

# Fiddling With the Digital TV Tuner: Recent Adjustments to a Poor Policy

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## Abstract

*Digital conversion of television in Australia was to have been completed by the end of 2008. Much slower adoption of digital television forced policy changes and the rescheduling of analog television switch-off to conclude by the end of 2013. This paper attributes the slow uptake of digital television to insufficient consumer incentives, excessive regulation of the digital spectrum, and measures to shield incumbent broadcasters from new entrants. Although recent modifications to the policy are a modest improvement, they are unlikely to produce sufficient acceleration of consumer uptake of digital television to enable the completion of the analog switch-off by 2013.*

## Introduction

Digital terrestrial television broadcasting (DTTB) arrived in Australia on 1 January 2001, when digital transmissions began in major metropolitan centres. The original plan envisaged an eight-year simulcast period during which free-to-air television operators were to broadcast their programs in both digital and analog formats, after which analog transmissions were to be switched off starting in metropolitan areas in January 2009. Uptake of DTTB, however, did not live up to the original optimistic expectations, forcing the government to rethink the changeover arrangements, including deferral of analog switch-off (now scheduled to conclude in metropolitan areas at the end of 2013).

The most recent available data on consumer adoption of digital television published by the Australian Communications and Media Authority (ACMA 2008) indicate a national average DTTB take-up rate of 41.8 per cent of households. Although growth in the take-up rate has been robust in recent times, the data underline the need for substantial further growth if switch-off is to be achieved by the new target dates. More worrying in relation to switch-off are indications that until recently retail sales of analog television sets exceeded those of digital sets (Tanner 2006). They are worrying because they suggest many consumers are either not aware of the digital switchover plan, or have little incentive to equip themselves with digital reception technology.

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This paper critically reviews the digital television conversion policy, tracing slow progress and current difficulties to flaws in the Government's original plan and subsequent reviews that have produced little to remedy the situation. The paper begins with a brief review of the digital conversion policy and its implementation. This is followed by a review of the sluggish progress to date and a discussion of recent policy changes aimed at improving DTTB uptake. Based on an examination of available data, the paper casts doubt that current measures are capable of delivering full analog switch-off by the end of 2013.

## Digital television policy

Broadcasting policy in Australia has a long and sad history of highly prescriptive regulation and costly mistakes which have sought to protect the vested interests of politically powerful incumbents (Albon and Papandrea 1998). Typically, policy considerations of matters involving a conflict of interests between incumbents and consumers have been resolved in favour of incumbents. For example, excessive constraints on the expansion of radio and television services and on the introduction of new technologies, such as FM radio and pay television, have been a recurring feature of a policy framework that has failed to provide sufficient attention to consumer interests. The digital television conversion policy, more than any of the preceding major changes, bears all the hallmarks of private-interest politics in action.

The initial digital television conversion decision of March 1998 squandered the opportunities of a competitive transformation of the industry that were provided by the new technology. The conversion policy:

- banned new entry into the commercial TV industry until the end of 2006
- mandated high definition (HDTV) as the format for digital transmissions<sup>2</sup>
- prescribed a minimum quota for the broadcast of high-definition programs (a subsequent review would determine the amount)
- gave virtually all of the available spectrum to incumbents but banned commercial operators from using that spectrum for multi-channelling (delivery of multiple distinct channels over a single digital transmitter) or subscription TV pending a review in 2005<sup>3</sup>
- imposed very limiting conditions on the use of spectrum assigned to an artificially and arbitrarily defined new type of service (datacasting<sup>4</sup>)

<sup>2</sup> In December 1999, concurrently with a downgrading of the HDTV requirement to a somewhat lower grade of high definition, the Government mandated the broadcasts were also to be made in standard digital format (that is, broadcasters were to triplecast their programs in analog, standard digital and HDTV formats for the duration of the simulcast period).

<sup>3</sup> The national broadcasters (ABC and SBS) were exempted from the multi-channelling restrictions, but received little financial support to develop and sustain new services.

<sup>4</sup> The term 'datacasting' was coined in Australia (and is not used elsewhere) to refer to broadcast services distributed in the same manner as television programs but strictly regulated to exclude transmission

- and set a minimum eight-year period for the simulcast of television programs in both analog and digital formats.

The Australian digital plan was partially modelled on that adopted in the United States but with significant differences, such as *mandating* rather than *allowing* high-definition transmissions and the extensive constraints on the supply of new services. In contrast, major European countries that embarked on digital conversion about the same time (for example, the United Kingdom and Italy) provided a single standard digital channel to each of the incumbent broadcasters to enable simulcast of their analog programs during the conversion period and allocated the remaining digital spectrum to new entrants. This latter approach has proved to be much more successful in encouraging consumers to convert to digital television. (See Colapinto and Papandrea 2007 for a discussion and comparison of the digital plans adopted in Australia, the US, the UK and Italy.)

