



INTERNATIONAL

## REPORT

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on behalf of

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# Adjusted access pricing model for digital STUs

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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 C for Curriculum Vitae)*

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## EXECUTIVE SUMMARY

FOXTEL proposes to submit a special access undertaking (SAU) for digital subscription television services. In addition to access to FOXTEL's network of deployed digital set-top units (STUs), conditional access (CA) and service information (SI) services provided in FOXTEL's Digital Access Agreement (DAA)<sup>1</sup>, FOXTEL proposes to add access to its modem services and its electronic program guide (EPG) in this SAU. This report outlines a costing and pricing methodology for these additional services.

The costing and pricing methodology for the STU services (other than these additional services) is unchanged from the methodology submitted to and approved by the ACCC<sup>2</sup> in its decision on FOXTEL's application for an exemption order in relation to the DAA<sup>3</sup>. The methodology developed and applied in this report to costing and pricing the modem service and EPG is consistent with that earlier-approved methodology, and with economic principles.

There are two main issues in developing the rate card:

1. How costs should be allocated among users to arrive at a price; and
2. The pool of costs which should be so allocated.

On the allocation of costs, this report recommends that:

- shared costs of the modem service and EPG (i.e. costs incurred that benefit both FOXTEL and access seekers) should be allocated pro-rata among FOXTEL and access seekers according to the benefit gained from access to the two services. The most appropriate proxy for assessing the benefit of access to the modem service and EPG is, consistent with the earlier-approved methodology, based on subscription revenue and ratings;
- costs attributable to and incurred for the benefit of access seekers as a group should be allocated equally across all access seekers;
- costs attributable to and incurred for the benefit of a particular access seeker should be met wholly by that access seeker.

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1 The DAA is Schedule 2 to the s87B undertaking provided by FOXTEL to the ACCC on 21 November 2002 as amended in December 2003.

2 ACCC, Section 152ATA Digital Pay TV Anticipatory Individual Exemption Application lodged by FOXTEL Management Pty Limited Final Decision, , December 2003

3 Australian Competition Tribunal, File No 11 of 2003, Reasons for Decision dated 23 December 2004. This costing and pricing methodology was further endorsed by the Australian Competition Tribunal, which was generally satisfied with it on review of the ACCC decision (even though the decision was overturned on other grounds).

This report identifies the pool of costs to be allocated as the additional costs of providing modem service and the EPG, which should be added into the existing rate card for STU services. These costs should be calculated based on the total service long run incremental costs (TSLRIC) where the total service is the bundled STU service, which includes modem services and the EPG.

This pricing methodology will allow a relatively simple access pricing regime for a bundled STU service – including modem services and EPG – at prices consistent with the economically appropriate recovery of cost. Prices for this bundled STU service will be set by a single access rate card, using one costing and pricing methodology.

## 1. INTRODUCTION

FOXTEL proposes to submit a SAU for digital subscription television services. Under this SAU, FOXTEL would provide a service enabling third party subscription television providers to access its network of deployed digital STUs together with its CA, SI, modem services and EPG.

The service which FOXTEL proposes to offer is broadly consistent with its DAA, but for certain adjustments FOXTEL proposes to make to address issues raised by the Australian Competition Tribunal ('ACT') in its decision that over-turned the exemption.

FOXTEL's legal advisers have asked CRA to advise on an access pricing methodology which will address these service adjustments, in a manner consistent with the economic principles relied on in the overall access pricing methodology earlier proposed by FOXTEL, adopted by the ACCC and approved by the ACT.

This report addresses the following adjustments:

- the addition of modem services to address the ACT's concerns about interactivity; and
- the addition of EPG listings for access seekers.

This report consists of five sections. Section 2 addresses the background facts and assumptions. Section 3 outlines the principles used in developing the access pricing methodology. Section 4 discusses the pricing structures developed from the application of these principles, for each of the above areas of adjustment. Section 5 provides some concluding remarks.

## 2. BACKGROUND AND ASSUMPTIONS

This section outlines some factual background and assumptions made in the preparation of this report.

### 2.1. MODEM SERVICES

FOXTEL proposes to include modem services as part of the STU access service. This enables the customers of access seekers to interact with the content on access seekers' channels. Most of FOXTEL's digital customers have the STU modem connected to their telephone line such that modem services can be activated<sup>4</sup>.

The following elements are required for this to occur:

- an interactive application is developed;
- the interactive application is tested and signed by FOXTEL;
- the application is downloaded via the forward path to the STU, and run on the processor in the STU;
- application and data for applications are temporarily stored in the STU memory and broadcast from the carousel;
- the viewer makes selections from within the application using the remote control;
- the STU activates the modem and dials a number using the public switched telephone network (PSTN); and
- a point of presence (POP) on the PSTN receives the customer's response from the STU.

Further details of the modem service, and the uses to which it might be put, are set out in Attachment A. FOXTEL's POP network will not be included in the SAU since these services are widely available, and can be easily self-supplied or obtained from a variety of sources by access seekers.

