

The logo for Optus, consisting of the word "OPTUS" in a bold, teal, sans-serif font.

Submission in response to
ACMA Consultation Paper

**Approach to expiring
spectrum licences**

Public Version

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CONTENTS

Section 1. Executive Summary	4
Public interest assessment must prioritise supply of essential mobile services	6
Spectrum renewal prices must sustain investment and competition	7
Section 2. Proposed public interest criteria	11
Proposed public interest criteria are a good starting point for ESL assessment	11
The criteria should be clear, concise and transparent	12
"Facilitates efficiency" – an auction will not deliver efficient outcomes	13
"Promote investment and innovation" – ACMA must reflect on the market context	14
"Enhancing sustainable competition" for the long-term benefit of end-users	15
ESL spectrum renewal is in the public interest	17
Why ESL spectrum should be renewed in full	18
Policy objectives must be sufficiently transparent prior to ESL assessments	20
Other public interest considerations	21
Section 3. Proposed ESL process	23
The framework for the ESL Process creates significant implementation risk	23
Effective risk management is crucial to the success of the ESL Process	24
Optus proposal for a revised ESL Process	25
The ESL Process must provide for greater industry engagement	26
Section 4. Band specific issues to be considered as part of the ESL process	27
Section 5. Other matters that the ACMA should consider in designing the ESL framework	29
Introducing new or varied spectrum licence boundaries	29
Reducing the amount of spectrum available for current licensees to renew	30
Revised core conditions for coexistence and coordination	31
Changing Licence Types	32
Section 6. Pricing – approaches to valuation and payment	33
The negative impact of high renewal fees on investment	34
The financial state of the mobile sector and the need for a long-term view on pricing	35

Optus response to ACMA pricing discussion	36
Pricing considerations for spectrum renewal	37
Section 7. Approaches to examining spectrum use under ESLs	39
Efficient utilisation of spectrum is an essential objective of the ESL process	39
Assessment of use must be proportionate, transparent and based on substantiated need	40
Service coverage – the ACMA must compare “apples with apples”	41
Spectrum utilisation – granularity of analysis must reflect specific use case	42
Levels of previous and planned investment in use of spectrum and deployments	43
Different spectrum use cases	44
Subscribers and end-users	44
Proposed approach to gathering information and data analysis	45
Obstacles to efficient deployment	46
Appendix A. Suggested amendments to the ACMA’s proposed ESL process	47
Appendix B. Licence Boundaries devalue spectrum	51

Section 1. EXECUTIVE SUMMARY

- 1.1 Optus welcomes the opportunity to provide feedback to the Australian Communication and Media Authority's (ACMA) consultation paper on its *Approach to expiring spectrum licences* (the Consultation Paper).
- 1.2 The mobile telecommunications industry is the backbone of Australia's digital economy and 30 years of mobile competition has enabled the delivery of new and innovative services to millions of Australians, driving productivity improvements across the economy. Mobiles services are essential services, and mobile infrastructure is critical national infrastructure. While the Government¹ and the ACMA² recognises telecommunications as an essential service, no reference is made to the essential nature of mobile services in the context of the expiring spectrum licences; and there remains no presumption of renewal for expiring licences. This risks future investment in this critical infrastructure and the long term supply of essential services. It is a risk that must be addressed as a priority.
- 1.3 The use of mobile services has resulted in significant economic growth in Australia. Studies have estimated that the economic impact of 4G mobile services was \$22.9 billion to value added, including \$14.7 billion of indirect activity in 2019.³ This impact has grown over time as newer and better generations were deployed. Economic modelling undertaken by Deloitte for the Australian Mobile Telecommunications Association (AMTA) estimates that 5G will increase Australia's GDP by \$67 billion in 2022 dollars over the eight years to 2030.⁴ Optus estimates that the competitive deployment of 5G services will drive a further 1.2% of economic growth in 2030, equivalent to \$36.7 billion to gross value add (GVA) each year.⁵
- 1.4 Mobile telecommunication networks are nationally critical infrastructure and provide an essential service to all Australians. As recognised by the ACMA Chair, it is not "up for debate any more than telco services are essential services for all",⁶ and that "it is essential that all Australians, regardless of their individual circumstances, are able to access and use telecommunications services".⁷ The Minister has also stated that telecommunications are "a necessity to support ... access to critical services".⁸
- 1.5 Yet the mobile market is facing material financial pressure. Industry returns on capital are far below the cost of capital, putting into question the ability to invest in advanced mobile networks. As a result, there is a growing digital investment gap between what is needed to deliver Australia's digital ambitions and what mobile operators can afford to invest. If left unaddressed, this investment gap threatens Australia's digital future and the long term supply of essential services.

¹ <https://minister.infrastructure.gov.au/rowland/media-release/albanese-government-improve-safeguards-telco-consumers-experiencing-financial-hardship>

² <https://www.acma.gov.au/publications/2022-09/speech/speech-nerida-oloughlin-acma-chair-accanect-2022-better-basics>

³ <https://amta.org.au/wp-content/uploads/2019/05/mobile-nation-2019-the-5g-future.pdf>

⁴ https://amta.org.au/wp-content/uploads/2022/03/5G-Unleashed-Final-Report_combined-21-March-2022.pdf, p.14

⁵ Optus 5G Impact Report and PwC's *Productivity Insights 2020: Recent productivity trends* – using PwC's geospatial economic model (GEM) we estimate that the cumulative additional GVA across a decade would be \$130 billion, equivalent to 205,000 net new jobs created across a ten-year period.

⁶ Speech by Nerida O'Loughlin PSM, ACMA Chair, CommsDay Summit 2023, <https://www.acma.gov.au/publications/2023-05/speech/speech-nerida-oloughlin-psm-acma-chair-commsday-summit-2023>

⁷ ACMA, *What consumers want – Consumer expectations for telecommunications safeguards*, A position paper for the telecommunications sector, July 2023, p.2

⁸ See: <https://minister.infrastructure.gov.au/rowland/media-release/albanese-government-improve-safeguards-telco-consumers-experiencing-financial-hardship>

- 1.6 The annual cost⁹ of spectrum to industry has grown from \$241 million in 2015 to \$818 million in 2024. Few if any industry sectors pay such sizeable upfront licence fees, with no linkage to future revenue or profits generated from use of those licences. In the broader context of the sector's financial health, high spectrum costs are unsustainable.
- 1.7 This is the context in which this Consultation Paper lies. The ACMA is potentially contemplating a significant readjustment to the arrangements for the use of spectrum that is subject to expiring spectrum licences (ESLs). The proposed ESL process presents significant risks to operators that have relied on the high degree of certainty and exclusivity of spectrum access that has underpinned billions of dollars in mobile network investments and many billions more in economic and social benefits. No other provider of essential services faces such a risk.
- 1.8 Despite mobile services being an essential service, underpinning Australia's digital economy, there is no presumption of renewal in the Consultation Paper. No other nationally critical infrastructure industry faces such a risk to the continual supply of essential services. Jeopardising long term investment in critical infrastructure that delivers essential services across Australia conflicts with Government policies on digital inclusion, regional connectivity and Closing the Gap.¹⁰ The potential long-term consequences of decisions over future arrangements for this spectrum must be carefully considered in developing the ACMA's preferred approach. The effective management of risks must be a key priority for the ACMA.
- 1.9 The starting position of the ESL process must be a presumption that it is in the public interest to renew all ESLs to existing licensees. It is clear that the continued use of spectrum allocated to mobile services to provide essential services results in the greatest public benefits – as required under the Act. Mobile services are nationally critical essential services, contributing upwards of \$37 billion to society each year at 2030.
- 1.10 The ACMA has material discretion in this ESL process. To ensure an efficient process going forward, Optus submits that:
- (a) There should be a presumption of renewal at administrative costs given that ESL spectrum is used to supply critical and essential services;
 - (b) Any public interest assessment must prioritise the essential nature of mobile services and the associated long term socio-economic benefits;
 - (c) The ESL process must deliver certainty sufficiently early and across all bands;
 - (d) Public benefits arise from lower spectrum prices which are necessary to sustain a competitive mobile sector; and
 - (e) Mobile technologies are the optimal/efficient users of spectrum and there is no evidence that alternative uses produce higher public benefits.

ESL spectrum is used to supply critical and essential services

- 1.11 The starting position of the ESL process must be a presumption that it is in the public interest to renew all ESLs to existing licensees. Modern mobile networks and services are essential to Australian society and spectrum is essential to mobile networks and services. To presume that ESL spectrum may be allocated to a higher value use is

⁹ Amortisation of spectrum licence payments

¹⁰ ACMA Statement of Expectations, p.3

inconsistent with the expectations of Government and society that mobile services are essential to daily life.

- 1.12 Mobile networks supply essential communications services to Australians across the country, providing access to emergency, education, health, social and government services among others. Access to these services has become even more critical since the COVID-19 pandemic.¹¹ The Government's Statement of Expectations for the ACMA confirms that the ACMA "has an important role to support industry and consumers in delivering and accessing essential communications services".¹²
- 1.13 Optus submits that the essential and critical nature of mobile services to all facets of Australian society means that the ACMA's starting position is a presumption of renewal of all ESLs at a nominal price.
- 1.14 Optus strongly recommends that:
 - (a) All spectrum licences used to supply mobile and WA WBB services are deemed to be renewable upon application from spectrum licence holder
 - (b) The spectrum access charge for renewal should be no more than necessary to cover the ACMA's costs of administering the ESL spectrum bands.

Public interest assessment must prioritise supply of essential mobile services

- 1.15 All available evidence shows that the continued use of spectrum allocated to mobile services results in the greatest public benefits – as required under the Act. Mobile services contribute upwards of \$37 billion to society each year in 2030. There is no evidence that any other use produces such large public benefits. Absent this evidence, the ACMA cannot take any other action other than renew existing licences. Any other approach puts at risk the sector's ability to deliver on digital transformation, meet the significant growth in mobile data driven by 5G and 6G and puts sustainable competition at risk.
- 1.16 The ESL process presents a real opportunity to establish spectrum arrangements for the long-term public interest. The public interest will be best served by an approach to ESLs that ensures the continual supply of essential services and maximises socio-economic value of spectrum to Australian businesses and consumers. This means renewal of ESLs to existing licensees at a nominal price promotes long term investment and sustainable market competition.
- 1.17 Optus is generally supportive of the five criteria that the ACMA has proposed for undertaking its public interest assessment, though suggests that specific consideration be given to the essential nature of mobile services and to supporting industry sustainability over the long term as a relevant criterion.
- 1.18 Many of the criteria, such as the efficiency, investment and competition considerations are interrelated. Consistency in the application of regulatory criteria will also help promote certainty and ultimately stakeholder acceptance of the ACMA's decision-making. To this end, Optus suggests that the ACMA have regard to the ACCC's

¹¹ ACMA, What consumers want – Consumer expectations for telecommunications safeguards A position paper for the telecommunications sector; July 2023.

¹² Australian Communications and Media Authority Statement of Expectations; December 2022, p.1

approach to promoting competition, investment and economic efficiency (productive, allocative and dynamic) in undertaking its public interest assessment.¹³

- 1.19 The Act provides the ACMA with a very broad discretion to have regard to “the matters it considers relevant” to determining whether to renew a spectrum licence.¹⁴ Optus cautions that an overly broad discretion, while providing the ACMA with flexibility to adapt to changes in circumstances, can also create unnecessary uncertainty and the potential for disputation. To promote certainty and planning the ACMA should publish clear guidance on the ESL Process, and the scope and application of its public interest criteria by early-2024 at the latest.

The ESL process must deliver certainty sufficiently early and across all bands

- 1.20 For ESLs that commenced prior to the reforms, such as the majority of Optus ESLs, the Act provides the ACMA with the options to renew, partially renew or refuse to renew.
- 1.21 If not managed carefully, the regulatory uncertainty created by these arrangements have the potential to undermine longer term planning and investment in mobile networks. The ACMA must ensure the ESL process provides for engagement with industry and clear dates for publishing ESL related decisions and information.
- 1.22 While the period 2028-2032 may seem distant, network deployment planning along with infrastructure and spectrum investment plans have similarly long lead times. Given the potential substitutability, similarity in use and existing holdings of licensees in some bands (e.g., 1800 MHz, 2100 MHz and 2600 MHz), any decision on the future use of a band will have implications for an operator’s use, strategy and ultimately valuation of other bands.
- 1.23 It is critical that the ESL process be designed to provide mobile operators with early certainty on whether they can or cannot renew their existing spectrum in relation to all spectrum that is to expire during the period 2028-2032. Ideally such certainty would be provided no later than March 2025, via the ACMA’s publication of its preferred view or a Ministerial Direction deeming all ESLs to be renewable upon application from a licence holder.
- 1.24 Optus welcomes the ACMA’s four stage approach, however we consider that the next iteration of the ESL Process must be designed from a project and risk management perspective. To this end, Optus has set out a number of suggested additional steps and more definitive dates for the ESL Process at **Appendix A**.

Spectrum renewal prices must sustain investment and competition

- 1.25 In high fixed cost industries such as mobile telecommunications, high input costs depress incentives for investment. This may lessen competition, increasing consumer prices and lowering service quality.
- 1.26 Spectrum costs directly impact the investment that operators can make in new technology and coverage. Lower spectrum costs mean that operators will have more capital to invest in networks and services. This in turn can provide downstream benefits

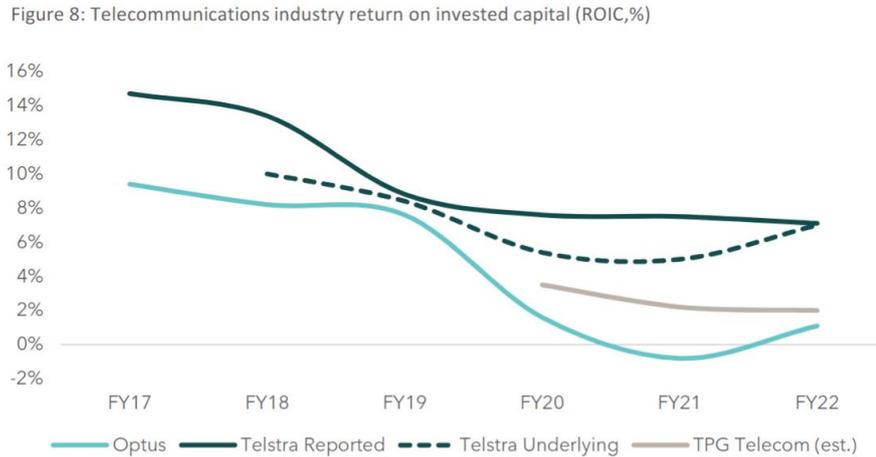
¹³ To this end, the ACMA has noted that there is significant alignment between the long-term interests of end-users, which guides the ACCC’s decision-making under the Competition and Consumer Act 2010, and the objects of the Radiocommunications Act. For example, the ACMA states that the object of the Act enables the ACMA to consider the role of competition in downstream markets, as well as incentives for efficient investment in spectrum using services and infrastructure.

¹⁴ Section 77C(8) of the Act

in the form of higher quality and more affordable services, thereby promoting supply of essential services and helping to maximise total welfare across the Australian economy.

