



Implementation of the Spectrum Pricing Review

Proposed guidelines and focus areas for change

June 2020

Response by Pivotel

The Manager

Economics and Market Analysis

Australian Communications and Media Authority

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1. Pivotel's General Comments

Pivotel is pleased to provide a response to The Australian Communications and Media Authority (ACMA) discussion paper regarding the Implementation of the Spectrum Pricing Review.

Much of Pivotel's business is underpinned by its access to spectrum, that in turn allows the company to provide tailored voice, messaging and data solutions to rural and remote communities in Australia. This is achieved through our strategic satellite holdings, and LTE (4G) mobile networks, and as a reseller of other wireless-based communication services.

As Pivotel provides both terrestrial and satellite services using a variety of band allocations we have a keen interest in the ACMA's approach to spectrum allocation and pricing. Pivotel is also a member of the Communications Alliance Satellite Services Working Group (SSWG) and is supportive of the submission made in response to the ACMA consultation on the *Implementation of the Spectrum Pricing Review - Proposed guidelines and focus areas for change (the Consultation Paper)*.

Access to communication services is fundamental to the economic, social wellbeing and growth in this digitally enabled world. In part due to Australia's geography, spectrum is an increasingly used and yet finite resource that must be allocated to support multiple services. The ACMA necessarily must play a pivotal role in providing effective and efficient access to spectrum, enabling the provision of communication services for all Australians. At the heart of this is the principle of allocating spectrum to the highest value use (HVV). The determination of the HVV for a range of spectrum appears to be a valid methodology but would appear to miss regional variations if applied in a blanket manner across the whole of Australia. As a result of Pivotel's specific focus on Regional, Rural and Remote (RRR) Australia we have seen first-hand that access to spectrum necessary to support these communities can be unduly influenced by decisions taken in support of the far more populous urban areas.

In order to achieve the kind of economic and social benefits being pursued at all levels of government, interest groups, and RRR Australians, it is essential that spectrum is available in the most efficient and cost-effective manner. Satellite plays a crucial role in providing life-saving access to emergency support services and critical health and safety services to people

that live, work and play in RRR Australia. Access to suitable spectrum at cost effective pricing is therefore crucial. As indicated in the SSWG submission, Australia's pricing levels are clearly out of step with international best practice examples and need to be set at levels that incentivise investment and reward innovation and advancements in the delivery of communications services, especially in RRR Australia.

Whilst the Consultation Paper deals primarily with Apparatus Licencing it is important to recognise that providers such as Pivotal are effectively 'locked out' of access to RRR-suitable sub 1GHz (i.e. 700MHz, 850MHz and 900 MHz bands) spectrum whether in the form of Apparatus, AWL or Spectrum licences. This situation arises as the spectrum has been allocated nationally, for an extended term, through the spectrum licencing process. Despite these allocations having been held for many years, the spectrum is only used in around one third of Australia's landmass.

This results in spectrum bands that are highly suitable for RRR purposes lying fallow and unable to be accessed by alternative providers. As a result, these providers are forced to acquire apparatus licences in sub-optimal frequency bands such as 2,100 MHz which has inferior propagation characteristics to spectrum in the sub 1GHz bands, with consequential additional infrastructure build costs.

Pivotal's high-level view of the factors that should influence spectrum pricing are as follows:

- **Who Benefits:** What proportion of the population derives benefit from the spectrum use, noting that 'benefit' may take on different values according to the intended usage of the spectrum;
- **Who Loses:** Essentially the inverse of the above, an assessment of who is deprived of access to useful spectrum – Spectrum Denial - should be a factor in determining price;
- **Population Density:** The value of spectrum has been demonstrated to be closely related to population density – this is a much stronger correlation than simply the geographic area covered;
- **Societal vs Fiscal Benefit:** This is perhaps the one measure that has both qualitative and quantitative factors. The ACMA appear to recognise this with the principle of allocating spectrum to the highest value use (HVV);
- **Spectrum Band Value:** For multiple reasons, different spectrum bands have inherently differing values - this is not simply a matter of where the desired allocation sits in the spectrum continuum, but also such factors as whether it is useful that the band aligns with international allocations, or is earmarked for alternative services in the future;
- **Periodic Use:** It should be recognised that not all services operate on a 24x7x365 basis. This particularly applies to emergency and 'safety net' services that may only be called into operation at times of national disaster. Pricing of such spectrum should take account of these requirements, noting that the spectrum could be shared with other services outside of these times.