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<sup>4</sup> For various reasons, less than 100 percent of customers have the modem enabled, notwithstanding FOXTEL's endeavours to connect them. These reasons include: customer preference, no PSTN line connecting the home, improper installation and accidental disconnection. Second STUs in a household are not generally modem-connected.



## 2.2. ELECTRONIC PROGRAM GUIDE SERVICES

The EPG, which is part of FOXTEL's digital service, provides an electronic listing of the channels and programs that are available on its service. Channels are generally grouped by genre. Access to this online TV guide will allow the access seeker to list its programs and program information, and enable these listings to be viewed and used by subscribers.

The EPG has a number of features that allow a subscriber to navigate the various channels on the subscription TV service including:

- the ability to change channels by selecting the desired channel's listing;
- 'now and next' information about each channel's programming through the "isearch banner"<sup>5</sup>; and
- the ability to set reminders to view upcoming programs.

The EPG also plays an important scheduling and listing function for FOXTEL. Further details of the EPG, and the uses to which it might be put, are set out in Attachment B.

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5 This is enabled by pressing the "I" button on the remote control while watching a channel. Program information on the channel being watched and all other channels up to 8 hours ahead can be scrolled through whilst continuing to view the current channel.

### 3. PRINCIPLES

This section outlines the economic principles that should apply in setting access prices for FOXTEL's modem services and EPG. The section begins with an outline of the relevant pricing principles, followed by a discussion of how costs should be recovered and finally a discussion of the appropriate cost calculation methodology.

The following sections will deal with how costs are identified and categorized; then how they are translated into prices for modem services and EPG services.

#### 3.1. PRICING PRINCIPLES

In the DAA, FOXTEL developed its pricing for STU services based on the principles of cost recovery, including a return on capital. This was a scheme of cost recoupment consistent with economic efficiency principles, including that each party or group of parties should face responsibility for recovering no less than the costs it causes (attributable costs). This principle is known as the '*floor test*' as it defines a lower bound to access charges. If an access seeker is paying less than this floor amount, there is a direct subsidy to that access seeker and its end-users.

At the same time, in making a contribution to any shared costs, no party should face a requirement to contribute an amount that exceeds the stand-alone costs it would incur in providing the service. If an access seeker was required to contribute more than stand-alone costs it would be better off self-supplying the access service. The test of whether access charges are no greater than stand-alone costs is commonly referred to as the '*ceiling test*'.<sup>6</sup>

The same principles would broadly be applied here<sup>7</sup>, and would be expected to yield a result that should fall between a:

- *ceiling*: the costs that an access seeker would have incurred if it was to develop its own modem services and EPG in the same manner as FOXTEL i.e. stand-alone cost; and a
- *floor*: the incremental costs that FOXTEL incurs when supplying modem services and EPG, while passing on all of the benefits of its position as a major provider eg economies of scale.

While these tests mark the range within which an access price should fall, a critical issue in determining an access price is how *shared costs* – that is, costs which are incurred for the benefit to both the access provider and access seekers – should be recovered. This is considered in section 3.2.

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<sup>6</sup> "Toward Competition in Local Telephony." William J. Baumol and J. Gregory Sidak, 1994. Cambridge, Mass.: MIT Press.

<sup>7</sup> ACCC, Access Pricing Principles— Telecommunications, 1997, page 10.

Given a cost recovery approach, the total costs of supplying the modem service and the EPG are the relevant costs to be considered. These costs are the actual costs incurred by FOXTEL in order to be able to supply the modem service and EPG to itself and in order to provide access to them. The calculations of these costs are considered in section 3.3.

For modem services, the majority of the costs associated with supplying the services comprise:

- the costs of connecting the PSTN return path (usually done when the STU is installed); and
- the costs of including a modem in the STU.

These costs are not readily separable from the costs of manufacture, installation and operation of the STU. In the DAA, estimates of the standalone costs of installing the return path and STU costs without a modem were used in order to exclude the costs of the modem service<sup>8</sup>. Using these cost estimations as a proxy of the actual costs of modem services is not ideal, however, given that they do not necessarily equal the actual incremental cost incurred by FOXTEL.

Similarly, the EPG is a function provided to each of FOXTEL's subscribers to digital services launched in March 2004. It is enabled by specific components resident in FOXTEL's STUs. The ability to disaggregate modem service costs accurately is considered in section 5.1.3 when determining the pricing methodology for modem service's shared costs pool.

### **3.2. HOW ARE COSTS TO BE RECOVERED?**

In the STU pricing methodology that was accepted by the ACCC and the ACT, costs were recovered by allocating the costs across the users of the service according to the benefits received by each user. This principle should also apply to modem and EPG services.

In the earlier methodology, the relative benefits of shared costs were measured by the actual or implied subscription revenue. Sections 4.2 and 4.3 below discuss how benefit may be measured for modem and EPG services.

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<sup>8</sup> This was because access to modem services was not included in the DAA.

Following this principle, costs attributable to access – that is, which do not benefit the access provider, but are only incurred for the benefit of access seekers – should be wholly met by access seekers. This is consistent with the earlier-approved methodology, and is, in our view, the right approach. While other approaches are sometimes suggested<sup>9</sup>, 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.