- 1.27 In comparison to other industries, telecommunications does not achieve high returns on capital invested. Industry return on invested capital (ROIC) is less than half what it was five years ago and has fallen below the cost of capital – this is not suggestive of a sustainable industry. This decline in ROIC is demonstrated in Figure 1 below:

Figure 1 Decline in telecommunications industry ROIC



Source: Venture Insights

- 1.28 The annual cost (amortisation of spectrum licence payments) of spectrum to industry was \$241 million in 2015, by 2024 it will be \$818 million. Few if any industry sectors pay such sizeable upfront licence fees, with no linkage to future revenue or profits generated from use of those licences. In the broader context of the sector’s financial health, high spectrum costs are unsustainable.
- 1.29 High renewal prices, while attractive to Government revenue, undermine sustainable competition and investment in 5G and 6G. Any short-term benefit of higher renewal fees to public finances should not override broader long term economic benefits that will flow from lower renewal prices. It is without doubt that the economic benefits of mobile use from low spectrum fees far exceed the benefits of increased Government revenue from higher spectrum fees.¹⁵

Mobile and WBB services remain the most economically efficient use for ESL spectrum

- 1.30 In Optus’ view, the current allocation of spectrum is likely to be efficient or reflect the optimal use of the spectrum. This is because:
- The public benefit from mobile use of the ESLs amounts to more than \$37 billion each year from 2030, no alternative use case compares to this public benefit;
 - Mobile infrastructure is nationally critical infrastructure and supplies essential services to all Australians;

¹⁵ Hazlett & Munoz, 2009, A welfare analysis of spectrum allocation policies, RAND Journal of Economics, Vol. 40, No. 3, pp. 424–454

- (c) As has been revealed in many auctions, either through the lack of non-mobile operator bidders and/or other bidders have not been able to demonstrate the willingness to pay of mobile operators at auction;
- (d) mobile operators have strong incentives to use their spectrum efficiently to optimise the balance between the number of sites and maximum network coverage;
- (e) the secondary market for spectrum allows for the transfer of spectrum to users that may value the spectrum more highly; and
- (f) Non-mobile operators have not sought to acquire or access spectrum, and any trade or access arrangements have tended to be mobile operators acquiring from non-mobile operators.

1.31 Optus submits that if the ACMA decide to hold an auction of ESL and the net result is that the existing spectrum holders retain the spectrum, this would indicate that the ESL process had failed. This is because the auction would have caused unnecessary disruption and uncertainty to the industry with no higher value use identified and no public gain. Such an ESL process is inconsistent with the objectives of the Act.

Mobile technologies are the optimal/efficient uses for ESL spectrum

1.32 Optus note that the ACMA has proposed a number of different approaches to examining use of spectrum to help inform its assessment of whether changes to existing spectrum arrangements or alternative arrangements could better facilitate efficiency.¹⁶

1.33 Optus agrees that efficient use of spectrum is a key objective of the ACMA's mandate under the Act. Optus also recognises that any increased demand on spectrum access will require a cooperative approach to co-existence and coordination with other spectrum users. However, Optus has concerns that several of ACMA proposals may serve to undermine this objective. To mitigate these risks, Optus considers that:

- (a) Assessment of use must be proportionate, transparent and based on substantiated need
- (b) The ACMA must ensure that methodologies used and data collected to assess use is a fair comparison ("apples with apples") between use cases
- (c) The granularity of analysis of spectrum utilisation must reflect the specific use case – too granular an assessment runs the risk of being meaningless given national network deployment considerations
- (d) Levels of previous and planned investment in spectrum and network deployments must be given considerable weight in decision making
- (e) The ACMA should have recourse to relevant existing information in undertaking its assessment – the same levels of information should be demanded to substantiate all claimed use cases

1.34 In seeking to determine whether changing optimal use may warrant an adjustment to the spectrum arrangements for ESL spectrum, Optus emphasises that the ACMA's assessment must not be solely premised on technical efficiency considerations but

¹⁶ ACMA, Consultation Paper, p.28

consider the use that maximises the benefits that consumers, businesses and other organisations derive from use of the spectrum.

- 1.35 As noted above, mobile services increase Australia's wealth by \$37 billion each year in 2030. There are more than 28 million mobile services in operation.¹⁷ Absent clear evidence of a use that produces greater socio-economic public benefits, mobile remains the most efficient user of the ESLs.

¹⁷ ACCC Communications Market Report – 2021-22; p.11

Section 2. PROPOSED PUBLIC INTEREST CRITERIA

Question 1 – What are your views on the proposed public interest criteria? Are there other criteria we should consider?

- 2.1 The ACMA’s decision-making for ESLs should reflect Government policy priorities as well as Australian market conditions with a view to promoting investment and sustainable competition and consumer policy objectives over the long term.
- 2.2 The ACMA has noted that “there is no presumption of a particular outcome for ESLs” and that this “ESL process, therefore, poses an opportunity to review arrangements for the relevant spectrum to ensure that arrangements facilitate the long-term public interest into the future”.¹⁸
- 2.3 Optus agrees that the design of a new regulatory framework presents a real opportunity to achieve just this – the certainty required to promote investment and innovation in the supply of critical communications networks and services for the long-term benefit of Australians. However, Optus disagrees that there should be no presumption of a particular outcome. Rather, the essential and critical nature of mobile and WA WBB services, coupled with the overwhelming evidence of the economic and social public benefits derived from these services supplied via ESL spectrum, means that there must be a presumption that ESL licences will be renewed if a spectrum licence holder applies for renewal. The ACMA’s approach to ESLs must start from this position.
- 2.4 The ACMA has accepted that there is no longer any doubt that telecommunications is an essential service and should be treated as such. It is not clear to Optus the extent to which the essential nature of mobile services is considered in the Consultation Paper. We observe that the Paper makes no reference to mobile being critical infrastructure or that it is an essential service. This is a vital oversight that must be addressed.

Proposed public interest criteria are a good starting point for ESL assessment

- 2.5 The ACMA has proposed the following five criteria to assist in determining how different options may promote the long-term public interest, as well as whether renewal is in the public interest”.¹⁹
 - (a) Facilitates efficiency
 - (b) Promotes investment and innovation
 - (c) Enhances competition
 - (d) Balances public benefits and impacts
 - (e) Supports relevant policy objectives
- 2.6 Optus supports the ACMA’s five criteria as forming a sound general framework for the assessment of ESL options. Many of these factors, such as the efficiency, investment and competition considerations are interrelated. For example, facilitating the efficient use of spectrum would involve consideration of the degree to which a particular spectrum arrangement may promote (or lessen) competition in downstream markets.²⁰

¹⁸ ACMA, Consultation Paper, p.1

¹⁹ ACMA, Consultation Paper, p.2

²⁰ ExMemo to the Modernisation Act, p. 20

- 2.7 As the ACMA notes, and as confirmed by the fourth criteria, a public interest assessment must involve a balancing of potentially competing priorities.²¹ The criteria must be clearly defined and transparent. Similarly, the ACMA’s application of the criteria to a specific context must be transparent and based on the published criteria with reasons for a decision provided to any affected stakeholder.
- 2.8 While the ACMA has indicated that it does not intend to apply weightings to each of the criteria, Optus recommends that the ACMA clearly set out how it will apply criteria to a specific context, such as an application for renewal, using examples to illustrate this where possible. Optus supports the ACMA making an explicit statement that mobile infrastructure is nationally critical infrastructure that provides essential services – and that the continual use of ESLs for this purpose is in the public benefit.
- 2.9 Importantly, there is clear evidence of the public benefits that flow from mobile services provided over ESLs. The benefits amounted to more than \$22.9 billion each year in 2019, and up to \$37 by 2030. While the ACMA may not wish to apply weightings to each criterion, the ACMA must recognise the significant public benefits that arise from renewal and the high threshold that alternative uses must reach to justify partial or no renewal.
- 2.10 Optus provides detailed commentary on each of the specific criteria below. Optus identifies matters that we consider will be relevant to the ACMA’s consideration of the criteria in deciding whether to (i) renew (ii) partially renew or (iii) refuse an application for renewal and for ease of reference sets these out in table form at **Appendix A**.

The criteria should be clear, concise and transparent

- 2.11 The ACMA has noted elsewhere that there is significant alignment between the long-term interests of end-users, which guides the ACCC’s decision-making under the *Competition and Consumer Act 2010* and the objects of the *Radiocommunications Act*, stating that the object of the Act enables the ACMA to consider the role of competition in downstream markets, as well as incentives for efficient investment in spectrum using services and infrastructure”.²²
- 2.12 Given this overlap, Optus suggests that the ACMA have regard to the ACCC’s approach to promoting competition, investment and economic efficiency (productive, allocative and dynamic) in undertaking its public interest assessment. Where necessary, Optus encourages the ACMA to engage the ACCC in the assessment process.
- 2.13 In deciding whether to renew a spectrum licence, ACMA must have regard to the matters it considers relevant to the renewal, and the effect that the renewal will have on radiocommunications.²³ However, the ACMA’s discretion is actually much broader, with the explanatory material confirming that the ACMA may consider “any additional matters it considers relevant”.²⁴
- 2.14 The definition of the public interest is at the discretion of the ACMA though needs to be “consistent with considerations that the ACMA currently applies to its spectrum licensing and management decisions”.²⁵ Ultimately the “public interest”:

“is a tool for ACMA to analyse the potential benefits that renewal of a spectrum licence may offer to the long-term public interest, consistent with the object of the Act. As such, some of the matters that ACMA may consider in making a decision

²¹ ACMA, Consultation Paper, p.19

²² ACMA, Our approach to radiocommunications licensing and allocation, p.33

²³ Subsection 77C(8) of the Radiocommunications Act

²⁴ ExMemo to the Modernisation Act, p.38

²⁵ Ibid, p.38

regarding the public interest of renewing a spectrum licence include: if the licence is used to supply essential public services and there is the potential that a change in licensees may put at risk delivery of services to a significant number of people, whether the incumbent can demonstrate substantial investment and past long-term use of the licensed spectrum, and considerations of the highest value use of the spectrum.”²⁶

- 2.15 Notwithstanding this broad mandate, Optus cautions against the ACMA maintaining an overly broad discretion in relation to its ESL assessments. An overly broad discretion, while enabling flexibility for the ACMA to decide on the merits of an ESL application, can create unnecessary uncertainty among stakeholders about the outcome. Uncertainty of outcomes in the context of the ESL process may have unintended consequences including acting as a disincentive to investment. The costs of this uncertainty will, in Optus view, outweigh any benefit of enhanced flexibility in the ACMA’s decision making.
- 2.16 The ACMA should provide clear, concise and transparent information over the matters it will consider. While the Act grants the ACMA discretion over the factors it considers, this does not mean that the criteria are not clearly articulated to interested parties. In fact, such wide discretion requires greater transparency.
- 2.17 Optus also notes that the ACMA has referred to the concept of “highest value use” (HVU) in the Consultation Paper but has not discussed it in any further detail. While this does not reflect the actual wording of section 3 of the Act, Optus assumes that the ACMA has included this reference deliberately to indicate that it will have regard to HVU in assessing the public interest. If so, Optus welcomes this clarification and notes that the concept of HVU is “consistent with considerations that the ACMA currently applies to its spectrum licensing and management decisions”.
- 2.18 If “HVU” is to be a factor, then further explanation as to its scope and application to the ESL process is required. In any event, based on Optus understanding of HVU, it is very likely to continue to be mobile and WBB services for all ESL spectrum. There is little or no alternative use or users for spectrum currently held by mobile operators. Accordingly, Optus consider that consideration of HVU supports the renewal of all ESLs.

“Facilitates efficiency” – an auction will not deliver efficient outcomes

- 2.19 Optus supports the ACMA’s proposal to have express regard to facilitating productive, allocative and dynamic efficiency in its ESL assessment. Optus agrees with the general definitions of productive, allocative and dynamic efficiency, though notes that there are potential differences with the ACCC’s approach to these definitions.
- 2.20 The key objective of economic efficiency in the context of the ACCC’s approach to promoting the long-term interests of end-users (LTIE) is directed towards encouraging “economically efficient use of, and investment in, infrastructure”.²⁷ Optus suggest that the ACMA’s approach to efficiency align with the approach taken by the ACCC and as reflected in numerous Competition Tribunal and/or Federal Court decisions.²⁸

²⁶ Ibid, p.34

²⁷ Subsection 152AB(2)(e) of the Competition and Consumer Act 2010; note that in determining the extent to which efficiency may be achieved, the ACCC is to have regard to (i) technical feasibility based on available technology, costs of supply and the likely effect on operation or performance of networks, (ii) the legitimate commercial interests of the suppliers, including its ability to exploit economies of scale or scope; (iii) incentives for investment in the infrastructure by which services are supplied (see further section 152AB(6) of the CCA

²⁸ See for example *Telstra Corporation Ltd (No. 3) [2007] ACompT* and subsequently *Telstra Corp Ltd v Australian Competition Tribunal* [2009] FCAFC 23; (2009) 175 FCR 2013 .and ACCC publications “A guideline to the declaration provisions for telecommunications services under Part XIC of the Competition and Consumer Act 2010”, p.42; and Public Inquiry into final

- 2.21 Spectrum is an essential input to all radiocommunications services. If spectrum is not managed effectively, it may be left under-utilised or fallow, with the potential public benefits of use of the spectrum unrealised. The ACMA is therefore tasked with managing spectrum in a manner that “facilitates the efficient planning, allocation and use of the spectrum”.²⁹
- 2.22 Optus considers that the following efficiency considerations will be relevant to the ACMA’s decision to renew an ESL:
- (a) Productive efficiency – productive efficiency “is achieved where individual firms produce the goods and services that they offer at least cost”.³⁰ Optus welcomes the ACMA’s recognition of the impact of spectrum fragmentation on technical efficiency and support the ACMA’s proposal to consider the defragmentation potential of an ESL option in its assessment.
 - (b) Allocative efficiency – efficiency considerations will be highly relevant to the ACMA’s decisions on allocation methodology and pricing. Allocative efficiency “is achieved where the prices of resources reflect their underlying costs so that resources are then allocated to their highest valued uses (i.e. those that provide the greatest benefit relative to costs)” adding that it can “also refer to the allocation of production across firms within an industry in a way that minimises industry-wide costs”³¹
 - (c) Dynamic efficiency – dynamic efficiency “reflects the need for industries to make timely changes to technology and products in response to changes in consumer tastes and in productive opportunities” and can also refer to “the efficient deployment of resources between present and future uses so that the welfare of society is maximised over time.”³² The mobile sector and technology remains exceptionally innovative. The technology neutral nature of spectrum licences as well as the adaptability of the technical frameworks efficiently facilitate technological change over the licence term.

