. In the intervening period, we can use this spectrum more efficiently by authorising additional use cases.

The long-term picture for the delivery of rail services remains uncertain. There is no question that wireless communications are essential to safe and efficient rail networks. Rail licensees that use their 1800 MHz allocation are dealing with upgrading out-of-date and spectrally

inefficient systems, and the timing, technology and spectrum arrangements for supporting rail networks into the future are still taking shape. We need to make sure we get the right mix of spectrum, technology, services and regulatory flexibility to ensure that the spectrum is delivering long-term public benefits for Australians.

That means a transition away from spectrum licensing for those services is appropriate. Apparatus licences ensure that existing services will not be interrupted, while also providing flexibility for licensees to transition to new arrangements where appropriate, and for the ACMA to manage the spectrum efficiently and effectively. Our preferred pricing arrangements under apparatus licensing would also see rail licensees pay less for the spectrum than they currently do, even when accounting for the public interest discounts that applied to their original acquisition of spectrum licences.

We will commence consultation on apparatus licensing arrangements for rail services in the 1800 MHz band in early 2026. We are tackling some of the uncertainty around the future of this service by consulting on arrangements for upgraded rail services in 1900 MHz in parallel with the release of our preferred views.

The ACMA's preferred view will see rail and broadcasting services continue operating uninterrupted. However, they will operate under licensing arrangements better suited to managing the future of these services. This will enable consumers to continue to benefit from these services and advancements to how they are delivered in the future.

Our updated preliminary prices for rail services under new licensing arrangements are less than those currently applicable to spectrum licences, even when accounting for the previously applied public interest discounts.

Introduction

Over April–June 2025, we consulted on our ESL stage 3 preliminary views for spectrum licences expiring between 2028 and 2032. Our preliminary views covered a range of issues relevant to how we could deal with these licences in a way that promoted the long-term public interest.

Our preliminary views were supported by detailed analysis of the Australian and international telecommunications market, and of trends and developments in spectrum management, policy and technology.

In this paper, we present our preferred views on renewal, licence duration and renewal statements for any licences that may be renewed as part of this process.

Our preferred views are summarised in the next chapter and in **Table 1**.

Subsequent chapters set out our views on each band, licence durations and renewals statements.

We also summarise and respond to submissions received to our stage 3 preliminary views.

Our preferred views

Use of ESL spectrum for wide-area wireless broadband (WA WBB) and fixed wireless access (FWA) is likely to promote the long-term public interest

There was broad support for this view amongst stakeholders. WA WBB and FWA services strongly promote the outcomes associated with our public interest criteria. We have had regard to the policy objectives specified in the ministerial policy statement (MPS) applying to ESLs,[23] and we consider that renewal will promote these objectives.

There is always alternative demand for spectrum, including for different uses. However, the global technology market, and domestic consumer demands, are centred on WA WBB and FWA use – which benefits most people, every day, through mobile phone services and fixed wireless broadband. The spectrum covered by these bands is being used for 4G and 5G, will likely be used for 6G, and can be used to supply new Low Earth Orbit satellite (LEOsat) direct-to-device (D2D) services. New technologies are always possible though, and our spectrum licences will continue to be technology flexible.

For regional Australians relying on FWA, we can identify no better use for this spectrum, and they are also likely to benefit from LEOsat developments that are complements to the WBB use.

WA WBB and FWA ESLs should be renewed in most cases

We have evaluated the options and outcomes available for each of the ESL bands. There are benefits and risks associated with renewal, partial-renewal and non-renewal and, in each case, there are band-specific considerations. We think that overall, renewal will best promote the outcomes associated with our public interest criteria, and the objectives in the MPS.

In our preliminary views, we consistently noted the broad public benefits associated with WBB and FWA for these bands, levels of previous investment and innovation in networks, and that most Australians can choose between 3 MNO networks as well as a wider range of mobile virtual network operators (MVNOs). Connectivity is challenging in regional areas for practical and economic reasons; where the regions are connected, renewal is the option that best preserves that connection.

We also have an eye to the future. Many of these bands will likely be used for 6G, or will facilitate its deployment by running parallel 4G and 5G networks. A subset of licences in these bands are candidates for deployment of LEOsat D2D services that have the capacity to promote competition, connectivity, innovation and investment – especially in regional, remote and rural Australia. Renewal also bolsters the ability of MNOs to meet UOMO.

Bands included in this group are also key parts of the Optus/TPG multi-operator core network (MOCN) agreements, which are offering consumers more choice by expanding TPG's coverage, and are intended to boost Optus's network capacity and 5G rollout.[24]

[23] Radiocommunications (Ministerial Policy Statement—Expiring Spectrum Licences) Instrument 2024.
[24] TPG and Optus entered into the MOCN agreements in 2024. Optus has indicated that the agreements, which provide it access to spectrum held by TPG, will speed up its 5G rollout, and TPG has attributed recent increases in its mobile service revenue to subscriber growth following introduction of the MOCN. The broader reach of TPG's network also applies to its MVNO brands.

In relation to the 850 MHz downshift, we expect that any renewed licences will reflect industry having facilitated the downshift by the time those renewed licences commence in 2028.[25]

However, it is too early to say with confidence whether Telstra's proposed use of its 2.3 GHz spectrum in remote areas for private wireless services aligns with our public interest criteria, or whether it supports the objectives set out in the MPS. This is a view Telstra has also acknowledged. Telstra acquired the 2.3 GHz band spectrum licences in a trade in 2023, and it has started to make use of the spectrum. There is some evidence favouring renewal, but the effect on competition in remote areas in the private WBB market is unclear at this time. We intend to provide an update on our preferred view for this spectrum in July 2027 – one year prior to the opening of the renewal application period for the 2.3 GHz band licences.

Stakeholders expressed a range of views about the best way to facilitate defragmentation outcomes in the 3.4 GHz band. Some stakeholders were supportive of the ACMA playing a very active role in defragmenting the band prior to renewal of licences. On balance, our preferred view is to renew licences in the band, and to align expiry dates with the 3.7 GHz band licences outside of the ESL process. This will remove barriers to industry efforts to defragment the band, and we will be able to assist as appropriate.

ACCAN did not support renewal of licences used for WA WBB and FWA. It instead suggested that they should be auctioned. We agree with a range of points made by ACCAN about the benefits of auctions and their utility in allocating unencumbered spectrum. However, we do not think that the recent history and current structure of the Australian market suggests that an auction will deliver better outcomes in the long-term public interest to consumers. Particularly in the absence of a new market entrant, auctioning the ESL spectrum may in fact undermine key public policy outcomes. This includes service continuity, promoting competition, and coverage and connectivity from deployment of LEOsat services, while otherwise delivering similar prices to renewal. Putting investments on pause over the mid-term could also see consumers lose out with a slower rollout of 5G.

ACCAN also suggested that our preliminary price ranges were too low, but it did not provide any modelling or pricing analysis of its own. The difference in historical prices paid and currently projected prices represents a change in the value of an asset, not a saving, discount or forgoing of revenue, as ACCAN suggests. We remain of the view that a benchmarking approach to establish a market price for spectrum is the best way to ensure licensees pay a fair price, while also delivering on outcomes associated with our public interest criteria and the MPS.

Rail communications and television outside broadcast (TOB) should move to apparatus licences while we determine arrangements that will promote the long-term public interest.

There was consensus that television outside broadcast (TOB) services are an important part of free-to-air television broadcast services, and that TOB services promote many of the objectives in our public interest criteria.[26] TOB services currently supports the provision of news coverage and other out-of-studio broadcasts. The longer-term need for access to the 2.5 GHz band, however, is uncertain.

[25] The 850 MHz downshift is a process where frequency ranges included in 850 MHz band ESLs would be shifted downwards by 1 MHz (for example, 825–835 MHz down to 824–834 MHz) to provide a guard band between the 850 MHz and 900 MHz bands, and making 850 MHz ESL spectrum contiguous with the 850 MHz expansion band, enabling more productive use.
[26] The MPS does not apply to the 2.5 GHz mid-band gap ESLs.

TOB stakeholders considered that a transition to an apparatus licensing framework provided the right balance of certainty to support their existing services, and the flexibility to transition to different spectrum in the future at a time that is commercially and operationally feasible. They noted that our broader spectrum planning framework, including annual consultation on the *Five-year spectrum outlook*, provided sufficient certainty.

Apparatus licensing arrangements for this band across Australia would also allow us to facilitate complementary use cases, where they can be coordinated against TOB uses. Stakeholders in this band were also supportive of the pricing arrangements applicable to apparatus licences. We will incorporate a consultation on apparatus licensing arrangements into our forward work program. This consultation will commence in 2027.

We agree with the views of rail licensees and related stakeholders about the benefits associated with use of 1800 MHz spectrum for rail safety communications, and the outcomes it achieves in relation to our public interest criteria, at least in the short- to medium-term.[27] We also note that, for one licensee, 1800MHz spectrum has not been used. However, these stakeholders have proffered a range of views about how their current and future use of this spectrum could promote the long-term public interest. They broadly consider that they will need to retain this spectrum for the long-term (20 years).

Currently, 1800 MHz rail licences generally include conditions limiting their use to rail communications.[28] Rail users and related stakeholders suggested that these conditions should not be included in renewed licences, so that the licences could facilitate government communications services more generally. They have also emphasised uncertainty around timeframes for partial or full transition to upgraded services in the 1900 MHz band. Previous views from rail stakeholders supported allocation and transition of the 1900 MHz band, with continued access to the 1800 MHz band facilitating a transition, and in some cases being considered for additional capacity.

We have considered these views and evidence provided very carefully. We agree that use of spectrum for rail communications promotes the long-term public interest. But what we consider in the context of the ESL review is whether continued use of the specific 1800 MHz spectrum licences for rail communications is likely to promote the long-term public interest, or whether the long-term interest is likely to be promoted by use of new, nationally available spectrum in 1900 MHz that is harmonised with upgraded services. On balance, we think that use of 1800 MHz spectrum licences for rail communications will promote the public interest over the short-to-medium term, but that the long-term picture is unclear.

Rail users and related stakeholders broadly disagreed with our view on apparatus licensing. The Victorian Government indicated that it was open to further discussion on apparatus licensing, although it favoured long durations that are typically associated with spectrum licences.

In our view, uncertainty over the long-term use of the 1800 MHz band, and new considerations about alternative uses of the band for government services, are arguments in favour of supporting existing services through apparatus licensing, and undertaking a transparent replanning exercise, consistent with our overall approach to spectrum management.

[27] The MPS does not apply to the 1800 MHz rail ESLs.
[28] Some users hold 2 licences, however only one of them (the one with the condition) is used for active service; the other licence is used as a ‘guard band’, with no devices being operated under the licence.

Apparatus licensing provides greater flexibility to manage the band compared to how spectrum licensing is typically used, allowing both the ACMA and rail operators to monitor developments in the international rail communications landscape and adapt spectrum holdings to these changes. In particular, apparatus licensing provides a broader variety of clear and flexible mechanisms for changing how the spectrum is planned and used and is more conducive than spectrum licensing for authorising use-cases in the shorter term where long-term arrangements are not suitable.[29]

Importantly, apparatus licences ensure that existing services will not be interrupted. They provide flexibility for licensees to transition to new arrangements where and when appropriate, and for the ACMA to manage the spectrum efficiently and effectively. We will commence consultation on apparatus licensing arrangements for rail services in the 1800 MHz band in early 2026. Proposed apparatus licensing arrangements for rail services in 1900 MHz have been released in parallel with this paper.

There were some WBB stakeholders who suggested that apparatus licensing in these 2 bands, but particularly the 1800 MHz rail band, might introduce fragmentation and make a potential re-allocation exercise difficult. We would like to clarify in relation to 1800 MHz that our preferred apparatus licensing solution is intended only to authorise the rail communications use case; it does not involve authorising other use cases.