The attributable costs are discussed in more detail in section 4 below.

### 3.3. COST CALCULATIONS

The ACCC's access pricing principle guidelines<sup>10</sup> for telecommunications services adopt the TSLRIC<sup>11</sup> standard for access pricing. The ACCC accepted the view put forward by FOXTEL in the exemption application that TSLRIC should be implemented in the STU pricing regime, and it has also favoured TSLRIC based cost calculations for other telecommunications services including wholesale PSTN call charges and mobile termination charges. This methodology was further endorsed by the ACT in the exemption appeal proceedings.<sup>12</sup>

TSLRIC cost calculations involve costing the increment of the total service that is being accessed. The service increment in the STU pricing model was considered by the ACCC to be the (cable or satellite) STU access service in its entirety. TSLRIC thus included the full replacement costs of the assets required to offer the STU access service.

In order to maintain consistency with the STU pricing model, and the ACCC's other decisions on telephony pricing, a TSLRIC based calculation of costs should be implemented for modem services and the EPG. Further, TSLRIC reflects the costs of supply, and therefore has strong efficiency characteristics. Based on the service increment determined in the STU pricing model, the service increment to be considered in the cost calculation is the entirety of the STU service, including the modem service (where provided) and the EPG service.

The TSLRIC cost calculation should use forward-looking costs. Given that the modem service and the EPG are very new services, it is appropriate to use the (recently incurred) historic costs for each service as a proxy for forward-looking costs.

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<sup>9</sup> 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.

<sup>10</sup> ACCC, Access Pricing Principles— Telecommunications, 1997.

<sup>11</sup> TSLRIC is a special form of Long Run Marginal Costs adapted for use (uniquely) in telecommunications.

<sup>12</sup> ACT, para 136

A component of the TSLRIC calculation is a calculation of the cost of capital. In the digital exemption application proceedings, the ACCC<sup>13</sup> and the ACT<sup>14</sup> both agreed to FOXTEL's proposed use of the weighted average cost of capital (WACC) / capital asset pricing model framework for estimating the cost of capital for its digital STU cost base. Given that the modem service and the EPG are being supplied as part of the overall bundle of STU services, it is economically appropriate to use the same WACC for the modem service and the EPG. For this purpose, this report therefore adopts the WACC decided on by the ACCC and endorsed by the ACT.

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13 ACCC, Section 152ATA Digital Pay TV Anticipatory Individual Exemption Application lodged by FOXTEL Management Pty Limited Final Decision, December 2003, Section 5.3.

14 ACT, para 326.

## 4. COSTS

This section outlines the categories that the costs have been divided into. It then discusses the allocation of the costs for modem services and the EPG into these cost categories.

### 4.1. COST CATEGORIES

The cost recovery principles discussed in section 3.1 identify two broad groups of costs that can be further disaggregated into three categories, as follows:

- *attributable costs*: Costs that are *attributable* to all access seekers as a group, i.e. costs that would not be incurred by FOXTEL if the access service was not offered, but are not specific to individual access seekers;
- *access seeker-specific costs*: Costs that are attributable to an individual access seeker; and
- *shared costs*: Costs that would be incurred by FOXTEL whether or not the access service is offered, but which benefit both FOXTEL and access seekers, and should therefore be *shared* between them.

These costs are examined below, in respect of each of modem services and EPG services.

FOXTEL-specific costs are excluded from the cost pool, for example, the HWW<sup>15</sup> contract costs for EPG services that are specific to developing FOXTEL's listings and EPG material.

### 4.2. MODEM SERVICES

#### 4.2.1. Attributable costs

At present, there are no modem service costs that are specific to access seekers as a group. Costs of this nature may however be incurred in the future. The only currently attributable costs to access seekers are those which are incurred for the benefit of an individual access seeker.

#### 4.2.2. Access seeker-specific costs

Access seeker-specific costs for the modem service are the costs of one-off services required by specific access seekers.

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<sup>15</sup> HWW is Horan, Wall and Walker, a data and information services company. For further information see Appendix B.1.

They include costs associated with:

- testing applications for compatibility with the system;
- signing the application<sup>16</sup>; and
- SI configuration for the application.

#### 4.2.3. Shared costs

The shared cost pool for modem services comprises capital (including a return on capital) and operating expenses as outlined below:

- Capex:
  - return path installation costs; and
  - modem costs.
- Opex:
  - contribution to common costs;
  - service calls; and
  - engineering - modem support.

The modem service can be utilised by FOXTEL and access seekers to supply interactive services provided that the return path is installed and functioning<sup>17</sup>. A description of the use and benefit of the modem service is outlined in Appendix A.2.

The shared costs of the modem and return path include the costs associated with replacing the modem or return path. Costs associated with FOXTEL's POP network have been excluded.

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<sup>16</sup> Application signing is a security feature which indicates that the application has been approved through quality control testing. Without signing, an application will not run on FOXTEL's STUs.

<sup>17</sup> Note that FOXTEL does not provide PSTN access or calling services. End users must make their own arrangements to acquire these services from a telephony provider.