“Promote investment and innovation” – ACMA must reflect on the market context

- 2.23 Optus has been a significant infrastructure investor since it entered the market over 30 years ago, having invested \$43.7 billion since 1992. Optus typically invests over \$1.5 Billion in capital expenditure annually in its mobile network and services. This investment has been possible through the security and certainty from spectrum licences. Optus supports the ACMA’s proposal to have regard to the promotion of “investment and innovation” in assessing the public interest. As the ACMA notes, investment and innovation play an important role in promoting the public benefits of efficient spectrum utilisation, through the introduction of new technologies and improved services.³³
- 2.24 Promoting the public benefit in the mobile market requires a long-term investment perspective. This involves limiting the risks to the significant capital investment required to support innovation and promote dynamic efficiency to the greatest extent practicable. Spectrum licences are afforded a high degree of exclusivity and certainty under the

access determinations for fixed line services”; p.97 and more recently, ACCC Public inquiry into the declaration of the domestic transmission capacity service, fixed line services and domestic mobile terminating access service; Discussion Paper, May 2023, p.8

²⁹ Radiocommunications Act, section 3

³⁰ ACCC, Public Inquiry into final access determinations for fixed line services, Discussion Paper, p.97

³¹ Ibid

³² Ibid

³³ ACMA, Consultation Paper. p.19

Radiocommunications Act 1992 (“the Act”). This has made the licence type suited to the supporting the long-term investment required for mobile network deployment.³⁴

- 2.25 Mobile is a high fixed cost industry. Mobile networks require significant large upfront capital investment to deploy physical infrastructure and network equipment followed by less expensive marginal investments to extend those networks and add new users. Mobile markets are also characterised by cycles of technological improvement and investment (4G to 5G, to 6G etc). The eventual obsolescence of older technology means that consumers will lose existing coverage, capacity, and capability if a mobile operator does not continually invest in the requisite infrastructure upgrades.
- 2.26 The attached report from Venture Insights shows that the Australian mobile industry is at an inflection point with declining revenue and the increasing levels of investment required to meet demand creating a digital investment gap. The capacity for operators to invest is further limited by the rising costs of capital. This investment gap threatens the ability of industry to invest sustainability in the networks and services that are critical to Australia’s long-term prosperity.
- 2.27 Spectrum policy settings must continue to support investment in networks and services to ensure Australia’s communications networks continue to evolve with technological developments and support our ongoing global competitiveness and productivity. The path to investment in 5G and 6G networks and services must be clear. Certainty about spectrum access rights and pricing must be the key considerations in the ACMA’s assessment of whether a particular ESL option promotes “investment and innovation”.
- 2.28 To this end, the ACMA should have regard to the following:
- (a) Mobile network deployment and planning decisions are made with considerable lead times – the significant capital expenditure involved requires careful assessment of where network deployment may provide a return on investment.
 - (b) A high degree of certainty about spectrum access is needed to promote long term investment – uncertainty about spectrum access will serve as a disincentive to investment.
 - (c) Network densification is likely to be important to meet growing demand for data, whether current spectrum holdings for mobile operators are maintained and regardless of whether additional mid-band spectrum is made available or not.
- 2.29 Optus submit that these considerations support the conclusion that spectrum should be renewed rather than reauctioned – re-auctioning the spectrum creates disproportionate investment uncertainty for the perceived benefit and has the potential to cause public harm including undermining continuity of service and competition.

“Enhancing sustainable competition” for the long-term benefit of end-users

- 2.30 Competition in the mobile sector has delivered enormous consumer benefit over the last 30 years in the form of high-quality affordable mobile communication services. Optus supports the ACMA’s consideration of the degree to which an ESL option may promote competition as part of its public interest assessment.

³⁴ ACMA, Our approach to radiocommunications licensing and allocation Implementing the *Radiocommunications Legislation Amendment (Reform and Modernisation) Act 2020*, March 2021, p.6

- 2.31 Competition can drive investment and innovation and ultimately the supply of higher quality and more affordable services to consumers. The promotion of competition will help deliver the productive, allocative and dynamic efficiency benefits identified in the Consultation Paper. Ultimately effective competition should deliver long term consumer benefit.
- 2.32 Mobile competition includes infrastructure and service-based competition. Infrastructure based competition describes competition on coverage, capacity, and capability of services, which depend upon the underlying network infrastructure. Service competition, on the other hand, occurs within the confines of available network infrastructure: mobile operators compete on, for example, price and inclusions (including data and content).

Promoting sustainable mobile market competition through the ESL process

- 2.33 Delivering the benefits of competition while not undermining the long-term sustainability of a vital sector of the Australian economy will require careful balancing of the ACMA's public interest criteria in assessing ESL options.
- 2.34 Competition in the mobile market depends on healthy and innovative infrastructure competition. The mobile industry has long been recognised as the most successful sector in the wider telecommunications industry – with multiple competing private investors, world-leading technologies and broadband speeds, and decreasing prices to consumers.
- 2.35 However, the long term health of the infrastructure competition is not certain given the financial situation of the mobile market. As noted above, industry returns on invested capital are far below the cost of capital. Industry revenues have been falling during a period of higher network investment with the roll-out of 5G. Consumers' and Governments' expectations of the mobile sector have never been higher.
- 2.36 The mobile sector is often referred to as an essential service, but the industry does not receive any of the regulatory benefits of being an essential service. Unlike electricity and water, the mobile sector has no regulated guaranteed return on the assets required to supply the service. This disconnect has very real implications for the long term viability of mobile investment.
- 2.37 There is a growing gap between the investment required to meet the future expectations of the industry, and the ability of private firms to deliver that investment. A report from Venture Consulting on the state of the telecommunications industry is attached to this submission (Venture Insights Report). This Report highlights:
- (a) Telecommunications investment is the backbone of the digital economy, it is the platform for future digital applications that will drive the required productivity improvements to grow the Australian economy.
 - (b) Many of the benefits of this investment flow to others in society. Mobile revenue has been flat while investing for greater coverage and speed. The inability of mobile operators to monetise their investment risks the emergence of a digital investment gap.
 - (c) The industry has faced long-term decline in return on invested capital (ROIC) since the GFC. The ROIC challenge is exacerbated by the rising cost of capital, reflecting the new economic environment of higher interest rates and greater risk.
- 2.38 Venture Consulting also notes that addressing this looming digital investment gap is a challenge for both industry and the Government, as the regulatory environment is an important determinant of investment attractiveness. Venture Consulting specifically calls

out “High costs from spectrum allocation policies that inflate spectrum unit prices, even as demand for spectrum to support wireless communications is surging”.³⁵

- 2.39 Venture Consulting warns that “these issues must be addressed to create the investment environment that will attract the capital Australia needs. In a global economy where capital is mobile, private capital investment cannot be sustained unless returns meet industry benchmarks.”³⁶
- 2.40 Optus anticipates that the ESL process will play a vital role in determining the sustainability of the mobile telecommunications industry. The annual cost (amortisation of spectrum licence payments) of spectrum to industry was \$241 million in 2015, by 2024 it will be \$818 million. Few if any industry sectors pay such sizeable upfront licence fees, with no linkage to future revenue or profits generated from use of those licences. In the broader context of the sector’s financial health, high spectrum costs are unsustainable
- 2.41 One of the main aims of this ESL process should be to ensure the industry has access to sufficient spectrum licences, with sufficient certainty, in a manner that addresses the investment gap challenge. A sustainably competitive market is only possible with mobile operators that earn sufficient revenue to cover the cost of capital. Expectations around licence certainty and cost play a key role in determining whether investors see Australia as an attractive market.

ESL spectrum renewal is in the public interest

- 2.42 Under this criterion, the ACMA would seek “to balance the impact and transitional costs to the public and industry incurred under each option with potential benefits that may be delivered to the public in the longer term”.³⁷ Optus agrees with the need for the ACMA to balance the public benefits and impacts in its assessment of an ESL proposal and considers that this is a necessary element of any public interest analysis. Optus welcomes the ACMA’s recognition of costs to industry as a factor in this balance.³⁸
- 2.43 While Optus appreciates the balancing exercise needs to be context specific, the description of the process provided is unclear. In particular, it is unclear how the ACMA would balance different criteria where they raise competing considerations if it does not intend to attach some weighting to the criteria.³⁹ Further, the manner in which the ACMA may assess the public interest on a more granular localised level must be clarified.
- 2.44 Optus suggest that ACMA’s approach to balancing public benefits and impacts should reflect a best practice risk analysis, including by way of a cost-benefit analysis and/or a clear and transparent application of the Government’s Policy Impact Analysis Framework.⁴⁰
- 2.45 Optus has reviewed the costs and benefits of the three main ESL options available to the ACMA namely, renewal, partial renewal or refusal to renew an ESL and then re-allocate the spectrum. In summary, Optus observes the following:

³⁵ Venture Insights Report, p.5

³⁶ Ibid.

³⁷ ACMA, Consultation Paper, p.21

³⁸ Ibid, p.21. The ACMA states that it would seek “to balance the impact and transitional costs to the public and industry incurred under each option with potential benefits that may be delivered to the public in the longer term.”

³⁹ Ibid.

⁴⁰ ACMA, Draft FYSO 2023-28, p.6. Refer to chapter on “Our approach to spectrum management”

- (a) Automatic renewal regimes are investment friendly but result in low levels of manageability. In addition, as with administrative reassignment, complicated issues such as how much to charge for the spectrum may arise.
- (b) Administrative reassignment procedures allow for maximum manageability and can be pro-competitive but are prone to regulatory failure. In particular, this manageability may be achieved at the cost of decreased investment incentives and minimal transparency.
- (c) While auction-based allocations are typically pro-competitive for initial allocations of spectrum, there are limited or no benefits from running auctions for spectrum renewal. Auctions are designed to allow the market to determine the efficient allocation of spectrum
- (d) Where spectrum is already efficiently allocated, there is no role for auctions. In the renewal context, the uncertainty auctions introduce for operators is likely to dampen investment incentives, while manageability and potentially service continuity are also reduced

Why ESL spectrum should be renewed in full

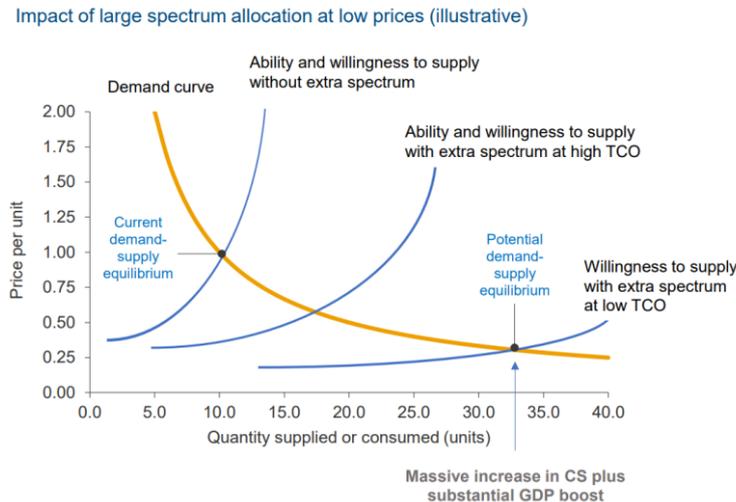
- 2.46 The broader socio-economic benefits of mobile networks and services are well documented. GSMA research shows that the baseline economic impact of mobile services increases when upgrading from one generation of mobile technology to the next (15% from 2G to 3G and 25% from 2G to 4G)⁴¹. A recent academic study⁴² found that a 10% increase of mobile broadband adoption causes a 0.8% increase in GDP, which is in line with previous research.
- 2.47 Government bodies at all levels are acknowledging the fundamental and growing importance of digital and communications services for the Australian economy and society, and the integral role of spectrum policy in achieving its digital development objectives. The ACMA has noted the ever-increasing demand for wireless connectivity over 5G networks, the importance of mobile networks, complemented by satellite and fixed wireless access technologies, in meeting the demand for wireless connectivity, and the importance of spectrum being available to enable Australia's transition to 5G⁴³.
- 2.48 Optus considers that the (administrative) renewal (in full) of ESL spectrum under long duration licences at a nominal price will maximise the public benefit. Renewal will provide greater assurance about longer term access to spectrum and will ultimately support continuity of and investment in services for the long-term benefit of end-users. This diagram illustrates the potential broader public benefits of low spectrum pricing:

⁴¹ GSMA, "Mobile technology: two decades driving economic growth", 2020, <https://data.gsmaintelligence.com/api-web/v2/research-file-download?file=121120-working-paper.pdf&id=54165922>

⁴² Edquist, H., Goodridge, P., Haskel, J., Li, X. & Lindquist, E. "How important Are Mobile Broadband Networks for the Global Economic Development?". Information Economics and Policy, Dec. 2018, <https://www.sciencedirect.com/science/article/abs/pii/S0167624517301695>

⁴³ ACMA, Five-year spectrum outlook 2022-27 and 2022-23 work program, September 2022, <https://www.acma.gov.au/five-year-spectrum-outlook>

Figure 2 Impact of large spectrum allocation at low prices⁴⁴



2.49 A refusal to renew ESL spectrum may jeopardise efficient use of the spectrum and result in significant costs to industry arising from service migration and spectrum replanning. In the absence of an inefficient allocation of existing licences, there is no benefit of holding a market auction. Optus repeats that auction and economic theory all agree that auctions are for the sole purpose of allowing market participants to determine the efficient allocation of rights.

The risks of partial renewal or amendments to spectrum licence terms

2.50 One ESL option is “partial renewal”. The ACMA has indicated that this may involve changed core conditions on spectrum access – for example, the parts of the spectrum or the geographic areas under the new licence may change. Optus anticipates that the ACMA may seek to re-allocate ESL spectrum to apparatus or class licences where the ACMA determines that such arrangements may facilitate higher value and/or more efficient use of the spectrum.

2.51 In particular, Optus notes that new Area Wide Licences (AWLs) are intended to provide a high degree of flexibility in the design of networks, operating as “building blocks” for licensees to ultimately aggregate into a single licence. AWLs enable a modular construction of network design, with AWL holders theoretically able to respond more directly to demand at a more localised level than may be intended by spectrum licences, which tend to be offered over wider geographic areas/lots.

2.52 However, AWLs are not consistent with the supply of national networks. Furthermore, affording AWLs the same priority as spectrum licensees inevitably introduces greater complexity in interference management, which adds to costs and may act as a disincentive to investment. Co-existence arrangements should be designed and enforced with a view to maximise spectrum utilisation and public benefit.

2.53 Optus has identified other potential implications of a partial renewal approach:

- (a) The introduction of new or varied spectrum licence boundaries;
- (b) The reduction in the amount of spectrum available for current licensees to renew;

⁴⁴ Coleago, Mobile Spectrum and Network Evolution to 2025, p.33

- (c) The revision of core conditions for coexistence and coordination; and
 - (d) Changes to licence types.
- 2.54 Optus does not agree that any or all of these potential changes to ESL will deliver the efficiencies that the ACMA is striving to achieve. Partial renewal represents a highly complex approach to ESL that will require considerable data collection and analysis in order to undertake a sufficiently robust public interest assessment. Optus provides further detailed concerns about the likely implications of partial renewal in its response to question 4 below.
- 2.55 There are no functionally equivalent substitutes to mobile services. Satellite services are an important complement to terrestrial mobile networks.⁴⁵ However, mobile services will continue to do the heavy lifting in delivering Australia’s communications needs with satellite services playing an increasingly important role in “plugging gaps” in terrestrial connectivity, via innovative new technologies such as Optus and SpaceX’s deal to deliver 100% national coverage via direct-to-mobile handset technology.⁴⁶
- 2.56 National mobile networks are unrivalled in the benefits they deliver to the Australian public. Mobile telecommunications are an essential feature of all of our daily lives – the pandemic and recent natural disasters have revealed the need for high quality networks and services. Re-allocating ESL spectrum to new use cases under localised licensing arrangements risks undermining the business case and long-term planning needed for national mobile networks and ultimately the supply of essential communications services, including emergency services, to all Australians.
- 2.57 Mobile networks contribute significant productivity and economic benefits to the wider economy. Multiple studies have shown that the mobile industry contributes more than \$67 billion over the eight years to 2030 and this is only set to increase.⁴⁷ Optus is not aware of any other competing use case that produces such compelling public benefits. We welcome the ACMA to present evidence which supports alternative uses resulting in greater public benefits.
- 2.58 In summary, Optus strongly cautions against an approach that would unnecessarily fragment spectrum or result in the dilution of the exclusivity and certainty of spectrum access that has been afforded to spectrum licences to date. If the intention is to accommodate a “diverse range of use cases” to address perceived unmet demand for localised connectivity, then Optus considers that the ACMA must clearly substantiate any decision to allocate this spectrum on the basis of the public interest. Optus notes that if business cases for these operators are not tested and the operator fails, then spectrum may be stranded – particularly if it is not easily tradeable.

