

Macquarie Bank Limited (“Macquarie”) hereby submits its response to the Radio Spectrum Management Review. Macquarie bank is one of the 50 largest publicly owned companies in Australia and operates one of the largest trading operations in the southern hemisphere. We are well known globally in niche markets including commodity trading (e.g., base metals, precious metals and agricultural commodities). Macquarie Bank is also one of the largest retail and institutional dealers in Australian Securities.

In December 2000 Macquarie Bank announced the development of the world’s first radio frequency spectrum trading market – [www.spectrumdesk.com](http://www.spectrumdesk.com). Over the last 9 months, with industry input, Macquarie has developed a platform that is expected to deliver the promise of market-based efficiency and to promote the public interest in the efficient utilization of a finite public resource and certainty of rights and obligations.

The Australian Radiocommunications Act (“Act”) provides rules to facilitate the secondary trading of spectrum through the creation of Standard Trading Units (“STU”’s). STUs are defined by geographic area, time period and radio frequency range. The Act also provides that a spectrum licensee may authorize other persons to operate radio communication devices under the license, thereby facilitating the development of a potential neutral market for spectrum assets. A summary of the Australian spectrum management and secondary trading regime appears in the Annex.

Presently, the function of Macquarie Bank’s Spectrum Desk initiative is to use Australian spectrum management regulations in a way which permits a vigorous and efficient secondary market, which also overcomes legal and other impediments, such as

contract negotiation, transaction charges such as some taxes, registration fees and the like.

The operation of Spectrum Desk is expected to offer the following potential public benefits:

1. It could lead to a new source of public revenue, for example by incumbent public authority spectrum holders (e.g. rail authorities, educational authorities, etc).
2. It could reduce the extent of government resources required in optimizing spectrum management by vesting those responsibilities with spectrum owners and secondary market operators subject to the ultimate sanction of mandated withdrawal of those rights.
3. It may lead to additional direct government revenue, for instance by charging of additional annual license fees, renewal option entitlement fees, etc.

In this Submission, we focus specifically on the following issue for discussion:

**WHAT LESSONS CAN BE LEARNT FROM THE EXPERIENCES OF OTHER COUNTRIES IN INTRODUCING DIFFERENT MODES OF SPECTRUM TRADING**

Spectrum Desk began its Australian operations on March 14, 2001. To date, Spectrum Desk has successfully held one on-line auction in the 500 MHz Band. The trading structures utilized by SpectrumDesk are designed to offer contractual certainty, may facilitate superior transaction costs and may also facilitate the development of spot and forward markets based on spectrum assets. SpectrumDesk, which conducts both buyer and seller auctions, is based on robust market rules and the transparent flow of information between anonymous participants.

Although it is argued standard contracts and market rules are necessary to establish an efficient market, in isolation they are not sufficient to deliver suitable conditions for spectrum trading. Secondary markets are best able to attract participation in a context where there can be certainty of contractual conditions. From our operational experience in the Australian market, we believe the following conditions are required for an effective secondary market

1 Clear and consistent rights of ownership

Rights of ownership should be clearly defined in respect of a specific geographic area, radio frequency and time period. In some cases, these three-dimensional rights are also specific to a particular use (e.g. community

broadcasting). Moreover, ownership rights should be consistent across different classes of spectrum.

## 2 Clear and consistent obligations of ownership

In the same manner that ownership rights must be clearly defined, obligations attaching to that spectrum (such as non-interference) must be described so that the nature, cost and risks of owning radio frequency can be assessed in when traded. As before, it is important that there is a consistent treatment of obligations attached to different classes of spectrum.

## 3 Clarify process/requirements for renewal

Spectrum ownership rights are typically time-limited unlike many other tradable property rights such as shares and commodities). As a result some types of derivative trading agreements, such as forward contracts, may be affected.

Longer term asset financing opportunities will be limited if rights are uncertain. Spectrum owners currently fund the purchase of spectrum assets (10-15 year life) on-balance sheet as the maturity is likely to be unsuited to an off-balance sheet financing arrangement. Certainty of renewal beyond the initial term could facilitate longer term financing opportunities.