### 4.3. EPG COSTS

#### 4.3.1. Attributable costs

At present, there are no readily identifiable EPG costs that are specific to access seekers as a group.

There are, however, some modifications to the EPG system that may be required by more than one access seeker. On a case-by-case basis, it may be appropriate to share the relevant costs across those who benefit. These costs are discussed below.

#### 4.3.2. Access seeker-specific costs

Access seeker-specific costs for the EPG include the costs of modifications that would need to be developed and implemented in order to provide access for individual access seekers. The need for and degree of such modifications depends on how access seekers choose to supply their listings feeds. They could potentially include adjustments to the traffic schedule aggregator and XML schema, and the installation of a firewall<sup>18</sup> to enable a secure interface for access seekers while maintaining the integrity of the system.

Some of these modifications may be used by more than one access seeker. If so, the costs should be shared among them. This would need to be assessed on a case-by-case basis.

In addition to the costs of modifications, access seeker-specific costs would also include:

- the costs of training access seekers on the EPG and FOXTEL's requirements for access to the service; and
- the cost of validation of the format of access seekers' EPG listings data.

#### 4.3.3. Shared costs

For the EPG, the shared cost pool includes capex and opex as outlined below:

- Capex:
  - NDS<sup>19</sup> development costs;
  - traffic schedule aggregator; and
  - EPG development capex.

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18 See Appendix B for more detail.

19 NDS is a company that provides conditional access and EPG services to FOXTEL. See Appendix B for more detail.



- Opex:
  - overheads associated with the EPG;
  - NDS ongoing opex;
  - traffic schedule aggregator opex; and
  - EPG development opex.

## 5. TRANSLATION OF COSTS INTO PRICES

This section examines the appropriate allocation methodology to determine how the costs should be shared among access seekers for modem services and the EPG.

### 5.1. MODEM SERVICES

#### 5.1.1. Attributable costs pricing structure

At present, no attributable costs for modem services have been identified. However, if attributable costs were incurred in providing modem services, these costs should be recovered from access seekers as a group. For STU services, the DAA allocates attributable costs equally among the number of access seekers. To maintain consistency, attributable costs for modem services will also be recovered equally across access seekers. FOXTEL should ensure that the calculations of the attributable modem service's costs are consistent with forward-looking TSLRIC principles.

#### 5.1.2. Access seeker-specific costs pricing structure

The cost recovery principles discussed in section 3.1 specify that costs incurred for the benefit of an individual access seeker are to be recovered directly from that specific access seeker. This recovery will in essence occur via a fee-for-service charge passed on directly to the access seeker. As noted, if an access seeker does not face a charge that at least covers these costs, then that access seeker is being subsidised by FOXTEL. As specific services are provided and charges for these services are calculated, FOXTEL should ensure that these are consistent with forward-looking TSLRIC principles.

#### 5.1.3. Shared cost pricing structures

The majority of the shared costs comprise:

- return path installation costs; and
- modem capital costs.

A pricing structure is required to allocate the shared cost pools for modem service (excluding POP costs) across FOXTEL and access seekers. The pricing structure to be implemented aims to allocate shared costs based on the benefit gained through the ability to use the modem service. This benefit could be realised in a number of ways:

- increased ratings;
- increased revenue from modem services;
- customer acquisition as modem services provides another marketable feature to the subscription TV service;
- customer retention leading to sustained levels of subscription revenue; and

- reductions in forward path bandwidth requirements.

In the case of STU shared costs, a pricing structure based on subscription revenue and ratings was used as a proxy for the benefit gained from having access to the STU. Given the range of possible ways in which benefit might be obtained, the possible methods for allocating the shared costs of modem services are even broader; in particular methods based on:

- subscription revenue and ratings;
- interactive revenue and ratings;
- a charge per modem hit;
- a charge per channel; and
- a charge per application broadcast.

This section concludes that a subscription revenue and ratings approach is the best proxy for allocating the shared costs of modem services, having considered the options below.

#### *Subscription revenue and ratings approach*

One option is for the shared costs of the modem services to be bundled with the shared costs of the STU service. These costs would then be divided amongst FOXTEL and access seekers by the subscription revenue/ratings pricing structure set out in the DAA.

This method (alone) has the benefit that it does not require the pricing methodology to be changed, or the costs or benefits of the modem service to be separately measured, since they are allocated out in the same way. Adopting the same shared cost allocation methodology as that of the STU will also avoid adding complexity to the billing process.

Given that the return path installation costs are incurred at the time of installation in all but a few cases, separate measurement would be difficult. Potentially, estimates of the cost of the modem service could be calculated by reference to stand-alone costs of installing the return path, or costs saved if the return path was not installed at the time the STU was installed (which in FOXTEL's case is not common). However, these would be arbitrary methods that did not reflect actual costs of installation. Further, the modem is currently installed in the STU at the point of manufacture, and is present in the majority of FOXTEL digital STUs.