The Australian decision largely delivered what FTA commercial television operators were seeking and was welcomed by them. But it was strongly and widely criticised by others (see, for example, Given 2003; Jones 1998; Papandrea 2001; and Productivity Commission 2000). The popular press, in particular, was highly critical. In a stinging commentary, *The Australian Financial Review* (1998a) labelled the decision ‘information age mockery’ and argued that it ‘shackled the new information economy in the familiar old world of heavy government regulation and media-mogul politics’. Its assessment was that the ‘decision was not made on the basis of an open and transparent public policy review, but was designed to grant a political favour — from which it expects a political reward — to the incumbent broadcasting oligopoly’.

Drawing on a subsequent article (Lewis 1998) detailing comments of advisers from key government departments contained in an allegedly ‘leaked’ Cabinet Submission, an editorial in *The Australian Financial Review* (1998b) again strongly attacked the decision by re-echoing some of the advice allegedly provided to the Government by key Public Service advisers, including the Department of Finance, the Department of Prime Minister and Cabinet, and the Office of Regulation Review.

Overall, the decision represented an extraordinary level of overt protection of the interests of existing commercial television operators. Yet the responsible Minister sought to justify the decision, arguing that while the Government ‘would normally welcome additional competition, in any industry, as healthy and likely to lead to benefits for the consumer’, the free-to-air and pay-television industries deserved ‘a degree of special treatment’ because:

of virtually all genres of traditional television programs. The sole or dominant purpose of datacasting services was to be the provision of information on products, services and activities (Alston 1999).

Australia has a world-class TV system, with a strong local content component and a highly skilled production sector. This could be threatened if the existing networks had to battle a new competitor at the same time as paying huge sums to transfer to digital broadcasting, or if the Pay TV networks found themselves faced with significantly stronger free-to-air opponents while still trying to find their feet. (Alston 1998)

The Productivity Commission (2000) reviewed the decision as part of its Broadcasting Inquiry. The Commission's assessment was that the policy 'had serious ramifications for the public interest in efficiency and competition' (p.233). It was critical of all the major aspects of the decision, including the ban on entry of new commercial broadcasters, the prohibitions of the use of digital TV for multi-channelling and subscription TV, the HDTV requirements, the datacasting restrictions, the open-endedness of the simulcast period, and the likely high adoption costs to consumers. It was of the view that a shift of emphasis was required to achieve 'an equitable and efficient migration to digital transmission' and proposed changes designed to provide greater 'certainty and credibility ... a role for market forces; (and) enabling, rather than restrictive regulation'. (p.242). Its recommendations included the setting of a firm final date (1 January 2009) for the end of simulcasting; the sale of available spectrum for new broadcasting services within two years of the start of digital broadcasting in a licence area; the removal of regulatory restrictions on datacasting and multi-channelling; and making HDTV optional, rather than mandatory. The recommendations were ignored by the Government.

Digital transmissions began as planned in metropolitan areas on 1 January 2001. On the supply side, implementation of the decision progressed smoothly. The rollout of digital transmission infrastructure by television operators commenced on schedule, enabling transmissions of digital signals to start on the planned dates in both metropolitan and non-metropolitan areas. By 30 June 2005 some 526 digital transmitters, covering all metropolitan areas, major regional centres and some remote areas, were in operation (ACMA 2005a: 24). The rollout is being progressively extended to other remote and difficult-to-reach locations.

The initial consumer response to the introduction of digital television was disappointing. Faced with very low and uncertain demand for the unique converters needed for the Australian digital system, manufacturers were reluctant to invest in their production.<sup>5</sup> Under veiled pressure from the government and seeking to avoid the embarrassment of having virtually no audience for their digital transmissions, commercial broadcasters were eventually forced to underwrite the manufacture of a few thousand converters for sale to interested

<sup>5</sup> The unique version of the European digital transmission standards adopted in Australia was not compatible with converters in use overseas.

consumers. As the new technology offered virtually no additional viewing benefits, consumers rightly saw little need to part with more than \$500<sup>6</sup> to buy a converter or thousands of dollars to buy a digital TV set simply to receive exactly the same programming stream they were already getting satisfactorily via the old technology. Estimated cumulative sales of digital TV sets and converters in the first two years of digital transmissions were less than 50,000 (House of Representatives Standing Committee on Communications, Information, Technology and the Arts 2006).

Little was offered by way of new programming that may have enticed consumers to adopt DTTB. The Australian Broadcasting Corporation had launched two new potentially appealing digital-only multi-channels, one for children and the other for youth, but was forced to discontinue them because of insufficient funding. Its digital efforts were then confined to a single multi-channel, *ABC2*, dedicated to new and time-shifted programs from its main channel, including children's programs. The efforts of the second national broadcaster, SBS, were also of limited appeal and consisted of a digital *World News* channel presenting time-shifted repeats of foreign-language news services (including updates) on its main channel, and a second channel (subsequently discontinued), *SBS Essential*, which was basically an electronic information guide for SBS programs.

Datacasting services never eventuated. Although the Government proposed to auction licences for datacasting services, commercial interests were generally of the view that compliance with the related extensive programming restrictions was not conducive to the establishment of commercially viable services. Consequently the planned auction had to be abandoned because of a lack of interest in the proposed licences.

