

MONASH BUSINESS POLICY FORUM

Reforming free-to-air broadcasting in Australia

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Contents

Executive summary.....	2
Introduction	5
Recommendations.....	6
Licensing and market structure of the Australian FTA network	7
Regulation and public service objectives.....	10
Structural interventions	14
Regulatory interventions	16
Do content regulations bind the commercial broadcasters?.....	18
Lessons from the UK	20
Key recommendations	22
Subsidiary recommendations	27
Conclusion	28

Executive summary

Spectrum policy in Australia needs reform. The current *Review of Digital Television Regulation* recognizes that “it is time to review the current broadcasting regulatory framework to ensure it is fit for purpose for the next wave of innovation in the media sector”.¹ The Monash Business Policy Forum considers that a key part of this process is the review of how we license spectrum for free-to-air (FTA) broadcasting. In many ways our suggestions build on the experience of UK re-regulation of the spectrum in 1998.

The Australian model of FTA broadcasting and spectrum rights is stuck in the 1950s. There are three main areas of concern.

- (i) While analogue transmissions require a lot of spectrum to transmit a single channel, digital transmissions can be “multiplexed” by combining several low data-rate television signals into one signal for transmission as a single broadcast. This allows several digital TV channels to fit into the “space” previously used for only one analogue channel.²
- (ii) Products and consumer preferences have also changed significantly. Pay-TV, subscription video on demand, catch-up television and other online offerings all compete with FTA television for audiences.
- (iii) There are also content restrictions that date from an era when FTA television was the primary source of family evening entertainment. FTA broadcasters face wide-ranging, prescriptive ‘public service obligations’ that require them to show minimum amounts of Australian drama, Australian children’s content and Australian documentaries.

Each of these areas of FTA policy needs to be re-visited and, where necessary, reformed.

In our opinion, the current approach to FTA television in Australia is broken and dysfunctional. The principal culprit is a licensing system that combines the right to provide a FTA broadcasting service with the licensing of spectrum or, more specifically, the ability to control a multiplex. The current regulatory regime provides incumbent networks with complete control over the

¹ http://www.communications.gov.au/television/consultation_paper_digital_television_regulation

² The process of multiplexing signals together has led to the frequency band used to transmit a digital signal being referred to as the “multiplex”. For example, the 7Mhz band of spectrum that Channel 7 broadcasts in is referred to as Channel 7’s multiplex. Although strictly inaccurate, this terminology neatly captures the idea that a single digital transmission can carry multiple signals, and will be adopted throughout this report.

available spectrum. But this control is tied down by a range of regulatory constraints and provides limited incentive for innovation and no ability or incentive for new FTA entry.

First, this paper argues that the current commercial television broadcast licenses should be split in two:

- (i) a new category of license that gives permission to operate a digital television multiplex; and
- (ii) a 'content service license' that establishes the right to provide a service that can be carried on a multiplex. We will refer to these licensees as 'broadcasters'.

The multiplex licenses can be auctioned off for, say, a ten-year period and incumbent commercial FTA broadcasters can bid for these licenses, either by themselves or in partnership with other commercial organizations. The auction revenues would replace existing license fees.

This reform will allow both new 'spectrum specialists' and new broadcasters to enter the market. Spectrum specialists can bid for a multiplex license and, if successful, can sell space on the multiplex to broadcasters. New broadcasters will be able to bid for capacity on a multiplex, both by time and bandwidth, without having to own and operate a multiplex themselves.

Second, we propose eliminating the commercial broadcasters' public service obligations and transferring the public service obligations to the public broadcasters. This has two desirable consequences. It makes it much easier for new and innovative broadcasters to enter the market. If entrants were forced to meet the existing content rules, they would finish up offering the same content mix as we currently see. The second benefit is that it makes the role, function and rationale of the government-owned broadcasters much more transparent.

Third, the government-owned broadcasters would have an independent source of revenue from two streams. First, they can receive the funds raised by auctioning the multiplex licenses. Second, the government-owned broadcasters should also be allowed to lease space on their multiplexes to licensed content service providers, subject to them satisfying their public service obligations. This helps ensure the long-term viability of the ABC and SBS.

A similar approach to FTA broadcasting has been successfully adopted in the United Kingdom. When digital television was launched in 1998, the UK instigated a new licensing system that separated the right to provide programming and the right to own and operate a multiplex. This

new system of licensing has seen a proliferation of digital television channels in the United Kingdom, with over 60 channels now available.

In the UK, each multiplex operator acts as a platform, with the multiplex licensee responsible for building and maintaining the technical infrastructure required for broadcast. A licensee with the right to provide programming can rent space on a multiplex for anything from an on-going 24-hour broadcast to as little as a few hours. For example a broadcaster can rent spectrum to only provide children's programming during the after-school hours. While the majority of channels are still operated by the 'incumbents', the regulatory changes have driven increased competition, particularly for niche broadcasting services such as the *Travel* channel; *Movies4Men*; and the adventure based *Quest*. As a result, viewers have a wider range of content and greater choice.

In our opinion, these reforms will reset Australia's FTA television rules and spectrum management to world's best practice. It will create a viable and vibrant mix of government-owned and commercial broadcasters, increase innovation and viewer choice while providing on-going funds for the ABC and for the SBS, and focus legitimate public service obligations on the government-owned broadcasters who are best placed to meet these obligations.

Introduction

Spectrum policy in Australia needs reform. Nowhere is this more evident than in how we license spectrum for free-to-air (FTA) television broadcasting.

In this paper we consider the problems with Australia's FTA television system and how we can change both spectrum allocation and public service obligations to improve viewer choice, increase competition and provide a unique role for Australia's government-owned broadcasters.

Our recommended reforms require

- that the current commercial television broadcast licenses to be split in two, vertically separating the control of spectrum from the right to broadcast over that spectrum. This will allow new broadcasters to enter the market by bidding for spectrum.
- That public service obligations should be reformed and refocused on the government-owned FTA broadcasters, the ABC and the SBS. This will create a level playing field for commercial broadcast competition while allowing legitimate public service objectives to be met for FTA television.

The approach recommended in this paper is similar to the approach to FTA broadcasting that has been successfully adopted in the United Kingdom. Put simply, it brings Australia in line with world's best practice: it is a model which is practical, proven and successful.

Recommendations

Recommendation 1: Each commercial television broadcast license should be split into two separate licenses: a license to operate a digital television multiplex; and a ‘content services license’ providing the right to supply a broadcasting service that can be carried on a multiplex.

Recommendation 2: The three commercial multiplex licenses would be auctioned off. Each incumbent network would be permitted to bid for control of a multiplex.

Recommendation 3: The holders of a commercial multiplex license and the national broadcasters, the ABC and the SBS, would be allowed to on-lease space on their multiplexes to any party that holds a commercial service license subject to commercial agreement between the relevant parties. The relevant regulatory authority would provide content service licenses at cost to any relevant party that meets appropriate (minimum) standards to be a content broadcaster.

Recommendation 4: All content requirements would be removed from the commercial networks. The responsibility for public-service broadcasting would be shifted to the ABC and SBS.

Recommendation 5: Multiplex auction income would be rolled into ABC/SBS budget.

Recommendation 6: With the exception of the “minimum number of voices” rule, all specific cross media restrictions would be removed.

Subsidiary Recommendation 7a: The 6th multiplex would be rolled into the digital dividend and auctioned off as spectrum license: i.e. not restricted to use for broadcasting.

Subsidiary Recommendation 7b: Datacasting would be abolished as a regulatory category

Licensing and market structure of the Australian FTA network

There are five main license types that govern regulation of the free-to-air broadcasting industry in Australia: commercial broadcasting, national broadcasting, community broadcasting, datacasting and narrowcasting licenses.³ In this section we summarize the features of each of these licenses and consider the resulting market structure.

Commercial broadcasting licence

Commercial broadcasting licences are issued to for-profit broadcasting services that provide programs intended for broad appeal and that are free to the public.⁴ Each license is based on a specific license area. For example, the state of Victoria is divided into the Melbourne, Eastern Victoria, Western Victoria and Mildura/Sunraysia license areas. If a broadcaster wishes to operate throughout the state then it is required to obtain a separate license for each area.

The *Broadcasting Services Act* limits to three the number of commercial broadcasting licenses issued in each license area and, through the cross-media ownership rules, also places significant restrictions on ownership and control of television licenses and other media organisations.⁵

Currently there are 64 licenses in operation across Australia, all of which are controlled by the three major networks Seven, Nine, and Ten or their affiliates.⁶

A commercial broadcast licensee can also access a multiplex to carry its services. In this sense, a commercial broadcasting license is effectively two licences in one: a licence to provide content for broadcast, and a separate license that provides access to spectrum in the Broadcast Services Band (BSB).

