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REPORT

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on behalf of

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Public Version

Reasonableness of limiting the supply of FOXTEL's conditional access service

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AUTHOR'S STATEMENT

I have read and understood the contents of the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia supplied to me by Allens Arthur Robinson. I agree to be bound by the contents of those Guidelines.

Henry Ergas

(See Appendix B for Curriculum Vitae)

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EXECUTIVE SUMMARY

This paper considers whether it would be reasonable for FOXTEL, in a special access undertaking, to limit the supply of conditional access (CA) and service information (SI) (referred to as 'CA/SI') to homes in which it supplies a retail service.

This question is considered in the context of two counterfactual scenarios:

- That FOXTEL unbundle its CA/SI, such that access seekers can use these services with their own set-top units (STUs), in homes that do not have a FOXTEL STU installed; and
- That FOXTEL provides STU access in homes it does not otherwise serve, on a full-service basis, including provisioning, installation, servicing and removal of the STU.

This paper finds it unlikely that either of the two counterfactual scenarios would be more reasonable than the factual case, based on the economic tests that underlie the meaning of reasonableness under relevant legislation. Based on the analysis contained in the paper, it is likely that:

- Entry barriers would not be significantly reduced, if at all;
- Significant costs would be incurred, with no assurance of recovery;
- There would be no clear efficiency gains;
- FOXTEL's ability to recover and gain a return on its investment would be compromised; and
- In the case of CA/SI unbundling, competition may be reduced or distorted; and innovation and service upgrading would be made substantially more difficult.

This paper also considers what a reasonable term of access should be. It concludes that it is likely that a term of five to eight years, with early termination provisions in favour of access seekers, would be reasonable.

1. INTRODUCTION

Allens Arthur Robinson, on behalf of FOXTEL Management Pty Limited ('FOXTEL'), has asked CRA to consider:

- Whether, in providing access to digital subscription television services, it is reasonable for FOXTEL to limit the supply of CA/SI services to homes in which FOXTEL already supplies its own retail subscription television service. This condition is to form part of a proposed Special Access Undertaking ('SAU') regarding FOXTEL's digital subscription television service; and
- The appropriate term of access to digital STUs.

The proposed SAU will contain the same service definition and STU pricing model previously proposed in the anticipatory exemption proceedings and digital access agreement ('DAA'), with the inclusion of access to, and appropriate pricing adjustments for:

- Modem services; and
- The electronic program guide ('EPG').

In its SAU, FOXTEL proposes to supply a *bundled* access service, which includes access to its deployed population of STUs; rather than *unbundle* a CA/SI service for separate provision to access seekers in homes where FOXTEL has not deployed STUs. FOXTEL also proposes to deploy STUs only in homes where FOXTEL itself provides a retail subscription television service. As a result, in the factual case ('the factual'), access seekers would be able to offer their channels to customers who already acquire FOXTEL's retail service; but if they wanted to supply services to non-FOXTEL customers they would need to make other arrangements because FOXTEL STUs are not present in those homes.

This paper assesses the reasonableness of FOXTEL's proposal to limit the provision of CA/SI services to its own retail customer base. This is assessed against the reasonableness criteria set out in the *Trade Practices Act 1974 ('TPA')*, including the promotion of competition, promotion of efficient use of and investment in facilities, and the interests of both access providers and access seekers. The paper also discusses the appropriate term for the SAU, also having regard to the reasonableness criteria.

There are two relevant counterfactuals – described in more detail in Section 2 – against which the reasonableness of the SAU is assessed. These counterfactuals are, broadly:

1. The unbundling of FOXTEL's CA/SI service so that an access seeker could provide its own STU in non-FOXTEL homes and connect that STU to FOXTEL's CA/SI service. This necessitates licensing of proprietary and confidential security keys that guard FOXTEL's conditional access system; and

2. The provision of STUs in non-FOXTEL homes under a 'full service model'. That is, FOXTEL would provide, install, manage, service and remove STUs as required to serve the customers of access seekers. This amounts to the unbundling of FOXTEL's STU and CA/SI from its content, and supplying the former without the latter.

This report consists of seven sections.

- Section 2 outlines the background facts and assumptions used in the analysis of the factual case and the relevant counterfactual cases;
- Section 3 discusses the statutory reasonableness criteria and the economic concepts they call upon;
- Section 4 assesses the reasonableness of CA/SI unbundling relative to the factual;
- Section 5 assesses the reasonableness of the full service model relative to the factual;
- Section 6 discusses the reasonableness of the term of access; and finally
- Section 7 provides some concluding remarks.

2. BACKGROUND AND ASSUMPTIONS

This section outlines the background and assumptions used in the analysis of the proposed access regime. In addition, we have relied on the matters set out in the FOXTEL Engineering Report prepared for Special Access Undertaking Application by FOXTEL dated September 2005 ('Engineering Report') (relevant parts of which also appear in this section).

2.1. INDUSTRY AND TECHNICAL BACKGROUND

2.1.1. System overview

FOXTEL has a purpose-built subscription television system that is designed to securely and reliably deliver programming to those and only those customers who are entitled to receive it. As noted in the Engineering Report¹, its recent conversion from analog to digital transmission and reception equipment has increased its ability to offer features and enhancements to its broadcast programming, a result of increased system capacity and the roll-out of STUs with more features and processing capability.

Broadly, the system includes the following elements:

- The digital play-out centre, where content is aggregated before being sent to the head ends in each city (for cable) or the uplink station (for satellite);
- Head ends, where programs are encrypted by the CA system, and where SI about how content is arranged within the broadcast streams and how it can be accessed, is issued;
- Channels of carriage – either cable or satellite – to take the signals to customers. These channels are acquired from Telstra (cable) or Optus (satellite);
- STUs and smartcards, which are programmed with certain security keys enabling them to decrypt the appropriate programs for each customer, and which receive SI that enable them to locate, process and display the content (including interactive content) correctly.

¹ Engineering Report, Section 1.

2.1.2. STU ownership

FOXTEL provides and manages² all of the STUs on its system. These STUs are built to FOXTEL's specification and do not work with other subscription television systems (even if the smartcard is removed and replaced). In common with other subscription television systems worldwide, certain elements of the STU are hard-wired so that they only function with FOXTEL's CA system. FOXTEL's ownership of the STU requires it to absorb the initial cost of purchasing the STU.³ These costs are subsequently recovered from customers over time. FOXTEL originally adopted the STU ownership model because its competitors did so; and it is still the practice of FOXTEL's subscription television competitors to do so. Leaving aside the comparative disadvantage that a competitor would suffer if it alone tried to pass the upfront cost of the STU to the customer, there are some advantages to FOXTEL in owning the STU, and thus being entitled to recover the STU as subscribers churn.⁴ These advantages include:

- FOXTEL's ownership of the STU means that it can readily recover the STU if the customer churns off, and re-deploy the STU for a new customer at lower cost (including collection and refurbishment) than if a consumer needed to purchase a new STU. Because churn is a common feature of the subscription television industry⁵, and because the useful life of the STU (approximately 7 years, but up to 12 years with refurbishments) exceeds the average life of the customer, such redeployment is typical, and by facilitating it, continued ownership of the STU by FOXTEL reduces the cost of acquiring new customers;
- Reducing the upfront cost to the customer reduces the price and non-price barriers to uptake, and leads to higher market penetration. That is, FOXTEL can charge lower upfront prices than it would otherwise for new customers; and customers avoid the risk of investing in and owning hardware that could not be put to any other purpose should they unsubscribe from FOXTEL. This is especially important in driving uptake of digital services and giving FOXTEL control over its analog shut-down⁶;

² In this report, this is referred to as STU ownership. While the FOXTEL STUs are the subject of sale and leaseback arrangements under which ownership reverts to FOXTEL at the end of the lease, this is merely a means of financing. Economic ownership resides with FOXTEL since it takes the risks and receives the benefits of STU ownership.

³ As noted above, it does this through sale and leaseback arrangements with a major bank.

⁴ 'Churn' is an expression used to describe the voluntary and involuntary disconnection of customers from the service.

⁵ During 2004-05, FOXTEL signed 239,000 new subscribers, but 120,000 churned off, leaving it with a net increase of 119,000. Source: 'Foxtel plans birthday surprise', *Australian Financial Review*, 15 August 2005, p 49.

⁶ The efficiency benefits of analog shut-down include operational cost savings and the release of spectrum used for analog transmission. FOXTEL's progress towards achieving these benefits contrasts with that in digital terrestrial broadcasting, where digital adoption is dependent on STU retailing.

- FOXTEL's ownership of the STU means that it is better able to manage technical aspects of its end-to-end network, including the migration path for technology upgrades to meet the requirements of new content, enhancements and interactive applications.

The importance of vertical integration in developing the subscription television industry is well recognised. In a report for the European Commission in 2003⁷, Oxera noted that:

Vertical integration between the supplier of a durable good (the set-top box) and the supplier of services consumed using that good (content) gives the integrated firm an incentive to promote the system as a whole.

...vertical integration benefits consumers by reducing the costs associated with initially taking up digital services, a very important function for stimulating penetration and facilitating the successful development of all forms of digital services (FTA and pay-TV). However, contractual ties or the rental model mean that the consumer faces switching costs if it want to access alternative digital services, although, on the other hand, the switching costs are likely to be lower in the presence of subsidies or rented equipment than if consumers had to purchase the hardware themselves.

2.1.3. Conditional access

CA ensures that television channels can only be viewed by those who are authorised to receive them.⁸ All subscription television providers deploy CA in order to protect their subscription revenues. Typically, this is done through the scrambling of the channel content (using an encryption algorithm) before it is broadcast, and the unscrambling of the channel content by the STU and Smartcard at the customer's premises.

CA systems are licensed from large global providers that are heavily invested in the security elements of their service. For security and operational reasons, CA licences are network-specific (i.e. unique to a single network). Typically, the licence covers at least:

- The technology at the head end which encrypts signals according to specific security keys which define the encryption algorithm.
- The technology in the Smartcard (inserted into the STU) which enables decrypting of signals using the corresponding security keys.
- The technology in the STU and its loader⁹, which identifies the STU to the network, locates the appropriate signals, and downloads software into the STU's processor.

⁷ Oxera (Oxford Economic Research Associates), European Commission 'Study on Interoperability, Service Diversity and Business Models in the Digital Broadcasting Markets', February 2003. Volume 1: Report, section 2.3.5.

⁸ See Engineering Report, Section 5.1.

⁹ The loader takes signals from the tuner and loads them into the STU.

FOXTEL's CA was developed to serve the anticipated future requirements of FOXTEL's retail service. It currently has the capacity to service two million subscribers at FOXTEL's desired level of functionality.

Broadly, the cost of a CA system varies with the number of subscribers it can service, and the complexity of the features it supports. FOXTEL's CA system is comparatively complex both because of the functionality it offers, and because it services multiple streams on both cable and satellite.

It is possible for a platform to carry two or more CA streams by a process known as simulcrypting. Simulcrypting allows two CA streams to be broadcast across the same platform. In such a system, content only needs to be prepared and transmitted once, together with the CA streams. STUs that are compatible with either CA stream will receive the broadcast and decode it in accordance with its type of CA.¹⁰

However, simulcrypting is technically risky where more than two streams of CA are involved. It is therefore not a solution that could accommodate multiple CA systems of different access seekers, i.e. it is not a scalable solution.

2.1.4. Active Customer Smartcard Database

In order to grant access under the DAA, FOXTEL has built an active customer smartcard database (known as the 'ACSD'), which instructs its CA system.¹¹ This database lists all smartcards by number, together with their status as active/inactive by service. FOXTEL's own subscriber management system interfaces with the ACSD, passing on instructions that are then implemented by the CA system. For example, if a customer purchases a new tier channel, then the Subscriber Management System (SMS) alters that customer's entitlements in the ACSD, which in turn interfaces with the CA system to enable the decryption of the additional channels.

The ACSD supports FOXTEL's existing access offerings. An access seeker can also interface its SMS to the ACSD by following the specifications in the access seeker protocol issued by FOXTEL. An access seeker's SMS (which would contain information such as a customer's name, address, and billing and payment details) can therefore interface to the ACSD by following these specifications.

10 The problems and costs associated with simulcrypting are outlined in the Engineering Report, Section 6.1.2 at sub-section e.

11 See also Engineering Report, Section 4.

2.1.5. Service information

SI is a critical stream of information that is broadcast network-wide to all STUs on the relevant network.¹² SI maps the broadcast signal, and defines how the bandwidth is used. By reading the SI tables, each STU is informed of how data is arranged in the available bandwidth. Without it, the STU would be unable to locate or organise the data it receives, and the signal would be a meaningless stream of bits which could not be organised into anything of value.

SI is layered and includes:

- The Network Information Table, or bandplan, which defines which channels are broadcast on which parts of the available bandwidth;
- Information about particular services (e.g. the EPG or the weather channel) that are broadcast within the bandplan;
- Information about particular components (e.g. the interactive content on the weather channel) of those services.

The SI stream is also the means by which new software is downloaded 'over the air' ('OTA') to update FOXTEL's STU. The smartcard can also be sent OTA instructions. This capability enables FOXTEL to update its STUs in lockstep with its platform. Not all platforms have this capability.¹³

Only one set of SI can be broadcast to a network of STUs. Because it governs the organisation of all the information broadcast, it is not possible to have two sets of SI.¹⁴

Guidelines for SI are contained within DVB standards, although there are many possible interpretations of these standards and they are implemented in different ways by different STU manufacturers.¹⁵ FOXTEL's STUs and SI are optimised to work together. This optimisation occurs in at least two ways. First, FOXTEL works closely with its STU manufacturer to ensure that the specifications are interpreted consistently across each generation of STUs. Second, FOXTEL carefully coordinates its SI with its STUs to optimise the operation and future development potential of its platform. This is important because the proper inter-working of these elements is both critical to service delivery and highly sensitive to changes in the SI, which can lead to unexpected problems when SI is altered.

12 See also Engineering Report, Section 5.2.

13 See Engineering Report, Section 2.1.c.

14 Even if two CAs are simulcrypted on the one platform, a common SI must be used. Engineering Report, Section 6.1.2 sub-section e.

15 See also Engineering Report, section 5.2.

For example, the addition of a channel requires additional SI to be broadcast. New versions of SI can be interpreted incorrectly by the STU, leading to conflicts with information previously received. FOXTEL has experienced shared-SI situations where changes to SI have resulted in problems such as loss of audio on apparently unrelated channels, or excessive delays in channel changing.¹⁶ Usually, these problems can be resolved by subsequent software downloads to the STU, but the disruption can be costly as customers are inconvenienced and further changes to SI are stalled until problems can be diagnosed and rectified.

The risk of SI difficulties increases in a non-linear fashion with the number of different types of STU on the system, and the complexity of the information carried. Greater risk necessitates more extensive testing before deployment of new content/applications or new STUs, to ensure that negative cross-impacts are ruled out. This involves time and money: cost to conduct the testing, and delay in the deployment of new services and upgrades.

2.1.6. STU components

The CA/SI must be compatible with a number of components of FOXTEL's STU. That is, only an STU built to identical specifications as FOXTEL's STU, and using the same security keys as FOXTEL uses, could function with FOXTEL's CA/SI. These components are discussed in this section.

The STU consists of a number of layers of hardware and software. These hardware and software components perform various functions within the STU. A number of these components are specified to be compatible with other parts of the STU¹⁷:

- The Loader, the Applications and the EPG need to be compatible with the CA and the SI;
- The Applications need to be compatible with the content and the Middleware;
- The Middleware needs to be compatible with all of the Applications and the network specifications;
- The Drivers need to be compatible with the Hardware, Middleware and Verifier software; and
- The Central Processing Unit and the Tuner link all the components of the STU.

¹⁶ FOXTEL and Austar share the SI stream for their satellite subscription television services, although they have independent CA. This is because they broadcast many channels in common, and there is insufficient Optus satellite capacity for them to duplicate the broadcast of those channels. Even if there was enough satellite capacity, the large number of common channels means that there are substantial cost savings from sharing sufficient to outweigh the costs that SI sharing imposes.

¹⁷ See Engineering Report, Section 2.

In addition to these compatibility requirements, security keys verify whether a STU is compatible with FOXTEL's CA system. These keys operate across the Applications and some of the Hardware; and between the Hardware and the CA. No STU will communicate with FOXTEL's CA/SI unless it has these keys, which are licensed (uniquely) to FOXTEL by its CA provider, NDS.

Most components of the STU can be updated via software download using the CA/SI in accordance with the functionality requirements of the STU.

2.1.7. Patents and IP

The components of the STU are protected by patents held by the manufacturers. These include companies such as: NDS, Open TV, Pace, Dolby, and Mpeg LA. The remote control is covered by patents with Phillips and UEI Universal Library. FOXTEL does not have exclusive arrangements for the supply of any of these components; hence access seekers are at liberty to acquire STUs with these components from these companies.

Unique to FOXTEL, however, are the security keys installed in the STU. Providers of CA technology generally provide unique keys to each subscription television provider to ensure network security. In the wrong hands, these keys would enable security breaches and fraudulent access to FOXTEL's programming.

In order to source STUs that would function with FOXTEL's CA system, access seekers would have to sub-license these security keys from FOXTEL, or gain FOXTEL's consent for its licence to become non-exclusive to enable access seekers to license the keys directly from the supplier.

FOXTEL would also need to extend its licensing arrangements if it was to sub-license its STU specifications to access seekers. This is because its current licences only give FOXTEL the right to use the manufacturer's IP in its own hardware.¹⁸

2.1.8. Coverage and penetration

FOXTEL has just over one million subscribers to its cable and satellite services.¹⁹ These households are referred to as 'FOXTEL homes'. There are approximately 7 million television homes in Australia. Of these, FOXTEL markets to approximately 5 million.²⁰

Seventy per cent of FOXTEL's subscribers use its digital service.²¹ The digital subscriber base is expected to continue to grow through both: (a) continued migration of FOXTEL's remaining analog customers; and (b) net new customer acquisition.²²

18 See Engineering Report, Section 3.2.

19 Source: Telstra Corporation Limited, Full year end results and operations review, Year ended 30 June 2005, page 8. See also FOXTEL Press Release, 4 June 2005, "FOXTEL celebrates one millionth subscriber milestone." This total includes analog and digital customers who have a retail relationship with FOXTEL.