#### 4 Obligation to use or release to market

There should be disincentives, backed by legislation, to operators ‘warehousing’ unused spectrum assets, particularly where demand arises for such assets from third parties. An example of an appropriate disincentive to ‘warehousing’ might be a reduction in renewal rights for spectrum owners who fail to perform their ‘substantial service’ obligations. Consistent failure to use a spectrum right either directly or indirectly, as through a secondary market, could impair a holder's renewal option. On the other hand, spectrum holders who release under-utilised spectrum could be rewarded by recognizing an inferred right to renew at the expiration of a spectrum license period (e.g. right to match best bid at subsequent government auction).

#### 5 Assignability of rights and obligations

A further requirement for a viable secondary market in spectrum rights is legal certainty regarding the assignment of rights and obligations associated with spectrum assets.

#### 6 Fungibility

Active trading of spectrum rights through a secondary market requires sufficient fungibility, both in the legal nature of the assets being traded, and the market's ability to price the assets.

## 7 Leasing

The legislative framework should support the creation and assignability of rights to use spectrum for terms shorter than that of the parent license, to enable parties with fixed short-term needs for spectrum (such as for special events) to find supply in the market. The creation of derivative products (such as forward contracts) will allow such parties to lock-in costs in advance.

## 8 Flexibility of use

In many cases, spectrum rights are associated with conditions on use that limit their suitability for trading. To increase liquidity by attracting the broadcast range of potential buyers of spectrum assets, spectrum use restrictions should be minimized. If use restrictions are commonly attached to commercial spectrum licenses, their value and utilization may be adversely affected.

## 9 Lower transaction costs

One component of liquid markets that favours a high 'velocity' (turnover of available stock) is low transaction cost relative to the value of the underlying contract. Transaction costs include government taxes and charges, market operator fees and broker fees. Over-the-counter (OTC) commodity markets, bond markets and the London Stock Exchange are all highly liquid, in large measure because of their low transaction costs. Our experience has shown that,

in some cases, trading in spectrum assets has featured the high tax rates more commonly associated with real property transactions, than the low taxes of securities trading. The Radiocommunications Agency should cooperate with other regulatory authorities to minimize taxes on secondary market trading in spectrum rights.

#### 10 Anti-competitive behaviour

In some regional or national markets for wireless services parties with monopolist or oligopolist power have in some cases resisted trading unused spectrum through a secondary market on competitive (or 'strategic') grounds, despite clear economic benefits. Spectrum rights have thus in some cases been 'warehoused', rather than sold or leased. Such conduct should be discouraged.

#### 11 Linkage to provisioning

As the secondary market evolves it will increasingly become an integrated source of data to service companies. The fulfillment of short-term spectrum trades, however, will require standardizing data flows. "Clearing house" type services will be required, including certification of delivery, reprogramming of receiving equipment (such as antennae) and monitoring of service quality and interference.

## 12 Spectrum Register

Many secondary markets, such as securities markets, promote liquidity and market confidence by maintaining a comprehensive catalogue of interests and ownership rights. In the Australian context this approach is applied to spectrum rights in a manner that allows interested parties to verify the rights held by a counterpart. In Australia transfer of spectrum rights between private interests become final only when recorded on the national spectrum register.

Maintenance of an up to date spectrum database permits greater confidence among participants in secondary trading, and higher velocity of transactions. To enable a future ‘spot’ market where real-time provisioning depends upon market trades, an accurate database of rights will be essential.

### **RISKS**

A number of key risks arise in establishing a liquid secondary market for spectrum rights which enjoys the necessary confidence among participants:

- 1 Free market outcomes do not always serve the public interest

There is likely to be tension between a market maker mechanism and the Radiocommunication Agency’s public interest goals. The market maker will be motivated to maximize its trading returns, even if that involves buying excessive

amounts of spectrum from the market. Due to the limited amount of spectrum, it is critical to avoid unnecessary shortages, though trading by the principal may in some circumstances create further shortages. The recent shortage of supply in the Californian electricity market presents an example of a marketplace delivering negative outcomes.

## 2 'Market making' versus exchange

Secondary trading of spectrum could occur through a market making arrangement where a 'commodity' trader declares its trading need and seeks counterparties to bid against this position. An exchange operates on an impartial basis, and the operator does not typically participate as principal in trading. Exchange based markets include exchanges such as the London Stock Exchange. An exchange structure, by eliminating the risk associated with principal trading, thus offers key advantages for trading spectrum.