³ There is also subscription and international licensing, but these fall outside the scope of free-to-air television in Australia.

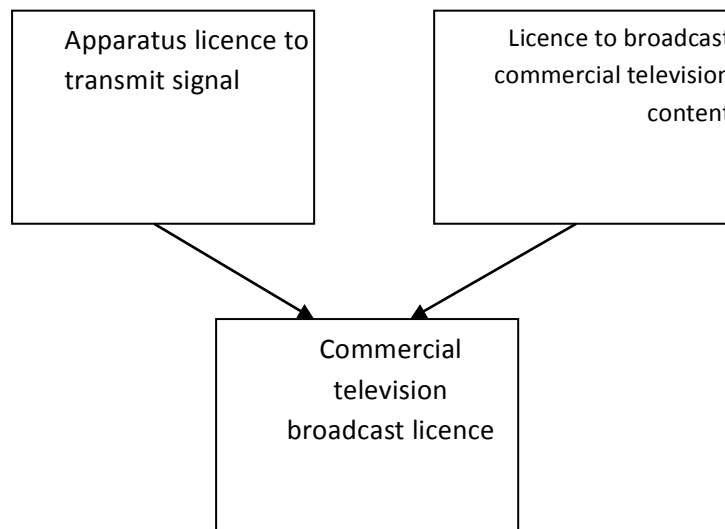
⁴ ACMA *Broken Concepts 2013*

⁵ Spectrum has been allocated to a fourth commercial broadcasting license in each area. However, such licenses cannot be issued under the restrictions imposed by the *Broadcasting Services Act*.

⁶ <http://www.acma.gov.au/~media/Radiocommunications%20Licensing%20and%20Telecommunications%20Deployment/Information/pdf/Commercial%20Television%20Broadcasting%20Licences%20LIC021.pdf>

A commercial broadcasting licensee faces obligations through a range of standards issued by the ACMA. These include requirements to show minimum amounts of Australian content, children’s programming, and local information for regional television licensees.

Commercial television broadcasters are subject to annual licence fees under the Television Licence Fees Act 1964. The licence fees are calculated as a percentage of a licensee’s gross earnings, with the percentage increasing as gross earnings increase to a maximum rate of 4.5 per cent.⁷



National broadcasting services

The national broadcasting television services comprise of the Australian Broadcasting Corporation (ABC) and the Special Broadcasting Service (SBS). The national broadcasters were created by act of Parliament under the *Australian Broadcasting Corporation Act 1983* and the *Special Broadcasting Services Act 1991*. They are largely tax-payer funded, with the SBS receiving some advertising revenues and both earning some revenue from product sales.

Community broadcasting licence

Community broadcasting licenses are issued to not-for-profit broadcasting services that provide programs for community purposes.

⁷<http://www.acma.gov.au/Industry/Broadcast/Television/Licence-fees-and-charges/broadcasting-licence-fee-rebate-licence-fees-acma>

Datacasting licence

Datacasting licensing was introduced as a means to encourage “innovative new services” on the broadcasting spectrum.⁸ A data-casting license is for a broadcasting service that provides information-only programs, educational programs, interactive computer games and content in the form of text or still visual images. In practice, datacasting is used for home-shopping and premium rate phone lines.

Narrowcasting licence

A narrowcasting licence is a licence for a broadcasting service whose reception is limited by being targeted to special interest groups or is limited in location, time, or appeal.

Australian FTA broadcasting market structure

The Australian television broadcasting market has five main participants: the two national broadcasters, the ABC and SBS, and the three commercial networks, Seven, Nine, and Ten. Community television also operates in Brisbane, Melbourne, and Sydney metropolitan areas.

Spectrum space has been planned for six 7Mhz multiplexes in each license area. Of the six multiplexes, five have been allocated to the major broadcasters who each control one multiplex, while the sixth remains mostly unutilised except for some community television broadcasting. As the ACMA is required by law to ensure that no more than three commercial licenses are allocated in each license area, the remaining multiplex remains vacant in most areas.

The introduction of digital TV and multi-channelling has created a two-track regulatory system in which a number of public-service obligations apply to a network’s ‘primary’ service, such as program standards for Australian content, that do not apply to their other digital multi-channels. The primary service is the channel that constitutes the network’s ‘core’ service and will be familiar to most viewers as the network’s sole channel during the analogue era. The commercial networks also provide some channels under a datacasting license that, while highly restrictive in the types of programming they can show, is largely free from public-service obligations.

Table A2 in Appendix 2 provides an example of the primary and multi-channel services carried on each multiplex.

⁸http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1011/11rp07#_Toc277864230

Regulation and public service objectives

Spectrum requires regulation, including over the spectrum used for broadcasting. In the absence of regulation, spectrum would be a non-excludable but rivalrous. It would be non-excludable as any party wishing to use part of the wireless spectrum could simply start to transmit. But use would be rivalrous in the sense that interference would result in congestion and degradation of signals received by consumers. The end result would be an inefficient use of the spectrum.

The regulation of spectrum, however, extends beyond technical considerations. If our only worry was interference between users then all spectrum could be allocated via tradable spectrum permits with little need to set aside bands for specific use. There are various benefits to planning spectrum for uses that have 'public good' qualities such as emergency broadcasts, military purposes and aviation communications. On the same grounds, a band of spectrum is allocated specifically for broadcasting.

But the regulation of broadcasting goes well beyond spectrum assignment. Broadcasting occupies a unique position in the media landscape. No other platform enjoys a combination of population reach, ease-of-access and popularity like FTA broadcast television. Its services are ubiquitous, available free of charge in nearly every household and relevant, with Australians watching over three hours of television on average per-day.⁹ Television audiences also exhibit inertia. The majority of viewing hours occur during evening prime-time and if a viewer starts on one channel, he or she tends to stick with it.¹⁰ Combined with the power of storytelling through a visual medium, this results in broadcast television being uniquely placed to influence Australia's cultural, social and political landscape.

Clearly this role of FTA television in our society is not static. As technological convergence continues, other media platforms are matching broadcast television for population reach and are providing services that are substitutes for broadcast television. Trends show that Australians are spending less time in front of the television and more time in front of other screens, such as laptops and mobiles. However, care must be taken not to over-state the magnitude of this shift. In 2013, Australians watched an average of ninety-six hours of broadcast television each month, compared to just over five hours per month viewing video on a PC/laptop and a little over two

⁹http://www.oztam.com.au/documents/Other/Australian%20Multi-Screen%20Report%20Q3%202013_FINAL.pdf

¹⁰http://faculty.som.yale.edu/ConstancaEstevesSorenson/documents/Microcosts_000.pdf

hours on their mobiles and tablets.¹¹ While other platforms may be becoming more relevant, broadcast television continues to dominate viewer time.

Because of the key role of FTA television in reaching and influencing the Australian public, governments have imposed public service obligations on broadcasters.

The *Broadcast Services Act 1992* outlines that, as a matter of policy, the amount of regulation a broadcast medium is subject to should be proportionate with the degree of influence the medium exerts in shaping community views in Australia.¹² Accordingly, a high level of regulation has applied to commercial broadcast television because it is considered to exercise a higher degree of influence over the Australian public than competing mediums, such as radio and the Internet.¹³ The regulations include ownership restrictions and content requirements for commercial broadcasters, alongside more direct forms of intervention via the ABC and SBS, and restrictions on the number of broadcasters in any one area.

The regulation of public service obligations is messy. In some cases the objectives that the government wishes to achieve through the obligations are clear and are explicitly stated in the relevant Acts or accompanying explanatory memoranda. In other situations, the objective of specific interventions is less clear. The various Acts, charters and standards along with the volumes of discussion in both official government reports and the wider media suggest there are three objectives of prominence:

- preserving a plurality of voice in news and current affairs;
- using broadcasting to develop and reflect upon Australian identity, character and cultural diversity; and
- ensuring that all of Australia's diverse range of peoples have access to programming of relevance to them.

These objectives and related areas of intervention are summarised in Table 1 below.

Broadly speaking, public service objectives in broadcasting are pursued through either *structural interventions* or *regulatory interventions*.

¹¹http://www.oztam.com.au/documents/Other/Australian%20Multi-Screen%20Report%20Q3%202013_FINAL.pdf

p.2

¹²*Broadcast Services Act 1992* 4(1)

http://www.comlaw.gov.au/Details/C2013C00005/Html/Volume_1#_Toc344914654

¹³ Report of the Independent Inquiry into Media and Media Regulation, Para 6.28

- Structural interventions consist of actions that influence the number and ownership of participants in a marketplace. The government-owned ABC and SBS directly provide FTA television services. These two networks are run on a not-for-profit basis with their primary purpose being the fulfilment of their public-service charters. An additional structural measure is the limit on commercial broadcast licenses issued for any one geographical area.
- Regulatory interventions consist of requirements placed upon broadcasters, often through license conditions. These requirements are contained in the *Broadcasting Services Act* or the various standards issued by the ACMA. Softer regulatory tools, such as subsidies, are also used to guide the investment choices of the commercial networks.