Renewed WA WBB and FWA ESLs should expire in 2044 to align with continuing spectrum licences (i.e. those outside the ESL process scope)

There was broad and strong consensus about the benefits of aligning expiry dates with those of continuing spectrum licences. It would result in licences with durations of between 11 and 16 years, which is conducive to investment in networks and new technologies, while also removing a barrier to efficiencies that can result from secondary trading. It also lays the groundwork for the possibility of a more holistic and efficient ESL process in the future, and we will be able to assess outcomes of key market developments, namely LEOsat D2D services and the Optus/TPG MOCN agreements.

Telstra considered that this option could strain industry, and others suggested that instalment arrangements could also mitigate this concern. We cannot make representations about instalment or other payment terms that might be implemented in 2044, but it would be open to the relevant decision-makers to consider instalment arrangements at that time.

How preferred views will inform our decision-making

Our preferred views constitute our ESL policy and decision-making framework. They are not binding views or decisions in and of themselves, and represent our current assessment of the outcomes that best promote the long-term public interest. We will apply this framework to our consideration of renewal applications, and the long-term public interest.

We must also consider matters specific to an individual licence when making decisions. This includes any relevant circumstances and considerations that may warrant departing from the preferred views.

[29] We have limited capacity to change how spectrum covered by spectrum licences is used during the term of the licence, meaning that any changes would need to be effected at licence expiry. While shorter term spectrum licences could be used to respond to longer-term uncertainty by providing more frequent opportunities to review arrangements at expiry, spectrum licences are generally less suited to repeated short licence cycles of expiry and renewal than apparatus licences.

Preferred views ultimately reflect information available at a point-in-time, and we may need to re-evaluate them as the communications environment changes. This may particularly be the case in relation to bands due to expire in later tranches, such as ESLs in the 2 GHz band, which expire in 2032. To ensure that we give all licensees the same level of confidence in the process, we will update, and consult on, preferred views as necessary, such as where there are significant changes to the market or use of the spectrum.

Table 1: Preferred views

Band	Licensees	Current primary use-case	Licensed geographic areas*	Renewal application period begins	Expiry	Preferred view Outcome and licence duration	Notes
850 MHz	Telstra and TPG	Mobile networks	National	18 June 2026	17 June 2028	Renewal 30 June 2044 (16 years)	Renewed licences to reflect industry facilitated downshift.
1800 MHz	Optus, Telstra and TPG	Mobile networks	Metropolitan and regional areas	18 June 2026	17 June 2028	Renewal 18 January 2044 (15.5 years)	
1800 MHz (rail)	Metropolitan rail operators (NSW, Qld, SA, Vic, WA)	Rail safety and commun-ications	Metropolitan areas	18 June 2026	17 June 2028	We will assess the long-term use of this band, using apparatus licences to authorise existing services in the interim.	ACMA to consult on initial apparatus licensing arrange-ments for rail commun-ications in early 2026.
2.5 GHz	Optus and Telstra	Mobile networks	National	1 October 2027	30 September 2029	Renewal 18 January 2044 (14.25 years)	
2.5 GHz mid-band gap	ABC, Channel 7, Nine Network, Network 10	Television production	National	1 October 2027	30 September 2029	We will assess the long-term use of this band, using apparatus licences to authorise existing services in the interim.	ACMA to consult on initial apparatus licensing arrangemen ts for TOB in 2027.
700 MHz	Optus, Telstra and TPG	Mobile networks	National	1 January 2028	31 December 2029	Renewal 30 June 2044 (14.5 years)	

Band	Licensees	Current primary use-case	Licensed geographic areas*	Renewal application period begins	Expiry	Preferred view Outcome and licence duration	Notes
2.3 GHz	NBN Co (regional), Optus (metro) and Telstra (remote)	Mobile networks and wireless component of the nbn	National	25 July 2028	24 July 2030	Renewal 18 January 2044 (13.5 years)	There is not enough evidence to form a preferred view in relation to use of the band by Telstra for local WBB. We will provide an update on our preferred view for this spectrum in July 2027, one year prior to the opening of the renewal application period for the 2.3 GHz band.
3.4 GHz	NBN Co, Optus, Telstra and TPG	Mobile networks and wireless component of the nbn	Metropolitan and regional areas	14 December 2028	13 December 2030	Renewal 18 January 2044 (13 years)	By aligning expiry dates in renewed licences with those in the 3.7 GHz band licences outside of the ESL process, we can remove barriers to industry efforts to defragment the band. The ACMA will be able to assist as appropriate.
2 GHz	Optus, Telstra and TPG	Mobile networks	Metropolitan and regional areas	12 October 2030	11 October 2032	Renewal 18 January 2044 (11.25 years)	

700 MHz

700 MHz band	
Expiry date	31 December 2029
Application period commences	January 2027
Spectrum-licensed area	National
Spectrum-licensed frequency range	703–748 MHz / 758–803 MHz
Configuration	Frequency division duplexing (FDD)
Licensees	Optus, Telstra and TPG
Primary use-cases	WA WBB
Notes	Included in Optus/TPG MOCN. Likely conducive to supporting LEOsat D2D services.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 700 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

Key considerations favouring renewal include:

- Use of the band for WBB services aligns with our broader evaluation of WBB use being consistent with our public interest criteria and the policy objectives in the MPS; Telstra and Optus also use the band for IoT networks, enhancing its productive and efficient use.
- International harmonisation and standardisation; extensive available equipment ecosystems are built around WBB use.
- Propagation characteristics of the band are highly conducive to provision of wide-area mobile coverage and in-building penetration, and the national footprints of the licences are conducive to addressing coverage challenges in regional, remote and rural areas.
- The band is a key component of the Optus/TPG MOCN agreements. In regional areas, this could enhance TPG's competitive position and accelerate Optus's 5G investment, exert competitive pressure on the market, and improve choice and coverage for consumers.
- The band is a potential candidate for deployment of LEOsat D2D services.

What stakeholders told us

Telstra, Optus and TPG supported our preliminary view on renewal of the band.

Pivotel put forward the view that low-band spectrum, including 700 MHz, should be made available for alternative users, on the basis that incumbents were not using the spectrum in areas where it was uneconomical to do so.

Stakeholders in previous submissions raised a number of technical regulatory matters, such as migration of some services to guard bands and registration requirements for certain terminals.

CSIRO expressed concern about interference to radioastronomy services caused by use of sub-1 GHz spectrum, including 700 MHz, for LEOsat D2D services.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 700 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

We address concerns about interference from deployment of LEOsat D2D services below.

We acknowledge that some geographic areas covered by spectrum in national licences have not been used, and may not be used in the near term, due to economical and practical constraints. However, we found that there were more drawbacks associated with partially renewing, or not renewing, licences in the 700 MHz band, than there were benefits.

In our preliminary views, we also identified that a ‘keep what you serve’ approach would likely be warranted for partial renewal, because it would the most likely approach to ensuring service continuity. However, we think that demand for the excised spectrum could be very low, because it is likely be geographically patchy, and cover areas of no-to-low population. Operation of services within new licence boundaries could also adversely affect incumbents and their customers, harming overall competition.

Breaking up national licences via partial renewal would preclude use of the band for LEOsat D2D services.

We address the drawbacks associated with non-renewal and re-allocation in the Other issues raised in the stage 3 consultation section below.

Minor technical and regulatory matters for this band are also being considered within the context of our review of spectrum licence technical frameworks.

850 MHz

850 MHz band	
Expiry date	17 June 2028
Application period commences	June 2026
Spectrum-licensed area	National
Spectrum-licensed frequency range	825–845 MHz / 870–890 MHz 824–825 MHz / 889–890 MHz (downshift)
Configuration	FDD
Licensees	Telstra and TPG Optus (downshift)
Primary use-cases	WA WBB
Notes	Not included in Optus/TPG MOCN. Likely conducive to supporting LEOsat D2D services.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 850 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB. Both Telstra and TPG have continuously invested in the band, with Telstra recently refarming it from 3G to 5G and commencing rollout of those upgraded services, including in regional areas, and TPG deploying 4G and IoT services in metropolitan areas. The band is also a candidate for deployment of LEOsat D2D services.

However, we noted that there were some key differences in the current use and future use of the band.

First, TPG is not currently using its spectrum in this band outside of metropolitan areas, and the spectrum is not included in the Optus/TPG MOCN. This means that there may be stronger arguments in favour of partial renewal of this licence, allowing TPG to continue to provide services in metro areas. It may, however, be a strong candidate for deployment of LEOsat D2D services by TPG.

Second, one of the licences in the band is the 2 x 1 MHz downshift licence held by Optus. On its own, this licence cannot be used to provide a service; it may be traded to facilitate more efficient use of the 850 MHz and 900 MHz bands.

What stakeholders told us

There was support for our preliminary view from the incumbent licensees.

In relation to the downshift, Optus indicated a strong preference that industry be allowed to facilitate the intended trade and reconfiguration, and that the ACMA should prepare stage 4 arrangements that reflect this outcome. Telstra conveyed a similar expectation about an industry facilitated downshift, although it noted that we could play a guidance or facilitative role.

Pivotel's views on 850 MHz were similar to its views on 700 MHz, in respect of the band being made available to alternative users.

TPG highlighted that its LEOsat D2D options are confined to the low-band spectrum subject to ESL (that is, the 700 MHz and 850 MHz bands).

CSIRO expressed concerns about interference with radioastronomy due to use of sub-1 GHz spectrum for LEOsat D2D services by MNOs.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 850 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

Based on submissions to our preferred views, we are confident that industry is well-positioned to facilitate the downshift prior to any renewal of licences in the 850 MHz band. Relevant material for the stage 4 application process will be prepared to reflect a realised downshift. However, we will engage with incumbents to monitor its progress.

Compared to Optus and Telstra, TPG has limited options for deployment of LEOsat D2D services. Currently, national spectrum licences are the most conducive configuration for deployment of LEOsat D2D services, and both of TPG's national licences (700 MHz and 850 MHz) are within the scope of the ESL process. Given that TPG's 700 MHz spectrum is included in the MOCN deal with Optus, and is more extensively used than its 850 MHz spectrum, we think the long-term public interest is likely best served by preserving options for TPG to deploy LEOsat D2D services. This also maximises the likelihood that it can comply with the UOMO. We address concerns about interference from deployment of LEOsat D2D services in the *Other issues raised in the stage 3 consultation* section below.

1800 MHz (WBB)

1800 MHz band	
Expiry date	17 June 2028
Application period commences	June 2026
Spectrum-licensed area	Metropolitan and regional areas
Spectrum-licensed frequency range	1710–1785 MHz / 1805–1880 MHz
Configuration	FDD
Licensees	Optus, Telstra and TPG (WA WBB)
Primary use-cases	WA WBB and rail communications
Notes	Included in Optus/TPG MOCN.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 1800 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB. Use of the band for rail communications is discussed separately below.

Key considerations favouring renewal include:

- Use of the band for WBB services aligns with our broader evaluation of the WBB use against our public interest criteria and the policy objectives in the MPS.
- All 3 MNOs typically use 1800 MHz as a capacity layer for their networks, and it is a key 4G band, including in regional areas where 5G has not been deployed.
- International harmonisation and standardisation, extensive available equipment ecosystems are built around WBB use.
- The band is included in the Optus/TPG MOCN agreements. In regional areas, this could enhance TPG's competitive position and accelerate Optus's 5G investment, exert competitive pressure on the market, and improve choice and coverage for consumers.
- The band is attractive for alternative users, typically for private network use cases. 1800 MHz spectrum licences cover metro and regional areas, and partial renewal options are unlikely to produce new licences covering areas that can facilitate new services without adversely affecting existing services. We cater to broader demand for private network use cases through apparatus licensing.

We noted that several incumbents had identified some efficiency losses due to band fragmentation and other configuration issues.

What stakeholders told us

Incumbent licensees supported our preliminary view.

