



AMTA

Australian Mobile
Telecommunications
Association

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Submission to the ACMA consultation

Expiring Spectrum Licences (stage 4) – Updated Preliminary Views on Pricing



AMTA - ESL updated preliminary views on pricing Submission

The Australian Mobile Telecommunications Association (AMTA) is the peak industry body of Australia's mobile telecommunications industry. Our purpose is to be the trusted voice of industry, promoting the adoption, monetisation and sustainability of mobile telecommunications technology for the benefit of all Australians.

AMTA members include the mobile network service providers, handset manufacturers, network equipment suppliers, retail outlets and other suppliers to the industry.

AMTA welcomes the opportunity to provide this submission in response to the consultation on ESL (stage 4) – updated preliminary views on pricing.

If you have any queries or comments in relation to the content of our submission, please contact Chris Coughlan, Head of Spectrum and Network Infrastructure on 0401 988 322 or by email chris.coughlan@amta.org.au.



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1. Executive summary

Whilst AMTA supports the ACMA's decision to renew expiring spectrum licences (ESL) as opposed to undertaking auctions for the ESL, it is disappointed with ACMA's updated preliminary pricing views for the licences.

Industry response to the ACMA's stage 3 pricing consultation paper¹ was broadly supportive of the ACMA's international benchmarking. However, AMTA and each of the Mobile Network Operators (MNOs) (supported by their international experts) highlighted important errors and methodological issues that needed to be addressed to ensure the output from the benchmarks was robust and properly reflected international trends in spectrum values and pricing. This would have resulted in lower prices from those proposed in ACMA's stage 3 paper, which AMTA believes would promote greater public benefits.

The ACMA has noted that its updated preliminary views reflect the output from a peer review process, undertaken by DotEcon, that has enabled it to refine and simplify aspects of the methodology and strengthen its economic foundation. In almost all cases, the adjustments made by the ACMA, have resulted in an increase in the valuation of the spectrum and hence proposed prices. This directly contradicts feedback from industry and its expert consultants.

The overall impact of the ACMA's adjusted modelling is to increase the expected prices for ESL by up to 46 per cent to \$7.3 Billion. This is a significant increase which if applied would aim to raise an additional \$2.3 Billion in upfront tax revenues. The valuation and proposed new pricing are well above what industry considers to be in the public interest, reasonable and informed by a proper interpretation of relevant international modelling.

Spectrum is an essential national resource that significantly contributes to our country's productivity and economic and social wellbeing. As a scarce resource spectrum must be used efficiently to provide services, and pricing should focus on securing lasting benefits for the public rather than prioritising quick financial returns for the Treasury. It is not in our national interest to price spectrum in a way that disadvantages consumers and industry simultaneously and puts future productivity at risk.

Failure to properly meet the objectives of the Act

The ACMA's principal objective in setting ESL prices is to ensure that it maximises the long-term public interest from the use of the spectrum. The ACMA is also required to do this in a way that meets the Government's communications policy objectives, as set out in the Ministerial Policy Statement (MPS).

AMTA submits that the public interest is best served by setting prices at a level that whilst above their alternate use (such as for public sector mobile broadband use) is sufficient to promote maximum investment into the sector. Such an approach would benefit consumers

¹ The ACMA Expiring spectrum licences, stage 3 Preliminary views paper 4: Pricing for ESLs



and businesses by ensuring prices remain affordable, that they can continue to access new technologies and that Australia can fully realise the benefits of a digital transformation in the economy and public services. Such investment will also help to achieve the government's policy goals of promoting inclusion and social cohesion, by ensuring price affordability, promoting investment in underserved communities and regions and helping to close the gap.

AMTA does not consider ACMA's current proposed pricing meets the objective of the Act nor is it consistent with the MPS.

When faced with a choice in the modelling, the ACMA appears to have chosen the option that would result in higher prices. Given this, and the magnitude of the changes in pricing, it is difficult to avoid the conclusion that the ACMA's updated approach has been driven by a desire to generate higher tax revenue through higher spectrum charges.

The ACMA also fails to consider the very different environment MNOs face to those when the ESLs were issued. Since this time revenue growth has stalled or gone backwards, profitability has declined and for a sustained period industry returns have been below its cost of capital². Mobile services are now seen as essential as utilities such as water and electricity. Reflecting this, successive governments have increased regulatory compliance requirements on the sector. In a claimed world first, mobile services in Australia will shortly be brought into the universal service framework. This will mean that MNOs have legal obligations to supply basic mobile voice and text services and at the same time they will be required to expand outdoor coverage by over 5 million square kilometres by accessing LEOSat technology.

Taken together these factors should lead to both a moderation in spectrum prices and the consideration of other approaches to pricing. As indicated in the accompanying Pentland paper an "increasing number of regulators are modernising their renewal methods and putting network quality, competition and customer benefits at the centre of their plans, with fees, if any, a "balancing factor" in the overall scheme".

But such a forward-thinking approach is not evident in the ACMA's proposal. Notwithstanding these economic challenges and the likely substantial costs of the new regulations, the ACMA proposes that the industry should pay \$7.3 Billion to renew existing spectrum that supports services that are seen as being critical by so many. The fact that these payments will be required in such a short timeframe only increases the potential negative impacts.

Since MNOs have a finite capital pool, the proposed level of pricing for ESL will require a reallocation of billions of dollars' worth of investment that would otherwise be made in new services, technology and coverage. In practical terms high spectrum prices may require the MNOs to make some difficult choices as to how they manage their future investments and business operations through this period.

² [Venture Insights - REPORT: State of the Australian Telecommunications Industry - Telco at a Crossroads](#)



The Pentland paper provides international context and explains the consequences of financial strain impacting mobile operators. With that in mind, is not difficult to imagine that the potential consequences of the ACMA's ESL cost proposal, which can include:

- A reduction in funding for network investment which may slow down the extension of 5G coverage into regional areas, delay the upgrade to 5G standalone technology in Australia, and delay the transition to 6G;
- Higher retail prices if MNOs either pass on higher costs or there is further consolidation in the sector leading to less competition;
- Reduced ability for MNOs to invest to help support the government's communications and social policy outcomes, such as further regional investment, hardening of network resilience and closing the gap initiatives; and
- Failure to renew all licences, resulting in lower revenue for government, less competition and poorer service quality. It should not be assumed that at these price levels all ESLs will be renewed in full, which means that any revenue forecasts might be based on a false premise.

Recommended way forward

AMTA acknowledges that developing a reasonable and robust dataset of international benchmarks is complex and involves many assumptions and subjective decisions. As a principle, when faced with a choice the ACMA should not simply adopt the option that will result in upward price pressure, rather it should consider what outcome will promote the long-term public interest.

AMTA believes this outcome can be achieved through a small, but nevertheless critical, number of changes to the ACMA's modelling. The key changes include:

- **Reflect prices for spectrum awarded through a renewal process:** A conceptual flaw with the ACMA's benchmarking is that it only includes the results of spectrum awarded through auctions and not renewals. Given the task at hand is to set prices for renewal it would be logical and appropriate for the benchmarks to reflect prices set through renewal processes and not auctions. Not to include such datasets would almost certainly distort the outcome and ensure that prices are likely to be inflated.
- **CPI is not the correct indexation measure:** The ACMA has switched from indexation based on MSR to CPI on the basis that it is simpler to apply. AMTA contends that such a change is without merit and risks baking inflationary effects into future mobile prices. Inflation might have the advantage of simplicity, but it is a crude measure and has no correlation to spectrum pricing. Use of CPI would guarantee upward pressure on pricing, the impacts of which will be felt by all consumers. This would be counter to historic trends that has seen long-term decline in mobile prices, whilst general inflation has increased. Whilst MSR is more complex, it is economically sound, more accurate and likely to reflect actual market conditions more closely for the mobile sector than an inflation index.
- **Account for the downward trend in benchmark prices:** The ACMA modelling does not appear to properly reflect the clearly observable downward trend in international



spectrum prices. This can be achieved by addressing conceptual errors in the benchmark modelling and removing the clear price outliers. Details of these are set out in the Pentland report and the individual submissions of the MNOs.

As indicated in the Pentland report, renewing such a large amount of spectrum provides a once-in-a-generation opportunity for the Government to shape the future of mobile communications in Australia, to the benefit of users and the wider economy. AMTA submits that this will not be achieved by setting the high prices that ACMA has proposed.



2. Public interest test

The ACMA's principal objective in setting ESL prices is to ensure that it maximises the long-term public interest from the use of the spectrum. The ACMA is also required to do this in a way that meets the Government's communications policy objectives, as set out on the Ministerial Policy Statement (MPS).

AMTA does not consider that the ACMA has properly met this objective.

The ACMA has essentially calculated the average global auction price while using questionable ACMA-adjustments. AMTA does not believe that the ACMA's current modelling properly reflects the trends in international spectrum prices or market conditions in Australia, nor is it aligned with the long-term public interest derived from the use of the spectrum.

The valuation of the ESL to be renewed should be set based on having proper regard to the legislative and policy criteria that empowers the ACMA. Whilst international price benchmarks could be a valid starting point, such analysis should also be informed by assessing:

- A fair commercial price given the prevailing economic and financial conditions without unduly impacting future investment requirements in new technologies, better services and coverage;
- The importance of mobile services to the community and ensuring the continuity of supply of such services at affordable retail prices;
- The growing regulatory and policy expectation on the mobile sector, including the expectations outlined in the MPS: and
- The importance of the sector to the future social and economic aspirations of Australia.

AMTA submits that consideration of these factors would likely result in renewal prices closer to the cost of alternate use and sufficient to recoup ongoing administrative costs³. Such an outcome would truly promote the legislative and policy criteria.

These issues are examined in greater detail below together with a recommended way forward.

MNOs face a more challenging economic environment

When the ESL were first allocated the mobile sector was different to the one it is today.

Mobile broadband was at an early stage of development. The roll-out of 4G had only recently commenced and penetration of 4G services was modest at around 10 percent of services in operation⁴. Whilst the market had started to move away from usage-based pricing with the introduction of monthly plans and data allowances, pricing remained voice-

³ Refer to section 3.1 of Pentland paper. Government seems to be saying... in effect, **the economic benefit realised by the current licensees is more than the "opportunity cost" to any other prospective licence holders.**

⁴ ACMA Communications report 2012-13



centric with sizeable inclusions for voice calls and texts. Data inclusions were modest with significant break fees once data caps were exceeded⁵.

Revenue growth and ROIC were healthy. Whilst penetration of mobile services was high, the Australian mobile telecommunications market experienced significant revenue growth between 2008 and 2013, with the widespread adoption of smartphones and increased usage of data services. Mobile service revenue grew by over \$5 Billion or 54 per cent between 2005 and 2012⁶. In 2012-13 Telstra reported a 7.2% Compound Annual Growth Rate (CAGR) in mobile revenue with 1.3 million services added⁷. Telstra also reported a Return on Invested Capital (ROIC) of 14.9%, down from 17.9% in the prior year due to its significant investment in 4G roll-out in the year⁸.

Notwithstanding that the NBN roll-out had commenced, Telstra and Optus continued to operate their own fixed networks generating profitable returns for their respective businesses. Each of the three MNOs operated fully integrated mobile businesses, owning and operating their own networks. Furthermore, each of the MNOs built distribution networks of storefronts and non-operator owned distribution points, creating jobs and contributing to the local community in more ways than simply providing a mobile service.

However, since the ESLs were first awarded the market has evolved and demonstrates some important differences to the conditions that prevailed in 2013.

Mobile is now primarily a broadband driven service, with the economics dominated by data capacity and speed. Fixed monthly plans have largely replaced usage-based charges, with plans based on data allowances and often including unlimited calls and text messages. Data allowances are largely based on gigabits of usage rather than megabits of usage in 2013. Many of the break fees or overage charges, which previously generated significant revenues but were unpopular with consumers, have been removed from monthly plans. Whilst all MNOs offer fixed line services these are supplied over the NBN with limited profitability generated for their overall businesses.

Industry revenue growth has slowed considerably, and in the period 2019 to 2024 mobile revenues declined 0.8% (CAGR)⁹. The table below from the ACMA¹⁰, demonstrates how the high growth from the early 2000s has tailed off considerably, with annual revenues barely changing since 2012.

⁵ Data caps typically ranged from 200MB to 1 to 2 GB, with break fees applying once data limits were reached. Example, Optus \$25 "My SIM" plan include 200MB of data and 300 call minutes. Additional data was charged at \$10 per 100MB.

⁶ The ACMA [Preliminary views paper 4 - Pricing for ESLs.pdf](#)

⁷ Telstra [2013-fin-results-analyst-brief.pdf](#)

⁸ Telstra [2013-fin-results-analyst-brief.pdf](#) . Note Optus ROIC not disclosed in Singtel accounts, but Singtel ROIC was reported at 11.8%.

⁹ Marketline Industry Profile – Telecommunication Services in Australia June 2025

¹⁰ The ACMA [Preliminary views paper 4 - Pricing for ESLs.pdf](#)



Figure 14: Mobile service revenue inputs to MSR/MHz/pop index



Note: FY24 and FY25 figures are forecasts based on 5% annual growth in MSR.

Mobile data usage has increased exponentially. Mobile data consumption grew by tenfold over the past 10 years from approximately 1.4 GB per month¹¹ in 2010 to 14.5 GB per month¹² in 2025. However, over this same period revenue per user remained flat in absolute terms^{13 14}.

Data usage is expected to continue to grow with the increased consumption of digital services on mobile devices and the further development of 5G and AI based technologies.

Mobile data services are far more capital intensive than voice-based services, requiring significant investment in backhaul capacity and spectrum assets to support high data usage. Much of the growth is driven by consumers accessing over the top services, such as video streaming services. Provisioning capacity to meet this demand drives costs for MNOs¹⁵. Since charges fall solely on end-users through fixed monthly plans and MNOs have no ability to recover costs through charges to over-the-top providers, they are unable to easily monetise increases in capacity costs.

With increased costs and lower profitability, the industry has seen a significant drop-off in its ROIC to low single digits. The combined industry ROIC is below its cost of capital¹⁶.

¹¹ Australian Bureau of Statistics 8153.0 Internet Activity June 2015 and December 2025

¹² WhistleOut - [Australians are still paying for more mobile data than they need](#) Jan 2026

¹³ Telstra [2015 full year results and operations review](#)

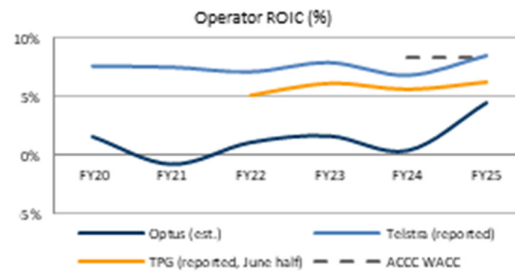
¹⁴ Telstra [Half year 2025 results](#)

¹⁵ GSMA estimates that the costs of 5G are **30-60% higher on a stand-alone basis**, or **20-35% higher when installed as an overlay** (based on a 2019 GSMA study versus 4G).