Moreover, installation revenues relating to the return path do not have to be separately measured from STU installation revenues if this methodology is adopted. As for the inclusion of the return path installation costs, a separate measurement is problematic especially given that there is no discount given if the return path is not installed.

An issue in this pricing structure is that all access seekers will share in the costs of the modem service, even if a particular access seeker does not use the service, or has a significantly different level of use than another access seeker or FOXTEL. However, the extent to which an access seeker must contribute to the modem, even if it does not use this service, will be partly mitigated by the following factors:

- the use of the modem can be expected to contribute to higher ratings or greater revenues, so that access seekers who do use the service can be expected to pay a higher access price than otherwise, offsetting the contribution that non-users would otherwise make; and
- all access seekers would benefit from having a modem service at their disposal. They would have the option to launch modem-based interactive services; and where others launch such services it can be expected to lead (at least indirectly) to greater penetration of STUs. Hence, even access seekers who do not themselves use the modem services ought not face a zero cost.

#### *Interactive revenue and ratings approach*

Another measure of the benefit of the modem service is the revenue received from interactive services that use the modem. Cost could be recovered based on the proportion of revenue received from the modem service by each channel. As for the revenue/ratings STU pricing model, the greater of actual and imputed revenue from interactive services could be used to allocate the shared costs.

However, measurement difficulties are likely to make this method unviable. Revenues from interactive advertisements, for example, would need to be divided into interactive revenues and broadcast revenues, even though they may not be priced or paid for on that basis. Transaction services using modem services, such as home shopping or banking, would have to similarly allocate revenues to the use of interactive modem functionality (rather than attribute the whole value of the transaction to modem use). While measurement conventions may develop over time, such measurements would be difficult and error-prone in early phases. Monitoring transactions and revenues is unlikely to be practical, and could vary greatly with the nature of the application. Additionally, because such measurement systems would be introduced in order to facilitate access, the cost of them would be allocated to access seekers thereby increasing their costs.

Further, in the early years such revenues (or any proxy, such as number of modem hits) might well be volatile, leading to unstable prices. In any case modem service revenues are likely to be more volatile than subscription revenues — the basis of the STU service pricing structure.

In future years, if interactive services via the modem service become a large source of revenue, it may be appropriate to re-evaluate the pricing methodology for modem services. Such services might be:

- gambling services, where the benefit of the modem service to the access seeker might not be captured through either subscription revenues or ratings; or

- virtual channels, used solely for the broadcasting of applications for a particular purpose. For example a computer gaming virtual channel may derive revenues from users purchasing rights to use games, and therefore not be observable as subscription revenues.

On balance, however, at present this approach is likely to incur high transaction costs (which would increase access prices) and deliver little certainty, and is therefore not appropriate.

#### *Charge per modem hit*

Under this pricing structure shared costs would be recovered based on the forecast number of modem hits per channel based on a charge per hit, reflecting proportional use of the modem service. Modem hits would thus be used as a proxy for the benefit of the modem service.

The number of hits may not be the best indicator of the benefit of the modem service. The value of an individual hit could vary dramatically depending on the application. For example, a response to a survey on Nickelodeon asking the user to rate their favourite cartoon animals would be of less commercial benefit than a subscriber responding to an advertisement to sign-up to test drive a new luxury car.

As discussed in section 5.1.2, all access seekers benefit from having a modem service at their disposal. Under this pricing methodology if an access seeker received no modem hits it would not share in the costs of the modem service, which is not consistent with the economic principles discussed in section 3. Furthermore, FOXTEL incurs the cost of supplying access to the modem services regardless of the number of modem hits generated using the modem service, so if an access seeker received no modem hits then FOXTEL would bear all the costs of providing the modem service with others free-riding on its investment.

Another difficulty with this charging method is that FOXTEL can only measure the number of modem hits on its own POP network. FOXTEL would therefore have to rely on access seekers' reporting and audits to determine its charges. This would create complexity, likely increase transaction costs and potentially lead to disputes.

The use of forecast data to calculate prices could also create issues. A significant risk to FOXTEL is the potential for usage to deviate from the forecasted number of modem hits for the period especially in early phases where user response levels are uncertain. For example, low usage of the modem service will result in FOXTEL not recovering all the shared costs of modem services for that period. Conversely, FOXTEL could also over-recover costs if a forecast of modem usage is lower than actual usage for the period.

Given these uncertainties around the number of hits and the resulting charge per hit, a mechanism would need to be established to allow for corrections to the modem services rate card to be made from period to period to account for deviations from forecast usage.

### *Charge per channel*

A charge per channel would mean that the shared costs are divided equally among the channels offering interactive services. Charges would be set regardless of how much usage a channel generates or how much benefit a channel derives from the modem service. Heavy and light users of the modem service would be charged the same rate.

This would remove the risk associated with variable modem usage across billing periods and would guarantee that FOXTEL recovers all shared costs for that period. However, this pricing methodology is not consistent with the recovery of costs based on the benefits associated with the use of the service.

The disadvantage of this pricing structure is that the price does not vary with usage of the modem service (although it can be argued that this effect is mitigated because all channels receive some benefit). A charge per channel also may have the effect of limiting uptake of the modem service by channels that expect to generate only low usage.