CSIRO indicated that it had fewer concerns about deployment of LEOsat D2D services on 1800 MHz than it did in sub-1 GHz spectrum, noting that the band has little utility for radioastronomy. It suggested that this view was compatible with interest from MNOs in converting the 1800 MHz band to national licensing (it is currently a mix of spectrum and apparatus licensing).[30] Telstra reiterated its support of spectrum licensing the 1800 MHz band nationally, and noted the broader UOMO context.

Pivotel indicated that it did not object to renewal of licences, providing there was sufficient availability 1800 MHz and 2.1 GHz spectrum under apparatus licensing arrangements for non-MNO players.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 1800 MHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

We address submissions about LEOsat D2D services below.

[30] The MNOs made submissions to our review of arrangements in the 1800 MHz and 2 GHz bands outside of spectrum licensed areas in favour of spectrum licensing the 1800 MHz band on a national basis.

2 GHz

2 GHz band	
Expiry date	11 October 2032
Application period commences	October 2030
Spectrum-licensed area	Metropolitan and regional areas
Spectrum-licensed frequency range	1920–1980 MHz / 2110–2170 MHz (metropolitan areas) 1960–1980 MHz / 2150–2170 MHz (regional areas)
Configuration	FDD
Licensees	Optus, Telstra and TPG
Primary use-cases	WA WBB
Notes	Not included in Optus/TPG MOCN.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 2 GHz band, where licensees can demonstrate that licences have been used to provide WA WBB.

Key arguments favouring renewal of this band were similar to those for the 1800 MHz band, due to their similar planning and licensing arrangements, technical characteristics and device ecosystems.

There is strong international and domestic support and use of the band for WA WBB, indicating that use of the band for WBB is likely conducive to the long-term public interest.

The MNOs have extensively deployed in metropolitan and parts of regional areas to provide capacity for 4G services. Each licensee has begun, or intends, to refarm parts of the 2 GHz band to provide capacity for 5G services.

Renewal of licences would support continuity of services, as well as planned investment in the band. Renewal would also continue to support competition in the national mobile market at the infrastructure and retail levels in metropolitan and higher-density regional areas.

We noted that TPG's regional spectrum is more lightly used than other licensees' holdings in this band, and that the spectrum is not included in the Optus/TPG MOCN. However, we also noted that the underused part of the band was 2 x 5 MHz, meaning that a 'keep what you serve' approach to partial renewal might not produce sufficient spectrum for alternative users who have expressed interest in the spectrum.

We also noted that this band was the last in the ESL process to expire, meaning that we would likely need to revisit the band closer to 2030 to see what developments had occurred over the intervening period.

What stakeholders told us

Incumbent licensees were supportive of our preliminary view.

Similar to 1800 MHz, Pivotel indicated that it did not object to renewal, provided there was sufficient availability of 2 GHz and 1800 MHz spectrum available under apparatus licensing arrangements.

Also similar to 1800 MHz, CSIRO suggested that deployment of LEOsat D2D services in 2 GHz on a national basis would pose fewer risks to radioastronomy service that deployments in sub-1 GHz bands.[31] Telstra suggested that this approach would be consistent with its broader views on reconfiguring the 1800 MHz and 2 GHz bands, converting the former to national spectrum licensing.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 2 GHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

We address submissions about LEOsat D2D services below.

Licences in the 2 GHz band are the last to expire in the ESL process. We may need to revisit our preferred view if there are substantive changes in use of the band, including where spectrum is underused or unused, or other significant developments (including other bands) between now and the renewal window opening in October 2030.

[31] 2 GHz licences are metro and regional only; we are not proposing an allocation process for 2 GHz outside metro and regional areas.

2.3 GHz

2.3 GHz band	
Expiry date	24 July 2030
Application period commences	July 2028
Spectrum-licensed area	National
Spectrum-licensed frequency range	2302–2400 MHz
Configuration	Time division duplexing (TDD)
Licensees	NBN Co, Optus and Telstra
Primary use-cases	WA WBB and FWA
Notes	Each licensee generally holds the entire available bandwidth in different areas.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 2.3 GHz band, where licensees can demonstrate that licences have been used to provide WA WBB or FWA services.

Key considerations favouring renewal include:

- There is global support for use of the band for WBB, including both 4G and 5G wide-area mobile and internet connectivity via FWA.
- The propagation characteristics of lower mid-band spectrum, like 2.3 GHz, mean that these bands are typically used to provide capacity to WBB networks.
- As a TDD band, 2.3 GHz can also be used to provide asymmetrical capacity, such as increased data downlink or uplink capacity, making the band useful where, for example, end-users are downloading more than uploading.
- The wide bandwidths held by licensees are likely to be conducive to efficiency as wider, contiguous bandwidths for TDD-configured spectrum can provide increased data throughput compared to smaller bandwidths.
- Renewal would recognise investments made by Optus and NBN Co in their respective networks.
- NBN Co’s licences are only in regional areas; consumers in these areas may rely heavily on connectivity over its FWA network.
- Renewal would also recognise use of the secondary market to facilitate movement of spectrum to more efficient and productive use-cases, noting the history of the band.

However, we had not formed a view on whether the long-term interest would likely be promoted through renewal of 2.3 GHz band licences which Telstra proposes to use for localised WBB services. We noted that we had not received any specific expressions of alternative demand through previous consultation on expiring spectrum licences. We sought more information from Telstra about its proposed use, and from stakeholders on whether this use-case is likely to enhance or undermine competition within the private network and enterprise markets.

What stakeholders told us

Incumbent licensees supported our preliminary view in relation to renewal of licences used for WA WBB.

In relation to use of the band by Telstra for localised WBB:

- Telstra provided a submission setting out some scenarios where it had used the spectrum to deliver private networks to clients in the earth minerals and exploration sectors, as well as a 'sublease' to a third party. It also indicated that while it was currently focussed on local network use cases, and its broader investment program is currently directed towards other bands, it may use the band as part of its remote WA WBB network in the future.
- The ACCC indicated that renewing Telstra's 2.3 GHz licences in remote areas might see spectrum underutilisation and reduced competition, given Telstra's large holdings. It recommended we consider whether there was likely demand in the band for private wireless.
- Pivotel commented that making the band available could enable users with smaller footprints to offer 4G services.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 2.3 GHz band, where licensees can demonstrate that the licences have been used to provide WA WBB or FWA services.

Telstra's proposed use of the 2.3 GHz band raises different public interest considerations compared to the WA WBB use-case and proposed localised WBB use-cases from smaller operators. We conducted some comparative analysis of how Telstra's proposed use of the band compares with international uses (Appendix B). In broad terms, mixed use of the band for WA WBB and localised WBB is reasonably common. Based on existing evidence, there are some arguments supportive of renewal. For instance, movement of spectrum on the secondary market (in this case, NBN Co trading unused spectrum to Telstra in exchange for additional spectrum in Darwin) is typically an indication of spectrum moving to more efficient uses, and the spectrum covers remote areas. This aligns with our public interest criteria about efficiency and investment, and the MPS objective of connectivity and investment in remote areas.

However, we consider that there is not enough evidence to form a view as to whether Telstra's proposed use of its 2.3 GHz licences in remote area for private wireless services aligns with our public interest criteria or promotes the objectives in the MPS. Telstra has acknowledged this position.

We intend to provide an update on our thinking in relation to this spectrum in July 2027, one year prior to the opening of the renewal application period. We have not received any specific expressions of alternative demand for the spectrum, but reconsideration of competition implications will be more appropriate at this later point in time.

2.5 GHz

2.5 GHz band	
Expiry date	30 September 2029
Application period commences	October 2027
Spectrum-licensed area	National
Spectrum-licensed frequency range	2500–2570 MHz / 2620–2690 MHz
Configuration	FDD
Licensees	Optus and Telstra
Primary use-cases	WA WBB
Notes	Likely conducive to supporting LEOsat D2D services.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 2.5 GHz band, where licensees can demonstrate that licences have been used to provide WA WBB.

Key considerations favouring renewal include:

- Use of the band for WA WBB is supported by global standards and equipment ecosystems for both 4G and 5G.
- Telstra's continued use of the band for small cells provides localised high-capacity coverage in higher population density areas, and the band is used in connection with macro-sites to provide wider bandwidths. Telstra uses the band for 4G services and intends to repurpose the spectrum for 5G services; it may also be a 6G band in the future.
- The band is a key component of Optus's 4G network, and key to offering targeted regional services in a way that could exert competitive pressure on the market. Optus has plans for the ongoing use of the band for 4G services and will use it to provide capacity to support a broader strategy to invest in and expand 5G services utilising other bands.

Telstra has begun to use the band, and Optus has indicated intention to use the band, for LEOsat D2D services in partnership with SpaceX, which could benefit consumers in regional, remote and rural areas.

What stakeholders told us

Incumbents were supportive of our preliminary view, as was Pivotel.

CSIRO submitted that it had been working on interference mitigation methods with MNOs and satellite operators, given that the band is being used for early LEOsat D2D services. It identified some concerns about interference caused by the operation of services in the upper part of the band, held by Optus. It indicated that operation of LEOsat D2D services in reconfigured 1800 MHz and 2 GHz bands would be preferable than operation in 2.5 GHz. Telstra was supportive of exploring this.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences in the 2.5 GHz band, where licensees can demonstrate that the licences have been used to provide WA WBB.

We address submissions about LEOsat D2D services in the Other issues raised in the stage 3 consultation section below.

3.4 GHz

3.4 GHz band	
Expiry date	13 December 2030
Application period commences	December 2028
Spectrum-licensed area	Metropolitan and regional areas
Spectrum-licensed frequency range	3400–3700 MHz
Configuration	TDD
Licensees	NBN Co, Optus, Telstra and TPG
Primary use-cases	WA WBB and FWA
Notes	Included in Optus/TPG MOCN.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through the renewal of licences within the 3.4 GHz band, where licensees can demonstrate that licences have been used to provide WA WBB or FWA services.

Key considerations favouring renewal include:

- The band is strongly supported internationally for 5G and FWA through standards and international harmonisation, enabling economies of scale in equipment and devices.
- Incumbents have demonstrated significant ongoing investment (growth in sites deployed, 5G rollouts, and nbn FWA upgrades).
- The band is included in the Optus/TPG MOCN agreement, which is anticipated to enhance competition and investment in regional areas through greater TPG participation and accelerating Optus's investment in 5G.

We also considered that facilitating defragmentation of holdings in the band would be in the long-term public interest. We therefore sought stakeholder views on the extent of fragmentation impacts, the willingness of industry to pursue defragmentation, and barriers to achieving it, if licences are renewed.

What stakeholders told us

Incumbent licensees were supportive of our preliminary view.

Pivotel provided commentary about some challenges that it faces when dealing with equipment manufacturers and how it uses its AWLs in the 3.4 GHz band, outside of the spectrum licenced areas.

Optus and Telstra both supported defragmenting the band but acknowledge it will be difficult, with Optus citing significant investment in 5G that might not be supported by reconfiguration of the band. They both supported ACMA involvement, in some cases as a neutral facilitator, in other cases in a more active role where partial renewal could align existing holdings without impacting current deployments.

Our preferred view

We remain of the view that the long-term public interest is likely best promoted through the renewal of licences within the 3.4 GHz band, where licensees can demonstrate that the licences have been used to provide WA WBB or FWA services.

We also remain of the view that defragmentation of the band is in the long-term public interest. However, as we noted in our preliminary views paper, a regulator-led defragmentation implemented through changes to licences (geographic areas, frequency bands and other conditions) at renewal would be complex and contentious: licensees stand to benefit from the exercise in different ways, and the ACMA would have to pick winners and losers. It would also require cooperation from licensees in the broader band, including holders of spectrum licences in 3.7 GHz that are not subject to the ESL process. We considered that a re-allocation exercise could be less contentious in an administrative sense but would need to be considered in light of risking planned investment in 5G services in the band. Facilitating a defragmentation within the timeframes desired by some licensees (that is, prior to the opening of the renewal application window in December 2028) may not be possible.