¹⁶ [Venture Insights - REPORT: State of the Australian Telecommunications Industry - Telco at a Crossroads](#)



MNO ROIC and cost of capital



MNOs continue to examine ways to create greater efficiencies in their operations to reduce costs and unlock capital. Examples include the sale of their tower businesses to third party infrastructure providers and the agreement of network sharing arrangements that have been contemplated by all three MNOs and subsequently crystallised between Optus and TPG.

The high costs and low ROIC has seen a slowdown in the pace of investment in the sector. Some six years into the 5G roll-out a little over a half of all Telstra (55%) and Optus (53%) sites have been upgraded to 5G technology. By contrast, after six years the 4G roll-out had largely been completed with over 80 to 90 per cent of sites 4G enabled¹⁷.

High spectrum costs will not assist MNOs in completing their 5G rollouts and will likely hamper Australia's transition to 6G, especially as 6G is likely to require additional spectrum to be acquired in the upper 6GHz band during the renewal period. Given current industry economics and the prices for ESL the business case for 6G appears to be challenging. This would reverse Australia's historic position as an early adopter of new technologies and risk Australia not fully benefiting from the productivity benefits of the new generation of mobile technology.

In short, the commercial environment MNOs face is more challenging than it was when these licences were last issued. Industry is not generating the returns that would enable them to renew spectrum at anywhere near the prices that were paid when the licences were first auctioned. It is incumbent on the ACMA to consider these issues when setting ESL prices, in particular MNOs capacity to pay. Whilst the ACMA indicates that it has *"sought advice on the capacity of licensees to pay for spectrum licence renewals to gain a greater sense of the broader implications of ESL pricing outcomes and whether they align with our policy objectives"*, this advice has not been made public. Nor does it appear that any of the MNOs have been consulted on this matter.

¹⁷ ACCC Mobile Infrastructure reports 2025 and 2021



Changing community and regulatory expectations

These challenging economic circumstances are heightened by changes in the public's use and expectations of mobile services over this period.

Mobile phones are now the primary means of communication for many people, with a substantial reduction on the number of Australians using fixed lines for voice services¹⁸. Increasingly mobile services are seen as essential services.

In announcing the new Universal Outdoor Mobile Obligation (UOMO) Bill, Minister Wells noted that, "Reliable mobile services are a vital part of our lives now to ensure public safety, boost our economies and provide communities with connection and access to essential services".

The Telecommunications Industry Ombudsman, Cynthia Gebert has also noted that, "The last few years catapulted Australia forward in terms of how we use our mobile phone services, and what we need them to do. In today's world, mobile phone services are essential not only for daily life – such as banking, shopping, accessing health and government services, and connecting socially – but also for safety during an emergency like a bushfire or flood"¹⁹.

This changed perception about the criticality of mobile services has been reflected by changes in the way the sector is now regulated.

Australia is leading the world with plans to bring mobile services into the universal service framework, at least for basic mobile voice and text services. The Uomo will not only create a legal obligation on MNOs to provide voice and text-based services, it also requires them to add more than 5 million square kms of basic outdoor mobile text and voice coverage across Australia. The MNOs are expected to use a combination of their existing services and emerging direct to device (D2D) technology, provided through Low Earth Orbit Satellites (LEOSats), to expand baseline outdoor mobile coverage.

Government has also announced plans to set new standards and benchmarks for mobile service delivery, quality of service, the timeliness of addressing faults and to ensure affordability of prices. MNOs are in advanced discussions with the government to implement temporary roaming services that will help to ensure customers can remain connected when disasters strike local communities.

Mobile carriers have also been expected to contribute to achieving key government social policy goals, with recent regulations around financial hardship, scams, and domestic, family and sexual violence. And since 2018, mobile networks have also been classified as critical infrastructure which requires MNOs to meet strict security obligations to help protect national, economic, and social stability.

¹⁸ The ACMA indicates that use of landline phones continued to decline 12% in 2025 vs 15% in 2024 [How we communicate Feb 2026](#)

¹⁹ [Investigating complaints about essential mobile services report released | The Telecommunications Industry Ombudsman](#)



In summary, there has been a substantial uplift in the regulatory burdens and expectations on the sector. But this has also resulted in an increase in the cost burden on the sector. A recent analyst report by Market Line noted that the market value of the Australian telecommunication services market had declined by (CAGR) 2.0% between 2019 and 2024. It attributed some of this decline to the increased regulatory pressure on companies to lower prices and improve service quality²⁰.

Over the future term of any renewed spectrum licences, it is likely that community expectations will remain high and there is little prospect that regulatory burdens will be reduced. Indeed, the MPS provides guidance on important communications policy outcomes that the ACMA is expected to consider in renewing the ESL. This includes promoting investment in new coverage and better services for regional and remote areas and ensuring telecommunications can contribute to the National Agreement on Closing the Gap.

Moderated spectrum pricing has the potential to underpin Australia's digital transformation and social and economic development

Whilst mobile services are essential to many consumers and communities, they also play an increasingly vital role in the modern digital economy. All businesses, from sole traders to large government enterprises, rely on mobile services to connect to their customers, staff and to help run their operations.

The advent of 5G, which is primarily a business grade technology, is widening the benefits that mobile technology can unlock for businesses. The ability to leverage very high speed, low latency, and massive machine connectivity is enabling business to drive automation and efficiency in their operations.

Industries as diverse as agriculture, mining, logistics, healthcare, defence and government services rely on radio frequencies to operate safely, efficiently, and in real time. New technologies like AI, smart farming, and remote healthcare need faster wireless connections to work well and efficiently. Mobile underpins these current and future economic growth engines. A 2022 report by Deloitte Access Economics indicated that Australia has been a leader in 5G adoption, and it estimated that 5G would increase Australia's Gross Domestic Product (GDP) by \$67 billion in 2022 dollars by 2030²¹.

- This has not happened by accident, it is the result of significant investments by the mobile operators in infrastructure, technology and people across this vast continent. As a result of this investment, Australia is well placed to benefit from the advent of innovative technologies. Research by global analyst firm OpenSignal, which measures 4G/5G availability, download speeds, and consistent service quality, has

²⁰ Marketline Industry Profile – Telecommunication Services in Australia June 2025

²¹ Deloitte Access Economics [5G Unleashed: Realising the potential of the next generation of mobile technology Australian Mobile Telecommunications Association 2022](#)



ranked Australia's mobile networks 8th in the world for network excellence²². The MPS specifically requires the ACMA to consider existing investment by licensees and the opportunities to support innovation in the Australian communications market.

The pricing of the ESL will have a significant impact on whether Australia can retain or indeed improve on this position and deliver the mobile infrastructure that a modern digital economy requires. Since MNOs' capital budgets are constrained, the capital needed to renew spectrum licences will limit the funds mobile network operators can invest in new infrastructure, technologies, and services. It is important that ACMA strikes the right balance to ensure spectrum pricing support the investments needed to help deliver Australia's digital future.

Setting prices too high risks Australia lagging the world

There are significant risks from setting spectrum renewal prices too high. High spectrum renewal prices may require MNOs to make some difficult decisions about how they allocate their capital and meeting their operating costs through this period. Some or all of the following impacts are possible:

- **A reduction in investment:** Higher spectrum costs reduce the available funds for network investment which could further slowdown the extension of 5G coverage, and the upgrade to 5G Standalone technology in Australia. The risk is even greater for the transition to 6G. The 6G investment cycle is likely to commence when several of the ESL licences are due to be renewed. If MNOs must fund high renewal costs in this period, then it is likely to result in delays to their investment in 6G technology. This in turn will risk Australia falling behind its global peers for the first time on a major technology upgrade. It will also mean that Australia may not fully realise the benefits of latest generation of mobile technology.
- **Increase in prices for consumer and businesses.** Higher spectrum prices could result in higher retail prices as operators pass on higher costs in their retail plans. This will likely undermine the government's objective to ensure prices remain affordable and to promote digital inclusion.
- **Less ability to meet government's broader communications and social policy outcomes,** such as further regional investment, hardening of network resilience and closing the gap initiatives.
- **Less tax revenue for government.** The risk created by higher spectrum prices may also apply to government, since revenues cannot be guaranteed. Some spectrum licences may not be renewed if prices reach particular levels. Such an outcome would be highly counterproductive as it would result in lower revenue for government, less competition and poorer service quality. Equally, if MNO profitability is more constrained through higher costs, then this will result in lower corporate tax revenues.

²² [Telcos delivering more coverage and greater competition for Australians - Australian Telecommunications Alliance](#)



Lower prices support investment and maximise the public interest

In contrast, there are few if any risks from setting prices too low given there is no evidence of any new entry and limited alternate uses. Setting lower prices would promote the long-term public interest as it would promote maximum investment into the sector. This would benefit consumers and businesses by ensuring prices remain affordable, that they can access new technologies and that Australia remains a technology leader and can fully benefit from the digital transformation in the economy and public services.

Lower spectrum prices would free up constrained capital to enable the MNOs to complete their investments on 5G networks and services and place them in a more optimal position to make the transition to 6G. Such investments would also help to support further digital transformation of the economy enabling the faster adoption of innovative technologies, such as AI.

Lower spectrum costs can also be expected to contribute to achieving the government's social goals of promoting greater social inclusion and cohesion, by ensuring price affordability and promoting greater investment in underserved communities.

Some have argued that renewing ESL at moderated prices would be against the public interest as it would reduce competition, limit investment in infrastructure, result in higher prices for consumers and undermine public funding for communications infrastructure. Such arguments are contrary to basic economic theory, ignore commercial reality and are simply wrong.

MNOs run commercial businesses that must generate sustainable returns by investing in services that customers demand and that are affordable. They have consistently done this. Australia has benefited from high levels of investment in mobile networks over three decades, and MNOs have maintained this investment despite declines in revenue growth, reduced profitability and falling returns over the past decade. Consumers have benefited from this investment through access to the latest technologies and real reductions in prices. Levying higher taxes on MNOs to help fund investment in communications infrastructure by government would represent an illogical, highly inefficient and unproductive form of taxation.

ACMA should align prices with the long-term public interest

Given the important role the mobile sector plays in the lives of Australians, its criticality to the economic wellbeing of the nation, the vital role it plays in keeping our communities connected in times of emergency and its contribution to national security there is a strong case for the ACMA to set ESL prices based on the long-term public interest value of spectrum.

Economic theory would suggest that this could be achieved by setting a renewal valuation and prices just above the cost of alternate use and sufficient to recoup ongoing



administrative costs. Such pricing would also better reflect the prevailing economic conditions, MNOs' ability to pay for renewals, and the importance of mobile service continuity and continued investment to the community.

The Pentland paper notes that “an increasing number of regulators are modernising their methods and putting network quality, competition and customer benefits at the centre of their plans, with fees, if any, a “balancing factor” in the overall scheme”. The paper provides several examples where regulators have either waived fees or set much reduced level.

The Pentland paper also notes that renewing such a large amount of spectrum provides a once-in-a-generation opportunity for the Government to shape the future of mobile communications in Australia, to the benefit of users and the wider economy. AMTA submits that this will not be achieved by setting the high prices that ACMA has proposed.

As a constructive way forward, AMTA recommends ACMA's benchmark modelling should be adjusted to better reflect current and likely future trends in international benchmarks and mobile service revenue and profitability. This is likely to result in pricing that better reflects the long-term public interest and better aligns to best practice developments in regulatory approaches to spectrum renewal pricing.

This can be achieved by making a small number of changes to the benchmarks, which are outlined in the following sections. This would likely result in prices below those supported by the ACMA in its April pricing paper.

Setting prices on this basis would help underpin the economic sustainability of the sector and ensure that MNOs can continue to invest for the future, keeping pace with technological developments and placing them in a strong position to meet community expectations. It would recognise that with higher costs and lower profitability the amount MNOs (as the current market participants) can afford to pay is far less than a decade ago.

Lower pricing would also be commensurate with the Government's decision to establish a UOMO and related service obligations for the delivery of mobile services. In announcing the UOMO, the government claimed that “we are modernising Australia's communications infrastructure to ensure all Australians have access to essential telecommunications services when they need it”. Moderating ESL prices would be an appropriate way for government to help industry deliver on this commitment.



3. ACMA's benchmarking approach

AMTA notes that the ACMA has made a number of changes to the benchmarking approach in updating its preliminary view on pricing on the advice of its economic consultant, DotEcon. ACMA notes that it has expanded the benchmarks to include additional spectrum awards, to add annual licence fees where necessary and possible, and to address any data inconsistencies or errors.

Whilst changes to the benchmark modelling were necessary and supported by industry, AMTA notes that the ACMA has failed to adopt key adjustments that were recommended by industry in response to the April 2025 pricing paper.

In almost all cases, the adjustments made by ACMA, have resulted in an increase in the valuation of the spectrum and hence proposed prices. The overall impact of the ACMA's adjusted modelling is to increase the expected prices for ESL by 46 per cent to \$7.3 Billion. This outcome is directly at odds with the feedback from industry, which was supported by a range of international expert consultants.

Given the significance of this decision to the future of the sector, it is incumbent on ACMA to ensure that the benchmarks are as accurate and representative as possible. AMTA believes that the current benchmarks do not properly reflect international trends in spectrum prices and as a result materially overstates the value of the ESL spectrum.

AMTA recommends that a small, but critical, number of changes are required to the modelling to ensure that prices are reasonable, properly informed by international trends in spectrum pricing and set to promote the long-term public interest. These changes are discussed below.

Failure to include prices for renewal

Perhaps the most obvious omission on the ACMA's part is the fact that benchmarks continue to be based on auction results alone and exclude prices for spectrum renewal. It is irrational to design a benchmarking process to set a price for a widget while excluding data points for the pricing of the said widget.

This appears to be a significant flaw in the ACMA's methodology and is likely to result in an overvaluation of spectrum. It is especially curious given ACMA has accepted a clear delineation exists between auctions and renewals when it notes that *"In the current Australian market, auctions are less likely than renewal to deliver the right mix of service continuity, competition, and technology investment and innovation that benefit Australian consumers."*

As noted by Coleago Consulting in its report for Optus' stage 3 submission, "renewal prices are often lower than auction prices - for example, they are less influenced by the market



conditions which can lead to mis-estimations of spectrum value and over-bidding as in many of the European 3G auctions in the early 2000s”²³. Coleago concludes that there is a “good argument for including renewal prices in the benchmarking of spectrum values”. AMTA would go further and suggest that when setting prices for renewal of spectrum, the benchmarks should exclude prices paid in auctions and be entirely reflective of prices that have been subject to a renewal process.

The Pentland paper also concludes that “with such different purposes, competitive auction prices are not a relevant comparator for administrative renewals”.