Overall then, there was little other than the attraction of a new technology and the related improved picture quality to motivate consumers to adopt DTTB. For the majority, who were quite content with their existing services, particularly early in the transition period, there were insufficient incentives to convert (Papandrea 2000). The situation improved somewhat in later years, benefiting from a boost in consumer appeal for large-screen TVs and home-theatre technology.

## Adjusting the original plan

The digital conversion plan included provision for the review of some of its elements to be undertaken by 2005. Included among the matters to be reviewed were the multi-channel and subscription TV restrictions; the datacasting provisions; the high-definition digital TV requirements; the duration of the simulcast period; and the moratorium on the issue of new commercial television

<sup>6</sup> The first set-top box for use in Australia sold for \$699 and the cheapest available in late 2002 sold for \$499 (Given 2003: 169).

broadcasting licences. The reviews were conducted by the Department of Communications, Information Technology and the Arts (DCITA). For each review, a discussion paper outlining options under consideration was published and interested parties were invited to provide comment by way of a public submission. A report was subsequently issued (DCITA 2006a).

The reviews offered an opportunity to assess progress with digital television conversion and to rethink the policy in light of outcomes that were clearly falling far short of the original expectations. The opportunity to seriously reshape the policy, however, was not taken up. For most of the reviews, the departmental considerations appear to have been largely confined to an assessment of the comments received in submissions and there is little evidence of additional independent analysis. The only exception seems to have been the review of multi-channelling arrangements, for which a consultant was engaged to examine the impact on existing operators and on the uptake of digital terrestrial television broadcasting (DTTB) of allowing the introduction of new services (multi-channelling, subscription and digital radio services).

In general, the reviews appear to have been little more than perfunctory. In a serious review of policy whose outcomes had fallen considerably short of what had been anticipated, a cost-benefit analysis of available options would have been natural. Yet no such analysis was undertaken and the reports are essentially a summary of views submitted by vested-interest parties who had dominated the process and had had most to lose from significant diversions from the initial plan. The reviews made no specific recommendations.

The reviews were followed by the announcement of some significant changes to the digital TV conversion plan in November 2006. The target date to begin analog switch-off was postponed to 'sometime' in the period 2010–2012 and the ban on the allocation of new commercial television licences was extended until the end of the simulcast period. At the same time, the restrictions on multi-channelled services of national broadcasters were lifted, commercial broadcasters were to be allowed to use their high-definition channel to provide a digital-only multi-channel service from 2007 and a further standard digital multi-channel service in 2009, and two additional television channels were to be allocated for new digital services in 2007 — one for up to eight free-to-air datacasting and narrowcasting channels, and the other for television services to mobile devices such as cellular phones (DCITA 2006b).

Not all of the new measures announced in 2006 have progressed as anticipated. The simulcast provisions for the high-definition channel were removed as planned, as were the genre restrictions on the multi-channel services of national broadcasters. The change, however, resulted only in a minor expansion in the range of programming offered to digital television viewers. Similarly, although the main commercial networks have all expressed intentions to introduce an

additional multi-channel service, implementation has been slow.<sup>7</sup> On the negative side, the allocation of two additional television channels for free-to-air datacasting and narrowcasting services, and for television services to mobile devices that was to have occurred in 2007 has not eventuated and appears to have been postponed indefinitely.

Additional developments have emerged following a change in government at the end of 2007. The new Minister announced the setting of a 'firm date' for completion of the switch-off of analog signals at the end of 2013 (Conroy 2007). He also announced the establishment of a Digital Switchover Taskforce to coordinate the switchover program and committed \$38 million to fund a package of initiatives to facilitate digital conversion which were detailed in a subsequent statement (Conroy 2008a). The additional initiatives included the commissioning of research to track uptake of digital TV, a publicity campaign to increase public awareness of the digital switchover program, and the development of a logo and labelling scheme to help consumers identify digitally ready products.

In October 2008 the Minister published a schedule of proposed region-by-region analog switch-off dates, commencing in Mildura in the first half of 2010 and concluding in the major metropolitan areas of Sydney and Melbourne in the second half of 2013. Although the schedule is 'technically' consistent with the previously announced 2013 'firm switch-off date', in effect it introduced a significant departure from all earlier switch-off plans. Until the schedule was announced, all previous plans envisaged that the same standard fixed simulcast period would apply in all areas, with switch-off *commencing* in *metropolitan* areas and *concluding* (up to three years later) in *regional* areas (consistent with the start of digital transmissions). The reversal of the switch-off sequencing extends considerably the simulcast period in the major metropolitan areas to around 13 years (previously, initially eight years and then nine years), but less so in regional areas. As spectrum scarcity is almost entirely a metropolitan area problem, the schedule is a *de facto* acknowledgment that the anticipated economic benefits of more efficient use of spectrum and a wider range of services to consumers have once again been considerably delayed. The significance of this departure from the original plan is underscored by a Productivity Commission (2000: 234) observation that equates extensions of the simulcast period with 'failure of the conversion process to meet (one) of its objectives, which is to "achieve spectrum gains to enable new services to be introduced"'.

