Australian Government

The Treasury

Submission to the Department of Communication's Spectrum Review

8 July 2014

CONTENTS

INTRODUCTION

Radiofrequency spectrum is a scarce resource of high value to Australian society. In managing spectrum, the Australian Government should aim to ensure that it is allocated to the highest-value use. To be clear, this includes both commercial and non-commercial applications. The spectrum management function also provides the opportunity to raise revenue for the Government.

Treasury welcomes the Spectrum Review. While the current spectrum management framework aims to achieve the above objective, we consider that there is scope to refine its operation. In particular, we consider that changes could be made to provide sharper incentives for spectrum users to utilise spectrum efficiently or trade (or return to Government) underused spectrum, particularly over time.

While technological advances continue to improve spectral efficiency (effectively expanding supply), there is widespread agreement that demand for spectrum will increase more rapidly. Supply is subject to some natural limit in a way demand is not. This raises the stakes for spectrum management as it becomes more difficult to ensure that spectrum is continually allocated to its highest value use. Ensuring that spectrum can shift from one user to another, and from one use to another, will become more important. Allocating spectrum in Australia and ensuring it is used efficiently will remain highly complex.

Developing workable solutions will require a multi-disciplined approach drawing on policy, technical and legal expertise. For example, Treasury does not have sufficient expertise to provide assistance to the Review on the technical process of spectrum planning. This will continue to be an important role of ACMA.

A MARKET BASED APPROACH

Spectrum is a highly valuable, non-depletable resource which has different characteristics across the frequencies. In its natural state, it is rivalrous and non-excludable – meaning it can be characterised as a common good. In this state, it is of limited value. The Government confers value on spectrum by assuring exclusivity through property rights for a certain party or, as is the case with class licences, outlining conditions under which the spectrum can be used. This is done through regulation, licencing and enforcement.

Where demand for the exclusive right to exploit spectrum exceeds supply, Government is faced with a decision about how to allocate that right, including the terms on which it is allocated. There are several key issues around price and value that we consider require explicit consideration in this context. These are:

1. prices can provide an effective way to identify efficient use, that is, use which maximises public benefit;

    1.1. prices provide a way to consistently compare competing commercial uses and also provide a way to measure the opportunity cost of using spectrum for non-commercial purposes;

2. that efficient allocation:

    2.1. must derive revenues sufficient to cover administrative costs;

    2.2. may be an efficient means of raising revenue; and

3. structures should encourage secondary market activity or, at least, the return of underutilised spectrum to Government.

Put simply, there are two options for spectrum management: utilising markets or Government control. Government control is the traditional approach, whilst Australia has made some progress in introducing market mechanisms. The Review should contemplate the appropriate application of these approaches and the circumstances where one is superior to the other. Whilst it is difficult to envisage a world where there is no government involvement in spectrum management, especially given the important role in creating property rights, it seems likely that more use could be made of market mechanisms than is currently the case. Key issues are the ability of each approach to cope with scarcity and their ability to allow change.

1. Price as a proxy for efficient use (and public benefit)

Efficient or highest value use implies spectrum is allocated to the individual or company that will put spectrum to its optimal use at any given time. There are two elements to this – first instance allocations (and renewals) and a well-functioning secondary market. Secondary markets are discussed in more detail later in this paper.

For spectrum identified for commercial use, price is the key consideration in assessing whether spectrum is likely to be used for its most productive purpose. This is because the party that envisages the highest value use for the spectrum, with the resources to extract that value, will be willing to pay the highest amount for it.

A competitive market is the key to revealing this true value of spectrum. It is widely accepted that the best option for delivering this result is a competitive cash-bid auction. Bids are a function of all the information available to the bidder, including other bids in some auction formats, some or most of which would not be available to the Government if it were instead to set the price (as for an administrative allocation).

However, as the Digital Dividend auction process revealed, designing a fit-for-purpose cash-bid auction for the Australian market is a non-trivial problem, with the potential for the final result to be impacted greatly by circumstances beyond the Government's control.

Subject to the price being higher than alternate uses open to the Government, allocating the spectrum to the highest bidder via a competitive allocation is generally sufficient to ensure its efficient use and, in turn, sufficient to maximise public benefit in the short run. As time passes the likelihood that the allocation remains optimal recedes.

In some instances, a company may acquire spectrum with the specific purpose of depriving competitors of its use. This could have negative downstream impacts on welfare. While this is less likely to occur as the price increases, there will continue to be a role for the competition regulator in this space.

2. Charging for spectrum

While the mechanism for collecting revenue in return for managing spectrum may vary, Government should recover at least the ongoing administrative costs associated with that management. The costs of Government intervention benefit individual licensees directly so it is appropriate for those costs to be recovered from the licensee. Ideally, these costs would be equitably shared among all spectrum users via a fixed charge. Where costs can be directly attributed to particular users then they should pay. Where costs cannot be attributed to particular users then they can be spread across all spectrum users. However, there are some instances where there are significant implementation problems with

applying this approach. These problems should not discourage the Review from recommending ongoing cost-recovery charges where practical.

While covering administrative costs is a basic objective, it is likely that the value of spectrum well exceeds the Government's administrative costs.

As the ***Australia's Future Tax System*** review observed[1], the cost of raising revenue, both in lost efficiency and administrative costs, varies greatly with the revenue source. Where raising revenue from spectrum can be achieved at lower than average cost (thereby reducing the average cost of raising all revenue) without distorting the allocation, it should do so. There are good reasons, both in theory (economic rents accrue to licence holders via the exclusive use of a largely non-substitutable resource) and practice (despite suboptimal circumstances, both the 15 year renewals and the Digital Dividend raised substantial revenues at low administrative cost), to suspect this will be the case, at least for the most highly valued spectrum bands.