20 Source: Telstra Annual Report 2004, Company Overview, page 29.

Austar markets to around 2.4 million homes. A small proportion of these overlap with FOXTEL's coverage. In addition, locally-based cable networks such as TransACT and Neighborhood Cable also offer subscription television. Once these overlaps are taken account of, just over 2 million homes are served only by one operator, Austar.

2.1.9. Carriage costs and alternative platforms

In order to make use of FOXTEL's STU service, access seekers must first acquire channels of carriage. The charge for a Telstra cable channel is a minimum of \$750,000 pa²³ under Telstra's undertakings.

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A single channel can be purchased on Optus C1 via a third party aggregator such as Globecast for around \$700,000²⁴.

Alternatively, access seekers can purchase a single channel from satellite platform providers. Optus operates one such platform (Aurora) and Globecast operates another. These offer basic video and audio broadcasts with few enhancements.

The Optus Aurora platform

The Optus Aurora service provides a fully managed service, including carriage, CA, testing and technology maintenance, and it works with a range of commonly available STUs that are sold on a retail basis. The Optus website²⁵ advises that:

Optus Aurora supports fully-managed, cost-effective satellite service, backed by the expertise of Australia's leading satellite provider, enabling organisations to reach hundreds of remote locations as well as capital cities, all with a single transmission. Customers join the rapidly expanding Optus B3 Hotbird community which already includes leading programme and service providers.

21 Source: FOXTEL Media Statement, *FOXTEL Digital Delivers in 2005 Financial Year*, 11 August 2005.

22 Net new customer acquisition is expected to increase industry penetration from 24% currently to 35-40% in 2008. Source: FOXTEL

23 Plus CPI increases calculated annually from 1 October 2002. See Engineering Report, Section 6.1.2 sub-section 1 (i).

24 See Engineering Report, Section 6.1.2.

25 <http://www.optusbusiness.com.au/00/01/0001q.asp?segment=1&category=36&productservice=18> accessed September 2005.

The digital technology of Optus Aurora is fully compliant with the latest Digital Video Broadcast (DVB) standards and delivers a secure, flexible service with a choice of bandwidths and channels for the delivery of video, audio and data.

Reception is via small satellite dishes and a range of decoders which are affordable and easy to install.

A single channel, including encryption, indicatively costs \$565,000 pa plus set-up costs of \$10,000. This does not include the provision of STUs, which are available from numerous suppliers. They can be purchased directly from a manufacturer for approximately US\$100, excluding licences and royalties.²⁶

The Globecast platform

Globecast also provides a digital platform for satellite delivery of television signals Australia-wide. It offers a bundled CA, SI and carriage service that includes encoding, multiplexing, encryption, Irdeto CA, SI and satellite uplink.

The indicative price for one channel (including carriage and CA/SI) is \$360,000 pa on the PanAmSat8 satellite, \$420,000 pa on the Optus B3 satellite, or \$720,000 on the Optus C1 satellite. STUs can be purchased 'off-the-shelf' direct from a manufacturer for approximately US\$100, excluding licences and royalties.²⁷

2.2. FACTUAL AND COUNTERFACTUALS

The reasonableness of limiting the supply of CA/SI to homes in which FOXTEL supplies a retail service is assessed by comparison with the key counterfactuals under which the supply of CA/SI would not be so limited.

These counterfactuals propose (1) to unbundle and separately provide just the CA/SI; and (2) to unbundle provision of CA/SI and the STU from the provision of FOXTEL's content.

2.2.1. The factual case – the proposed SAU

The factual case is that FOXTEL files a SAU giving access to its deployed network of digital STUs, including the modem in the STU, together with CA/SI and listings in the EPG.

These services would be bundled in that each would not be provided separately. As a result, FOXTEL's STU and CA/SI services would be provided to access seekers *only* in respect of homes served by FOXTEL's retail service, since its STUs would not be present in other homes. Outside FOXTEL homes, therefore, access seekers must make their own arrangements for STUs and CA.

²⁶ See Engineering Report, Section 6.1.2 sub-sections b and c, and Annexure 2.

²⁷ See Engineering Report, Section 6.1.2 and Annexure 1.

In the factual, an access seeker has the following options:

- Offer its services to customers in FOXTEL homes using the SAU, by accessing FOXTEL's STUs (Option A); and
- Additionally offer its services to customers in non-FOXTEL homes, by providing its own CA/SI and STU (Option B); or
- Offer its services to customers in both FOXTEL and non-FOXTEL homes by providing its own CA/SI and STU (i.e. pursue an 'independent' model) (Option C).²⁸

The access seekers's main service options under the SAU are therefore:

Option	FOXTEL homes	Non-FOXTEL homes
A	SAU	--
B	SAU	Independent
C	Independent	Independent

To pursue Options A or B, an access seeker would source carriage from third parties (as FOXTEL does) and SAU services from FOXTEL.

In Options B and C, in order to serve homes independently of FOXTEL, an access seeker would source carriage and acquire its own CA/SI systems; or source bundled CA/SI and carriage services; or invest in its own network and systems (as TransACT and Neighborhood Cable do).

To the extent that the access seeker wishes to pursue both the SAU and the independent model for the same channel of programming, it would need to acquire two channels of carriage (because each channel would be encrypted differently over two CA systems), and broadcast simultaneously ('simulcast'). The need for channel simulcasting arises only in Option B in the table above.

The need for access seekers to simulcast could be avoided if FOXTEL could simulcrypt the two CA streams for the access seekers. However, the operational problems and resulting costs make it an impractical option, particularly when faced with multiple access seekers.²⁹

²⁸ In which case, it will not be an access seeker, but a standalone competitor.

²⁹ The problems and costs associated with simulcrypting are outlined in the Engineering Report, Section 6.1.2 sub-section e.

2.2.2. The counterfactual cases

CA/SI unbundling – the first counterfactual

The first alternative scenario is that FOXTEL submits the same SAU but with the addition of an unbundled CA/SI service, and the licensing of its STU specifications and the 'security keys' to its STU.

Such a service would enable an access seeker to offer subscription television services to non-FOXTEL customers, by providing for its own STU and carriage, but using FOXTEL's CA/SI system (rather than providing its own CA/SI).

This would also obviate the need to buy two separate channels of carriage to offer the same channel of content over two different CA systems (FOXTEL's and its own).

As a result, in this counterfactual, an access seeker could (in addition to the options in the factual) offer its services to non-FOXTEL customers who are reachable by the carriage infrastructure used by FOXTEL (Telstra's HFC, and direct to home (DTH) satellite), by using FOXTEL's CA/SI and providing its own STU (Option D).

In this case, the access seeker would not need to simulcast, irrespective of whether it supplies subscription television via its own or FOXTEL's STUs, since its programming would be encrypted by a single CA system (FOXTEL's) and would be broadcast to either FOXTEL STUs, or STUs with an identical ability to interpret the SI and decrypt the signal.

Option	FOXTEL homes	Non-FOXTEL homes
D	SAU	CA/SI

The non-FOXTEL homes that can be served by satellite in Option D above include not only homes within FOXTEL's current service area (around 5 million homes), but potentially also over 2 million homes outside it ('Austar areas'). Most of these homes are currently served by Austar alone, although some are also served by local cable network owners such as TransACT and Neighborhood Cable.

Unbundling STU services – the second counterfactual

The second counterfactual is that FOXTEL offers a full service for STU access, including the provision, operation, maintenance and removal of STUs in homes reachable by the Telstra cable or a satellite and within FOXTEL's service footprint.³⁰ This is known as the 'full service model', or 'FSM'. In this scenario, the provision of FOXTEL's CA/SI and the STU are (together) unbundled from the provision of FOXTEL's subscription television service and provided in non-FOXTEL homes serviced by the access seeker.

30

It is assumed that FOXTEL's obligation to provide service in this counterfactual would be limited to its existing geographic areas of operation. That is, it would not be obliged to provide FSM services in areas outside its service footprint (for example, in Austar areas).

As a result, an access seeker could (in addition to the options in the factual) offer its services to non-FOXTEL customers who are within FOXTEL's service area, by using a full STU service provided by FOXTEL. This is Option E.

Option	FOXTEL homes	Non-FOXTEL homes
E	SAU	FSM

In option E above, no channel simulcasting would be required. The access seeker could use the same downstream channel to reach both FOXTEL and non-FOXTEL homes because identical, FOXTEL-provided STUs would be used in both types of homes.

However, to the extent that an access seeker wished to serve Austar homes, it would need to make independent arrangements (including the purchase of extra channels of carriage) as FOXTEL's operational capability to install and service STUs is limited to its own service footprint.

2.3. ASSUMPTIONS

CRA has been asked to assume that:

1. FOXTEL can only provide access seekers with CA/SI services if the access seeker's subscription television service is supplied using an identically-specified STU to the STU that FOXTEL uses (except for external features such as logos);
2. It is important for FOXTEL's business that FOXTEL continues to be able to supply subscribers with STUs as part of its subscription television service, for reasons including that:
 - It wants to be able to subsidise the cost of the STU to encourage take-up of its subscription television service; and
 - Control of STU technology gives FOXTEL the ability to continue to improve its subscription television service.

2.4. SCOPE

Furthermore, this paper addresses the economic issues relating to access to FOXTEL's STUs and related facilities and services. It does not address other inputs that may affect entry into the subscription television industry, such as content sourcing, but focuses solely on the STU and related elements. To the extent necessary, it assumes that potential competitors can efficiently source content that is sufficiently attractive to secure minimum efficient scale for their mode of entry. This is a conservative assumption, because it makes access to FOXTEL's STUs all the more important as it would be the last remaining obstacle to entry for an access seeker.

3. STATUTORY REASONABLENESS AND THE ECONOMIC RATIONALE FOR UNBUNDLING

3.1. STATUTORY REASONABLENESS CRITERIA

The test for reasonableness for a special access undertaking is covered in the TPA in Part XIC Division 5, Section 152AH:³¹

Reasonableness—terms and conditions:

(1) *For the purposes of this Part, in determining whether particular terms and conditions are reasonable, regard must be had to the following matters:*

- (a) *whether the terms and conditions promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services;*
- (b) *the legitimate business interests of the carrier or carriage service provider concerned, and the carrier's or provider's investment in facilities used to supply the declared service concerned;*
- (c) *the interests of persons who have rights to use the declared service concerned;*
- (d) *the direct costs of providing access to the declared service concerned;*
- (e) *the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility;*
- (f) *the economically efficient operation of a carriage service, a telecommunications network or a facility.*

CRA has been instructed to consider criteria 1(a) only to the extent to which it is likely to result in:

- the objective of promoting competition in markets for the provision of subscription television services; and
- the objective of encouraging the economically efficient use of and investment in the facilities used to supply the service.

³¹ Section 152AH sets out the criteria for the 'reasonableness' of terms and conditions of access relevant in a number of matters that the Commission determines, including: determining an access code under s 152BK, considering whether to accept a draft ordinary access undertaking under s 152BV and considering whether to accept a draft special access undertaking under s 152CBD.

This report assesses the reasonableness of FOXTEL's proposed SAU (factual), which does not unbundle CA/SI from its digital STU access service (the first counterfactual) or offer a full CA/SI/STU service to access seekers for non-FOXTEL homes (the second counterfactual). Our approach to this task is to analyse whether either of these counterfactual scenarios would deliver superior results to the factual, in the sense of the Section 152AH criteria.

3.2. APPROACH TO EVALUATING THE REASONABLENESS CRITERIA

The following sub-sections set out our approach to evaluating the statutory reasonableness criteria. Of particular note are comments by the Australian Competition and Consumer Commission (ACCC), in reports such as its ACCC Access Pricing Principles³², and by the Australian Competition Tribunal (ACT) on the long-term interests of end-users (LTIE) criteria in the subscription television decision.³³

3.2.1. Criterion (a) – Long-term interest of end-users

The meaning to be placed on the LTIE has been considered by the ACT in its reasons for decision on the anticipatory exemption proceedings. The ACT³⁴ found that:

'end-users' include actual and potential subscribers to subscription television services and other viewers in their households. The term is also likely to include businesses, such as hotels and other places where people congregate, that subscribe or may potentially subscribe to subscription television services.

the interests of end-users lie in obtaining lower prices (than would otherwise be the case), increased quality of service and increased diversity and scope in product offerings. In our view, this would include access to innovations such as interactivity in a quicker timeframe than would otherwise be the case.

In accordance with the principles stated by the ACT, this report considers that the interests of end-users will be best served by:

- lower prices (that are sustainable);
- higher quality of service; and
- greater choice of products.

³² ACCC, Access Pricing Principles – Telecommunications, 1997, in which the ACCC comments on its general interpretation of the criteria considered in this report.

³³ Australian Competition Tribunal, File No 11 of 2003, Reasons for Decision dated 23 December 2004. Note that only the LTIE criteria were relevant to the anticipatory individual exemption that FOXTEL had sought under s 152ATA.

³⁴ ACT, para 120

Promotion of competition in markets for the provision of subscription television services

The TPA³⁵ outlines that availability of listed services to end-users is a relevant criterion to be considered when assessing the promotion of competition in the context of Part XIC:

In determining the extent to which a particular thing is likely to result in the achievement of the objective referred to in paragraph (2)(c), regard must be had to the extent to which the thing will remove obstacles to end-users of listed services gaining access to listed services.

The ACT³⁶ clarified:

In Sydney Airports, a review of a decision to declare a facility pursuant to Pt IIIA of the Act, it was stated (at par [106]):

'The Tribunal does not consider that the notion of 'promoting' competition in s44H(4)(a) requires it to be satisfied that there would be an advance in competition in the sense that competition would be increased. Rather, the Tribunal considers that the notion of 'promoting' competition in s44H(4)(a) involves the idea of creating the conditions or environment for improving competition from what it would be otherwise. That is to say, the opportunities and environment for competition given declaration, will be better than they would be without declaration.'

In our view, this description is apt for the criterion established under s 152ATA(6) and s 152AB(2)(c).

It would be inappropriate to assume that Seven Network necessarily represents all or even typical access seekers. Even if we were to consider that granting the exemption orders would not promote the type of competition that may be posed by Seven Network, this does not necessarily mean that competition, as represented by alternative business models, more generally will not be promoted.

Based on the above interpretations of 'promotion of competition' we consider that a scenario would promote competition if it reduced obstacles to competition such as barriers to efficient entry in the market(s) for the delivery of subscription television services or consumer switching costs.

35 S 152AB(4) TPA.

36 ACT para 123 – 124, 127.

Efficient use of and investment in the facilities used to supply the service

The TPA in S. 152AB(6) sets out factors that must be considered in assessing whether the 'efficient use of infrastructure' is encouraged:

In determining the extent to which a particular thing is likely to result in the achievement of the objective referred to in paragraph (2)(e), regard must be had to the following matters:

(a) whether it is technically feasible for the services to be supplied and charged for, having regard to:

(i) the technology that is in use or available; and

(ii) whether the costs that would be involved in supplying, and charging for, the services are reasonable; and

(iii) the effects, or likely effects, that supplying, and charging for, the services would have on the operation or performance of telecommunications networks;

(b) the legitimate commercial interests of the supplier or suppliers of the services, including the ability of the supplier or suppliers to exploit economies of scale and scope;

(c) the incentives for investment in the infrastructure by which the services are supplied.

In the interpretation of the ACCC³⁷, all components of economic efficiency need to be considered in relation to criterion (a). These components of economic efficiency are sometimes described in terms of productive efficiency³⁸, allocative efficiency³⁹ and dynamic efficiency.⁴⁰

37 ACCC, Access Pricing Principles – Telecommunications, 1997, p7.

38 Productive efficiency means that any given output is produced at least cost. This requires both that a firm's operations be technically efficient and that, among the variety of technically efficient ways it might produce the desired quantity of output, it choose the combination that has the lowest cost at prevailing input prices.

39 Allocative efficiency essentially involves scarce resources being allocated to their most highly valued use.

40 Dynamic efficiency is achieved if firms have appropriate incentives to invest and therefore resources are optimally used over time.

Achieving productive and allocative efficiency (together referred to as static efficiency) may reduce dynamic efficiency. This is because static efficiency requires that there be no profits above those obtained in perfectly competitive markets where the price for all products would be equal to the marginal costs.⁴¹ This implies that sunk costs⁴² related to market entry or innovation could not be recovered. In addition, marginal cost pricing does not allow firms that operate under increasing returns to scale⁴³ to cover their total costs. Hence, the expectation of perfect competition (or any other form of competition or regulation that drives profits down to the perfectly competitive level) will in most industries not provide incentives to invest.

The ACCC Access Pricing Principles suggest the right balance between short-run and long-run efficiency⁴⁴ – at least in relation to build and buy decisions – is achieved when the access price is equal to TSLRIC (total service long-run incremental costs).

This view was generally endorsed by the ACT⁴⁵, which also specifically commented on the need to achieve an undistorted balance between build/buy decisions. It stated⁴⁶:

Encouraging investment by access providers may be at the expense of investment by access seekers that would otherwise occur. Efficient investment, however, implies the right mix. That is, efficient outcomes mean that optimal buy/build decisions are being made, as assessed from the perspective of end-users. By 'optimal' is meant providing the best outcome in terms of prices, quality and diversity.

The right signals [for investment] means prices that will allow sound investments to make a reasonable, but not excessive, return.

In the ACCC's view⁴⁷, an access price that provides for a 'normal' return to an investment also promotes dynamic efficiency:

41 Marginal costs are the costs incurred to produce an incremental unit of output.

42 In lay terms, sunk costs are costs of investments that have reduced value outside a particular activity (the amount of the reduction being a measure of sunk costs). They are generally considered to be a barrier to entry because - as with economies of scale - they require that the scale of operation is sufficient to make the investment worthwhile.

43 Increasing returns to scale can occur where either significant fixed costs or decreasing marginal costs are relevant.

44 '[A]n access price should not distort the decision of new or existing firms to buy existing network capacity or build their own network capacity. This decision must be based on normal commercial factors, taking into consideration the economies of scale and scope inherent in existing networks.' (ACCC, Access Pricing Principles – Telecommunications, 1997, p. 8).