Other adjustments

A number of other adjustments are outlined in detail in the Pentland paper and the stage 3 preliminary pricing consultation submissions of Telstra, Optus and TPG. These include:

- The fact that awards from markets that should appear to be high outliers are included and given a stronger weighting, while lower outliers appear to be excluded. The clearest example is the inclusion and overweighting of the results from auction in the USA, despite the very different competitive dynamics in that market versus Australia and the superior scale economics enjoyed by US operators. Notwithstanding it's obvious unsuitability as a comparator market to Australia, the US pricing is given the highest weighting in the benchmark calculations.
- Addressing the selective use of historical spectrum pricing trends as outlined in Appendix 3 of the Pentland paper.

23 Optus (incl. consultant report)_Redacted.pdf



4. Change from Inflation to MSR indexation

In its updated modelling ACMA has switched from indexation based on Mobile Service Revenue (MSR) to applying a simple Consumer Price Index (CPI) measure. The ACMA indicates that this was made on the recommendation of its consultant, DotEcon, on the basis that CPI indexation is a simple, transparent and well understood measure.

This change in approach not only represents a 180-degree turn by the ACMA, it also results in a material increase in the valuation of spectrum and therefore pricing compared to the use of MSR. Whereas an MSR can rise or fall in line with the market conditions, CPI almost always results in a rising valuation over time.

It is possible that the ACMA's focus on simplicity may well reflect feedback on its proposed MSR index received from MNOs and others in the April 2025 consultation paper, that highlighted some issues with the ACMA's approach. Whilst there was general support for the use of MSR a number of submissions recommended refinements to the ACMA's approach. This included:

- The appropriateness of applying a single measure across all spectrum bands;
- The need to reflect the imbalance in the market MSR between the dominant and smallest MNOs in spectrum valuation; and
- That the ACMA had chosen to flatline future MSR, when it is likely that actual MSR will continue to decline as a consequence of future planned spectrum allocations.

AMTA acknowledges that addressing some of these issues would add to the overall complexity of adopting an MSR index. However, addressing these would result in a far more accurate and appropriate valuation for setting ESL prices. This is specifically pertinent given the importance of spectrum renewal to the sector and the impact that pricing can have on future investment decisions and end-user prices. It is incumbent on the ACMA to adopt an approach that is economically sound and likely to reflect the real value of spectrum licences over time, regardless of complexity.

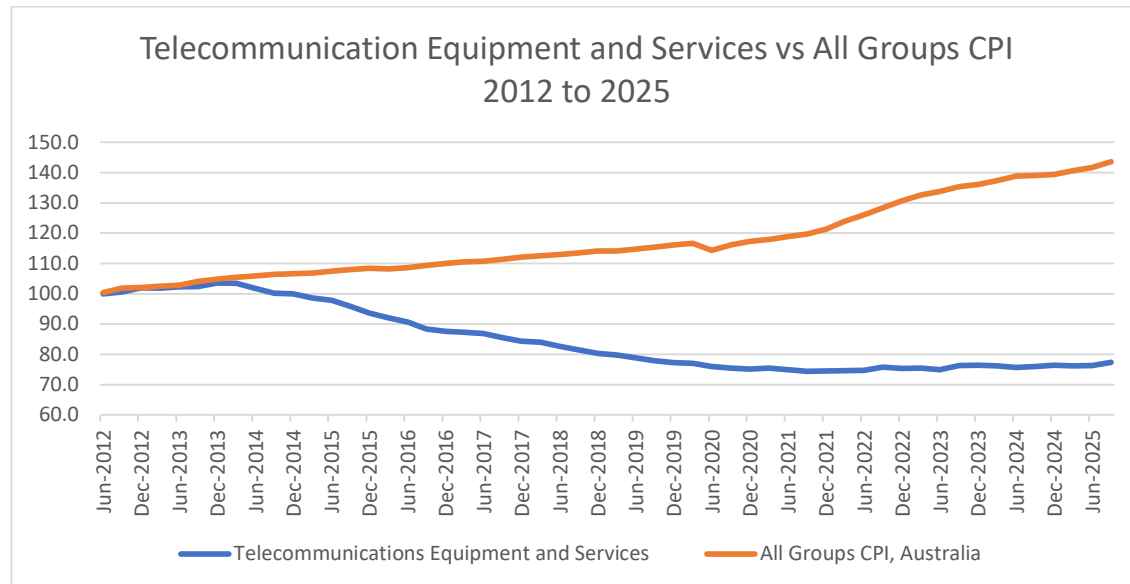
Inflation index is the wrong measure

Inflation index is a crude measure and has no correlation to spectrum pricing. A representative inflation-based metric would be the long-term real price changes for Telecommunications costs that is reported by the ABS. AMTA notes this figure is readily available and has all the simplicity advantages of broader CPI while being relevant to the telecommunications market in Australia.



The ACMA itself has conceded that there is no direct correlation between spectrum charges and the general CPI²⁴. AMTA notes that none of the very many submissions to the April pricing paper indicated support for the use of CPI.

AMTA notes that historically mobile prices have been fully decoupled from the general CPI measure. Whilst CPI has consistently risen over time, mobile prices have declined. The table below shows that since 2012 whilst general CPI has increased by around 40%, telecommunication equipment and services index has fallen by over 20%²⁵.



Application of CPI would not reflect the fact that spectrum valuations have been declining over time, significant technology changes have occurred, reductions in revenue per MHZ/pop and more challenging economic conditions faced by MNOs.

An important consideration of the use of the CPI index is its impact on consumers. The increase in spectrum prices that flows from the use of this index will almost certainly be reflected in higher consumer prices, which in turn will add to inflationary pressure across the economy. This cannot be in the best interests of consumers or the broader economy.

MSR is a better proxy measure

The use of an MSR index in spectrum valuation is likely to provide a more accurate, albeit complex, valuation. It is likely to better reflect changes in technology, demand and other markets impacts that are specific to the mobile sector that would not be reflected in a broader inflation measure.

²⁴ The ACMA [ESL stage 4 updated preliminary views on pricing.pdf](#) - ACMA notes that spectrum is not directly purchased by consumers...

²⁵ ABS Consumer Price Index data 6401.0



Since MSR is specifically aligned to the trends in the sector over time, it also better reflects changes in industry's ability to pay for spectrum. In its stage 3 Preliminary Views paper, ACMA acknowledged that the declining MSR reflects the fact that whilst spectrum supply has increased, this has not "commensurately flowed through to MSR". In other words, the MNOs have not been able to increase revenue proportionate to the increase in spectrum supply, which means that their ability to fund spectrum from revenue has declined.

In contrast to the CPI, AMTA notes that the historic MSR trend is broadly consistent with the historic trends in pricing for telecommunications equipment and service prices which presents a downward trajectory. As noted in a number of submissions to the April pricing paper, MNOs expect that a downward MSR slope is likely to be maintained into the future as further allocations of spectrum are expected to offset any increases in revenue in the period through to 2030²⁶.

Again, this is at odds with CPI which will almost certainly rise into the future and may be higher than previously expected given the RBA's recent statement on higher than expected inflation figures for the December Quarter²⁷.

Since the MSR is forecast to continue a downward trajectory, it can also be anticipated that it will contribute to downward pressure on mobile prices in so far as it supports lower overall spectrum costs.

Recommendation

AMTA recommends that the ACMA reinstate the MSR indexation as it is a more accurate and appropriate measure to apply for this purpose than inflation.

AMTA further recommends that the MSR should not be flatlined, rather it should reflect future mobile service revenue and the likely additional award of spectrum over the next five years as identified in the ACMA's 2025 FYSO work plan. The plan identifies several new allocations under consideration in the next 5 years to 2030, including spectrum in the 600 MHz, 1.5 GHz and 6 GHz, bands.

²⁶ Refer Figure 4.6 in Analysys Mason report: Evolution of the MSR/MHz/pop index, comparing the ACMA and Analysys Mason cases. [TPG \(incl. consultant report\).pdf](#)

²⁷ [Overview | Statement on Monetary Policy – February 2026 | RBA](#)

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An independent expert review of the ACMA's
approach to pricing the renewal of expiring
spectrum licences for mobile operators in
Australia, commissioned by the AMTA

February 2026

Stephen Pentland

Cambridge, England

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1. Executive summary

This paper reviews the approach proposed by the ACMA in its document “Expiring spectrum licences (stage 4) - updated preliminary views on pricing”¹ published in December 2025 and examines how the approach compares with international best practice and, given the state of the mobile sector in Australia, the possible consequences for realising the Government’s policy objectives.

With mobile networks requiring constant investment to meet increasing customer needs, yet depressed returns, policymakers and regulators globally are putting greater emphasis on spectrum licensing approaches that will facilitate investment, competition and improved customer experience, with less focus on fees and more focus on incentivising sustainable investment and enabling a strong digital economy.

The Australian Government’s policy objectives for the mobile industry - of spectrum being assigned and used efficiently to drive investment, competition and customer benefits - align strongly with those of like-minded governments in other developed markets. Spectrum licensing is a crucial lever to advance these objectives but, to be effective, needs to be used with care - yet the ACMA’s proposed approach to pricing ESL has not been tested against these objectives.

Comparing approaches taken in other markets to spectrum licence renewal is relevant because mobile operators in Australia operate under similar market, financial and investment conditions as their overseas peers. In all markets, smaller players in particular are constrained in terms of return on capital employed, capital intensity and debt levels - limiting capacity to pay high prices for spectrum. With many operators having sold off tower assets to repair balance sheets, there is little further scope to find new sources of cash for renewals, and unsold spectrum could result.

The fact that such a large proportion of actively used spectrum needs to be renewed within just four years exacerbates the financial challenge for Australian operators. The ACMA state that they “have sought advice on the capacity of licensees to pay for spectrum licence renewals to gain a greater sense of the broader implications of ESL pricing outcomes and whether they align with our policy objectives”, but the consultation is silent on any response, and fails to demonstrate any clear analysis or linkage between pricing and whether the Government’s policy outcomes have a chance of being realised.

The pricing of ESL renewals matters because it directly impacts mobile operators’ abilities to invest in expanding and modernising their networks and improve customer experience. Various pieces of research by economists at the GSMA mobile industry association and at NERA, drawing widely on data from across the global mobile industry, draw a clear correlation between spectrum prices, network investment and customer experience.

Renewing such a significant proportion of mobile spectrum provides a once-in-a-generation opportunity for the Government to shape the future of mobile communications in Australia, to the benefit of users and the wider economy. But the linkage between pricing and the achievement of policy outcomes is complex and multi-dimensional. Simply adopting benchmarks from historical auctions is unlikely to deliver the Government’s desired outcomes.

Given the very high variability of historical auction prices, and the debate around the proposed benchmarking approach, and the risk of getting pricing wrong and adversely impacting policy

¹ [Expiring spectrum licences \(stage 4\) – updated preliminary views on pricing | ACMA](#)

objectives, the pricing recommendation taken forward needs to be based on a robust and transparent assessment of the likely impact on policy outcomes of a range of pricing approaches and scenarios.

Only then can Government take an informed view on which pricing strategy is most likely to deliver its policy objectives.

2. How are policy priorities shaping renewals internationally?

With mobile networks requiring constant investment to meet increasing customer needs, yet depressed returns, policymakers and regulators globally are putting greater emphasis on spectrum licensing approaches that will facilitate investment, competition and improved customer experience, with less focus on fees and more focus on incentivising sustainable investment and enabling a strong digital economy.

2.1 Mobile market context

Mobile communications has become an essential good for consumers, businesses and public users. The latest ACMA research² confirms that 97% of adults access the internet via mobile phones and that **mobile phone internet use is soaring**. Significant ongoing investment by operators is essential to ensure that mobile service quality, speed and reliability are maintained - by expanding capacity, adding new frequency bands, building more towers and improving network resilience to both environmental and malicious threats.

At the same time, the sector has matured, meaning that there is little prospect of market growth, while competition to win or protect market share means **retail prices have been deflationary** in real terms for many years, impacting the sector's ability to self-finance ongoing investment in network improvements.

As well as ongoing expenditure in more network capacity and quality, new investments will be needed in the next few years to deliver the Universal Outdoor Mobile Obligation (UOMO) and support the introduction of **new technologies such as 6G and new spectrum bands such as Upper 6GHz and possibly 600MHz**.

Many regulators (including the ACMA) also recognise that **renewing licences and assigning new spectrum serve different purposes and merit different conditions**. While auctions can be an effective way to achieve "allocative efficiency" i.e. a fair distribution of new spectrum between competing demands, for renewals the focus is more often on continuity of service and sustainability of investment and competition. This has implications for definitions of spectrum values and prices.

In addition, a combination of adverse market conditions and rising levels of operator indebtedness have led to an increase, globally, in the last few years of **market exits and consolidations**, reducing the number of operators in some markets and potentially impacting innovation, competition and digital resilience.

In this context, simply following historical approaches to dealing with licence expiry and renewal may not align with current market conditions and prevailing policy priorities. Basing renewal prices on historical auction levels could make the spectrum unaffordable and result in frequencies being unassigned and left fallow, and high fees could starve operators of the funds necessary to keep improving networks to meet customers' needs.

² <https://www.acma.gov.au/articles/2026-02/mobile-phone-internet-use-soars-landline-use-keeps-falling-acma-research-shows>

2.2 What policy considerations are shaping national and regional approaches to renewals internationally?

Europe - with its diverse range of “Member State” markets, yet ambitions for greater “single market” economic and policy cohesion - provides a rich and helpful reference for how policy priorities are evolving in developed markets internationally.

In his monumental report “**Much more than a market**”³ published in April 2024, **Enrico Letta** (a former Italian Prime Minister and EU Commissioner) set out a wide-ranging set of recommendations to enable Europe to function better as a single economy. Letta advocates for a strengthening of the single market and highlights the importance of **maximising consumer welfare through investment in advanced communications networks**, and points out that the **deployment of 5G/6G mobile connectivity** augmented by artificial intelligence (AI) and cloud solutions will be crucial to fully realising cross-sector transformations such as electrification, the green transition, resilient supply chain development, and efficiency enhancements through automation. Europe therefore must incentivise the necessary investments to bridge its growing connectivity investment gap, with “**coherent policy decisions... at the European level, particularly regarding the broader regulatory framework essential to underpin 5G development**”.

In the “**Draghi report on European competitiveness**”⁴ published in September 2024, **Mario Draghi** (a former President of the European Central Bank) identified three main areas for action to reignite sustainable growth: firstly closing the innovation gap with the US and China, especially in advanced technologies; secondly an action plan for decarbonisation and competitiveness; and thirdly increasing security and reducing dependencies. This will involve “**massive investment needs unseen for half a century**”, to digitise and decarbonise, and reform EU governance, including “**reducing the regulatory burden**”, and a proposal to “**harmonise EU-wide spectrum licensing rules and processes**”.

The ambitions of both Letta and Draghi are encapsulated in the latest draft of EU telecom law.

The previous 2018 European Electronic Communications Code⁵ already aimed to improve the coordination of spectrum and facilitate innovation, particularly through 5G networks, and in particular **called for long licence durations, coupled with clear rules on licence renewals**.