Policy objectives must be sufficiently transparent prior to ESL assessments

- 2.59 The ACMA intends to have regard to which ESL option may better support the communications policy objectives of the Government and in any event is obliged to do so under section 3 of the Act.
- 2.60 Optus considers that the renewal of ESL at a nominal price will be highly supportive of the following policy priorities of the Government:

⁴⁵ Draft FYSO 2023-28, p.15

⁴⁶ CommsDay, 13 July 2023

⁴⁷ 5G Unleashed, Deloitte Access Economics on behalf of AMTA, p.6

- (a) Promoting investment, innovation and the adoption of new and emerging technologies, while continuing to safeguard the interests of consumers and small businesses.
- (b) 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.
- (c) Promoting the long-term public interest derived from the spectrum, including the benefits of technological developments that improve spectrum utilisation and efficiency.⁴⁸

2.61 Optus also recognises that the key Government policy objectives relating to digital inclusion, Closing the Gap and regional connectivity must also feature in the ACMA's decision making on ESLs. Indeed, mobile networks and services are indispensable to the realisation of these Government policy objectives, providing further weight to the presumption that ESLs must be renewed. In the interests of transparency, all policy matters to which the ACMA is to have regard must be clear well before an ESL holder applies for renewal.

2.62 Optus considers that revenue raising via high spectrum fees are in direct conflict with the investment required to deliver digital connectivity objectives. Further, the introduction of any licensing conditions to support the realisation of such policy objectives must be balanced against the other public interest criteria, such as the impact on investment and innovation.

2.63 Optus welcomes the ACMA's commitment to clearly articulate how it will have regard to these policy priorities through its decision-making process. Optus would welcome further engagement with the ACMA on how industry and Government can work together to realise these policy objectives in a cooperative and cost-effective manner.

Other public interest considerations

2.64 The ACMA's proposed public interest criteria will form a sound basis upon which to assess whether or not a particular ESL proposal will promote the long-term public interest. Optus welcomes a clear articulation of the scope of the ACMA's discretion in assessing ESL options and any application for renewal. As noted, an overly broad discretion will further exacerbate the risks inherent in the ESL process.

2.65 However, Optus also considers that certain other key priorities must be considered in the ACMA's assessment. These include:

- (a) Industry sustainability – as highlighted throughout this submission, industry sustainability must also be an overarching consideration and is particularly relevant to decisions relating to preferred allocation methodology and pricing. The growing divide between declining ROIC and the investment requirements of next generation networks can be eased by low prices for ESL renewal.

Optus also notes that the ACMA's "Our approach to licensing and allocation" document indicates that, where public interest tests are required (such as where a licence includes a public interest test or the licence is to be renewed for 10 years or longer) the ACMA will have regard to whether an "incumbent would be significantly compromised if the licence were not renewed and

⁴⁸ Government's Statement of Expectations, December 2022

potential flow on effects” when assessing the public interest of renewing a licence.⁴⁹

- (b) Service continuity – The ESL process presents a risk to service continuity because a decision to re-auction spectrum will introduce a period of uncertainty over the holder’s future access to spectrum and raise the possibility of the spectrum changing hands as a result of the auction. If an operator were to lose access to part of its spectrum holdings, this is likely to impact network coverage or cause noticeable disruption to customers.

This applies to spectrum that is essential to meeting current demand and to demand as it grows in the near future, noting that large blocks of contiguous spectrum will be necessary to deliver the step change in quality of experience as 5G matures and 6G develops. In addition, operators will need significant spectrum in addition to their existing holdings to support 5G and 6G.

- (c) Effective risk management – while not a “public interest” consideration per se, the need to manage risk effectively is crucial to the success of the ESL process, as detailed in our response to Question 2 below.

⁴⁹ ACMA, Our approach to radiocommunications licensing and allocation, pp.25-26

Section 3. PROPOSED ESL PROCESS

Question 2 – What are your views on the proposed 4-stage approach to undertaking the ESL process?

- 3.1 Optus considers that the ACMA’s proposed four stage approach appears logical in that it moves from a general canvassing of stakeholder views (Stage 1) to information gathering (Stage 2) and the development of a general policy on the ACMA’s preferred arrangements (Stage 3) to further refinement for each specific band within which spectrum licences are due to expire (Stage 4).
- 3.2 Optus welcomes the ACMA’s confirmation that it is proposing to conduct Stages 1 to 3 once and agrees that “there is greater utility in concurrent evaluation of certain issues, noting that many of the spectrum licensed bands are substitutable or complementary”.⁵⁰ Optus also supports the proposal for stage 4 to be focussed on individual band specific issues.
- 3.3 However, the ACMA’s ESL Process is not definitive about timing for the commencement and completion of each of the stages nor are there detailed steps for each of the stages. In Optus view this raises the risk of slippage in project delivery. The ESL Process raises considerable risks for all affected stakeholders. To mitigate these risks, the ACMA must take a deliberate and well-planned approach to project management.
- 3.4 We consider that the next iteration of the ESL process must be detailed with clear deliverables and milestones against which progress can be measured. Optus sets out some suggestions in this regard at **Appendix A**.

The framework for the ESL Process creates significant implementation risk

- 3.5 For ESLs issued prior to the Modernisation Act, the ACMA can only make a final decision on renewal in response to an application made within the two-year period prior to licence expiry.⁵¹ Further, the ACMA must not renew a spectrum licence for 10 years or longer unless the ACMA is satisfied that it is in the public interest to do so. Therefore, absolute certainty of renewal can only be provided at most 2 years before expiry. In cases of partial renewal or refusal to renew, the ACMA may choose to auction the spectrum or to re-allocate for new use and/or under different licence arrangements.
- 3.6 These arrangements afford the ACMA considerable discretion and control over the management of ESL spectrum. Getting the right outcome relies heavily on the ACMA’s assessment of the public interest, placing considerable pressure on the ACMA. The ACMA also faces the risk of an existing ESL holder electing not to renew their ESL, which then would mean the ACMA would have to undertake a “truncated” planning and re-allocation process or risk leaving the spectrum unutilised.
- 3.7 Theoretically the process allows for ESL renewal applications up to the day before spectrum licence expiry. This means that if a spectrum holder decides not to renew a spectrum licence this will not be known by the ACMA until the day before spectrum licence expiry. If no application for renewal is made then the spectrum could lie fallow and unused until the ACMA has reallocated it.
- 3.8 Spectrum licences are due to expire as follows:

⁵⁰ ACMA, Consultation Paper, p.24

⁵¹ Section 77A, Radiocommunications Act

Table 3 Spectrum licence expiry timeframes

	Band	Earliest date renewal application can be made	Earliest deadline for ACMA decision on application	Date of Spectrum licence expiry
1	1800 MHz	18 June 2026	18 December 2026	17 June 2028
2	850 MHz	18 June 2026	18 December 2026	17 June 2028
3	2600 MHz	1 October 2027	1 April 2028	30 September 2029
4	700 MHz	1 January 2028	1 July 2028	31 December 2029
5	2300 MHz	25 July 2028	25 November 2028	24 July 2030
6	3400-3600 MHz	14 December 2028	14 June 2029	13 December 2030
7	2100 MHz	12 October 2030	12 April 2031	11 October 2032

Source: ACMA and Optus

- 3.9 The ESL process clearly introduces significant risk for mobile operators such as the risk of higher prices for spectrum access through potential auction processes, the introduction of new spectrum licence conditions that may erode licence rights that have supported network investment to date as well as delays to planning and deployment as we await clarity on planning outcomes. Such impacts have downstream effects, as consumers and business potentially bear the brunt of higher prices for lower quality mobile services.

Effective risk management is crucial to the success of the ESL Process

- 3.10 The Government’s Statement of Expectations provides that the ACMA should be “risk based, and data driven” with a view to “manage risks proportionately”.⁵² Optus submit that a lack of certainty that ESLs will be renewed raises risks to Australia’s digital future that outweigh any perceived benefits of retaining discretion to re-allocate spectrum to new uses or to auction the spectrum.
- 3.11 In Optus’ view, mobile network planning and investment certainty must be the ACMA’s first priority in the ESL process. The ACMA should take clear steps, preferably via administrative or legislative instruments, to establish a strong expectation of renewal of spectrum licences used to provide mobile and WBB services.
- 3.12 Optus considers there are a range of mechanisms available to the ACMA to mitigate these risks, not least of which is proactive engagement with industry to develop an informed and considered position on the best ESL option. In terms of regulatory measures, Optus invites the ACMA and the Government to consider among other options:
- (a) Provide its “preferred view” or policy position in relation to *all ESL spectrum* sufficiently before the commencement of the 2-year application period for the 850 MHz and 1800 MHz – preferably by no later than March 2025, to enable stakeholders to effectively respond to the ACMA’s views concerning the 850 MHz and 1800 MHz spectrum.⁵³
 - (b) As part of its Stage 4 activities, issuing a spectrum access charge determination (under section 294 of the Act).

⁵² Government Statement of Expectations for the ACMA, December 2022

⁵³ As per the ACMA’s own planning arrangements in ACMA, Spectrum Planning Framework, Information Paper, August 2022

- (c) Where no alternative use has been expressed for the spectrum, issuance of a licence renewal notice (under section 77A(10) of the Act) on the first day of the allocation window, specifying the renewal price to be paid and the due date.
- (d) Or Ministerial Direction(s) comparable to the Class of Service Determination 2012 and the Radiocommunications (Spectrum Access Charge) Direction 2012,⁵⁴ to the effect that all ESL used to supply mobile and WBB is to be renewed at a nominal spectrum access charge.

3.13 In regard to the last point, Optus refers to similar approaches in Finland, Canada and the UK where the expectation of renewal of spectrum licences is near automatic or very strong, unless there has not been “productive use” of the spectrum or there are exceptional circumstances such as an overriding policy need.

Optus proposal for a revised ESL Process

3.14 Optus has concerns with the ACMA’s proposed Stage 3 – which the ACMA appears to indicate will occur in Q4 2024. However, the breadth of activities contemplated under this Stage suggest that this is simply not a realistic timeframe. Therefore, Optus recommends that many of these activities be brought forward to Stage 2 – with clear milestones provided for consultation and engagement on all aspects of the ESL process, including price, licensing arrangements and conditions, and technical matters via consultation papers, Tune-Ups or Technical Liaison Groups (TLGs).

3.15 Following feedback at Stage 3, the ACMA intends to publish a “preferred view” on the future arrangements for the ESL spectrum at Stage 4, which would also involve consultation on any band specific issues in the lead up to the expiry of that band(s).

3.16 The ACMA has stated that this “preferred view” would “serve as a policy, informing decision-making when deciding whether to renew licences” and that “this would mean that we could provide indication of our preferred views well in advance of the expiry of licences within most bands as we would need to consider holistic matters in advance of the renewal application period for 850 MHz and 1800 MHz licences”.⁵⁵

3.17 While Optus commends the ACMA’s general intention, Optus does not consider that the ACMA’s proposed process will enable operators to make informed valuations of the spectrum. This is particularly the case if the ACMA’s preferred view indicates an intention to refuse an application for renewal of these ESLs, in part or in full, and re-allocate the spectrum. In the case of 850 MHz and 1800 MHz, the time constraints would appear to lead to the conclusion that they must be renewed.

3.18 For this ESL process, it can be assumed that all existing bands will be re-farmed to 5G/6G during the life of the renewed spectrum licence and are therefore directly substitutable. No spectrum band can be valued in isolation and this requires the ACMA to provide significant certainty in the process about each of the spectrum bands at the same time. Optus proposes that the technical frameworks for all the bands need to be finalised and decisions on whether spectrum bands are to be renewed or not needs to occur prior to any spectrum valuations and any applications to renew are submitted.

3.19 The substitutable nature of certain ESL spectrum bands, such as 1800 MHz, 2100 MHz and 2600 MHz, means that operators will need clarity about the ACMA’s preferred view in relation to all ESL spectrum bands at the same time in order to plan their use of the bands and appropriately value the spectrum needed. Furthermore, until licence

⁵⁴ Respectively deeming the re-issue of spectrum licences used to supply mobile services as in the public and specifying the \$/MHz/pop formula to be used for calculating the spectrum access charge.

⁵⁵ ACMA, Consultation Paper, p.24

conditions for each of the bands have been confirmed no final valuations can be conducted or renewal application decisions made.

- 3.20 Due to the interdependent substitutability of certain bands and the impact that the ACMA's preferred approach to one band may have on an operator's decision to utilise another, Optus proposes that the ESL decision for all seven bands needs to occur simultaneously with a preliminary view published by Q4 2024 and a preferred view by March 2025. Ultimately, all stakeholders require sufficient time to prepare for either a renewal or an auction and any necessary TLG or planning activities to be carried out.
- 3.21 Optus notes that the ACMA's proposed process also does not appear to align with the ACMA's own spectrum planning arrangements, particularly for 850 MHz and 1800 MHz. To illustrate this point, should the ACMA's "preferred view" or policy be published within six months of the commencement of the consultation, that would leave approximately one year prior to the date that applications for renewal of 850 and 1800 MHz licences will open. A band and licence specific consultation (stage 4) will also need to be conducted during this time. If the ACMA were to decide to only partially renew or refuse an application for renewal, then there would be little time for operators to adjust network planning or for the ACMA to undertake its own replanning activities.
- 3.22 Optus notes that spectrum auctions typically take 18 months to two years to prepare for, including TLGs and consultation processes. Optus cautions against notions that the ESL process can adopt a "condensed version" of its usual planning and re-allocation processes, as a rushed approach raises inherent risk of unintended consequences, including unallocated spectrum.

The ESL Process must provide for greater industry engagement

- 3.23 Given the significant scope of work contemplated and the band specific considerations, provision must be made for close industry engagement. Optus suggests that the ACMA consider the following:
- (a) A combination of regular "Tune-Ups" to keep industry informed of the ACMA's views at key milestones as well as TLGs for band specific issues.
 - (b) Engagement on broader strategic initiatives that may support defragmentation and help maximise the efficient use of spectrum among mobile operators. This may entail discussion of any new licence conditions or technical framework governing use of the spectrum.
 - (c) Given the importance of pricing to the overall success of the ESL process, pricing should be dealt with as an individual work stream – this could involve issuing a separate pricing consultation paper on methodologies in Q4 2023, followed by a "preliminary view" consultation paper in Q2-2024. Given the to be noted that due to the interconnected nature of technical licence conditions and pricing that they should occur concurrently.
- 3.24 As a general comment, evidence-based decision making for ESLs will be supported by the publication of responses to consultations, including to ACMA requests for information about prospective demand (at proposed Stage 2) are published in full and in a timely manner (of course subject to any commercial in confidence redactions).
- 3.25 Optus welcome the estimated timing for each stage as supportive of forward planning. However, Optus consider that the proposed single consultation approach at each stage is overly ambitious and may benefit from additional consultation to better shape the outcomes at each stage. To this end, Optus sets out suggested individual steps and milestones that the ACMA may wish to consider in the design of its final ESL Process (**Appendix A**).

Section 4. BAND SPECIFIC ISSUES TO BE CONSIDERED AS PART OF THE ESL PROCESS

Question 3 – Are there any band-specific issues that we should consider as part of this ESL process?