45 ACT, para 135.

46 ACT, paras 130 and 132.

47 ACCC, Access Pricing Principles – Telecommunications, 1997, page 8.

Dynamic efficiency will also be promoted by an access price that provides a normal commercial return on investments and does not distort the 'build or buy' decision.

This paper will assess the productive, allocative and dynamic efficiency associated with the proposed undertaking compared to the counterfactual scenarios. Allocative efficiency is strongly related to the promotion of competition and therefore only considered where the two concepts diverge.

Net benefit of an access regime for end-users

While not explicit in the TPA or the ACCC's interpretation of it, the LTIE is likely to be promoted by access that involves a net benefit for end-users. In other words, in the long-term, access increases the benefit to end-users if the likely gains enabled by the promotion of competition outweigh any costs associated with access.

Such costs include the direct costs of providing access (also considered in criterion (d)), and any other inefficiencies access causes in the short-term (productive inefficiencies) or the long term (dynamic inefficiencies). This is because any costs are likely to be reflected in higher prices, lower quality/variety (e.g. if access hinders innovation) or both. Consequently, the LTIE can be interpreted as the principal objective which all criteria of S 152AH are intended to facilitate.

This interpretation is supported by the 'efficient use' criteria in S 152AB(6)(ii), which require analysis of whether the costs that would be involved in supplying, and charging for, the services are reasonable. If the costs outweigh the benefits, it is difficult to see how the provision of those services could be reasonable.

3.2.2. Criterion (b) – The legitimate business interests of the access provider

The ACCC⁴⁸ considers the legitimate business interests of the carrier in the context of the return available to the carrier for the services it must provide access to.

Regard to the legitimate business interests of access providers requires an access price that at least provides a normal commercial return on prudent investment.

Earning above a normal commercial return may be justified on other grounds. For example, it can be a legitimate reward for innovative investment or unique cost-cutting measures.

48 ACCC, Access Pricing Principles – Telecommunications, 1997, page 9.

We approach criterion (b) by analysing, where appropriate, whether access conditions would impede the potential for FOXTEL to earn a 'normal' return on its investment. In our view, a 'normal' return would imply that FOXTEL would still have undertaken the digitisation of its network and any prior investments had it known the access conditions prior to the investment. Hence, 'normal' returns in this context should reflect the risk and innovation involved in migrating to digital. Additionally, it is appropriate to consider competitive neutrality, in the sense that it is legitimate for a firm to believe its ability to compete on the merits would not be compromised by a regulatory decision.

3.2.3. Criterion (c) – Interests of persons who use the service

The interests of the users of the access service are considered in the context of the ability for an efficient entrant to compete in a downstream market. This is outlined by the ACCC⁴⁹:

The ability of an access seeker to compete in the supply of a service in a dependent market should be based on the cost and quality of its service relative to its competitors. For example, an access price should not artificially protect a vertically integrated access provider from being displaced by a more efficient access seeker in a downstream market.

This interpretation of the criterion (c) appears to affirm aspects of allocative efficiency and of competitive neutrality. Specifically, access seekers should have the opportunity to compete on their merits.

The ACT has pointed out the importance of the duration of access in enabling an efficient access seeker to recover its costs of entry.⁵⁰

3.2.4. Criterion (d) – Costs of providing access

The ACCC's interpretation of criterion (d) is of particular relevance where it implies the cost of access that should be covered by the access seeker:⁵¹

This criterion also implies that, at a minimum, an access price should cover the direct incremental costs incurred in providing access. It also implies that the access price should not exceed the stand-alone costs of providing the service.

49 ACCC, Access Pricing Principles – Telecommunications, 1997, page 9.

50 ACT para 314.

51 ACCC, Access Pricing Principles – Telecommunications, 1997, page 10. Note that stand-alone costs are the costs incurred by the access provider in producing only the service being considered, and therefore does not take account of economies of scope in joint production.

In our view, this is the right approach. While other approaches are sometimes suggested⁵², an approach requiring access seekers to meet all of the attributable costs of access is the correct approach when measured against the yardsticks of economic efficiency and undistorted competition.

This report focuses on the principal issues related to the mode of access granted by FOXTEL and not on the level of the likely access charge. However, we outline at a conceptual level which factors are likely to be included in the incremental cost of access.

An important connection between the interests of persons who use the service and the costs of access criterion is that an access seeker should be allowed to compete in downstream markets on its merits rather than supported by an effective subsidy. This requires that the access seeker is meeting at least the direct incremental costs of obtaining access (together with an appropriate share of common costs). This is therefore also relevant to the promotion of competition and ties in with S 152AB(6)(ii) – that if the legitimate additional costs of providing access are high, then that fact will inevitably and quite properly restrict opportunities for competition. In other words, if what restricts competition is the high cost of providing access, then that restriction should be viewed as efficient, rather than as justifying a *de facto* subsidy to access seekers.

3.2.5. Criterion (e) – safe and reliable operation of a carriage service

This reasonableness criterion is in place to ensure that an access regime does not affect the integrity and security of an access provider's service.

The ACCC states⁵³:

An access price should not lead to arrangements between access providers and access seekers that will encourage the unsafe or unreliable operation of a carriage service, telecommunications network or facility.

Where the safety and reliability of the operation affects the end-user, and the end-user incurs the full costs of the service's malfunction, this criterion refers to an aspect of service quality that is already considered by the LTIE. In addition to the costs, in terms of safety or reliability, of providing access, this criteria might allude to consequences of malfunction which would be incurred by the wider public (although, strictly speaking, this should also be an aspect of allocative efficiency considered in evaluating the LTIE).

⁵² The ACCC has raised the possibility that an access provider might be required to meet some of the attributable costs of access in its draft decision regarding unconditioned local loop service (ULLS) undertakings. See ACCC, Assessment of Telstra's ULLS and LSS monthly charge undertakings, Draft Decision, Public Version, August 2005, Section 6.2.2 at page 25.

⁵³ ACCC, Access Pricing Principles – Telecommunications, 1997, page 10.

3.2.6. Criterion (f) – economically efficient operation of a carriage service

This criterion is designed to encourage access providers to select the least-cost method of providing the services most highly valued by society. According to the ACCC⁵⁴:

This criterion is similar to productive and allocative efficiency described above [in relation to criterion a)].

As the ACCC does not appear to make a distinction between efficiencies that are evaluated under this criterion versus the LTIE, other than that the LTIE includes a dynamic aspect, we will proceed under the assumption that factors promoting productive and allocative efficiency in relation to criterion (a) would equally promote productive and allocative efficiency under this criterion.

3.2.7. Summary of criteria to consider in this report

As a consequence of the above discussion about the relevance of each of the criteria of S 152AH in the current context, this report will focus on evaluating the following criteria:

- The LTIE; and
- The costs of providing access.

⁵⁴ ACCC, Access Pricing Principles – Telecommunications, 1997, page 10.

4. WOULD CA/SI UNBUNDLING BE MORE REASONABLE THAN THE SAU?

This section considers whether the first counterfactual – unbundling the CA/SI – would be more reasonable than the factual.

Broadly, it concludes that the likely results of the first counterfactual are that:

- Entry barriers would either not be reduced, or reduced only slightly;
- Significant costs would be incurred by FOXTEL, with no assurance that those costs would be recovered;
- Unbundling CA/SI may reduce and distort competition;
- There would be no clear efficiency gains. In particular, innovation and service upgrading would become substantially more difficult;
- FOXTEL's ability to recover and gain a return on its investments would be compromised; and

As a result of these considerations, unbundling CA/SI would not be reasonable.

The following sub-sections explain each of these points in more detail.

4.1. ENTRY BARRIERS WOULD EITHER NOT BE REDUCED, OR REDUCED ONLY SLIGHTLY

This section considers whether barriers to efficient entry in the market(s) for the delivery of subscription television services are lower if CA/SI is unbundled when compared with the proposed SAU. These barriers may exist in relation to both access seekers and end-users. For convenience, we refer to these as barriers on the supply side and the demand side, respectively⁵⁵.

⁵⁵ These are not mutually exclusive, since a barrier to customer uptake may also constitute a barrier to a supplier entering the market. The terms are used for convenience in ordering the factors considered, rather than in any technical sense.

Barriers to entry include investments that the entrant would have to incur which cannot be used in other circumstances upon exit⁵⁶ ('sunk costs'), and economies of scale⁵⁷ and scope⁵⁸ that prevent the entrant from being an efficient competitor if it cannot, over the long-term, reach minimum efficient scale. Other factors that can act as barriers to entry are network externalities⁵⁹, legal and regulatory barriers⁶⁰, switching costs that end-users incur when switching from incumbents to an entrant, imperfectly operating financial markets and limited access to essential inputs.⁶¹

In principle, such an assessment would include consideration of whether other bottlenecks would prevent additional efficient entry – notwithstanding increased access to FOXTEL's CA/SI – such that unbundling the CA/SI would have little or no effect on entry even if the CA/SI were a barrier to entry taken on its own⁶². However, as discussed in section 2.4, this report is based on the assumption that the CA/SI (possibly in conjunction with the STU) is the only remaining obstacle to entry, which attributes the highest possible importance to removing it.

56 For example, they cannot be sold or re-deployed.

57 Economies of scale are cost savings from producing large volumes. Economies of scale exist if the average cost of production (e.g. the costs of servicing a single household) decreases as more units are produced (i.e. more households are served). Where significant, fixed costs are an important source of economies of scale. In relation to the provision of subscription television content, economies of scale may exist both with respect to content (i.e. the number of channels) and households being served.

58 Economies of scope are cost savings from joint production of two or more products. Similarly to economies of scale, economies of scope lead to a higher minimum efficient scale of operation (which in the case of economies of scope includes other products).

59 Network externalities exist when consumers' and/or downstream producers' willingness to pay for a good or input depends on how many other agents are buying it. Network externalities are very typical in relation to media content because content is often consumed in groups and is a topic for discussion between people. When network externalities prevail it may be difficult for an entrant to attract business, at least initially, because individual customers are reluctant to buy a product that is not widely adopted.

60 To the extent that they create an insurmountable obstacle to entry, they can be different from sunk costs.

61 Some of these barriers to entry are listed, for example, in the *ACCC Merger Guidelines*, 1999. The list in the Guidelines extends to actions that an incumbent might take to prevent entry, such as product differentiation and retaliatory actions. In this report we focus on structural barriers to entry.

62 A general competition assessment would include consideration of whether bottlenecks exist in relation to other inputs, such as content or carriage.

Supply side

It could be argued that granting access to FOXTEL's CA/SI beyond subscribers served by FOXTEL would lower entry barriers by enabling an access seeker to compete against the full range of subscription television programming, without having to invest in its own CA/SI. In particular, it might be argued that this would be especially effective in promoting competition in Austar areas, which would otherwise not be impacted by any FOXTEL service under the SAU.

Unbundling the CA/SI would therefore provide an access seeker with options to use FOXTEL's CA/SI; to use third-party CA/SI services; or to acquire its own CA/SI system in order to serve non-FOXTEL homes.

However, it must first be considered whether CA/SI constitutes a significant supply side barrier to entry.

CA/SI systems might potentially constitute a barrier to entry for prospective providers of subscription television for two reasons:

- The CA/SI involves economies of scale. Essentially the CA/SI is software, which, once developed and employed, can serve as many customers and channels as are enabled by its dimensioning and licensing arrangements; and
- Some of the investments in CA/SI are likely to be sunk.

The presence of some economies of scale and some sunk costs does not of itself suggest that barriers to entry are significant. One way of examining the cost structure of CA/SI is to look at FOXTEL's own CA/SI costs. However, this may be a poor indicator of the extent to which CA/SI would be a barrier to potential entry for at least two reasons:

- Firstly, CA/SI can have a variety of specifications which are designed to match and support the functionality of the STU. An entrant might not (at least initially) have to employ CA/SI and corresponding STUs that are as sophisticated as FOXTEL's.⁶³

⁶³ This is not unusual for entry in industries with established brands. For example, discount airlines use much cheaper yield management systems than full service airlines, and also correspondingly use less sophisticated methods of price discrimination.

- Secondly, entrants would not necessarily pay the same price as an incumbent for the same, or a similar, CA/SI. To begin with, the costs of CA/SI at a given level of sophistication may be declining over time. Additionally, if CA/SI constitutes a barrier to entry, then this is likely to reduce the bargaining power of CA/SI manufacturers (and subsequently the price for the CA/SI) in negotiations with potential entrants to the subscription television industry.⁶⁴ This is because a CA/SI manufacturer may have little choice but to provide some discounts to entrants if it is to expand its sales beyond incumbent buyers.

A very basic entry-level CA/SI system⁶⁵ would cost as little as \$500,000, including a licence for software covering up to 50,000 subscribers, and encryption hardware for up to 8 – 12 channels (i.e. one transport stream). Small ongoing support charges would also apply. The average per-customer cost for 50,000 customers would therefore be \$10 in fixed costs, plus a small amount in ongoing costs.

Entry options are also available via CA hosting.⁶⁶ NDS offers such a service, VideoGuard Express, where CA services can be provided by systems that are managed and monitored by NDS from its premises. This is an 'entry-level conditional access solution' which also enables the addition of higher level functionality in a modular fashion. The key benefits for users of a CA hosting service are that they can access the vendor's technology expertise (rather than hiring their own CA specialists); the risk of future upgrades is borne by the vendor; and the fixed costs of entry are lowered. The NDS website explains⁶⁷:

Like all products and services provided by NDS, VideoGuard Express meets your business needs today while providing a roadmap of modular options for the future. You can begin by offering subscribers a basic digital service. As your business grows, you can add additional revenue-generating VideoGuard modules such as:

- Personal Video Recorder (PVR)*
- Video-on-demand (VOD)*
- Impulse pay-per-view (IPPV)*
- Interactive TV (iTV)*
- Audience Measurement System (AMS)*

What you get with VideoGuard Express

- Entitlement and encryption control for up to 500,000 subscribers per operator*

⁶⁴ While incumbents may predict this at the time of their initial investment and might take some precautions to discourage price discrimination (e.g. 'most favoured nation' or 'MFN' clauses), they are unlikely to be able to fully prevent CA/SI suppliers from price discriminating. Among other things, other CA/SI suppliers would not be bound by such MFN clause.

⁶⁵ See Engineering Report, Section 6.1.2 sub-section d iii A.

⁶⁶ See Engineering Report, Section 6.1.2 sub-section d iii D.

⁶⁷ See http://www.nds.com/conditional_access/video-guard_express.html accessed September 2005.

- DVB broadcast management*
- Up to 200 TV and 100 radio services*
- Up to five subscription packages*
- Up to four DVB bouquets*
- Call center-based pay-per-view services*
- Addressable on-screen-display*
- Geographical addressing*
- Choice of redundant or non-redundant platform hardware*
- Choice of service and support packages*

Although we have not been provided with exact pricing and terms of supply of CA hosting, it is anticipated to include an upfront amount that is lower than the cost of acquiring even a basic stand-alone system – thus reducing the level of sunk costs and, with them, barriers to entry – plus variable costs that depend on functionality and subscriber numbers. According to the Engineering Report, CA hosting provides a “low cost and low risk” approach.⁶⁸

CA/SI costs increase with the scale and complexity of the system. A mid-level CA/SI system covering up to 750,000 subscribers – including CA software licence, encryptors and other associated items – would cost around US\$1.1M plus annual support costs of US\$200,000.⁶⁹ This would include more features than a basic CA system (such as order-ahead pay-per-view) but would not be as advanced as FOXTEL's system. The average per-customer cost for 750,000 customers would therefore be US\$1.47 in fixed costs and US\$0.27 pa in ongoing costs.

At the very high end, a large and complex CA/SI system could cost up to \$12M.⁷⁰ Such a system would be a security-guaranteed proprietary system supporting a rich range of subscription products and a large number of channels. Such a system would service up to 200 channels and 2 million subscribers, and be able to support advanced features such as interactive services functionality, pay-per-view functionality, impulse pay-per-view functionality (enabling viewers to order programs and view them immediately), near video-on-demand, and simulcrypt-ready capability.⁷¹

Broadly, increased functionality adds more to the cost of CA/SI than does increased channels or subscriber numbers. However, the cost of CA/SI is falling over time, in that an entrant could purchase a system equivalent to that of an existing provider for less than its historic cost, because of the cost of implementing developments and upgrades to previously installed CA/SI systems.

68 See Engineering Report, Section 6.1.2 sub-section d iii D.

69 See Engineering Report, Section 6.1.2 sub-section d iii B.

70 See Engineering Report, Section 6.1.2 sub-section d iii C.

71 Note that some of these functions, to be made operational, would require additional equipment. For example, while a CA system may support interactive functionality, other infrastructure such as modem banks would be required to receive modem responses if this feature was to be activated.

While scale economies are evident from the falling unit cost of CA/SI as the number of customers increases, the entry-level and mid-level systems cost is minimal and therefore unlikely to constitute a significant barrier to entry – even if the costs were fully sunk.⁷² In other words, the costs associated with obtaining these CA/SI systems are small both in absolute terms and relative to the likely deployment costs of an access seeker. It is difficult to believe that these costs would make a material difference to the likelihood, timing or extent of efficient entry that would be capable of promoting competition to any significant extent.

The commercial availability of third-party CA/SI services further diminishes CA/SI as a possible barrier to entry, including in Austar areas. In addition to hosting services, at least two such services are available: Aurora (Optus) and Globecast. Both services offer national satellite coverage – including Austar areas – through a bundled carriage and CA/SI offering, at cost of \$360,000 - \$565,000 pa.⁷³

Where an access seeker requires a large-scale high-level system, the cost of acquiring its own CA/SI are more significant. However, relative to the other costs that a large-scale entrant would face (such as programming, marketing and customer service), they are less so.

Moreover (as will be demonstrated in Section 4.2) the unbundling of FOXTEL's high-level CA/SI system is also costly, especially where the access seeker has complex CA/SI functionality requirements. Consideration needs to be given to the fact that access seekers bear the attributable costs of third party access. These costs, if properly evaluated, could be material. As a result, the cost difference between the factual and this counterfactual could be slight, or it might even be that an access seeker's entry costs would be higher under the counterfactual due to high attributable costs. This makes it all the less likely that the costs of even a high-level CA/SI system could be a relevant obstacle to entry that mandatory unbundling would remove.