Table 1: Public service objectives

	Objective	Relevant area of intervention
Spectrum management	Ensure efficient use of spectrum while minimising interference between uses	
	Ensure that adequate spectrum is available for use in public and community services	<i>Radiocommunications Act 1992</i> Section 3b
Public-services	Preserve plurality of voice in news and current affairs	<i>Broadcasting Services Act 1992</i> Part 5, in particular the rules regarding: <ul style="list-style-type: none"> • 'Minimum number of voices'; • Three way control; • 'One-to-a-market'; and • 75% reach
	Use broadcasting to promote a sense of Australia identity	Stated objective of the <i>Australian Content Standard 2005</i> Implicit objectives of the sub-quotas contained in the <i>Australian Content Standard 2005</i> Charter of the ABC in <i>Australian Broadcasting Corporation Act 1983</i> , section 6
	Ensure that broadcasting is relevant to, and reflects the diverse nature of, all Australians	Charter of the SBS in <i>Special Broadcasting Services Act 2001</i> , Section 6 Charter of the ABC in <i>Australian Broadcasting Corporation Act 1983</i> , section 6
	Ensure the provision and acceptable standards of children's television	Stated objective of the <i>Children's Television Standard 2009</i> Charter of the ABC in <i>Australian Broadcasting Corporation Act 1983</i> , section 6
	Ensure regional viewers receive programming of local significance	<i>Broadcasting Services Act 1992</i> Section 43A
	Encourage new and innovative services	Datacasting license and definition in <i>Broadcasting Service Act</i>

Structural interventions

The ABC and SBS

The charters of the ABC and SBS are set out in Section 6 of the *Australian Broadcasting Corporation Act 1983* and the *Special Broadcasting Service Act 1991*. These charters require the ABC and the SBS to take into consideration the programming provided by the commercial networks, but at the same time to provide a balance between broadcasting programs of wide appeal and specialized or niche programs. This ‘mixed mandate’ appears to recognise viewer inertia. It recognises the value of creating and holding large audiences through popular programming that will remain with the broadcaster to watch other valuable content that is not found on the commercial networks.¹⁴ That said, the *raison d’être* of two national broadcasters is to provide services that are neglected by the commercial and community television broadcasting sectors.

Responsibilities for the different areas of public-service broadcasting are split between the ABC and the SBS, although there is some overlap in the provision of educational programming and news and current affairs. The ABC’s primary function is to broadcast programs of broad appeal that contribute to a sense of national identity. The ABC is in a sense the “Australian” broadcaster, with a focus on the promotion of Australian content and issues relevant to all Australians, regardless of cultural or ethnic background. On the other hand the SBS draws upon a range of international material to provide niche programming that is relevant to, and reflects the diverse nature of, the many communities that make up Australia’s multicultural society.

Both the ABC and SBS have the responsibility to provide programming of an informative and educational nature – whether that is through documentaries or news and current affairs – and contribute to the plurality of views and opinion that makes up the media landscape. The SBS is also required to promote understanding and acceptance of the cultural, linguistic, and ethnic diversity of the Australian people.¹⁵

The charters are not prescriptive and allow significant flexibility in the types of programming and services provided. This has enabled the national broadcasters to trial new and innovative

¹⁴ Convergence Review p.85

¹⁵ See the respective Charters for details.

means of meeting their objectives, such as ABC iView, which has become a major platform for viewing the ABC's content with over 15.4 million program plays in April 2013.¹⁶

Restriction of entry

Broadcast spectrum has been set aside for the entry of a fourth commercial network alongside the current three commercial networks and the two national broadcasters. This so-called "sixth multiplex" or, previously, the unassigned "Channel A", is a 7Mhz multiplex that is currently being temporarily used in some license areas for community broadcasting.

Following the completion of the Convergence Review, the government announced that no additional licences or spectrum would be made available to enable a fourth commercial television network, leaving the unassigned channel effectively empty. This decision was put into effect through amendments to the *Broadcasting Services Act*, which now requires the ACMA to ensure that no more than three commercial television broadcasting licences are issued in each licence area.

In our opinion, there is no convincing rationale for leaving this channel unused. Nominally the channel is to be used for community television services, but reserving an entire multiplex Australia-wide for a one-channel service in only a few metropolitan areas represents a severe under-utilisation of resources. The convergence review flagged the channel capacity for "new and innovative services" to be determined by a new communications regulator or, presumably in the new regulator's absence, the ACMA, yet no action has been taken towards this end.

The ban on a fourth commercial network probably benefits the incumbent commercial broadcasters. Effective entry by an additional commercial broadcaster would reduce incumbent profits by competing for viewers and increasing available advertising space, inevitably leading to lower advertising rates. We do not know whether there is a market for an additional network..

It could be argued that the ban on a fourth commercial network is a *quid pro quo* for the prescriptive content requirements placed on the incumbent networks, that is, you protect them from competition but make them cross-subsidise local programming. However, if this were the case, then it would be a convoluted and inefficient way to fund content requirements. We propose a clear, transparent alternative in this paper.

¹⁶<http://www.theaustralian.com.au/media/abcs-iview-most-popular-app/story-e6frg996-1226637793769#>

Media ownership rules

Through restrictions on the control of media organisations and commercial television broadcasting licenses, the *Broadcasting Services Act* guarantees a minimum number of unique media operators and attempts to limit the amount of influence any one individual or entity can exert in a given community. These are summarised in Table 2.

Rule	Description
Minimum number of Voices or '4/5 rule'	There must be no fewer than five independent and separately controlled media operators or groups in a metropolitan commercial radio license area* and no fewer than 4 in a regional area
Three way control or '2 out of 3' rule	A person cannot control more than two out of three specified media platforms – commercial television, radio, or newspaper – in a commercial radio license area.
'One-to-a-market' rule	A person must not be able to exercise control of more than one commercial television license in a license area, except where that license is issued under section 38C of the Broadcasting Services Act.
'75% reach rule'	A person must not be able to control an aggregated license area for commercial television broadcasting licenses that exceeds 75% of the population.
*The relevant commercial radio licence area is used as it is considered that a radio licence area will more closely reflect the influence of radio and newspaper services in a community than a television licence area, which may cover a large geographical area.	

Regulatory interventions

Use broadcasting to promote a sense of Australia identity

The regulatory framework employs a combination of prescriptive programming requirements outlined in various standards, and less interventionist measures such as tax offsets and government grants for Australian production, to support Australian content on commercial television. The objective of these restrictions is to use FTA television to promote a sense of Australian cultural identity.

¹⁷ Convergence Review p.19

The *Australian Content Standard 2005* is the primary mechanism by which Australian content is promoted and guaranteed on commercial television. The standard sets the minimum level of aggregate Australian programming to be broadcast, requires minimum amounts of first-release drama, documentary and children's programming, and requires the broadcast of preschool programs. The details of these obligations are summarised in Table A2 of Appendix 3

Different obligations apply to each commercial broadcaster's primary channel and multi-channels. The primary channels are required to broadcast an annual minimum of 55% Australian content between the hours of 6am and midnight. The commercial multi-channels such as Go, Seven Mate and One are each required to broadcast a minimum of 1460 hours of Australian content in 2015, up from 1095 hours in 2014. There are no requirements for the multi-channels to show first-run Australian content and the quotas may be filled by showing news, sport and program repeats¹⁸. However, there is a small incentive for showing Australian drama by allowing one hour of first-release drama premiered on a multichannel to count as two hours under the transmission quotas.¹⁹

Alongside the Australian content requirements sit a range of subsidies and government funding and grants. These measures seek to lower the private cost for producers of Australian programming to better reflect the societal value of the content they create. They are summarised in Table A3 of Appendix 4.

Ensuring regional viewers receive programming of local significance

Responsibility for regional programming rests primarily upon the commercial broadcasters operating in regional license areas, with the *Broadcasting Services Act* requiring regional licensees to broadcast a minimum amount of content of local significance. This amount is determined by the ACMA via a points system, with a particular incentive for licensees to broadcast local news.²⁰

¹⁸<http://if.com.au/2012/12/03/article/Screen-industry-continues-attack-on-multi-channel-local-content-requirement/HIQKKSBFZN.html>

¹⁹ Office of Senator The Hon Stephen Conroy Media Release: Government Moves to Ensure that Quality Australian Content stays on Television http://www.afr.com/rw/2009-2014/AFR/2012/11/30/Photos/731f147e-3ab2-11e2-bd23-3b4cf876275d_Conroy%20media%20release%20on%20TV%20content.pdf

²⁰<http://www.acma.gov.au/Industry/Broadcast/Television/Local--regional-content/material-of-local-significance-local-regional-tv-content-i-acma>

Do content regulations bind the commercial broadcasters?