The latest draft of the European Commission’s **Digital Networks Act**⁶ (DNA) published in January 2026, sets out, according to CMS law⁷, “a coordinated EU radio spectrum strategy with **investment-friendly rules on assignment duration and licence renewal, including rights of use that are, in principle, of unlimited duration** (Articles 13, 18, 24-25, 31).

The Act’s preferred policy direction is unlimited licence duration by default. It states that rights of use for radio spectrum should “in principle [be] granted for an unlimited duration” with periodic reviews.... Where a limited term is used, the proposal provides for at least 40 years... The practical impact of this is that mobile operators and infrastructure investors may see improved investment certainty and financeability for long-horizon 5G/6G roll-outs.”

³ [Letta Report "Much More Than a Market" \(April 2024\) | European Research Area Platform](#)

⁴ [The Draghi report on EU competitiveness](#)

⁵ [EU radio spectrum policy for wireless connections across borders | Shaping Europe’s digital future](#)

⁶ [The Digital Networks Act | Shaping Europe’s digital future](#)

⁷ [Digital Networks Act: EU Connectivity and Investment Framework](#)

2.3 How are these considerations reflected in revised approaches to renewals?

It is in this context that an increasing number of regulators across Europe and elsewhere are placing **greater emphasis on ensuring mobile operators have secure long-term access to spectrum rights** - thereby reducing the risks of service discontinuity, stranded network assets and of excessive renewal fees diverting capital expenditure away from network expansion and upgrades – **and revising their approach to renewals to achieve this**.

There is an ever-growing list of regulators deciding to provide licence extensions or renewals free of charge, or at considerably reduced price levels, or in return for operator commitments to additional investments in identified priority areas.

It is notable that in **Spain**⁸, the government made **deliberate legislative changes to embed longer licence durations directly into primary law**, with automatic (free of charge) extension provisions built in. This was to promote regulatory predictability and return on investments, with licence durations ranging between 20 and 40 years.

Similar considerations motivated ANACOM⁹ the **Portuguese** regulator to renew 900MHz and 1800MHz licences, at no charge, stating that “renewing the rights... **supports the stability of operations and enables continuity of existing and planned investments by the operators**”.

Referring to the **German** BNetzA’s decision in March 2025 to extend spectrum usage rights in 800MHz, 1800MHz and 2600MHz bands, lawyers Bird & Bird commented: “**BNetzA decided to forego significant fiscal revenue** (predicted to be several €bn) in exchange for ensuring and improving network coverage”¹⁰.

Understandably, priorities will vary by market. In Europe, with high-speed coverage gaps remaining in many countries, enhanced coverage commitments are currently a common *quid pro quo* in licence renewals (a fuller range of licence renewal case studies is contained in the Appendix).

In a market such as Australia - which, according to ACMA’s report on alternative licensing conditions¹¹, has “achieved strong population coverage” - **emerging priorities such as network resilience are more likely to be front of mind for public authorities** - for example, how to ensure that Australians stay connected in the face of more frequent bush fires, flooding and tropical storm events, and where the resulting socio-economic benefits outweigh one-off licensing receipts by the Treasury.

Regardless of what particular commitments and benefits are pursued in each market, the pattern is clear: where sustainable investment, innovation and competition are government priorities - and where the regulator aligns its approach to those priorities - **an increasing number of regulators are modernising their renewal methods and putting network quality, competition and customer benefits at the centre of their plans, with fees, if any, a “balancing factor” in the overall scheme**.

⁸ <https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2025/02/Spain-Spectrum-Licensing-Best-Practice.pdf>

⁹ [ANACOM - Renewal of right of use of frequencies allocated to Vodafone Portugal and MEO in the 900 MHz and 1800 MHz frequency bands for terrestrial electronic communications services - consultation](#)

¹⁰ [German Bundesnetzagentur provides decision to extend mobile spectrum subject to conditions - Bird & Bird](#)

¹¹ [ESL - ACMA report on alternative licensing conditions.pdf](#)

Even for new awards, some regulators in competitive markets see merit in administrative assignment rather than auctions. For the award of 3.5GHz spectrum in **New Zealand**¹², the regulator **charged about one third of the price being proposed by the ACMA**, in return for **commitments to deliver a faster roll-out of 5G services** to around 55 rural and regional towns across the country, and with **licence receipts being invested directly back into an independent shared rural infrastructure provider**.

It is also interesting to note that **Ministerial objectives for new spectrum awards in the Netherlands changed in 2024**: prior to that, raising revenue was an explicitly declared objective; whereas in the most recent 3.5GHz auction in 2024, raising revenue was intentionally absent from the list of objectives. Previous Dutch auctions raised €3.8bn in 2012 (eight times the reserve price) and €1.23bn in 2020, while the 2024 auction raised €174m. The 3.5GHz auction design ensured competitive allocation together with modest prices. Commenting on the outcome, the Minister said: "5G... helps with innovation in healthcare, but also, for example, with the digitalization of processes in the manufacturing industry or logistics. With the outcome of the auction, we will also ensure that there is **sufficient competition** on the telecom market until 2040. This **is important for prices, supply and innovation**".¹³

¹² <https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/09/New-Zealand-Spectrum-Licensing-Best-Practice.pdf>

¹³ [Three Dutch telcos secure new 5G spectrum](#)

3. How do Australian policy objectives compare internationally?

The Australian Government's policy objectives for the mobile industry – of spectrum being assigned and used efficiently to drive investment, competition and customer benefits - align strongly with those of like-minded governments in other developed markets. Spectrum licensing is a crucial lever to advance these objectives but, to be effective, needs to be used with care - yet the ACMA's proposed approach to pricing ESL has not been tested against these objectives.

3.1 How do Government policy objectives compare internationally?

The Government's Statement of Expectations¹⁴ states that "the ACMA's approach to administering regulation **should balance innovation, competition and sustainability** in Australia's communications and media sectors, while safeguarding consumer protections and minimising harms".

The Radiocommunications Act 1992, Section 3¹⁵ states the object of the Act is "to promote the long-term- public interest derived from the use of the spectrum by providing for the management of the spectrum in a manner that:

- (a) facilitates the **efficient planning, allocation and use** of the spectrum; and
- (b) facilitates the **use of the spectrum for: commercial... and non-commercial purposes...**; and
- (c) supports the **communications policy objectives** of the Commonwealth Government."

The Ministerial Policy Statement¹⁶ (MPS) for ESLs specifies five Australian Government communications policy objectives that ought to be considered in the ESL process:

- supporting **service continuity** for end users, particularly where no alternative service is available;
- facilitating opportunities for new entrants and use cases, including for low earth orbit satellites;
- connectivity and investment in regional and remote areas to deliver improved services to end users;
- promote **competition**;
- capacity for **sustained investment and innovation**.

These align strongly with the policy objectives we have seen across Europe, as an example, with a common emphasis on investment, innovation and improved services leading to improved consumer benefits.

The Government in fact makes no mention whatsoever of charging for spectrum. On the contrary, it puts an emphasis on customers: "The ACMA should consider **the potential impact** that certain decisions made in relation to applications for renewal of spectrum licences **may have on end users**".

The Government also stresses investment as a priority: "The Government recognises that mobile and fixed wireless broadband services provide **essential connectivity** to end users. The ACMA should consider ways to **support existing and new investment**".

¹⁴ [Australian Communications and Media Authority](#)

¹⁵ [RADIOCOMMUNICATIONS ACT 1992 - SECT 3 Object](#)

¹⁶ <https://www.legislation.gov.au/F2024N00367/asmade/text>

The Government also “recognises that spectrum is one component of reliable communications networks and that **significant infrastructure investment** is required to deploy and maintain services.”

The Government further acknowledges “the **significant investment** incumbent licence holders have made to deploy services” and that “the ACMA should consider **existing investment** by licensees, as well as **known market demand for spectrum** and the capacity for **other prospective licence holders** to make the **investment required to deploy and maintain an effective service** with the spectrum.”

In other words, the Government seems to be saying... if there is no one else willing and able to match the investments the current players have made (and will make), there is no more valuable use for the spectrum than supporting the current operators - in effect, **the economic benefit realised by the current licensees is more than the “opportunity cost” to any other prospective licence holders.**

3.2 How do the ACMA’s public interest criteria for ESLs compare internationally?

The ACMA’s public interest criteria for ESLs, which they consulted on in 2023¹⁷, include the following:

- facilitate **efficiency**;
- promote **investment and innovation**;
- enhance **competition**;
- balance **public benefits and impacts**;
- support relevant **policy objectives and priorities**.

These clearly align with the Government’s objectives and have much in common with regulatory goals in other similar markets - but they **do require elaboration**. For example, investment in improved networks and customer experience is one aspect of public benefits; while raising public revenues through licence fees could be another form of public benefit. The point is, there are inherent **public benefit trade-offs** and these need to be clarified and evaluated (alongside investment, innovation and competition) if a **best overall approach** to spectrum licensing is to be secured. And as we’ve seen in European markets, this can result in a **pivot away from fees**.

3.3 How well does the ACMA’s proposed approach align with national policy objectives?

The ACMA’s “preferred view is that the renewal of spectrum licences used for mobile services and the nbn, **using prices derived from benchmarking, best supports the policy objectives** in these frameworks. These objectives include promoting competition, providing capacity for sustained investment and innovation, supporting service continuity, and facilitating the efficient allocation and use of spectrum.”

While the ACMA’s decision to follow an administrative procedure to renew the licences appears consistent with its public interest criteria and the Government’s wider policy objectives, the rationale for using auction benchmark values is unconvincing.

The ACMA claims that “market pricing encourages the efficient use of a public resource, supports competition, investment and innovation, and ensures licensees pay a fair price that reflects the value of the spectrum licences they hold” yet there is **no supporting analysis, or consideration of alternatives**.

¹⁷ <https://www.acma.gov.au/consultations/2023-05/proposed-approach-expiring-spectrum-licences>

The Government - which is “principally concerned with promoting the **long-term public interest derived from use of spectrum**” - has already confirmed, in effect, that the spectrum is in the right hands and is backed by significant network investment.

There is no discussion or analysis by the ACMA of **how different pricing levels would impact operators** - their financial viability, the strength of competitive rivalry between them or their ability to invest - or market outcomes and ultimately the likelihood of government policy objectives being realised.

And yet it is extremely likely that excessive licence fees would reduce operators’ capital budgets remaining for network investment and innovation; could result in lower quality services and mobile user experience; and could be a greater financial burden for smaller players and therefore potentially change the balance of competition in the market. Renewal prices might be greater than operators are willing or able to pay, with the risk that some spectrum might be left “on the table”, reducing efficiency.

No doubt stakeholders will have different views on the interplay and trade-offs between these various considerations and preferred outcomes, and across Europe we’ve seen the range of positions that can be taken. But the point is, those positions on pricing were arrived at after **debate and analysis** of their impact on policy objectives, whereas the **ACMA’s approach to pricing is being done in isolation**.

The views of mobile operators - who are ultimately on the hook to pay the final fee amounts - are also important too. In the approach taken by the UK regulator to setting and revising the level of Annual Licence Fees¹⁸ (ALFs), Ofcom welcomed evidence presented by mobile operators and ALF levels were reduced as a result.

For licensing policy decisions to be robust, they need to **examine options and provide an informed comparison** for consideration. What is the counterfactual to charging full “market value” auction prices for renewal, and how well does each scenario meet the expressed set of government objectives? Is there a clear-cut preference? Are the options similarly attractive but just different? In choosing one option, what is being rejected?

Without this comparative analysis, it is difficult to have faith that the ACMA’s proposed pricing will advance the Government’s declared communications policy objectives of “facilitating the efficient planning, allocation and use of the spectrum”.

¹⁸ [Statement Review of Annual Licence Fees](#)

4. Mobile operators in Australia are under the same financial constraints as their international peers.

Comparing approaches taken in other markets to spectrum licence renewal is relevant because mobile operators in Australia operate under similar market, financial and investment conditions as their overseas peers. In all markets, smaller players in particular are constrained in terms of return on capital employed, capital intensity and debt levels - limiting capacity to pay high prices for spectrum. With many operators having sold off tower assets to repair balance sheets, there is little further scope to find new sources of cash for renewals, and unsold spectrum could result.

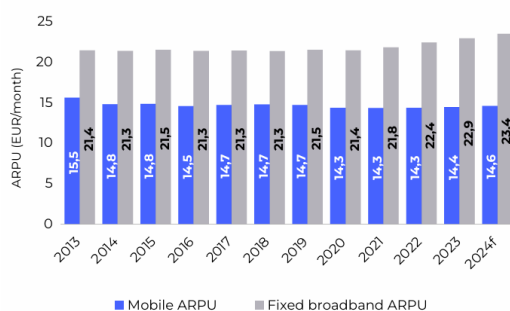
4.1 The underlying market context in Australia and Europe

With mobile communications now a fully-penetrated mass market, subscriber numbers have peaked (and indeed may start to come down, given Australia's social media ban on under-16s). Mobile services consumption keeps growing, but prices per GB of data have been falling as fast, with the result that ARPUs have been flat, at best. While general consumer inflation continues to rise, mobile revenues have gone in the opposite direction, falling in real terms.

MarketLine estimates that mobile revenues in Australia will grow by 1.8% CAGR in the five years from 2024 to 2029, although it reports that **revenues in the five years to 2024 fell at –2% CAGR**.

Data from the “State of Digital Communications” report published in 2025 by **Connect Europe**¹⁹ (chart below) shows how mobile ARPUs in Europe have stagnated and were estimated to be lower (in nominal terms) in 2024 than ten years earlier.

European ARPU trends for mobile and broadband



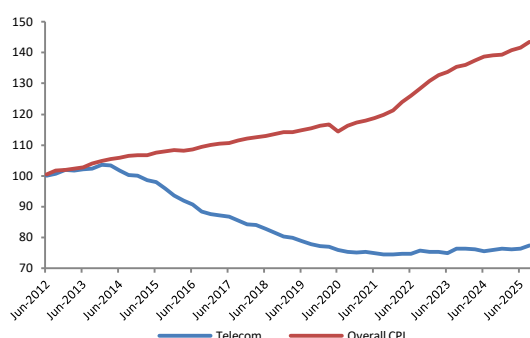
This is explained by analysis from Venture Insights (left hand chart below) which shows how general CPI in Australia has increased cumulatively by more than 40 points over the most recent 13 years on record, whereas pricing for telecoms equipment and services has fallen by more than 20 points over the period. **Had telecom prices kept up with CPI, they would today be 75% higher.**

ConnectEurope²⁰ reports a similar effect for Europe (right hand chart) with telecom retail revenue price changes annually trailing CPI.