These disadvantages suggest that this charging methodology does not improve on the subscription revenue/ratings approach taken to STU pricing.

### *Charge per application broadcast*

Shared costs could be allocated based on a charge per application broadcast. This is similar to the way in which Internet advertisements are priced where users are often charged for displaying the interactive application (e.g. a price per thousand banner ads served). In this pricing regime, the proxy for benefit is the *opportunity* for users to interact, provided by displaying a clickable ad. The proportion of industry total applications that a channel provider broadcasts would determine its proportion of the shared costs.

However, this is likely to be a poor proxy for the benefit gained from access to the modem service, which is better observed through the ratings of the channel or the subscription revenue generated by the channel, than by the mere broadcast of an application.

Application broadcasts also vary in the costs that they impose. These costs vary with size of the application, the speed at which it is broadcast and the time for which the application is available. One application broadcast is not directly comparable with another. This pricing methodology could also potentially be open to manipulation through the broadcasting of multiple applications as a group.

### *Conclusions on shared cost pricing structure*

Given the pricing structures considered, bundling the modem services shared costs with the STU shared costs, and allocating them on the basis of subscription revenue (actual or imputed by reference to ratings) is considered to be the most appropriate pricing structure to allocate the shared costs.

## 5.2. EPG SERVICES

The three relevant cost categories for the EPG are attributable costs, access seeker specific costs and shared costs. An appropriate allocation methodology is needed to determine the costs payable by access seekers that have access to the use of the EPG.

### 5.2.1. Attributable costs pricing structure

As for modem services, no attributable costs for the EPG have been identified. However, if attributable costs were to be incurred in providing the EPG, they should be recovered equally across access seekers. FOXTEL should ensure that the calculations of the attributable EPG costs are consistent with forward-looking TSLRIC principles.

### 5.2.2. Access seeker-specific costs pricing structure

The cost recovery principles are applied to EPG access seeker-specific costs as they were for modem services in that these costs will be recovered directly from the specific access seeker that has caused those costs to be incurred. As for modem services, FOXTEL should ensure that these EPG costs are consistent with forward-looking TSLRIC principles.

### 5.2.3. Shared cost pricing structures

The benefit gained from the EPG is not as observable as a stream of revenue from subscriptions or from modem services. The benefits to subscription TV providers that list on the EPG are more indirect and include:

- increased ratings (for example, because of the ease of channel selection); and
- customer retention and as a result sustained levels of subscription revenue.

The pricing structure considered for the allocation of EPG shared costs are methods based on:

- subscription revenue and ratings;
- total revenue and ratings; and
- a charge per channel.

This section concludes that a subscription revenue and ratings approach is also the best methodology for allocating the shared costs of EPG services, having considered the options below.

#### *Subscription revenue and ratings approach*

The shared costs of the EPG could also be bundled with the shared costs of the STU and modem service. These costs would then be divided amongst FOXTEL and access seekers by the revenue/ratings pricing structure outlined in the DAA.

The main function of the EPG is to inform subscribers of program schedules and enable easier selection of the desired channel.

There are potential arguments that channel position and categorisation can lead to diverse values in the use of the EPG. For example, a more prominent position for a channel may lead to increased channel selection and result in higher ratings. Other benefits may be increased customer retention as subscribers are more aware of what services are available.

Such arguments are best accounted for in a subscription revenue and ratings approach, since it is reasonable to believe that the benefit of the EPG will be reflected in retention of customers leading to subscription revenue. Ratings will also indirectly reflect the number of people viewing the channel on the EPG, since a proportion of them will select that channel from the EPG.

Bundling the shared costs of the EPG into the STU and modem shared costs pool would also prevent any further complexity in the access pricing regime. All services to be offered under the SAU would then be covered by one allocation of their collective shared costs, with no need to separately identify, measure and allocate EPG costs.

#### *Total revenue and ratings approach*

This is a variant of the subscription revenue and ratings approach. It takes into account all revenue earned by a carrier rather than just subscription revenue. This would include revenue from modem services and advertising. Potentially this would be a better representation of the total benefit of the EPG than just focusing on subscription revenues.

While this may be an option in the future, the administrative burden of monitoring all revenue streams of access seekers would make this methodology too complex to be an efficient allocation method. The costs of this monitoring would be borne by access seekers, leading to higher access prices.

#### *Charge per channel*

A per channel approach would divide the shared costs of the EPG equally among the channels that access the service.

Equal division of costs would imply that all channels benefit equally from the use of the EPG. However, this may not be the case given that:

- listings and isearch banners for access seekers' channels are only viewable by those who subscribe to those channels, whereas FOXTEL listings and isearch banners are viewable by all users; and
- access seekers' channels will generally have a higher channel number in any given genre, and will therefore occupy a less immediate position in the EPG listings.



*Conclusions on shared cost pricing structure*

Given the pricing structures considered, bundling the EPG services shared costs with the STU shared costs and the modem services shared costs, and allocating them on the basis of subscription revenue and ratings is the most appropriate cost allocation method for the EPG costs.