It is worth noting that a perfectly competitive cash based initial allocation would capture the second highest bidder's estimated present value of the stream of future rents. In addition to leaving an unknown (and unknowable) amount of rent to the highest bidder, there are good reasons to suspect the auction will not be perfectly competitive (reducing the bids) and that all bidders would discount their best estimate to account for uncertainty (mainly around technology and regulation). For example, auctions will not be perfectly competitive when there are a small number of participants such as the recent 700 MHz allocation. Ideally, these residual rents would be targeted directly via some ongoing use charge. There are significant – but not insurmountable – implementation problems with such an approach. But again, this should not discourage the Review recommending ongoing use charges where practical.

To illustrate the benefits of combining the three elements we discuss immediately above, consider combining a cash based allocation, an ongoing small administrative charge and an ongoing profit-related charge. Ignoring the practical problems associated with disaggregating the economic rents, relative to cash-based allocation alone (as for the Digital Dividend), we observe the following potential benefits:

- upfront demands are reduced as a function of lower upfront costs and lower risk, together lowering barriers to entry and innovation and the risk of costly administrative errors;

- efficient use is encouraged as a function of the administrative charge levied at a certain level irrespective of whether the spectrum is in use or not;

- transitional arrangements are more readily accessible – this hybrid approach represents a middle ground between existing approaches (between broadcasting and spectrum licences, for example);

- tenure could be made more secure because practical problems associated with estimating the value over the term of the licences for both the Government and users are moderated; and

- a further reduction in sovereign risk, because the sovereign would stand to benefit from windfall gains which might otherwise induce it to intervene.

[1] http://taxreview.treasury.gov.au

3. A well-functioning secondary market

First instance allocations are only part, albeit a crucial one, of ongoing efficient allocation. A well-functioning secondary market is also important and the Government has a key role in facilitating it.

A key part of this, not mentioned in the Issues Paper, is broadening and deepening the market by improving the homogeneity of the product on offer, permitting greater subdivision and combination by firms over time. While absolute homogeneity is an unrealistic goal, the Review may wish to explore ways to move in this direction.

Government intervention to secure the switchover to digital television over the past decade is an example of the effects of having non-homogenous (or in that case, effectively non-tradable) spectrum assets. The regulatory framework muted incentives for broadcasters to take advantage of technological change that would provide dramatic improvements in spectral efficiency and broadcast quality. Had the framework provided financial incentives for spectrum users to consider their spectrum requirements, broadcasters may have been willing to undertake these investments earlier.

This regulatory setting remains, and the issue may arise again in the future as broadcast technology continues to expand supply (through further improvements in spectral efficiency) and temper demand (as consumers continue to migrate to alternate delivery channels). Improved homogeneity would give broadcasters the flexibility to manage structural change by determining the appropriate structure and scale for their industry into the future.

It is also worth noting here that some minimum ongoing annual charge on spectrum, as envisaged in the section above, would make the cost of holding spectrum more transparent (including that which is idle or inefficiently deployed) and may have some stimulatory effect on the secondary market.

The Issues Paper specifically contemplates exploring ways to facilitate the secondary market. We think that this is a very worthwhile issue to consider, and that there are a broad range of potential approaches, from providing information to assist the secondary market to operate to more extensive options such as providing trading platforms.

A key determinant in the success of the secondary market is the extent to which the spectrum management framework confers property rights to licensees. Limiting spectrum licence tenure to 15 years inhibits the secondary market. The ability to trade decreases as the expiry date approaches given renewal of the licence is uncertain. Significant infrastructure investment is usually needed to utilise spectrum and so time is needed to recover investment costs.

The Review should consider increasing licence tenure or allowing perpetual licences. Consideration needs to be given to the ability to design perpetual licences so that they can move from one use to another. Of course, one of the trade-offs is that a longer license term increases the exposure to uncertainties about future technology, noted above, which can affect overall valuations of the licenses. A longer license term also affects the timing of revenues. The ongoing charges discussed above might help alleviate both of these potential concerns.

NON-COMMERCIAL USE

Different issues arise depending on whether spectrum is deployed for commercial or non-commercial purposes. A significant portion of the radiofrequency spectrum is currently allocated for non-commercial uses such as Defence, public broadcasting, emergency service providers, scientific research, meteorology, aviation and maritime. Given the significant spectrum holdings for these purposes, it seems highly probable that the highest-value use for this spectrum has shifted or will shift over time. To optimise public benefit, any underutilised spectrum should be reallocated.

While price may not have a role in first instance allocation for non-commercial use, it does not preclude financial incentives playing a role if possible in ensuring spectrum is used efficiently over time.

An example illustrates the possibility. Consider the prospect that a public agency currently utilises 80MHz of its public interest spectrum allocation to carry out a particular activity. A more efficient, but otherwise identical, technology exists that would permit the agency to operate the same capability in 40MHz. The cost of the upgrade is $60 million. A private firm is willing to pay $100 million for access to the 40MHz of spectrum that would be freed up by the technology upgrade. While the benefits to all parties are obvious, under the present arrangements, there would be no incentive for the agency to carry out the upgrade. Indeed, there would be every reason not to – it involves expenditure and risk for no return.

However, were the agency to receive some sort of financial incentive for relinquishing unnecessary spectrum, this may help spectrum in non-commercial hands to be used more effectively. Finding ways to put a value on spectrum held for non-commercial uses (in this case the opportunity cost associated with sale) may assist to mitigate over time any errors made in over-allocating or misallocating spectrum in the first instance. We would encourage the Review to consider this issue further.