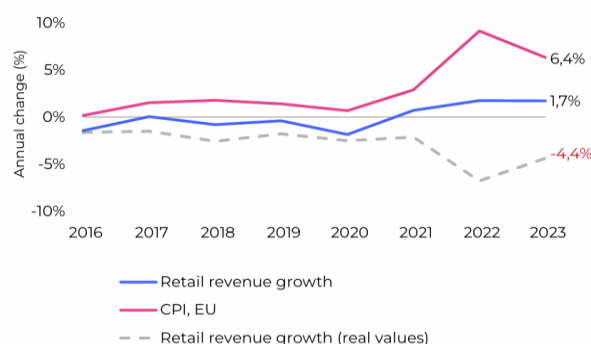
¹⁹ [State of Digital Communications \(2025\).pdf](#) p71 (data provided by Analysys Mason)

²⁰ [State of Digital Communications \(2025\).pdf](#) p27 (data provided by Analysys Mason)

CPI vs telecom index (Australia, 2012-2025)



European telecom retail revenue vs CPI growth (EU)



There is no evidence therefore that there is any **support from revenue growth to cover additional spectrum licensing costs**.

In terms of **market structure and shares**, European markets typically have three or four mobile operators, often with skewed market shares. High spectrum costs tend to disproportionately affect the smaller players, limiting the amount they can spend in total between licences and network capex.

In Australia, market positions are also skewed: 6-month mobile revenues publicly reported by operators were: Telstra²¹ **\$5.8bn** (to Dec '25); Optus²² **\$2.9bn** (to March '25) and TPG²³ **\$1.15bn** (to June 25).

4.2 Financial considerations

Mobile operators worldwide rely on equity investors and lenders to finance their multi-billion dollar network investments and publicly listed operators in particular have to operate within very precise financial parameters. Investors and lenders have no particular loyalty to the telecom sector, and will divert their funding to other sectors if the mobile operators cannot meet their requirements.

Equity investors will only support the prevailing market capitalisation and share price of the company if they are confident in the level of earnings and dividends over coming years. They will avoid investing in operators where excessive costs erode margins and free cashflow. Capital expenditure is a key metric in this regard, given the need to keep expanding network capacity, roll out new technologies such as 5G and 6G, and improve resilience to critical failures resulting from climate events or cyber attacks.

It is notable that despite all the uncertainties surrounding the wider economy, consumer spending, competition and market share, technology costs and so on - any of which could knock a major listed business off course relative to its financial guidance - it is the uncertainty surrounding spectrum payments that operators tend to call out for investors - which they do by reporting "EBITDAal" (i.e. earnings... "before spectrum amortisation") and by providing guidance on capital expenditure "excluding spectrum payments".

The Government's objective to promote investment in the sector relies on securing investor confidence in fair spectrum pricing.

²¹ <https://www.telstra.com.au/content/dam/tcom/about-us/investors/pdf-i/telstra-financial-results-for-the-half-year-ended-31-dec-2025.pdf>

²² [FY25-Group-MDA_Finalv2.pdf](#)

²³ [TPG Telecom - Half Year Report Master](#)

4.3 Return on capital employed (ROCE)

Over the longer term, telecom investors expect to make a return on their investment - where the level of return is at least as high as the cost of the capital investment put into the business. Otherwise, the investment is making a loss it would be better for shareholders to dispose of the asset and return the cash for a more profitable purpose.

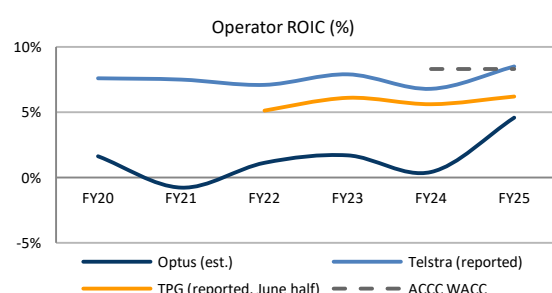
A predicament common to a large number of mobile operators in Australia and much of Europe is that **returns have been below cost of capital for much of the last ten years** - that is, return on capital employed (ROCE), also known as return on invested capital (ROIC) has been below the weighted average cost of capital (WACC). Over time, this erodes investor confidence.

In Australia, ROIC varies between players and over time (see left hand chart below, source Venture Insights) - **between FY20 and FY24, ROIC was estimated to be below WACC for all players**. Only Telstra managed to achieve a ROIC marginally above its WACC in FY2025, and in 1H26 reported an increase to **8.8%**. Optus reported²⁴ a ROIC of **1.7%** averaged over the five years to Sept 2025, and TPG reported a ROIC of **6.2%** for 1H25.

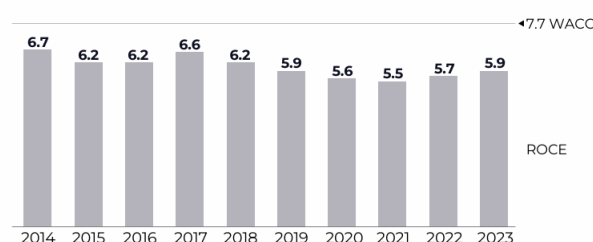
Note that the ACMA reports that Frontier estimates a WACC for the market of **8.49%** (by comparison 8.31% is used by the ACCC in its Voice Interconnection enquiry²⁵).

For Europe (right hand chart below)²⁶ the picture is similar, with average telecom operator ROCE persistently one or two percentage points below WACC.

ROIC vs WACC (Australia, %)



ROCE vs WACC (Europe, %)



In Europe, a study²⁷ prepared in January 2026 by CEPR for the **European Commission (EC)** - and regarded as sufficiently monumental to be reported in the **Financial Times** - found that, for a cohort of 14 major EU telecom groups²⁸, **“on average, returns have exceeded the cost of capital over the past decade”**. On the face of it, mobile operators can afford spectrum licence fees and reward shareholders.

But looking into the analysis in a bit more detail, a starker picture emerges. **Returns (on average) exceed cost of capital** (Figure 1 below) **but only if you ignore “goodwill”** - a balance sheet component often arising from mergers and acquisitions - and yet M&A involves real shareholders spending real cash. Whether in hindsight they overpaid is irrelevant to the question of how goodwill is treated from an accounting perspective and its impact on the finances of the business.

²⁴ [PowerPoint Presentation](#)

²⁵ [Voice interconnection - WACC](#)

²⁶ [State of Digital Communications \(2025\).pdf](#) p135 (Source: The Draghi Report, 2024)

²⁷ [An analysis of the EU telecom sector’s ability to remunerate its cost of capital | CEPR](#)

²⁸ Deutsche Telekom, DIGI, Elisa, KPN, NOS, Orange, Proximus, Tele2, Telecom Italia, Telefónica, Telekom Austria, Telenor, Telia, Vodafone

The majority of the cohort are “national” incumbent operators who have generally retained a head start in their home markets following privatisation, and operate combined fixed and mobile networks at scale. CEPR notes that performance varies significantly across firms, so one can expect “challengers” or mobile-only operators to be among those whose returns have been consistently below WACC (the red “min” line in Figure 4 below).

And of course, with three or four mobile operators per market across Europe, there will be smaller operators overlooked in CEPR’s analysis with presumably reduced economies of scale and even lower returns.

ROCE vs WACC for 14 major European telcos - in aggregate and deaveraged (% , 2014-2024)

Figure 1 Aggregate group-level return on capital employed (ROCE) post-tax, weighted average cost of capital (WACC) post-tax, and capital expenditure (CAPEX)

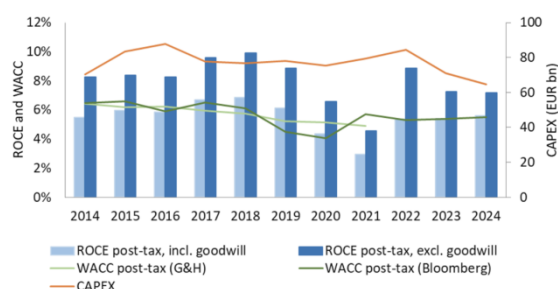
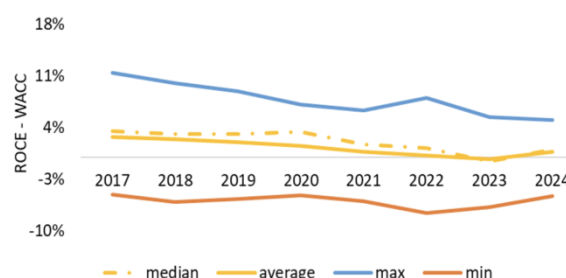


Figure 4 Return on capital employed including goodwill minus weighted average cost of capital for EU country-level operations



The clear lesson is that: if competition is to be preserved in the market for mobile services, **smaller “third operators”, at least, need to be able to survive in the market, and that requires sufficient returns relative to WACC, so care needs to be taken in setting spectrum pricing that will support that policy objective.**

The alternative is that smaller mobile players exit the market, typically through mergers and acquisitions - which has been the pattern in markets like Spain, the UK, Italy, the Netherlands, Romania, Hungary and others. Further discussion of the “ROCE below WACC” effect and its impact on competition and market structure from **analysis carried out by Ofcom in the UK** (and which paved the way for the merger of Vodafone UK and 3UK) is included in the Appendix of this report.

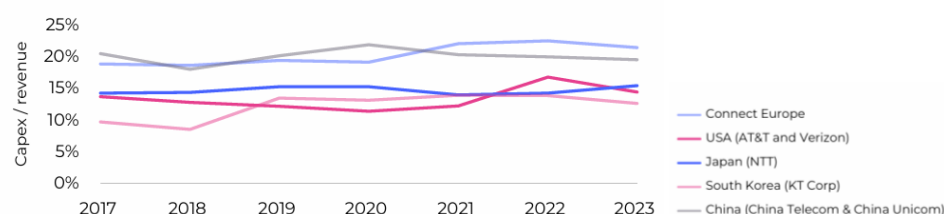
Given the long-running misalignment between ROCE and WACC, the risk of investment flight is very real, and in Europe has manifested itself in terms of market exits, mergers, and sell-out by domestic nationally-listed investors to overseas private equity and sovereign wealth funds. At a time when telecom assets are increasingly regarded as **critical national infrastructure**, regulatory decisions - such as excessive spectrum renewal pricing - that could further and materially **undermine the investment case for existing domestic shareholders** - should be handled with caution.

4.4 Capital intensity

Investors also therefore keep a close eye on **capital intensity** - the proportion of revenues spent on capital investment - and which is typically mid-teens in the telecom sector. If capital intensity is too high, it can be an indicator that free cash, earnings and dividends could be under threat. Given that spectrum licence costs are capitalised, **high licence renewal costs could push up capital intensity** to the level that investors would not be comfortable with. Operators would have to **choose between a partial renewal and paring back their remaining capital budget** i.e. delaying network infrastructure expansion and upgrade.

ConnectEurope²⁹ reports telecom capital intensity in major regions in the range 10-20% (chart below).

Capex / revenue regional comparison (%)



Public reporting by operators and analysis by the author indicate the following:

- For FY25, **Telstra** reported total capex of \$3,388m, against revenues of \$23.6bn (of which \$11bn are mobile) and therefore total capex-to-sales was **14.9%** (19.6% including strategic investments).
- For 2024, **TPG**³⁰ reported total capex “excluding spectrum payments” of \$1bn against total revenues of \$4.7m and therefore total capex-to-sales was **21.6%**. It is forecasting \$900m for 2025 and targeting \$550m-\$650m from 2027.
- Singtel invested A\$9bn(\$7.7bn) in capex at Optus over the five years to Sept 2025, and in FY2025 capex-to-sales for **Optus** was **16%**.

Unlike laying optical fibre or other passive infrastructure, mobile networks require ongoing investment and upgrade to meet evolving market and regulatory requirements. In this regard, the needs of mobile operators in Australia over the medium term are materially no different to those in other developed markets, namely:

- ongoing growth in customer demand for data traffic requires **upgrades to network capacity**, by expanding the number of frequencies supported on mobile masts as well as constructing new infill masts;
- supporting **new frequency bands** - such as the Upper 6GHz band – which will likely involve new radio equipment on all relevant sites, and may also involve upgrading the physical strength of masts and possibly increasing mast heights to ensure compliance with EMF limits;
- incorporating new **6G technology** - expected to be introduced around the end of the decade and which will require further equipment upgrades;
- meeting Government requirements for **improving the resilience of telecom networks** in the event of natural and man-made disasters, consistent with their role today as critical national infrastructure.

Investor analysts are fully aware that new generations of radio technology do not have like-for-like costs compared with previous generations. **5G, for example, requires a denser network grid than 4G and upgraded massive MIMO antennas and improved radios**, meaning that **overall costs are estimated to be 30-60% higher on a stand-alone basis, or 20-35% higher when installed as an**

²⁹ [State of Digital Communications \(2025\).pdf](#) p42 (data provided by Analysys Mason)

³⁰ <https://www.tpgtelecom.com.au/sites/default/files/2025-03/TPG-Telecom-2024-AnnualReport-FINAL.pdf>

overlay (based on a 2019 GSMA study³¹ and updated to reflect estimated cost improvements over time). In the absence of revenue growth, **investors need operators to offset higher infrastructure costs with improved operating efficiency and reduced regulatory costs.**

Operators in Australia are also facing a new “**Universal Outdoor Mobile Obligation**” (UOMO), which will require new technical capabilities and standards to **integrate LEO direct-to-device satellite services into existing terrestrial systems.**

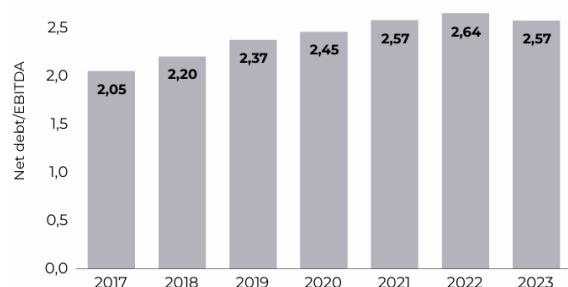
4.5 Debt ratios

As well as equity investors, lenders are an essential part of the funding circle for mobile operators. Without lenders, the returns and dividends from the enterprise would need to be spread across a much wider base of equity investors, reducing the appeal of the business to shareholders relative to the alternatives available to them.

While lenders have preferential rights over equity investors in the business, they do need comfort that their rights are sufficiently secure, which they achieve through covenants on the business and which commonly set maximum limits on the total amount of lending the business can reasonably take on and service, given the level of earnings being generated by the business i.e. a debt servicing ratio defined as “net debt / EBITDA”.

ConnectEurope³² reports net debt/EBITDA increasing overall for the last 7 available years.

Net debt/EBITDA for ConnectEurope members (% , 2017-2023)



Public reporting by operators and analysis by the author indicate the following:

- In 1H26, Telstra had a net debt of \$16.8bn, a 1H EBITDA of \$4.4bn and debt servicing ratio (net debt / full year EBITDA) of **1.9x** (against an upper comfort limit of 2.25x), plus \$1.4bn in cash and \$3.8bn of unused committed facilities.
- In FY24, TPG’s³³ net debt was \$4bn, EBITDA was \$1.7bn, and net debt (excluding leases) to EBITDA was **2.32x**.
- For FY25, Optus³⁴ had a net debt of \$6.67bn, EBITDA was \$2.2bn, resulting in a debt ratio of **3x**.