Aligning expiry dates of renewed licences with the 3.7 GHz bands licences outside of the ESL process will remove barriers to secondary market licence trading, helping to facilitate industry efforts to defragment the band. We would then be able to assist industry in its defragmentation efforts, as appropriate.

1800 MHz rail

1800 MHz band	
Expiry date	17 June 2028
Application period commences	June 2026
Spectrum-licensed area	Metropolitan areas
Spectrum-licensed frequency range	1770–1785 MHz / 1865–1880 MHz
Configuration	FDD
Licensees	Sydney Trains, Queensland Rail, DIT (SA), VicTrack, PTA (WA) (rail communications)
Primary use-cases	Rail communications.

Our preliminary view

Our preliminary view on renewal was that the long-term public interest is likely best promoted by continued access to the 1800 MHz band for rail safety and communications under apparatus licensing arrangements, rather than spectrum licences. This would facilitate a gradual transition to the 1900 MHz band for these services over the next 8-10 years, without disrupting critical services.

Key considerations favouring this preliminary view include:

- In the short- to medium-term, rail communications are likely to promote the public interest derived from use of the 1800 MHz band, with access to spectrum necessary for the continuity of existing rail communications networks.
- In the long-term, rail communications may no longer represent the most efficient use of the 1800 MHz band and the public interest may be promoted through re-allocation, once the rail communications use-case is transitioned to arrangements in the 1900 MHz band and access to the 1800 MHz band is no longer critical.
- A gradual transition from the 1800 MHz band to Australia-wide planning and licensing arrangements for rail communications in the 1900 MHz band would balance the public impacts and benefits by ensuring that there are no disruptions to critical services over the short- to medium-term, and longer-term certainty for ongoing services.
- An apparatus licensing framework would also better reflect different transition times for incumbent licensees, given that some incumbents may only take a relatively short period to transition, while those that have made more extensive use of the band would likely take longer.

What stakeholders told us

We received submissions in response to our preliminary views on the 1800 MHz rail licences from incumbent licensees, as well as some state governments, rail equipment providers and the peak body, the Australasian Railway Association.

There was consensus amongst rail licensees and related stakeholders that renewal of the existing spectrum licences for a 20-year period was the most appropriate path forward. Some

submissions also indicated that spectrum should be allocated or earmarked for the rail use in perpetuity. These stakeholders submitted that long-term licences, and certainty of ongoing access, would provide licensees with the confidence to invest in long-term rail communication upgrades and to provide surety for ongoing provision of rail services.

All rail operators expressed a need to retain spectrum in the 1800 MHz band over the long term to support existing and future services, in some cases including for a wider range of government applications than those currently authorised by licences. Stakeholders also indicated that a new allocation of spectrum in 1900 MHz was necessary.

There was a mix of views as to why both the 1800 MHz and 1900 MHz bands may be required for rail and, in some cases, other government services. Some stakeholders indicated that the 2 bands would be required so that one band could support simultaneous operation of networks, including new or upgraded networks. Some stakeholders submitted that the 1900 MHz allocation was required to facilitate a transition from 1800 MHz in the future, with others stating a preference to stay in 1800 MHz and explore use of 1900 MHz for supplementary uses, such as automatic train operation, CCTV and rail communication outside the metropolitan areas that are covered by 1800 MHz licences.

Many stakeholders emphasised uncertainty about when standards and equipment aligned with upgraded systems in 1900 MHz would be available, stating that the present situation was not clear enough for them to form a view on its future use, and that take up of the band would also be contingent on state government funding and investment cycles. There was a general view that equipment is likely to be available from 2027 onwards, with planning for a transition to commence in the early 2030s.

Another issue identified with 1900 MHz is whether the potential spectrum allocation of 10 MHz will be sufficient. Some suggested that the bandwidth would be enough for some, but not all, applications available under the new system.

A number of submissions also suggested that 1800 MHz licences should be modified in order to facilitate a wider range of use cases, some transport related, others not. Use of licences in this way is currently precluded by conditions limiting use of the licence for rail communications. State governments broadly supported removal of this condition, or amending it to authorise government safety communications, such as metro and light rail train control and communications, intelligent transport systems, first responder operations, and IoT applications. They submitted that this broader use of the spectrum would meet the public interest criteria, particularly in relation to facilitating efficiency.

Some WBB stakeholders who suggested that apparatus licensing the 1800 MHz rail band, might introduce fragmentation and make a potential re-allocation of the band for WBB exercise difficult.

Our preferred view

We consider that a further body of work is necessary to establish the use of this band that will best promote the long-term public interest.

We acknowledge existing investments in 1800 MHz and the importance of rail communications services. While rail stakeholder views about renewal were consistent, there are a range of views about the availability of equipment in both 1800 MHz and 1900 MHz, and the timing and need for a transition to the upgraded 5G systems. Some licensees are very heavily invested in 1800 MHz, while one licensee has never used the spectrum

(although it has now identified a range of potential applications that could use it). It appears to us that some operators are likely better positioned to transition sooner to 1900 MHz, while others do not yet have plans to do so.

Use of 1800 MHz licences for a wider range of greater government communications services in the manner proposed by some stakeholders would represent a significant change in the use of the spectrum. While stakeholders drew our attention to the ways in which use of the spectrum for these purposes could be compatible with our public interest criteria, there was very little detail about how these use-cases would work and the expected public benefits.

Given the evidence available, we consider that renewal of spectrum licences for 20 years, as suggested by incumbents and related stakeholders, either for rail services exclusively, or for a combination of rail and government communications use-cases, could result in spectrum not being allocated and used in a manner that best promotes the long-term public interest.

To form a view on the long-term interest, we need to weigh these potential uses of the band against others, which could include WA WBB and private network applications. The spectrum management framework set out in our FYSO provides an established way of planning and allocating spectrum in a manner that promotes the long-term public interest. This involves looking at desired policy outcomes and the broader technical and regulatory environment, different options for use of the spectrum, levels of demand, and detailed analysis of planning requirements and allocation options. We will evaluate the long-term use of the 1800 MHz band in that context.

While we undertake that work, our preferred view is that existing services should be authorised by apparatus licences. Apparatus licences can provide the right mix of certainty for ongoing operation and flexibility to migrate to the new system as it becomes feasible. There are several options for apparatus licences, including options that preserve the geographic boundaries of the current spectrum licences. Licence durations can appropriately balance certainty for rail operators and flexibility for the ACMA to ensure that the spectrum is managed efficiently. Noting stakeholder views about uncertain timeframes for the deployment of the upgraded 5G services, apparatus licences would facilitate parallel operation of rail services on the 1800 MHz and 1900 MHz bands, and potentially a full transition to the 1900 MHz band for these services. This process may take as much as 8–10 years in some cases. We have, in parallel with the release of these preferred views, commenced a consultation on arrangements in 1900 MHz to support rail services.

2.5 GHz mid-band gap

2.5 GHz band	
Expiry date	30 September 2029
Application period commences	October 2027
Spectrum-licensed area	National
Spectrum-licensed frequency range	2570–2620 MHz
Configuration	TDD
Licensees	ABC, Channel Seven, Nine Network and Network Ten
Primary use-cases	TOB
Notes	ABC and Network Ten each possess 5 MHz more spectrum than the other licensees to manage interference with adjacent WA WBB services.

Our preliminary view

Our preliminary view was that the long-term public interest is likely best promoted through continued access to 2.5 GHz mid-band gap spectrum by broadcasters under apparatus licences rather than spectrum licences, until a time when the long-term spectrum requirements for TOB are better understood.

Key considerations in favour of this view are:

- Continued access to the band is consistent with support for TOB equipment that utilises the band in connection with other spectrum allocated for TOB in the 2 GHz and 2.2 GHz bands.
- TOB use of the 2.5 GHz mid-band gap promotes the public interest by enabling free-to-air (FTA) TV broadcasters to cover news, live events and sports and produce content for FTA TV.
- How TOB is delivered may change in the longer-term, altering requirements for the 2.5 GHz mid-band gap. Transitioning TOB arrangements in the 2.5 GHz mid band gap to apparatus licensing will also make licensing arrangements for TOB more consistent across all relevant bands.
- The use of apparatus licences could facilitate complementary use-cases for the band.

What stakeholders told us

Incumbent licensees (FreeTV, on behalf of its members, and the ABC) expressed support for our preliminary view.

TOB stakeholders considered that a transition to an apparatus licensing framework provided the right balance of certainty to support their existing services, and the flexibility to transition to different spectrum in the future at a time that was commercially and operationally feasible. They noted that our broader spectrum planning framework, including annual consultation on

the FYSO, provided sufficient certainty. The ABC expressed support for the broad pricing framework applicable to apparatus licences, and Free TV noted that proposed taxes would be consistent with other spectrum use for TOB services.

FreeTV and the ABC also indicated a willingness to explore sharing of the band with new users and uses cases under the proposed apparatus licensing arrangements.

Our preferred view

As with the 1800 MHz band currently used for rail communications, there is a body of work necessary to establish the use of the 2.5 GHz mid-band gap that will best promote the long-term public interest. A better understanding of the long-term spectrum requirements for TOB will be a key input into that work. We consider that our established process for spectrum management, which involves consideration and consultation of a wide range of options, is the right context for this body of work.

In the intervening period, the public interest is likely best promoted through continued access to 2.5 GHz mid-band gap spectrum by broadcasters under apparatus licences. Apparatus licensing arrangements for this band across Australia would provide certainty for incumbents, and ensure the public continues to benefit from the TOB service. We could also facilitate complementary use-cases, where they can be coordinated against the TOB use. New use-cases under apparatus licences would not be intended to interfere with adjacent WBB services in 2.5 GHz, and we will assist in facilitating new cases as per our current practice.

We will incorporate a consultation on apparatus licensing arrangements into our forward work program.

Licence duration and renewal statements

Our preliminary views

When renewing a spectrum licence, we must decide the duration of the new licence and include a statement specifying whether the licence can be renewed, can be renewed only if specified circumstances exist, or must not be renewed (renewal statement).

The maximum duration for a spectrum licence is 20 years.

If a renewal statement allows for renewal, the licence must also specify a period when a licensee can apply for renewal (renewal application period statement), and may also specify how long we have to make a decision whether to renew the licence in response to an application (renewal decision-making period statement). Licences that can be renewed may also include a statement to the effect that we will not renew the licence unless we are satisfied that it is in the public interest to do so (public interest statement).

Licence duration (WA WBB and FWA)

We considered that there are 2 preferable options for the duration of any renewed ESLs used for WA WBB and FWA:

1. 20 years (that is, the maximum duration allowed by the Act)
2. between 11.25 and 16 years to align with the expiry of continuing spectrum licences in 2044.

We noted that 20-year licences would have the advantage of providing licensees with high levels of certainty to invest in their networks and services and deploy current and future technologies. However, we noted that 20-year durations would produce expiry dates ranging from 2048 to 2052. Taking into account renewal decision-making windows and timeframes, 20-year licences would mean that the ACMA, incumbents and stakeholders would be involved in some form of ESL process from early 2039 to late 2049, if the renewal statements on the licences allow for renewal. Like the current ESL process, this future process would involve dealing with licences in tranches, limiting the extent to which spectrum can be dealt with holistically by both licensees and the ACMA.

On balance, we favoured option 2. Under this option, we would align the expiration dates of renewed sub-1 GHz ESLs to 30 June 2044. This would match the expiration date for the 850/900 MHz spectrum licences not subject to this ESL process. We would also align the expiry dates of the renewed mid-band licences (i.e. those ranging from 1800 MHz to 3.4 GHz) to 18 January 2044. This would match the expiration dates for spectrum licences in the 3.7 GHz band outside of this ESL process. Importantly, while the expiration and application renewal periods for the continuing 850/900 MHz and 3.7 GHz spectrum licences differ, the renewal decision-making periods are almost identical (1 January 2040 to 31 December 2041 for 850/900 MHz; 18 January 2040 to 18 January 2042 for 3.7 GHz).