Finally, it should be noted that any barriers to entry are mitigated by factors such as high industry growth or low switching costs, which provide more opportunity for entrants. Given the churn and growth rates the industry has experienced, both of these factors may operate to mitigate the effect of any barrier to entry that CA/SI may represent.⁷⁴

72 That is, lost in the event of exiting the market.

73 See Engineering Report, Section 6.1.2.

74 FOXTEL's growth rate during the 2004-05 financial year was 13%. Its churn rate was such that although it acquired 239,000 new subscribers, its subscriber base increased by only 119,000 due to customers churning off the service. This represents a churn rate of just under 12%. Source: FOXTEL Media Statement, *FOXTEL Digital Delivers in 2005 Financial Year*, 11 August 2005; 'Foxtel plans birthday surprise', *Australian Financial Review*, 15 August 2005.

Demand side

It is relevant to ask whether CA/SI unbundling would materially reduce any barriers to entry on the demand side.

It might be argued that CA/SI unbundling is consistent with the use of a single type of STU – at least among FOXTEL and all access seekers who use its unbundled CA/SI. Customers of those providers would therefore never need more than one STU to receive the signals of any or all of them. The promotion of a single STU might therefore be argued to reduce barriers to entry for consumers who are unwilling to have more than one STU in the home. This consumer preference may be due to:

- An unwillingness to 'stack' equipment in the home;
- Technical difficulties of having to switch between STUs;
- The cost of acquiring an additional STU; and
- The need to change STUs if the customer churns from one provider of subscription television to another.

At the outset, it should be noted that the access provided under the SAU in the factual means that no home that receives FOXTEL would need a second STU. A second STU could only arise as a possible barrier to entry in that sub-set of homes which does not subscribe to FOXTEL, but subscribes to two or more (non-FOXTEL) subscription television services requiring different STUs.

As to the first point, concerns that a reluctance to 'stack' will act as a barrier to services which require an additional item of equipment would seem to be unfounded. New technologies and services in home entertainment have been widely adopted, leading to multiple technology formats in the home. The uptake of DVD players in Australia demonstrates this. According to the *2004 OzTAM Ratings Snapshot*⁷⁵, 62 per cent of Australian homes had a DVD player in 2004 notwithstanding the relatively recent arrival of the technology, and the need for additional outlays in purchasing or renting DVDs to play on them.⁷⁶

This view was also stated by the ACCC in its 2003 report on emerging market structures⁷⁷:

75 *2004 OzTAM Ratings Snapshot* (<http://www.afc.gov.au/gtp/wvavudvd.html>)

76 DVD players may differ from STUs in that they represent technology replacements for VHS, while a second STU may not necessarily represent new-generation replacement technology for the first STU. However in initial stages it is reasonable to suppose that such replacement did not occur, because consumers purchasing DVD players retained and used their VHS players in order to watch VHS material and to record programs. On balance, therefore, it is reasonable to suppose that the propensity of consumers to 'stack' DVD players is relevant to their likely attitude to 'stacking' STUs.

77 ACCC, *Emerging Market Structures in the Communications Sector*, June 2003, Section 7.3.4.

'Some industry participants have argued that the pay TV agreements enable Foxtel to control the gateway for digital FTA and other digital services to pay TV subscribers. The term gateway appears to be intended to reflect that access to the STU and network is essential to the supply of certain digital services to pay TV subscribers.⁷⁸ That is, to say that Foxtel would control the gateway for the provision of digital FTA services is to argue that pay TV subscribers will be unwilling to buy a terrestrial broadcast STU, either because of cost considerations and/or concerns about 'stacking' STUs.

The Commission is sceptical about whether or not customers will 'stack' STUs, as consumers seem willing to stack many other electronic entertainment equipment, such as amplifiers, videos and DVDs.'

For these reasons, a reluctance to 'stack' equipment is unlikely to constitute a significant barrier to entry. Even if it did, it is far from clear that CA/SI unbundling would reduce or remove it, for at least the following reasons: first, the level of uptake of an unbundled service is uncertain, and it may be that the costs of unbundling are such that it is little-used; and second, even if an unbundled CA/SI service was widely taken up, there is no certainty that the commercial arrangements for even compatible STUs would result in all providers sharing them.⁷⁹

As to the second point, it might be thought that consumers with more than one STU might experience technical difficulties in switching between them to view different program packages. Again, this issue does not appear to have deterred purchasers of other stacked technologies (such as DVD players, VHS players, and games consoles) from acquiring them. Switching between inputs may be dealt with by a multi-port on the television, or an external AV input on either STU, or on another connected device which can take an additional input.

On the third point, the cost of an additional STU might arguably present a barrier to entry. To the extent that it does, however, it is difficult to see how CA/SI unbundling would reduce it. On the contrary, it may well increase, for two reasons:

- a FOXTEL-compatible STU has a high level of functionality and if anything would be more costly⁸⁰ than less featured STUs that may otherwise suffice; and
- if the unbundling were to lead to a retail model, end users may well pay more for the STU than they would if it were operator-provided, while bearing the risk of obsolescence. This is because the life of an STU typically exceeds the customer life, and an operator can re-cycle STUs more cost-effectively than an end-user, enabling lower-cost provision overall (see section 2.1.2 for more detailed explanation).

78 It is therefore conceptually similar to the concept of access to bottleneck facilities.

79 That is, there may be no reciprocal access agreed between all providers of subscription television who use FOXTEL's CA/SI, and there may not be a retail model for consumer ownership of STUs.

80 See Engineering Report, section 6.1.2, sub-section c.

Finally, the transaction costs of churn to a customer might be said to constitute a barrier to entry. In other words, customers might be dissuaded from switching to the service of an entrant because of the need to change STUs, and this might amount to a barrier to entry for an entrant.

This issue is discussed more fully in section 4.4.1, in the context of efficiency. For present purposes, however, it is sufficient to note that, to the extent that this might constitute a barrier to entry, it is not one that CA/SI unbundling would address. This is because such unbundling does not remove the need for an entrant to install an STU in non-FOXTEL homes in order to deliver subscription television services.

The potential requirement for a second STU is therefore unlikely to constitute a demand-side barrier to entry that mandatory CA/SI unbundling would reduce.

4.2. SIGNIFICANT COSTS WOULD BE INCURRED, WITH NO ASSURANCE OF RECOVERY

This section examines the costs of unbundling CA/SI. It concludes that the costs of access would be substantial, from both one-off and recurring effects. These costs are both direct and indirect.

Because the CA/SI has not previously been unbundled, FOXTEL would be required to undertake certain new investments and incur additional costs, including:

- Purchasing hardware and developing systems and processes to manage and coordinate the provision of CA (including smartcards) and SI. Processes to be developed would need to be capable of, among other things, coordinating the development of CA/SI with access seeker's content, and of resolving the priority with which SI changes should be implemented. Required systems modifications would include altering the ACSD's design and specification, and altering FOXTEL's Smartcard management and tracking systems.⁸¹
- Increasing the capacity of the CA/SI (for example, additional licence fees);
- Extending IP licensing arrangements, as necessary, if STU specifications are to be sub-licensed (since FOXTEL's current licensing arrangements provide only for the right to use IP in FOXTEL hardware products);
- Implementing changes to the CA/SI on behalf of the access seeker, in conjunction with changes necessary to support FOXTEL's own content. These risks and costs are significant and are detailed in section 2.1.5 above, and in the Engineering Report.⁸²

81 See Engineering Report, Section 6.1.3.1

82 See Engineering Report, Section 5.2.

...uncontrolled changes to the SI can lead to catastrophic failures, (some of which could only be rectified by individually collecting every affected STU across the nation and returning to a central service centre).

- Developing a new access pricing regime for unbundled CA/SI, since the earlier regime dealt only with sharing costs among users in FOXTEL homes. For example:
 - the provision of unbundled CA/SI outside FOXTEL homes necessitates the separate identification of CA/SI costs, the allocation of those costs across FOXTEL and non-FOXTEL homes, and across each of the CA/SI users in each of those categories (including among multiple access seekers in non-FOXTEL areas);
 - FOXTEL would, under this counterfactual, give access to the specifications for its STU and license its security keys, to be used in STUs which FOXTEL itself does not benefit from. Leaving aside the questions of whether mandatory IP licensing is contrary to policy, and how such a licence should be treated under S 152 CBA (11) of the TPA⁸³, these elements would need to be priced. An obvious means of doing so is to value the IP in these elements, and set access prices at a level which provides an appropriate return;
 - where churn occurs, further complexities arise as the basis of charging alters accordingly. As customers churn in and out of FOXTEL and access seekers' services, the underlying access service that FOXTEL provides can also change as the customer's home 'moves' to/from being a FOXTEL home or a non-FOXTEL home. Because access charges for FOXTEL and non-FOXTEL homes would vary as customers move between being a FOXTEL and non-FOXTEL home, prices would need to reflect the configuration of customers at any given time, and any relevant costs of movement between types of customer. This is substantially more complex than the charging proposed under the SAU, and the need to track and rate the services would add substantially to the cost of necessary systems and processes; and
 - the costs of fixing adverse and unforeseen cross-impacts of SI changes would also need to be negotiated. These would be particularly difficult to contract for due to the unforeseeable nature of the relevant events, and would add considerable complexity to access pricing arrangements;

and

83

'A reference in paragraph (1)(b) to a service that facilitates the supply of a carriage service does not include a reference to the use of intellectual property except to the extent that it is an integral but subsidiary part of the first-mentioned service', TPA s 152 CBA (11).

- Developing and agreeing non-price terms and conditions to apply to the provision of unbundled CA/SI, noting that difficult issues (such as how the risk of security breaches is borne, how to assess the relative priorities of SI changes as between FOXTEL and access seekers, and how to determine responsibility for unforeseen impact resulting from SI changes) would need to be negotiated, leading to high transaction costs.

There are other direct costs and risks of unbundling, which arguably cannot be appropriately compensated via access prices. These could be substantial and difficult to measure; and would be attributable to access:

- FOXTEL would have to share its security keys with other parties, increasing the risk of a security breach. These security keys are a critical element of operating a sustainable subscription television service, and any unauthorised access to them would pose grave risks to FOXTEL. If CA/SI were to be unbundled, it may be difficult to adequately protect FOXTEL's business⁸⁴;
- Full compatibility testing of all non-FOXTEL STUs would need to be undertaken. This is a complex and expensive task⁸⁵, increasingly so as more STU types are connected over time. Because no commercial organisation is presently equipped to provide such a service, FOXTEL itself risks becoming the default provider of such services, thus disrupting its own business by diverting skilled resources, and potentially creating scarcity or raising labour costs if the amount of work involved is large. These factors would be difficult to accurately factor into an access price; and
- STUs must be upgraded in order to 'remain compatible' as the FOXTEL platform is improved over time.⁸⁶ Without ongoing compatibility measures, STUs will become unstable and ultimately cease to function. The task of remaining compatible would be likely to consume significant resources, with real risks of long delays in upgrades and unresolved disputes as to necessity and priority. This would adversely impact both FOXTEL and access seekers.

In addition to these costs, there are other, less direct costs to FOXTEL of unbundling CA/SI, including the risk that its outlays cannot be recovered.

84 Access seekers could pay an access fee to the CA/SI that reimburses FOXTEL for this risk (in terms of its expected harm). However, because the extent of the commercial harm that such an event would cause FOXTEL is difficult to gauge, it is unlikely that a satisfactory agreement would be obtained about how this risk should be reflected in the access price. Ex post liability provisions are an alternative method of protection, but these would involve the risk that FOXTEL may not be able to recover its loss (e.g. if the access seeker is a small company that cannot fully compensate FOXTEL for such a breach).

85 See Engineering Report, section 6.1.3 sub-section b.

86 See Engineering Report, section 6.1.3.

FOXTEL would be exposed to this risk because the expenses listed above to unbundle the CA/SI could be incurred without it being known how many access seekers would make use of these investments, or to what extent. Even if no investment were made until the first access seeker sought and agreed to buy the unbundled CA/SI service, all access costs would have to be recovered from the first access seeker if FOXTEL were to be assured that it would be reimbursed for its investment. However, loading all the costs onto the first access seeker could make access so unattractive that it is never sought.⁸⁷ The alternative, though, is that FOXTEL would be required to bear the risk of access-facilitating investments that are of no benefit to it. If this were to occur, FOXTEL would face a real risk that the attributable costs would never be recovered⁸⁸, with the result that access seekers would not bear the direct costs of access – a position at odds with established interpretations of the reasonableness criteria⁸⁹.

This dilemma, together with the extent of the unbundling costs, make it necessary to assess the likelihood that the unbundled CA/SI would ever be used. Unless there is a clear likelihood of sufficient demand to enable all attributable costs to be fully recovered, these factors weigh strongly against the reasonableness of CA/SI unbundling.

Finally, to the extent that CA/SI unbundling encourages access seekers to use FOXTEL's systems rather than invest in parallel or competing systems, the resulting dependence on FOXTEL increases its risk of unjustified regulatory complaints and gaming. This is particularly so in this counterfactual, since access seekers would rely on FOXTEL's CA/SI to service customers with whom FOXTEL has no retail relationship. For example, an access seeker might complain that its customers were given worse levels of service than FOXTEL's own retail customers, even where any differences in service quality were entirely due to the better integration of FOXTEL's CA/SI with its own content. Unjustified regulatory complaints and (if it were to occur) regulatory gaming impose unrecoverable overheads on FOXTEL's business which must be taken into account in determining the overall costs and benefits of unbundled access, relative to the proposed SAU.

87 In theory, the problem of loading all costs onto the first access seeker could be minimised by a variable access charge including a risk premium, but this would still require FOXTEL to bear the costs until they are recovered, with no certainty that they would ever be recovered.

88 This could occur because there are not enough access seekers in the relevant period to enable recovery of costs incurred in that period. It could also occur because access seekers, knowing that FOXTEL's costs are at least partly sunk, could credibly threaten to obtain their own CA/SI (as the absolute cost of doing so would be low) unless FOXTEL reduced its access charges to levels well below cost. FOXTEL would then be left to choose between a larger loss or a smaller loss – but would be unable to make full cost recovery.

89 Note that, in some circumstances, the proposed SAU may result in FOXTEL failing to recover certain attributable costs of access (being the costs of implementing 'required network enhancements') due to the operation of a 20% cap for this category of costs for each access seekers. This favours access seekers at FOXTEL's expense, and may distort incentives for efficient competition. However, this provision is not relevant to the comparison of the factual with counterfactuals because the services and terms of supply in the SAU would remain unchanged. That is, the counterfactuals involve the provision of *additional* services to the SAU, rather than any *changes* to the services and terms of the SAU itself.

4.3. UNBUNDLING CA/SI MAY REDUCE AND DISTORT COMPETITION

This section examines the ways in which CA/SI unbundling may reduce and distort competition in relevant market(s) for subscription television. It also examines, at subsection 4.3.6, whether these effects might be counter-balanced by any pro-competitive effects in areas of Australia outside FOXTEL's current service footprint.

4.3.1. Reduced incentive to compete in CA/SI

Unbundling CA/SI may make it possible for FOXTEL and access seekers to use the same technology for customer conditional access on their basic packages. In other words, an STU purchased for viewing one product would potentially allow viewing of the other⁹⁰ because the STUs would be technically compatible (although there is no certainty that reciprocal access would be available to FOXTEL). In contrast, compatibility between packages may not be achieved in the factual case under the proposed SAU (as it is not currently achieved between FOXTEL and other STU providers).

For the end-user, compatibility may seem to be an advantage.

- First, fixed costs related to the development of STU and CA/SI would not be duplicated (or, if duplicated, would deliver an advantage from an efficient build/buy decision).
- Second, CA/SI unbundling could arguably reduce the costs of churning from one operator to another and could increase price competition. In a retail model (where the end-users own the STUs), consumers could simply use their own box for all content supplied on the relevant delivery platform – although as noted above, if the access seeker retained ownership of its STUs then reciprocal access may not be available to FOXTEL on a commercial basis.

However, these potential advantages must be balanced against other impacts on the competitive process. If CA/SI were to be unbundled, FOXTEL's CA/SI investments would also benefit its access seeker competitors, thus reducing the dimensions over which FOXTEL can compete with access seekers and reducing the incentives for rivalry in quality and functionality.

It might be thought that so long as the access charge was set at the right level, this effect would not occur. This can be seen by considering a situation where compatibility is achieved through a licensing arrangement that allows competitors to adopt a prevailing standard. As long as the licence fee reimburses the developer for its first-mover advantage, incentives to invest in competition for standard-setting (including through marketing) would be maintained.⁹¹

⁹⁰ If the end-user has the required authorisation.

⁹¹ This assumes that the license fee would also account for the fact that advertising for compatible services may involve a spill-over effect, from which all providers of the compatible service benefit.

It would be difficult for the ACCC to arrive at a robust access price which properly took this into account. The access charge under Part XIC of the TPA would likely be cost-based (i.e. TSLRIC) and implemented without regard to any competitive advantage⁹² that the access provider would otherwise have had. Hence, it would be likely that FOXTEL's incentives to continuously advance its systems would be reduced, because any investment by FOXTEL in its systems would also benefit its rivals.⁹³

An argument may be made that if FOXTEL's standard is already dominant (at least in FOXTEL homes), this CA/SI unbundling would merely allow access at favourable conditions to the already established standard, rather than reduce FOXTEL's incentives to compete for the standard. However, such an argument would be short-sighted: while FOXTEL might currently set the technological standard, CA/SI unbundling would diminish FOXTEL's (as well as anyone's) incentives to invest aggressively in order to maintain its position when it comes to further developing the standard.

While it is difficult to quantify the extent of this effect, it is likely to be most pronounced in industries where innovation and technology change are frequent. Systems used to transmit digital subscription television are likely to be in this category of industries, because in the absence of an unfavourable access regime, a firm that controls these systems would be likely to have an incentive to frequently improve its systems.⁹⁴ This implies that the discouraging effect of access - generally a long-term problem - in this industry is potentially a short-term issue, too.