## 6. CONCLUDING REMARKS

The pricing methodology for the costs associated with modem services and the EPG considered to be the most appropriate in light of the cost categories and the need for consistency with economic principles of cost allocation is:

- attributable costs: allocated equally across access seekers as in the DAA;
- access seeker specific costs: allocated directly to a specific access seeker; and
- shared costs: allocated on subscription revenue and rating based methodology, as in the DAA.

This pricing methodology will allow a relatively simple access pricing regime for a bundled STU service – including modem services and EPG – at prices consistent with the economically appropriate recovery of cost. Prices for this bundled STU service will be set by a single access rate card, using one costing and pricing methodology.



HENRY ERGAS

5 October 2005

## APPENDIX A: MODEM SERVICES

This appendix outlines the factual background and the assumptions used in the analysis of the modem services. It also covers the various potential uses of and sources of revenue from the modem services.

### A.1 COMPONENTS OF THE MODEM SERVICE

The modem service allows FOXTEL's digital customers to interact with their television provider using their remote control. Interaction is enabled by a number of key components:

- interactive applications specific to the channel or program being viewed;
- the ability of the set-top unit to download interactive applications through the cable or satellite "forward path" from FOXTEL to the customer;
- a return path from the STU, which is connected to the PSTN through a modem; and
- POP on the PSTN network that receives the signal from the STU via the return path.

FOXTEL will be providing access to the modem and associated services in the STU that will enable delivery of interactive services.

The components of the modem service are discussed in more detail below. It is worth noting that the "true" interactivity provided by the modem service described here is different from applications which involve merely navigating downstream menu options without activating the return path to send information back to the service provider. For example, The Weather Channel's interactive service offers viewers a menu of additional information such as long-range weather forecasts, or weather in other locations. This application does not use the return path in order to interact with the subscriber and is already available to access seekers under the DAA.

#### A.1.1 Applications

Applications are computer programs that are downloaded from a data carousel via the forward path (either cable or satellite), stored in the STU's memory, and run on its processor. This process is completed each time the interactive service is launched. The applications are generally programmed to delete themselves once the customer has completed the application. An exception is FOXTEL's electronic program guide, which is stored in the STU's flash memory.

FOXTEL will make specifications available to enable users of the modem service to develop their own applications.

### A.1.2 The modem and return path

The modem installed in the STU is a standard PSTN modem. This modem is installed at the time of manufacturing (or in the case of rebirthed STUs, at the time of rebirth) and is present in the majority of FOXTEL digital STUs<sup>20</sup>. The costs of manufacturing this modem are not readily separable from the costs of the STU.

The return path for both cable and satellite STUs is a standard PSTN line. This PSTN line can be connected to the modem in the STU either through a wireless PSTN connection or by a physical PSTN line from the phone socket to the STU. The return path enables access from the modem onto the PSTN network, provided the customer has a active PSTN connection from which calls can be made. (FOXTEL does not provide PSTN access or calling services).

It is currently FOXTEL's policy to install a return path when its STU is installed, and in most cases this occurs. There are only a few exceptions (for example: if a customer does not have a fixed line; if the customer explicitly refuses to have a return path installed; or for second STUs). Even if a customer refuses to have a return path installed, the STU still has a functioning PSTN modem in most cases.

FOXTEL earns installation revenue for installing the STU service and the return path. The installation charge varies across customers depending on the channels purchased and the length of contract. This installation charge offsets the cost of installing both the STU and the return path, although not fully. Currently, in the cases where the return path is not installed, the customer does not receive a discount.

If a modem and return path fail to function properly once installed FOXTEL may incur additional costs of diagnosis, repair or replacement.

### A.1.3 Points of presence

The STU modem is instructed by the application to dial a phone number<sup>21</sup>, which connects to a POP<sup>22</sup> on the PSTN network. The POP receives data along the return path from the STU. FOXTEL leases a POP service from Telstra, which is sufficient to provide adequate coverage of all its digital customers.

Third parties/access seekers can provide their own POP network to receive the interactive signal, or can lease a POP as FOXTEL has. There are low barriers to accessing such a network.

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<sup>20</sup> Some older satellite digital STUs do not contain modems.

<sup>21</sup> Any phone number can be specified.

<sup>22</sup> Although 1900-billed services do not need to be routed through a POP unless authentication is required.

## A.2 USES OF THE MODEM SERVICE

Interactive functionality provides subscription TV suppliers with many avenues to derive benefits directly and indirectly from the modem service.

Direct benefits to the subscription TV provider potentially include:

- revenue from STU modems dialling 1900 numbers, eg voting or pay per play games;
- revenue from selling goods and services using the interactive service;
- interactive advertising revenue; and
- cost-effective, convenient ordering and billing for pay-per-view or on-demand programming.

Indirect benefits resulting from the use of interactive services to the subscription TV provider potentially include:

- increased ratings to channels with interactive services;
- increased customer acquisition as modem services provides another marketable feature to the subscription TV service;
- increased customer retention and loyalty to interactive channels; and
- useful feedback on channel content.