4.1 Optus welcomes the ACMA's confirmation that it intends to undertake a "holistic assessment" of spectrum licensed spectrum bands, including spectrum that is not subject to expiry in the near term. Optus suggest that the ACMA consider the following band specific issues as part of the ESL process:

- (a) **700 MHz** – The 700 MHz band is crucial low band spectrum currently heavily utilised by all mobile operators. Given the propagation characteristics of this spectrum it will remain key spectrum to support the supply of 5G and 6G mobile and WBB services on a national basis in the future. Any changes to the use of this band or the core conditions of existing national spectrum licences will have potentially significant consequences for the costs of deployment and ultimately the quality and geographic scope of these services and therefore must be very carefully considered.

Furthermore, the very propagation characteristics that make this band so useful in supporting current and future wide-area service provision render it extremely difficult to coordinate across co-channel spectrum boundaries. The inter-site distances required to prevent harmful interference for licensees on either side of any mooted spectrum boundaries would be need extremely large, significantly undermining the efficiency and utilisation of the spectrum in this highly valuable band.

- (b) **1800 and 2100 MHz**: Optus considers that these bands are close functional substitutes, and both may be suitable candidates for band reform, including defragmentation. The efficient use of these bands is undermined by complex and inconsistent licence boundaries.

Existing concerns with the bands include the presence of multiple licence boundaries in regional areas, which has reduced the amount of usable spectrum at these boundaries (e.g. Canberra, Southern NSW and Regional Victoria). The need to coordinate and manage potential interference at multiple boundaries undermines the efficient utilisation of the spectrum, adding to operational complexity and cost.

The 1880-1920 MHz band is subject to a mix of apparatus and class licensing arrangements across Australia that creates significant complexity. In particular, point-to-point links in remote areas are undermining efficient use of this spectrum. For example, the 14MHz bandwidth links which have 15km protections up to the 2nd adjacent lot. This effectively prevents PTS registrations as it impacts up to 70 MHz of spectrum (i.e. 28 MHz +14 MHz +28 MHz). This lends strong support to the need for defragmentation of the band.

Optus has indicated previously that it does not oppose the expansion of the band arrangements in regard to the use of railway mobile radio (RMR) within 1900 MHz band. However, Optus has noted that the arrangements potentially introduce inefficiencies into the use of the spectrum through co-existence measures and interference mitigation measures. Ultimately, Optus considers

that the bands would be better utilised if RMR were relocated to another spectrum band and the 1800 band was harmonised for mobile operators.

In regard to the 2100 MHz band– Optus notes that the large number of PTS licences in use in regional/rural areas mean that there is significant administrative burden in effectively managing these types of licences for both mobile operators and the ACMA.

To address these inefficiencies, Optus consider that at least part of both these bands should be made into spectrum licences. This could be done under the guise of multi-band harmonisation of licence conditions (including geographically).

- (c) **2300 MHz** – Optus faces ongoing issues of managing interference with NBN Fixed Wireless access (“FWA”) services in this band. While we acknowledge that the current 98 MHz of spectrum available in the 2.3 GHz band is not optimised for this use, we welcome the ACMA’s position that an update will be provided in the next FYSO.
- (d) **3600 MHz** – the regional licences in the 3.6 GHz are still subject to a reallocation period which does not conclude until March 2025. This has delayed the use of this band for mobile services as it has prevented licence holders from switching on sites due to the risk of interference with incumbent services. This band serves as an example of the negative impact of disproportionately long re-allocation periods on spectrum utilisation.
- (e) Ongoing issues with the unresolved issue of interference management in the Urban Excise areas and its effect on adjacent (and co-) channel neighbours. Optus views on this are expanded on in response to question 4.

4.2 Optus notes that it intends to make further detailed comments in relation to band specific matters during further engagement with the ACMA through the ESL process.

Section 5. OTHER MATTERS THAT THE ACMA SHOULD CONSIDER IN DESIGNING THE ESL FRAMEWORK

Question 4 – Are there any other matters that we should consider in connection with the ESL process?

- 5.1 Optus considers that the ACMA’s proposed ESL process and assessment framework, particularly the matters raised under the “Approaches to examining use” section of the Consultation Paper, raises the following concerns in relation to the future use and ultimately the value of ESL spectrum:
- (a) The potential introduction of new or varied spectrum licence boundaries
 - (b) The potential reduction in the amount of spectrum available for current licensees to renew
 - (c) The potential revision of core conditions for coexistence and coordination
 - (d) The potential for changes to licence types
- 5.2 Optus cautions against an approach that would dilute the exclusivity and certainty of spectrum access that has been afforded to spectrum licences to date. If the intention is to accommodate a “diverse range of use cases” to address perceived unmet demand for localised connectivity, then Optus requests that the ACMA substantiate the decision to allocate this spectrum on the basis of highest value use and/or the public interest.
- 5.3 Optus notes that exclusive use of spectrum for mobile services has led to material economic growth, estimated to be worth around \$37 billion by 2030. Mobile services are essential to Australian businesses and consumers and mobile operators are providers of national critical infrastructure. It is incumbent on the ACMA to demonstrate that alternative uses produce greater public benefits.
- 5.4 If spectrum is allocated elsewhere and is not used or offered for sale, then spectrum may be stranded – particularly if it is not easily tradeable – or consolidated into one licensee, undermining competition in the market, and threatening substantial economic growth potential.

Introducing new or varied spectrum licence boundaries

- 5.5 Optus notes that most ESLs are held by national licensees, affording those licence holders the certainty to deploy and operate their national networks. These networks serve millions of Australian businesses and consumers on a daily basis. National spectrum licences allow mobile operators the flexibility to expand and enhance those networks efficiently and cost effectively.
- 5.6 The Australian mobile sector is characterised by high initial fixed cost investment but low marginal cost. Mobile networks are national networks with wide area coverage and large customer bases which leads to economies of scale and highly efficient use of spectrum. The introduction or variation of spectrum boundaries into national licences creates complexity and additional cost in terms of interference management, introduces inefficient spectrum use and fragments spectral and geographical holdings. This fragmentation undermines the value of spectrum licences in the secondary market if the spectrum products are inconsistent and can, in turn, undermine longer term investment in networks.

- 5.7 Optus suggests that any proposal to introduce or change licence conditions into national ESLs must be demonstrably in the public interest. If the ACMA is considering the geographical split of expiring spectrum and forming boundaries where the current and planned coverage or service offering from an incumbent licensee's ends, Optus advises extreme caution. This approach is not advisable as it neglects to consider the effects of co-channel interference in border regions on either side of any mooted spectrum licence boundary.
- 5.8 At any co-channel spectrum boundary, under the existing spectrum licence technical frameworks, the licensees are required to comply with the device boundary criterion set out in Section 145 of the Act. This is to ensure that the licensees are afforded the necessary protections to operate their network without harmful interference from their geographical neighbours. Previous decisions regarding the proposed and implemented boundaries in at least two bands should be at the forefront of the ACMA's thinking when deciding whether this course of action should be considered for any of the ESLs. Examples of Optus concerns are discussed in **Appendix B**.
- 5.9 If there is latent or unmet demand for spectrum currently held by spectrum licensees under national licences, Optus has not been made directly aware of this. At no time have aspirant licensees contacted Optus to propose arrangements to gain access to spectrum in the markets outside the current areas of operation of Optus' network coverage that are purported to be under-served. Furthermore, there is no evidence that this 'latent' demand results in public benefits greater than the provision of mobile and WBB services.

Reducing the amount of spectrum available for current licensees to renew

- 5.10 At the time of acquisition, spectrum licensees would have carefully considered the optimum amount of spectrum needed to meet their current and future capacity, quality and capability requirements to satisfy customer expectations and demand growth, based on the information available at the time. However, typically customer demand has been underestimated by operators and the need for additional spectrum has increased over time.
- 5.11 If the ACMA is contemplating a reduction of available bandwidth in one more of the ESL bands, the impact will be felt by the licensees and their customers in terms of service extent, quality and depth of coverage, speed and capacity. Given that licensees seek to differentiate their services on the basis of these features, any reduction in the amount of spectrum available will have the effect of blunting competition.
- 5.12 Furthermore, if the amount of spectrum for any given licensee is reduced, there may need to be increased deployment to support coverage/capacity driving additional costs into licensee networks as new site deployments are the only lever available in the absence of sufficient spectrum to meet CX and capacity demands.
- 5.13 If any carved-out spectrum is set aside for new use cases, it is incumbent up on the ACMA and the aspirant licensee or use case to demonstrate how this action has the effect of improving the efficiency of spectrum use in the band or bands in question – compared to allocating the spectrum to what the ACMA recognises as being an essential service. There are existing market-based mechanisms to facilitate secondary market trading and/or third-party authorisation that enable use of part of the licensed frequency band. Any proposal to change the core conditions of a licence relating to frequency must demonstrate the failure of these arrangements to meet demand.
- 5.14 Optus repeats that the provision of mobile services through the ESLs has resulted in billions of dollars of extra economic activity and public benefits. It is estimated the continual use of ESLs for mobile services in 2030 could add \$37 billion in public benefits each year. Mobile services are essential to Australian businesses and consumers and mobile operator are providers of national critical infrastructure. The burden lies with the

ACMA to demonstrate public benefits of reduced, or alternative, use results in greater public benefits.

Revised core conditions for coexistence and coordination

- 5.15 Imposing sharing requirements on spectrum licences, beyond how spectrum is allocated and shared across geographical boundaries will introduce many issues and is unproven as a viable option to provide additional utility and efficiency to spectrum that is already licenced and in use.
- 5.16 Any consideration of dynamic spectrum access (“DSA”) should pay very close attention to a number of critical elements, including who pays, who benefits, how interference is managed, how spectrum licence protections are measured and enforced and how is the success of such a scheme measured.
- 5.17 Optus has consistently opposed the introduction of any DSA or database-based sharing scheme as we consider them to be unfit for purpose under the spectrum licence regime that the ACMA adopts and we see no reason to alter either the spectrum licences or the sharing requirements associated with them. Optus considers that such a proposal introduces the following inefficiencies into the management of ESL spectrum:
- (a) Varying both or either of the s145 DBC or level of protection requirements for spectrum licensees (whether across licence boundaries or between frequency adjacent licensees) to accommodate alternative use cases that are unable to comply with existing 3GPP requirements constitutes inefficient allocation and use of the affected spectrum.
 - (b) For WBB use cases (the vastly predominant use case for ESLs), introducing protection and interference criteria that vary from 3GPP undermines the efficiencies of scale that a common global standard confers (i.e. interoperability and scale of production etc)
 - (c) Requiring local versions of equipment (whether at source or by retrofitting filters or other mitigations) drives costs into national service providers, making it more complex and challenging to deploy technology and services at scale. This is a poor outcome for licensees, customers and downstream markets alike.
- 5.18 A pertinent example of requiring varied protection levels would be the current state of the Urban Excise area in the 3.4 GHz band. Due to the boundaries that have been adopted and the protection and interference criteria required to ensure the ongoing operation of the NBN FWA network, the ACMA has, at the time of writing, been unable to determine the appropriate interference management techniques or how they may be implemented. This means that 75MHz of prime TDD spectrum is unavailable for use. This specific example is also addressed under licence boundary introduction and Optus’ opposition to this approach.
- 5.19 Regardless of the approach adopted to interference protection and emissions management, the ACMA should ensure that within any band, in its entirety, allocated to IMT or 3GPP use, should be consistent and aligned with 3GPP across the whole frequency range and all geographical areas and any boundaries for all licensees.
- 5.20 Optus repeats that the provision of mobile services through the ESLs has resulted in billions of dollars of extra economic activity and public benefits. It is estimated the continual use of ESLs for mobile services in 2030 could add \$37 billion in public benefits each year. Mobile services are essential to Australian businesses and consumers and mobile operators are providers of national critical infrastructure The burden lies with the

ACMA to demonstrate public benefits of reduced results as a result of DSA or database-based sharing scheme results in greater public benefits.

Changing Licence Types

- 5.21 The ACMA have adopted area-wide licences (AWLs) in recent years. If a change in licence type from spectrum licenced spectrum, this would seem to be the most logical variation that would be considered, however there are a number of reasons why this variation would not be appropriate, as discussed below.
- 5.22 It should be noted that the utility of AWL licences has previously been questioned, especially for use in mid-band spectrum as the LOP and emissions limits associated with AWLs may be very challenging to meet if the AWL areas are either too small or are likely to cause interference (due to their proximity) to spectrum licenced areas operating on the same or adjacent frequencies.
- 5.23 Optus is also of the view that, for bands where spectrum is scarce (typically low-band and some mid-band bands), the ACMA should not consider the use of AWLs. They are best suited where there is an abundance (>100MHz) of spectrum available to provide multiple licensees access to the band while maintain a viable channel bandwidth to support 3GPP services (typically 20MHz bandwidth or more).
- 5.24 This would therefore exclude any consideration of spectrum licenced FDD bands for AWL allocation. Given that these are a large part of the existing WBB networks providing service over the whole of Australia, this further reinforces Optus' position that the ACMA should offer all ESL bands for renewal, in their entirety, should a licensee wish to do so.
- 5.25 In order to change the licence type of any band, the ACMA would be required to change the geographical boundaries of current spectrum licences, reduce the amount of spectrum in a band, refuse to renew a band or a combination of these actions. Optus strongly opposes this.
- 5.26 In summary, Optus is of the opinion that one or more of the possible approaches to "freeing up" spectrum currently spectrum licenced to mobile operators is a risky proposition and may result in unintended outcomes such as consolidation of spectrum holdings resulting from third-party authorisations or sale of stranded spectrum assets to the dominant, poor spectrum efficiency, sub-optimal consumer and business customer outcomes and failure to deliver on regional connectivity and the economic benefit of 5G.
- 5.27 Optus notes the ACMA's recent announcement to use Area Wide Licences (AWLs) to assist rollout of localised wireless broadband including 5G and private networks in the 3.4-4.0 GHz band. This allocation reflects a good example of AWL use and Optus suggests that the ACMA should not seek to extend the use of AWLs below this spectrum band until it is proven to deliver the intended result and due to the risks of creating too much complexity in spectrum management thereby undermining utility.

Section 6. PRICING – APPROACHES TO VALUATION AND PAYMENT

Question 5 – What are your views on the proposed approaches to valuing spectrum and payment arrangements?