By aligning expiry dates and renewal decision-making periods in this way, we could facilitate a holistic and efficient future ESL process, in which all WBB spectrum licences[32] co-terminate.

[32] Excepting spectrum licences in 26 GHz expiring in 2036.

This option would create more substitutable products, thereby removing a barrier to a more efficient secondary market. Licences issued under this option would be of a duration sufficient to encourage investment, while also providing a timely opportunity to assess outcomes achieved by deployments of LEOsat D2D services and the TPG/Optus MOCN agreements.

With renewal application periods commencing 5 years prior to expiration, a possible subsequent ESL process would notionally begin ~7 years after the final decisions are made in relation to the current ESL process i.e. ~2039.

Renewal statements (WA WBB and FWA)

For WA WBB and FWA ESLs that may be renewed, we propose a common set of arrangements:

- Renewal statement: licences may be renewed at the discretion of the ACMA.
- Renewal application period statement: 6-month period commencing 5 years prior to when the licence is due to expire.
- Renewal decision-making period statement: a 2-year period commencing after the renewal application period ends.
- Public interest statement: the ACMA will not renew the licence unless the ACMA is satisfied that it is in the public interest to do so.

These arrangements would broadly align with those applying to spectrum licences outside of the ESL process. To facilitate a holistic ESL process in 2039-2042, we would also work with persons holding 3.7 GHz spectrum licences outside of this ESL process to vary the renewal applications period statements in these licences, to reduce the period from 12 to 6 months, to align with any renewed 3.4 GHz ESLs.

Licence duration (1800 MHz rail and 2.5 GHz TOB)

Our preliminary view is that a transition to apparatus licensing arrangements for rail and TOB users would better promote the long-term public interest than renewal of spectrum licences. We will look to identify the appropriate duration for any apparatus licences as part of the process of establishing apparatus licensing arrangements to support these use-cases.

However, if we were to renew spectrum licences for these uses, we suggested that licence durations of 8 years, with rail licenses expiring June 2036 and TOB licences expiring September 2037. This duration would enable us to consider how expected changes to technologies over this period have impacted use of the relevant spectrum.

Renewal statements (1800 MHz rail and 2.5 GHz TOB)

Although they are not consistent with our favoured preliminary views, the following arrangements could notionally be included in renewed rail and TOB spectrum licences:

- Renewal statement: the licence may be renewed at the discretion of the ACMA.
- Renewal application period statement: 3-month period beginning 3.25 years from expiry and ending 3 years from expiry.
- Renewal decision-making period statement: one-year period beginning 3 years from expiry and ending 2 years from expiry.
- Public interest statement: the ACMA will only renew the licence if it is in the public interest to do so.

Renewal policy

We sought views on whether stakeholders saw the benefit in the ACMA developing a non-binding renewals policy that would set out public interest matters that we may have regard to when considering future applications for renewal of spectrum licences. This policy would provide transparency to licensees about how we are considering the long-term public interest and how licences may be treated in the future, evolving over time to reflect changes within the communications environment.

What stakeholders told us

Licence duration (WA WBB and FWA)

Stakeholders were broadly supportive of our favoured option 2, to align expiry dates of the ESLs with those of continuing spectrum licences in 2044.

NBN Co supported this approach, noting that it struck the right balance between providing investment confidence and the benefits of aligned expiration dates. Optus strongly supported the option, commenting that it provides investment confidence, reduces barriers to trading, and should make for a more efficient future ESL process. TPG supported this option, but said it would not object to option 1 if it was accompanied by annual payment terms.

Pivotel noted the benefits of option 2 and FreeTV noted that alignment of expiry dates would maximise opportunities for new entrants: if licences expiring in 2044 are re-allocated (by auction or other means) it would mean that large number of complementary bands could be made available at the same time.

Telstra noted the positive features of option 2, but expressed concern about the scale and implications of co-termination of all WBB licences in 2044. It suggested that this could financially strain industry (unless it is accompanied by instalment arrangements) and much will depend on the outcomes of that ESL process (i.e. essentially most or all the spectrum licences underpinning an MNO's network expire in 2044). Telstra's first preference is to align licence expiry dates based on the substitutability of different spectrum bands. This would see 4 tranches of licence expirations, taking place in January and June 2044, June 2048 and December 2049. Telstra's second preference is 20-year terms for all renewed licences.

Ericsson held similar views to Telstra.

Renewal statements (WA WBB and FWA)

There was support for our favoured arrangements amongst NBN Co, TPG and Optus.

Telstra proposed that licensees holding renewed ESLs should be able to apply for renewal 7.5 years prior to expiry (as opposed to the ACMA's proposal of 5 years), with a decision made no later than 5 years from expiry.

Licence duration (1800 MHz rail and 2.5 GHz TOB)

As noted above, rail licensees and related stakeholders hold strong views about renewal of spectrum licences, many proposed that renewed licences should also facilitate a wider range of services. ARA, Department of Infrastructure South Australia, NSW Telco Authority, Queensland Rail, Sydney Trains, Transport for NSW, and the Victorian Government all submitted that 20-year licences would support investment certainty and more broadly support the public interest. Some of these stakeholders also suggested that licences, or the spectrum, should be allocated to the current users indefinitely. The ARA added that

nationally consistent durations for rail licences would support national alignment of planning and system renewal cycles.

FreeTV and ABC supported transition to apparatus licensing. Free TV suggested that while spectrum licensing offers greater security of tenure for the duration of the licences, existing processes and safeguards including the ACMA's FYSO band planning process should provide substantial medium-term security for TOB if the route of apparatus-licensing is taken. The ABC commented that annual renewal of an apparatus licences provided it with security and flexibility to accommodate future TOB requirements.

Renewal statements (1800 MHz rail and 2.5 GHz TOB)

The ARA suggested inclusion of similar renewal statements to those proposed for renewed WBB licences. However, it noted that the next ESL process may need to commence earlier for rail than for WBB users, in the interests of national coordination.

Free TV suggested that the shorter-term spectrum licensing arrangements could be appropriate in some circumstances, but it was supportive of our favoured transition to apparatus licensing.

Renewal policy

Only one stakeholder, NBN Co, offered views on a renewals policy. It supported development of the policy, suggesting that it would provide additional transparency about our decision-making on future licences. NBN Co suggested ways that a non-binding policy could provide greater certainty in the process, such as by indicating in strong terms where renewal will be favoured. It noted that in Canada, high expectations of renewal are included in conditions on licences.

Our preferred views

Licence duration and renewal statements (WA WBB and FWA)

Noting broad stakeholder support for our favoured view, our preferred view is co-termination of renewed licences in 2044, with application and decision timeframes as suggested above.

Some support for this approach was accompanied by, or to some extent conditional on, instalment payments applying to licences issued as a result on the next ESL process. We cannot speculate about what payment arrangements might be put in place for licences issued in 2044, but instalment arrangements could be considered at that time.

Telstra makes a relevant point about the potential financial strain associated with this option, but we consider that this option provides very clear timeframes against which licensees can plan.

We recognise that Telstra's alternative renewal application and decision-making timeframes would provide a slightly higher degree of investment certainty, but it would also mean that the next ESL process would commence around 2034 (as opposed to around 2039). Some licences renewed as a result on the current ESL process would only have been in force for approximately 2 years if this approach were taken.

Table 2: Preferred views on duration per band

Band	Duration	Commencement	Expiry date
700 MHz	14.5 years	1 January 2030	30 June 2044
850 MHz	16 years	18 June 2028	30 June 2044
1800 MHz	15.5 years	18 June 2028	18 January 2044
2 GHz	11.25 years	13 October 2032	18 January 2044
2.3 GHz	13.5 years	25 July 2030	18 January 2044
2.5 GHz	14.25 years	1 October 2029	18 January 2044
3.4 GHz	13 years	14 December 2030	18 January 2044

Table 3: Preferred views on licence statements for WA WBB and FWA licences

Statement	Content
Renewal statement	Licences may be renewed at the discretion of the ACMA.
Renewal application period statement	6-month period starting 5 years before the licence is due to expire.
Renewal decision-making period statement	2-year period starting immediately after the renewal application period ends.
Public interest statement	The ACMA will not renew the licence unless we are satisfied that is in the public interest to do so.

Licence duration and renewal statements (1800 MHz rail and 2.5 GHz TOB)

As explored above in relation to each of these bands, our preferred view is that the rail communications and TOB use-cases should be transitioned to apparatus licensing arrangements.

Rail stakeholders have emphasised a high degree of uncertainty surrounding the technology environment and transition to 1900 MHz, and there is a range of views about what services should and could remain in 1800 MHz. Rail stakeholders broadly consider that this uncertainty, accompanied by a number of other factors, make 20-year, or indefinite, licence durations appropriate. While indefinite licensing is a concept that exists in some regulatory frameworks internationally, it is not a feature of the Australian framework and is not provided for under the Act.

In our view, this lack of certainty is not conducive to long-term spectrum licensing, and apparatus licensing is more appropriate. Rail licensees appear to have differing levels of investment and differing future scenarios, meaning that nationally uniform durations are likely not appropriate.

Apparatus licensing arrangements with appropriate durations can strike the right balance between providing confidence for licensees without locking up spectrum. We note that rail networks operating outside of areas covered by 1800 MHz spectrum licences have been, and will continue to be, authorised under apparatus licences. Beyond durations of specific

licences, our broader spectrum planning framework provides transparency and predictability for licensees and is refreshed each year.

We expect to conduct an initial consultation on apparatus licensing arrangements for 1800 MHz rail services in the first half of 2026, before the renewal application window for these licences opens in June 2026.

Renewal policy

There was little engagement with this proposal from stakeholders, and a renewals policy that provided expectations of renewal in the manner suggested by NBN Co might not strike the right balance between transparency and confidence for licensees and flexibility for the ACMA in respect of future decision-making.

Based on this feedback, we are not proposing to develop a renewals policy.

Other issues raised in the stage 3 consultation

Re-allocation and auction of WBB licences

What stakeholders told us

There was broad support for our preliminary view that WBB licences should be renewed. This included support from the incumbent licensees, and the ACCC submitted that renewing ESLs for use by the MNOs to provide WA WBB services would promote the long-term public interest noting the importance of spectrum for MNOs to provide essential services to consumers.

Prospective alternative users and shared infrastructure providers, Pivotel and OneWiFi, noted the benefits of using smaller AWLs instead of spectrum licences, as well as the benefits of shared infrastructure and regulator-led approaches like use-it-or-lose-it.

ACCAN and, in a supporting submission, Professor Holden, argued that WBB licences should not be renewed and should be auctioned. Together, they raised a number of in-principle points about the benefits of conducting spectrum auctions.

ACCAN suggested that spectrum auctions facilitate the allocation of spectrum to market participants who can make the best use of spectrum and are therefore willing to pay the highest price for the resource. Professor Holden submitted that renewal, rather than auction, reduced the likelihood of new entrants and therefore levels of competition and choice.

ACCAN also emphasised that our valuation of the spectrum within the scope of the ESL process was less than prices previously paid, and subsequently characterised this as a 'discount'.[33]

ACCAN and Professor Holden did not provide analysis or commentary on our views on specific bands or licences, or the pros and cons associated with each of the options available to us under the Act or how these options interact with our public interest criteria or the MPS.

Our response

We largely agree with ACCAN and Professor Holden that auctions are a useful tool to allocate spectrum, particularly for 'greenfields' spectrum or bands that have been subject to an extensive, multi-year replanning exercise in anticipation of re-allocation for a different purpose (that is, the initial allocation of spectrum licences). We are broadly of the view that auctions are a good mechanism for allocating spectrum efficiently and for discovering a market price for spectrum.