For example, in the UK, the interactive subscription TV service is used to sell goods over the TV. One of the most popular uses of the interactive services is to order pizzas, using the remote control, over the Sky Digital Subscription TV service. A screen from the Sky Digital interactive service for ordering pizza is shown here.



FOXTEL currently uses the interactive service as part of the billing system for FOXTEL Box Office. Subscribers can access movies on a pay-per-view basis for a certain time period for a fixed fee. The smartcard in the STU records how many of these movies are purchased during the month. Each month the STU dials FOXTEL on a local number to report the last month's usage.

### A.3 SUMMARY

An interactive service is made-up of a number of specific key components:

- interactive applications specific to the channel or program being viewed which are provided by the access seeker and are tested and signed by FOXTEL as required;
- STUs to download interactive applications through the cable or satellite “forward path” from FOXTEL to the customer (bandwidth, playout and triggering provided by the access seeker);
- a return path from the STU, which is connected to the PSTN through a modem; and
- a POP on the PSTN network that receives the signal from the STU via the return path.

Utilising these components, the channel provider can potentially benefit through its customers using the interactive service. These benefits include direct benefits, such as increases in revenue from goods or services sold over the interactive service, and indirect benefits, such as increases in ratings due to take-up of interactive services by customers.

## APPENDIX B: ELECTRONIC PROGRAM GUIDE

This appendix outlines the factual background and the assumptions used in the analysis of the EPG.

### B.1 COMPONENTS OF THE EPG

FOXTEL is proposing to provide access seekers with access to the EPG service in FOXTEL homes. The EPG complements the main function of the FOXTEL Magazine as a guide to the programs being broadcast on the subscription TV network.

The EPG service would be broadcast across the whole subscription TV platform (although it may not be available to commercial subscribers). However, an access seeker's listings would be visible only to its own subscribers, and not to subscribers of other services on FOXTEL's platform.

#### B.1.1 Program listing functions

FOXTEL would require the listings from access seekers to be in XML feed compliant with FOXTEL's XML schema and channel kit. Access seekers will have 3 options to achieve this:

- they can enter into their own arrangement with Horan, Wall and Walker (HWW), the company that provides FOXTEL with these services;
- they can use another third party in order to provide the services to the specification set by FOXTEL; or
- they can develop the listings themselves to the specification set by FOXTEL.

If access seekers use an alternative provider to HWW, FOXTEL may need to incur additional costs to modify its system in order to receive this alternative material whilst maintaining the integrity and security of its system. This may require adjustment to the traffic schedule aggregator and installation of additional firewalls. The costs associated with these adjustments may be attributable costs if a single adjustment can accommodate all access seekers. However, it is possible that many different modifications may be required for different access seekers, which would result in the costs being classified as access-seeker specific costs.

#### B.1.2 Errors and change orders

Listings are normally sent daily as an eight-day rolling schedule. Schedules are rejected by the traffic schedule aggregator if they fail to comply with standards e.g. if there are overlaps in schedule timing. These listing errors generate change orders, which outline the amendments required to the schedules in order for them to comply.

### B.1.3 Bandwidth to transmit isearch information

A component of the EPG service is the isearch banner. This allows subscribers to browse channel information about the channel being viewed, as well as other available channels. Programming information is displayed on the bottom of the screen.

This listing information is broadcast on each channel. This information consumes some of the available bandwidth in addition to that used to feed the EPG grid. Additional bandwidth on every transponder is required when additional transponders are added to the service.

## B.2 USES OF THE EPG

The EPG will be used as an information service about the channels and programs on the FOXTEL platform. The EPG's aim is to deliver information about the channel content available to subscribers. The EPG is launched by a button on the remote control. Channels can be viewed on the EPG by looking through a complete list of channels or by navigating the channels by genre. A subscriber can also use a number of other features on the EPG including:

- search current channels and other channels scheduling information whilst still viewing the channel using the isearch feature;
- setting reminders for themselves which appear on the screen when a selected program is about to commence;
- searching FOXTEL's movies by title in FOXTEL Box Office; and
- for PVR<sup>23</sup> (FOXTEL iQ) subscribers, recording a selected series of episodes using a function called series link.

An access seeker's channel would appear on the EPG listing organised by its genre. Its position in this listing would be determined by its channel number in this genre. In addition, each access seeker's channel has an accompanying presence in the isearch banner.

Customers will receive both listings and isearch information about all of FOXTEL's channels on the system, regardless of whether they subscribe to the channel or not. Listings and isearch information about access seekers' channels will only be viewable by those customers that subscribe to the access seeker's service.

Other features are also planned to be introduced on the EPG in the future including:

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23 Personal video recorder.



- a “favourites” function allowing a customisation of the service so subscribers can easily jump between their favourite channels. This will reduce the importance of where a channel appears in the listings; and
- A-Z program search function across channels and programs.

### **B.3 SUMMARY**

The EPG provides a valuable listing service for use by subscribers. The additional feature of the EPG increases the ease of use of the subscription TV service.

## APPENDIX C: 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  
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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](http://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.

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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.