4.3.2. Reduced competition for STUs

In addition to reducing the incentive to compete, CA/SI unbundling can also potentially blunt or distort competition in customer equipment.

⁹² The following discussion also applies to a situation where firms enter the industry simultaneously such that none has a first mover advantage. If there is compatibility, there is more positive spill-over between competitive actions and price competition is less intense.

⁹³ It is important to note that the 'efficient build/buy' argument, which is frequently used to underpin the view that investment would be optimally promoted by cost-based access, does not pick up the long-term consideration set out above. Efficient build/buy decisions are essentially an aspect of (static) productive efficiency which is promoted if *existing* technologies and facilities are used at the least cost, which implies the right mix of duplication (build) and access (buy).

⁹⁴ FOXTEL continues to improve its CA/SI system. A recent improvement was the launch of the iQ digital STU which, among other things, enables customers to decode two channels of programming simultaneously, in order to view one while recording the other, or to record two channels at once.

This is because, in order to use FOXTEL's CA/SI, an access seeker must arrange for its customers to have an identically specified STU. FOXTEL's STUs are purchased at a cost of US\$115, excluding licence fees and royalties.⁹⁵ While FOXTEL's STU is designed to support a high level of functionality – through memory levels, processing speeds, and a modem to support interactive capability – an access seeker may not require these levels of functionality. But because the STU must 'match' the CA/SI system, an access seeker must invest (or ask its customers to invest) additional capital in a high-end STU equivalent to FOXTEL's.⁹⁶

This narrows the opportunities for providers of cheaper STUs from supplying their wares, and for consumers to elect to use them, even though lower-level STUs may be otherwise best matched to the needs of the access seeker and potentially the consumer. For example, off-the-shelf Aurora Irdeto-compliant STUs can be purchased from manufacturers for approximately US\$100 (plus approximately A\$4 with a built-in modem), excluding licences and royalties. This is approximately US\$15 cheaper than a FOXTEL STU, although this figure is likely to under-represent the true difference since FOXTEL's full function STUs would attract greater licence fees and royalties.⁹⁷ While the per-STU price difference may appear small, if multiplied by tens of thousands of customers it could meet or offset the cost of an entry-level CA/SI system, without necessitating the very considerable costs of unbundling set out above.

4.3.3. Unrecovered FOXTEL costs distort competition

A further problem with CA/SI unbundling is that the unbundling costs imposed on FOXTEL may not be recovered, which would increase FOXTEL's costs. This is not only inefficient, but distorts competition by reducing FOXTEL's ability to compete. It is also ultimately causes some detriment to access seekers, who would otherwise benefit from FOXTEL's greater penetration in terms of reduced shared costs under the pricing model in the proposed SAU, and access to a greater number of homes. Potentially, any reduction in FOXTEL's ability to compete also reduces the competition incentives of its competitors, further distorting outcomes.

95 See Engineering Report, Section 6.1.2 sub-section c.

96 This would also have the potential effect of reducing productive efficiency, because more resources than necessary are consumed to produce a given output.

97 See Engineering Report, Section 6.1.2 sub-section c.

4.3.4. Loss of variety

Competition and the LTIE may be further damaged because compatibility decreases the number of technologies available to consumers. In the short run, this implies a loss in variety, which consumers might otherwise have valued. This reduced variety also implies a lower number of 'starting points' from which new approaches will be developed. This may affect the course and speed of innovation in the longer term.⁹⁸

4.3.5. Impact in Austar areas

It may be argued that some or all of these anti-competitive effects of CA/SI unbundling could be offset by pro-competitive effects in parts of Australia outside FOXTEL's current service area, especially in areas served by only one provider, Austar.

Presumably, it could be argued that the availability of FOXTEL's CA/SI on satellite would increase the likelihood, speed or intensity of efficient competition in Austar areas, to the benefit of end users, because:

- An access seeker wishing to compete with Austar would not have to invest in CA/SI of its own. That is, a barrier to entry would be removed. This argument is addressed in section 4.1 above (which explains why CA/SI is not likely to be a significant barrier to entry, or even if it were, the barrier would not be meaningfully reduced by CA/SI unbundling);
- The ability to reach all areas using FOXTEL's CA/SI generates productive efficiency gains through economies of scale across FOXTEL and Austar areas, making it more attractive and rewarding for access seekers to enter. In particular, one channel of carriage could reach all areas without the need for simulcasting. This argument is addressed in section 4.4 below.

4.3.6. Summary

In short, it is far from obvious that CA/SI unbundling would enhance competition or benefit end users. Rather, there are several reasons why competition might be reduced or distorted in this counterfactual:

- Compatibility reduces the incentives to invest where absent compatibility firms would have engaged in a contest to set a standard, or in vigorous marketing⁹⁹ to promote their service and to continuously defend it. If FOXTEL competes less vigorously as a result, its competitors can do likewise;
- Competition for the provision of STU customer equipment may be blunted;

⁹⁸ The ACCC has acknowledged the potential importance of competition at the technology platform level. See *Emerging Market Structures in the Communications Sector*, June 2003, Section 7-3

⁹⁹ In contrast, giving access means that some of a firm's marketing efforts benefit competitors.

- FOXTEL may be left with unrecovered attributable costs of access, further distorting competition; and
- Compatibility decreases technological variety, with potential adverse effects on the course and speed of innovation.

4.4. THERE WOULD BE NO CLEAR EFFICIENCY GAINS

In this subsection we discuss the impact of CA/SI unbundling on economic efficiency beyond its effects on competition.

Economic efficiency has three components: productive, allocative and dynamic efficiency. The previous subsections have argued that CA/SI unbundling would be likely to distort competition. This distortion would have a detrimental effect on allocative efficiency.

In this subsection, we extend the consideration of efficiencies by analysing the likely impact of CA/SI unbundling on productive efficiency. In addition we note that the compatibility issue discussed earlier not only compromises allocative efficiency, but may also distort the incentives to innovate in general and therefore reduce dynamic efficiency.¹⁰⁰

In comparing efficiency as between the factual and this counterfactual, it must be remembered that:

- Under the SAU (factual), access seekers would pay an allocation of shared costs¹⁰¹, as well as the appropriate share of costs attributable to access;
- Under CA/SI unbundling (this counterfactual), the costs attributable to access would be much greater, and these would need to be met by access seekers (in addition, to the allocation of shared costs and attributable costs payable if they use FOXTEL services in FOXTEL homes under the SAU);
- The SAU enables access seekers to use FOXTEL's services to offer subscription television in FOXTEL homes. Under CA/SI unbundling, access seekers could (additionally) use a sub-set of these services to offer subscription television in non-FOXTEL homes. It is therefore relevant to consider efficiency impacts in the context of the incremental benefits of access seekers providing subscription television services in homes *beyond* FOXTEL homes.

100 The delineation between static (i.e. allocative and productive) and dynamic efficiencies is in practice a matter of convenience. In other words, disincentives to engage in product improvement in the short term may be interpreted as detrimental to either static or dynamic efficiency.

101 Shared costs are costs expended for the benefit of both access seekers and FOXTEL itself – for example, the cost of STUs that are used in FOXTEL homes.

4.4.1. Potential efficiency gains

It may be argued that there are three broad categories of potential efficiency gain that accompany CA/SI unbundling. These are: a single STU; the avoidance of channel simulcasting by access seekers; and the avoidance of duplicated investment in CA/SI. This section examines these three areas in more detail, then examines and weighs them against efficiency losses which accompany CA/SI unbundling.

The potential for a single type of STU

The first potential efficiency gain would be a single type of STU delivering all services to all homes over the relevant network, rather than different STUs for FOXTEL and non-FOXTEL homes. By way of background, we first explore how a single STU might potentially improve efficiency; then we examine whether CA/SI unbundling might promote these outcomes.

A How would a single STU improve efficiency?

At the outset, it should be noted that under the SAU, only one STU is required to receive the services of multiple subscription television providers into a home¹⁰², so long as it is a FOXTEL home (because FOXTEL bundles the provision of an STU with its content, and the SAU enables other providers to access all of FOXTEL's installed STUs). However, if a customer sought to churn between providers, then the outgoing provider's STU may have to be removed, and the incoming provider's STU installed. It is in these circumstances that a single STU type may potentially give rise to efficiencies.

If there was only one type of STU in use, it would not be technically necessary¹⁰³ to swap out the STUs in the event of churn, and these transaction costs might be reduced.

A single STU types also implies that access seekers must follow FOXTEL's STU specification, which would have to be made available. The access seeker therefore avoids having to consider and develop the most appropriate STU specification, but simply adopts FOXTEL's – which effectively becomes the standard.¹⁰⁴

This scenario is often associated with a retail STU market (or 'horizontal market'), in which the STU can be purchased from multiple retail outlets, independently of programming, much like the television set itself is purchased. The customer then owns (and takes the risk on) the STU. In other words, STUs would be unbundled from the provision of content.

102 In economic terms, this can be described as economies of scale within a household.

103 Although it might be necessary for other reasons, such as if no reciprocal access was agreed between providers.

104 This can be described as economies of scale across households.

In the past, the argument has been made that a retail STU market should be mandated in the subscription television industry, or at least among users of Telstra's HFC network. The arguments for mandating a retail STU market revolve around a perception that the provision of digital STU services is a bottleneck service.¹⁰⁵ In particular, it has been argued that the bundling of FOXTEL's STU with its 'basic' package of content reduces potential competition, because access seekers using the SAU would effectively be competing only against FOXTEL's tiered channels, rather than head-to-head with the full range of its services (including its basic package).¹⁰⁶ Because of this, it is said, competition from access seekers would be limited, and FOXTEL may be able to gain an advantage in 'tier competition' by altering the composition of its basic package.¹⁰⁷

Consequently, a retail model – under which customer would own a (standardised) STU that would not need to be removed and replaced upon switching providers – is argued to improve efficiency and promote competition.

The tie between the basic tier and STU supply is, of course, not surprising. FOXTEL provides STUs below cost to encourage take-up, and the tie is required to recover its up-front investment. More generally, bundling services can also result in increased output and also capture economies of scope between the services.¹⁰⁸ Elsewhere in this paper we detail the significant vertical integration efficiencies between the STUs used to receive the broadcast signal and other functions performed by FOXTEL, including the provision of content (see section 4.4.2).

For these reasons, it is by no means clear that unbundling STUs from content through a retail model would improve efficiency. We examine the retail model more closely below, in considering whether CA/SI unbundling could promote a single STU, and bring about such efficiency outcomes.

B How might CA/SI unbundling promote single-STU efficiency outcomes?

Customers in FOXTEL homes can already receive multiple services via a single STU. In order to show any increase in this benefit, therefore, at least one of the following three outcomes would need to be shown.

(i) An increase in the number of access seekers who take up the SAU service

105 The ACCC notes, although does not necessarily accept, this argument in ACCC *Emerging Market Structures in the Communications Sector*, June 2003, Chapter 7.

106 ACT, para. 298-303.

107 For this argument to be made out, it would need to be demonstrated that FOXTEL has not only the *ability* to foreclose an access seeker by re-arranging its basic package, but it also has the *incentive*. In this regard, two points are relevant. First, the incentive to discriminate is diminished the greater the differentiation between the downstream content, as the gains from any discrimination is lower. Second, to the extent that it is suggested that access prices are high, it should be noted that the incentive to discriminate decreases, other things being equal, when the wholesale price increases because there is less margin to be gained.

108 See, for example, Salinger, M., 'A graphical analysis of bundling', 1995, *Journal of Business*, 68, 85-98.

If more access seekers take up the SAU, then customers in FOXTEL homes would be able to access the services of more providers via the FOXTEL STU (assuming that FOXTEL customers value the option of receiving such services).

For the reasons set out in section 4.1 regarding barriers to entry, it is difficult to see how making FOXTEL's CA/SI available would make a material difference to the likelihood or extent of entry of any meaningful competitor using the SAU. Even if such an effect could plausibly be projected, the impact of it would need to be discounted for the uncertainty of its occurrence.

(ii) An increased likelihood that multiple access seekers would share STUs in non-FOXTEL homes

If this occurred, it would enable customers in non-FOXTEL homes to gain the benefits of a single STU.

However it seems speculative to say that the incentives of access seekers to share STUs in non-FOXTEL homes would be different to any material degree as between the factual and this counterfactual. In both cases, there would be no FOXTEL STU in-situ, and access seekers would provide for their own needs by either supplying directly to customers or by persuading them to purchase the STUs on a retail basis.

In both the factual and this counterfactual – even if there was technical compatibility – they would also face significant issues in negotiating their respective rights and responsibilities for sharing STUs, and in managing their operations, especially where churn occurs. Among other things, they would need to resolve:

- how the capital costs of STUs would be met (e.g. whether by upfront cost-sharing or through one party funding them while the other pays access fees);
- how the costs of maintenance and replacement would be allocated; and
- what financial and operational arrangements would apply when a customer churns – for example, from being a shared customer to being a customer of one provider only, or vice versa – including who is responsible for disconnection costs if the customer subsequently churns off altogether. (See Appendix A for a full list of relevant types of customer movements.)

(iii) An increase in (efficient) competition for the provision of 'basic' package services

Arguably, CA/SI unbundling could be said to promote a single type of STU via either a retail model or reciprocal access arrangements¹⁰⁹, thus lowering the costs of churn between basic packages, and removing the need for 'stacking' STUs where a customer purchases more than one basic package.

In our view, this represents a somewhat remote link between CA/SI unbundling and increased competition for the provision of 'basic' package services. At least two conditions should be met before this could be considered of sufficient merit to support CA/SI unbundling. First, it should clearly facilitate competition between basic packages *beyond* the actual and potential competition that would exist in the factual case; and second, the expected benefits should outweigh the expected costs of unbundling.

There are several reasons why it seems unlikely that either the outcomes posited would occur, or the conditions outlined met. These fall into three broad categories: the size and scope of the perceived problem; the likelihood that CA/SI unbundling would address that problem; and the quantum of gains that might be delivered, relative to the costs of achieving them.

- *How big is the problem?*

The dimensions of the problem – i.e. a perceived lack of competition for 'basic' subscription television packages under the factual – must be kept in perspective. Actual and potential competition for basic packages already exists. The lack of a FOXTEL STU in a home does not mean that a potential entrant is unable to compete for the basic package. Indeed, such entrants appear to face no less favourable opportunities and costs in supplying non-FOXTEL homes (or winning customers away from FOXTEL) as FOXTEL did when initially recruiting its customer base.

It should be noted that the ACT has expressed concern at FOXTEL's submissions regarding the ability of access seekers to supply their own STUs¹¹⁰:

To suggest that an access seeker may be better off under an alternative of not seeking access to Foxtel's service calls into question the seriousness with which access was offered.

109 Under which all subscription television providers own compatible STUs and grant reciprocal access to each others' STUs.

110 ACT, para. 302.

From an economic point of view, however, this comment would not appear to apply to the present case, as the SAU enables access where FOXTEL assets are deployed, with self-supply operating as a *complement* to FOXTEL's service outside those homes, rather than an *alternative*. Simply because the access regime operates primarily to assist to provide a particular type of access and cannot be extended because the costs of doing so outweigh the benefits (as is demonstrated below), does not undermine the entire access regime. Under economic principles, the ability of an access seeker to self-supply mitigates against the forced unbundling of an access provider's services, especially if there are no apparent efficiency gains, and efficient incentives to compete are compromised.

The size of the problem is also informed by consumer willingness to configure and 'stack' entertainment devices. For reasons set out in section 4.1 above, 'stacking' does not appear to be a significant constraint.

- *Would CA/SI unbundling lead to increased 'basic' package competition?*

To recap, in order to promote such competition in line with the thesis outlined above, CA/SI unbundling must lead to a single STU - via either a retail model or reciprocal access arrangements – and thereby reduce churn costs or remove the need for stacking.

In our view, the likelihood of this causal connection being made out is remote at best.

First, there is real doubt as to whether unbundling FOXTEL's CA/SI would lead to a retail model. FOXTEL itself does not promote a retail model; access seekers may or may not elect to pursue it. They may, like FOXTEL, consider that the ownership model is the most efficient way to promote penetration and manage their business. In any case, it is beyond an access regime to implement a retail model.

It might be said that if a retail STU model were in place, it would work best if access seekers used the same CA/SI, with FOXTEL's CA/SI and STU effectively providing the standard. This may be so, at least to some degree¹¹¹ – but that is a different proposition to one that says such unbundling would itself *lead to* the adoption of a retail model.

Second, in the absence of a retail model, there are considerable hurdles to reciprocal STU access between providers, even where the STUs are technically compatible. These are mentioned at point (ii) above, regarding the likelihood of access seekers sharing their STUs.

¹¹¹ At best, FOXTEL's 'standard' could only apply for STUs connected to its own CA/SI. Non-compatible STUs are already in use for other CA/SI systems, and for digital free-to-air television.

Third, having a single type of STU will not necessarily mean that installations and removals on churn will be consigned to history. Churn costs would not be reduced unless one of the above (i.e. retail model, or reciprocal access) occurred. Otherwise, the costs of churn are identical in the factual and this counterfactual.¹¹² Appendix A sets out in detail the potential customer movements and analyses the requirements in each scenario.

- *Assuming that CA/SI unbundling could lead to increased competition for 'basic' package, how big would the (net) efficiency benefits be?*

The costs of CA/SI unbundling – including the inefficiencies it imposes on the system as a whole – suggests the net gains to competition for the provision of 'basic' packages of subscription television are unlikely to be positive, even if the above chain of causality were to eventuate.

In addition to the costs of CA/SI unbundling detailed in section 4.3 above, there would be extra costs associated with the adoption of a retail model with an industry STU standard. These would include transaction costs to agree the standard, migration costs and disruption to operators who use a different standard, and the loss of integration efficiencies. For consumers, one impact is likely to be that end-users would have to pay more for the STU than they do under an operator-provided STU.¹¹³ Further, under a retail model, customers would have to meet the transaction costs of installing, de-installing and storing their STU if they churned on and off subscription television.

At least some of these additional costs would be unlikely to be recovered, and could further impair FOXTEL's ability to pursue its own business. To the extent that FOXTEL's penetration is reduced, access seekers under the SAU would also suffer because fewer STUs would be accessible¹¹⁴.