However, we note that auctions are not a cost-free exercise for consumers, and their design can be complex and would need to consider broader policy goals (such as the use of allocation limits or set asides to ensure competitive markets). Nominal prices paid at auctions conducted by the ACMA for all spectrum currently covered by spectrum licences (that is, ESLs and other ongoing spectrum licences) amount to $8.2 billion.[34]

[33] https://www.accan.org.au/accan-s-position-papers/allocating-spectrum-in-the-consumer-interest.
[34] https://www.acma.gov.au/spectrum-auctions.

We note that the ACCAN and Professor Holden submissions were largely framed around the benefits of auctions in general, without specific reference to the Australian market and regulatory framework or the specific bands or licences in question. They also did not engage with the issue of service continuity for consumers who rely on mobile services, and appeared largely to approach auctions from the assumption that the spectrum was unused. These submissions also did not engage very deeply with our public interest criteria.

Our preliminary views papers provided detailed analysis of the pros and cons associated with renewing, partially renewing, or refusing and re-allocating (likely via auction in some cases) all ESL bands, including WBB bands. In some cases, arguments favouring renewal were supported by circumstances specific to the relevant band (for example, how the band is being used or likely to be used in the future to support LEOsat D2D).

In broad terms, and across most WBB bands, the following factors indicate that auctioning WBB spectrum is unlikely to deliver outcomes that promote the long-term public interest:

Low likelihood of a fourth entrant at this time

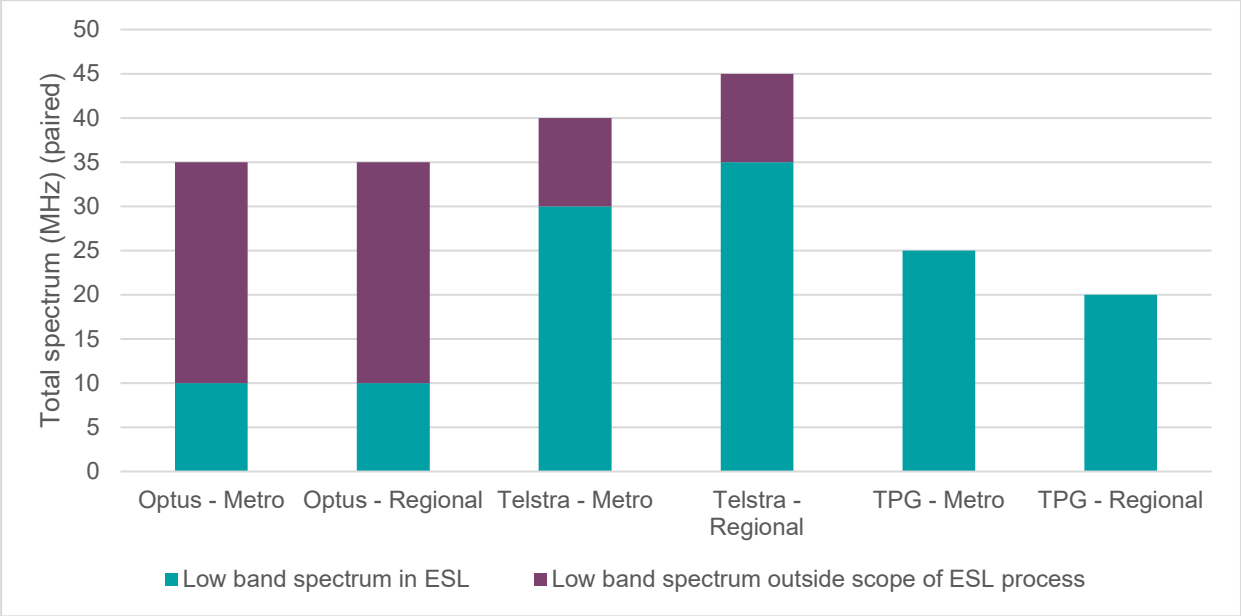
As we noted in our preliminary views, we are not aware at this time of a potential fourth entrant into the mobile market that could exert meaningful competitive pressure on the incumbents at auction or in raising the capital to deploy and competitively invest in a rival network. The ACCC is also unaware of such an entity.[35] Our analysis suggests that the emergence of such an entity would be inconsistent with the previous 20 years of market activity.[36] We also had regard to the MPS in this matter, which notes that we should consider known market demand for spectrum, and the capacity for other prospective licence holders to make the investment required to deploy and maintain an effective service with the spectrum.

Auctioning the spectrum may undermine competition

All 3 incumbents have a sufficient mix of low- and mid-band spectrum to compete. The spectrum within the scope of the ESL process does not represent the full spectrum holdings of the 3 MNOs, meaning that an auction of all ESLs in the manner suggested would have very different commercial and strategic implications for each operator. This is especially relevant when considering the low-band holdings of each operator. Low-band spectrum is a key element of an operator's ability to compete on cost and coverage, and acquisition by one operator of another's low-ban spectrum would likely have material impacts on competition and consumer choice. Operators with low-band spectrum not subject to the ESL process and therefore not subject to an auction, would not be exposed to these impacts to the same degree as others (see Figure 1).

[35] The ACCC's submission on his matter is published on our website. We also provided analysis of the attempt by TPG to compete as an MNO, and its subsequent merger with Vodafone.
[36] See *Supporting paper 1: Overview of expiring spectrum licences, incumbent holdings, use and the secondary market*.

Figure 1: Spectrum-licensed, low-band spectrum held by MNOs



Please note: Total low-band spectrum held in metropolitan and regional areas[37]

Neither ACCAN nor Professor Holden offered analysis on the ways in which specific losses or gains, or a more general redistribution, of spectrum amongst the incumbents might benefit consumers, nor how competition controls (such as allocation limits) might be implemented in a way that accounts for the current market structure. While they broadly considered that auctions can facilitate new entrants, the submissions did not identify any new prospective entrants into the mobile or other markets.

An auction without allocation limits in these circumstances would likely see larger incumbents acquiring spectrum from smaller competitors, with the resulting redistribution of spectrum unlikely to promote competition and choice for consumers. An auction with allocation limits is likely to reduce competitive tension between bidders, meaning that prices paid at auction may not be greater than renewal prices (which are designed to identify market prices).

An auction raises service continuity risks, especially for consumers in regional areas

While well-designed auctions have a role in allocating spectrum, auctions are especially effective allocation tools when they bring 'new' or 'vacant' spectrum to market. Most arguments supportive of auctions proceed from the assumption that the spectrum is vacant and not being used to provide services to millions of consumers and businesses. Auctions of vacant WBB spectrum generate competitive friction between potential licensees looking to roll out new networks that operate in parallel with existing networks (e.g. winning spectrum to roll out 5G services in a vacant band while continuing to run a 4G network) or add new capacity bands to their holdings (e.g. getting more data throughput in a metro area).

An ESL auction, particularly under the current market conditions, would be very different: an ESL auction in which incumbents could effectively 'buy' pieces of a competitor's underlying established network could pose significant service continuity considerations in the form of network disruptions and degradation. Consumers would likely experience this as increased congestion, resulting in slower data speeds, dropped calls or difficulty connecting, or reduced coverage and service availability.

[37] Metropolitan and regional areas are defined in terms of the geographic areas used to allocate the 850 MHz original band.

ESL auctions would likely need to be held after licences have first expired, leading to a high level of investment uncertainty across the remainder of the term of each ESL, extending until at least October 2032 when 2 GHz band licences are due to expire. This would have consequences for investment in and uptake of beneficial technologies and services for consumers at a time when LEOsat D2D and 6G technologies are continuing to develop and emerge, and the deployment and upgrade of existing 5G services is ongoing.

Given the right circumstances, like evidence of a new entrant or a more productive use or configuration for the spectrum, an auction of ESL spectrum could also provide opportunities for new entrants and users to obtain spectrum or move spectrum to a more efficient use or configuration.

Balancing the likely public benefits and impacts and mitigating such risks are criteria in our framework and objectives in the MPS. With these in mind, our view is that the social, economic and productivity impacts of the outcomes from an auction would not be equitably and equally distributed: service degradation or loss would likely be felt harder than what would likely be marginal boosts in speed or capacity, and the impacts on consumers in regional areas would likely be worse than those in the cities where there are already reports of congestion and coverage issues.[38]

These matters are particularly relevant to our views on how each option is likely to impact services and consumers in regional and peri-urban areas, like those reliant on NBN Co's FWA service for home and internet access. They will likely be relevant to our consideration of renewal applications covering spectrum in these areas.

Renewal promotes future developments and competition

Renewal of licences is likely the best way to support key developments in the Australian market, namely deployment of LEOsat D2D services as a complement to existing terrestrial WBB networks, and the Optus /TPG MOCN. Both are likely to improve competition, particularly in regional areas, the latter having the capacity to increase consumer choice and challenge Telstra's dominant position in the regions.[39] Renewal also avoids the issues and risks identified above.

While ACCAN characterised renewal prices as a discount, neither it nor Professor Holden supplied any modelling or valuations of the spectrum relating to auction starting prices or revenue expectations. ACCAN drew attention to the difference between historical prices paid for ESL spectrum (which include a combination of prices paid at auctions and administratively set prices for renewed licences) and our preliminary price ranges, suggesting that this difference represented a saving for industry or a forgoing of revenue.[40] However, the difference in prices reflects the change in market value of an asset. As we have established, a downward trend in spectrum prices for some spectrum bands, particularly for high-value sub-1 GHz spectrum and spectrum in the 1800 MHz and 2 GHz bands, is an observable phenomenon in Australia and internationally. This is evident in our analysis of spectrum award prices globally, as well as in similar international benchmarking exercises undertaken in other jurisdictions.

[38] The 2024 Regional Telecommunications Review acknowledged that while mobile networks have 'improved significantly over the years', capacity and coverage issues continued to be a recurring concern among consumers in regional and remote parts of Australia. RTIRC, *2024 Regional Telecommunications Review*, 2024, pp. 3–4.
[39] See Expiring spectrum licences, stage 3: Preliminary views paper 1: Incumbent licensee use-cases and the public interest. See also the ACCC's views on the TPG/Optus network sharing agreement: Optus Mobile Pty Ltd and TPG Telecom Limited proposed network and spectrum sharing; ACCC will not oppose Optus and TPG regional mobile network and spectrum sharing.
[40] https://www.accan.org.au/accan-s-media-releases/billions-on-the-line-in-spectrum-action-decision.

We have conducted a benchmarking exercise incorporating relevant international and Australian auction price outcomes to determine the renewal prices for ESL bands. This is an internationally accepted way of determining a market price for spectrum, and combined with renewal of licences, can help ensure that resources are allocated in an efficient way at a fair market price and meet public interest objectives, while also mitigating many of the risks associated with auctioning spectrum that is in use.

We are consulting on refinements to our benchmarking methodology and single price points for ESL bands alongside our preferred views. These refinements follow our consideration of submissions and a peer review of our methodology from DotEcon. Auctions can also be effective tools at changing the use of spectrum to a more efficient one. As we note below, the potential for an auction to facilitate a use case more publicly beneficial than WBB is largely incompatible with the domestic and global technology market, and complementary and internationally harmonised spectrum planning and allocations, which support this use of the spectrum.

On balance, we did not find strong evidence that a re-allocation and auction of licences in the manner proposed by ACCAN would promote the long-term public interest better than renewal of these licences.

Application of MPS to pricing considerations

What stakeholders told us

TPG suggested that the ACMA's approach to pricing ESL spectrum might be improved by ensuring policy decisions are consistent with the MPS. It suggested that these policy choices could be broad (such as whether to adopt a benchmarking approach) or be reflected in specific choices relating to spectrum groupings and data sampling.

Our response

We have had regard to the MPS in designing and enacting the ESL process. The MPS does not contain any specific objectives relating to pricing. However, we consider that establishing a market price for spectrum through benchmarking is the most appropriate way to facilitate the objectives in the MPS, as well as those associated with our public interest criteria.