By example, spectrum usage by satellite end customers is contained to discreet and disparate areas by a relatively small sub-set of the population, the ability to recover costs is limited despite the high economic, social, health and safety benefits these satellite services provide. Despite the limited market, the spectrum coverage may be required over 100% of the Australian land mass. NBNCo's Sky Muster service is a case in point – while able to provide coverage to all of Australia, it is only intended to provide service to 3% of Australian premises. These factors must necessarily be taken into account when determining the applicable spectrum taxes.

Pivotel's view is that the resulting price setting mechanism should be as simple as reasonably possible, with a high degree of transparency regarding how the pricing is derived. Reasonable certainty of pricing into the future is also important as network operators often have to take a long-term view when making investments. It is recognized that there are key sectors (e.g. Defence) that necessarily sit outside of a standard framework, but even these considerations can be handled given well designed HVU principles.

2. Detailed Comments

Below we provide commentary on the specific questions posed in the Spectrum Pricing Review consultation paper:

Question 1

Do stakeholders have any views about the status of the ACMA's role in implementing the recommendations of the Spectrum Pricing Review?

Pivotel agrees that the enactment of government recommendations on spectrum should rest with the ACMA. Pivotel also considers that the ACMA has an important role providing one of many inputs government requires in assessing the competing demands for this intangible, but highly valuable and limited resource.

To undertake this review is complex, requiring a wide understanding of policy objectives, economics, market demands, coupled with a thorough technical understanding. Pivotel therefore welcomes the ACMA's approach in actively seeking inputs from industry and elsewhere and the use of Focus Areas in order to prioritize those areas considered in need of immediate attention.

Question 2

Do stakeholders have any views on the legislative and policy environment that may be relevant to the pricing issues outlined in this paper?

Radiocommunication techniques and technologies are constantly evolving, as indeed are the market drivers behind these (e.g. in the last ten years there has been a dramatic increase in mobile broadband usage while at the same time there is arguably a reduction in market demand for television broadcast spectrum). Pivotal notes that the Apparatus Licence Fee Schedule was first used in the 1990s with some revisions made in 2004. It is therefore highly unlikely that the pricing methodologies created at that time now require fine-tuning to meet today's demands.

Notwithstanding, many spectrum-utilising services operating today, and potentially years into the future, have factored in expected spectrum costs and thus Pivotal considers that it is important that any 'modernisation' of spectrum pricing takes into account the long-term nature of infrastructure investment.

Pivotal notes the goals listed as part of its guiding legislation, namely to:

- ***maximise, by ensuring the efficient allocation and use of the spectrum, the overall public benefit derived from using the radiofrequency spectrum***
- ***provide a responsive and flexible approach to meeting the needs of users of the spectrum***
- ***encourage the use of efficient radiocommunication technologies so that a wide range of services of an adequate quality can be provided***
- ***provide an efficient, equitable and transparent system of charging for the use of spectrum, taking account of the value of both commercial and non-commercial use of spectrum***
- ***support the communications policy objectives of the Commonwealth Government.***

Pivotal concurs with at least the first four of these management objectives, however we do question whether the current processes involved in acquiring an apparatus licence hinder some of these objectives. In particular, when seeking an apparatus licence adjacent to a spectrum licenced band, there appears to be an inconsistency in that the protections afforded to the spectrum licence holders from apparatus licence holders appear greater than those that apply between the spectrum licensees. This effectively creates an inequity between the spectrum licensee and apparatus licensee even though both may use identical technologies, modulation schemes and power levels.

Along with many in the industry, Pivotal believes that incentives should be created to ensure that unused or underutilised spectrum is shared wherever this is possible. This particularly applies in the case of spectrum auctions with their 'winner takes all' outcomes – while this might meet a policy objective of maximising revenue raisings in a given year it should be recognised that this one-off gain can have a multi-year detrimental effect on other policy objectives.

As the operator of three Earth Stations in Australia and several geographically isolated 4G terrestrial networks, Pivotel is focussed on the concepts of area licensing (i.e the licensing of several transmitters in close proximity to one another) whether this is achieved by defining some form of collective location or using the newly introduced Area Wide Apparatus Licences (AWLs). Earth stations and small networks essentially create a denial of spectrum zone around them that prevents usage of that spectrum for other purposes to a population surrounding the zone. Pivotel believes that determining the surrounding population affected – Spectrum Denial - is a good measure to apply as a pricing principle.

Question 3

Do stakeholders have comments on the ACMA's draft spectrum pricing guidelines including the relevant spectrum pricing decisions, guiding principles and process for changing prices?

Pivotel considers the ACMA's proposed guiding principles satisfactory, however we feel there should be an additional consideration in terms of the geographic use of spectrum and the application of HVU principles on a regional basis.