- 6.1 Optus welcomes the ACMA’s discussion of proposed approaches to valuing spectrum and payment arrangements. Optus stated in our Draft FYSO 2023-2028 submission, renewal pricing and allocation methods should be designed to enable the economic benefits of 5G and 6G to the Australian economy, by ensuring fair, reasonable and suitably certain long-term access to the required spectrum. The ACMA’s approach to valuing spectrum and payment arrangements must reflect its mandate to manage spectrum in the long-term public interest.
- 6.2 As discussed in response to question 2, Optus considers that an initial 2-month consultation on proposed approaches to spectrum access charging, including valuation methodologies and inputs be conducted in November this year, followed by a series of Tune-Ups in Q2 2024 and consultation on the ACMA’s preliminary view on pricing in October 2024.
- 6.3 The importance of both renewal and price certainty, ideally across all ESL bands, is crucial for any ESL spectrum valuation. The ACMA could then issue its “preferred” pricing option later in Stage 3 (March 2025) with any band specific refinements detailed during Stage 4.
- 6.4 Key points that Optus wishes to highlight for the ACMA to consider in its development of its approach to valuation and payment are:
- (a) There is no use case for ESL spectrum that provides greater public benefit than mobile services or WA WBB (i.e. there is no “higher value use”).
 - (b) High spectrum prices undermine sustainable competition and investment in 5G and 6G – any short-term benefit of higher renewal fees to public finances should not override broader long term economic benefits that will flow from increased network investment supported by lower renewal prices.
 - (c) Revenues per MHz are falling, so prices per MHz need to fall in order to ensure a sustainable mobile industry.
 - (d) The more capital spent on spectrum, the less remains available for network investment, undermining Government objectives for the sector.
 - (e) Market-based allocation mechanisms are only relevant to allow spectrum to be allocated to those who value it the highest (i.e. the most efficient use).
 - (f) Where allocations are already efficient, there is no role for market-based allocation mechanisms. For operators that require the spectrum they have now and if there is no change in use, any spectrum fee above administrative cost recovery is a tax that decreases the public benefit of use.
 - (g) An administrative based price for spectrum, reflecting the cost of administration, should be the default approach to pricing where ESL renewal is deemed to meet the public interest, is of HVU and there is little alternative interest expressed.

- (h) Spectrum pricing and allocation methods should be designed to enable the economic benefits of 5G and 6G to flow to the Australian economy by ensuring fair, reasonable and suitably certain long-term access to the required spectrum.
- 6.5 Optus considers that erring on the side of lower prices is consistent with the Act, given the long-term economic benefits that will flow from greater spectrum utilisation. In view of the long-term socio-economic benefits of lower spectrum prices, such as significantly increased network quality and usage, there is a strong case for the ACMA to renew ESL spectrum for a fee that recovers the administrative costs of ESL spectrum management to the ACMA.
- 6.6 Spectrum pricing based on the recovery of the administrative cost of spectrum management activities by the ACMA is justified on the basis of the long-term economic and social benefits that would flow from the greater levels of investment. As noted above, the continual use of mobile services is estimated to result in \$37 billion in public benefits each year by 2030. These public benefits assume that mobile operators can continue to invest to deliver the network services needed to drive digitalisation of Australia. High spectrum fees undermine this and threatens the realisation of these public benefits.
- 6.7 As noted, mobile and WA WBB have delivered enormous public benefit to Australia and its economy. On this basis alone, there is no higher value use case for ESL spectrum. Any erosion of the scope of the rights afforded to spectrum licensees to accommodate new use cases must be justified on the basis that such alternative use cases will deliver greater public benefit.
- 6.8 Where this is not established, or there is no expression of alternative demand or use for ESL spectrum, the ACMA should renew the spectrum at a nominal price. To charge more than this may amount to a tax on incumbent licensees. Such charging is implicitly discouraged under the Act.⁵⁶ The GSMA note that: "While auctions can work well for initial spectrum assignments, they are almost always inappropriate in the case of renewing mobile spectrum licences that are expiring".⁵⁷

The negative impact of high renewal fees on investment

- 6.9 Mobile operators fund spectrum renewal fees and network investment from the same investment pool. High spectrum prices reduce the funds available to invest in network customer experience. As the GSMA has observed, "countries that persist with excessive pricing... risk experiencing a widening gap in quality and pricing of the mobile services available".⁵⁸
- 6.10 On the other hand, lower spectrum renewal pricing enables mobile operators to fund investment in 5G and future 6G infrastructure and deliver digital transformation. If the price of spectrum is "ineffective", then there is a risk that the spectrum will not be allocated. In a competitive market, low spectrum prices can be passed onto consumers through lower prices and superior networks.⁵⁹
- 6.11 Spectrum licence fees are a significant cost for mobile operators and the cost, including the cost of capital for the initial investment, has to be recovered over time for a sustainable industry. Absent retail price increase for services – which may be

⁵⁶ section 297 of the Act

⁵⁷ GSMA, Auction Best Practice, p.5

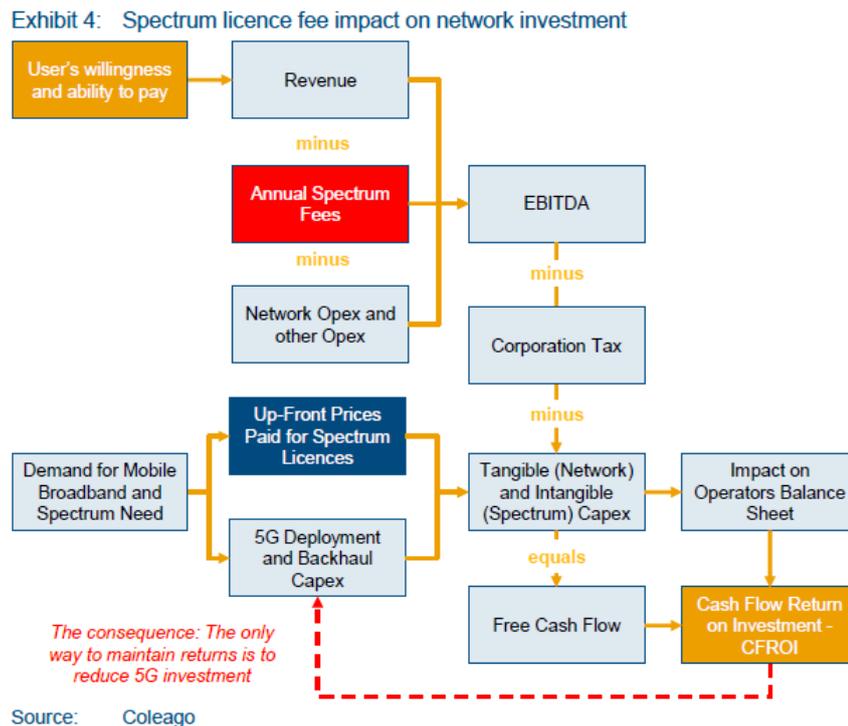
⁵⁸ NERA, Effective Spectrum Pricing: Supporting better quality and more affordable mobile services, Report for the GSMA, February 2017, p.13

⁵⁹ Ibid, p.15

competitively difficult or have a knock-on effect on usage – operators have limited options to reduce tangible capital expenditure.

- 6.12 In short, high spectrum prices make the business case for future investment in 5G and beyond less viable. Renewal fees should be set at a level that provides appropriate incentives for operators to continue to invest in providing services. Figure 4 below illustrates the mobile operator business model with the tangible (network) /intangible (spectrum) capex coming from the same investment pool and directly impacting cashflow.

Figure 4 Spectrum licence fee impact on network investment



The financial state of the mobile sector and the need for a long-term view on pricing

- 6.13 Revenue generation from existing mobile broadband services has become more challenging worldwide, over the last 10 or 15 years. Average mobile data usage and mobile broadband speeds continue to increase substantially and are being boosted further by 5G⁶⁰, while consumers have a lower willingness to pay much more for monthly mobile subscriptions⁶¹.
- 6.14 The capacity for mobile operators to generate an appropriate return⁶² on invested capital when revenue has stalled. The need for spectrum is driven by the sharp increase in mobile data traffic. A recent Tefficient study has demonstrated that mobile data usage per SIM has increased more than 40% in Australia over the last year, resulting in average revenue per GB in Australia plummeting 27%.
- 6.15 The spectrum is used to increase capacity and reduce the cost per bit. A lower cost per bit allows operators to pass on the benefit of additional spectrum to mobile users in the

⁶⁰ ACMA, Draft FYSO 2023-28, p.14

⁶¹ <https://www.ericsson.com/en/reports-and-papers/mobility-report/articles/5g-driving-revenue-growth-in-top-20-markets>

form of lower prices per bit and higher data speeds. Lower prices per bit reflect the dramatic increases in average usage have allowed more efficient spectrum utilisation.

- 6.16 As a result, additional spectrum delivers socio-economic value, far more than private value to operators and far more than revenue to government. A range of academic papers support the view that the benefit from spectrum allocation is derived from its use and not the revenue raised at allocation. A report from NERA Consulting demonstrated that in 2016, lower spectrum fees in Australia would forego \$18USD/pop but would result in \$83USD/pop increase in consumer welfare.⁶³ While numbers vary over time, the available evidence demonstrates that the welfare impact of releasing spectrum to the market at lower cost will outweigh any foregone government revenue.⁶⁴
- 6.17 Optus submits that to promote the public benefit, spectrum renewal fees should reflect that mobile service revenue per MHz of spectrum used has declined sharply over recent years. The attached Venture Insights report highlights that there is a growing digital investment gap resulting from the increasing divergence between the capital costs to build operator revenues. If left unaddressed, this investment gap threatens Australia's digital future.
- 6.18 One consequence of this trend has been significant decline in ROIC in the telecommunications industry over the last five years (Figure 5), which is an indicator of reduced capacity to invest in the infrastructure that delivers services.

Figure 5 Decline in telecommunications industry ROIC



Source: Venture Insights

Optus response to ACMA pricing discussion

- 6.19 Optus welcomes the opportunity to comment on the ACMA's high level outline of the possible approaches it may take to pricing ESL spectrum. In addition to the public interest criteria discussed in response to Question 1, Optus notes that its response to questions 3, 4 and 6 are relevant to its view in relation to the other proposed approaches. As stated elsewhere, the nature and scope of changes to licence conditions, as well as restrictions on the use of spectrum licences, either in the lead up

⁶³ NERA, Effective Spectrum Pricing: Supporting better quality and more affordable mobile services, Report for the GSMA, February 2017, p.35

⁶⁴ Hazlett & Munoz, 2009, A welfare analysis of spectrum allocation policies, RAND Journal of Economics, Vol. 40, No. 3, pp. 424-454

to the expiry or as a requirement of renewal, will clearly impact on the value of ESL spectrum to operators. Optus notes that spectrum licences have to date been afforded a relatively high degree of exclusivity and certainty – that, if eroded, may undermine long term investment in critical communications networks and services.

- 6.20 Optus looks forward to providing more detailed feedback as the ACMA develops its preliminary view, preferably through an advanced pricing consultation paper in Stage 2. Specifically, we consider that the pricing paper should:
- (a) Recognise that mobile infrastructure is nationally critical infrastructure, that mobile services are an essential service, and consider spectrum pricing as a means to support long term industry sustainability and the ongoing supply of essential services.
 - (b) Reject the consideration that an auction avoidance price is appropriate for spectrum renewal. Licensees should not have to face a premium price to retain existing spectrum, at the expense of continued investment incentives and future innovation opportunities, to ensure service continuity of existing services and network reach can be maintained.
 - (c) Reject the use of market-based allocation methods for renewals of ESLs that are already in use and are deemed to be efficiently used.
 - (d) Recognise there are different pricing methodologies that can be considered for spectrum renewal. Each offers different investment incentives, which may support different policy outcomes, and will have different downstream implications for end-users. A high spectrum renewal cost must be balanced against other public interest criteria, to ensure that the socioeconomic benefits (direct and indirect) of efficient spectrum allocation are not compromised.
- 6.21 More broadly, all spectrum pricing decisions should also be accompanied by a statement of reasons to outline the rationale for the pricing arrangement to be adopted for the relevant band. This will ensure greater transparency in the decision-making process, while not limiting the ACMA's powers to review the allocation decision for any available, or expiring, spectrum when the time arises.

Pricing considerations for spectrum renewal

- 6.22 There is a direct trade-off between the amount of spectrum allocated to an operator, the cost of deploying network assets, and the available capacity on the network. In practice no operator would incur the significant costs associated with network investment when there is any doubt over the ongoing control of critical spectrum assets. Unlike the previous renewals process where spectrum bands still remained relatively separate, this concern is exacerbated in the current ESL process given the increasingly multi-band spectrum strategy adopted by mobile operators to support current downstream uses.
- 6.23 A failure to re-issue existing spectrum licences, particularly where the spectrum asset forms a core network input into the business, would have negative consequences for infrastructure investment – and threaten the billions of dollars of economic activity that is dependent on mobile networks. Given the significance of spectrum as a key underlying network input for the provision of a mobile service, any significant reduction in an operator's core spectrum holding could result in customers losing access to the service.
- 6.24 Optus discusses some of the pricing methodologies below, with further detailed comments to be provided once the pricing paper is released.

Auction avoidance pricing can carry significant risks to the economy

- 6.25 Optus strongly rejects the premise that spectrum renewal prices should be set at a premium based on avoiding the uncertainty and potential costs of an auction. This is also akin to setting the spectrum access charge at a price point above the lower bound of any estimated price range for a spectrum band. Operators do not inherently place any value on avoiding an auction, as auction participation will always carry the risk of higher auction prices to the broader economy. It seems counter-intuitive to recognise that auctions have negative economic impacts, such as disruption to investment financing due to uncertainty over future spectrum holdings and potential delays, and that this could be avoided by setting spectrum renewal prices at a premium.
- 6.26 The 900 MHz spectrum auction held in 2021 adopted the use of set-asides, as a form of auction avoidance pricing. The purpose of the set aside was to ensure continuity of service, which was broadly accepted on public interest grounds. However, Optus strongly objected to the premium set aside price on the reserve price. TPG was similarly offered and did not accept the set-aside offer. In fact, no mobile operator supported the concept of a premium price being set for an “auction avoidance uplift”. Spectrum allocation, including setting related price terms for spectrum renewals should support the Government’s policy objectives rather than used as a means of maximising Government revenue.

Administrative cost pricing

- 6.27 Optus consider it would be appropriate for the ACMA to take a conservative approach to setting spectrum access charges (that is an approach which errs on the side of low charges). For example, an administrative based price for spectrum, reflecting the cost of administration, should be the default approach to pricing where ESL renewal is deemed to meet the public interest, is of HVU and there is little alternative interest expressed.

Section 7. APPROACHES TO EXAMINING SPECTRUM USE UNDER ESLs

Question 6 – What are your views on the proposed approach to examining use under existing spectrum licences?

- 7.1 As a finite national resource, the efficient utilisation of spectrum is central to maximising the public benefit derived from the spectrum. Mobile networks and services are, and will continue to be, highly efficient users of spectrum as a necessary characteristic of their network design and operation. While competing demand for access to spectrum is set to increase, mobile operators will need all existing spectrum and more to meet future demand. In Optus' view, there is little evidence that re-allocating or auctioning the spectrum is likely to increase the public benefit from spectrum use.
- 7.2 The ACMA has stated that it intends to examine use of spectrum under existing spectrum arrangements as part of its assessment of ESL options. The Consultation Paper discusses the following "dimensions" of use that the ACMA may consider:
- (a) Service coverage
 - (b) (Overall) spectrum utilisation
 - (c) Investment and innovation
 - (d) Use-cases
 - (e) End-users
- 7.3 The ACMA has indicated that it intends to consider incumbent and prospective use of the spectrum "across all spectrum licences, including those not due to expire". The ACMA proposes to gather data to inform its assessment via information requests during Stage 2. As set out in our response to Question 2, Optus is keen to engage with the ACMA throughout the ESL Process, to address any identified inefficiencies in spectrum utility, including those that flow from existing technical frameworks and licensing arrangements, such as cause the fragmentation of spectrum bands.
- 7.4 Optus submit that if the ACMA decide to hold an auction of ESL and the net result is that the existing spectrum holders retain the spectrum, albeit some consolidation with dominant operators acquiring more of the spectrum, this would indicate that the ESL process had failed, because the auction would have caused unnecessary disruption and uncertainty to the industry with no higher value use identified and no public gain. The ESL process should correctly identify whether there is a higher value use prior to any decision to hold an auction.
- 7.5 Optus provides high level feedback on its principal concerns relating to the ACMA's proposed approach. Optus then provides comments on the proposed approaches to examining use below.