A market-based price represents an appropriate rate of return for the community, which in turn incentivises investment, promotes competition, and promotes efficient and productive use of the spectrum – all of which deliver a continuous flow of benefits to Australian consumers. Prices that are too high or too low can negatively impact consumers, industry, and the overall economy, either because they can result in market consolidation or encourage spectrum hoarding. Current allocations allow the 3 MNOs to compete on coverage and quality, and our prices support competition by allowing licensees to reacquire their existing holdings at a fair price.

LEOsat D2D services

What stakeholders told us

CSIRO raised concerns that operation of D2D services on MNO networks in sub-1 GHz bands could adversely impact use of spectrum utilised for radioastronomy, including in the Australian Radio Quiet Zone Western Australia. As a solution, it suggested corralling D2D services into the 1800 MHz and 2 GHz bands.

Optus encouraged further collaboration between the ACMA and MNOs on D2D services, while TPG noted that it intended to use its low-band spectrum for D2D.

Telstra indicated that reconfiguring the 1800 MHz band (currently held by MNOs under spectrum licences in metro and regional areas, and otherwise available in remote areas under apparatus licences for a range of users) for national spectrum licensing would be optimal for deployment of D2D services on MNO networks.

ACCAN suggested that auctions of WBB spectrum could facilitate new market entrants providing LEOsat services. Professor Holden, in support of ACCAN's submission, suggested that renewal of WBB licences might constrain developments in the D2D market, and make it more difficult to achieve the government's UOMO reform.

Sateliot noted that the 700 MHz, 850 MHz and 2.5 GHz ESL bands are well suited for D2D services, especially in rural and remote areas. It encouraged us to align our approaches with the international environment.

Our response

LEOsat D2D technology and business models are still emerging. A subset of ESL bands is conducive to LEOsat D2D deployments, and we consider that our preferred views (i.e. renewal of licences) will maximise options for the MNOs to partner with LEOsat operators to deploy these services efficiently and effectively. We did not receive evidence to indicate that the LEOsat D2D service offering has the capacity to compete with MNO use of ESL spectrum, and renewal of licences has the added benefit of maximising the ability of MNOs to comply with the UOMO. Co-termination of WBB licences in 2044 will allow us to review the outcomes that these currently emerging technologies and business cases have achieved.

We encourage stakeholders to work together to resolve any interference concerns, and we encouraged D2D satellite operators to engage with CSIRO.

Alternative uses and uses cases for ESL spectrum

What stakeholders told us

ACCAN suggested that not conducting auctions of WBB spectrum might restrict new entrants who might provide new technologies and services, although it did not provide examples of what these might be.

In its reply to comment submission, NSW Telco Authority commented that renewal of WBB licences would preclude re-allocation of spectrum covered by these licences for public safety mobile broadband (PSMB). NSW Telco Authority suggested that consideration should be given to including in renewed WBB licence conditions that require MNOs to provide prioritised services for emergency service operators, and also require them to establish roaming agreements with emergency service operators. It suggested that this would align with other work underway in relation to PSMB capability.

Our response

Our preliminary views explored a range of competing and complementary demand for ESL spectrum.[41] We examined alternative use-cases, including private networks, drones and

[41] In our preliminary views, we categorised alternative demand into 'competing' demand that would lead to denial or interference with an existing or planned service, and 'complementary' demand that could be facilitated without impacting existing or planned services, such as where the spectrum is unused and likely to remain so by an incumbent licensee.

defence uses. We considered how these use-cases interacted with our public interest criteria and the ELS MPS.

In broad terms, auctions can be effective in facilitating new use-cases, where the existing use and use-cases are inefficient or unproductive. Over the first 2 stages of the ESL process, there was broad agreement from stakeholders that there is no alternative use or technology for WBB bands that approaches the benefits associated with mobile services or the fixed wireless component of the nbn. These bands are part of an internationally harmonised system of equipment and services directed towards the current and next 'G' (4G, 5G, 6G, etc.) with a globally addressable market (i.e. everybody with a smart phone).

These licences underpin the digital economy and are key inputs into and drivers of GDP and productivity. It seems very unlikely that an auction would result in an allocation of these licences for a use other than WBB.

New technologies and use-cases can and do emerge, and we make spectrum arrangements to suit them. For example, some drones could notionally operate on WBB ESL bands, and we received some interest in this. We took the view, however, that it is better to make separate arrangements for drones than to displace WBB networks and their customers, arrangements which are also aligned with international aviation safety regulations.[42]

While dedicated spectrum is one way by which PSMB could be implemented, successive reviews, including the Productivity Commission in 2015 (PC Report) and the 2022 PSMB Strategic Review (2022 Review), have examined options for PSMB in detail. They have concluded that direct allocations of spectrum to deliver PSMB are not the most appropriate or effective mechanism of delivering PSMB, and that the focus should be on alternative arrangements with the MNOs.

The PC Report estimated that the cost of a dedicated PSMB network was $6.2 billion, compared to $2.2 billion for commercial arrangements with the MNOs, with minimal difference in capability and benefits. The PC Report also noted the time it would take to build a PSMB network, compared to using established MNO networks. The 2022 Review considered a range of delivery options for PSMB, including leveraging existing infrastructure. It concluded that the use of MNO spectrum was now the only practical solution and should become the focus of implementation.

While it is open to the ACMA to include conditions in spectrum licences, we provided the then Minister with advice on 27 November 2024 regarding the regulatory framework surrounding spectrum licences and the enforcement of conditions in relation to usage obligations like rollout obligations and use-it-or-lose-it. While this advice did not specifically contemplate conditions requiring MNOs to provide a PSMB capability on specific terms, it is relevant.

We concluded that spectrum licensing lacks adequate compliance and enforcement powers to support these kinds of obligations. Our only powers are the total suspension or cancellation of a licence, which would have network-wide consequences for consumers and businesses. Further, as noted in that advice, not all spectrum licences are within scope of this ESL process, with several key low-band spectrum licences not due to expire until 2044, limiting comprehensive implementation of such reforms.

[42] Expiring spectrum licences, stage 3; Supporting paper 2: Competing and complimentary demand for ESL spectrum.

We noted in our 2023 ESL framework that a PSMB Taskforce has been established in the National Emergency Management Agency to deliver on recommendations of the 2022 Review.[43]

The government agreed or agreed in-principle to all recommendations in the 2022 Review. The PSMB Taskforce is leading implementation of these recommendations, and we have not included PSMB outcomes in the ESL policy and decision-making framework.

Place-based licensing framework

What stakeholders told us

Optus considered that a new place-based framework was not necessary, on the basis that it was not aware of evidence of the secondary spectrum market failing to address demand. AMTA noted that secondary trading and third-party authorisation mechanisms in the existing framework should be relied upon in the first instance, and that licences under the proposed place-based framework only be considered where these have not worked.

AMTA noted that pricing and interference issues would need to be worked through, but once they were, the grounds to issue a licence under the framework should notionally be straightforward. However, it suggested that the framework would need to contemplate scenarios where a spectrum licensee wishes to commence use of previously unused spectrum into which a place-based licence has been issued. Telstra raised a similar concern, and added that some licensees may use the framework to obtain licences on a speculative basis or in the interests of denying its use by others.

Pivotel noted that a place-based framework would need to be carefully designed, to ensure that it supported the business models of prospective users.

Sateliot suggested that this place-based licensing framework could also create new opportunities for LEOsat D2D services

Our response

We will undertake a separate consultation process to consider issues relating to a place-based licensing framework.

[43] See p. 30 of the Review. A 2015 report by the Productivity Commission similarly found that the most efficient, effective and economical way of delivering a PSMB capability is by relying on commercial mobile networks and spectrum.

Appendix A: Background on ESL

Between June 2028 and October 2032, 69 of the 81 current spectrum licences will expire. These expiring spectrum licences (ESLs) cover a range of bands and are used for wireless broadband (WBB), rail safety and control communications (rail communications) and television outside broadcast (TOB).

The ESLs, sometimes used in conjunction with other radiocommunications licences, are communication enablers of our economic, digital, and social lives. The spectrum to which they grant access is a scarce resource, and whether an ESL should be renewed is an important issue for licensees, prospective alternative users of the spectrum, the ACMA, the broader communications sector and portfolio, and for all Australians who are end-users of the services provided through use of the relevant spectrum.

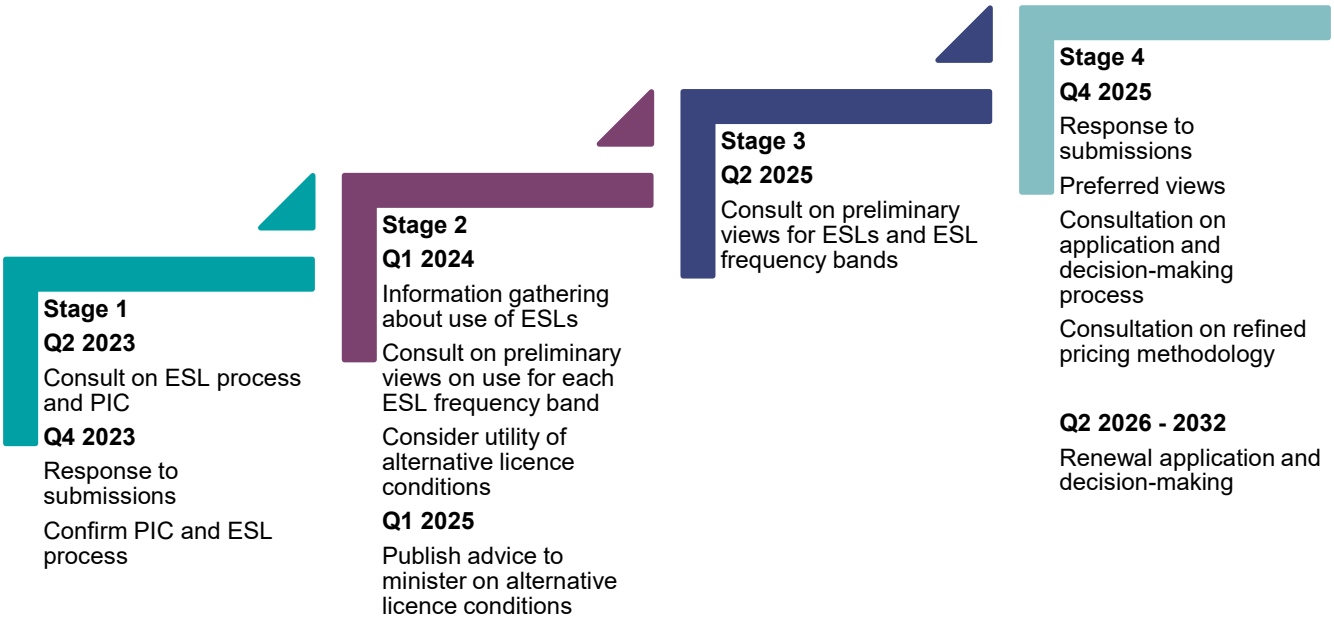
In 2021, the ACMA was empowered to consider applications for renewal of spectrum licences and the long-term public interest. The ESL process will be the first time the ACMA has used these powers.

We have consulted widely and designed the ESL process to be as transparent as possible regarding our decision making and the factors we have considered, and will consider, in assessing options for the future use of ESL spectrum.

The ESL process

The outcomes of the ESL process will have significant impacts for stakeholders, downstream markets and end users. We have applied a 4-stage process to consideration of ESLs. This staged approach is intended to provide stakeholders with transparency and confidence about the matters we will consider when assessing the future use l of ESL spectrum. The process is consultative, with multiple opportunities for stakeholders to provide feedback on and shape the public-interest based policy and decision-making ESL framework.

Figure 2: ESL process



Stage 1 of the ESL process was completed in December 2023, resulting in the finalisation of the ESL framework and the 5 public interest criteria (PIC) that underpin the progressive development of a policy and decision-making framework and our consideration of the long-term public interest.