The size of the potential benefit must also be kept in perspective. Even if unbundling FOXTEL's CA/SI led to a retail model, in the absence of industry-wide adoption or regulation, it would only reduce churn costs among FOXTEL and those access seekers who chose to share its CA/SI.

112 Even if reciprocal access were granted, an access seeker would presumably not wish to leave its STU in the home where it no longer provided services, preferring to re-deploy it to serve a current customer. Reciprocal access therefore may not obviate the need for installation and removal visits where customers churn from one provider to another.

113 See section 2.1.2

114 See also section 4.3.3 re the impact of unrecovered FOXTEL costs on competition.

At the same time, while access seekers might make short-term savings from simply adopting FOXTEL's STU specification (rather than developing their own) they could conceivably be faced with long-run costs that are higher. This is because FOXTEL's STU may be more fully featured and costly than is required for the access seeker's service, resulting in a higher initial outlay for each STU as well as higher ongoing costs to ensure that the STUs remain compatible with FOXTEL's evolving platform. These costs include: compatibility testing of all STU versions, negotiating and agreeing the priority of proposed changes (especially where not all STU owners have an interest in the proposed change proceeding); and delays in platform upgrades due to additional complexity.

On one view, these higher costs and inefficiencies can be ignored because access seekers will simply choose not to take up the unbundled service if it leads to higher costs. However, this view ignores the fact that an access seeker would have the incentive to take up services that lower its own costs even though social costs – such as the costs of reduced system performance – are raised (in particular, if the additional costs are met by the access provider¹¹⁵).

Finally, the problem of limited benefits is compounded by the low likelihood that CA/SI unbundling – even if accompanied by a requirement for a retail market and a single STU – would facilitate significant new entry. The costs of doing so are significant, as noted above, and there is a substantial risk of non-recovery. For this reason, it is not appropriate to simply provide the opportunity to access the unbundled CA/SI service. Rather, neither CA/SI unbundling nor a mandated retail model should proceed unless there is a firm view that take-up is likely to occur as a result, and the benefits correspondingly generated are greater than the likely costs.

It is difficult to be specific about the likelihood of entry, which is not surprising as it is often difficult to determine the potential sources of entry, particularly in the long run. However, it is reasonable to say that the likelihood of entry can be expected to be low for a number of reasons.

- First, the avenues of new entry to supply subscription television services are much broader than via satellite and Telstra's HFC network. Broadband/IP television and subscription television over competing telecommunications networks provide opportunities for competing services.

115 This might occur if the access provider bears some of the costs of access because it is unable to recover them for the reasons outlined in section 4.2.

These other avenues of entry provide substitute services to FOXTEL's subscription television service (including the basic package) now and in all likelihood to a greater extent in the future.¹¹⁶ The competition and potential competition from these sources acts to constrain the provision of FOXTEL's basic service in any event, as does government regulation such as the anti-siphoning provisions.¹¹⁷

- Second, the economics of supplying a full subscription television service are different to those of merely providing a tier in addition to an existing basic package. The costs of a tier are essentially limited to the costs of content production, marketing and any associated incremental billing costs, given that a customer relationship and relevant equipment (including the STU) is already in place. The basic package, however, is the minimum service to be provided, and therefore the basic offer (and the tiers that it 'unlocks') must be attractive enough for customers (assuming a retail STU model) to purchase the STU and subscribe to the service.¹¹⁸ Therefore, the STU and the subscription television service – taken together – exhibit greater economies of scale than a tier supplied by itself.¹¹⁹ This results in larger barriers to entry in respect of the basic package than for tier content, and CA/SI unbundling (even if accompanied by a mandated retail model) would not appear reduce them in such a way as to bring about significant new entry.
- In the past, the ACCC has noted that at least some access seekers would prefer to compete on a tier¹²⁰:

Some industry participants believed that the Commission should provide a wholesale form of access in which a content provider's content would become a tier within Foxtel's service offering. The distinction between a wholesale form of access and the access model within Part XIC is that a wholesale form of access would not require access seekers to invest in elements of a service to manage their own customer relationships separately, such as billing and subscriber management systems. Rather, these would be provided by Foxtel.

116 Any analysis by the ACCC would need to consider the likely developments in the future.

117 Ultimately, competition between the different electronic networks (sometimes referred to as 'infrastructure competition') will likely provide greater benefits than access competition on the FOXTEL/ Telstra HFC network: This is a point made, amongst others, by the ACCC (2003), *Emerging Market Structures in the Communications Sector*, June 2003, Section 4-5-2.

118 This comment is made from the consumer's perspective. It does not suggest that efficient cost recovery will mean that all fixed costs of provision are recovered from the basic tier, which is unlikely.

119 Therefore, sufficient numbers of customers must value the service highly enough to generate sufficient scale to obtain a return on investment.

120 ACCC, *Emerging Market Structures in the Communications Sector*, June 2003, Section 7.3.3.

Even if there were entry by new providers of 'basic' subscription television packages, it is uncertain as to whether they would use unbundled CA/SI services, given the system costs that such unbundling imposes. Access seekers would presumably be less likely to congregate around the FOXTEL platform if it were to be constrained in its ability to upgrade and innovate due to CA/SI unbundling, preferring to manage their own systems.¹²¹

The avoidance of channel simulcasting by access seekers

In the factual case under the SAU, an access seeker wishing to broadcast a channel of programming into both FOXTEL and non-FOXTEL homes must acquire a second channel and simulcast. This is because the FOXTEL homes and non-FOXTEL homes have different types of STU, each requiring the broadcast signal to be encrypted in a different way¹²². In economic terms, simulcasting represents the loss of economies of scale across households.

The need to do this may be obviated in this counterfactual, because an access seeker could use FOXTEL's CA/SI and FOXTEL-specified STUs in both FOXTEL and non-FOXTEL homes, and thus broadcast the same encrypted signal into both types of home over a single channel. This could remove the cost of simulcasting if an access seeker offers the same channel in both non-FOXTEL homes (using the unbundled CA/SI service) and in FOXTEL homes on a tier (using the SAU).

However, the extent to which this would impact overall efficiency must be kept in perspective, as a closer analysis of the options available to access seekers shows.

In the factual and this counterfactual, an access seeker can choose to deliver services under a variety of options. For convenience, the options identified in section 2.2.2 are reproduced here, together with a column showing the numbers of channels of carriage required to execute each option..

121 That is, given the risks of new investment, an access seeker may prefer as much control over delivery of the subscription television signal as possible. Suggestions have also been made in the past for eventually establishing a standard CA/SI, which is used by all subscription television providers. This suggestion is outside the scope of this report and beyond the issue of Part XIC access regulation. However, it seems unlikely that developing a common standard would be efficient given the comments above. Further costs would include the process of negotiation or deciding the common standard and the potential disruption to business for FOXTEL and other subscription television providers who have already invested in CA/SI and STUs.

122 Technically, the need to simulcast can be avoided if a single channel can carry signals encrypted for two or more different CA systems simultaneously. This is known as 'simulcrypting'. For reasons referred to in the Engineering Report (Section 6.1.2 sub-section e), simulcrypting is disregarded for the purposes of this analysis as it is not considered a scaleable or practical solution.

OPTIONS AVAILABLE TO ACCESS SEEKERS

Option	FOXTEL homes	Non-FOXTEL homes	Number of channels required
A	SAU	--	1
B	SAU	Independent	2
C	Independent	Independent	1
D	SAU	CA/SI	1

In the factual scenario – where FOXTEL successfully lodges its proposed SAU – an access seeker can choose Options A, B or C if it wishes to offer subscription television. In the counterfactual scenario, it can choose Options A, B, C or D.

Simulcasting is *only* required in Option B, which requires 2 channels of carriage. All other options require just one channel.¹²³

It follows that the numbers of channels required (as between the factual and this counterfactual) is reduced by the use of unbundled CA/SI *only if* the access seeker would choose Option B in the factual scenario, and Option D in this counterfactual ('B to D'). If an access seeker would choose any other feasible combination of options (including options where there is no difference in choice e.g. 'A to A'), these cost efficiencies would not occur. Examples of these choices are shown in the table below:

In the factual	In the counterfactual	Simulcasting impact
A	to A	No change (one channel required in both factual and counterfactual.)
B	to B	No change (two channels required in both)
C	to C	No change (one channel required in both)
A	to D	No change (one channel required in both)
B	to D	One less channel required
C	to D	No change (one channel required in both)

So, while cost efficiencies through the avoidance of simulcasting are potentially available as a result of CA/SI unbundling, these only occur where the access seeker chooses one particular combination of choices (from numerous possible combinations that are available to it).

¹²³ On each platform (e.g. cable or satellite).

While we have not estimated the probabilities around each available combination of choices, access seekers would presumably only select Option D where the benefit of offering services *in non-FOXTEL homes alone* could justify the costs involved, since it could already offer services in FOXTEL homes under the SAU.

Avoidance of duplicated investment in CA/SI

If CA/SI is unbundled, an access seeker might avoid the costs of establishing its own CA/SI by using FOXTEL's instead.¹²⁴

However, as noted in section 4.1 on barriers to entry, the costs to an access seeker of obtaining CA/SI for itself are not high. In contrast, unbundling CA/SI imposes significant costs on FOXTEL, and a substantial share of those costs would properly be recovered from access seekers. As a result, the absolute costs incurred by an access seeker may not be materially lower in the counterfactual than in the factual.

It follows that there are unlikely to be any significant gains in efficiency in this counterfactual through avoiding the costs of duplicating CA/SI.

Summary

There are some identified potential efficiency gains available as a result of CA/SI unbundling, but these are limited and uncertain. In any event, any efficiency gains which can be demonstrated need to be considered in the context of potential efficiency losses, which are discussed below.

4.4.2. Potential efficiency losses

Impact on efficiencies from vertical integration

Production processes that can be separated but relate to creating the same final product are typically referred to as 'vertical'. Separable production processes conducted within the same (or related) legal entity are referred to as 'vertically integrated'¹²⁵ and the benefits of doing so are referred to as 'efficiencies from vertical integration'.¹²⁶

124 In other words, the access seeker would be taking advantage of FOXTEL's economies of scale across households.

125 Vertical integration is typically a matter of degree. For example, firms that have entered into long-term contracts for the supply of an input are more vertically integrated than others that buy and sell that input through intermediaries.

126 Efficiencies from vertical integration are essentially cost savings from conducting the activities together rather than separately. In other words, efficiencies from vertical integration reflect economies of scope among vertical steps in the production process.

Technical efficiency can be assisted by vertical integration. The most productively efficient and economically appropriate CA/SI and STU combination to deliver the necessary content to a subscriber is the one that contains the necessary features and security to deliver the service at the least cost. Vertical integration can assist in achieving technical efficiency because all the steps of production are co-ordinated and developed in lock-step.

In the present case, three steps of production are relevant to the consideration of unbundling:

- CA/SI;
- STU; and
- Content.

In relation to these three steps, the following efficiencies of vertical integration are suggested by the factual background and assumptions that we have been provided with:

- Integration between the CA/SI and the STU ('CA/SI – STU integration'): efficiencies of developing the functionality of CA/SI together with the capabilities of the STU, and vice versa. The value of this integration is clear from the Engineering Report¹²⁷, which notes that the key difference between CA/SI-integrated STUs and open market STUs is that integrated STUs can be reliably updated by sending OTA instructions to the smartcard, and downloading software to the bootloader.¹²⁸

The OTA download ability makes it possible to keep Compatible STUs in lock-step with evolutions on the Platform Environment. Open market STUs that cannot receive OTA downloads either have to be manually downloaded (by the subscriber or a service person) or eventually fail to be able to work properly with the stream content or the platform stagnates

- Integration between the CA/SI/STU and the content ('CA/SI/STU – content integration'): economies of simultaneous development of content and functionality, and vice versa. These are only fully realised if CA/SI, STU and content are vertically integrated i.e. all three provided by single operator, or by separate operators bound by long-term contracts where development functions are highly integrated.

Both of these types of integration efficiency are compromised by CA/SI unbundling.

127 See Engineering Report, Section 2.1 sub-section c.

128 A bootloader is defined in the Engineering Report as 'a software component that is stored in flash memory that allows the STU to start and load its operating systems and applications'.

The loss of CA/SI – STU integration decreases productive efficiency relative to the factual where integration efficiencies are preserved. Productive efficiency may further decrease if the CA/SI system becomes less technically efficient due to the need to service access seekers' requirements in addition to FOXTEL's.

The loss of CA/SI/STU – content integration similarly decreases productive efficiency in all conceivable scenarios. Again, productive efficiency may be further compromised if the CA/SI system becomes less technically efficient due to access seekers' requirements.

There is no conceivable case where CA/SI unbundling leads to an increase in these economies of vertical integration.

These efficiency losses, or diseconomies, could be very significant. The costs involved in unbundling are set out in detail in section 4.2. In particular, the following points should be noted:

- FOXTEL would lose the ability to optimise its CA/SI in lock-step with its own¹²⁹ STU and content requirements, because the CA/SI would also serve other STUs and content;
- Non-FOXTEL STUs would have to be tested to ensure that they are compatible with FOXTEL's CA/SI, and remain so at all times, including through successive generations of STUs and, potentially, a proliferation in the types of STUs.
- FOXTEL and access seekers would need to reach agreements regarding the risks and responsibilities of sharing CA/SI, and the commercial priority with which system changes should be implemented. It is difficult to see how such issues could be resolved except at relatively high transaction cost, and potentially long delays.
- The above factors would inevitably result in delay or compromise of FOXTEL's own business requirements. These would be difficult to measure (although they would represent costs attributable to access) or to compensate FOXTEL for. This 'drag' on the system would be likely to increase with the scale of the system over time, thus creating diseconomies of scale which may well be material, leading to increased total costs and less efficient use of society's resources.

Innovation and efficiency

In the long-term, the use of compatible technology and the loss of vertical integration efficiencies will have the effect of stifling innovation.

129 Or long-term contracted.

The unbundling of the CA/SI from the STU in the counterfactual potentially reduces dynamic efficiency by increasing the cost and diminishing the pace of improvements in the functionality of digital subscription television. This is because unbundling means that a variety of STU models are likely to be connected to the network, and any improvement in the CA/SI would have to be tested on a variety of STUs of different makes.

Similarly, the introduction of new services and applications by FOXTEL and access seekers requires modifications to the SI that would be more complex, and could lead to unforeseen and unintended cross-impacts when multiple STU models are connected to the network (even if they are identically specified).¹³⁰ This would increase costs (e.g. conformance testing) and lead-times, hampering not only productive efficiency, but also the development of CA/SI functionality in the long-term (an aspect of dynamic efficiency). Innovation and service upgrading would therefore become substantially more difficult under this counterfactual.

Section 4.3.1 above discusses in more detail the potentially negative consequences of compatibility, due to reduced incentives and the loss of platform competition. This also has adverse implications for innovation.

4.4.3. Conclusion on efficiency implications

Overall, there are no clear efficiency gains. Potential gains, when properly examined, are limited and uncertain. Even such gains as may result from unbundling CA/SI appear to be heavily, if not entirely, offset by associated efficiency losses (such as the loss of vertical integration efficiencies).

However, the outcome in practice will depend on empirical matters including the future choices of access seekers, which are difficult to predict.

That said, we believe costs are at best unlikely to decline and may well increase. This is because CA/SI costs can be relatively small, but CA/SI performance has impacts on the system as a whole, and hence on the overall costs required to ensure efficient and effective system performance. Even a small degradation in CA/SI outcomes could impose costs that would be high in terms of the overall system, while achieving even substantial scale economies at the CA/SI layer may yield absolute cost savings that would be very small. While we are not in a position to put probabilities on these effects, the balance seems to point to likely cost increases.

4.5. FOXTEL'S ABILITY TO RECOVER AND GAIN A RETURN ON ITS INVESTMENTS IS COMPROMISED

The granting of access should not damage FOXTEL's potential to earn at least a 'normal commercial return' on investment, and arguably, some reward for innovation. If it does, FOXTEL's legitimate business interests would be harmed.

130 See Engineering Report, Section 6.1.2

Many of the factors set out above would interfere with FOXTEL's ability to earn at least a normal commercial return, notably:

- Costs would be increased, and may not be recovered (section 4.2)
- Efficiency may be compromised (section 4.4)
- Innovation and continuous improvement would be more difficult (section 4.4.2), thus dampening FOXTEL's incentives and ability to increase returns through innovation.

In particular, CA/SI unbundling may prevent FOXTEL from pursuing its STU ownership model, because STUs not owned by FOXTEL would be connected to the system. Potentially, end-users may own the STUs, which may place pressure on FOXTEL to adopt a retail model as well, despite its inefficiencies.¹³¹ This is because a potential customer that already owns an STU would be unlikely to accept paying a rental fee for using FOXTEL's STU. In other words, it may become very difficult for FOXTEL to win customers who have churned from an access seeker while at the same time relying solely on its integrated business model.

A move away from an STU ownership model to a retail model would have two significant negative impacts on FOXTEL:

- First, it would interfere with its ability to manage its end-to-end system. In particular, it would become more difficult to upgrade its system to deliver more advanced content and applications.
- Second, it would impede FOXTEL's ability to advance digital innovation. When FOXTEL owns the STU, it can be redeployed if a customer leaves. Because STU life is greater than the average customer life, the STU of a departing customer has a residual value that FOXTEL can redeploy, thus reducing its costs to gain a customer. This in turn means FOXTEL can offer more favourable terms than if it did not own the STU (e.g. lower prices or reduced lock-in period) thus promoting higher penetration.

By contrast, if customers purchased an STU via retail channels they would need to meet the full upfront cost. Alternatively, if the subscription television provider transferred ownership to the customer at the end of a term contract, but demanded a payout for early exit (similar to mobile phone contracts) then it would lose the ability to retrieve the STU. Overall costs would be likely to rise, because STUs would be used less efficiently (assuming it would be costly for FOXTEL to negotiate to retrieve STUs from its former customers), and customers would need to meet those cost in the long run through higher prices. Both of these scenarios reduce the subscription television provider's ability to promote digital penetration (both before and after analog shut-down), which is a key element of FOXTEL's business strategy.