Regulatory interventions mean that commercial broadcasters have responsibilities in the areas of education, children's programming, and national identity. Estimates of the costs to the commercial broadcasters of these obligations vary. However, a report by PricewaterhouseCoopers for the Convergence Review provides a 'best guess' of the cost at approximately \$269 million per annum.

It is not clear how content would change if these obligations were removed.

If we focus on Australian content, as noted above, a commercial broadcaster's primary channel is required to broadcast an annual minimum of 55% Australian content between the hours of 6am and midnight. This content is expensive, but it is also popular. Thus, in 2013 all of the top 20 programs on commercial television were Australian reality TV, sport or drama.²¹ Between 2010 and 2012, no network broadcast less than 60% Australian content, with Seven and Nine broadcasting nearly 68% total Australian content in 2012, which is well in excess of the 55% mandated minimum.²² In the culturally important drama category, Australian drama occupied five of top 10 most watched series of 2013, with Channel 7's Australian drama *A Place Called Home* narrowly missing out on top spot.

On these numbers, the quota requirements for Australian content on at least some commercial broadcasters' primary channels do not bind. This suggests that there might be little change in Australian content if the explicit regulations were removed.

At the same time, it can be argued that, on a risk-adjusted basis, first-run Australian content is less profitable than showing first-run international content and, if permitted to do so, the networks would broadcast substantially less first-run Australian content. While direct comparisons are difficult, it has been estimated by Screen Australia that licensing an hour of US first-run drama typically costs in the order of \$100,000 - \$400,000, compared to a \$350,000 - \$1.4million net cost (the cost after all offsets and grants) for first-run Australian drama.²³ A similar disparity between costs was found in the PricewaterhouseCoopers report for the

²¹<http://www.smh.com.au/entertainment/tv-and-radio/the-ratings-reality-show-the-most-watched-tv-of-2013-20131204-2ypc6.html>

²² ACMA Comparison of Compliance Results

²³ Screen Australia, submission in response to open call, p. 34

Convergence Review.²⁴ Further, Australian first-run content tends to be more risky. An appeal of overseas content is that it is accompanied by a detailed ratings history and demographic breakdown, which provides a good indication to its likely reception in Australia. Such data does not exist for first-run Australian content.

Some types of Australian content, such as documentaries and children's programming, historically, have not rated as well nor provided as much advertising revenue as Australian drama and sport. In these genres, the sub-quotas bind. For example, no network showed more than its mandated minimum of children's programming and, in 2012, only Channel 7 exceeded its quota for first-release Australian documentary.²⁵ This assessment is in line with the Productivity Commission's observation in 2000 that as long as the broadcaster's main concern is the ability to generate a profit, high cost programs with social and cultural value will be vulnerable to replacement by programs with a better revenue-to-cost ratio, even if the alternative is less popular with viewers and advertisers.²⁶ This is less relevant in 2015 when businesses have the capability of presenting programs across more than one outlet.

In summary, it is likely that commercial broadcasters would show less Australian content, and particularly lower levels of Australian documentaries and children's shows, if the content regulations were relaxed or removed. In this paper we take as given that it is desirable to achieve specified levels of Australian content. Accordingly, we will explicitly consider how these content requirements can be achieved when considering any reforms to FTA broadcasting – there is more than one way to skin a cat.

²⁴ *How Do Local Content Requirements Impact Australian Productions? Review and Analysis of Broadcast Sector Minimum Content Requirements*, report prepared for the Department of Broadband, Communications and the Digital Economy, May 2011, p. 30).

²⁵ ACMA Comparison of Compliance Results

²⁶ Productivity Commission, *Broadcasting*, report no. 11, 2000, p. 383 cited in the Convergence Review, p.64

A new approach

Australia's system of licensing FTA broadcasters is in need of an overhaul.

The current regulatory framework creates an insurmountable barrier for the entry of new competitive commercial broadcasters, despite the relevant spectrum being available. This harms both viewers and advertisers. It also means that valuable spectrum is left idle.

By bundling the right to broadcast television content with the right to operate a multiplex, the current regulatory system leads to inefficient use of spectrum by commercial broadcasters. The networks are compelled to fill the entire multiplex with their own services. But to reduce costs and avoid audience fragmentation across their other channels, it is often in the network's interest to offer fewer or poorer quality channels than the multiplex can carry. This situation is exemplified by datacasting, where the networks use some of their capacity to broadcast cheap, low-quality programming (for example, home-shopping) that does not affect viewer numbers on their other channels. It is hard to believe that home-shopping represent the best use of this scarce spectrum.

The costs of the current regulatory restrictions are significant. For example, the cumulative space taken up by the six datacasting channels represents the entire capacity of a 7Mhz multiplex. Using the reserve price from the recent digital dividend auction as a guide, this spectrum would be valued at some \$200 million dollars Australia wide.²⁷

The problems created by tying spectrum rights and broadcasting rights are well known. For example, in their 2001 inquiry into the broadcasting industry, the Productivity Commission argued that the current licensing approach attempts to both simultaneously manage spectrum and regulate broadcasters' behaviour, creating a needlessly complex system where it has become difficult to determine the regulatory end being pursued. Despite being over a decade old, this assessment is still relevant to today's broadcasting industry.²⁸

Lessons from the UK

Experience from the United Kingdom shows what opening up the FTA sector to competition can achieve. The UK instigated a new licensing system, separating the right to provide programming and the right to own and operate a multiplex, when it launched digital television in 1998. This

²⁷ Using the value of \$1.36/Mhz/pop and an Australian population of 23 million gives \$218,960,000

²⁸ See Productivity Commission: *Broadcasting Enquiry 2000*.

new system of licensing has seen a proliferation of digital television channels in the United Kingdom, with about 60 channels now available.

Of the six multiplexes available in the UK, the incumbent networks each received half the capacity of a multiplex while the BBC was awarded an entire multiplex on its own. The remaining three multiplexes were auctioned off and are completely free to carry programming from anyone with a Digital Transmission Programming Service (DTPS) – the right to provide programming – license. The multiplex operator acts as a platform, with the multiplex licensee responsible for building and maintaining the technical infrastructure required for broadcast. The multiplex operators may be DTPS licensees themselves or completely independent of the production process with DTPS licensees renting space on the multiplex for anything from a 24-hour per day broadcast to as little as a few hours, for example to provide children’s programming after-school. Public service obligations are focussed on the BBC, and the new DTPS licensees, who have to rent space on a multiplex, have very few public service obligations.²⁹

The majority of channels are still operated by the incumbents. However, without the fixed costs of building, maintaining and operating a transmission network and with reduced costs of public service obligations, new broadcasters have emerged. Many of the new channels are niche focused such as the *Travel* channel; *Movies4Men*; and the adventure based *Quest*.³⁰

It has been argued that, under UK-style reforms, broadcasters’ profits would be squeezed with increased services and multi-channelling leading to higher costs, while audience fragmentation and competition from new channels would lead to declining revenue.³¹

While competition will undoubtedly mean that existing commercial networks must improve their product offerings or lose viewers and advertisers, the UK experience shows that this does not mean that public service objectives are seriously undermined. Rather, it shows how these objectives can be focussed on the government-owned broadcaster. The BBC carries the majority of public service obligations in the UK and its funding effectively guaranteed via the license-fee. Having stable funding quarantines the BBC from competition and enables it to meet its public service obligations despite increased competition. The few public service objectives that are not

²⁹ These mainly relates to quotas for independent production. See *Communications Act 2003* Para 309

³⁰ <http://www.freeview.co.uk/whats-on/channels>

³¹ <http://www.aph.gov.au/binaries/house/committee/cita/digitaltv/report/fullreport.pdf> p. 91-99 or see Channel 9’s submission

http://www.communications.gov.au/_data/assets/pdf_file/0006/34926/Nine_Network_attachment_-_submission_to_House_of_Representatives_Committee_inquiry_into_DTV.pdf

achieved by the BBC fall within the remit of individual channels and can be dealt with on a case-by-case basis. Where greater competition for advertising revenue has created challenges for the commercial broadcasters, such as for ITV's provision of local news and current affairs, these have been addressed as needed through simple instruments such as changes to licensing conditions³².