<sup>7</sup> At time of writing, the TEN Network has established a digital sports channel transmitted in both standard and high-definition formats. The other two commercial networks had not yet started transmissions on their proposed standard multi-channel.

## How many homes have digital TV?

The switch-off of analog TV transmissions is a critical event in the transition to a digital television world. The many efficiencies of digitisation, particularly in the utilisation of the radiofrequency spectrum, do not accrue until analog transmissions are switched off and the related spectrum is released for alternative uses. Any delays in the switch-off consequently translate into a considerable loss of benefits to society that would otherwise accrue from alternative uses.

Without widespread adoption of digital TV, the government will be hard-pressed to implement the analog switch-off. Political pressures are likely to lead to considerable delays, as evidenced on previous occasions involving the switch-off of an existing service (for example, political pressure induced extensive delay in switching off CDMA mobile telephone services). The difficulty of proceeding with a switch-off of analog TV even when only a small minority of non-adopters of DTTB remains was highlighted by the recent four-month deferral of the 17 February 2009 switch-off in the United States. There, less than 6 per cent of households remained unconnected just before the scheduled analog switch-off (Nielsen 2009). According to the Acting Chairman of the Federal Communications Commission, the deferral was necessary because many consumers were not ready, and had not been adequately informed about necessary preparations, likely causes of related reception difficulties and sources of help. Also, consumers had experienced difficulties in obtaining the government-funded subsidy coupons for the purchase of digital set-top boxes (Copp 2009). The US experience underlines the political difficulty of proceeding with a switch-off which excludes even a small minority from a pre-existing service.

The Australian digital conversion policy presupposed rapid adoption by consumers keen to acquire the new technology. The main stimulus for consumer adoption was expected to come from high-definition programming and improved transmission quality. After all, Australian consumers had repeatedly demonstrated their enthusiasm for rapid adoption of new technology. Colour television, for example, had very quickly reached saturation (some say in record time), and Australians were among the fastest adopters of mobile telephony and the internet. This enthusiasm for new technology alone, it was thought, would be sufficient to garner a rapid transition to digital television.

But Australians have proved to be much more rational in their consumer choices. Not all potentially popular new technologies experience rapid adoption. Video cassette recorders took some 20 years to reach saturation, but were subsequently very quickly displaced by DVD players. Digital books (eBooks), although hailed by some as the start of a revolution in book distribution, have yet to have a noticeable impact. Other recent innovations such as iPods and similar devices for accessing digital music have proved more popular among some sections of consumers.



Generally, consumers can and do differentiate between products or services on the basis of the benefits they confer. In the case of digital television, while undoubtedly a small minority were sufficiently motivated by the technological benefits to adopt DTTB, the vast majority saw little additional benefit to justify the associated costs of adoption. The simulcasting provision of digital TV conversion meant that by acquiring digital TV-reception equipment, including high-definition equipment, viewers gained little by way of additional program choices. Apart from the marginal 'new' programming provided on the ABC and SBS digital-only channels, viewers were able to access exactly the same program choices on their existing analog TV sets.<sup>8</sup> Tanner (2006) noted the stark contrast between a 10 per cent DTTB household penetration after five years of digital transmissions and the more than 80 per cent uptake in four years for colour television which clearly improved the viewing experience. The low level of additional benefits was the main cause for slow consumer uptake of DTTB identified in many submissions and other evidence presented to the House of Representatives Standing Committee on Communications, Information, Technology and the Arts (2006).

Available data on DTTB uptake clearly show that the introduction of digital TV failed to excite consumers into adopting the new technology. Digital Broadcasting Australia (DBA), a not-for-profit industry organisation of TV broadcasters and TV manufacturers, suppliers and retailers, published regular bulletins charting the growth of DTTB penetration from estimates of retail sales of digital reception equipment. After a very slow beginning, the estimates show a significant acceleration of penetration from around 2005 onwards, aided by declining prices for widescreen TV sets which were becoming increasingly attractive to consumers. The accelerating growth in penetration was also evident in data from surveys commissioned by the broadcasting regulator, the Australian Communications and Media Authority (ACMA) in 2005, 2006 and 2007. In the first of these surveys (ACMA 2005b), conducted in July 2005, 13 per cent of respondent households indicated that they received digital FTA TV. The penetration rate increased to 22 per cent when those receiving the signal via subscription TV were added. The subsequent surveys (ACMA 2007 and 2008) reported penetration rates of 29.6 per cent (41 per cent including reception via subscription TV) in October 2006 and 41.8 per cent (54.2 per cent including reception via subscription TV) in December 2007.<sup>9</sup> Both the DBA and ACMA estimates of DTTB household penetration are summarised in Table 1.

<sup>8</sup> Under the provisions of the original DTTB plan broadcasters had to transmit simultaneously the same version of their analog programming in standard digital format as well as in high-definition digital format (when transmitting in high definition).

<sup>9</sup> The quoted figures do not include homes receiving DTTB signals via a subscription TV digital reception device.