¹³¹ We discuss economies of vertical integration between STU, CA/SI and content in section 2.1.5.

4.6. IN SUMMARY, UNBUNDLING CA/SI IS NOT REASONABLE

For the reasons set out above, it is unlikely that unbundling CA/SI is more reasonable than the factual under the statutory criteria.

This is because the significant costs of unbundling are not clearly offset by greater efficiencies, or improved competition that might be in the LTIE.

5. WOULD A FULL SERVICE MODEL BE MORE REASONABLE THAN THE SAU?

This section considers whether the second counterfactual – the FSM for STU access – would be more reasonable than the factual.

Broadly, it concludes that the likely results of the FSM are that:

- Entry barriers would not be reduced;
- Very significant costs would be imposed, with no assurance that they will be recovered;
- There would be no clear efficiency gains; and
- FOXTEL'S ability to recover and gain a return on its investments would be compromised.

The following subsections explain each of these points in detail.

5.1. ENTRY BARRIERS WOULD NOT BE REDUCED

In this counterfactual, FOXTEL would provide STUs in the homes of end-users who do not purchase its retail service. FOXTEL would install, maintain and remove these STUs at the request of access seekers.

As CA/SI would be part of the package that FOXTEL would provide to access seekers, the discussion of whether the CA/SI is a significant barrier to entry in section 4.1 applies equally in the FSM. In addition, however, it must be asked whether the FSM would remove any other significant barrier to entry.

Supplying an STU involves development costs, production costs and deployment costs. Development costs are one-off costs and involve sunk costs similar to those incurred in the development of a CA/SI system. However, no access seeker has to develop its own STU – vendors sell their proprietary standards that need only minor adjustments to the individual subscription television provider. Furthermore, STU vendors have sunk costs and are therefore likely to have an incentive to price discriminate in favour of potential entrants.

The costs involved in providing a STU to an incremental end-user consist of the unit production costs of the STU, and deployment costs. Arguably, some of these costs might constitute barriers to entry.

First, the production of STUs is likely to involve economies of scale, and manufacturers of STUs would be likely to require that a significant number of STUs be ordered in every batch.

However, an access seeker looking to source its own STUs would have the opportunity to take advantage of FOXTEL's scale by using the same manufacturers as FOXTEL, in the sense that its order would be incremental to FOXTEL's. Because FOXTEL sources STUs from two manufacturers, each would have the incentive to compete on price, especially in the presence of sunk costs, enabling access seekers to gain favourable price and other terms, even for an order smaller than FOXTEL's. STUs from manufacturers other than FOXTEL's are also available.¹³²

Moreover, FOXTEL's STUs have a high level of functionality – potentially more than that required by an access seeker. If cheaper STUs than FOXTEL's are available to access seekers, then FOXTEL's scale bestows less of an advantage and is less likely to constitute a barrier to entry.

Second, provider-owned STUs in the factual (absent compatibility) cannot be redeployed to receive signals from any other subscription television provider. Arguably, this means the investment in STUs is likely to be sunk, and therefore constitutes a barrier to entry. However, the level of sunk investment is limited by the opportunity to redeploy that STU from churning customers to new customer in exactly the same way that FOXTEL does.

Even if the STU cost does constitute a barrier to entry in the factual, it should also be noted that access seekers are responsible for the attributable cost of access. Under the FSM, therefore, an access seeker would have to pay FOXTEL (probably upfront) for the cost of the STU used to service its customer. Given this, it is difficult to see how the FSM would remove the cost of the STU as a barrier to entry, relative to the factual case, except to the extent that the access seeker might be able to gain a refund from FOXTEL for STU costs if it exited the market. Any such refund would be limited by FOXTEL's own profile of demand for STUs, its forward commitments to suppliers, and the reduction in value over time.

As a consequence, the fact that the FSM provides access to FOXTEL's STUs does not appear to reduce any material barrier to entry to serving customers who are not currently served by FOXTEL.

5.2. SIGNIFICANT COSTS WOULD BE IMPOSED, WITH NO ASSURANCE OF RECOVERY

In the FSM, FOXTEL would incur large incremental access costs, as follows:

¹³² See Engineering Report, section 6.1.2 sub-section c.

- Costs of developing systems and processes to manage and co-ordinate the FSM. FOXTEL presently has no reason to track STU provision and movement outside its own retail operations, and therefore has no systems to do so. It would need to develop systems and operational processes for access seekers to request installations, service calls and removals, and to track the location and financial arrangements for STUs in non-FOXTEL homes. These systems would need to interface appropriately with the systems FOXTEL presently uses, with confidentiality firewalls where necessary to protect confidential access seeker information. A billing system to track and rate various access seekers' requests (such as installation, removal, refurbishment etc) would also be required; and all systems would need to be capable of functioning across multiple access seekers. The ACSD and FOXTEL's SMS would require extensive review; FOXTEL's initial estimate of these development costs is up to \$20 million.
- Ongoing expenses associated with FOXTEL's role as a third party STU provider. In effect, mandating this model would require FOXTEL to enter the STU business, with all the costs that involves. It is difficult for FOXTEL to estimate the extent of these costs (especially given that the level of demand is uncertain), but they are likely to be material.
- The cost of developing a new pricing regime for the FSM. As explained in section 4.2, the presently developed regime deals only with sharing costs among users in FOXTEL homes. The FSM would necessitate altering and extending that model to address the acquisition of entirely new inventory for the purposes of access, and the allocation of relevant shared costs across both existing and new inventory. In addition, churn scenarios – including among multiple access seekers, as well as between access seekers and FOXTEL – would need to be accommodated in a manner consistent with the reasonableness criteria in the TPA.

As in the first counterfactual, the high costs attributable to access together with uncertain levels of demand make it particularly risky for FOXTEL to outlay these costs. FOXTEL would have no assurance that such costs could be recovered through access prices, for reasons noted in section 4.2. This risk would be magnified in the FSM, however, given the higher expenditure required (both to develop systems, and to act as an STU manager for third parties).

5.3. THERE WOULD BE NO CLEAR EFFICIENCY GAINS

5.3.1. Potential efficiency gains

It might be argued that the FSM delivers efficiency gains over the SAU. First, FOXTEL already has the scale economies in the acquisition of STUs, together with the operational infrastructure and processes in place to enable it to supply STUs to non-FOXTEL homes, and it may be efficient to pass these on to access seekers. Second, it might be argued that having FOXTEL STUs in all homes connected to the system will improve productive efficiency when churn occurs.

This section examines each of these arguments for efficiency gains, then considers other potential areas where the FSM may reduce efficiency.

Management and provision of STUs

An argument could be made that efficiency would be enhanced by giving access seekers the benefit of FOXTEL's operational infrastructure, such as its ordering, delivery, warehousing and distribution of STUs, together with the workforce and processes to install and maintain them.

An important assumption underpinning this argument is that FOXTEL is better placed to manage the complexities and risks associated with the supply of STUs to access seekers, than the access seekers themselves. However, it is unclear why this assumption would be correct.

Individual access seekers will, firstly, know more about their own plans and prospects than FOXTEL; and secondly, will be best placed to influence the realisation of those plans and prospects. As a result, the more robust assumption would be that it is access seekers, rather than FOXTEL, that are the 'least cost risk bearers' in respect of STU provisioning and management decisions that would need to be made on access seekers' behalf. This is all the more the case in this instance as the service is not at the stage of maturity, so that FOXTEL does not enjoy any superior ability to forecast and manage demand.

In other words, while there are potential economies of scale that could be secured in a full-information world, in reality FOXTEL would be left managing supply risk on behalf of third parties. The uncertainties involved could well undermine the ability to secure any scale economies (as FOXTEL could not be certain of access seeker demand, or even be well-placed to bear the risks involved in managing it) and in any event would cause costs that outweighed those scale effects. As a result, there is no reason to believe that productive efficiency would be greater under the FSM than under the SAU.

Further, the costs of implementing the FSM are likely to be high and if competition is to be efficient and competitive neutrality preserved, these costs would need to be recovered from access seekers. As a result, it is not clear how access seekers could secure a better alignment of prices and underlying costs than would prevail under the SAU (where costs could be lower). There is therefore no reason to suppose that allocative efficiency would be promoted.

Churn

If FOXTEL supplies STUs for the delivery of access seekers' services into non-FOXTEL homes, then end users who churn between FOXTEL's service and access seekers' services can continue to use the same STU, and will not require a service technician to install or remove the STU. This may represent a productive efficiency gain over the SAU, where STUs would have to be installed and removed if customers churn between FOXTEL and access seekers.

As Appendix A shows, this benefit does not occur (as between the factual and this counterfactual) in all instances of churn. First, it occurs only where the access seeker chooses to take up the SAU in FOXTEL homes, and the FSM in non-FOXTEL homes, in preference to any other configuration of service options. Second, it only occurs in a subset of churn instances, where customers churn between access seeker-only services and FOXTEL-only services; or between access seeker-only services and access seeker plus FOXTEL services.

Hence, the benefit accrues in four of the eight possible customer movements, and only if the access seeker elects to deliver services via the SAU for FOXTEL homes and the FSM for non-FOXTEL homes.

In these circumstances, there are some productive efficiency gains.

5.3.2. Potential efficiency losses

This sub-section examines potential efficiency losses under the FSM.

The considerations in section 4 regarding technological compatibility apply to a similar extent in the FSM. It is likely to reduce incentives for investment in quality and functionality over both the short and long-term, and it is far from clear that it is in the LTIE.

In the assessment of the consequences of this counterfactual for dynamic efficiency and innovation, consideration would need to be given to the effects on FOXTEL's incentive and ability to upgrade the STU. In effect, under this scenario, the STU would become a shared asset and access seekers would benefit to exactly the same extent as FOXTEL from any upgrading that took place. If STU charges to access seekers were based on costs – as seems likely – FOXTEL would risk securing no net return from upgrading, as the benefits of that upgrading had been effectively 'socialised'. This would have obvious implications for FOXTEL's own interest in upgrading and to the extent to which it led to any reduction in FOXTEL's own technological dynamism, would also likely lead to some reduction in innovation by FOXTEL's competitors.

5.3.3. Summary

While there may be some gains in a subset of churn events, these will be counterbalanced by the loss of innovation and dynamic efficiencies. Further, the notion that FOXTEL's operational infrastructure for the provision of STUs could be shared in a way that delivers productive efficiency gains appears questionable, especially in the light of the very high cost of developing new systems and processes to enable access.

Overall, there are no clear efficiency gains.

5.4. FOXTEL'S ABILITY TO RECOVER AND GAIN A RETURN ON ITS INVESTMENTS WOULD BE COMPROMISED

Many of the issues discussed above reduce FOXTEL's ability to earn a commercial return, including:

- Very high attributable costs of access, with no assurance of recovery (section 5.2); and;
- Reduction in incentives to improve returns through upgrades and innovation (section 5.3)

Further, under the FSM reliance on FOXTEL's infrastructure would be even greater than under CA/SI unbundling. As discussed in section 4, this could impede FOXTEL's ability to earn a normal return on its prior investments due to the risk of unjustified regulatory complaints and gaming.

The FSM would also be a highly unusual access initiative, as it would require FOXTEL to invest in STUs that it would not use and which would not be required to provide access to FOXTEL's existing infrastructure. The ACT acknowledged this¹³³:

Nonetheless, we are uncomfortable with the proposition that Foxtel should be required to provide equipment at the behest of an access seeker, whilst receiving no immediate benefit itself (other than access fees), even if, as submitted by Seven Network, it was possible to ensure there was appropriate compensation. This notion also appears to depart from standard situations in which access is required.

Generally, access regimes require access to facilities built for the access provider's own purposes, and which can be shared with access seekers. This reflects the fact that access regimes are generally mandated where a firm controls a bottleneck to potentially competitive service provision. It is highly unusual to claim that a firm can control a bottleneck to customers it does not serve, and to whom it has not deployed the assets to which access is sought.

If the FSM was adopted, FOXTEL would be required to not only provide access to STUs that it uses, but to acquire and deploy them beyond its own requirements. This necessitates incremental capital expenditure, with the result that FOXTEL's profitability date would be delayed, and its payback period extended.¹³⁴ Since FOXTEL is not yet profitable, it could require extra funding to meet the capital outlays required under the FSM.

These outcomes clearly contravene FOXTEL's legitimate business interests. Requiring FOXTEL to bear costs attributable to access also contravenes the principle that these costs should be met by access seekers. While it may be possible to develop an access pricing methodology which mitigates the costs to FOXTEL and implications for its business plan, such a regime would likely create other problems, as demonstrated below.

If, for example, a pricing regime could provide that:

133 ACT, para 295.

134 There would, of course, also be additional operating expense, associated with managing the third party STU business FOXTEL had been forced to set up.

- The access fee include a per-STU payment from the access seeker to FOXTEL that would cover the cost of an STU in a non-FOXTEL home, for which the access seeker would be granted the right to access an STU for the period of its depreciable life;
- FOXTEL would take possession of the STU if the access seeker's customer churns; and
- FOXTEL would only be allowed to cover the costs of each STU once,

then FOXTEL may be able to avoid bearing the capital outlay to provide STUs that it would not otherwise purchase.¹³⁵

However, this model also leads to cost and complexity, particularly where multiple access seekers use the STU. For example:

- If the first access seeker ('AS1') acquires a customer in a non-FOXTEL home, FOXTEL provides and installs the STU and AS1 pays FOXTEL an amount that covers the full capital cost of the STU;
- If a second access seeker ('AS2') acquires that same customer, then no new STU needs to be provided since the content of both can be provided through the already-installed STU. However, this would enable AS2 to free-ride on AS1's investment thus distorting competitive neutrality. Moreover, anticipating the possibility of a free-ride (and the obligation to pay it all as the first access seeker) would induce a 'waiting game' between access seekers which ultimately might result in negligible access.
- FOXTEL could leave AS1 and AS2 to negotiate the price AS2 should pay AS1 for access, although as the owner of the STU it is responsible for ensuring that its access obligations are met.
- Alternatively, FOXTEL could endeavour to set access prices to both AS1 and AS2 in a way that will allocate the costs fairly between the two. It is difficult to see, though, why FOXTEL is in the best position to determine this: it cannot foresee the relative benefits each access seeker will derive, and has no interest in the outcome other than ensuring the smooth operation of its network and access service.

Where churn occurs among FOXTEL and various access seekers, further complexity results. For example:

- AS1 wins a new customer;
- That customer then cancels AS1 and adds AS2, so no new installation cost would be incurred. However, AS1 has borne the entire cost of installation while AS2 has a free ride.

¹³⁵ Note that if FOXTEL had to provision STU ahead of demand, as seems likely, it could not be assured of receiving the one-off payment on each STU it acquired for access seekers.

- That customer then adds FOXTEL. Because it is now a FOXTEL home, the SAU charging regime applies, covering installation costs for FOXTEL homes as part of the shared cost pool which is allocated on revenue/ratings. In this case the installation cost is zero, and FOXTEL and AS2 benefit.
- Unless FOXTEL bears and smoothes costs such as installation, servicing and removal of STU, there would be many such instances of the first user paying all costs while the later users pay nothing. This fails to meet the principles in the ACCC's Access Pricing principles.
- Alternatively, if FOXTEL smoothes those costs, it would have to allocate them fairly among users, ideally based on benefit. However the complexity of anticipating the benefit derived by each access seeker, and installing systems and processes to implement such a regime, makes this an expensive proposition, for which FOXTEL may never be able to recover its costs.

In any event, if these issues were unresolved, FOXTEL's platform could be less attractive to access seekers and potentially end-users who may also be affected by disputes.

Alternative access and pricing model

An extension of unbundling STU services is that FOXTEL could supply unbundled STUs directly to end users i.e. FOXTEL's own customers and an access seeker's retail customers. Under this model, the STU would be a separate item on the customer's bill and it would be independent of the particular pay TV provider supplying the service. This is a different model to the FSM (where the STU service is provided to access seekers, not end-users) but is raised here for two reasons: first, it might be said to solve the pricing difficulties referred to above; and second, it has been raised in the past as a potential access model.

Such a model would appear to be beyond the limits of an access regime, which concerns the supply for wholesale services to access seekers, rather than the supply of unbundled access services to end-users. Indeed, this model has more in common with a universal service obligation than an access regime. It is therefore not a relevant counterfactual. However, because it has been previously raised in this context, this section traverses some of the issues it raises.

The main argument for FOXTEL separately supplying the STU is that it could potentially decrease the costs of switching between customers. A customer could switch subscription television provider and continue to use the same STU. This would have the potential to additionally increase the ability for access seekers to compete against FOXTEL's basic service in existing FOXTEL homes.

The arguments for and against doing so are similar, but not the same, as those for mandating a retail STU market in section 4.4.1 above.

First, an important issue is the disruption this causes to the structure of FOXTEL's pricing. FOXTEL has made a commercial decision to own STUs and provide them to customers, recovering the cost over time via the subscription fee. Particularly in circumstances where FOXTEL is seeking to promote penetration (with corresponding benefits by driving economies of scale in the business), a change to FOXTEL's method of pricing could be very disruptive.

It also means FOXTEL would essentially need to modify its business, and effectively, enter the new business of separately supplying STUs.

Finally, an access seeker faces the same opportunities to supply FOXTEL customers as FOXTEL. There do not appear to be any additional costs an access seeker would face, relative to those FOXTEL faced when initially supplying a customer. That is, there does not appear to be any asymmetry between FOXTEL and an access seeker for the supply of STUs that requires the attendant costs and risks of disrupting FOXTEL's business and diminishing a potential dimension of competition.¹³⁶

5.5. SUMMARY

In summary, the full service model is unlikely to be more reasonable than the factual. There is no reduction in entry barriers, and there are no clear gains to competition or the LTIE. There are very substantial costs, particularly in developing and operating systems and processes to manage the FSM, with no certainty as to recovery.

At the same time, FOXTEL's legitimate business interests are seriously compromised by being forced into investing in STUs, which it would not otherwise require, and by being required to enter a new and different line of business – the third party STU business. The mere precedent of such a requirement being imposed would give rise to disincentives for investment in infrastructure, not only by FOXTEL but by other potential access providers.