Currently, in Australia, the government-owned ABC and SBS play comparatively less of a role in the provision of public services than the BBC. Rebalancing the burden of public service obligations in Australia towards the government-owned broadcasters would ensure that these obligations could continue in a competitive environment.

Key recommendations

In this section we outline our key recommendations for restructuring the FTA broadcasting industry in Australia.

Recommendation 1: Each commercial television broadcast license should be split into two separate licenses: a license to operate a digital television multiplex; and a 'content services license' providing the right to supply a service that can be carried on a multiplex.

Each current commercial television broadcast license should be split into two separate licenses. The first 'new' license should provide the licensee with permission to operate a digital television multiplex in a license area. Initially, this should be an 'apparatus' license rather than a more flexible 'spectrum license', and it would restrict the relevant spectrum to be used for the purpose of broadcast television. This restriction could be revisited in the long term if technological convergence erodes the unique position broadcast television enjoys relative to other platforms.

The second 'new' license should be a 'content services license' that provides the licensee the right to provide a service that can be carried on a multiplex.

³² Recognising that costs would have to be cut in order to maintain public service content on ITV, in 2009 OfCom amended ITV licenses. Changes included halving the regional content requirement, lowering the minimum amount of regional news and current affairs to be shown, and dropping the outside London production requirement from 50% to 35%. See <http://www.theguardian.com/media/2008/sep/25/ofcom.itv>

Recommendation 2: The three commercial multiplex licenses would be auctioned off. Each incumbent network would be permitted to bid for control of a multiplex.

Setting the correct fees for a multiplex is difficult. If fees are set too high we risk bankrupting one of the incumbents. If fees are set too low the taxpayer does not receive a fair return on their asset. Auctioning avoids this dilemma by forcing the incumbents to reveal the true value of each license.

The auction process with relevant payments by the winning bidders, will replace existing license fees. The length of the license that is auctioned could be, say, ten years, to allow an appropriate time for new entry and investment. Each of the multiplexes must go to a separate bidder. In other words, it will be illegal for an individual entity to own and control more than a single multiplex license.

The incumbent networks can bid for a multiplex and will also be able to continue as broadcasters as explained in recommendation 3.

Recommendation 3: The holders of a commercial multiplex license and the national broadcasters, the ABC and the SBS, would be allowed to on-lease space on their multiplexes to any party that holds a commercial service license subject to commercial agreement between the relevant parties. The relevant regulatory authority would provide content service licenses at cost to any relevant party that meets appropriate (minimum) standards to be a content broadcaster.

If the owner of a multiplex license prefers not to hold a content service license, then it is able to lease out capacity on its multiplex to parties that do hold such a license. If the owner of a multiplex license does hold a content service license then it will be able to use some or all of the multiplex for its own broadcasts, and/or will be able to 'lease' space on the multiplex to any third party holding a content services license. In this sense, vertical integration is permitted.

This vertical integration may lead to some entry barriers for new content services providers in the short run, particularly if the incumbent networks are all successful in the multiplex auction. However, this vertical integration is unlikely to be a long term problem given that there are three alternative providers of spectrum through the commercial multiplex licenses and that the government-owned broadcasters can also choose to lease part of the spectrum on their multiplexes to the holder of a content service license if it is commercially attractive to do so. For

example, if the incumbent broadcasters sought to 'foreclose' new entry then a potential broadcaster with a high quality product could seek to lease space from, say, SBS on its multiplex (subject to SBS still satisfying its charter). This would provide both an avenue for entry for the competitor, increase choice to the viewer and provide an additional source of revenue for the National Broadcaster.

Recommendation 4: All content requirements would be removed from the commercial networks. The responsibility for public-service broadcasting would be shifted to the ABC and SBS.

Any reform to FTA broadcasting needs to address the public service obligations on commercial broadcasters.

A naïve economic approach to these obligations would focus on subsidies or quotas.

If a subsidy is applied to Australian programming that accurately reflects the social value that programming creates, then the market will provide an efficient amount. However, this reasoning relies on the assumption that we can accurately determine the positive externality that Australian programming provides. This is unlikely. For example, how do you put a price on 'fostering a sense of Australian identity'? While a subsidy makes the cost of preferred content clear, it is likely to generate heated (and unresolvable) argument over the size of the appropriate subsidy.

Quotas, such as the current regulations, may appear preferable. Quotas have the advantage of being easy to understand. However, just as with subsidies, it is unclear what the correct quota levels should be. Further, quotas make the cost of the content restrictions opaque. In a competitive environment, quotas that apply to all commercial broadcasters, including new entrants, create barriers to entry and reduce innovation. For example, it may be impossible for a specialist children's broadcaster to comply with content requirements on drama or sport that it does not broadcast!

If quotas only apply to incumbent commercial broadcasters, then it reduces their ability to compete. Further, as the content restrictions will raise the incumbent commercial broadcasters' costs, it may threaten their viability in a competitive broadcasting market unless combined with some type of explicit or implicit subsidy.

An alternative approach is to follow the UK example and shift the burden of responsibility for public service obligations away from the commercial broadcasters towards the government-owned broadcasters. Commercial broadcasters may retain some specific, narrow objectives such as regional content requirements, but broader objectives in the interests of wider society would largely be addressed through the ABC and SBS.

The ABC would be responsible for producing more Australian drama, documentaries and children's programs. As discussed above, commercial broadcasters may continue to supply significant levels of Australian content, even without the current regulatory requirements. However, the genre mix of this content is likely to shift away from Australian drama to light entertainment and sport.³³ The ABC and, to a lesser extent, the SBS, would fill the gap. Similarly, obligations concerning minimum amounts of children's programming could become the sole responsibility falling to the ABC.

The reduction/removal of public service obligations from the commercial broadcasters would in part 'compensate' these broadcasters for the requirement that they have to bid for their multiplexes.

Focussing the public service obligations on the ABC and the SBS allows greater competition in television broadcasting without seeing public-service objectives held hostage to the revenue uncertainty inherent in a more open and competitive industry. It also creates greater flexibility and provides more room for innovation as the regulatory framework moves away from prescriptive quotas and towards the more principle-based charters of the ABC and SBS. It also helps create a "level playing field" between the incumbents and new entrants, leading to a less distorted competitive landscape.

Recommendation 5: Multiplex auction income would be rolled into ABC/SBS budget.

To assist in funding the shift of Public Service Obligations to the ABC and SBS, the revenue raised from the auctioning off of the multiplexes should be rolled into the ABC and SBS budget.

The current market provides a guide to the expected value of a multiplex license. *Assuming the marginal entrant currently makes zero economic profit*, the value of a multiplex license equals the current cost to the network of holding an FTA license. That is, the network will be willing to pay in an auction up to what it currently pays now in fees and obligations.

³³ http://www.archive.dbcde.gov.au/_data/assets/pdf_file/0010/148825/PwC-How_do_content_requirements_impact_Australian_productions.pdf p.52

This suggests that the annual value of a multiplex license is equal to the Broadcasting License Fees (4.5% of revenue) paid by each network plus the cost of content obligations.

In 2011 the FTA networks paid approximately \$160million in license fees, or around \$50million per network.³⁴ While much more difficult to estimate, a report by PriceWaterhouseCoopers for the Convergence Review estimated that in the absence of content obligations, spending on Australian content would fall by \$280million p.a. across the three networks.³⁵ This averages to approximately \$90million for each network.

This suggests an upper bound on multiplex value of approximately \$140million per year. The actual amount would be expected to be lower due to lower advertising revenue arising from increased competition, but not substantially so. Assuming a 10-year license and a 15% discount rate this equates to an upper bound for an auction price of approximately \$700million per multiplex.

Recommendation 6: With the exception of the “minimum number of voices” rule, all specific cross media restrictions would be removed.

The current licensing system allows only three entrants into the commercial FTA market. As this number is fixed and entry by competitors is not possible, if two networks were to merge there would be a permanent reduction in the number of ‘voices’ in the commercial FTA marketplace. The one-to-a-market rule for commercial television guarantees that this cannot happen.

However, by separating the right to supply a television service from the right to operate a multiplex many new entrants, including news organisations³⁶, can enter the market. This leads to the one-to-a-market rule becoming redundant.

For similar reasons, the cross-media ownership (2-out-of-3) laws are no longer necessary. Indeed, likely entrants into the FTA market are other media outlets who may have interests in print newspapers or radio.