**Table 1: Estimated Uptake of DTTB**

	Estimated DTTB Penetration (per cent of households)	
	DBA	ACMA
2003	1.1 (June)	
2004	4.5 (June)	
2005	10.8 (June)	13.0 (July)
2006	20.0 (June)	29.6 (October)
2007	28.0 (March)	41.8 (December)

Source: Digital Broadcasting Australia Information Bulletin (Various); ACMA (2007 and previous years)

Although reflecting a similar trend, the penetration rates reported in the ACMA surveys were noticeably higher than those estimated by DBA from retail-sales data. The ACMA consultants partially, and somewhat unconvincingly, addressed the differences in their reports on the first two surveys, attributing them to the use of different methodologies, likely sampling errors and assumptions underpinning the estimates (ACMA 2005b and 2007), and suggested that the DBA estimates ‘probably represented a conservative or base level of DTTB household penetration’ (ACMA 2007: 1, footnote 6).

A cursory examination of the results suggests that in addition to the potential causes noted by the ACMA consultants, the samples selected for the surveys may be inherently skewed towards households likely to have been early adopters of new technology. The survey reports noted that households that had adopted DTTB had been considerably more likely to also have home internet access (overall and more particularly broadband internet access) than households that had not adopted DTTB. This strong correlation between home internet access and DTTB adoption can be used to test for likely bias towards overestimation of DTTB penetration.

Annual estimates of households with home internet access, published by the Australian Bureau of Statistics (ABS), provide a reliable basis to test for likely bias in the ACMA survey sample. Overrepresentation of households with internet access in the survey sample, for example, would be a clear indication of likely overestimation of DTTB adoption. Comparisons of the proportions of households with overall and broadband internet access reported in the ACMA surveys with the corresponding proportions reported by the ABS (2007) clearly indicate a substantial overrepresentation of such households in the samples of all three ACMA surveys (see Table 2 for details). The extent to which the overrepresentation has influenced the reported DTTB adoption rates is not known, but it is likely to have been significant.

**Table 2: Comparison of ACMA Survey and ABS Internet Access Estimates**

Internet Access	ACMA July 2005	ABS 2004-05	ACMA Oct 2006	ABS 2005-06	ACMA Dec 2007	ABS 2006-07
Overall access	66.6	56	69.3	60	75.2	64
Broadband	38.8	15.7	51.7	28.2	61.7	43

Source: ACMA 2007 and previous years; ABS 2007

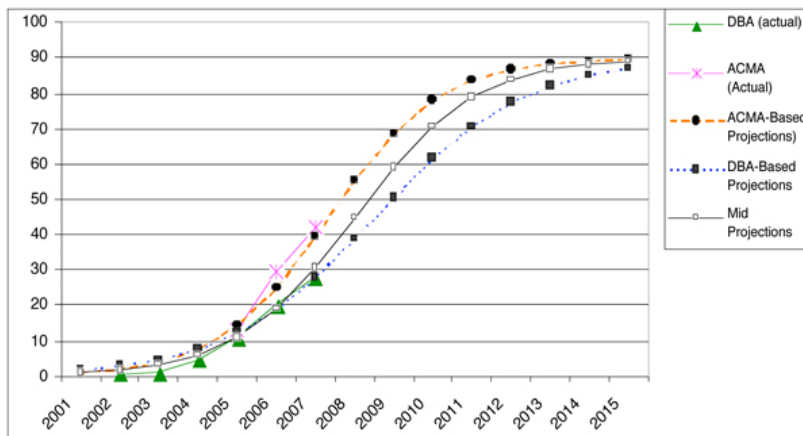
The inherent bias in the ACMA survey samples would lead to two important distortions in the results. First, of course, it produces the already noted significant overestimation of DTTB penetration (and consequential underestimation of non-adopters). Secondly, because the survey sample under-represents non-internet households it is likely to underestimate 'committed' non-adopters more so than of 'slow' adopters because non-internet households tend to be concentrated among low-income households that are least likely to be able to afford the purchase of digital TVs. In other words, they underestimate the size of the core group of households that are most likely to be opposed to analog switch-off. Both of these distortions are important because they significantly understate the magnitude of the task of getting the community ready for analog switch-off.

## Prospects for a 2013 switchover

The available data on consumer uptake of DTTB provides a somewhat useful basis for the estimation of likely future experience, assuming no major unanticipated external influences on consumer behaviour. One way to estimate future household DTTB penetration is to fit a classical 'S-shaped' cumulative diffusion curve (a logistic growth model of the form  $Y_t = \frac{L}{1 + ae^{-bt}}$ ) to the available data, where  $Y_t$  is the cumulative penetration at a given time  $t$ ,  $L$  is the anticipated final cumulative penetration level,  $a$  and  $b$  are constants that shape the diffusion curve. Assuming a final penetration level  $L$  and with sufficient historical diffusion data, the constants  $a$  and  $b$  may be estimated with regression analysis.