This was followed by stage 2, which was completed in Q1 2025. This stage was principally focussed on gathering information from stakeholders on how current and future use of spectrum covered by ESLs promotes, or could promote, the long-term public interest. Stage 2 also involved the development of advice to the minister on the utility of alternative licensing conditions in achieving specified objectives including spectrum utilisation and mobile network coverage.

We provided the minister our advice in November 2024. In a letter dated 28 February 2025, the minister noted our considered views on alternative licensing conditions and proposal for a demand-driven, localised secondary licensing framework and asked us to work with the Department for Infrastructure, Transport, Regional Development, Communications and the Arts in further exploring the merits of the proposal.

In stage 3, we consulted on our preliminary views for a range of matters relating to ESLs, the spectrum covered by ESLs, and the long-term public interest. Submissions to that process informed our stage 4 preferred views.

Public interest criteria

We have developed 5 PIC to guide our consideration of the long-term public interest derived from the spectrum, and to assist stakeholders in framing their engagement with the ESL process (that is, in making submissions to consultations and, ultimately, in applying for renewal).

The PIC are:

- facilitates efficiency
- promotes investment and innovation
- enhances competition
- balances public benefits and impacts
- supports relevant policy objectives and priorities.

We provided stakeholders information on how we may consider each of the PIC as part of our finalised framework and response to submissions in stage 1, and some minor updates were implemented when we released our preliminary views.[44]

Relevant policy objectives

Ministerial policy statement

The minister has made the Radiocommunications (Ministerial Policy Statement – Expiring Spectrum Licences) Instrument 2024 (MPS) which specifies 5 Commonwealth Government communications policy objectives to which we must have regard to in designing and enacting the ESL process. These objectives, which are in no order of priority, are:

- Supporting service continuity for end users, particularly where no alternative service is available.
- Facilitating opportunities for new entrants and use cases, including for low earth orbit satellites (LEOsat).
- Connectivity and investment in regional and remote areas to deliver improved services to end users.
- Promote competition.
- Capacity for sustained investment and innovation.

These policy objectives apply to ESLs specified in the MPS. These ESLs are used for mobile and fixed WBB, and are held by the 3 mobile network operators (MNOs) and NBN Co. The objectives are not intended to apply to ESLs used for Television Outside Broadcasting (TOB) in the 2.5 GHz mid band gap, or in support of rail communications services in the 1800 MHz band.

Many of the considerations relevant to these objectives are also applicable to, or reinforce, the PIC. We have therefore incorporated these objectives into the PIC where relevant.

We note that the Radiocommunications (Ministerial Policy Statement – 3.4—4.0 GHz) Instrument 2022 (the 3.4 GHz MPS) is also currently in place. The minister has previously stated an intention to repeal this instrument following the conclusion of allocation processes within that band. If the 3.4 GHz MPS remains in force at the time we consider

[44] This also includes minor changes to language to reflect other developments since the initial publication of the information in December 2023, such as updating references to the MPS to indicate that it has now been made.

applications for renewal of spectrum licences in the 3.4 GHz band, we will have regard to the 3.4 GHz MPS.

Statement of Expectations

On 14 December 2023, the minister wrote to the Chair of the ACMA expressing support for our PIC. The minister identified several priorities contained in the ACMA's 2022 Statement of Expectations (SoE) as being relevant to our consideration of ESLs, and of relevance to the fifth criterion, 'supports relevant policy objectives and priorities'.

On 20 December 2024, the minister issued a new SoE. While the 2024 SoE features several changes and updates from the 2022 SoE, the priorities identified by the minister as relevant to our ESL work remain broadly consistent. These are:

- Promoting technology neutral, simple and pragmatic frameworks that facilitate early adoption of new and emerging technologies, such as LEOsat-enabled direct to device (D2D) technologies while providing safeguards for consumers and small businesses
- Supporting government policies related to regional, rural and remote Australia including by having regard to relevant ministerial policy statements in the planning and allocation of spectrum to support innovation and competition in these areas
- Promoting the long-term public interest derived from spectrum, including the benefits of technological developments that improve spectrum use and efficiency.

Universal service obligation reform and universal outdoor mobile obligation

The government is expanding the existing universal service framework to include mobile coverage for the first time. The universal outdoor mobile obligation (UOMO) will require MNOs to provide reasonable and equitable access to outdoor mobile voice and SMS services on an Australia-wide basis. The objectives of the UOMO are to expand outdoor voice and SMS coverage to support expanded access to Triple Zero and improve public safety. Mobile operators are expected to meet the obligation using a combination of their existing mobile coverage and direct to device mobile enabled by LEOSat technology. This requires access to a range of spectrum licences, some of which are subject to the ESL process.

ESLs with national footprints, that is, those in the 700 MHz, 850 MHz and 2.5 GHz bands, as well as spectrum licences in the 850/900 MHz band not subject to the ESL process, are likely to be conducive to facilitating initial deployments of LEOsat D2D services using MNO spectrum. We will consider any implications of the UOMO on the long-term public interest in the context of our ESL decision-making. The government introduced framework legislation to Parliament on 27 November 2025 and publicly consulted on draft legislation from September to October 2025.

Appendix B: International allocation and use of 2.3 GHz

The 2.3–2.4 GHz frequency band is recognised for its balance of propagation characteristics and capacity delivery. This has seen it used for both WA WBB, FWA and private 4G/5G networks, with licensing and regulatory approaches facilitating these varied use cases. There is also evidence of shared use approaches.

United States

The Federal Communications Commission (FCC) designated 55 MHz (2305–2360 MHz) as Wireless Communications Service (WCS), subdivided for fixed and mobile broadband, known as Band 30. The principal licensees include large carriers such as AT&T (for supplemental LTE and 5G downlink) and wireless ISPs providing rural fixed wireless services. Adjacent spectrum is reserved for satellite radio, with technical limits imposed on WCS to prevent interference.[45] Licensees are required to meet specific performance and deployment requirements; if these are not met, the licence will automatically terminate.[46]

WCS licences permit flexible use, subject to strict technical rules to protect adjacent satellite radio services Additional rural broadband licensing options are available. Nationwide 5G network deployments in the United States have predominantly utilised the 2.5 GHz and 4 GHz and higher spectrum bands, which now serve as the main mid-band allocations for 5G services, while WCS plays a more limited role.[47]

Canada

In Canada, the band is allocated for a mix of fixed, mobile, and satellite services. Major blocks have been licensed for flexible use, allowing both FWA and WBB. But the band is primarily used by regional wireless ISPs for FWB, especially in rural and underserved areas, with some use for regional WBB. Nation-wide WBB is mainly supported by other spectrum bands, notably C-band (3.5 GHz) for advanced mobile services.

Innovation, Science and Economic Development Canada (ISED) administers flexible-use licensing in the 2.3 GHz band, with specific requirements for rural build-out and coverage.

United Kingdom

In 2017–18, the Ofcom auctioned 40 MHz (2350–2390 MHz) of the 2.3 GHz band for public WBB (4G/5G, designated Band 40), awarded to Telefónica UK (O2) and intended for immediate deployment in urban areas, supported by a wide range of consumer devices. Local and shared licences in smaller sub-bands are also available for temporary or private network use, including events and industrial applications. In July 2025, Ofcom proposed a new short-duration licence for rapid indoor and outdoor access to the 2320–2340 MHz range, enabling multiple users to share spectrum for ad hoc services, subject to technical and coordination requirements.

[45] https://www.fcc.gov/wireless/bureau-divisions/mobility-division/wireless-communications-service-wcs.

[46] https://docs.fcc.gov/public/attachments/FCC-24-16A1.pdf.

[47] https://docs.fcc.gov/public/attachments/DA-13-1141A1.pdf.

Ofcom offers a combination of exclusive national licences for mobile WBB and shared access licensing, providing both large-scale and local spectrum access options. The shared framework supports low-barrier licensing for a variety of uses, including industrial, IoT, private, and temporary deployments, across several spectrum bands such as 2.3 GHz, 3.8–4.2 GHz, and others. Ofcom's licensing terms require the spectrum to be actively used, with conditions permitting the reassignment or return of unused allocations, to encourage efficient use and access by new users.[48]

Table 4: Summary Comparison Table: USA – UK – Australia (Telstra, Optus and NBN Co)

Category	Australia (Telstra, Optus & NBN Co)	United Kingdom	United States
Main users	Telstra (private/industrial), NBN Co (public rural fixed wireless). Optus (Metropolitan 4G/5G)	O2 (public LTE/5G), local private & event/industrial networks	AT&T (LTE/5G), WISPs, legacy satellite radio
Public connectivity	NBN Co: public rural fixed wireless; Telstra: public/remote deployments; Optus: metropolitan deployment	Urban LTE/5G coverage (O2); local networks (shared access/specialist)	Urban LTE densification, some rural wireless via WISPs
Private/industrial use	Telstra: private/industrial (e.g., mining, remote); NBN Co: not applicable; Optus not applicable.	Available via shared/local licensing for private networks	WCS Band 30: available for private/rural ISP, limited deployment
Efficiency (2025)	NBN Co: extensive deployment, reported high utilization; Telstra: ongoing deployment focus; Optus: extensive deployment	Public/shared use: deployed in urban/shared bands; legacy spectrum in transition	Mobile: deployment subject to technical and adjacent band constraints
Regulatory approach	Technology-neutral licensing; review for renewal linked to usage	Combination of exclusive national and shared/local licences; harmonized with CEPT Band 40	Flexible licensing (TDD); strict adjacent-band protection (SDARS)

Europe

In most European countries (excluding the UK), the 2.3 GHz band is used for various applications, including military communications, broadcasting, PMSE (program making and special events), industrial, and telemetry services. Deployment of LTE/5G mobile and fixed wireless in the 2.3 GHz band is established in a limited number of European markets (notably the Nordics, Ireland, and the UK). In most EU countries, the band continues to be

[48] See Ofcom's consultation on supporting increased use of shared spectrum 2023; Ofcom, Evolution of the Shared Access Licence Framework 2023; Sarah McBride for Omidia, Pending Ofcom approval, some UK spectrum allocations are set to be reassigned, which will improve network performance for customers and MVNOs, July 2025.

mainly used for legacy applications such as military, broadcast, PMSE, and telemetry, with comparatively limited new mobile broadband deployment. Localised licensing and private network applications have been implemented in Finland, Slovenia and Spain. CEPT established harmonized time-division duplexing (TDD) technical conditions in the 2.3–2.4 GHz band, based on 20 blocks of 5 MHz each. Final implementation is determined at the national level. Some national regulators are piloting or extending shared access frameworks to enable industrial, IoT, and private networks, or are planning auctions for mobile broadband use.

Table 5: Comparative Insights

Region/ Operator	Primary Usage	Regulatory Approach	Tech/Market Focus	Deployment
Australia (Telstra)	Industrial/private networks (e.g., mining); public rural (NBN Co)	Flexible licensing, with regulatory review of use	Industrial, mining, remote, public fixed wireless	Extensive for NBN Co; ongoing/limited for Telstra
Australia (Optus)	4G and 5G WA WBB services in metropolitan areas.		Metropolitan areas	Deployed utilising radiocommunications transmitters at approximately 3,900 4G sites and 2,500 5G sites in metropolitan areas.
USA	Urban LTE/5G, rural wireless/fixed services	Flexible licensing, technical rules for adjacent bands	Urban densification, rural fixed wireless	Widespread in urban, moderate rural; lower in WCS than C-band
UK	National LTE/5G (O2), local/shared private/event networks	National-exclusive and shared/local licensing	Urban public, private/industrial/event	High in licensed segments
Europe	Mixed: legacy (military, PMSE, etc.), regional fixed/private in some countries	National implementation of CEPT TDD plan; LSA pilots in selected markets	Legacy uses, 4G/5G, private/industrial	Active in a few states, limited elsewhere
Canada	Rural/remote fixed wireless, some regional mobile	Flexible-use licensing with rural coverage obligations	Regional ISPs, rural broadband, fixed & mobile	Supports rural policy goals; more limited for mobile