The 75% reach rule, where no one person can control TV stations that reach more than 75% of the population, is outdated. Nominally, the rule exists to ensure that local communities receive programming of local significance and to limit the influence of the metropolitan networks. Local content is best ensured through other, more direct, means, not some tenuous link between

³⁴ http://www.freetv.com.au/media/submissions/2011_0034_SUB_FINAL_Convergence_Review_281011.pdf p.12

³⁵ See PwC-How_do_content_requirements_impact_Australian_productions? p.52/53

³⁶ For example, Al Jazeera operates a FTA news service in the UK.

network reach and programming decisions. Affiliate deals means the rule does little to curtail the influence of metropolitan broadcasters. It should be removed.

This does not mean that media markets have no protection. The minimum number of voices rule – where there must be at least five independent media ‘voices’ in a metropolitan area and four in a regional area – should be retained. This rule acknowledges the importance of plurality of voice and an informed citizenry to the proper functioning of democracy. Further, existing ACCC powers under the *Competition and Consumer Act 2010* are sufficient to prevent media takeovers or mergers which would have the effect of lessening competition in a geographic or other market, whether for reasons of consumer patronage or advertising revenue.

Subsidiary recommendations

The six recommendations above provide a ‘package’ of reforms for Australia’s FTA broadcasting. These reforms will require time and debate. However, there are two simple reforms to the FTA broadcasting industry that can be achieved even if more broad reaching reform was viewed as ‘too ambitious’. We summarise these reforms in our two subsidiary recommendations.

Subsidiary Recommendation 7a: The 6th multiplex would be rolled into the digital dividend and auctioned off as spectrum license: i.e. not restricted to use for broadcasting.

The 6th multiplex is currently idle. This represents a profound waste of valuable resources. Coupled with the reforms recommended above, the current spectrum already used for FTA is sufficient for there to be a healthy, financially viable FTA market. The 6th multiplex should thus be rolled over into the digital dividend and auctioned off for any use.

Subsidiary Recommendation 7b: Datacasting would be abolished as a regulatory category.

The datacasting license is a legacy category that is no longer required and has failed to achieve its original purpose. Currently there are no apparatus licenses granted for datacasting in the Broadcast Service Bands, but commercial broadcast licensees – who already have an apparatus license for their regular broadcasts – can use part of their multiplex for datacasting services. As such the only operators of datacasting channels in the Broadcast Service Bands are the commercial networks.³⁷

³⁷ Register of Datacasting Licenses: <http://www.acma.gov.au/theACMA/register-of-datacasting-licences>

Datacasting licensing was introduced as a means to encourage “innovative new services” on the broadcasting spectrum, yet the services offered by the commercial networks can hardly be characterised as “innovative”, consisting mostly of home-shopping programs and interactive services via premium-rate phone numbers.³⁸ Although restricted in the range of programming that they can show, the datacasting channels are largely free from Australian content obligations and children’s standards and represent a low cost way for the commercial networks to fill spare capacity on their multiplex. The use of valuable spectrum for such low-value purposes is a profound waste of a scarce resource.

Other platforms, such as the Internet and mobile, are at the forefront of service innovation. Regular commercial television has also shown that it is capable of providing new services via the Electronic Programming Guide and the soon to be launched catch-up TV services. With the original intent of the government’s innovation objective already achieved through other means and given that no dedicated datacasting services or business models have emerged, there appears to be no need for the license category. It is recommended that the datacasting license be abolished.

Conclusion

With the changeover to digital TV, Australia missed a chance for wholesale reform of the FTA sector. Such an opportunity was seized by the United Kingdom to great success, with competitive reforms completely transforming the sector.

Technological convergence and offerings on other platforms may eventually make FTA broadcasting redundant. However, this is not an excuse to avoid reform now. Free to Air television is still the most popular method by which consumers access audio-visual content. This may change, but consumers and taxpayers should not have to wait for some hypothetical future in order to get value for money.

Unlocking value in FTA broadcasting can be achieved by bringing competitive forces to the sector. The key reform is to separate the right to control a multiplex from the right to provide a programming service. The holder of a multiplex license will be like a spectrum landlord – able to lease space on the multiplex to third-party broadcasters and/or use it for their own

³⁸http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1011/11rp07#_Toc277864230

broadcasting. With the United Kingdom as a guide, such reform will see new entrants into the market, with greater choice for consumers.

Our proposed changes require a shift in thinking about how we achieve broadcasting's public service objectives. In a deregulated environment, extending expensive public service obligation to new entrants will discourage entry and limit the competitive process. Neither can we leave the obligations as they currently are, tilting competition against the incumbents. The best solution is to shift the public service obligations away from the private sector and towards the ABC and SBS, with substantially lighter obligations on the incumbent broadcasters. This shift can be accompanied by new revenue streams for the government-owned broadcasters, through the multiplex auction revenue and through the ability of both the ABC and the SBS to lease out spectrum that they do not need for their own broadcasts.

Undoubtedly, the reform path will face resistance from vested interests. FTA reform has been considered for some time and, in this sense, the ideas in this paper are not new. However, we now have the UK experience to provide a guide to successful reform. Appropriately adapted to Australia, this experience from the UK can show how to improve the FTA broadcasting system in a way that benefits viewers, increases competition but provides appropriate trade-offs for incumbent commercial and government-owned broadcasters.

Appendix 1: Technical Background

Spectrum and digital TV

Radiofrequency spectrum ('spectrum') refers to the range of wavelengths and frequencies over which electromagnetic radiation extends. The harnessing and use of spectrum plays an important role in many aspects of modern life, from communication via mobile phones and wireless internet, to medical treatment and scientific research. While spectrum is a naturally occurring and instantly renewable resource, the regulatory challenges facing spectrum use have many similarities with those of other common resources.

The range of available spectrum is theoretically infinite, however parts of the spectrum are more suited for a given use than others. Lower frequency signals are less affected by objects in their path and are better able to penetrate buildings, whereas high frequency signals are limited to line-of-sight communication but there is substantially more of it. This trade-off leads to some parts of the spectrum being considered "water-front property" for many uses, where an ability to propagate through built-up urban environments is balanced against the capacity to carry large amounts of information. Spectrum in this range (around 400Mhz to 900Mhz) is ideal for television broadcasting, mobile telephony, and some types of radio communications

Unfortunately, it is not possible for everyone to transmit using the same frequency. The receivers of broadcast signals, such as a TV antenna, generally cannot distinguish between multiple signals of similar strength on the same frequency, leading to "interference" between users. The rivalrous nature of spectrum necessitates regulation and planning of its use. This is done in two main ways: by ensuring that there is sufficient separation between frequencies used in transmitting a signal, and by specifying the maximum transmission power of devices and, hence, the geographical area in which that frequency is used.³⁹ For example in Melbourne, Channel 7's digital signal is broadcast using a 7Mhz "channel" of spectrum centred at 177.5Mhz. Although the signal is broadcast at 177.5Mhz, a parcel of spectrum from 174-181Mhz is set aside in order to prevent interference.

In addition to preventing interference, planning allows countries to harmonise their use of spectrum. This involves designating certain frequency bands to be used for specific purposes, which allows both continuity of critical services between countries and the exploitation of economies of scale by industry. For example, the planning of transmission frequencies helps co-ordinate services that are international in nature, such as emergency and distress communication, maritime services, and aeronautical services. Businesses also benefit from technical standards that allow them to make devices that are compatible for use in multiple markets.

³⁹ ACMA: Why Plan Spectrum? <http://www.acma.gov.au/Industry/Spectrum/Spectrum-planning/About-spectrum-planning/why-plan-spectrum-australian-radiofrequency-spectrum-plan-acma>

Broadcast Services Band

In Australia, a section of the radiofrequency spectrum has been allocated for broadcast of radio, TV, and datacasting services. Designated the Broadcast Services Bands, these bands of spectrum comprise of the following frequencies:⁴⁰

Band		Purpose
VHF band 1	Channels 0,1 &2 (25-70 MHz)	Not used for digital TV
VHF band 2	Channels 3 - 5 (85-108MHz)	Mainly used for FM radio
VHF band 3	Channels 6-12 (174-230 MHz)	Used for Digital TV
VHF band 4	Channels 28-35 (526-852 MHz)	Used for Digital TV
VHF band 5	Channels 36-51 (852-694 MHz)	Used for digital TV
VHF band 6	Channels 52-69 (694-820 MHz)	To be cleared digital dividend allocation

Analogue Vs Digital Television

On the 10th December 2013, the analogue signal that was used to carry TV services around Australia was switched off, replaced with a new digital signal. While both analogue and digital transmissions use the radiofrequency spectrum, the way the information is encoded into the signal differs.