As with capital intensity ratios - and given the high levels of capital expenditure associated anyway with “business as usual” - it is important that, in setting a discretionary level of charges for renewing expiring spectrum licences, the **authorities give due consideration to how operators will finance**

³¹ [5G-era Mobile Network Cost Evolution - Networks](#)

³² [State of Digital Communications \(2025\).pdf](#) p135 (data provided by Analysys Mason)

³³ [TPG Annual report Master](#)

³⁴ [FY25-Group-MDA_Finalv2.pdf](#)

these charges and - with borrowing likely to be the first port of call - **what impact the charges will have on debt servicing ratios and credit ratings, and the impact of interest payments on cashflows.**

4.6 Mobile operators revert to asset stripping their networks to raise cash

The alternative means for operators to reduce debt and create headroom for new spectrum licence auctions and licence renewals is to dispose of assets under **sale-and-leaseback** arrangements.

In Europe, there were estimated to be 600,000 mobile towers in 2016, with about 62% self-owned by mobile operators, 15% in operator-led towercos, 10% in joint venture infracos and 13% under independent ownership. By 2025 the number of towers under independent ownership increased to c.300,000 (sources³⁵) as a result of most operators **disposing of sites to free up cash for spectrum auctions and network upgrades**: Telefonica completed its exit from tower ownership in Europe over the period 2012 and 2021; Telecom Italia sold 40% of its INWIT tower company in 2015; and Vodafone sold half of the ownership of its Vantage Tower portfolio to partners between 2021 and 2024.

Operators in Australia have similarly sold off assets to raise cash, reduce leverage and strengthen balance sheets.

Year	Activity
2025	TPG sold its Fiber & Fixed Network Assets to Vocus for A\$4.7B in cash proceeds and used c.A\$1.7B of the proceeds to repay debt
2025	Optus sold 340 towers and rooftops to Waveconn (OMERS) for c.A\$340m
2022	TPG sold its Mobile Towers to OMERS for A\$950M and used the proceed to reduce financial leverage and lower borrowing costs
2021	Optus sold a 70% stake its Mobile Towers to AustralianSuper for A\$1.9B and used the proceed to fund 5G expansion and core growth across the group
2021	Telstra sold a 49% stake in InfraCo Towers for A\$2.8B and used the proceeds for debt reduction, share buy-backs and enhanced connectivity in regional Australia
2019	Telstra sold a 49% stake of a Property Trust of 37 exchange buildings for A\$700m and used the proceeds to strengthen the balance sheet under the T22 strategy.

One might argue such assets are non-core and are better put under independent ownership with its own financing structure, but it is also important to bear in mind, firstly, that the **proceeds of the asset sales are one-offs** and yet are replaced by **recurring lease costs** which are a drag on free cashflow and earnings, and secondly, the assets can only be sold once.

High spectrum licence prices risk operators cutting deeper into core assets to fund renewal fees, but at the expense of losing control over core infrastructure and capabilities and loading up operating expenditure with additional lease costs.

³⁵ Analysis based on sources:

[34% of European towers to be owned by independent towercos by 2020](#)
[Europe Telecom Towers Market Size, Share, 2026-2031 Outlook](#)
[20250226-PR-Cellnex-FY2024-Results.pdf](#)

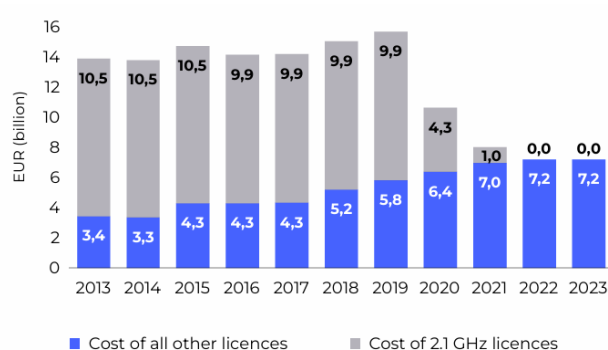
4.7 Historical high auction prices continue to impair the financial viability of operators

The imperative for any mobile operator to “keep up” with its peers and potential new entrants with each new generation of radio technology - as well as with constantly growing expectations and demand from customers - means operators’ balance sheets have become stretched through successive auctions for 3G, 4G and 5G spectrum.

Spectrum prices reached their peak during the 3G auctions. This coincided with the nadir of the sector, in terms of growth, investor confidence and M&A activity. Professor Stephen Temple offers a detailed and insightful account³⁶ of the expansionist strategies of the most ambitious operators in Europe at the time and how that fuelled Europe’s astronomical 3G spectrum auction prices.

It is only in the last few years that operators caught up in exorbitant 3G awards twenty five years ago have been able to finally write down the book value of their licences to zero and eliminate the impact of high levels of amortisation on EBIT. This is illustrated in the chart below - included in the 2025 report by **ConnectEurope**³⁷ - showing annualised spectrum costs over the most recent 10 years. The grey amortisation of 3G licences has finally expired, but **annualised costs of more recent spectrum licences have more than doubled in the interim**.

Annualised spectrum licence costs for ConnectEurope members (Euro bn, 2013-2023)



Yet even if the asset values of 3G licences have expired, **the debt taken on to finance past licences often remains** on the liabilities of the balance sheet, constraining the amount of additional debt that can be secured to pay for licence renewals.

4.8 Sunk business investments mean mobile operators are held hostage

Having invested billions of dollars in network assets and business systems, mobile operators are committed to continuing to operate in the market. They can’t simply “walk away” if renewal prices are too high. They are compelled to continue to get access to spectrum needed to operate their networks. **But, with high prices, some may be forced to economise and be selective in the frequencies they renew – leaving other frequencies “on the shelf” and no longer employed in supporting the Government’s objectives for investment and efficiency.**

³⁶ [From inside the world’s greatest 3G spectrum auction | GSM History: History of GSM, Mobile Networks, Vintage Mobiles](#)

³⁷ [State of Digital Communications \(2025\).pdf](#) p91 (data provided by Analysys Mason)

5. In some respects, Australia's renewal is more challenging

The fact that such a large proportion of actively used spectrum needs to be renewed within just four years exacerbates the financial challenge for Australian operators. The ACMA state that they “have sought advice on the capacity of licensees to pay for spectrum licence renewals to gain a greater sense of the broader implications of ESL pricing outcomes and whether they align with our policy objectives”, but the consultation is silent on any response, and fails to demonstrate any clear analysis or linkage between pricing and whether the Government's policy outcomes have a chance of being realised.

5.1 A large proportion of spectrum is to be renewed over a short period

ACMA plans to offer licence extensions to 2044 along the following timeline.

Band	Renewal applications begin	Licences expire
850 MHz & 1800 MHz	June 2026	June 2028
2.5 GHz	October 2027	September 2029
700 MHz	January 2028	December 2029
2.3 GHz & 3.4 GHz	late 2028	2030
2 GHz	October 2030	October 2032

The ACMA proposes to increase total renewal costs by **c.30%**, from the previous preliminary price range of **\$5.0-6.2bn** to a new figure of **\$7.3bn**, and over a period of **just four years** (2028-2032) - compared to a similar amount (for the same ESL bands) that was previously collected **over 11 years**.

Period	Primary Bands	Total Revenue	Price Intensity (\$/MHz/pop)
2013	700 MHz & 2.5 GHz	\$1.96bn	\$1.36 (700MHz) / \$0.03 (2.5GHz)
2017	700 MHz (residual)	\$1.54bn	\$1.25
2018	3.6 GHz	\$853m	\$0.29
2021	26 GHz	\$647m	\$0.01
2021	850/900 MHz	\$2.09bn	\$1.21
2023	3.4/3.7 GHz	\$722m	\$0.29 (3.7GHz) / \$0.07 (3.4GHz)
Total		\$7.8bn	

5.2 Significant additional spectrum awards are also expected over this short period

As well as renewals falling due, more than 500MHz of Upper 6GHz spectrum (to support 5G network capacity expansion and the introduction of 6G) is expected to be auctioned by 2028, and potentially 600MHz spectrum thereafter i.e. all falling within the same renewal period. The coincidence of these licensing events will intensify financial stress on smaller operators over this period.

5.3 There is limited scope for further cost savings given advanced network sharing

In its 2025 Mobile Infrastructure Report³⁸, the Australian Competition and Consumer Commission (ACCC) provided data that confirmed that, outside metro areas, TPG now relies much more on Optus-TPG MOCN shared sites than on stand-alone sites. This indicates that **most of the cost-saving possible through active network sharing has already been achieved** and there is little more operators can do. And given that the TPG's sharing proposal with Optus was approved by the ACCC (whereas its previous one with Telstra was not³⁹), we can infer that the ACCC is comfortable with the regional market collapsing into a two-network play. It is hard to imagine there is further scope for additional cost saving.

5.4 There are unanswered questions relating to affordability

The ACMA state that they “have sought advice on **the capacity of licensees to pay for spectrum licence renewals** to gain a greater sense of the broader implications of ESL pricing outcomes and whether they align with our policy objectives”.

Stakeholders deserve proper disclosure on this issue. **Whose advice was sought? When was it sought? What “pricing outcomes” were assumed (Stage 3? Stage 4?) and what were the findings?**

Given the widely varying market and financial positions of the players in the market, one would expect the proposals to **impact players differently** and with various **consequences for “policy objectives” - what were they?**

³⁸ <https://www.accc.gov.au/system/files/Mobile%20Infrastructure%20Report%202025.pdf>

³⁹ [ACCC decides not to grant authorisation for Telstra and TPG regional network deal | ACCC](#)

6. High spectrum renewal prices have consequences for network quality and customer experience

The pricing of ESL renewals matters because it directly impacts mobile operators' abilities to invest in expanding and modernising their networks and improve customer experience. Various pieces of research by economists at the GSMA mobile industry association and at NERA, drawing widely on data from across the global mobile industry, draw a clear correlation between spectrum prices, network investment and customer experience.

6.1 Impact of spectrum costs on mobile network coverage and speed

In their paper "The Impact of High Spectrum Costs on Mobile Network Investment and Consumer Prices"⁴⁰ published in May 2017, NERA provided "statistical evidence that links **high spectrum costs to lower network investments and higher consumer prices**, suggesting that excessive prices for spectrum licenses may have an adverse impact on consumers".

The chart below on the left shows the **correlation between lower spectrum costs and higher wireless scores**. These results support the hypothesis in the academic literature that **high input costs suppress investments**. The chart below on the right shows that **higher spectrum costs tend to correlate with higher retail prices**.

Correlation of cost of spectrum against... wireless scores and... mobile data pricing

Figure 2. Spectrum Costs and Wireless Score in High-Income Countries

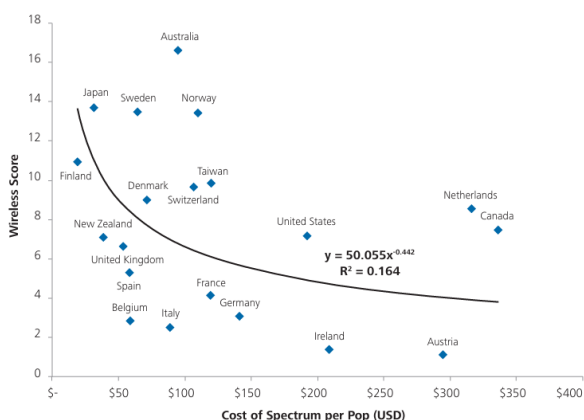
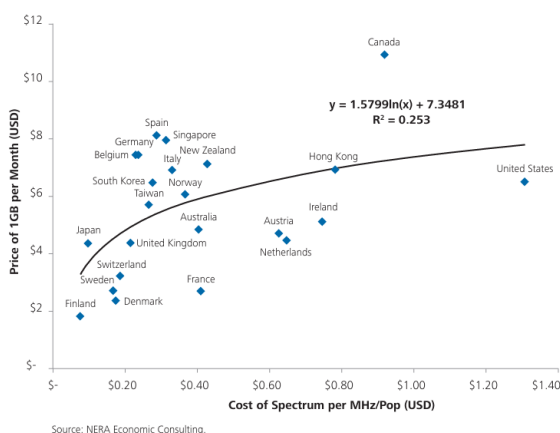


Figure 4. Price and Spectrum Cost Relationship in High-Income Countries



This conclusion would already have been clear from the earlier section of this report that discussed the **impact of high spectrum fees on key financial ratios** and the difficulty some operator may have in increasing their borrowing in order to be able to deliver their network capital expenditure plans.

Licence fees are sunk costs - but their impact on capital budgets leaves a funding hole that needs to be repaired, yet their impact on balance sheets may make it difficult to extent their credit, with a very real impact going forward on realising network investment and its impact on network quality and customer experience.

NERA conclude from their analysis that "**lost consumer surplus far outweighs the gain in auction revenues**".

⁴⁰ [PUB_High_Spectrum_Costs_0517.pdf](#)

6.2 Impact of spectrum costs on consumer outcomes

In its Global Spectrum Pricing report⁴¹ published in 2025, the **GSMA** disclosed the results of an econometric study examining the **impact of spectrum costs on consumer outcomes** over the 4G/5G era. The dataset used in the analysis covered more than 230 operators in 97 countries between 2014 and 2023.

The study found that when the price of spectrum does not reflect its underlying value, it leads to distorted investment incentives for operators, resulting in potential underdevelopment of networks and customer experience.

Specifically, the analysis calculated that:

- a 10 percentage point higher “spectrum cost to revenue” ratio **reduced 4G coverage by 4 percentage points and 5G coverage by 6 percentage points**
- a 10 percentage point higher “spectrum cost” **reduced download speeds by 6% and upload speeds by 4%**

The GSMA also observed that “in the 5G era, the **aggregate cost burden of spectrum has increased further**, as much more spectrum has been required for 5G”.

This analysis builds on a previous study⁴² conducted by the **GSMA** in 2019 that found that, in the era of 3G and 4G, **high spectrum prices negatively affected consumer outcomes** such as speeds and coverage.

In practice therefore this analysis implies that high spectrum renewal prices in Australia are likely to involve trade-offs and have consequences for investment in network expansion/improvement and consumer mobile pricing, in short, the Government’s policy objectives for the sector and its customers.

⁴¹ [GSMA Global Spectrum Pricing](#) (p33)

⁴² [Impact-of-spectrum-prices-on-consumers.pdf](#)

7. Is the current ESL pricing proposal likely to deliver the Government's policy objectives?

Renewing such a significant proportion of mobile spectrum provides a once-in-a-generation opportunity for the Government to shape the future of mobile communications in Australia, to the benefit of users and the wider economy. But the linkage between pricing and the achievement of policy outcomes is complex and multi-dimensional. Simply adopting benchmarks from historical auctions is unlikely to deliver the Government's desired outcomes.

Given the very high variability of historical auction prices, and the debate around the proposed benchmarking approach, and the risk of getting pricing wrong and adversely impacting policy objectives, the pricing recommendation taken forward needs to be based on a robust and transparent assessment of the likely impact on policy outcomes of a range of pricing approaches and scenarios.

Only then can Government take an informed view on which pricing strategy is most likely to deliver its policy objectives.