As indicated in Table 1, there are very few observations available on DTTB uptake, and these are insufficient for the production of reliable estimates using econometric analysis. Also as noted, the separate DBA and ACMA estimates are not easily reconciled. Nonetheless, notwithstanding the significant limitations, it was felt that even a rough fitting of the data to an S-shaped cumulative diffusion curve might provide a useful indication of the likely outcomes. The results of such 'back-of-an-envelope' exercise with the available data are presented in Figure 1.

**Figure 1: Projections of DTTB Household Penetration**



It is stressed that the results should be treated only as rough indicators of likely future projections. For the analysis, the cumulative ultimate penetration level that would enable analog switch-off to occur was arbitrarily assumed as 90 per cent of households.<sup>10</sup> Switch-off at a lower household-penetration level was assumed to be politically unsustainable. The three curves produced were estimated using, respectively, DTTB penetration data published by Digital Broadcasting Australia; data from the three ACMA surveys augmented with DBA data for earlier periods; and a mid-projection curve using an average DBA-ACMA penetration for the three years when both DBA and ACMA estimates are available.<sup>11</sup>

What is interesting from these projections is the 'slope' of their mid-section at the point of inflexion of the curves, as it is this that determines how quickly the curves move towards the ultimate penetration level. Even with the most optimistic historic penetration trend data (augmented ACMA data) the projections suggest that it will take 13–15 years from the start of digitisation to reach a level close enough to avoid unsustainable political backlash for switch-off. This would put the switch-off somewhat beyond the current government 2010–2013 target.

The above projections are consistent with available information on expected growth in DTTB penetration. The latest ACMA (2008) survey reported that among the non-adopter households 39.9 per cent had indicated 'an interest in obtaining digital free-to-air television' at some future date. An additional 18.5

<sup>10</sup> According to the latest ACMA (2008: 47) survey, 24.2 per cent of households, were classed as being explicitly 'not interested in adopting' DTTB. Thus, the chosen penetration limit allows for an eventual substantial (approximately 60 per cent) 'conversion' of professed non-adopters in the estimation of likely penetration rates.

<sup>11</sup> If, as proposed by the ACMA consultants, the DBA estimates represent minimum penetration levels, the average used to construct this curve might be a reasonable correction for the noted overestimation in the ACMA survey.

per cent were undecided. Together, these two groups represent the likely pool of potential DTTB adopters in the foreseeable future. The ACMA survey data on purchase intentions within two years of the survey provides a check for the reasonableness of the projections. If only those that indicated a purchase timeframe of up to two years actually make a purchase (an optimistic assumption), the anticipated penetration rates by the end of 2008 and 2009 would be 47.9 per cent and 51.6 per cent, respectively. Such penetration levels approximate those projected by the 'Mid projections' and by the 'DBA-based projections' curve.

DTTB penetration is generally measured on the basis of at least one digitally capable receiver device in a household. But most homes in Australia have multiple TV sets and other TV reception equipment. Analog switch-off will render obsolete non-converted TV sets and raises another challenge for authorities as consumers are unlikely to respond kindly to the loss (or alternatively to the additional conversion costs to retain use) of their existing TV sets. The most recent ACMA (2008) survey reports that in 2007, DTTB devices in homes amounted to 25.7 per cent of all television sets. The proportion in 2005 was only 7.1 per cent. According to the ACMA surveys, during the same period the average number of television display devices in households remained relatively constant.

The proportionately low number of digital viewing devices in the overall stock has received little attention as a potential problem for analog switch-off. The ACMA appears to be considering the issue with the collection of relevant data in its surveys but little has been said about it publicly. Tanner (2006) raised the issue, observing that in 2005, while digital receiver sales (TV sets and set-top boxes) had been some 600,000, total sales of new analog receivers exceeded two million. He observed that overcoming the challenge of converting all the analog devices then in people's homes by 2012 'would require monthly sales of digital receivers several times higher than those achieved in 2005'. The ACMA (2008) data on DTTB devices in homes, cited above, do not suggest that replacement of analog devices is occurring at anywhere near the required rate suggested by Tanner.

As for any product, consumer uptake of digital television hinges on the balancing of related costs and benefits. Uptake is likely to occur only if the consumer values the additional benefits offered by digital services at least commensurately with the cost of acquiring the necessary reception equipment (digital set-top box converter or other viewing device with an inbuilt digital receiver). Overseas developments suggest a strong correlation between DTTB uptake and the provision of new programming accessible only in digital format. In the UK, for example, digital conversion became an almost-instant success after the introduction of some 30 new free-to-air digital channels (Freeview) with an extensive range of new programming supplied by existing operators and new entrants to the industry. Driven largely by the popularity of Freeview, DTTB

penetration grew rapidly from around 5 per cent at the end of 2002 to 87.1 per cent by the end of the first quarter of 2008<sup>12</sup> (Ofcom 2008). Some evidence on the attractiveness of new programming is also provided by ACMA survey data on consumer purchase decisions. In Tasmania and Mildura, where penetration rates are considerably higher than the national average (70.3 per cent and 64.0 per cent, respectively; compared to the national average of 41.8 per cent), more than half of respondent households cited extra channels as a reason for adopting DTTB (ACMA 2008). In both areas, only two of the three commercial networks were available in analog and the introduction of digital transmissions provided for the broadcast of the third in digital format only. Elsewhere, other reasons such as improved picture quality, improved reception, replacement/upgrading of TV figured more prominently than extra channels as reasons for getting digital television, suggesting that the programming that was being provided on high-definition and multi-channelled digital services had been a key driver of DTTB uptake.