With regard to changing prices, Pivotel agrees in principle with the price change triggers identified by the ACMA. However, we do stress the need to be mindful of the long-term investments that have been made by industry when considering any increases in price or reassignments of spectrum bands. The drivers in of investment my differ significantly depending upon the nature of the service provided; in the case of a satellite service the investment is often made on the basis of relatively few high ARPU customers whereas a mobile operator may invest on the basis of a high volume of low ARPU customers.

Question 4

Does the tax formula generally provide a solid base for incentivising the efficient use of spectrum?

The current tax formula has the benefit of having provided certainty for a number of years. This has created a solid base for making investment decisions and estimating future operating costs. However, its application is quite 'broad-brush' and does not take into account factors such as the true population covered or impacted by an assignment and therefore the true value of spectrum in a particular locality.

Question 5

Do stakeholders have views on:

- > ***prioritising the features of the tax formula and other taxes by considering different focus areas***
- > ***the criteria for prioritising the focus areas***
- > ***other matters or focus areas that should be considered as part of the ACMA's work program.***

Pivotal notes the ACMA's proposal to prioritise its approach to reviewing the tax formula through 'Focus Areas' and we consider this to be a valid approach.

Question 6

What are the relevant price points to undertake an opportunity cost analysis of taxes for services above 5 GHz? Examples of relevant information may include:

- > ***how prices for products and services have changed over time***
- > ***how prices of radiocommunications equipment have changed over time relative to spectrum prices***
- > ***comparisons with international auctions results or administrative spectrum prices.***

Pivotal questions whether comparison with international auctions is particularly relevant to Australia as so many national factors can affect the nascent demand preceding an auction. Similarly, administratively set pricing can be influenced by local factors, whether fiscal or policy.

Question 7

How can taxes be designed to account for multiple devices? Under what circumstances do stakeholders believe that one tax should relate to many devices and/or there should be 'discounts' for multiple devices authorised under one licence?

With regard to Focus Area 1 - Large bandwidth and multiple (networked devices) requirements, Pivotal considers that where multiple networked devices are clustered in one area the resulting spectrum denial is not proportionate to the number of devices and the licence taxes applied should take account of this. It would seem sufficient that the land area defining an antenna farm could be licensed in its entirety, noting that the need to identify each networked device within the boundaries would remain.

Question 8

While the current low power discount provides for a significant reduction in taxes of 90 per cent, the ACMA is interested in considering further incentives to promote the greater sharing of spectrum.

Do the lower potential denial areas of different services provide a case for considering different or additional low power discounts? In responding, please provide:

- > examples of these services and the denial characteristics of these services***
- > the information that may be required for the ACMA to be able to apply a discount***
- > views on whether such approaches can be applied across different licence types and bands.***

Pivotel does not have a specific view on this topic.

Question 9

Do stakeholders have comments on:

- > the proposal to monitor bands for potential changes in taxes and the balance and precision required in monitoring and pricing spectrum?***
- > the use of inflation to keep apparatus licence taxes contemporary and whether there are alternative approaches?***

Please refer to our comments earlier in this document. Pivotel considers that opportunity cost pricing has some merit but also has a number of drawbacks. Specifically:

- The lack of granularity applied to spectrum density areas means that if apparatus spectrum licences were allocated through an opportunity cost basis, the price would essentially be set by the geographic areas having greatest demand. Thus low demand areas encompassed within the spectrum density area would see disproportionately high pricing.
- The commercial value afforded to a block of spectrum is but one factor, and may not take into account other important factors contributing to the HVU.

Question 10

Do current spectrum locations or frequency ranges remain appropriate? If not, what changes should be made and why?

Please see Pivotel's responses in General Comments, and Questions 2, 3, 4, and 9 with regard to current spectrum locations.

With regard to frequency ranges, Pivotel regards this as an important aspect of the monitoring function, both by the ACMA and industry. A constant evolution of spectrum use should be anticipated, as in fact has been the case over the past 100 years. At one time frequencies above 30 MHz were considered worthless and now 3.5 GHz is being used for consumer mobile services – something that might have seemed unlikely at the time when apparatus licencing was first conceived.

Question 11

What factors should the ACMA consider in determining new spectrum locations or frequency ranges?

Please refer to our General Comments.

Question 12

Do the different tax rates associated with different spectrum locations or frequency ranges influence decisions about deploying radiocommunications equipment?