Efficient utilisation of spectrum is an essential objective of the ESL process

- 7.6 The ACMA has indicated that it intends to consider incumbent and prospective use of the spectrum "across all spectrum licences, including those not due to expire". The ACMA proposes to gather data to inform its assessment via information requests during Stage 2.

- 7.7 Optus accepts that spectrum use is highly relevant to the ACMA's assessment of ESL options, including with respect to several of the public interest criteria, most notably efficiency. Optus recognises that promoting the efficient use of the spectrum is an essential objective of the ACMA spectrum management role and will be relevant to considering whether to renew an ESL. However, the degree to which past use will be a determinant of future utility must be carefully weighed.
- 7.8 Mobile services are efficient users of spectrum from both a technical and economic sense. Using traffic delivered over spectrum as a proxy for socio-economic benefit, there is no more publicly beneficial use case for existing ESL spectrum than mobile and WBB services. Multiple economic studies have demonstrated the many billions of dollars of national economic output that is dependent on mobile services.
- 7.9 Optus and the other operators have strong incentives to use their spectrum efficiently to serve their customers, to avoid the need to spend more on deploying sites, which will always be more costly and time consuming than deploying unused spectrum (assuming spectrum prices reflect economic cost).
- 7.10 As set out in our response to Question 2, Optus is keen to engage with the ACMA throughout the ESL Process, to address any identified inefficiencies in spectrum utility, including those that flow from existing technical frameworks and licensing arrangements.

Assessment of use must be proportionate, transparent and based on substantiated need

- 7.11 Optus understands that there is a perception of growing demand for spectrum currently used by mobile operators, including from local area private network operators.⁶⁵ Optus notes that it has not been approached by any smaller operators or non-mobile operators seeking access to our spectrum and therefore question the degree to which there is in fact unmet demand. Optus notes that a localised granular analysis of spectrum use in a particular area may reveal a comparatively low level of existing and planned use by operator customers relative to the planned use of a prospective private network operator.
- 7.12 In this context, Optus is concerned about a number of potential unintended consequences of the ACMA's proposed approaches to examining use. For example, the level of granularity to which the ACMA intends to examine use must be reasonable and reflect the context of the services being analysed or otherwise risk an unfair comparison.
- 7.13 Further, the evidence of use must be carefully balanced against other objectives, such as continuity of service, and the impact of "cherry picking" on industry sustainability. The ACMA must also be mindful of the extent to which its analysis may unreasonably call into question the rationality of business investment decisions – particularly if the results are to be publicised.
- 7.14 To this end, the ACMA must compare "apples with apples" in assessing the degree of spectrum efficiency achievable by a particular use case. The collection of significant amounts of data related to spectrum usage will also impose an administrative burden on operators.
- 7.15 Optus is also concerned by the example cited by the ACMA that "re-allocating spectrum could enable us to retest and optimise productive and allocative efficiency for the spectrum, while renewal may have limited utility in addressing allocative inefficiencies".

⁶⁵ Ofcom report, p.50

- 7.16 Optus appreciates that renewal will not “test” the market demand for the spectrum in the same way that an auction does. The ACMA has more than 20 years of data on testing the market for mobile services – there is little if any genuine interest outside the large mobile operators. However, Optus notes that “testing demand” is not an appropriate approach to maximising utility or promoting the public interest. The ACMA would appreciate that a decision to proceed to auction ESL will have significant operational and business impacts for incumbents that cannot be easily unwound if the auction fails. Further, the desire to ‘test demand’ appears at odds with the ACMA’s view that mobile services are essential services and should be ‘regulated’ as such.⁶⁶ Optus submits the ACMA should reflect on the extent to which this is consistent with its views over the essential nature of mobile services.
- 7.17 The ACMA should have very clear reasons and evidence for re-allocating spectrum, based on the public interest criteria, before it makes any decision to proceed to auction. In Optus’ view this requires transparency about all prospective new use of ESL spectrum that may be submitted to the ACMA through its data collection processes. Incumbents should be afforded the opportunity to assess the validity of such claims and provide submissions in response.
- 7.18 Optus proposes that if the ACMA decide to hold an auction of ESL and the net result is that the existing spectrum holders retain the spectrum, albeit some consolidation with dominant operators acquiring more of the spectrum, this would indicate that the ESL process had failed. This is because the auction would have caused unnecessary disruption and uncertainty to the industry with no higher value use identified and no public gain. The ESL process should correctly identify whether there is a higher value use prior to any decision to hold an auction.
- 7.19 Optus comments on the proposed approaches to examining use below.

Service coverage – the ACMA must compare “apples with apples”

- 7.20 Optus suggest that, in the interests of efficiency, the ACMA seek access to information relevant to service coverage provided by carriers to the ACCC under the Infrastructure Record Keeping Rules (RKR) of the CCA.
- 7.21 Coverage predictions involve complex propagation modelling parameters, site configuration data as well as terrain, clutter and population data. Coverage plot generation is a resource intensive exercise which is heavily dependent on data integrity. The large datasets combined with different input assumptions can result in outputs which may be wildly inaccurate in specific local areas, should there be any errors in the input data.
- 7.22 The ACMA states that “service coverage is an important dimension of use as it can indicate the overall utility derived from the spectrum, geographic utilisation, and the potential public impact of any options under consideration”.⁶⁷ The ACMA then proposes a number of analytical tools to assist in assessing service coverage, including propagation modelling, noting the need for a standardised set of assumptions to facilitate useful comparison.
- 7.23 While the use of network coverage (both current and planned) can assist in determining the presence of service to customers, Optus agrees that it is not appropriate to rely upon coverage predictions as the sole arbiter of where spectrum can be considered “utilised.”

⁶⁶ Speech by Nerida O’Loughlin PSM, ACMA Chair, CommsDay Summit 2023, <https://www.acma.gov.au/publications/2023-05/speech/speech-nerida-oloughlin-psm-acma-chair-commsday-summit-2023>

⁶⁷ ACMA, Consultation Paper, p.29

Coverage maps should not be relied upon to determine spectrum usage as they are normally provided for current networks and forecasts of up to only three years in advance of network build, whereas intended build programs (where no coverage is published) will run up to five years into the future. This means that the outer two years of planned network build and spectrum use will not be captured using coverage plots. In addition, spectrum licences can last up to 20 years. There is no accurate planned use at a site, cluster, town area or other geographical extent this far into the future.

- 7.24 Similarly, if determining the availability of spectrum for some other use, the absence of coverage is invalid as the measure by which this is decided. Sufficient radiated energy to cause harmful interference can and does persist many kilometres beyond the published or measured coverage provided by a cellular network. This is why the DBC under Section 145 of the Act exists and that geographically adjacent co-channel spectrum licensees take such great pains to coordinate and manage interference to acceptable levels between their respective networks.
- 7.25 If the ACMA is insistent on using coverage or a proxy for coverage as a determinant of spectrum utilisation, the only reasonable approach would be to perform a Section 145 DBC assessment on each current and future site for every sector and band in used for all mobile operator networks. This is clearly impractical on computational, complexity and duration grounds. It is also reliant on consistent and accurate data from all mobile operators and prospective licensees. Optus therefore considers coverage predictions or their proxy, regardless of the uniformity of their parameters, terrain and clutter used, to be insufficient and not useful for this purpose.

Spectrum utilisation – granularity of analysis must reflect specific use case

- 7.26 The ACMA describes examination of “overall spectrum utilisation” as “considering different dimensions of how licensed spectrum is used over the relevant licensed geographic area, including more specific breakdowns in particular geographic areas, such as urban, regional and remote areas”.⁶⁸
- 7.27 More specifically, the ACMA states that “a dimension of use is, therefore, to examine in which geographic areas the licensee is using the spectrum, and whether the licensee is making full use of the licensed bandwidth”⁶⁹
- 7.28 Optus agrees that as a general principle, analysis of spectrum utilisation may assist with information that can be gathered via service coverage analysis. However, Optus is very concerned about the potential complexity and ultimately the resources required, to undertake the analysis contemplated under the proposed approach to examining spectrum utilisation. It is also unclear to Optus as to how the ACMA would go about gathering the data required for its analysis.
- 7.29 If overall spectrum utilisation is to be employed as an analytical tool, it will be important to articulate standardised relatively simple methodology that does not lead to unnecessarily complicated outputs. The analysis must be transparent and robust and based on objective universally applicable units of measure.
- 7.30 Using the Australian Spectrum Map Grid (ASMG) and HCIS cells as the unit of analysis appears intuitively correct. However, as the ACMA notes, the HCIS does not necessarily reflect demographic or geographical realities – there would be low levels of usage in a particular coverage area because it is in an unpopulated or infrequently visited area (national park etc). Also, site locations are not necessarily in the same HCIS and the key

⁶⁸ Ibid, p.28

⁶⁹ Ibid, p.28

area of coverage. For example, a single site may provide full coverage to a regional town but be situated outside the HCIS block containing the town. Such a finding would not in and of itself be indicative of inefficient spectrum utilisation and Optus would reject any suggestion that the analysis be used to critique of the rationality or reasonableness of investment decisions.

- 7.31 Consistent with our view on the importance of transparency in this process, Optus considers that the ACMA should publish its findings on spectrum utilisation for incumbent licensees, along with the reasons for the findings and how the tests influenced the outcome. The same rigour should be applied to aspirant licensees with plans for spectrum, in order that stakeholders may test the claimed efficiency gains and outcomes.
- 7.32 An absence of current use (whether by geography or bandwidth) cannot be taken as an absence of need to access spectrum in the future. Adequately capturing plans for use will be critical in determining spectrum utilisation and the ACMA should consider appropriate means for determining this. Optus endorses the ACMA's comment that
- "holding unused spectrum can also potentially provide licensees utility by providing greater flexibility to deploy or adjust services on a needs basis in the future, particularly in bands where significant new releases of spectrum are not expected over the term of a licence. In such cases, the length of time that the spectrum has not been used, or underused, would need to be considered in connection with technology and investment cycles, and anticipated future use of the spectrum".⁷⁰
- 7.33 An example of where erroneous conclusions for spectrum utilisation may be drawn would be for the 3.6GHz band, where an excessive reallocation period for incumbent WISPs has hamstrung Optus' ability to deploy in some regional towns. Similarly, a slowly developing network or device ecosystem may stymie a licensee's desire to utilise spectrum efficiently or in a manner it desires, for example the lack of available iPhone mmWave devices currently available.
- 7.34 Furthermore, intended use of spectrum should be considered until the end of the existing licence period as licensees will continue to make investment decisions on the assumption of ongoing access to a band, unless the ACMA clearly indicates otherwise.

Levels of previous and planned investment in use of spectrum and deployments

- 7.35 Optus welcomes the ACMA's proposal to have regard to historic as well as planned and anticipated investment and innovation in assessing the efficiency of spectrum use. However, given the highly commercially sensitive nature of the information that may be involved in this assessment, Optus seeks clarification on the manner and form of the data upon which the ACMA proposes to conduct its analysis.
- 7.36 Optus notes that most ESLs are national licences and afford licence holders the certainty to deploy national networks. This certainty has helped support the deployment of national mobile networks that serve millions of Australian businesses and consumers on a daily basis.
- 7.37 The deployment of national network involves vast capital expenditure. Licensees with nation-wide licences have and will continue to invest in Australian telecommunications infrastructure and services. Over the past 30 years, Optus has provided Australians with a choice for their telecommunications needs, a competitive alternative to the monopoly

⁷⁰ Ibid, p.20

provider that had been to that point the nation's only option. During this period Optus has invested some \$45 billion in Australian infrastructure, which in turn allows other companies to connect, sell, and thrive in today's digitalised economy

- 7.38 Optus also invests very heavily in spectrum, having acquired and renewed licences worth a combined \$1.9bn in the last five years alone and nearly \$4bn since 2013, including the recent 900 MHz and 26 GHz acquisitions. Investments of this magnitude are made on the basis of the spectrum licences providing sufficient certainty and exclusivity of spectrum access to support network and services deployment that meet the customer experience expectations of Australians.
- 7.39 As a national carrier, Optus enjoys significant economies of scale relative to smaller operators. This means that network deployments can be delivered more cost effectively.
- 7.40 The investment required for network densification and 6G will be significant. The benefits of scale efficiencies afforded to a national network operator in the deployment of infrastructure should not be underestimated.
- 7.41 Whilst Optus has current investment plans, these can often change quickly to accommodate changes in priorities. National Spectrum licences provide Optus with the ability to deliver services anywhere in Australia given the right commercial and strategic conditions. This includes programs such as government blackspot initiatives, potential private enterprise or business customers, whether within, adjacent to or remote from existing deployments, and responding to special events. Maintaining the ability of national carriers to expand coverage anywhere and everywhere is important so that customers within remote areas not only have coverage but also have the many additional services major mobile operators provide such as the Optus Living Network.

Different spectrum use cases

- 7.42 The use of spectrum for mobile and WBB services in Australia is often heavily influenced by international processes and the associated network equipment and device ecosystems. Any new use-cases for these spectrum bands would need to be adequately supported by international equipment and device manufacturers.
- 7.43 To Optus' knowledge, no other use cases are more efficient or deliver the same commercial or social outcomes. We welcome the ACMA to present evidence that an alternative use case would result in more than the estimated \$37 billion in economic value in 2030. If Optus believed that other, more efficient use cases were available then they would be pursued and implemented by Optus or Optus would have been approached to sell the spectrum on the secondary market for a premium on the Optus value can derive from the spectrum. This has not occurred.
- 7.44 Optus is also unclear how the ACMA would interrogate the veracity of claims by new entrants for "planned levels of use" that may be used to compare the utility of existing use cases with potential alternatives. Optus suggests that new entrants be required to provide evidence that they have the financial resources to support the significant investment required for their plans to be relied upon and that any such planned use will not cause harmful or service-affecting interference to existing networks. Optus looks forward to engaging with the ACMA through future consultation processes to ensure that such comparisons are fair and reasonable.

Subscribers and end-users

- 7.45 Optus does not support the use of this metric in determining spectrum utilisation. The SIO argument has been considered on multiple occasions with limited success. Given the fundamentals of the existing market have not changed since the last round of

arguments on this issue, it is unlikely that a review of the SIO argument will yield a different conclusion.