The ACMA survey findings further underscored the importance of new programming in comparisons of Mildura and Broken Hill as 'potential trial switch-off areas' (Mildura was subsequently selected as the first area for analog switch-off in 2010). The survey concluded that

... while the transmission characteristics appeared to make both ... ideal candidates for early switch-off, the research has indicated major differences in their uptake of digital television ... The research indicates that differences in available service offerings between Broken Hill and Mildura account for the differences in uptake. In Mildura, Channel Ten is only available on digital. (ACMA 2008: 2)

The survey report also noted that in Mildura only 12.4 per cent of households were not interested in adopting DTTB. In contrast, Broken Hill had a penetration rate of 38.6 per cent (as compared to 70.3 per cent in Mildura) and 29.3 per cent of households there indicated no interest in adopting DTTB (ACMA 2008: 48).

## **Are recent policy changes sufficient?**

Adoption of DTTB in Australia has so far been much slower than forecast by optimistic projections of policy-makers and commercial broadcasters. As a result, the analog switch-off date has had to be postponed. While the government has now published a 'firm' schedule for completion of the conversion process, it is not a foregone conclusion that analog switch-off will actually proceed as scheduled. Almost universal adoption of DTTB still remains the key to analog switch-off. Undoubtedly, the recent policy changes will provide some additional

<sup>12</sup> Total penetration includes households receiving free-to-air television via their digital subscription television service (24 per cent of all households).

stimulus to digital conversion, but will the likely improvements be sufficient for completion of the process as now scheduled in 2013?

The recent policy changes are a small improvement to the digital television plan. Both the previous Coalition Government and the current Labor Government have been reluctant to adopt more radical revisions to enhance digital uptake by removing restrictions on new programming, including restrictions on new entrants along the lines recommended by the Productivity Commission (2000) just before the start of the implementation of the digital plan. The Productivity Commission recommended allowing broadcasters full use of their multi-channelling capacity, the removal of all restrictions on datacasting (thus allowing new entry into broadcasting), and the realising of any available spectrum to new entrants. In contrast, the recent policy changes enable partial use of the multi-channelling capacity<sup>13</sup> and somewhat relax the datacasting restrictions. The ban on new entry remains unchanged and will continue to apply at least until the end of the simulcast period. This not only quashes an important source of new programs but also removes the necessity of incumbents to supply appealing programs on their multi-channel services to avert the competitive threats of new entry.

While all the incumbents have introduced, or propose to introduce, high-definition and standard multi-channels, to date the programming offered on those channels does not significantly expand what is available on the related analog channels. The programming on the high-definition multi-channels established by the incumbents other than the Ten Network is largely made up of simulcast and time-shifted programs on the respective analog services. The Ten Network has established a 'sports channel' and simulcasts its programming on both its high-definition and standard multi-channel. All FTA broadcasters (national and commercial) have combined together in a consortium, '*freeview*', for the joint promotion of their digital services. While *freeview* is being promoted as comprising 15 'new' channel digital services, in essence it is a promotional re-packaging of existing digital channels plus the three additional multi-channel services proposed by the commercial operators, two of which still remain to be launched at the time of writing.

In the absence of new entry, there is little incentive for commercial broadcasters to provide popular programs on their multi-channels. Popular programs would significantly fragment the audiences of their main channels, with consequential effects on advertising revenue. Although niche audiences may be able to attract premium per-person advertising rates, the demand for niche advertising does not appear to be robust enough to outweigh the loss of revenue associated with reduced mass audiences on the main channel.

<sup>13</sup> Each broadcaster has enough spectrum capacity for up to three additional standard digital multi-channels.

Less-popular programs are also less costly to broadcasters. Consequently, their use on multi-channelled services would be favoured to minimise both the loss of advertising revenue on their main channel, as well as minimise the cost of operating the multi-channelled services. In addition, despite the extra costs of simulcasting analog and digital formats of the same content and of operating multi-channel services, the commercial networks in particular have an incentive in delaying analog switch-off as long as possible. The switch-off will free-up the large amount of spectrum tied up in the delivery of analog broadcast signals and would add considerable pressure for the licensing of new competitive services using that spectrum. Thus, keeping the analog spectrum tied up as long as possible precludes competition from new entry, while low audiences for the less-appealing programs supplied on multi-channelled services can be used to argue that there is insufficient demand for the licensing of additional services.

The relaxation of the constraints on datacasting services is also unlikely to have more than a marginal impact. Datacasting services will still be arbitrarily constrained to preclude them from eroding audiences of broadcasting services. Thus, if and when datacasting licences are released, even if the relaxation of the constraints is sufficient to attract some commercial interest, the services likely to be offered will be of interest only to 'specialised' audiences. Consequently, their impact on households' DTTB uptake will be likely to be minimal. Similarly, the proposed allocation of licences for mobile television devices, by definition, will have little to no impact on households' DTTB uptake.