¹³⁶ See, for example, Gilbert, R., 'Mobility Barriers and the Value of Incumbency', pp. 476-478 in Schmalensee, R. and Willig, R., *Handbook of Industrial Organization: Volume I*, 1989, Elsevier Science, Oxford.

6. REASONABLENESS OF TERM

CRA has been asked to consider what a reasonable term of access would be. The term of access was an important issue in the previous undertaking/exemption process. In particular, the Seven Network argued that a five year access period was too short for access seekers, as there may be insufficient time for a new venture to achieve a positive return on its investment.

In its reasons for decision in the exemption proceedings, the ACT said:¹³⁷

...we accept that the duration of access should, in this case, not prevent the sustainable entry of a subscription television provider providing a product that is competitive with (and substitutable for) the access provider's product (in this case, at least a tier package). This would require an efficient entrant to recover its sunk costs and to receive a reasonable return on the investment assets that underpins [sic] the product offered.

We understand that FOXTEL is considering an access agreement term of five to eight years, with provision for early termination by access seekers (that is, with no minimum term imposed on access seekers). The key issues in assessing the reasonableness of this proposal are:

- Whether a term of five to eight years will provide sufficient opportunity for access seekers to make a normal return; and
- The implications for FOXTEL's business of extending the access term.

The first issue determines whether the term of access operates as a barrier to entry for access seekers, and is therefore particularly relevant to criteria relating to the promotion of competition and the interests of the access seeker's business. The latter issue is particularly focused on FOXTEL's legitimate interests, and whether the term of access promotes efficient outcomes.

6.1. WILL EIGHT YEARS PROVIDE SUFFICIENT OPPORTUNITY FOR ACCESS SEEKERS TO MAKE A NORMAL RETURN?

The importance of determining whether the length of the access term is sufficient to allow efficient entry is underscored by the ACT's consideration of the time needed for recovery of the sunk costs of an access seeker.

Access seekers potentially compete with FOXTEL and other broadcasters for content rights. To obtain these rights, an access seeker may need to commit to a longer-term contract, or pay a higher price. If it is unable to commit – because it does not have sufficient certainty about distribution of that content – it will be disadvantaged in competing for that content.

¹³⁷ ACT, para 314.

Establishing a new subscription television channel may also have significant upfront costs that need to be recovered over the life of the access agreement; and the new entrant may have losses in initial years, while subscriber levels are still below critical mass, which require recovery in later years.

If an access seeker had sufficient certainty that it could enter further access agreements, the risk of not being able to obtain access can be expected to be low.¹³⁸ If sufficient certainty does not exist, then an access term of insufficient length to allow cost recovery may be a barrier to entry.

Assessing a suitable access term is difficult, because access seekers – and the supply terms required to obtain the content for their channels – are highly differentiated. For example, an existing broadcaster may be able to capture significant economies of scope from its existing business and therefore not require a long-term contract to enable an expectation of cost-recovery, while others may have less leverage. Moreover, costs, prices and value of content can vary widely across genres, making it difficult to assess the time needed to recover its costs.

In making its earlier decision, the ACT appeared to have quite unrepresentative information before it, citing a 25-year movie agreement once entered into by FOXTEL. This agreement – FOXTEL's founding content agreement covering critical first-run movies and other subscription-driving content – was entered into in unique circumstances which gave FOXTEL very little bargaining power. At the time, the supplier was the only vendor offering the last available movie content, and was able to extract a very high price. It had a strong incentive to magnify the value of this high price by locking it in over a very long period. However, it remains an atypical example and has since been renegotiated.

Only a small proportion of channels have agreements for longer than ten years, and most of these are via FOXTEL's joint venture, XYZ.¹³⁹ FOXTEL's other (non-XYZ) channels have supply terms which average around six years. This would suggest that an upper limit of ten years is likely to largely remove barriers to entry relating to term, assuming this also provides sufficient opportunity for an access seeker to recover its other costs of supply. However, a shorter term may still be reasonable, depending on the likelihood that access seekers need such a long period to recover costs, and on the impacts such a long-term agreement would have on FOXTEL's business.

138 This is presumably an important reason why telecommunications access seekers are prepared to enter into shorter-term access agreements, notwithstanding they may be loss-making in early years and require sunk investments to enter the market. However, such access seekers would still face the risk of changed terms and condition of supply in the second contract.

139 Source: Confidential Statement of Peter William Campbell dated 29 September 2005,

6.2. THE IMPLICATIONS FOR FOXTEL'S BUSINESS OF EXTENDING THE ACCESS TERM

While access agreements can include some flexibility and variation of price and non-price terms, long-term contracts will nonetheless lock in many significant terms and conditions. This potentially increases the risks for FOXTEL in an asymmetric fashion, because the proposed SAU grants access seekers the right to terminate early.

For example, these contracts will lock in a pricing methodology which might be optimal now but may not be in 5 or 10 years. While sharing costs based on subscriber revenues (actual or imputed) may be the most appropriate mechanism now, in the future significant revenues may be gained from transactions (e.g. gambling), interactive advertisements or other sources. Until now, the development of significant revenue from these sources has been constrained because digital conversion was in early stages. Now that digital migration is well advanced, such business models can more easily emerge, although the speed and extent of this is uncertain.

6.3. CONCLUSION ON TERM

It is difficult to determine the appropriate trade-off between the promotion of competition, efficient outcomes and the interests of both FOXTEL and access seekers. There is little to suggest the option of a longer contract than 8 years is required to reduce barriers to entry for access seekers, and on the contrary this contract term is consistent with most of FOXTEL's content agreements. Further, the important dynamics in the industry mean that contracts beyond this period may create significant risk of the access contract becoming inefficient or inappropriate due to industry developments, with significant implications for FOXTEL and/or access seekers. This would be contrary to efficient outcomes and may compromise, at least, the legitimate interests of FOXTEL.

7. CONCLUSION

7.1. CA/SI PROVISION

On balance, it is unlikely that either counterfactual case – CA/SI unbundling or a FSM - would be more reasonable than the SAU, which limits the supply of FOXTEL's CA/SI to homes in which FOXTEL itself provides service.

7.2. TERM

Five to eight years, with early termination by access seekers, is likely to be a reasonable term of access.



HENRY ERGAS

5 October 2005

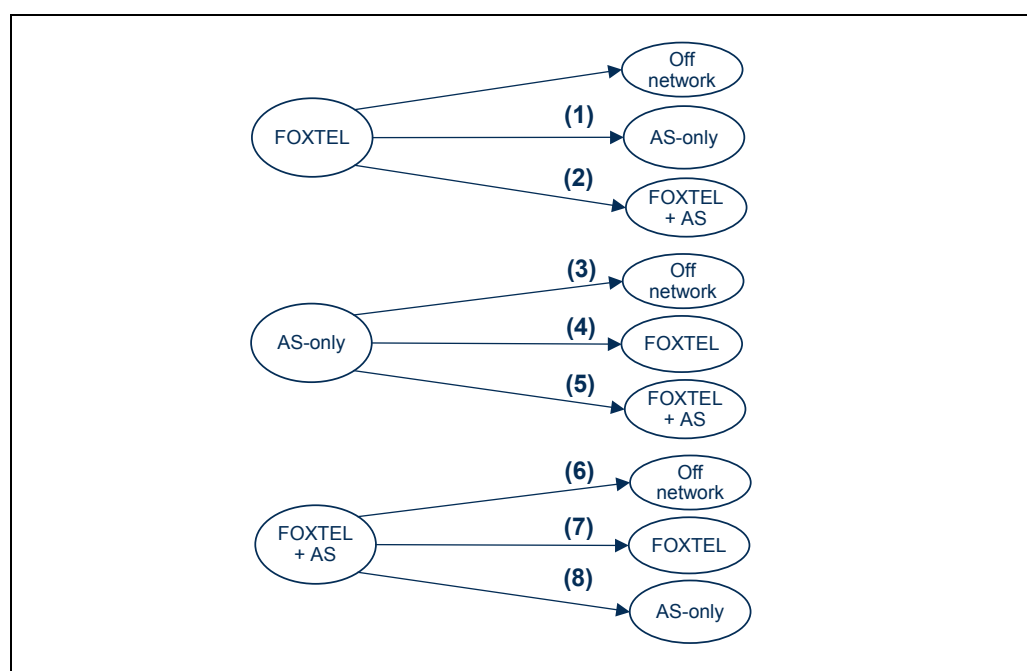
APPENDIX A: CHURN

Churn – and managing its cost – is an important feature of the subscription television industry. Inevitably, customers will migrate between providers, or churn off the network from period to period. These customer movements have efficiency implications as they increase the costs of supply. This appendix considers the effect of customers migrating in the factual and counterfactuals.

A.1 POTENTIAL CUSTOMER MOVEMENTS

In the factual and the two counterfactuals, customer churn may occur in a number of ways, as outlined in the diagram below.

Potential customer movements



Note: Off network = not on the FOXTEL platform or an access seeker platform, but may receive subscription TV from a third party (e.g. Optus).

A.2 COSTS OF CUSTOMER MOVEMENTS

These eight relevant customer movements result in various costs associated with:

- connecting an STU service (installation and enabling the service); and
- disconnecting an STU service (removing and disabling the service).

The incidence of these costs in each of these scenarios varies with the level of CA/SI and STU unbundling in the access regime. The various churn scenarios and the costs associated are considered in the table below. This table assumes that where an access seeker installs an STU it retains ownership of that STU (i.e. not a retail model). In the factual and counterfactuals, when a customer takes up an access seeker's service and a FOXTEL service is available (either a shared retail service under the SAU, or a wholesale service using a FOXTEL based CA/SI model or the FSM), the access seeker has the choice of using the FOXTEL based service or providing access through its own independent STU service.

Costs associated with customer movements

Movement	Factual	First counterfactual	Second counterfactual
1. Customer churns from FOXTEL to access seeker -only	FOXTEL removes its STU and access seeker installs its own independent STU	FOXTEL removes its STU and access seeker installs own STU service (independent or based on FOXTEL's CA/SI)	If on FSM: FOXTEL's STU service remains and the access seeker is now charged under the FSM If independent: access seeker chooses to install independent STU.
2. FOXTEL customer adds access seeker's services	For SAU: FOXTEL STU service already in home and access is provided to access seeker under the SAU. If independent: access seeker installs independent STU leading to multiple STUs in the home.	For SAU: FOXTEL STU service already in home and access is provided to access seeker under the SAU If independent: access seeker installs STU leading to multiple STUs in the home.	For SAU: FOXTEL STU service already in home and access is provided to access seeker under the SAU If independent: access seeker installs independent STU leading to multiple STUs in the home.
3. Customer moves from access seeker -only premises to no carrier	Access seeker faces the costs of disconnection	Access seeker faces the costs of disconnection	If on FSM: FOXTEL faces the costs of disconnection. If independent: access seeker faces cost of disconnection
4. Customer moves from access seeker -only to FOXTEL	Access seeker faces the costs of disconnection. FOXTEL installs its own STU service.	Access seeker faces the costs of disconnection. FOXTEL installs its own STU service. *	If on FSM: FOXTEL remains in the home. If independent: access seeker faces cost of disconnection and FOXTEL installs its own STU.

5. Customer moves from access seeker -only to access seeker + FOXTEL	For SAU: access seeker faces the costs of disconnection. FOXTEL installs its own STU service and provides access to the service under the SAU. If independent: access seeker keeps its STU in the home and FOXTEL also installs an STU leading to multiple STUs in the home.	For SAU: access seeker faces the costs of disconnection. FOXTEL installs its own STU service and provides access to the service under the SAU. If independent: access seeker keeps its STU in the home and FOXTEL also installs an STU leading to multiple STUs in the home. *	If on FSM: FOXTEL STU was already in the home and remains connected and is enabled to receive FOXTEL and access seeker's channels and access charged on SAU. If independent: access seeker keeps its STU in the home and FOXTEL also installs an STU leading to multiple STUs in the home.
6. Customer moves from access seeker + FOXTEL to no carrier *	For SAU: FOXTEL faces the costs of disconnection. If Independent: FOXTEL and access seeker face cost of disconnecting multiple STUs.	For SAU: FOXTEL faces the costs of disconnection. If Independent: FOXTEL and access seeker face cost of disconnecting multiple STUs.	For SAU: FOXTEL faces the costs of disconnection. If Independent: FOXTEL and access seeker face cost of disconnecting multiple STUs.
7. Customer moves from access seeker + FOXTEL to FOXTEL	For SAU: FOXTEL STU was already in the home and remains connected. If independent: access seeker had own STU in the home, access seeker faces costs of disconnection.	For SAU: FOXTEL STU was already in the home and remains connected. If independent: access seeker had own STU in the home, access seeker faces costs of disconnection.	For SAU: FOXTEL STU was already in the home and remains connected. If independent: access seeker had own STU in the home, access seeker faces costs of disconnection.
8. Customer moves from access seeker + FOXTEL to access seeker -only	For SAU: FOXTEL removes its STU and access seeker installs its own independent STU If independent: access seeker leaves an already installed STU in the home.	For SAU: FOXTEL removes its STU and access seeker installs its own independent STU If independent: access seeker leaves an already installed STU in the home.	For SAU: FOXTEL leaves STU in home and access seeker charged based on FSM. If independent: FOXTEL faces the cost of disconnection and access seeker leaves an already installed STU in the home.

In this table, the costs of churn in the factual and the first counterfactual are virtually identical. However, there are differences when the factual and the second counterfactual are compared. In the second counterfactual, when an access seeker is using the FSM, there are efficiency gains when a customer churns back and forth between FOXTEL and the access seeker, as the STU remains in the home rather than being swapped in and out.

Further complications arise if the access seeker retails its STUs to its customers for use on its network. This and other problems with the STU retail model are discussed in the body of this report.

A.3 CONCLUDING REMARKS

A comparison of churn in the factual and the first counterfactual under the given assumptions reveals that in all customer movement scenarios, FOXTEL and access seekers will face the same costs.

Some dynamic efficiency gains are evident when comparing the second counterfactual to the factual. These efficiency gains are only present when an access seeker chooses to use FOXTEL's STUs in both FOXTEL homes (SAU) and non-FOXTEL homes (FSM).

APPENDIX B : CV OF HENRY ERGAS

HENRY ERGAS

BORN: 22 August 1952

NATIONALITY: Australian

EDUCATION:

Sussex University B.A. (Econ.) 1st Class Honours.
University of Queensland M.Ec.Stud. (High Distinction)

CURRENT POSITION:

Regional Head, Asia Pacific and Vice President,
CRA International,
Level 1, 29 Jardine Street
Kingston, ACT 2604

EMPLOYMENT

- | | |
|-----------|---|
| 1973–76 | Senior Tutor in Economics, Macquarie University, Australia. Senior Tutor in Economics, University of Queensland, Australia. |
| 1977–78 | Fellow (Administrative Trainee), Directorate for Science, Technology and Industry, Organisation for Economic Cooperation and Development (OECD), Paris. |
| 1978–81 | Administrator DSTI, OECD, Paris. |
| 1981–85 | Principal Administrator, Advisory Unit to the Secretary General, OECD, Paris. |
| 1985–87 | Head, Secretary-General's Task Force on Structural Adjustment, OECD, Paris. |
| 1987–91 | Professor, Graduate School of Management and Head, Information and Communication Technology Studies Program, Monash University. |
| 1991–93 | Counsellor for Structural Policy, Economics Department, OECD, Paris. |
| 1993–1997 | Advisor, Trade Practices Commission, Canberra, Australia. |
| 1994–95 | Visiting Professor, Kennedy School of Government, Harvard University. |

- 1995–1997 BellSouth NZ Visiting Professor of Network Economics and Communications, The University of Auckland, New Zealand.
- 1996–2004 Managing Director, Network Economics Consulting Group (NECG), Australia
- 2004– Adjunct Professor, School of Economics, National University of Singapore

OTHER ACTIVITIES

- 1983–88 Senior Research Associate, Centre for European Policy Studies, Brussels.
- 1985–86 Consultant, Department of Communications, Australia.
Consultant, Economic Planning Advisory Council, Australia.
- 1987–90 Consultant, Department of Transport and Communications, Australia.
- 1988– Consultant, Overseas Telecommunications Corporation Ltd., (as of 1993: Telstra Corporation) Australia.
- 1985–93 Adjunct Professor, Ecole Nationale de la Statistique et de l'Administration Economique, Paris.
- 1990 Visiting Professor, Graduate School of Management, Bocconi University, Milan.
- 1992 Summer Institute Fellow, RAND Corporation, USA.
- 1993–95 Executive Member, Advisory Panel for Telecom 1995, International Telecommunications Union.
- 1993–95 Member, Steering Group on Cooperative R & D and Technology Diffusion, World Bank.
- 1993– Editorial Board, Information Economics and Policy.
- 1993– Editorial Board, Communications et Strategies.
- 1994– Editorial Board, Telecommunications Policy.
- 1994–95 Consultant, The World Bank.
- 1994–95 Consultant, Critical Technologies Institute, The RAND Corporation, Santa Monica, USA.

- 1997 Member, Advisory Panel on Telecommunications Reform to the Minister for Communications and the Arts, Australia.
- 1998 Member, Commissione Scientifica, Telecom Italia, Rome, Italy.
- 1999 Chairman, Intellectual Property and Competition Review Committee, Attorney-General's Department, Australia.
- 2001- Lay Member, New Zealand High Court in cases involving appeals from decisions of the Commerce Commission and other matters under the Commerce Act
- 2002- Editorial Board, The Review of Network Economics at www.rnejournal.com.
- 2004- Member of Australian Centre of Regulatory Economics (ACORE) Advisory Board
- 2004- Member, French Ordre Nationale du Merite
- 2005 Member, Prime Minister's Taskforce on Export and Infrastructure (Australia)

EDUCATION

BA Economics (1st Class Honours), Sussex University.

M. Ec. Studies, University of Queensland.

MAIN PUBLICATIONS (BOOKS AND MONOGRAPHS)

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PRE-EXISTING RELATIONSHIP

CRA has conducted work for FOXTEL since acquiring NECG in late 2004. NECG has conducted work for FOXTEL since 2002 in relation to access, costing and pricing issues.