Proposed approach to gathering information and data analysis

- 7.46 Optus wishes to highlight when reviewing site data that a number of factors should be considered including deployment efficiency, deployment regulation interference issues, reallocation periods, energy efficiency, regulation, customer needs and future growth.
- 7.47 For example, in regard to deployment efficiency, Optus notes that the deployment layering strategy for low, mid and high band spectrum is highly differentiated. Low band spectrum (700/850/850e/900) provides a coverage layer and tends to be deployed ubiquitously and this can also apply for mid band spectrum when there is no low band coverage layer e.g., Optus deployed 1800MHz as the coverage layer for 4G prior to the deployment of 700MHz and 3.4-3.6GHz was the coverage layer for 5G prior to 900MHz spectrum being available. However, if a low band spectrum layer is available by technology, and mid band spectrum is being deployed for capacity, it will not be required ubiquitously, as additional capacity may only be required in specific locations over time depending on demand, but not on every site and not immediately.
- 7.48 In regard to interference considerations for deployment, Optus is not able to switch on all sectors on every site for every band, due to the need to comply with co-channel boundary interference licence requirements. For example, in the 2300MHz band, often only one sector on a site can be switched on to meet the interference coordination procedures with the NBN network. This results in “dead zones” across co-channel spectrum boundaries whereby no deployments can be made, denying services and /or reducing network capabilities to local customers.
- 7.49 Optus also encourages the ACMA to interrogate all expressions of interest in ESL spectrum received via information requests issued under section 78 of the Act (proposed for Stage 2). Similarly, claims of planned usage must be carefully tested. Optus proposes that the information requests in Stage 2 of the process should include “proof of use” data as per the previous renewal process, as proof of utilisation of spectrum and proposes that the data should focus on the deployment of existing active sites. For new entrants, planned use should be supported with evidence of the ability to deliver the planned use including financial backing, commitments and prior investment.
- 7.50 The mobile operator’s role is to provide the mobile network where customers need it and the customers choose to use the available network in a particular location (registering usage on a particular site deployed) or in the future. With the key issue being that the site is available for customers to use if they choose to. And therefore usage on a particular site is under the customers’ control and not under the control of the mobile operator. mobile operators deploy their expensive spectrum assets in line with their customers’ needs and their network deployment strategy to provide capacity and coverage to their customers unless there are regulations that prevent them from doing so (e.g. reallocation periods, interference issues).
- 7.51 In relation to the proposed approach to collecting information via data requests issued under the Radiocommunications Act, Optus reiterates that data requests must be justified based on the relevant purpose and regulatory power. They must be clearly articulated and understandable by the recipient.
- 7.52 In terms of the reliability of external sources of data, Optus agrees with the ACMA’s statement that “device registrations do not provide sufficient detail about how the spectrum is being put to use, and for what purpose, and that more detailed analysis of use is required. “Optus encourages the ACMA to have regard to the information collected by the ACCC via its RKR. For example, the annual Infrastructure RKR provides site ID, RFNSA ID, site name, site type (inbuilding etc), latitude/longitude,

Technical Units on each site by technology (3G,4G, 5G) by band and technology by band for handheld and external antenna, as well as coverage maps.

- 7.53 Optus proposes that the non-mobile operators who hold spectrum licences e.g., NBN, State Rail etc, who do not contribute to the ACCC Annual Infrastructure RKR” could be asked to provide same data for comparison.

Obstacles to efficient deployment

- 7.54 Optus notes that there are also numerous obstacles to efficient deployment presented by inconsistent State and territory planning laws, and the administrative burden, inefficiencies and high costs of land access under Schedule 3 of the Telecommunications Act. The Optus mobile network is designated critical infrastructure and as such is affected by numerous security requirements that are not applied to smaller operators. Further the consultation and approvals processes faced by national carriers cause significant delays in rollout. Optus refers the ACMA to the Australian Mobile Telecommunications Associations (AMTAs) recent submission to the Inquiry into Regional Mobile Infrastructure for further information on this matter.⁷¹

⁷¹ AMTA Submission to ACCC Regional Mobile Infrastructure Inquiry Report on Preliminary Findings 2023

Appendix A. SUGGESTED AMENDMENTS TO THE ACMA'S PROPOSED ESL PROCESS

ACMA proposed ESL Process	ACMA timeframe	Suggested amendments to ESL Process	Suggested timeframes
<p><u>Stage 1: Consultation on process</u></p> <p>Stage 1 aims to:</p> <ol style="list-style-type: none"> 1. initiate stakeholder engagement with the ESL process 2. develop and consult on proposals for: <ul style="list-style-type: none"> ➤ the new ESL process ➤ proposed public interest criteria ➤ approaches to considering use under ESLs. 	Q2/Q3 2023	<ol style="list-style-type: none"> 1. ACMA issues draft guidelines on ESL Process, public interest criteria and assessment framework 2. ACMA conducts Tune-up on ACMA's preferred approach to pricing and valuation 3. ACMA conducts Tune-up for interested stakeholders on preferred approach to "examining use" 	<p>Nov 2023</p> <p>Nov 2023</p> <p>Dec 2023</p>
<p><u>Stage 2: finalise process and gather information</u></p> <p>Stage 2 aims to refine and communicate the steps of the ESL process and confirm the assessment framework, including the public interest criteria.</p> <p>ACMA may also request information from incumbent licensees and other stakeholders on a range of issues, in particular:</p> <ul style="list-style-type: none"> ➤ incumbent levels of use and alternative use-cases ➤ demand for the spectrum 	Q1-4 2024	<ol style="list-style-type: none"> 1. Publish outcomes paper along with final version of ESL guidelines setting out <ul style="list-style-type: none"> ➤ the ESL Process ➤ public interest criteria ➤ preferred approach to examining use 2. ACMA issues s.78 notices inviting expressions of interest and/or requests for relevant information from stakeholders 	<p>Early Feb 2024</p> <p>March-May 2024</p>

<ul style="list-style-type: none"> ➤ identifying any band specific issues or inefficiencies (for example, fragmentation of existing holdings) ➤ market and competition issues ➤ the public interest. 		<ol style="list-style-type: none"> 3. ACMA issues consultation paper relating to pricing and valuation options for all ESL bands (2 months) 4. ACMA conducts series of Tune-ups for interested stakeholders on licensing arrangements, including licence conditions, and allocation options for ESLs 5. ACMA coordinate series of Technical Liaison Groups (TLGs) to identify and address technical issues undermining efficient use of ESL spectrum bands 	<p>April – June 2024</p> <p>April – June 2024</p> <p>May –Sept 2024</p>
<p><u>Stage 3: preliminary views</u></p> <p>In Stage 3, we will provide a preliminary view about the proposed future arrangements for spectrum subject to ESLs for each band for licences expiring between 2028 and 2032.</p> <p>During Stage 3, we are proposing to consider and form preliminary views on the appropriate arrangements for the spectrum. ACMA will examine:</p> <ul style="list-style-type: none"> ➤ Use-cases and users for the spectrum ➤ The appropriate licence arrangements ➤ Licence conditions and technical framework to facilitate efficient use and co-existence and to support relevant objectives, including the public interest. ➤ The value of the spectrum and payment terms should licences ultimately be renewed. 	<p>Q4 2024</p>	<ol style="list-style-type: none"> 1. ACMA issue consultation paper setting out <u>preliminary view</u> relating to <ul style="list-style-type: none"> ➤ whether it will renew, partially renew or refuse to renew ESLs in each band. ➤ Its comparative assessment of use cases against public interest criteria. ➤ pricing and valuation methodologies of spectrum for each ESL band 2. ACMA issues <u>preferred view</u> (and Outcomes Paper following 	<p>October – Dec 2024</p> <p>March 2025</p>

<ul style="list-style-type: none"> ➤ Allocation options – renewal, refusal or partial renewal – with associated re-allocation processes <p>ACMA expect to consult on options if any substantive change is contemplated for how the spectrum is planned, licensed or allocated.</p>		<p>preliminary views consultation) setting out administrative policy on:</p> <ul style="list-style-type: none"> ➤ whether it will renew, partially renew or refuse to renew ESLs in each band ➤ its approach to pricing spectrum in each band 	
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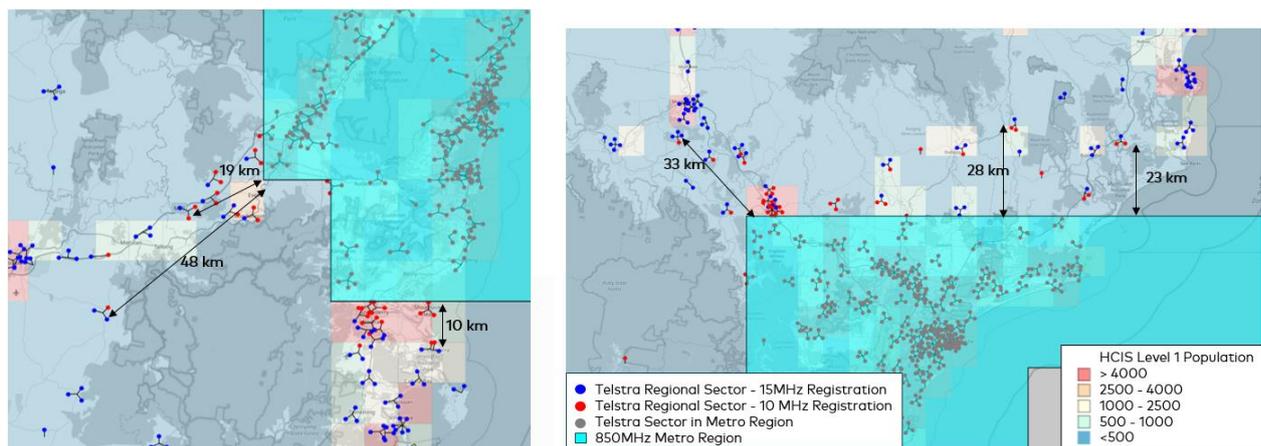
<p><u>Stage 4: renewal application and decision-making periods</u></p> <p>During 2025, we would release a response to submissions to the preliminary views' consultation in Stage 3. This would outline our preferred views and policy on planning, licensing and pricing relating to the relevant spectrum and licences.</p> <p>Following this, in the period preceding the renewal application period for the relevant licences, we would (on a band-by-band basis):</p> <ul style="list-style-type: none"> ➤ review if any changes are required to the established policy ➤ prepare draft sample licences and draft spectrum access charge determinations so that the general terms of renewal may be known (should the licence be renewed) ➤ prepare draft allocation instruments (for potential re-allocation) ➤ finalise any changes to the technical framework for the relevant band ➤ publish application forms and specify information and documents that must accompany a renewal application. <p>This will facilitate a licensee being able to apply for the renewal of their licence from the first day of the relevant renewal application period, identifying the terms and conditions of any potential renewal. Upon receiving an application, we would then begin considering whether to renew that licence, taking into consideration the application, our preferred views and any relevant objectives.</p>		<ol style="list-style-type: none"> 1. Issue spectrum access charges determination (under section 294(1) of the Act) for each ESL spectrum band 12 months prior to the opening of the renewal application window 2. Issue a licence renewal notice (under section 77B(10)(a) of the Act) to incumbent spectrum licensee on first day of application window specifying a date for final payment (e.g. 6 months) 3. Prioritise decisions relating to any ESL renewal applications submitted during the renewal application period and avoid undue extensions of time for requests for further information under section 77B 	
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Appendix B. LICENCE BOUNDARIES DEVALUE SPECTRUM

The proposed boundaries for the 2021 low band auction were not fit for purpose. While the objectives of the ACMA in carving up the proposed national licenses in the 900 MHz and 850 MHz extension bands were clear, the effect on services at a substantial distance from those proposed boundaries would have been extremely detrimental to co-channel geographical neighbours if the auction had resulted in different licensees in the metro and regional licence lots.

In July 2021, Optus presented analysis to the ACMA detailing exactly this scenario and the associated issues that it would cause. Figures 4 and 5 below are excerpts from that analysis. As can be seen in Figure 6, Telstra has been prevented deploying 5MHz of its 800 MHz spectrum on sites due to S145 Delivery Boundary Criterion “DBC” failures. This is occurring at substantial distances from the co-channel spectrum between Telstra (regional areas) and TPG (metro areas). This creates large “dead zones” where one or both co-channel licensees suffer as a result of not being able to use this spectrum. This represents an inefficient use of spectrum.

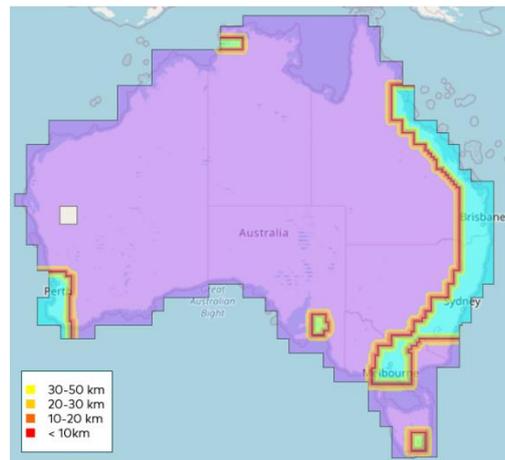
Figure 6 800 MHz co-channel constraints at spectrum licence boundary



Source: Optus

Optus then applied approximate buffer zones to the 2021 low band auction boundaries to show the impact that a similar outcome would have on the 900 MHz band and Optus' network (see Figure 7). The ACMA should therefore avoid this outcome and take extreme care when determining whether or where to draw spectrum licence boundaries to avoid this possibility.

Figure 7 2019 Low-band spectrum auction boundary areas of reduced spectrum utility

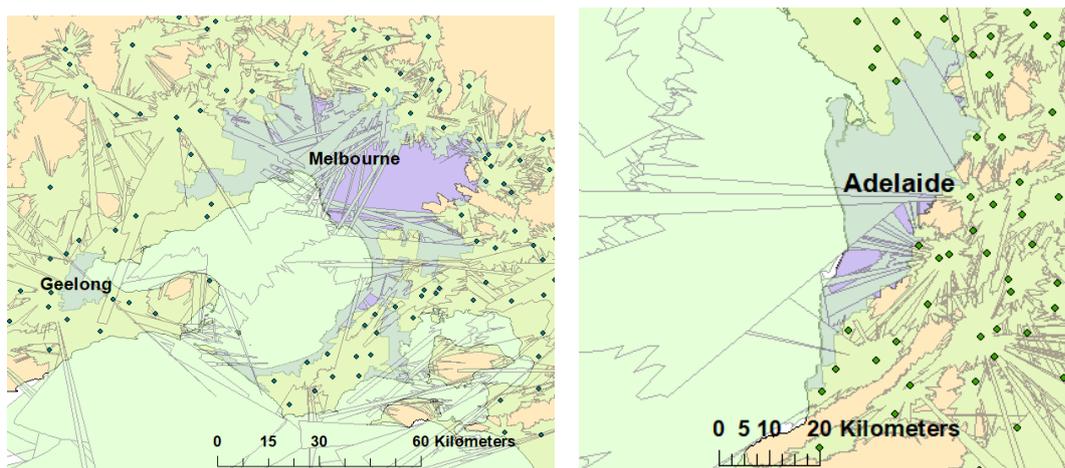


Source: Optus

Similarly, the ACMA conducted their own analysis of unnaturally placed spectrum boundaries as part of *IFC-12-2019-Options-Optimising arrangements for the 3400–3575 MHz band* and concluded, as part of the formation of the Urban Excision areas, that existing s145 DBC is insufficient to provide the necessary protections to users and requires a varied approach to harmful interference mitigation.

As a result of this study, the ACMA has not included this spectrum in the October 3.4/3.7 GHz spectrum auction due to the difficulties in defining an acceptable alternative to the current s145 DBC that allows for efficient and effective use of spectrum. Figure 8 below sets out excerpts from that paper and show the extent to which the DBC restricts the use of spectrum inside the Urban Excise areas, rendering the spectrum unusable for WBB or other traditional, high value uses. It is evident that inefficiencies will inevitably be introduced by implementing co-channel licence boundaries. They should therefore be avoided at all costs when considering ESLs.

Figure 8 S145 DBC predictions for Urban Excise Areas in the 3.5 GHz band



Source: ACMA: *IFC-12-2019-Options-Optimising arrangements for the 3400–3575 MHz band*

This outcome (the introduction of new spectrum boundaries for existing licences), for ESL, would not be acceptable to Optus as it would represent a significant erosion of spectrum licence rights and protections and result in reduced spectrum efficiency for spectrum users on both sides of any mooted boundary.