## 3 Positive obligations required eliminating asset 'latency'

A further risk arises from the failure by large spectrum license holders to use spectrum which they have purchased. In the future, such latency may be provisioned for short-term use, though incumbents are currently free of any positive obligation to use their spectrum licenses fully. Since the financial cost of time-based decay in holding the spectrum does not necessarily promote good corporate behaviour, a positive incentive, such as accelerated reduction of the right of renewal for that spectrum, may be in order.

#### 4 Network dependency

To ensure a vibrant secondary market, potential purchasers of spectrum must be assured of reasonable processes to obtain access (as applicable) to third party antennae, towers and 'backhaul'. While existing regulations already facilitate access to physical infrastructure related to wireless communications, a vibrant secondary market in spectrum assets will require a comprehensive and timely process.

## ANNEXURE

### SUMMARY OF AUSTRALIAN SYSTEM FOR ALLOCATION AND RE-ALLOCATION OF SPECTRUM OWNERSHIP AND RIGHTS OF USE

The Australian Legal and Regulatory model for the allocation and trading of public radio spectrum can be considered as one of the most advanced in the World, and as one of the World's most favourable for efficient trading and re-allocation of ownership and limited term third party use rights. The system is believed to be currently the subject of study as a comparison model in the UK.

Essentially, these rules are contained in the following laws:

- Radiocommunications Act 1992 (“**Radcom Act**”)
- Radiocommunications (Trading Rules for Spectrum Licences) Determination 1998 (“**Trading Determination**”)
- Radiocommunications (Third Party Use – Spectrum Licence) Rules 2000 (No. 2) (“**Third Party Use Rules**”)

These rules provide for classification of controlled (ie. Public) spectrum into 3 types:

- **Class Licences** – applicable to particularly to licences of low interference devices, such as remote control for TVs, etc
- **Apparatus Licences** – applicable to specified devices, often required to be operated inter-dependently
- **Spectrum Licences** – a new type of licence structure, now the preferred model.

These rules are of course supported by a range of other laws, such as carrier licensing requirements, individual transmitter and receiver licensing requirements, administrative and charging provisions, etc.

Under the spectrum licence scheme, which is governed by Part 3.2 of the Radcom Act, holders of spectrum licences effectively control the use (or non-use) of licensed spectrum for the period of the licence. Licensees have control over the technologies to which the spectrum is applied.

Division 5 of Part 3.2 of the Radcom Act permits trading of spectrum licences. Under the Trading Determination, trading may take place in respect of the whole or any part of a spectrum licensee's total licence provided that what is traded is “not less than a whole STU or multiple of whole STU's”. The term “STU” is a reference to a “Standard Trading Unit”, a term which was originated in the marketing plan for spectrum licensed spectrum when it was first issued.

A Standard Trading Unit is an item of property which is defined at the first dimension geographically, specific local area dimensioned by latitude and longitude, and at the

second dimension by time (normally 15 years) and at the third dimension by licensed radio frequency covered by that licence for that STU.

There are also a number of ancillary rules, such as specific provisions of the Income Tax Assessment Act 1997, by which spectrum licensed spectrum, held as STU's, is deemed to constitute property which is, for instance, subject to depreciation and consequent deduction against otherwise taxable income of spectrum licensees.

Section 68 of the Radcom Act also permits spectrum licensees to authorise third parties to use their spectrum licensed spectrum, that right is subject to the Third Party Trading Rules.

The operating effect of all of these provisions is that spectrum is capable of being made subject to dealings both in respect of ownership of parts of a licence (being not less than whole STU's) and also rights of third party use without restriction as to area (eg. regardless of whether the authorisation relates to less than a whole STU). However, under the Third Party Trading Rules, the Licensee remains liable for all of the Licensee's obligations under the Act (including obligations against allowing interference to be caused to other licensees), and any third party authorisation must also always be subject to an immediate right by the Licensee to terminate the third party use entitlement, albeit subject to a reservation of a right of damages for the authorised third party in that event. This system permits the Government and its Agencies, firstly to control the allocation of spectrum by reserving the direct interface exclusively to the licensed owners of the Spectrum Licences, secondly to permit Licensees to actively exploit their licence entitlements by authorising third parties to use those rights and to manage that use by agreement with the third parties, and thirdly to exercise ultimate control by mandating the termination of Third Party Use Rights where deemed appropriate.