It is certainly the case that regarding spectrum costs and how they vary with frequency band or location are a determining factor in a network investment decision and, therefore, the availability of new services. In addition, confidence in the likely future costs is important – this is one benefit that spectrum licence holders enjoy. In line with our General Comments, Pivotel believes that the pricing methodology should be kept as simple as possible, using readily determined factors such as population densities, spectrum denial principles, and market demand.

Question 13

How does the value of spectrum change across geographic locations?

Simplistically, spectrum value is in the eye of the beholder. Spectrum auctions have perhaps provided the greatest insight as to how this varies geographically, with small lots in an urban area fetching millions of dollars to remote lots being passed-in because even a low reserve price has not enticed a bidder. It is for this reason that Pivotel is not supportive of Australia-wide spectrum licences as the price is set by the highest value areas with a consequential lock-out of access to spectrum in other lower value areas, even when the spectrum holder has no intent to use their spectrum rights.

Question 14

The ACMA also seeks views from stakeholders about:

should density areas be refined for different services/bands?

- > ***rather than having density areas, do models of congestion (like that used in the 400 MHz work) potentially better reflect demand for services and the value of spectrum? If so, what features would such a model have?***
- > ***whether different pricing constructs, such as \$/MHz/Pop for different licence types should be considered?***
- > ***whether there should be parity in pricing arrangements between services like commercial broadcasting taxes and open narrowcasting taxes?***
- > ***whether there are other services where the ACMA should be considering providing greater parity in pricing?***

Pivotal considers that the current spectrum density mappings as drawn often have the impact of preventing the efficient use of spectrum. This is because the outer boundaries of the higher density areas are rectangular and designed to encompass the last conurbation of significance to the given designation. The result is that many lower density areas are contained within a higher density classification, in many cases preventing the use of perfectly viable spectrum because the spectrum cost cannot be supported by the opportunity.

Whilst the problem of radio energy 'spill-over' from one area to the next must be catered for, it would seem that a more refined and detailed system could be created using more localised parameters such as population density and/or, as suggested, congestion as a way of valuing an apparatus licence or AWL.

Question 15

Do stakeholders have views on:

- > ***the current pricing arrangements for scientific-assigned licences for new technologies?***
- > ***the proposal for new short-term scientific-assigned licence trials and alternative pricing proposals?***

Pivotal is of the view that a test / scientific licences are an essential mechanism to further the development of new communication concepts and technologies. It is important that such licences can be made quickly available and not be encumbered by the standard licensing process, however acknowledging that existing services must be properly protected and with appropriate caveats placed on the scientific licence holder.

Pivotal supports the minimal tax approach for short term 'scientific assigned licences', perhaps with a better title to reflect the broader ambit of the scheme. Pivotal would also support extensions of the scheme beyond 12 months, recognising the long time frames associated with the industry.

Question 16

Do these proposals promote transparency and ease in calculating taxes?

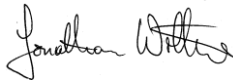
Pivotel welcomes the consultative approach taken by the ACMA and looks forward to viewing a readily understood and equitable approach to calculating the taxes.

For any questions in relation to this submission please contact:

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Government and Industry Liaison

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Yours sincerely

A handwritten signature in black ink, appearing to read 'Jonathan Withers', with a stylized flourish at the end.

Jonathan Withers

Pivotel Group Pty Limited

3. About Pivotel

Pivotel operates a mobile and satellite telecommunications network pursuant to a carrier licence issued by the ACMA in accordance with the Telecommunications Act 1997 (Cth) (Telco Act) and operates ground infrastructure in Australia, making it the fourth public mobile carrier in the country. It is the only Australian carrier with direct connection to all four major mobile satellite networks: Iridium, Inmarsat, Thuraya and Globalstar and is also a reseller of the NBN Sky Muster and BSS satellite services

The company's suite of satellite and mobile technologies enable remote connectivity via satellite phones, satellite data modems, personnel and asset trackers, docking kits, machine to machine data terminals and specialist maritime communication devices.

Pivotel's 4G LTE mobile network solution, ecoSphere®, extends its carrier network to deliver complementary terrestrial wireless services to rural and remote Australians. Using our innovative off-grid ecoCell™ base station technology and network architecture, ecoSphere® can cost effectively delivery wide area mobile broadband and IoT coverage to remote communities, transport corridors, mining, agriculture and pastoral properties using satellite or terrestrial backhaul complemented by satellite point to point IoT and high-speed data services.

Pivotel has over 130 staff and has Australian offices located on the Gold Coast, Sydney, Dubbo and Perth in addition to a number of overseas locations. In regional Australia, Pivotel supports over 160 dealers and 50 value added resellers.