7.1 What trade-offs need to be considered?

The Government's policy objectives provide a high-level framework for renewals. Detailed proposals need to be fleshed out and evaluated against these objectives – often there will be **trade-offs** to consider. Pricing is just one component, and in many cases it is treated as an output, not an input.

The primary test for spectrum pricing should be the public interest, considering consumer affordability, market conditions and the need to support technological advancement like 6G and AI. The **current ACMA pricing proposal does not demonstrate that it meets public interest objectives** and risks adverse outcomes such as unsold spectrum, reduced investment, higher consumer prices and changes to the competitive dynamics in the market.

Over 25 years of mobile broadband spectrum licensing, governments and regulators have taken a wide **variety of approaches** to auction pricing.

For the UK's 3G auction in 2000, the Government's overriding aim was "to secure... the timely and economically advantageous development and sustained provision of third generation services in the United Kingdom", with three specific objectives: **efficient use of spectrum; effective and sustainable competition**; and to "design an auction that is best judged to **realise the full economic value to customers, industry and the taxpayer** of the spectrum. The latter objective was worded to make it clear that the **interests of industry and consumers should be taken into account**, rather than just maximising the proceeds for the taxpayer."

To run the auction, the UK Government appointed NM Rothschild - the investment bank previously retained to lead some of the UK's largest privatisations including British Gas and BP. While it was not written down, the UK Government's approach was essentially another privatisation.

In its report⁴³ in 2014 on the **UK's 4G spectrum auction** - which raised only 2/3 of the £3.5bn figure in the previous Autumn Statement⁴⁴ - the **National Audit Office** focused its analysis, not on the

⁴³ [4G radio spectrum auction lessons learned \(executive summary\)](#)

⁴⁴ [Autumn Statement 2012 - Cm 8480](#)

receipts, but on Ofcom's two primary objectives for the auction, namely **maintaining a competitive market and efficient allocation of the spectrum**. The **£2.4bn collected** was a second-order effect in the context of Ofcom's estimate of **expected consumer benefits of £20bn**.

Given the wide range of outcomes possible, **the process chosen for renewals in Australia needs to demonstrably deliver against the Government's stated objectives and maximise public interest objectives**.

7.2 Caution is needed in setting pricing, given inherent uncertainties

As well as illustrating policy trade-offs and outcomes, past auctions in the UK (and elsewhere) also demonstrate how notoriously difficult it is to estimate values and prices for spectrum auctions. Despite best efforts to predict what prices will be achieved in auctions, the reality is often very different, and a word of caution to all concerned.

Following the **5G auction in the UK** in March 2021, Nic Fildes reported in the **Financial Times**⁴⁵: "The UK's latest spectrum auction has **fallen short of analysts' predictions**, raising just **£1.36bn** for the Treasury as heavily indebted mobile phone operators fought shy of a bidding war to boost their national 5G networks.... some analysts had predicted this auction could raise more than **£2.5bn**."

Following the **4G auction in the UK** in February 2013, Tim Harford reported in the **FT**⁴⁶: "It's almost 13 years since the UK government raised £22.5bn in one of the biggest auctions of all time, for the right to use radio spectrum for 3G mobile phone services. The next big thing, 4G, has been **auctioned for around a 10th of that price, and a third less than the sum the Treasury had pencilled in**. What went wrong?"

He further comments: "**If we had known what the auction price was going to be, we wouldn't have needed an auction**. The whole point of the auction is to reveal how much bidders want the prize, and to charge them accordingly." **With so much uncertainty around spectrum values, and with knock-on consequences for the achievability of government policy objectives, pricing needs to be approached with caution**.

As well as **uncertainty**, there is also an apparent underlying **downward trend** in pricing, as illustrated in the chart below from the ACMA's paper 4⁴⁷ – and where prices in Australia for sub-1GHz frequencies appear to have fallen by c.60% between 2017 and 2021.

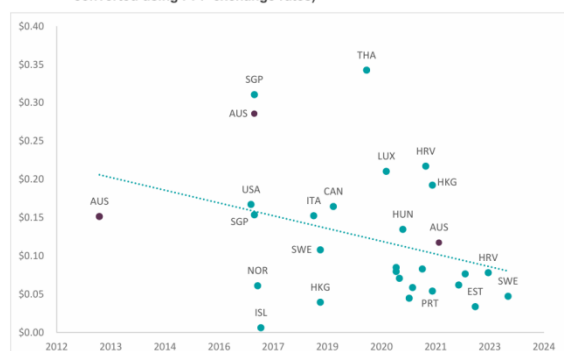
⁴⁵ [5G spectrum auction raises just £1.3bn for UK government](#)

⁴⁶ [Don't blame Ofcom if 4G price isn't right](#)

⁴⁷ [Preliminary views paper 4 - Pricing for ESLs.pdf](#)

Normalised prices of sub-1GHz spectrum awards in selected markets (2012-2024)

Figure 1: Sub-1 GHz: benchmark scatterplot (single-year A\$/MHz/pop prices, converted using PPP exchange rates)



Note: The single-year A\$/MHz/pop values represented in the diagram are based on nominal amounts from the year of allocation – that is, they are not adjusted to reflect any changing value of spectrum over time.

Indeed, with such wide variation in prices paid in recent years, and their corresponding consequences, the key question is: **what is a safe level of charging that will still allow and incentivise the sector to meet the full set of government and public policy objectives, while accommodating the inevitable uncertainty.**

A final critical consideration is the **asymmetry of impacts** - in other words, **the consequences of setting pricing “too high” are much more adverse** - for the sector, for investment and for mobile users - **than the consequences of setting them “too low”**. The process of setting renewal pricing needs to take into account the **imbalance of risk and impact**, and arrive at an informed pricing position that will **maximise the likelihood of achieving national benefits** and **minimise the risk of harm**.

With so much at stake, in terms of the affordability of spectrum prices and the impact on operators’ ability to afford to continue to invest in networks and drive competition, regulators should be duly cautious about repeating the mistakes of the past.

7.3 Renewals serve a different purpose to competitive new awards

It is not at all clear that auction prices are a sound starting point for renewals, particularly where policy objectives are different. **The prices achieved in the competitive award of new spectrum often reflect the value of competitive rivalry between mobile operators.** The ACMA makes the comment that, in auctions, “incumbents may bid strategically to acquire spectrum” and that “auctions could see reductions in competition, choice and service quality for consumers”.

Mobile operators and regulators typically agree on this point: that, despite their high cost, auctions remain the best (or the least-worst) way to allocation new spectrum between competing applications. **Auctions serve a very specific economic purpose in this scenario - to determine allocative efficiency** i.e. how new spectrum should be apportioned between competing applicants, to achieve the optimal overall economic outcome. And it can be this effect (as well as high reserve prices) that leads to high auction prices.

But ensuring competitive or allocative efficiency is **not the core purpose of renewals** - and the ACMA itself makes a similar distinction: “In the current Australian market, auctions are less likely than renewal to deliver the right mix of service continuity, competition, and technology investment and innovation that benefit Australian consumers.”

Indeed, the ACMA believes that the competition that often underpins auction awards of new spectrum is absent in the case of ESLs, and there is no appetite for entrants or alternative players: “Through our extensive consultation processes and analysis of local and international markets, **no alternative competitor to the three incumbent MNOs has emerged**” while also concluding that

“renewal of the ESLs used for wireless broadband services is most likely to maintain existing competitive tension in the mobile market.”

Different purposes will likely mean different prices, particularly if they are regarded as an output rather than an input to the process.

7.4 Auction pricing can reflect enterprise values rather than marginal values

Competitive awards for new spectrum - considered (at the time) as essential for success (or even just survival) in the race to launch “next generation” mobile technologies - can lead to inflated pricing, sometimes even reflecting the enterprise value of the bidder i.e. reflecting the concern that failure in the auction would be tantamount to failure in due course in the market.

In his 2023 assessment⁴⁸ of lessons from the UK 3G auction in 2000, Geoffrey Myers at the London Business School comments: “For the four incumbent mobile operators ..., the concern was to avoid being ‘dead in the water’... This may have led to incumbent operators being willing to **bid up to their entire enterprise value in the mobile market**, not just their incremental value for the spectrum actually being sold in the auction.”

This concern among incumbents is not a one-off - aspects repeat every time there is an auction for spectrum for the latest mobile technology, whether that is 4G, 5G or shortly 6G. There is obviously a **limit to the number of times a mobile operator can pay away its enterprise value** and thus the onus is on regulators to proceed with caution.

A good starting point is to consider **opportunity cost** i.e. **the value to the next best use**. Paying that value as a minimum ensures the spectrum is put to the best use. The ACMA already accepts that mobile use maximises benefits: “While there are other potential uses of ESL spectrum, our analysis suggested that these uses **could not deliver the broad social and economic benefits of wireless broadband technology** and can often be authorised using difference spectrum”.

7.5 A way forward

This paper has highlighted that a high proportion of mobile spectrum currently in use needs to be renewed in short order. Mobile operators will not all have the same financial capacity to pay “market value” prices. High prices come with consequences for Government objectives - including investment, competition and consumer benefits. Regulators in many other markets now regard renewals as an opportunity to prioritise digital policy objectives over maximising cash proceeds.

Given the very high variability of historical auction prices, and the debate around the proposed benchmarking approach, and the risk of getting pricing wrong and adversely impacting policy objectives, the pricing recommendation taken forward needs to be based on a robust and transparent assessment of the likely impact on policy outcomes of a range of pricing approaches and scenarios.

Only then can Government take an informed view on which pricing strategy is most likely to deliver its policy objectives.

⁴⁸ [Avoiding regret: how mobile phone companies \(and others\) can learn lessons from overbidding in spectrum auctions - LSE Business Review](#)

Appendix 1 - About the author

Stephen Pentland has 35 years of experience working in the international telecommunications sector as a strategy, policy and spectrum licensing expert.

He had global responsibility for network and spectrum policy at Vodafone Group from 2014 to 2025 and managed 4G and 5G licensing and renewal activities covering some 25 markets across Europe, Africa and Asia, comprising approximately 75 separate awards and a total consideration of more than \$15bn. He co-chaired the GSMA's European spectrum policy group and represented Vodafone at the GSMA's global spectrum strategy group.

Prior to Vodafone, Stephen worked in the telecom and media sector as a strategy consultant for more than 20 years, advising governments, regulators, mobile operators, consortium partners and investors on: policy development; digital migration; the design and shaping of licensing awards; business valuations and network costing; and auction participation. He advised various mobile operators and consortium partners in preparation for Europe's 3G auctions, and was the business strategy advisor to NM Rothschild during its mandates to run 3G awards in Belgium, Denmark and Hong Kong.

Stephen has a Masters in Electronic & Information Sciences Tripos (EIST) from the University of Cambridge, England. He provides independent strategy and policy advisory services to a range of sector clients and lectures on telecom policy at a business school in Spain.

Appendix 2 - Innovative renewal approaches in Europe

Regulators across Europe and elsewhere are placing greater emphasis on ensuring mobile operators have secure long-term access to spectrum rights and revising their approach to renewals to achieve this by providing licence extensions or renewals free of charge, or at considerably reduced price levels, or in return for operator commitments to additional investments in identified priority areas.

A number of case studies are listed here.

In **Portugal**, in February 2016, ANACOM approved⁴⁹ the renewal mobile operators' expiring 2100MHz spectrum rights for a period of 15 years, at no cost and in return for new coverage obligations to improve coverage in 588 underserved parishes.

In 2018, the **French** regulator, ARCEP, renewed 900, 1800 and 2100 MHz licences due to expire between 2021 and 2024 under its "New Deal"⁵⁰, whereby **operators agreed to accelerate 4G rollout and provide nationwide, high-quality mobile coverage as an alternative to paying any renewal fees**. The regulator found that, after five years, the share of the population covered by 4G across all four operators had almost doubled (from 45% to 88%) and the share living outside of a 4G network had declined from 20% to 11%. Meanwhile, almost two thirds of the population now had access to 30 Mbps services or higher (up from 37%).

In April 2021, ANACOM in **Portugal** further approved a draft decision⁵¹ to renew mobile operators' expiring 900MHz and 1800MHz spectrum rights until 2033, **at no cost and in return for new coverage obligations** to improve coverage in a further 100 underserved parishes, commenting that "it considers that renewing the rights... **supports the stability of operations and enables continuity of existing and planned investments by the operators**".

In June 2022, **Spain's** Ministry of Economic Affairs and Digital Transformation⁵² revised its General Telecommunications Law (LGTel) to include an article enabling a one-time **extension to any existing spectrum licences, at no upfront cost, for a period of up to 10 years, and with a maximum licence term of 40 years**. All four mobile operators requested an extension of their licences in the 800 MHz, 900 MHz, 1800 MHz, 2.1 GHz, 2.6 GHz and 3.5 GHz bands.

In 2024, **German's** Bundesnetzagentur announced a decision⁵³ to extend existing usage rights in the 800 MHz, 1800 MHz, and 2600 MHz bands for an interim period of five years. Instead of a full-market auction, the extension was **granted at reduced prices** (which was the result of negotiations and were not disclosed by BNetzA) subject to specific coverage obligations and competitive conditions. BNetzA's justification during its consultation stage⁵⁴ was that "the spectrum is currently being used by the three established mobile network operators and is **contributing to the nationwide**

⁴⁹ [ANACOM - Renewal of rights of use of frequencies allocated in 2100 MHz band for terrestrial electronic communication services - final decision](#)

⁵⁰ [Suivi du New Deal Mobile | Arcep](#)

⁵¹ [ANACOM - Renewal of right of use of frequencies allocated to Vodafone Portugal and MEO in the 900 MHz and 1800 MHz frequency bands for terrestrial electronic communications services - consultation](#)

⁵² <https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2025/02/Spain-Spectrum-Licensing-Best-Practice.pdf>

⁵³ [Bundesnetzagentur - Press - Bundesnetzagentur extends mobile spectrum subject to conditions](#)

⁵⁴ [Consultation draft of a decision on not ordering award proceedings and on extending spectrum rights at 800 MHz, 1800 MHz and 2600 MHz and of a decision on carrying out competitive proceedings at a later point in time](#)

coverage of consumers with high-performance broadband services. In view of the expiry of the spectrum usage rights at the end of 2025, the President's Chamber of the Bundesnetzagentur aims to create **planning and investment certainty** for the market participants”.

In 2024, the **Czech** national regulator, CTU granted O2 and T-Mobile extensions to 2044 for their 900MHz and 1800MHz licences - the process **prioritised infrastructure investment over immediate state revenue**, using an administrative procedure whereby it imposed specific coverage and quality obligations instead of seeking to charge the full-market price.

Appendix 3 - Reasonableness of ACMA's valuation method

Setting aside the question of whether charging full “market value” is effective in addressing the Government’s policy objectives, the benchmark method adopted by the ACMA and its advisors raises a number of concerns, including: a level of confidence that is not justified given the variability of the data set; inconsistent identification and handling of outliers; using CPI to misrepresent pricing trends; failing to take account of the trend of falling spectrum prices over time and failure to reflect dilution effects from expansion of licensed bands.