The setting of a definite analog switch-off date can be an important motivator for DTTB uptake by TV viewers who wish to continue viewing but have so far shown little interest in digital TV technology. However, for most people (those living in the large mainland capital cities) the switch-off is still a long way off and there is little, if any, pressure for them to purchase digital equipment until they actually need to.

The proposed awareness-building publicity campaign and the related labelling of TV sets should assist in promoting increased interests in DTTB among those who are either unaware of the switch-off date or of the need to obtain digital equipment to continue viewing TV once the switch-off has occurred. The need for such a campaign was underscored by the finding of the ACMA (2008) survey that almost one-third of households were unaware of the planned analog switch-off. Perhaps, the campaign's greatest impact might be on those planning to purchase new TV sets, or replace existing ones, in the period before switch-off. But it may not be enough to motivate a sufficient level of adoption among the 24.2 per cent of households which indicated no interest in adopting DTTB and the 10.8 per cent which indicated they were unsure if they were interested. The recent politically induced delays to Telstra's plans to switch-off the CDMA mobile phone network in regional areas following its replacement by its Next G



network (Conroy 2008c) is just one example of what can happen when a significant minority has not adopted the new technology. The recent delay of analog television switch-off in the US is another.

As noted above, a large proportion of TV set sales relates to the replacement (or upgrading) of existing sets. Anecdotal industry suggestions are that up to 15 per cent of the stock of household TV sets is being replaced each year. At present, many of the TV sets on the market do not incorporate digital tuners. The proposed labelling campaign to indicate digitally ready products, therefore, will help encourage some of those who are aware of digital conversion to select digital receivers when replacing or upgrading their TV sets. But price considerations and any lack of confidence among consumers that the announced analog switch-off dates up to five years into the future will remain unchanged, might influence others to continue purchasing analog sets. Although more interventionist, a mandatory scheme along US lines requiring new TV sets offered for retail sale to incorporate a digital tuner would be more effective in reducing the number of analog sets in use. With a replacement rate of around 15 per cent a year, such a scheme would make a sizeable inroad in converting the existing stock of analog TV sets in Australian households by the end of 2013.

Delays in the analog switch-off date have substantial welfare cost implications. Consumer welfare is considerably reduced by the loss of benefits to consumers that would otherwise accrue from access to additional television services that are either banned under the current policy or are not possible because the necessary spectrum is unavailable until the digital switchover is completed. Delays also retard the release of analog spectrum for more efficient alternative uses. To minimise such welfare losses, it is imperative that policies promote the earliest possible switch-off. In this regard, removal of all restrictions on the use of multi-channelling and of datacasting services, together with licensing of new entrants on currently available digital spectrum as recommended by the Productivity Commission (2000), would act to accelerate uptake of DTTB. To avoid delay in the switch-off of analog services, it may also be necessary in the final stages of the conversion process to provide some form of incentive for the adoption of DTTB by the residual analog users preventing the realisation of the anticipated large welfare gains. Recent press speculation (Jackson 2008) suggests that the government is considering provision of some financial incentives to adopt DTTB to those in need of assistance.

Mildura, the first area scheduled for analog-switch-off, will provide some valuable insights into the effectiveness of the recent policy changes. As noted earlier, DTTB adoption there was aided considerable by the provision in digital format of a previously unavailable third commercial channel. With 70 per cent of households already converted to digital, the analog switch-off task is less daunting than in other areas. Among non-adopters in Mildura the ACMA (2008)

survey found that some 40 per cent were planning to purchase digital equipment and an additional 34 per cent expressed some interest in DTTB. If they all convert to digital before the schedule date in 2010, the residual analog-only households would be less than 8 per cent of the total. The proportion is within what might be considered the politically acceptable range and it will be interesting to see whether analog switch-off will be implemented as planned or without additional incentives to convert.<sup>14</sup>

## Conclusion

Both the current Labor Government and its Liberal-National Coalition predecessor have wasted another opportunity to set the digital television policy on a more appropriate course for rapid completion of the conversion from analog to digital. What's missing from the policy is a strong incentive for consumers to adopt digital television. Such an incentive would be provided by new competitive entry into the industry ready and willing to supply consumers with innovative and appealing programs. While policy-makers are clearly aware of this, they have proved reluctant to do anything that significantly weakens the high level of protection enjoyed by incumbent commercial broadcasters. Consequently, by not making more radical changes, the recent policy amendments will provide only modest improvements to what has always been a poor policy. Under the revised plan, the conversion process is now scheduled to be completed at the end of 2013. However, as the preceding analysis suggests, it is not entirely certain that consumer uptake will be sufficient to enable the switch-off to be completed on schedule. Having been one of the first developed countries to embark on the digital conversion process, Australia's progress towards achieving that objective has not only been sluggish but seems destined to become very long by international standards.

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<sup>14</sup> As noted above, a residual of less than 6 per cent was recently used to justify a delay in analog switch-off in the US.

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