In an analogue signal, a continuous stream of recorded audio and video is represented by continuous changes in some physical characteristic of the waveform itself. That is, information about the sound and luminance, brightness, and colour of the picture are all represented by changes in the amplitude, frequency, or phase of the signal. Because each set of physical characteristics of the wave determines a unique sound and picture to be shown, it is only possible to carry one set of sound and images in one signal – there is simply no way for the signal to physically represent different information

⁴⁰ ACMA Broadcast Services Bands <http://www.acma.gov.au/theACMA/broadcast-services-bands>

simultaneously. Analogue signals are also susceptible to quality issues, as anything that interferes with the waveform necessarily changes the information contained in the signal.

A digital signal uses a completely different mechanism to represent information. The audio and video are sampled at an interval before being converted into a series of on/off codes or “ones and zeros” that represent the sound and picture. This series of ones and zeros is then transmitted where, at the consumers end, an appropriate set-top box or receiver inbuilt into the television decodes the signal to recover the original information for display. This has several advantages:

- Because the transmission signal is a simple on/off code, it is less susceptible to interference on the transmission path.
- Several separate sources of video and audio can be digitised and combined into one signal for broadcast in a process called *multiplexing (see below)*
- Patterns can be found in digital signal that allows for compression, significantly increasing the amount of data that can be transmitted.

Multiplexing

One of the significant benefits of digital transmission is multiplexing, where several low data-rate television signals are combined into one for transmission as a single broadcast. This allows several TV channels to fit into the space previously used for only one analogue channel.

The process of multiplexing signals together has led to the frequency band used to transmit a digital signal being referred to as the “multiplex”. For example, the 7Mhz band of spectrum that Channel 7 broadcasts in is referred to as Channel 7’s multiplex. Although strictly inaccurate, this terminology neatly captures the idea that a single digital transmission can carry multiple signals, and will be adopted throughout this report.

The number of channels carried in a multiplex is a function of two factors: the transmission standard used in broadcasting and the encoding standard used to compress the audio and video content. The capacity of a multiplex is analogous to the number of marbles that can flow through a tube; to increase the number of marbles emerging from the end we can either increase the diameter of the pipe or decrease the size of each marble. With a multiplex, the transmission standard determines the diameter of the pipe, while the encoding standard determines the size of the marbles. By using a superior transmission standard or more efficient coding we can increase the amount of information carried by the multiplex.

Transmission Standards

Australia uses the DVB-T transmission standard. DVB-T stands for Digital Video Broadcasting – Terrestrial and is used to transmit digital video, audio and other data in a compressed MPEG format.⁴¹

The second generation of this transmission technology is DVB-T2. It was devised to handle the higher bit-rate requirements of high definition digital television. Although there are many technical details that can add or subtract small amounts from the achievable bit-rate, DVB-T2 offers approximately a 50% improvement over DVB-T.⁴² The standard is used in many European countries and Gulf States, amongst others.

Encoding/compression

Uncompressed digital video has a prohibitively high bit-rate requirement. However, looking for patterns in the data and eliminating statistical noise and unnecessary information can compress digital signals to a fraction of their former size, reducing the amount of bandwidth needed to broadcast. Unfortunately there is no free lunch and a trade-off exists between bit-rate and video quality; as video is compressed to a lower bit-rate more of the original information must be sacrificed, leading to a greater deterioration in picture quality. This presents multiplex operators with a choice: given that the total bandwidth of the multiplex is fixed by the transmission technology employed, the operator can either carry fewer channels at a high bit-rate and superior quality or reduce the bit-rate and carry more channels but at a lower quality.

There are two popular compression standards used in digital television, MPEG-2 and MPEG-4, both developed by the Motion Pictures Expert Group. MPEG-4 can be thought of as an updated version of MPEG-2, where videos compressed to a given bit-rate using MPEG-4 will be at higher quality than those compressed using MPEG-2 or, alternatively, can achieve the same quality as video using MPEG-2 but at a lower bit-rate. This allows broadcasters using MPEG-4 to offer more channels at the same quality as an MPEG-2 broadcast, or the same number of channels at a superior quality.

Australia's DVB-T multiplexes are not limited to a particular encoding standard – either technically or through regulation – and are capable of carrying either MPEG-2 or MPEG-4 encoded content, or a combination of both.⁴³ That is, the multiplex could carry some services in the older MPEG-2 standard while simultaneously offering MPEG-4 services in the same broadcast. Such a configuration would free up space for more services or a higher quality picture; for example, the conversion of a single existing

⁴¹ <http://en.wikipedia.org/wiki/DVB-T>

⁴² <http://www.enensys.com/technologies/dvb-t2-overview.html>

⁴³ Currently broadcasters are not legally prevented from utilising MPEG-4, although it is within the scope of the ACMA's regulatory powers to mandate or prevent broadcasters from providing services broadcast in MPEG-4, or any other encoding standard.

MPEG-2 SD service would allow the network to carry either two SD services or one HD service in MPEG-4.

However, as Australia commenced digital broadcasting before chipsets to decode MPEG-4 became widely available many older set-top boxes and built-in TV receivers are capable of only decoding MPEG-2. In 2012 Broadcasting Australia estimated that 70% of main television sets in Australian homes have MPEG-4 capability.⁴⁴ Given the high replacement rate of televisions in Australia this proportion is likely to have increased since 2012, yet it probably remains at somewhat less than complete penetration.⁴⁵ Given advertising revenues rely on maximising viewer numbers it seems highly unlikely that broadcasters would choose to deny a significant portion of their audience access to their services, and thus broadcasts in Australia can be expected to continue in MPEG-2 in the medium term.

Multiple Channels

The capacity of a multiplex can be split as the operator sees fit. The DVB-T/MPEG2 transmission and compression standards used in Australia permits a flow of around 21Mbps of data per multiplex, or enough capacity for approximately four SD channels or two HD channels, or some combination thereof.⁴⁶ For example, a scan of Channel 9's multiplex reveals the following breakdown:

GEM: 7.9 Mbps

Nine: 4.5 Mbps

GO!: 3.5 Mbps

EXTRA: 2 Mbps

EXTRA 2: 2 Mbps

The HD channel GEM takes up approximately one-third of the multiplex capacity, the primary channel Nine and additional channel Go! are each broadcast in SD, while the two home-shopping channels Extra and Extra 2 are broadcast at very low quality. This allocation of capacity is not set in stone and can be adjusted as Channel 9 sees fit.

Management of spectrum

⁴⁴ Broadcast Australia submission to *Beyond switchover-the future technical evolution of digital terrestrial television in Australia*.⁴

⁴⁵ On average Australians expect a new TV set to last 7.4 years. See http://www.acma.gov.au/webwr/_assets/main/lib310665/Television_sets_in_Australian_households.pdf

⁴⁶ Parliamentary Library: *Going Digital* http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1011/11rp07#_Toc277864230

Responsibility for managing the radio frequency spectrum is the domain of the Australian Communications and Media Authority (the ACMA), an independent statutory authority whose powers, functions, and responsibilities are laid out in the *Broadcasting Services Act 1991*.

There are three types of licenses that form the framework for managing spectrum: a spectrum license, which allows the licensee use of a parcel of spectrum for any purpose; an apparatus license, which gives the licensee permission to operate a transmitting apparatus in a frequency band designated for a certain purpose; and a class license, used for small local transmissions, such as wireless routers and garage door rollers.

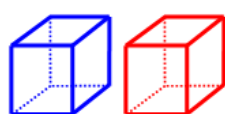
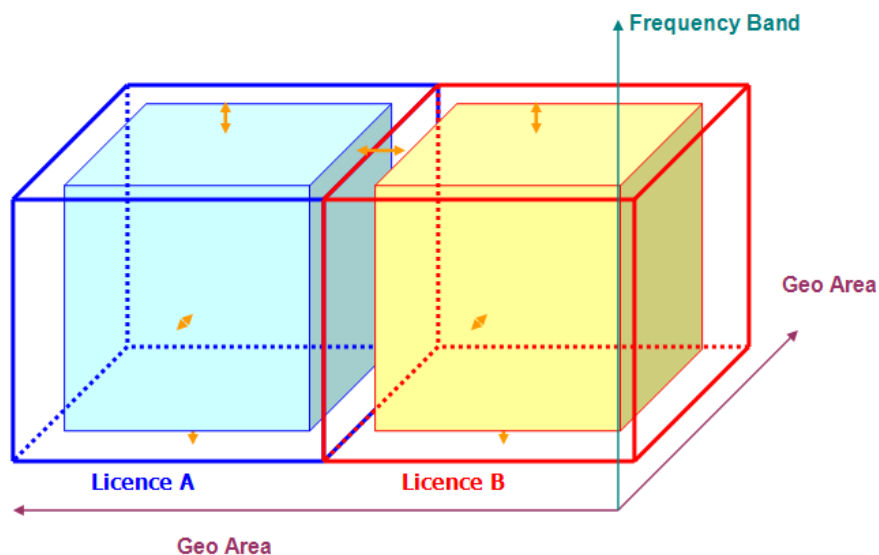
Spectrum License⁴⁷

Spectrum licences are issued under Part 3.2 of the Radiocommunications Act. They authorise the holder of the licence to operate radiocommunications devices within a specified 'spectrum space'; a multi-dimensional space that is defined by both a geographical area and a frequency bandwidth.