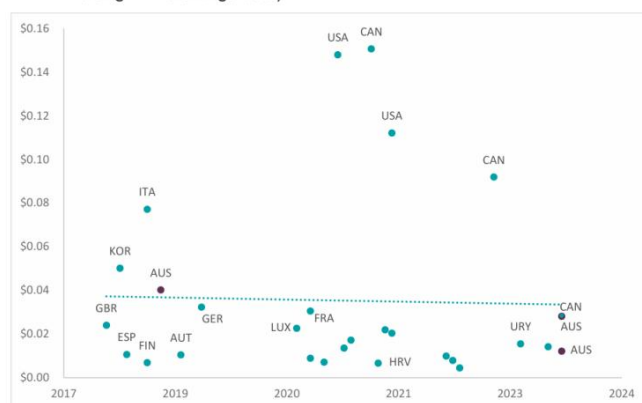
The AMCA's level of confidence is not justified given the variability of the data set

One can always calculate the average value of a data set - but **if that data set itself has huge variations, it raises a question about the usefulness of the average**. It's a fact that spectrum auction prices vary wildly over time and between markets. They are subject to a wide range of factors and variables reflecting the circumstances of each award and the particular market.

There is no better example of this than the pricing for 3.4GHz spectrum - where prices across Europe varied by a factor of eight times, and where the prices for the US (and Canada) would literally be “off the chart”, had the axes not been doubled in range.

Normalised prices of 3.4GHz spectrum awards in selected markets (2017-2024)

Figure 10: 3.4 GHz: benchmark scatterplot (single-year A\$/MHz/pop price, converted using PPP exchange rates)



Note: The single-year A\$/MHz/pop values represented in the diagram are based on nominal amounts from the year of allocation – that is, they are not adjusted to reflect any changing value of spectrum over time.

With policy outcomes the ultimate objective of the renewal exercise, the priority must be to understand how to set pricing within a sensible range to maximise the chances of achieving those outcomes and to minimise the risk of unintended consequences.

As mentioned in section 7, there is an **asymmetry of risk** in this exercise - **the consequences of setting pricing “too high” are much more adverse - for the sector, for investment and for mobile users - than the consequences of setting them “too low”**.

The analysis is inconsistent in its identification and handling of outliers

The selection and validation of spectrum award data is simplistic. The huge variation in observed prices is confirmation that outcomes are the result of various factors, and the results would be more useful if there was a bit more scrutiny of these factors, and a better-informed approach to handling of outliers.

The inclusion of US data is a helpful example to illustrate the concern.

Firstly, with an addressable market of c.340m citizens, **the size of the US market is incomparable to Australia and most of the other benchmark countries**. It supports unprecedented economies of scale for successful operators in the market which, together with (almost uniquely) the **absence of spectrum caps**, has fuelled bidders' appetites - time and again - to try to gain a "winner take all" spectrum advantage over their competitors. As a result, prices have been driven to extraordinary levels - reaching \$22bn for 3.45GHz spectrum in 2022; \$81bn for 3.7GHz spectrum in 2021; \$19bn for 600MHz spectrum in 2017 and \$41bn for AWS-3 (1700/2100) spectrum in 2015 – approaching a quarter of a trillion dollars cumulatively.⁵⁵

Secondly, the merger in 2020 between T-Mobile and Sprint has created a **formidable third player** in the market, and resulted in **very strong competitive dynamics** in the US. The market in Australia could not be more different - three market players, but with very different levels of market share and profitability, and a history of mergers among weakest players that did no more than preserve the viability of a weak third player, rather than result in three strong rivals now apparent in the US.

Thirdly, **the exorbitant prices for 3.7GHz spectrum are likely a result of scarcity for 5G capacity spectrum**. While 3.4-3.8GHz was the band in favour elsewhere in the world, CBRS shared-use of much of the band meant availability for exclusive nationwide licensing was highly restricted, and neither was there the future prospect of expanding into the Upper 6GHz band, which the US had already allocated for WiFi.

Fourthly, **US mobile licences have a very strong expectation of free of charge administrative renewal** - assuming the applicant is continuing to use the licence for the purpose originally intended; that there has been no permanent discontinuity of service and that the licensee has substantially complied with applicable rules and FCC regulations. Yet the benchmark analysis assumes "licences with relatively short durations (10 years)", which misrepresents the annualised value.

As if to add insult to injury, despite the outlier warning signals, the benchmark analysis **amplifies the impact of the US pricing** by giving it one of the highest weightings in the overall benchmark calculation.

DotEcon also comments that "prices from uncompetitive auctions (where significant spectrum is unsold) or administrative allocations do not reliably reflect market value and therefore provide limited or no useful information for a benchmarking exercise". Without more transparent analysis, there is a risk that, as well as high outliers being included, relevant data points may have been excluded.

Selective use of historical spectrum pricing trends

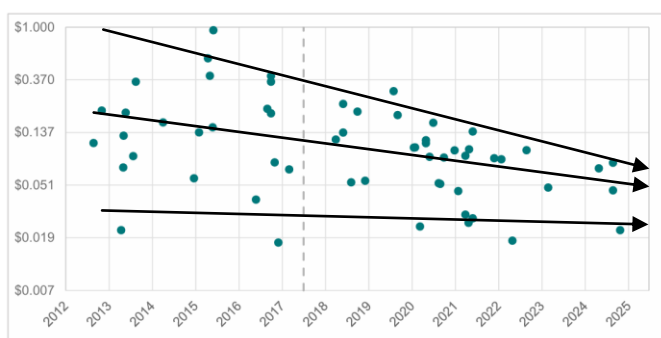
In applying "time trend adjustments", DotEcon's analysis identified "**a decline in real prices** across some band groupings... [which were] non-linear, and it is uncertain if they will persist". DotEcon's solution was to "only use benchmarks from 2018 onwards".

In other words, DotEcon was selective and chose data that suited its analysis and ignored data that didn't.

Taking even a rudimentary look at the data set of prices provided by DotEcon, in this example for sub-1GHz spectrum, it is hard to believe there is not a **persistent downward trend** over at least ten years, likely already falling below \$0.05/MHz/pop/annum, and likely to continue a downward trend over the next six years until the renewal process is complete.

⁵⁵ [Auctions Summary | Federal Communications Commission](#)

Normalised prices of sub-1GHz spectrum awards in selected markets (2012-2025)



Using CPI misrepresents mobile pricing trends

The ACMA supports DotEcon’s proposal to use consumer price index (CPI) to adjust or “index” benchmark prices over time, and as a replacement to the Mobile Service Revenues (MSR) factor previously proposed - explaining “maintaining a flat projection for MSR **may not capture the effects of upcoming mobile spectrum allocations** (which have not been formally planned) as it **relies solely on historical data rather than forward-looking information**”. So... it’s OK to base spectrum prices on historical auction benchmarks, but it’s not OK to use historical trend in MSRs.

DotEcon uses the same approach to adjust between time periods: “The \$/MHz/pop single-year prices derived in the previous step are proposed to be adjusted for inflation (CPI) from 2025 to the relevant commencement date of renewed spectrum licences in each ESL band. This is done by multiplying the single-year prices by the index value for the applicable licence commencement date.”

The latest MSR in Australia for 2023 (shown below⁵⁶ – note 2024 and 2025 in the chart are forecasts only) are effectively **level in nominal terms relative to the figure in 2009** - i.e. over 14 years, **any growth in customer numbers has been fully offset by ARPUs falling**. Also, there have been no adjustments made to reflect the impact of “significant changes to MTAS (termination) rates [that] have caused year-on-year revenue declines” to wholesale revenues - i.e. even a flat MSR trend is overstated.

Mobile service revenues in Australia (FY05-23, estimated for FY24, 25)

Figure 14: Mobile service revenue inputs to MSR/MHz/pop index



Note: FY24 and FY25 figures are forecasts based on 5% annual growth in MSR.

⁵⁶ [Preliminary views paper 4 - Pricing for ESLs.pdf](#) p55

With **spectrum benchmark prices and ARPUs both falling over that period**, the adjustment to spectrum pricing benchmarks (whether to index over time or to adjust between time periods) surely **cannot be anything but negative**.

At the same time, CPI in Australia has been positive over the period (see charts in section 4.1). No one disagrees that CPI reflects general trends in consumer pricing - but it clearly **has no relevance to mobile pricing**, and has no basis for use in the ESL calculations.

Furthermore, CPI-based indexing could lead to a **self-fulfilling inflationary cycle in mobile prices**, assuming inflated spectrum costs are passed on through higher consumer pricing.

The mobile operators of Australia are not the first to point out to regulators the **hazards of simplistically following generic consumer “basket of goods” CPI pricing trends**. In its submission to Ofcom in 2024 to support a review of Annual Licence Fees (ALFs)⁵⁷, on behalf of Virgin Media O2, NERA comments that: “Ofcom adjusts ALF each year based on UK consumer price inflation (CPI). In recent years, this has **led to significant increases in ALF at a time when the value of the relevant spectrum bands worldwide has been falling**. We present data that demonstrates **these adjustments have contributed to a material misalignment in prices**, with current ALFs for all three bands being too high. Looking forward, the appropriate annual adjustment approach depends on the future path of spectrum prices and general inflation. If spectrum prices were projected to rise, then a CPI adjustment may be appropriate. However, **the greater likelihood is that spectrum prices will continue to fall** in the period to the next ALF review...”.

Failure to reflect per-MHz price dilution effects from expansion of licensed bands

A further consideration is the fact that mobile operators in Australia and elsewhere in the world have to regularly **expand the amount of spectrum they use**, to support continuous growth in customers’ use of mobile data - while ARPUs have been falling. The impact is illustrated in the left hand chart below, from the GSMA’s Global Spectrum Pricing report⁵⁸, which shows **falling revenues per MHz of spectrum**.

Pricing future spectrum licence renewals on historical benchmarks fails to take account of this downwards trend and risks having an unsustainable **runaway effect** on costs.

Analysis by the GSMA⁵⁹ confirms that, in Europe, aggregate mobile spectrum costs (excluding original 3G costs) have **risen to 8% of annual recurring revenue** (right hand chart below).

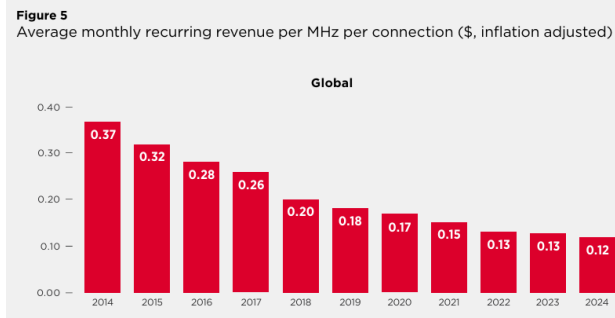
Moderating renewal fees could be instrumental in reversing this trend and freeing up cash for capital investment in network improvements.

⁵⁷ <https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/consultation-review-of-annual-licence-fees/responses/vmo2-nera-report.pdf?v=404079>

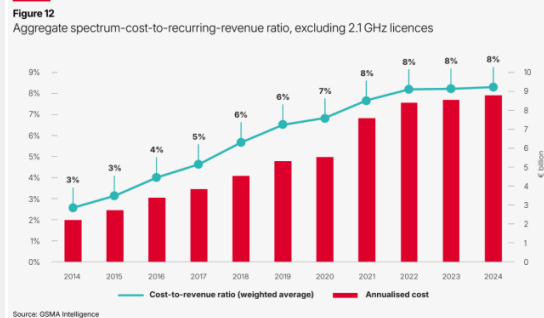
⁵⁸ [GSMA Global Spectrum Pricing](#)

⁵⁹ [Spectrum-Pricing-and-Renewals-in-Europe-v2.pdf](#)

Mobile revenues per MHz of spectrum (2014-2024)



Aggregate spectrum costs as % of mobile revenues (2014-2024)



Appendix 4 - The impact of “ROCE below WACC” on competition and market structure - Ofcom’s view

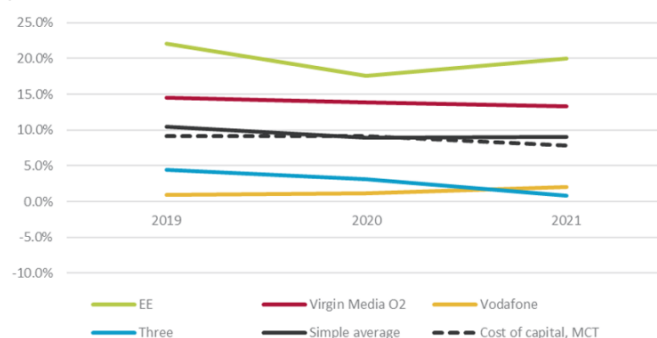
Interestingly, the conclusions of the recent EC report into the average ROCE (referenced in section 4 of this report) echo the findings of a previous report published by Ofcom in the UK in December 2022 entitled: “Ofcom’s future approach to mobile markets and spectrum”⁶⁰ where the UK regulator comments: “We find that **average industry returns (on an economic basis) have been above the cost of capital over the last three years** (see “Figure 4.2” below). This indicates that firms in the industry can, on average, cover their costs and earn a sustainable rate of return.”

“However, **financial returns vary across MNOs**. Specifically, the two smaller MNOs (Three and Vodafone) earned returns below the cost of capital between 2019 and 2021 and Three’s return on capital employed (ROCE) has been declining over this time period. This contrasts with the two larger MNOs that have earned returns above the cost of capital.”

Ofcom further sets out “**a risk that competition among MNOs weakens**. This could happen if one or more of the smaller MNOs become weaker competitors, and are less able to exert a strong price constraint on other operators. **A weakened MNO may also be less able, or have less incentive, to invest as fully in its network** than a larger, stronger player. If so, **it may opt to scale back investment to reduce its costs, which could affect its future quality of service and potentially its ability to retain or gain market share**. In turn, **this may weaken the incentives of rival operators to invest** in improving their networks, **leading to weaker competition and poorer outcomes for customers**.”

ROCE by UK mobile operators (% , 2019-2021)

Figure 4.2: Economic return on capital employed (ROCE) by MNO, pre-tax nominal including 5G spectrum



For a sector where authorities have, more often than not, sought to block mergers, Ofcom’s position in this report was noticeably progressive, and arguably lent weight the Competition and Markets Authority’s decision⁶¹ in December 2024 to allow the merger of Vodafone UK and 3UK, with the market going from four players to three.

For a market like Australia - already collapsed to three players, yet facing similar issues of ROCE and sustainable competition - the approach to pricing the renewal of spectrum licences will be a critical factor in determining the future prospects of the sector and ongoing investment, competition and customer outcomes.

⁶⁰ [Conclusions paper: Ofcom's future approach to mobile markets and spectrum](#)

⁶¹ [CMA clears Vodafone / Three merger, subject to legally binding commitments - GOV.UK](#)