Spectrum space can be thought of as existing in a three dimensional cube, with the width and depth covering the geographical area of a license and the height representing the frequency band the licensee can use. Spectrum licenses are tradable in order to give licensees the flexibility to create the frequency and geographical spectrum profile they require, that is, licenses can be stacked to allow access to more spectrum in a given geographical area, or adjacent licenses can be purchased to expand the area of coverage.

Image A1: Spectrum space explained

⁴⁷ Detailed summary of spectrum licensing found at: http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Spectrum-licences/spectrum_23



**Authorised spectrum licence space
(Geographic area(s) + radio frequency
band(s))**

Emission Buffer Zone
Additional constraints apply in these areas to
minimise interaction between adjacent licensees

The aim of spectrum licensing is to create a de-centralised system that can quickly respond to changes in demand and best-use. As commercial realities change spectrum can be bought and sold, allowing market mechanisms to allocate spectrum to its most efficient use. However, this is not a completely laissez-faire process as certain uses of spectrum have specific technical requirements, for example LTE wireless requires the pairing of certain frequencies, so some planning of spectrum by the ACMA based around the frequency's most likely use is needed. ⁴⁸

Spectrum licensees can operate any type of radiocommunications device for any purpose, provided they comply with the licence conditions and a technical framework designed to manage interference with other spectrum users.

Spectrum licences can be issued for up to 15 years, where at the end of the term the default option under the Radiocommunications Act is for the licence to be subject to reallocation via a price-based allocation process, such as an auction. However, the licence can be reissued to the incumbent licensee in some specified circumstances.

Currently 27% of the available spectrum, approximately 5000Mhz, has been allocated via spectrum licenses.

⁴⁸http://acma.gov.au/webwr/_assets/main/lib310474/spect_licensing_in_aust.pdf

Apparatus License⁴⁹

Apparatus licences are issued to a person and authorise the operation of transmitters, receivers and some other devices specified under the Act. Subject to certain exceptions, apparatus licences may be issued for terms of up to five years and can be generally be renewed before expiry.

In contrast to a spectrum license, an apparatus licensee does not own the spectrum they use but rather receives permission to use spectrum in a certain area of operation, for a certain purpose, and under strict technical conditions designed to minimise interference. For example, TV broadcasters receive an apparatus license to operate transmission infrastructure in the frequency bands set aside for broadcasting (BSB bands), or a paging system could be licensed to operate a transmitter and receivers in the frequency bands assigned to Land Mobile.⁵⁰ The license conditions will often outline prescriptive operational requirements such as transmitter location, power, and specific frequency assignments where required. Apparatus licensing uses 17 different licence categories to specify the operational conditions for the various types of services that can be offered.

License holders must pay both administrative charges to recover costs associated with spectrum management and annual license taxes designed to provide an incentive for efficient spectrum use. These taxes attempt to take into account the opportunity cost of the spectrum by calculating the fee as a function of spectrum used, where the spectrum is located, and the transmitter's geographical location such as in high-density urban or regional Australia.⁵¹ These prices are set by the ACMA and are not tested by market forces.

Class license

A class license authorises designated segments of spectrum to be used on a shared basis. It is typically used to license spectrum for use by common everyday equipment, such as wireless telephones, remote controlled children's toys, and Internet routers. For example, the Radio Controlled Models class license authorises any person to operate a radiocommunications device to control model aircraft, model landcraft or model watercraft in the 29Mhz or 36Mhz band.⁵² A class license is not held by any one individual but rather applies to anyone who operates such equipment.

⁴⁹<http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/apparatus-licensing-system-acquire-a-licence-acma>

⁵⁰<http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Apparatus-licences/apparatus-licensing-system-acquire-a-licence-acma>

⁵¹<http://www.acma.gov.au/~media/Spectrum%20Pricing/Information/pdf/Apparatus%20licence%20fee%20schedule.pdf>

⁵²<http://www.comlaw.gov.au/Details/F2005B00234>

Appendix 2: Example of multiplex use

Although slight variations will exist in each license area, Table A1 provides an example from metropolitan Melbourne of the primary and multi-channel services carried on each multiplex.

Seven Network		Nine Network		Network Ten	
Seven	Commercial Broadcasting	Nine	Commercial Broadcasting	Ten	Commercial Broadcasting
Seven Two	Commercial Broadcasting	Go!	Commercial Broadcasting	Eleven	Commercial Broadcasting
Seven Mate	Commercial Broadcasting	Gem	Commercial Broadcasting	One	Commercial Broadcasting
Fresh Ideas TV	Datacasting	eXtra	Datacasting	TVSN⁵³	Datacasting
TV4ME	Datacasting	eXtra2	Datacasting	SpreeTV⁵⁴	Datacasting
ABC		SBS		Sixth Multiplex	
ABC 1	National Broadcasting	SBS 1	National Broadcasting	Channel 31	Community Broadcasting
ABC 2	National Broadcasting	SBS 2	National Broadcasting		
ABC 3	National Broadcasting	SBS 3	National Broadcasting		
ABC 4 Kids	National Broadcasting	NITV	National Broadcasting		
ABC 24	National Broadcasting	SBS HD	National Broadcasting		
	Designates primary service				

⁵³ Joint Venture with TVSN http://tencorporate.com.au/files/Annual_Review_2013.pdf

⁵⁴ Joint Venture with Brand Developers *ibid*

Appendix 3: Content requirements for primary channel of commercial FTA broadcasters

Table A2⁵⁵

Content Type	Minimum Australian content requirements
Overall	An annual minimum of 55 per cent Australian programming between 6am and midnight
Australian Adult Drama	860 points of first release Australian drama to be broadcast over a set three year period, with at least 250 points broadcast per year, between 5pm and 11pm*
Australian Children's drama	At least 96 hours of first-release Australian children's drama broadcast over a three year period with at least 25 hours each year. 8 hours of repeat children's drama
Australian Children's programs	260 hours of children's material broadcast each year, with at least 50% first-release Australian programs
Australian Pre-School programs	130 hours of pre-school programs, all which must be Australian
Australian Documentary	20 hours of first-release Australian documentary programs broadcast each year between 6am and midnight
*The drama score for an Australian drama program is calculated by multiplying the format factor for the program by the duration of the program. Different format factors apply for different programs. First-release drama on a network's multichannels contributes towards the drama score.	
Broadcasters are required to show 1095 hours of Australian content on their multichannels in 2014 and 1460 hours in 2015. There is no requirement for this content to be first-release.	

⁵⁵ See *Broadcasting Services (Australian Content) Standard 2005* and Convergence Review: Final Report

Appendix 4: Available Subsidies

Table A3: Subsidies	
Method	Support and objective
Screen Australia	<p>Screen Australia is the key Federal Government direct funding body for the Australian screen production industry. It offers funding for the development, production and marketing of Australian screen content, as well as for the development of Australian talent and screen production businesses.</p> <p>Objective:</p> <ul style="list-style-type: none"> • support and promote the development of a highly creative, innovative and commercially sustainable Australian screen production industry; and • support or engage in: <ul style="list-style-type: none"> ○ the development, production, promotion and distribution of Australian programs; and ○ the provision of access to Australian programs and other programs; and ○ the promotion and development of screen culture in Australia.
Producer Offset	<p>The value of the Producer Offset is calculated based on a project’s qualifying Australian production expenditure (QAPE). It is worth:</p> <ul style="list-style-type: none"> • 40 per cent of QAPE incurred on a feature film • 20 per cent of QAPE incurred on programs other than feature films (TV series, mini-series or telemovies, short-form animations, non-feature documentary, or direct-to-DVD or web-distributed programming). <p>Objective:</p> <ul style="list-style-type: none"> • to encourage greater private sector investment in the industry and improve the market responsiveness of the industry; • to provide a real opportunity for producers to retain substantial equity in their productions and build stable and sustainable production companies; and • to increase private investor interest in the industry.
Location Offset	<p>The Location Offset provides a 16.5% rebate calculated on Qualifying Australian Production Expenditure (QAPE).</p> <p>Objective:</p> <ul style="list-style-type: none"> • to encourage large-scale film productions to locate in Australia to provide greater economic, employment and skill development opportunities; and • to attract post-production, digital and visual effects production to Australia as part of large budget productions, no matter where the film is shot.